



EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIGUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

February 16, 2017

VIA DROP BOX

Heather Halsey
Executive Director
Commission on State Mandates
980 Ninth Street, Suite 300
Sacramento, CA 95814



San Diego Region Order No. R9-2015-0100 and Order No. R9-2015-0001, 15-TC-02, California Regional Water Quality Control Board, San Diego Region, Order No. R9-2015-0100, an Order Amending Order No. R9-2013-0001, NPDES No. CAS0109266, as Amended by Order No. R9-2015-0001, Adopted on November 18, 2015; County of Orange, Orange County Flood Control District, and the Cities of Aliso Viejo, Dana Point, Laguna Beach, Laguna Hills, Laguna Niguel, Lake Forest, Mission Viejo, Rancho Santa Margarita, San Clemente, and San Juan Capistrano, Claimants

COMMENTS OF STATE WATER RESOURCES CONTROL BOARD AND CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN DIEGO REGION, ON TEST CLAIM 15-TC-02

Dear Ms. Halsey:

The State Water Resources Control Board (State Water Board) and the San Diego Regional Water Quality Control Board (San Diego Water Board) (collectively "Water Boards") jointly file this opposition to Test Claim 15-TC-02. This Test Claim arises from a federal permit that was issued by the San Diego Water Board as Order No. R9-2015-0001, amending Order No. R9-2013-0001 and subsequently amended by Order No. R9-2015-0100 (*Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of Orange, the Incorporated Cities of Orange County and the Orange County Flood Control District Within the San Diego Region (National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0108740)* (hereafter Regional Permit or Permit). The Test Claim filed with the Commission on State Mandates (Commission) seeks reimbursement of estimated and other unspecified costs of implementing or complying with multiple requirements in the Permit during the remaining years of the Permit's five year term.¹

¹ The Regional MS4 Permit was first adopted in May 2013. Upon initial adoption, it was issued only to San Diego County Copermittees and had a five year term, expiring in 2018. Orange County Copermittees become subject to the Permit through amendments in Order No. R9-2015-0001 in February 2015 and Riverside County Copermittees
(footnote continued on next page)

FELICIA MARCUS, CHAIR | THOMAS HOWARD, EXECUTIVE DIRECTOR

I. INTRODUCTION

The San Diego Water Board issued this NPDES Permit pursuant to requirements in the federal Clean Water Act (CWA),² its implementing regulations, and guidance from the United States Environmental Protection Agency (U.S. EPA). The State Water Board and San Diego Water Board have been authorized by the U.S. EPA to issue NPDES permits—which are mandated by the CWA—in lieu of issuance of these permits by U.S. EPA. The Regional MS4 Permit regulates the discharge of storm water runoff from the municipal separate storm sewer systems (MS4s) within the San Diego Region. Claimants are incorporated cities within southern Orange County, County of Orange and Orange County Flood Control District within southern Orange County (Copermittees) within the San Diego Region. Pursuant to the independent federal laws in the Clean Water Act, this Permit also requires prohibitions on the discharge of non-storm water *into* the Claimants' MS4s³ and includes numeric effluent limitations to ensure that applicable wasteload allocations (WLAs) established in federally approved Total Maximum Daily Loads (TMDLs) are achieved over time.⁴

The federal Clean Water Act prohibits discharges of pollutants to waters of the United States except in compliance with a NPDES permit. In the Clean Water Act, Congress mandated that local agencies must apply for and receive permits regulating discharges of pollutants from their MS4s to waters of the United States. Congress also mandated that local agencies prohibit discharges of most non-storm water discharges into their MS4s. Local agencies are generally issued a single system-wide MS4 permit for each inter-connected municipal storm sewer system.⁵ Order No. R9-2013-0001, issued by the San Diego Water Board in May 2013 to San Diego County Copermittees, was amended in February 2015 to provide permit coverage to the Claimants. Subsequent amendments by the end of 2015 included an alternative compliance option requested by Claimants (Prov. B.3.c.) and extended coverage to the Riverside County Copermittees, resulting in a San Diego Region-wide MS4 permit. As required by federal statute and regulations, the Regional MS4 Permit contains numerous requirements for the Copermittees to take actions, known as Best Management Practices (BMPs), to reduce the flow of pollutants into waters in the San Diego Region in order to improve water quality. When it considered the Permit, the San Diego Water Board found that its provisions and requirements were necessary to meet the maximum extent practicable standard (MEP) and are based exclusively on federal law.

In order to obtain reimbursement, the Claimants must show as a threshold matter that the state has imposed new programs or higher levels of service on them.⁶ They must prove either that (1) the program must carry out a governmental function of providing services to the public, or (2)

(footnote continued from previous page)

became subject to it through amendments in Order No. R9-2015-0100 in November 2015. The expiration date of the Regional MS4 Permit remains in 2018.

² Federal Water Pollution Control Act (FWPCA; 33 U.S.C.A. §§ 1251 et seq.) The federal Act is referred to herein by its popular name, the Clean Water Act (CWA) and the code sections used are those for the CWA.

³ CWA § 402(p)(3)(B)(ii).

⁴ CWA § 303(d).

⁵ CWA § 402(p)(3)(B)(i).

⁶ Cal. Const., Art. XIII B, § 6, subd. (a).

the requirements, to implement a state policy, impose unique requirements on local governments and do not apply generally to all residents and entities in the state.⁷ The Claimants are not entitled to subvention if they proposed the permit provisions, if the costs are imposed as a result of federal mandates rather than state mandates, or if any additional costs beyond a federal mandate are *de minimis*. Finally, Claimants must establish that they are required to use tax monies to pay for permit implementation of permit provisions.⁸ As explained in detail below, the Claimants are not entitled to subvention of costs for the provisions challenged through their Test Claim.⁹ They have not shown that the challenged provisions constitute new programs or higher levels of service or are unique to local agencies and one or more exceptions under mandates law applies to each challenged provision, precluding a finding that subvention of funds is required.

Since the Test Claim was filed in mid-2016, the California Supreme Court decided *Department of Finance v. Comm'n on State Mandates* (2016) 1 Cal.5th 749, *as modified on denial of rehearing* (Nov. 16, 2016) (*Department of Finance*). The Supreme Court's opinion was limited to a narrow issue: whether three conditions concerning trash receptacles and inspections in the 2001 Los Angeles Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) permit (LA MS4 Permit) required controls that would reduce the discharge of pollutants to the MEP, as required by the Clean Water Act.¹⁰

By contrast, the Regional Permit reflects the San Diego Water Board's findings that each of the challenged permit terms was *necessary* to comply with the federal requirement that MS4 permits impose controls that reduce the discharge of pollutants to the MEP,¹¹ and were based entirely on federal authority. The Supreme Court noted the absence of these findings in the LA Permit and further opined that such findings would be entitled to deference.¹² In addition, the Supreme Court's primary focus was the construction of MEP. This test claim raises the following legal questions or factually distinct circumstances that the Supreme Court did not address:

1. The San Diego Water Board found the permit requirements at issue in this test claim were federal mandates. "Had the Regional Board found when imposing the disputed permit conditions, that those conditions were the only means by which the maximum extent practicable standard could be implemented, deference to the board's expertise in reaching that finding

⁷ Cal. Const., Art. XIII B, § 6, subd. (a).

⁸ See Cal. Gov. Code § 17556.

⁹ In their Narrative Statement (e.g., p. 5-10, footnote 42), Claimants incorporate by reference all prior test claims filed by southern Orange County Test Claimants concerning requirements in "prior MS4 permits." The Water Boards object to such incorporation of unspecified prior permits and test claims with unspecified activities and associated costs/estimated costs. The lack of specificity is inconsistent with Commission requirements for matters to be included in a test claim, such as "the specific sections of . . . an executive order alleged to contain a mandate;" and "[a] detailed description of the new activities and costs that arise from the mandate," and [a] detailed description of existing activities and costs that are modified by the mandate." (See Gov. Code § 17553 and Commission on State Mandates Test Claim and Test Claim Amendment Form.)

¹⁰ *Id.* at p. 757, citing 33 U.S.C. § 1342(p)(3)(B).

¹¹ Regional MS4 Permit, Attachment F, Fact Sheet, p. F-35.

¹² *Dep't. of Finance, v. Comm'n on State Mandates*, *supra*, 1 Cal.5th at p. 768.

would be appropriate.”¹³ Such findings are “case specific, based among other things on factual circumstances.”¹⁴

2. The LA permittees and Los Angeles Water Board agreed that each of the three challenged requirements were a new program or higher level of service¹⁵ and none were contained in previous permits.¹⁶
3. There was no evaluation of whether the contested provisions were required under a TMDL or other independent federal mandate such as the mandate to effectively prohibit non-storm water discharges into their MS4s.
4. None of the three requirements evaluated by the Supreme Court were terms U.S. EPA included in any EPA-issued MS4 NPDES permits.¹⁷
5. The Supreme Court did not evaluate whether the local government had the authority to levy fees or assessments pursuant to Government Code section 17556, subdivision (d). (*Id.* at p. 761 [acknowledging that the Commission found that the local governments were not entitled to reimbursement because they had authority to levy fees to pay for the required inspections, an issue the Supreme Court did not review].)
6. The Supreme Court did not consider the exception to unfunded state mandates for generally applicable requirements. The Permit’s discharge requirements are generally applicable and do not impose “unique” obligations on municipal entities.¹⁸

As discussed below, the Supreme Court’s November 16, 2016, modifications to its opinion underscore that the determination of whether a particular requirement exceeds the federal standards is a case-specific, factual determination.

II. BACKGROUND

The Water Boards contend that the challenged provisions impose neither new programs nor higher levels of service on local governments. Should the Commission disagree, the Water Boards urge the Commission to find that one or more of the legislative or judicially recognized unfunded state mandates exceptions apply to preclude any findings of subvention. The Water Boards discuss all of the provisions and applicable exceptions below. In light of the San Diego Water Board’s findings that the provisions are necessary to meet the MEP standard and are based entirely on federal authority, the principal question at issue will be to evaluate, with appropriate deference, whether the challenged provisions are federal mandates, as the San Diego Water Board determined when it adopted the Regional MS4 Permit. The Water Boards elaborate on these issues below in both in general and provision-specific discussion, but here

¹³ *Ibid.*

¹⁴ *Ibid.*, fn. 15.

¹⁵ *Id.*, at p. 762.

¹⁶ *Id.* at pp. 760-61.

¹⁷ *Id.* at pp. 761 and 771-72.

¹⁸ The Water Boards also note that in several instances Claimants appear to rely upon the Commission’s prior findings in *Statement of Decision in Case No. 07-TC-09, Discharge of Stormwater Runoff – Order No. R9-2007-0001* (March 30, 2010) as support for the arguments therein. In considering the challenged Regional Permit provisions, the Water Boards urge the Commission to recognize factual distinctions between the two permits and the fact that challenges to the Commission’s findings on multiple mandates law matters in the 2010 Statement of Decision have not yet been resolved by the courts. Specifically, the courts have not yet determined how, if at all, the *Department of Finance* decision affects that matter.

provide some additional legal context for the Water Boards' decisions and issuance of MS4 permits under federal law.

A. Regulatory Overview of the Clean Water Act Municipal Storm Water Program

In 1972, the federal Clean Water Act was extensively amended to implement a permitting system for all discharges of pollutants from "point sources" to waters of the United States.¹⁹ The permits are issued pursuant to the National Pollutant Discharge Elimination System, and are known as "NPDES permits." The 1972 amendments allowed U.S. EPA to authorize states to issue these permits.²⁰ California was the first state in the nation to obtain such authorization. In order to obtain this authorization, the California Legislature amended the Water Code, finding that the state should implement the federal law in order to avoid direct regulation by the federal government.²¹ The California legislature mandated that California's permit program must ensure consistency with federal law.²²

The Water Boards are the state agencies charged with implementing the federal program.²³ The State Water Board's regulations incorporate the U.S. EPA regulations implementing the federal permit program.²⁴ Therefore, both the CWA and U.S. EPA regulations are applicable to the permit program in California.²⁵ In California, permits to allow discharges into state waters are termed "waste discharge requirements."²⁶ When issuing permits for discharges to waters of the United States, the term "waste discharge requirements" is equivalent to the term "permit" in the CWA.²⁷ Thus, waste discharge requirements that the Water Boards issue for discharges to waters of the United States are NPDES permits under federal law. When the San Diego Water Board, a state agency, adopts an NPDES permit in lieu of U.S. EPA, it must adopt as stringent a permit as the federal agency would have.²⁸

The Clean Water Act prohibits the discharge of pollutants from point sources to waters of the United States, except in compliance with an NPDES permit.²⁹ In 1973, U.S. EPA issued regulations that exempted certain types of discharges it determined were administratively infeasible to regulate, including storm water runoff. The reason that such regulation is difficult, as will be more fully explained below, is that storm water runoff generally is not subjected to any treatment. Instead, it simply runs off urban streets, into gutters and drainage ways, and flows

¹⁹ CWA §§ 301 and 402.

²⁰ CWA § 402(b).

²¹ Wat. Code, § 13370 *et seq.*, adding Chapter 5.5 to the Porter-Cologne Water Quality Control Act.

²² Wat. Code, § 13372.

²³ Wat. Code, § 13370.

²⁴ Cal. Code Regs., tit. 23, § 2235.2.

²⁵ The permits *may* also include additional state requirements. (Cal. Code Regs., tit. 23, § 2235.3; *City of Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613.)

²⁶ Wat. Code, § 13263.

²⁷ Wat. Code, § 13374.

²⁸ CWA § 402(b).

²⁹ CWA § 301(a). In general, "navigable waters" or "waters of the United States," includes all surface waters, such as rivers, lakes, bays and the ocean. (CWA § 502.)

directly into streams, lakes, and the ocean.³⁰ This exemption was overruled in *Natural Resources Defense Council v. Costle* (1977) 568 F.2d 1369, which held that the exemption was illegal, and ordered U.S. EPA to require NPDES permits for storm water runoff. In *Costle*, the court suggested innovative methods for permitting, including using general permits for numerous sources and issuing permits that “proscribe industry practices that aggravate the problem of point source Pollution.”³¹ Where permits proscribe actions that dischargers must implement, these requirements are commonly called “best management practices” (BMPs). Despite the *Costle* decision, U.S. EPA had not adopted regulations implementing a permitting program for storm water runoff by 1987. That year, Congress amended the CWA, specifically requiring storm water permits for industrial and municipal storm water runoff.³² The amendments require NPDES permits for “[a] discharge from a municipal separate storm sewer system [MS4] serving a population of 250,000 or more.”³³

The Clean Water Act contains three provisions specific to permits for MS4s: (1) permits may be issued on a system- or jurisdiction-wide basis; (2) permits must include a requirement to effectively prohibit non-storm water discharges into storm sewers; and (3) permits must require controls to reduce the discharge of pollutants to the maximum extent practicable (MEP).³⁴ In describing the controls that permits must include, the statute states that the controls shall include: “management practices, control techniques and system, design and engineering methods, and such other provisions as the [permit writer] determines appropriate for the control of such pollutants.”³⁵ Thus, the federal law mandates that permits issued to MS4s must require management practices³⁶ that will result in reducing pollutants to the MEP. The state is required, by federal law, to select the BMPs.³⁷

On November 16, 1990, U.S. EPA published regulations addressing stormwater discharges from MS4s.³⁸ The regulations establish minimum requirements for MS4 permits and generally focus on the requirement that MS4s implement programs to reduce the amount of pollutants found in stormwater discharges to the MEP. However, the regulations also require the MS4’s program to include an element to detect and remove illicit discharges and improper disposal into the storm sewer.³⁹ “Illicit discharges” defined in the regulations is the most closely applicable definition of “non-storm water” contained in federal law, and the terms are often used interchangeably. The State Water Board has concluded that “U.S. EPA added the illicit

³⁰ The chief traditional categories of discharges subject to NPDES permits are industrial process wastewater and sanitary sewer effluent. Both of these discharges are typically processed in a treatment plant before they are discharges to surface waters.

³¹ *Costle, supra*, at 1380.

³² CWA § 402(p).

³³ CWA § 402(p)(2)(C). U.S. EPA defines municipal separate storm sewer systems (MS4s) that serve a population over 250,000 as “large” MS4s.

³⁴ CWA § 402(p)(3)(B).

³⁵ *Id.*

³⁶ These are commonly referred to as “best management practices,” or “BMPs.”

³⁷ *NRDC v. USEPA* (9th Cir. 1992) 966 F.2d 1292.

³⁸ Vol. 55 Federal Register (Fed. Reg.) 47990 *et seq.* (Nov. 16, 1990).

³⁹ 40 C.F.R. § 122.26, subd. (d)(2)(iv)(B).

discharge program requirement with the stated intent of implementing the Clean Water Act's provision requiring permits to 'effectively prohibit non-storm water discharges.'⁴⁰ The importance of this history is to emphasize that the starting point for the discussion of MS4 permits is that *all discharges of any substance other than stormwater are prohibited - completely.*

B. Overview of Legal Standards for MS4 Permits

The Clean Water Act does not provide a specific set of permit terms that the permitting agency must include in each MS4 permit. Rather, the NPDES regulations require a permitting agency to determine what controls will meet MEP in a particular MS4 permit. The applicable legal standards that permitting authorities must meet when issuing MS4 permits are set forth in Clean Water Act section 402(p)(3)(B)(ii) and (iii) and require that MS4 permits:

(ii) shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers, and

(iii) shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.

Federal and state permit writers must comply with these legal standards.⁴¹

To obtain coverage under an NPDES permit, federal regulations specify the information that applicants for MS4 permits must include in their applications. For the large and medium MS4s, the application requirements are extensive. Applications:

shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate. The program shall also include a description of staff and equipment available to implement the program. Separate proposed programs may be submitted by each coapplicant. Proposed programs may impose controls on a systemwide basis, a watershed basis, a jurisdiction basis, or on individual outfalls. Proposed programs will be considered by the Director when developing permit conditions to reduce pollutants in discharges to the maximum extent practicable.⁴²

The federal regulations also require, among other elements, that a proposed management program must address oversight of discharges into the system from the general population, and from industrial and construction activities within its jurisdiction and shall include "[a] description

⁴⁰ State Board Order WQ 2009-0008 (County of Los Angeles), p. 4 (withdrawn on other grounds).

⁴¹ CWA § 402(b).

⁴² 40 C.F.R. § 122.26(d)(2)(iv).

of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls.”⁴³

1. The Federal MEP Standard

The maximum extent practicable or “MEP” standard is akin to a technology-based standard and was first established in the Clean Water Act in 1987. The fundamental requirement that municipalities reduce pollutants in MS4s to the MEP remains a cornerstone of the mandate imposed on municipalities by the federal Clean Water Act and implementing NPDES regulations. Meeting the MEP standard is generally a result of emphasizing pollution prevention and structural and treatment methods serving as additional lines of defense. The MEP approach is an ever evolving, flexible and advancing concept, which considers technical and economic feasibility. As knowledge about controlling urban runoff continues to evolve, so too do the actions that must be taken to comply with the standard. This is consistent with the U.S. EPA’s guidance that successive permits for the same MS4 must become more refined and detailed. The MEP standard, which the San Diego Water Board found the permit provisions necessary to meet in this case, is discussed in more detail below as relevant to challenged permit provisions.

2. The Federal Prohibition on Non-Storm Water Discharges

Wholly independent from the MEP standard is the Clean Water Act requirement that MS4 permittees effectively prohibit non-storm water discharges to their MS4s. Under Clean Water Act section 402(p)(3)(B)(ii), permitting agencies must ensure that permits for MS4 discharges include requirements necessary to “effectively prohibit non-stormwater discharges into the storm sewers.” U.S. EPA has defined “storm water” to mean “stormwater runoff, snow melt runoff and surface runoff and drainage.” While “non-storm water” is not defined in the CWA or federal regulations, the federal regulations define “illicit discharge” as “any discharge to a municipal separate storm sewer that is not composed entirely of storm water and that is not covered by an NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer and discharges resulting from firefighting activities).”⁴⁴ This definition is the most closely applicable definition of “non-storm water” contained in federal law. Non-storm water discharges are generally considered dry weather discharges.⁴⁵ In general, the requirement to “effectively prohibit” non-storm water discharges requires either prohibiting the flows to the MS4’s system through a program to detect and remove illicit discharges or ensuring that operators of such non-storm water systems obtain NPDES permits for those discharges. MS4 operators meet this requirement by implementing a program to detect and remove illicit discharges, or by requiring a

⁴³ *Id.*, § 122.26(d)(2)(iv)(A).

⁴⁴ 40 C.F.R. § 122.26(b)(2).

⁴⁵ See also, State Water Board Order No. 2015-0175 (2012 Los Angeles MS4 Permit), pp.62-63, confirming that non-storm water discharges to the MS4s under the Clean Water Act are not subject to the MEP standard applicable to storm water discharges.

discharger to obtain a separate NPDES permit for the non-storm water discharge into the storm sewer.⁴⁶

3. The Federal TMDL Requirements

The Clean Water Act requires states to adopt TMDLs for surface waters in which federal water quality standards are not being attained. A TMDL, which must be approved by U.S. EPA, establishes the amount of certain pollutants a water body may receive and still achieve federal water quality standards.⁴⁷ For point source dischargers, including MS4 dischargers, the TMDL will determine wasteload allocations (WLAs) to limit pollutant discharges to the impaired receiving water. Federal law specifically requires the permit writers such as the San Diego Water Board to incorporate in NPDES permits of all types, including MS4 permits or other non-municipal NPDES permits, effluent limitations that are “consistent with the assumptions and requirements of any available wasteload allocations.”⁴⁸

C. Overview of South Orange County MS4 Permit Development

In 1990, pursuant to the CWA amendments of 1987, the San Diego Water Board issued the first municipal storm water permit to the County of Orange and other copermittees. In August 1996, and again in 2002 and 2009, the San Diego Water Board renewed the permit. The Permit that is the subject of this test claim is the fifth such permit. In part because of persistent exceedances of federal water quality objectives in most watersheds, the 2009 Permit increased the emphasis on storm water discharge management on a watershed basis, consistent with the Copermittees 2006 Report of Waste Discharge.⁴⁹ At that time, the San Diego Water Board noted that “[a]ddressing storm water on a watershed scale focuses on water quality results by emphasizing receiving waters within the watershed.”⁵⁰ As a general matter, the Regional Permit carries over and builds on the prior permit programs and implements independent federal requirements, all with a focus on water quality outcomes.

III. OVERVIEW OF MANDATES LAW

Article XIII B, Section 6, of the California Constitution requires subvention of funds to reimburse local governments for state-mandated programs in specified situations. There are several exceptions and limitations to the subvention requirements that provide bases for the Commission to determine that the Test Claim is not subject to subvention. Article XIII B, Section 6 provides, “Whenever the Legislature or any state agency mandates a new program or higher level of service on any local government, the State shall provide a subvention of funds to reimburse that local government for the costs of the program or increased level of service.” Implementing statutes clarify that no subvention of funds is required if: (1) the mandate imposes a requirement that is mandated by a federal law or regulation and results in costs

⁴⁶ 40 CFR § 122.26(d)(2)(iv)(B). See also 55 Fed. Reg. 47990, 47995 [“Ultimately, such non-storm water discharges through a municipal separate storm sewer must either be removed from the system or become subject to an NPDES permit”].

⁴⁷ See CWA, § 303(d) and 307.

⁴⁸ 40 CFR § 122.44(d)(1)(vii)(B).

⁴⁹ 2009 Permit Fact Sheet, Background, p.10.

⁵⁰ *Ibid.*

mandated by the federal government, unless the statute or executive order mandates costs that exceed the mandate in that federal law or regulation (Govt. Code, § 17556, subd. (c)); or (2) the local agency proposed the mandate (*id.*, subd. (a)); or (3) the local agency has the authority to levy service charges, fees, or assessments sufficient to pay (*id.*, subd. (d)).

Numerous judicial decisions have further defined limitations on the requirements for subvention of funds. Specifically, subvention is only required if expenditure of tax monies is required, and not if the costs can be reallocated or paid for with fees.⁵¹ In addition, reimbursement to local agencies is required only for the costs involved in carrying out functions peculiar to government, not for expenses incurred by local agencies as an incidental impact of laws that apply generally to all state residents and entities. Laws of general application are not entitled to subvention.⁵² The fact that a requirement may single out local governments is not dispositive; where local agencies are required to perform the same functions as private industry, no subvention is required.⁵³

IV. THE CHALLENGED PERMIT PROVISIONS DO NOT IMPOSE NEW PROGRAMS OR REQUIRE HIGHER LEVELS OF SERVICE AND APPLICABLE MANDATES EXCEPTIONS PRECLUDE SUBVENTION—GENERAL RESPONSES

Claimants contend that the Regional Permit imposes numerous new programs or requires higher levels of service than previously required and that all of the activities for which they seek reimbursement exceed federal law. They also assert that the provisions are uniquely imposed on local government and they are unable to assess a fee to recover the costs of the mandated activities. As a threshold matter, the Test Claim provisions do not impose new programs or higher levels of service within the context of mandates law.⁵⁴ The following general discussion of applicable mandates law supports denial of each of Claimants' challenges. Where appropriate, the Water Boards provide additional support for the conclusion that exceptions apply to specific challenged provisions, in Section V, below.

Even if the Commission finds that some of the challenged provisions do impose a new program or higher level of service, as explained below, the challenged provisions are nonreimbursable because of applicable mandates exceptions. The Claimants, as well as other Copermitees, proposed many of the challenged permit requirements in their permit application, or report of waste discharge (ROWD) or in the permitting process for their requested permit. The San Diego Water Board found that all of the challenged provisions were adopted entirely under federal law and are necessary to implement the MEP standard and other independent federal law requirements. Therefore none of the costs are for activities exceeding federal requirements. Claimants are not *required* to use taxes to pay for the costs for the programs. They can be paid

⁵¹ *County of Los Angeles v. Commission on State Mandates* (2003) 110 Cal.App.4th 1176; *Redevelopment Agency v. Commission on State Mandates* (1997) 55 Cal.App.4th 976.

⁵² *County of Los Angeles v. State of California* (1987) 43 Cal.3d 46.

⁵³ *City of Richmond v. Commission on State Mandates* (1998) 64 Cal.App.4th 1190.

⁵⁴ What constitutes a new program or higher level of service in the context of municipal storm water permits remains unresolved. The issue was raised in the Water Boards' and Department of Finance's Petition for Writ of Mandate regarding the Statement of Decision in 07-TC-09 (San Diego Water Board Order No. R9-2007-0001), referenced above.

for by levying fees especially enacted for storm water programs.⁵⁵ The local agencies have not established that tax monies are required.⁵⁶

Additionally, compliance with NPDES permits, and specifically with storm water permits, is required of private industry as well as state and federal government agencies. Local government is not singled out. And, in fact, the requirements for industrial entities are more stringent than for local government dischargers because industrial entities are required to strictly comply with water quality standards. Similarly, private industry and governmental agencies, like municipalities, are required to control non-storm water discharges from their facilities and, where they have been identified as contributing to a surface water impairment, are assigned a wasteload allocation in federally required TMDLs. Finally, if the Commission determines that a portion of the MS4 operators' activities exceed federal law requirements and would otherwise qualify for subvention, the costs are *de minimis* and therefore not reimbursable.

A. The Contested Provisions Do Not Impose New Programs or Higher Levels of Service

Not a New Program

Under mandates law, a program is defined as “a program which carries out the ‘governmental function of providing services to the public, or laws which, to implement a state policy, impose unique requirements on local governments and do not apply generally to all residents and entities in the state.’” (*County of Los Angeles v. Comm’n on State Mandates* (2003) 110 Cal.App.4th 1176, 1189 [citing *County of Los Angeles v. State of California* (1987) 43 Cal. 3d 46, 56].) A program is “new” if the local government had not previously been required to institute it. (*Ibid.*) Here, even if each of the challenged provisions could be considered a “program,” none meets the definition of “new.” Claimants had been permitted under the NPDES program implementing storm water programs for more than two decades at the time the Regional MS4 Permit was adopted. Prior permits, like the Regional Permit, included management plan requirements, monitoring programs, annual reporting requirements, land development requirements, enforcement obligations, and the requirement to comply with receiving water limitations and prohibitions through an iterative process.⁵⁷

⁵⁵ The Claimants generally state that they are unaware of authority to raise fees or impose surcharges to fund the modifications to their Permit. The claimants refer to limitations on assessing fees and surcharges under California law. The referenced law concerns only the percent of voters who must approve the assessment. The Cities of Palo Alto, San Clemente, San Jose, Alameda and Santa Cruz have storm water fee funded programs. Thus, the municipalities have not shown they are *required* to rely on using tax money to fund challenged activities.

⁵⁶ As mentioned in the Introduction, what constitutes fee authority in the context of municipal storm water permits, particularly with consideration of Proposition 218, remains unresolved. In their petition for writ of mandate in *State of California, Department of Finance, et al., v. Commission on State Mandates*, Sacramento County Superior Court, Case No. 34-2010-8000604, the Water Boards and Department of Finance challenged the Commission's conclusion in the underlying Statement of Decision in 07-TC-09 that the requirement for voter approval as prerequisite to raising fees precluded finding that a local agency has fee authority to pay for some permit-related activities. Likewise, Claimants in a cross-petition for writ in the same matter challenged the sufficiency of the evidence supporting the Commission's underlying determination that local agencies have authority to fund hydromodification and low impact development programs through their land development programs. These issues remain unresolved. The Court of appeal has requested parties provide letter briefs explaining how, if at all, *Department of Finance* affects the matter.

⁵⁷ See, San Diego Water Board Order Nos. R9-2002-0001 and R9-2009-0002, both issued to Orange County Copermitttees in the San Diego Region.

No Higher Levels of Service

The changes to the requirements of prior permits (e.g., increased detail or specificity) are also not a higher level of service, both because equivalent changes are applicable to non-municipal permittees, discussed in Section V, below, and because they are merely refinements of existing requirements.⁵⁸ A higher level of service is not simply any increase in costs. “If the Legislature had intended to continue to equate ‘increased level of service’ with ‘additional costs,’ then the provision would be circular: ‘costs mandate by the state’ are defined as ‘increased costs’ due to an increased level of service, which, in turn would be defined as ‘additional costs.’”⁵⁹ Costs for purposes of Section 6 do “not equal every increase in a locality’s budget resulting from compliance with a new state directive.”⁶⁰

Nor does every increase in specificity about where to direct costs amount to a higher level of service.⁶¹ That the level of specificity in a permit reconsidered and reissued every five years may have changed over time is consistent with U.S. EPA’s guidance that MS4 permitting follow an iterative process whereby each successive permit becomes more refined, detailed, and expanded as needed, based on experience under the previous permit. (See, 55 Fed. Reg. 47990, 48052 (“EPA anticipates that storm water management programs will evolve and mature over time.”); 64 Fed. Reg. 68722, 68754; Dec. 8, 1999) (“EPA envisions application of the MEP standard as an iterative process.”) and Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits (Sept. 1, 1996) (“The interim permitting approach uses BMPs in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards.”))⁶²

Rather, the costs incurred must involve programs previously funded exclusively by the state. (See *City of San Jose v. State of California* (1996) 45 Cal. App.4th 1802, 1812 [citing *Lucia Mar Unified School Dist. v. Honig* (1988) 44 Cal.3d 830, 836]; see also *County of Sonoma v. Comm’n on State Mandates* (2000) 84 Cal. App.4th 1264, 1288 [state law requiring reallocation of school funds from one local government entity to another, where local government generally had always had a substantial role in funding schools, did not impose a higher level of service].) The “state must be attempting to divest itself of its responsibility to provide fiscal support for a program, or forcing a new program on a locality for which it is ill equipped to allocate funding.” (See *County of Los Angeles v. Comm’n on State Mandates*, *supra*, 110 Cal.App.4th at p. 1194; accord *Dept. of Finance v. Comm’n on State Mandates*, *supra*, 1 Cal.5th at p. 771 [agreeing that state had shifted responsibility for some industrial inspections to local government agency].)

⁵⁸ See *County of Los Angeles v. Comm’n on State Mandates*, *supra*, 110 Cal.App. 4th at pp. 1189-1190.

⁵⁹ *Id.*, at p. 1191.

⁶⁰ *Id.*, at p. 1194; accord *San Diego Unified School Dist. v. Comm’n on State Mandates* (2004) 94 Cal.4th 859, 876-877.

⁶¹ See *Id.*, at p. 1194 [requiring local law enforcement agencies devote some of their training budgets to domestic violence training was not a higher level of service].

⁶² See Letter from U.S. EPA, Alexis Strauss, to State Water Board, April 10, 2008, concerning Los Angeles County Copermittee Test Claims Nos. 03-TC-04, 03-TC-19, 03-TC-20, and 03-TC-21.

With one exception (see Section V.C., below), Claimants do not contend that the state has shifted any costs to local government or that they have been saddled with entirely new obligations to control pollution in stormwater. Without any burden shifting from the state to municipalities, mere direction from the San Diego Water Board that the municipalities reallocate some of their resources in a particular way does not amount to a higher level of service. (See *County of Los Angeles v. Comm'n on State Mandates*, *supra*, 110 Cal.App.4th at p. 1194.) “Loss of flexibility does not, in and of itself, require the [local agencies] to expend funds that previously had been expended by the State.” (*Ibid.*; accord *Dept. of Finance v. Comm'n on State Mandates* (2003) 30 Cal.App.4th 727, 748 [requirement that school districts allocate some of their grant funds in a particular way did not transform those costs into a reimbursable state mandate].)

In this case, any costs arising from the Regional Permit’s requirements do not result from a “new” program. Nor do they result from a “higher level of service,” because the state has not shifted its own responsibilities to local agencies and the permittees are not “ill-equipped” to allocate funding to storm water control.

B. Mandates Exceptions Preclude Finding Subvention is Required

1. Under *Department of Finance*, the San Diego Water Board’s federal law findings are entitled to deference.

Federal law specifically requires that permits be issued to the local governments that operate MS4s and that permits must require programs and actions that will result in reducing the pollutants that discharge from the MS4 to waters of the United States to the maximum extent practicable. If the Water Boards had not been authorized to issue the permit in lieu of U.S. EPA, the MS4 discharges would be prohibited unless U.S. EPA itself issued a similar permit directly to the local governments. Therefore, in issuing the permit provisions necessary to comply with federal law, the San Diego Water Board exercised its duty under federal law. As the Ninth Circuit Court of Appeals held in *Natural Resources Defense Council v. U.S. EPA* (9th Cir. 1992) 996 F.2d 1292, “Congress did not mandate a minimum standards approach.”⁶³ Rather, Congress mandated that the permitting entity, here the San Diego Water Board, determine appropriate provisions designed to control pollutants.⁶⁴

The Court of Appeal in *Rancho Cucamonga v. Regional Water Quality Control Bd., Santa Ana Region*, succinctly addressed the federal mandate on the regional water boards to prescribe requirements that meet the federal MEP standard:⁶⁵

In creating a permit system for dischargers from municipal storm sewers, Congress intended to implement actual programs. (*Natural Resources Defense Council, Inc. v. Costle* (D.C.Cir.1977) 568 F.2d 1369, 1375.) The Clean Water

⁶³ *NRDC v. U.S. EPA*, *supra*, at 1308.

⁶⁴ *Id.*

⁶⁵ *City of Rancho Cucamonga v. Regional Water Quality Control Bd., Santa Ana Region* (2002) 135 Cal.App.4th 1377.

Act authorizes the imposition of permit conditions, including: “management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.” (33 U.S.C. § 1342, subd. (p)(3)(B)(iii).) The Act authorizes states to issue permits with conditions necessary to carry out its provisions. (33 U.S.C. § 1342, subd. (a)(1).) The permitting agency has discretion to decide what practices, techniques, methods and other provisions are appropriate and necessary to control the discharge of pollutants. (*NRDC v. EPA* (9th Cir.1992) 966 F.2d 1292, 1308.) That is what the Regional Board has created in the 2002 permit.⁶⁶

As in *Rancho Cucamonga*, the Regional Permit comprises requirements to implement BMPs to meet the MEP standard for storm water discharges. The federal law mandates that permits issued to MS4s must require management practices, control techniques and system, design and engineering methods, and other provisions that will result in reducing pollutants to the MEP. Similarly, the San Diego Water Board exercised its duty under federal law and adopted the Permit provisions requiring compliance with non-storm water discharge prohibitions and TMDL requirements, independent federal law mandates. The fact that the San Diego Water Board exercised its discretion, as required by federal law, to impose requirements that it determined were necessary to implement federal law and meet the MEP standard in this Permit supports the conclusion that the permit provisions are federal, not state mandates. Under the factual circumstances here, *Department of Finance* does not require a different result.

An essential underpinning of *Department of Finance* is the Supreme Court's determination that the LA MS4 Permit had as its roots both federal and State law. The Los Angeles Water Board made no finding that the permit requirements were necessary to implement the MEP standard.⁶⁷ Instead, the Los Angeles Water Board found only that the permit was consistent with or within the federal standard.

In contrast, when issuing the Regional Permit, the San Diego Water Board implemented *only federal law*: The San Diego Water Board found: “[I]t is entirely federal authority that forms the legal basis to establish the permit provisions[,]”⁶⁸ and that “[T]his Order implements federally mandated requirements under the CWA” including “federal requirements to effectively prohibit non-storm water discharges, to reduce the discharge of pollutants in storm water to the MEP.”⁶⁹ Findings No. 2 through 7 of the Permit and Fact Sheet (Section VI, Legal Authority) set forth the Board's regulatory basis for issuing the Permit. Collectively, these findings make it clear that the Board intended to and did rely solely on federal law in issuing the Permit.⁷⁰

⁶⁶ *Rancho Cucamonga, supra*, at 1389.

⁶⁷ *Department of Finance v. Comm'n on State Mandates, supra*, 1 Cal.5th at p. 768.

⁶⁸ Permit Fact Sheet, p. F-34.

⁶⁹ *Id.*

⁷⁰ The finding that the permit terms are necessary to satisfy the federal MEP standard under the factual circumstances presented means the San Diego Water Board did not impose more stringent terms under the Porter-Cologne Water Quality Control Act, which it is authorized to do. (See *City of Burbank v. State Water Resources Control Board* (2005) 35 Cal.4th 613, 626-629.)

The discussion herein describes how the contested provisions meet the MEP standard. In *Department of Finance*, the Supreme Court held that, “Had the Regional Board found when imposing the disputed permit conditions, that those conditions were the only means by which the maximum extent practicable standard could be implemented, deference to the board’s expertise in reaching that finding would be appropriate.”⁷¹ Unlike the LA MS4 permit, the San Diego Water Board made specific findings demonstrating that the permit provisions were necessary to implement the maximum extent practical standard:

The requirements of this Order, taken as a whole rather than individually, are necessary to reduce the discharge of pollutants to the MEP and to protect water quality. . . . These findings are the expert conclusions of the principal state agency charged with implementing the NPDES program in California. (Permit Fact Sheet, p. F-35) and

This Order prescribes conditions to assure compliance with the CWA requirements for owners and operators of MS4s to effectively prohibit non-storm water discharges into the MS4s, and require controls to reduce the discharge of pollutants in storm water from the MS4s to the MEP.⁷²

Moreover, the San Diego Water Board found:

The authority exercised under this Order is not reserved state authority under the Clean Water Act’s savings clause (cf. *Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613, 627-628 [relying on 33 U.S.C. § 1370, which allows a state to develop requirements which are not ‘less stringent’ than federal requirements]), but instead, is part of a federal mandate to develop pollutant reduction requirements for municipal separate storm sewer systems. To this extent, *it is entirely federal authority that forms the legal basis to establish the permit provisions.* (See, *City of Rancho Cucamonga v. Regional Water Quality Control Bd.-Santa Ana Region* (2006) 135 Cal.App.4th 1377, 1389; *Building Industry Ass’n of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866, 882-883.)⁷³

As the Supreme Court held, “deference to the board’s expertise in reaching that finding would be appropriate.”⁷⁴

The Water Boards understand the Supreme Court to mean that, to be entitled to deference, regional boards must make an express finding that the particular set of permit conditions finally embodied in a given permit is required to meet that federal standard, and must support that finding with evidence. The opinion is consistent with the Boards’ reading of the Clean Water Act: where a regional board has devised a set of conditions necessary to ensure local governments’

⁷¹ *Department of Finance v. Comm’n on State Mandates*, *supra*, 1 Cal.5th at p. 768.

⁷² Regional Permit, Finding 3.

⁷³ Permit Fact Sheet, p. F-34 (emphasis added).

⁷⁴ *Department of Finance v. Comm’n on State Mandates*, *supra*, 1 Cal.5th at p. 768.

compliance with federal law (that is, a set of conditions that is federally mandated), the regional board does not have a choice to impose some other, less rigorous, set of conditions.

Additionally, the Regional Permit, like its predecessors, implements the wholly separate Clean Water Act requirement that local agencies effectively prohibit non-storm water discharges into their storm sewers. Specifically, the Clean Water Act provides that permits for discharges from municipal storm sewers “shall include a requirement to effectively prohibit non-storm water discharges into the storm sewers.”⁷⁵ Permit provisions crafted to compel compliance with this federal mandate have been applicable since the first MS4 permit in 1990 do not constitute imposition of a new program or require that Copermitees perform a higher level of service.

Department of Finance addressed the narrow question of whether the federal MEP standard and certain implementing regulations⁷⁶ mandated both the trash can and inspection requirements contained in the LA Permit. In reaching its decision, the Supreme Court's analysis necessarily turned on whether, and to what extent, the MEP standard and the specific implementing regulations compelled the Los Angeles Regional Board to impose the challenged permit conditions.⁷⁷ Consequently, the Supreme Court decision has limited application when the federal standard compelling a challenged permit provision is wholly separate from the MEP standard and those specific implementing regulations. One of the exceptions to the subvention requirements is if the mandate imposes a requirement that is mandated by a federal law or regulation and results in costs mandated by the federal government, unless the statute or executive order mandates costs that exceed the mandate in that federal law or regulation.⁷⁸

In this case, the Regional Permit also contains provisions required by TMDLs and to implement non-storm water prohibitions. These are separate, independent federal requirements the Supreme Court did not analyze in the *Department of Finance* decision.

2. U.S. EPA Has Required Similar Provisions in Permits it Has Issued

The Supreme Court observed that U.S. EPA-issued permits do not contain requirements to provide trash receptacles at transit stops (a requirement of the LA MS4 Permit), and found that the absence of such conditions in EPA-issued permits “undermines the argument that the requirement was federally mandated.”⁷⁹ The Court's modifications to its original opinion underscore that determining what constitutes MEP is a case-specific, factual determination and the absence of similar conditions in U.S. EPA-issued permits is not fatal to the argument that a particular requirement is necessary to meet the federal standard.⁸⁰ U.S. EPA has, however,

⁷⁵ CWA § 402(p)(3)(B)(ii).

⁷⁶ The Supreme Court considered Title 40 of the Code of Federal Regulations, parts 122.26(d)(2)(iv)(A)(3), (B)(1), (C)(1), and (D)(3) in reaching its decision. (*Department of Finance v. Comm'n on State Mandates, supra*, 1 Cal.5th at p. 749.)

⁷⁷ *Id.* at p. 767 (“The federal CWA broadly directed the board to issue permits...designed to reduce the pollutant discharges to the maximum extent practicable”).

⁷⁸ Gov. Code, § 17556, subd. (c).

⁷⁹ *Department of Finance v. Comm'n on State Mandates, supra*, 1 Cal.5th at p. 772.

⁸⁰ The Court:

The opinion in this matter filed on August 29, 2016, and appearing in the California Official Reports at 1 Cal.5th 749, is modified as follows: On page 768 of the published opinion, a footnote is inserted at the end of the sentence that reads: “The board's legal authority to administer the CWA and its technical experience in water
(footnote continued on next page)

issued permits requiring substantially similar provisions as the contested provisions of the Regional Permit. If the State had not issued the Permit, the U.S. EPA would have done so. The inclusion of substantially similar provisions by U.S. EPA in other permits demonstrates that the San Diego Water Board effectively administered federal requirements concerning permit requirements.

To the extent the provisions are more detailed or provide more specificity than past iterations of the Regional Permit, that is consistent with U.S. EPA's guidance that successive permits for the same MS4 must become more refined and detailed:

The EPA also expects stormwater permits to follow an iterative process whereby each successive permit becomes more refined, detailed, and expanded as needed, based on experience under the previous permit. See, 55 Fed. Reg. 47990, 48052 ("EPA anticipates that storm water management programs will evolve and mature over time."); 64 Fed. Reg. 67722, 68754; Dec, 8, 1999 ("EPA envisions application of the MEP as an iterative process.") Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits (Sept. 1, 1996) ("The interim permitting approach uses BMPs in first-round stormwater permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards.")⁸¹

The permit provisions are, as the San Diego Water Board concluded, federal mandates. Even if the Commission concludes that some aspect of a challenged provision imposes requirements that exceed a federal mandate, the costs to implement those activities are *de minimis* and therefore not entitled to subvention.⁸²

3. The Permit Does Not Impose Requirements Unique to Local Agencies

None of the challenged provisions is subject to subvention because the Permit is not imposed uniquely upon local government. In order to obtain reimbursement, the Claimants must demonstrate either that (1) the program must carry out a governmental function of providing services to the public, or (2) the requirements, to implement a state policy, implement unique requirements on local governments and do not apply generally to all residents. (Cal. Const. Art. XIII B, § 6, subd. a; see also *City of Richmond v. Comm'n on State Mandates* (1998) 64 Cal.App.4th 1190, 1199.) "[T]he intent underlying section 6 was to require reimbursement to local agencies for the costs involved in carrying out functions peculiar to government, not for

(footnote continued from previous page)

quality control would call on sister agencies as well as courts to defer to that finding." The new footnote, which is numbered as footnote 15, reads: "Of course, this finding would be case specific, based among other things on local factual circumstances." On page 771 of the published opinion, current footnote 15 is renumbered as footnote 16. On page 772 of the published opinion, the word "fatally" is deleted from the sentence that reads: "The fact the EPA itself had issued permits in other cities, but did not include the trash receptacle condition, fatally undermines the argument that the requirement was federally mandate."

⁸¹ Letter from Alexis Strauss to Tam Doduc and Dorothy Rice, April 10, 2008, concerning Los Angeles County Copermittees Test Claim Nos. 03-TC-04, 03-TC-19, 03-TC 20 and 03-TC-21.

⁸² See generally, *San Diego Unified School District v. Comm'n on State Mandates* (2004) 33 Cal.4th 859, 889.

expenses incurred by local agencies as an incidental impact of laws that apply generally to all state residents and entities.”⁸³

Reimbursement to local agencies is required only for the costs involved in carrying out functions peculiar to government, not for expenses incurred by local agencies as an incidental impact of laws that apply generally to all state residents and entities. Laws of general applicability are not entitled to subvention because they do not “force” programs on localities.⁸⁴ The fact that a requirement may single out local governments is not dispositive; where local agencies are required to perform the same functions as private industry, no subvention is required.⁸⁵

U.S. EPA requires both municipal and non-municipal stormwater discharges to be controlled.⁸⁶ Moreover, numerous provision of the Regional Permit are “laws of general applicability” and therefore fail to constitute an unfunded state mandate. (See *City of Richmond v. Comm’n on State Mandates*, *supra*, 64 Cal.App.4th at pp. 1197-1198.) Compliance with NPDES regulations, and specifically with stormwater requirements, is required by private industry as well as state and federal government agencies.⁸⁷ Local government is not subject to “unique” requirements. In fact, municipal stormwater discharges are not managed as stringently as industrial and construction stormwater discharges.⁸⁸ Likewise, WLAs developed in federally required TMDLs are applied to identified sources of pollutants, whether MS4 operators, private industry, or government agencies.⁸⁹ Thus, while the permit provisions in this Regional Permit apply only to the municipalities and counties enrolled in the permit, the substantive actions required by the permit’s provisions are by no means unique to this class of permittee. That other NPDES permits impose similar requirements on non-local agencies demonstrates that the storm water program is not unique to local government.

4. Separate Storm Water Discharge is a Voluntary Program

No subvention is required when a local agency incurs costs voluntarily. (See *Dept. of Finance v. Comm’n on State Mandates* (2003) 30 Cal. 4th 727, 743 [costs of complying with program requirement to prepare agenda not entitled to subvention where participation in program itself was voluntary]; *City of Merced v. State of Cal.* (1984) 153 Cal. App. 3d 777, 783 [payment for loss of goodwill not state mandated where city elected to acquire property by eminent domain].) Here, similarly, there is no requirement that a municipality discharge via storm sewers or directly

⁸³ *Id.*, at p. 874

⁸⁴ *Id.* at p. 875; *County of Los Angeles v. State of California*, *supra*, 43 Cal.3d at pp. 56-57.

⁸⁵ *Ibid.*; *City of Richmond v. Comm’n on State Mandates*, *supra*, 64 Cal.App.4th at p. 1197.

⁸⁶ 40 C.F.R. § 122.26, subd. (a)(vi)(6).

⁸⁷ See e.g., State Water Board Caltrans MS4 Order (*NPDES Statewide Storm Water Permit, Waste Discharge Requirements for State of California, Department of Transportation* (State Water Board Order WQ 2012-0011)), State Water Board Industrial General Storm water Permit (State Water Board Order WQ 2014-0057), Naval Base San Diego NPDES Permit (San Diego Water Board Order No. R9-2016-0163), Naval Base Coronado NPDES Permit (San Diego Water Board Order No. R9-2015-0117) and NPDES Permit for National Steel and Shipbuilding Company (NASSCO) (San Diego Water Board Order No. R9-2016-0116) containing storm water and non-storm water requirements.

⁸⁸ *Defenders of Wildlife v. Browner*, *supra*, 191 F.3d at pp. 1164-1165 [distinguishing “strict compliance” required of industrial storm water dischargers to MEP standard applicable to municipal storm water dischargers.]

⁸⁹ See Section V.B., below, regarding TMDLs that are also applicable to agricultural dischargers and Caltrans.

into waters of the United States. MS4 permittees, like all other permittees seeking approval to discharge to waters of the United States, must obtain permission in the form of a Clean Water Act NPDES permit before doing so.⁹⁰

5. Claimants Have Authority to Raise Fees for Contested Provisions

Subvention is only required if expenditure of tax monies is required, and not if the costs can be reallocated or funded through service charges, fees, or assessments. (See Gov. Code, § 17556, subd. (d) [costs not mandated by the state when the local agency has “authority to levy service charges, fees, or assessments sufficient to pay for the mandated program or increased level of service”]; *County of Los Angeles v. Comm’n on State Mandates*, *supra*, 110 Cal.App.4th at p. 1189 [“in order for a state mandate to be found, the local governmental entity must be required to expend the proceeds of its tax revenues”]; *Redevelopment Agency v. Comm’n on State Mandates* (1997) 55 Cal.App.4th 976, 987 [“No state duty of subvention is triggered where the local agency is not required to expend its proceeds of taxes.”].)⁹¹ Subvention of funds is only required if expenditure of tax monies is required, and not if the costs are simply reallocated or funded through other means.⁹²

In the Commission’s Statement of Decision considered in *Department of Finance*, the Commission found that all but one of the challenged provisions issued by the Los Angeles Water Board in its MS4 permit did not qualify as unfunded state mandates as they did “not impose costs mandated by the state within the meaning of article XIII B, Section 6 of the California Constitution because the claimants have fee authority (under Cal. Const. article XI, § 7) within the meaning of Government Code section 17556, subdivision (d), sufficient to pay for the activities in those parts of the permit.”⁹³ Although the Supreme Court acknowledged the Commission’s finding, it did not address the fee issue, but remanded for further proceedings. *Department of Finance* is thus inapplicable on this issue.

Similarly, here, Claimants have not demonstrated that they are precluded from establishing or raising fees. Claimants subject to this Regional Permit are not *required* to use taxes to pay for the costs of the programs, and can levy fees, such as inspection fees. The claimants have the ability to charge fees to cover development program costs.⁹⁴ Municipalities can and do adopt fees from their residents and businesses that fund their stormwater programs. For example, the

⁹⁰ See *NRDC v. County of Los Angeles*, *supra*, 725 F.3d at p. 1198 (citing *Arkansas v. Oklahoma* (1992) 503 U.S. 91).

⁹¹ The claimants must also demonstrate that the fees are more than *de minimis*. (*San Diego Unified School Dist. v. Commission on State Mandates*, *supra*, 33 Cal.4th at p. 889 [“incidental procedural requirements, producing at most *de minimis* added cost, should be viewed as part and parcel of the underlying federal mandate, and hence nonreimbursable under Government Code, section 17556, subdivision (c)”].) *Department of Finance* did not consider when a particular cost is *de minimis*. Except to the extent the Court affirmed prior holdings that *de minimis* costs do not create reimbursable mandates, *Department of Finance* does not apply to the Commission’s determination on that issue.

⁹² Claimants must establish that they are required to use tax monies to pay for implementation of permit provisions. (Gov. Code §§ 17553, subd. (b)(1)(F) [test claim must identify funding sources, including general purpose funds available for this purpose, special funds and fee authority]; and Gov. Code § 17556, subd. (d).)

⁹³ County of Los Angeles Test Claim, Statement of Decision, p. 2.

⁹⁴ For a general overview of funding mechanisms that have been employed by municipalities, see Att. 14, Black and Veatch 2005 Stormwater Utility Survey, p. 2 (72% cited stormwater user fees as major [at least 90% of total income] revenue sources and the majority of utilities reported funding was adequate to meet all or most needs).

City of Alameda has adopted fees for implementation of their programs. (See, e.g., Alameda website [describing stormwater fee structure].) Indeed, Palo Alto recently raised its stormwater fee last year. The Cities of San Clemente, San Jose and Santa Cruz have also adopted fee assessments.⁹⁵ Whether circumstances make it impractical to assess fees is not relevant to the inquiry. (*Connell v. Sup. Ct.* (1997) 59 Cal.App.4th 382, 398 [where statute on its face authorized water districts to levy fees sufficient to pay the costs associated with a regulatory change, there was no right to reimbursement]; *Clovis Unified School Dist. v. Chiang* (2010) 188 Cal.App.4th 794, 812 [“to the extent a local agency... ‘has the authority’ to charge for the mandated program or increased level of service, that charge cannot be recovered as a state mandated cost”].)

V. SPECIFIC RESPONSES

While the general discussion above in Section IV explains why it is appropriate for the Commission to reject the Test Claim in its entirety, the following elaboration on specific challenges provides additional justification in support of Test Claim rejection.

A. Receiving Water Limitations Language (Provisions A.2. and A.4)

Together Provisions A.2. and A.4. of the Regional Permit implement the receiving water language that the State Water Board directed in 1999 that regional water boards to use in all MS4 permits.⁹⁶ The precedential receiving water limitations (“receiving water limitations language”) generally requires that municipal storm water discharges shall not cause or contribute to exceedances of water quality objectives in the receiving waters.⁹⁷ The language was initially developed by U.S. EPA after it objected to receiving water limitations in two regional water board permits that effectively provided a safe harbor from enforcement during iterative process implementation. Since 1999, the State Water Board consistently has expected receiving water limitations to be complied with through the iterative process of employing successively improved BMPs.⁹⁸

Although it has been included in all permits issued to Orange County Copermitees since 1999, Claimants argue that the San Diego Water Board’s inclusion of the same mandatory language in the Regional Permit now imposes a new program in light of a Ninth Circuit Court of Appeals decision in *NRDC v. County of Los Angeles* (2013) 725 F.3d 1194 (the *NRDC* decision). Claimants also assert that as a result of the *NRDC* decision, the precedential language now requires “strict compliance” with receiving water limitations and therefore exceeds federal law. Claimants are incorrect on both counts.

⁹⁵ See documentation of City of Alameda Storm Water Fee Ordinance, City of Palo Alto Storm Drainage Fee Ordinance, and storm water fees authorized in Cities of San Clemente, San Jose and Santa Cruz, included as attachments 61-65 to this response.

⁹⁶ State Board Order WQ 99-05 (*Environmental Health Coalition*), p.1.

⁹⁷ *Ibid.*

⁹⁸ See, State Water Board Order WQ 2015-0075, p. 11 (“We have previously exercised the discretion we have under federal law in favor of requiring compliance with water quality standards, but have required less than strict compliance. We have directed, in precedential orders, that MS4 permits require discharges to be controlled so as not to cause or contribute to exceedances of water quality standards in receiving waters,[fn] but have prescribed an iterative process whereby an exceedance of a water quality standard triggers a process of BMP improvements.” (Emphasis added.)

There is No New Program or Higher Level of Service

The receiving water limitations language in Provisions A.2. and A.4 does not impose a state mandated program on Claimants or require them to provide a higher level of service. Both the 2002 and 2009 permits for Orange County contained virtually identical precedential receiving water limitations language.⁹⁹ As discussed above, under mandates law, a program is “new” if the local government had not previously been required to implement it. (*County of Los Angeles v. Comm’n on State Mandates* (2003) 110 Cal.App.4th 1176, 1189 [citing *County of Los Angeles v. State of California* (1987) 43 Cal. 3d 46, 56].) Here, even if each of the challenged provisions could be considered a “program,” none meets the definition of “new.”

Claimants assert the program is “new” because, they say, for the first time a court has interpreted the language to require permittees to strictly comply with receiving water limitations language where previously they were shielded from enforcement while engaged in the iterative process of implementing improved BMPs. Claimants are incorrect that compliance with the iterative process ever served to shield them from enforcement for violation of water quality standards. Claimants are also incorrect that *NRDC v. County of Los Angeles* altered the legal landscape. The provisions are not a state mandate.

The State Water Board explained the impacts of the *NRDC* case in a 2015 Water Quality order addressing the most recent Los Angeles MS4 Permit as follows:

The lack of a safe harbor in the iterative process of the 2001 Los Angeles Order was again acknowledged in 2011 and 2013, this time by the Ninth Circuit Court of Appeal. In these instances, the Ninth Circuit was considering a citizen suit brought by the Natural Resources Defense Council against the City of Los Angeles and the Los Angeles County Flood Control District for alleged violations of the receiving water limitations of that order. The Ninth Circuit held that, as the receiving water limitations of the 2001 Los Angeles MS4 Order (and accordingly, the precedential language in State Water Board Order WQ 99-05) was drafted, engagement in the iterative process does not excuse liability for violations of water quality standards.[fn] The California Court of Appeal has come to the same conclusion in interpreting similar receiving water limitations provisions in MS4 Orders issued by the San Diego Regional Water Quality Control Board in 2001 and the Santa Ana Regional Water Quality Control Board in 2002[fn].¹⁰⁰

The decisions of the state¹⁰¹ and federal courts on this point are in harmony with the Water Boards’ long-standing view:

[T]he iterative process, as established in our precedential orders and as generally written into MS4 permits adopted by the water boards, does not provide a ‘safe harbor’ to MS4 dischargers. When a discharger is shown to be causing

⁹⁹ See Order No. R9-2002-0001, Directive A and Order No. R9-2009-0002, Directive A.

¹⁰⁰ State Water Board Order WQ 2015-0075, p. 11.

¹⁰¹ See *Building Industry Ass’n of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866, 890; and *City of Rancho Cucamonga v. Regional Water Quality Control Bd.* (2006) 135 Cal.App.4th 1377.

or contributing to an exceedance of water quality standards, that discharger is in violation of the permit's receiving water limitations and potentially subject to enforcement by the water boards or through a citizen suit, regardless of whether or not the discharger is actively engaged in the iterative process.[fn]¹⁰²

Claimants here argue that in Order WQ 2001-15,¹⁰³ the State Water Board had established a policy to allow dischargers to "remain in compliance with [the receiving water limitations language] by implementing pollution control measures through an 'iterative process'[fn]."¹⁰⁴ The State Water Board rejected this very same argument by permittee petitions in Order WQ 2015-0075:

Several Permittee Petitioners have argued that the State Water Board's opinion in State Water Board Order WQ 2001-15 must be read to endorse a safe harbor in the iterative process. We disagree. Regardless, the State Water Board's position that the iterative process of the subject permit did not create a 'safe harbor' from compliance with receiving water limitations was clearly established in subsequent litigation on that order. (See *Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.* (Super. Ct. 2003, No. GIC780263), *affd.* *Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866.)¹⁰⁵

Although it specifically considered whether to allow a safe harbor as requested by many copermittee petitioners, the State Water Board declined in 2015 to modify its interpretation of its precedential language.¹⁰⁶ In sum, engagement in the iterative process did not, as Claimants suggest and may have perceived, afford them a safe harbor from enforcement under prior permits with comparable provisions. The Ninth Circuit Court of Appeals' conclusion that receiving water limitations provisions are independent from the provisions establishing the iterative process for purposes of enforcement is not new, but instead confirms the Water Boards' historical interpretation. Thus, not only is the receiving water limitations language not new—neither is the Water Boards' interpretation of the language with regard to enforceability. The holding of the Ninth Circuit in the *NRDC* decision does not transform the provisions into a new program or result in imposition of a higher level of service.¹⁰⁷ Provisions A.2. and A.4 are

¹⁰² State Water Board Order WQ 2015-0075, p. 12, fn. 44.

¹⁰³ State Water Board Order WQ 2001-15 (*In the Matter of the Petition of Building Industry Ass'n of San Diego County*).

¹⁰⁴ Test Claim Narrative Statement, p. 5-14.

¹⁰⁵ State Water Board Order WQ 2015-0075, p. 12, footnote 44.

¹⁰⁶ In declining to modify the receiving water limitations language to establish a safe harbor as requested by many copermittees statewide, the State Water Board concluded: "We will not reverse our precedential determination in State Water Board Order WQ 99-05 that established the receiving water limitations provisions for MS4 permits statewide and reiterate that we will continue to read those provisions consistent with how the courts have: engagement in the iterative process does not excuse exceedances of water quality standards." (*Id.*, p. 15.)

¹⁰⁷ We note, as will be discussed in connection with the challenge to provision B.3.c, below, that Claimants and other San Diego Region MS4 permittees now have available to them an alternative compliance option that allows a copermittee to elect to take steps that will result in a "safe harbor" from enforcement, including citizen suits, under specified circumstances. Accordingly, even if the Commission somehow were to find provision A.2. and A.4 to impose a new program by removing a safe harbor, the alternative available to copermittees demonstrates that the state has not *mandated* implementation of a new program.

not mandated by the State because they are neither new programs nor impose a higher level of service on Claimants.

The Provisions Are Necessary to Satisfy the Federal MEP Standard

If the Commission disagrees and finds the provisions nonetheless impose a new program or higher level of service, the Commission should defer to the San Diego Water Board's determination that the provisions were necessary to satisfy the MEP standard in MS4 Permits.

Claimants argue that the *NRDC v. County of Los Angeles* decision creates a strict liability regime where previously a safe harbor from enforcement existed. And because strict compliance with water quality standards is not required by the Clean Water Act, they assert that the provisions in the Regional Permit must exceed federal law. As explained above, Claimants are incorrect that the holding in *NRDC v. County of Los Angeles* removed a safe harbor from enforcement; no such safe harbor existed prior to the court's decision.¹⁰⁸ Instead, the San Diego Water Board determined that the provisions were necessary to satisfy the MEP standard for discharges of storm water.

The receiving water limitations language requires that storm water discharges from MS4s not cause or contribute to a violation of water quality standards. Compliance with water quality standards is expected to be achieved through an iterative approach requiring the implementation of improved and better-tailored BMPs [through the water quality improvement plans] over time.¹⁰⁹ The San Diego Water Board reiterated that achieving compliance "will be accomplished through the implementation of water quality improvement strategies and runoff management programs [BMPs] that effectively prohibit non-storm water discharges into the Copermittees' MS4s, and reduce pollutants in storm water discharges from the Copermittees' MS4s to the MEP."¹¹⁰ This approach is wholly consistent with the precedential language developed by U.S. EPA and established in 1999. The State Water Board explained in 2001 that the precedential receiving water limitations language requires less than strict compliance.¹¹¹ As explained above, the language does not exceed federal law by newly requiring "strict compliance" with water quality standards, as Claimants contend. And, as discussed above in Section IV., unlike in the LA MS4 Permit considered by the Supreme Court in *Department of Finance*, the San Diego Water Board found that all of the Permit's provisions are based entirely

¹⁰⁸ See also, e.g., San Diego Water Board Responses to Comments on Tentative Order No. R9-2013-0001, March 27, 2013, p. 40 ("While the State Water Board and San Diego Water Board in its recent MS4 permits have directed MS4 dischargers to achieve compliance with water quality standards through an 'iterative process,' using the State Water Board's precedential receiving water limitations language, the Water Boards have never interpreted the iterative process to provide a 'safe harbor' for MS4 dischargers. Thus, the Ninth Circuit's recent opinion¹⁰⁸ is consistent with the Water Boards' interpretation and does not create any new uncertainty or third party liability risks that did not previously exist.")

¹⁰⁹ Regional Permit, Finding 34.

¹¹⁰ *Id.*, *Dir. A.*

¹¹¹ "While we will continue to address water quality standards in municipal storm water permits, we also continue to believe that the iterative approach, which focuses on timely improvement of BMPs, is appropriate. We will generally not require 'strict compliance' with water quality standards through numeric effluent limitations and we will continue to follow an iterative approach, which seeks compliance over time[fn]. The iterative approach is protective of water quality, but at the same time considers the difficulties of achieving full compliance through BMPs" (Order WQ 2001-15, p. 3.)

on federal law and necessary to meet the MEP. The Board's findings are entitled to deference under *Department of Finance*.¹¹²

Inclusion of similar requirements in U.S. EPA-issued permits likewise supports the San Diego Water Board's determination of federal necessity. The Supreme Court in *Department of Finance* observed that U.S. EPA-issued permits do not contain requirements to provide trash receptacles at transit stops (a requirement of the LA MS4 Permit), and found that the absence of such conditions in EPA-issued permits "undermines the argument that the requirement was federally mandated."¹¹³ Here, U.S. EPA's MS4 permit issued to the District of Columbia in 2011 includes a substantially similar provision requiring compliance with water quality standards.¹¹⁴ The State Water Board also recognized the District of Columbia's MS4 permit is reflective of U.S. EPA's "general practice" to also require compliance with water quality standards over time.¹¹⁵ That the MS4 Permit issued by U.S. EPA to the District of Columbia also imposes comparable requirements demonstrates that the San Diego Water Board effectively administered federal requirements concerning permit requirements and further supports the Water Boards' view that the permit provisions are required by federal law.

Unlike the LA Permit considered in *Department of Finance*, the San Diego Water Board determined that the provisions in this Permit are necessary to meet MEP and implement federal law. As discussed above, the Board's findings are entitled to deference under *Department of Finance*. And, where, as here a comparable permit provision exists in at least one U.S. EPA-issued permit such as for the District of Columbia, the Water Boards have established that the permit provisions are federally mandated and therefore costs to implement them are not subject to subvention.

Other Mandates Exceptions Also Apply

Moreover, as discussed more fully above in Section IV, these provisions are not unique to local government. Finally, Claimants have not demonstrated that they *must* raise tax monies to fund the implementation of these provisions.

B. Numeric Effluent Limitations and Related TMDL Provisions (Prov. A.3.b. and Att. E)

Provision A.3.b incorporates water quality based effluent limitations (WQBELs) necessary to implement the federally-required wasteload allocations developed to control bacteria sources in the 2010 Revised TMDL for Twenty Beaches and Creeks in the San Diego Region.¹¹⁶ The Regional Permit requires the Copermittees to achieve compliance with those WQBELs,

¹¹² *Department of Finance v. Comm'n on State Mandates*, *supra*, 1 Cal.5th at pp. 768-769.

¹¹³ *Id.*, at pp. 771-772.

¹¹⁴ "[The permittee must] [e]ffectively prohibit pollutants in stormwater discharges or other unauthorized discharges into the Ms4 as necessary to comply with existing District of Columbia Water Quality Standards (DCWQS)." (DC0000221, modified October 25, 2012, p. 5.)"

¹¹⁵ State Water Board Order WQ 2015-0075, citing to Modified NPDES Permit No. DC0000221 for the MS4 for the District of Columbia, p. 14.

¹¹⁶ See San Diego Water Board Resolution No. R9-2010-0001, A Resolution Amending the *Water Quality Control Plan for the San Diego Basin (9)* to Incorporate Revised Total Daily Maximum Loads for Indicator Bacteria, Project 1-Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek) (Feb. 10, 2010), approved by U.S. EPA on June 22, 2011.

expressed as numeric effluent limitations, in accordance with the schedule set forth in the approved TMDL and incorporated into the Permit. The details of the TMDL and compliance deadlines for controlling bacteria in dry and wet weather discharges (2021 and 2031 respectively) are set forth in Attachment E of the Regional Permit. Claimants assert that the requirement to achieve compliance with applicable numeric effluent limitations established for TMDLs, reflected in Attachment E of the Permit, as well as the reporting requirements associated with implementation of the TMDL requirements, subject permittees to several new state mandated programs.

There is No New Program or Higher Level of Service

As explained above, the Water Boards disagree that the Regional Permit imposes new programs or higher levels of service. Claimants have been subject to TMDL requirements in prior permits.¹¹⁷ Moreover, the purpose of the TMDLs is to address identified impairments for waters not meeting water quality standards. The Regional Permit requires that discharges to receiving waters not cause or contribute to exceedances of water quality standards.¹¹⁸ These objectives are to be achieved through compliance with the TMDL provisions incorporated into the Permit but the objectives themselves are not new. In fact, the compliance schedule established in the TMDL and incorporated in the Permit allows Claimants time to achieve necessary reductions of bacteria loading to the receiving waters.¹¹⁹

Because Claimants are separately required to achieve compliance with water quality standards, but have been provided a timeframe in which to comply through incorporation of limitations and associated compliance schedules, the numeric effluent limitations included to implement the TMDL are not a new program nor require a higher level of service be provided beyond what Claimants are already obligated by law to achieve. Moreover, the availability of the alternative compliance option (discussed in Section V.D, below) provides an avenue for Claimants to be deemed in compliance with receiving water limitations when, among other things, interim and final WQBELs established by the TMDLs in the Permit are incorporated into the applicable Water Quality Improvement Plan.¹²⁰ The state has not *mandated* a new program.

Mandates Law Exceptions Also Apply to these Provisions

If the Commission nonetheless finds that Provision A.3.b. and related portions of Attachment E constitute a new program or higher level of service imposed by the state, the Commission should find Claimants are not entitled to reimbursement for these provisions because the challenged provisions are mandated by federal law, are not uniquely imposed on local agencies and Claimants have not shown they must raise tax monies to comply with the provisions.

¹¹⁷ See, R9-2009-0002, Attachment E.

¹¹⁸ Regional Permit, Prov. A.2.

¹¹⁹ See Regional Permit Fact Sheet, p. F-46, noting that “there is a specific date for compliance to be achieved. . . . Copermittees are in compliance with the interim or final TMDL requirements in Attachment E as long as the interim or final WQBELs are being achieved in accordance with the interim or final compliance dates.”

¹²⁰ See Regional Permit, Prov. B.3.c.(1); see also, Permit Fact Sheet, F-59 “Compliance with Provision B.3.c constitutes compliance with the requirements of Provision A.3.b, which requires compliance with the WQBELs of TMDLs in Attachment E to the Order, and is considered compliance with receiving water limitations for those TMDL water body-pollutant combinations.”

The Numeric Effluent Limitations Implement Federal Law

Section 303(d) of the Clean Water Act requires that the water boards to identify impaired water bodies that do not meet water quality standards after applying required technology-based effluent limitations. TMDLs are developed by either the regional water boards or by U.S. EPA in response to section 303(d) listings of impaired water bodies. A TMDL is defined as the sum of the individual wasteload allocations for point sources of pollution, the load allocations for nonpoint sources of pollution, and the contribution of background of pollution, and represents the maximum amount of a pollutant that a water body may receive and still achieve water quality standards. TMDLs developed by regional water boards include implementation provisions and are typically incorporated in the regional water boards' water quality control plan.¹²¹ Most TMDLs are not self-executing, but instead rely upon subsequently issued permits to impose requirements on discharges that implement the TMDL's wasteload allocations.¹²²

As explained above in the general responses (Section IV), Section 303(d) of the CWA requires the development and adoption of TMDLs for impaired waterbodies on the 303(d) List. Once the TMDL is approved by U.S.EPA, any NPDES permit, not just MS4 permits, must include effluent limits "consistent with the assumptions and requirements of any available wasteload allocations." Therefore, the federal regulations provide an alternative and independent federal authority for the TMDL-derived effluent limitations.¹²³

Based on this independent federal authority, the San Diego Water Board specifically found:

¹²¹ State Water Board, *Water Quality Control Policy for Addressing Impaired Water: Regulatory Structure and Options* (2005), pp. 1, 5.

¹²² See, e.g., *Wat. Code* §§ 13350 and 13385 (boards have no authority to take enforcement for violations of water quality control plans, other than prohibitions).

¹²³ Claimants also challenge associated reporting requirements. Monitoring and reporting is required in federal regulations for NPDES, including MS4 permits. Federal reporting requirements mandate annual reporting on the "status of implementing" controls and require claimants to provide a "summary of data, including monitoring data, that is accumulated throughout the reporting year." (40 C.F.R. § 122.42, subd. (c)(4).) Federal stormwater regulations further require that MS4 permittees submit reports that include "[t]he status of implementing the components of the storm water management program that are established as permit conditions." Monitoring and reporting requirements were also discussed by the Ninth Circuit Court of Appeals in the *NRDC v. County of Los Angeles* decisions:

[W]hile otherwise more flexible than the traditional NPDES permitting system, nothing in the ms4 permitting scheme relieves permittees of the obligation to monitor their compliance with their NPDES permit in some fashion. See 33 U.S.C. § 1342(a)(2) ("The Administrator shall prescribe conditions for [NPDES] permits to assure compliance with the requirements of t [the permit], including conditions on data and information collection, reporting, and such other requirements as he deems appropriate."); 40 C.F.R. § 122.44(i)(1) (establishing that every permit "shall include" monitoring "[t]o assure compliance with the permit limitations."). (*Natural Resources Defense Council, Inc., v. County of Los Angeles* (9th Cir. 2013) 725 F.3d 1194, 1209-10.) Ms4s shall specify a monitoring scheme "sufficient to yield data which are representative of the monitored activity . . ." (*Id.* At 1210 [citing 40 C.F.R. § 122.48, subd. (b)].)

The Washington, D.C., MS4 Revised Monitoring Program, approved by EPA in conjunction with the U.S. EPA-issued NPDES permit, notes that the objectives of the monitoring program "are directly tied to water quality requirements found in the [Clean Water Act]" including "[i]dentifying causes and sources of water quality impairments. (Att. 3, Washington, D.C. Revised Monitoring Plan, Section 2, Program Goals and Objectives [citing Clean Water Act Sections 303(d), and 305(b)].)

[T]he provisions of this Order to implement total maximum daily loads (TMDLs) are federal mandates. The federal Clean Water Act requires TMDLs to be developed for water bodies that do not meet federal water quality standards. (33 U.S.C. sec. 1313(d).) Once U.S. Environmental Protection Agency or a state develops a TMDL, federal law requires that permits must contain effluent limitations consistent with the assumptions of any applicable wasteload allocation.¹²⁴

The Regional Permit's provisions incorporating numeric limitations to achieve reductions in bacteria in beaches and creeks within the region are consistent with the assumptions and requirements of wasteload allocations in adopted and applicable TMDLs.¹²⁵

Claimants focus their challenge on the inclusion of WQBELs expressed as numeric effluent limitations in the Permit as exceeding federal law. The Water Boards disagree that inclusion of numeric effluent limitations exceeds federal law where the San Diego Water Board determined that they are necessary to assure compliance with the federal water quality standards in the receiving waters.¹²⁶

In 2014, U.S. EPA released supplemental guidance concerning inclusion of limitations in MS4 permits to implement TMDL WLAs. U.S. EPA recognized that “[w]here the NPDES authority determines that MS4 discharges have the reasonable potential to cause or contribute to a water quality standard excursion, EPA recommends that the NPDES permitting authority exercise its discretion to include clear specific, and measurable permit requirements, and, where feasible, numeric effluent limitations[fn] as necessary to meet water quality standards.”¹²⁷ U.S. EPA recognizes permittees have some discretion in how to express the requirements to meet the federal standards, but the determination “should be based on an analysis of the specific facts and circumstances surrounding the permit, and/or the underlying WLA, including the nature of the stormwater discharge, available data, modeling results, and other relevant information.”¹²⁸

Here, the San Diego Water Board determined that inclusion of numeric effluent limitations in the Regional Permit are necessary to achieve compliance with the TMDL. The San Diego Water Board based the inclusion of these TMDL provisions on federal law, finding, in part:

¹²⁴ Permit, Finding 32(f), citing 40 C.F.R. sec. 122.44(d)(1)(vii)(B).

¹²⁵ 40 CFR §122.44(d)(1)(vii)(B).

¹²⁶ In addition, the numeric effluent limitations for dry weather discharges also are consistent with the independent federal prohibition on non-storm water discharges discussed above. The TMDL compliance schedule affords more time to comply that Claimants would otherwise have.

¹²⁷ U.S. EPA Memorandum, November 26, 2014 (*Revisions to the November 22, 2002 Memorandum “Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs,”*) (U.S. EPA TMDL Memorandum) p. 4. U.S. EPA clarified that numeric effluent limitations in the context of storm water discharges “refer[s] to limitations with a quantifiable or measurable parameter related to a pollutant (or pollutants). Numeric WQBELs may include other types of numeric limits on pollutant discharges by specifying parameters such as on-site stormwater retention volume or percentage or amount of effective impervious cover, as well as the more traditional pollutant concentration limits and pollutant loads in the discharge.” However, numeric limitations should be crafted to ensure that water quality standards will be achieved.

¹²⁸ *Id.*, p. 6.

This Order incorporates only those MS4 Waste Load Allocations (WLAs) developed in TMDLs that have been adopted by the Regional Water Board and have been approved by the State Board, Office of Administrative Law and U.S. EPA. Approved TMDL WLAs are to be addressed using water quality-based effluent limitations (WQBELs) calculated as numeric limitations (either in the receiving waters and/or at the point of MS4 discharge) and/or as BMPs. In most cases, the numeric limitation must be achieved to ensure the adequacy of the BMP program. Waste load allocations for storm water and non-storm water discharges have been included within this Order only if the TMDL as received all necessary approvals. This Order establishes WQBELs and conditions consistent with the requirements and assumptions of the WLAs in the TMDLs as required by 40 CFR 122.44(d)(1)(vii)(B).¹²⁹

USEPA has supported this approach¹³⁰ and as discussed above, has supported the incorporation of numeric limits when necessary to ensure consistency and compliance with applicable WLAs in prior permits issued to Orange County permittees.¹³¹ U.S. EPA has consistently made similar comments endorsing numeric effluent limitations in TMDLs in other MS4 permit proceedings, remarking that the use of numeric effluent limitations is capable of improving clarity and enforceability.¹³²

Separately, Claimants argue that because federal *stormwater* regulations do not require municipal stormwater permits to contain TMDL provisions, wasteload allocations intended to achieve water quality standards are “arguably not ‘applicable’” as that term is used in 40 CFR sec. 122.44(d)(1)(vii)(B).¹³³ The regulation cited by Claimants requires that NPDES permits (which include MS4 Permits) include conditions consistent with assumptions and requirements of TMDL wasteload applications *when applicable*.” The better reading of the phrase “when applicable” in this context is that inclusion of such conditions is limited to those permits with identified sources of discharges that may contribute to an impairment in the affected receiving waters. In any case, as a practical matter, if impairments exist in receiving waters to which an MS4 discharges, the MS4 is responsible for complying with water quality standards whether or not there is a TMDL. This view is also consistent with U.S. EPA’s interpretation of its regulations in its 2014 TMDL Memorandum in which U.S. EPA clearly contemplates that NPDES permits, inclusive of storm water permits – municipal, industrial and construction--, shall “contain effluent limits and conditions consistent with the assumptions and requirements of the WLAs in the TMDL.”¹³⁴

¹²⁹ Permit, Finding E.11.

¹³⁰ U.S. EPA Comments on draft Regional MS4 Permit, January 11, 2013, pp. 1-3.

¹³¹ Comments of U.S. EPA, May 14, 2009, p. 4. See also Comments of June 9, 2009 and September 28, 2009.

¹³² See Letter to Los Angeles Water Board on Draft MS4 Permit for Los Angeles County (July 23, 2012); Letter to Los Angeles Water Board on Draft MS4 Permit for Long Beach (January 15, 2014); and Letter to Santa Ana Water Board on Draft North Orange County Permit (June 20, 2014.)

¹³³ Test Claim Narrative Statement, p. 5-18.

¹³⁴ U.S. EPA 2014 Memorandum, p. 6, citing 40 C.F.R §122.44(d)(1)(vii)(B)).

Other Mandates Exceptions Also Apply

Even if the Commission disagrees that federal law mandates the challenged provisions, they are not reimbursable because other recognized mandates exceptions apply. As discussed in the General Responses, above, the Claimants have fee authority to implement these permit provisions. They have not demonstrated they must use tax monies to pay for compliance with these provisions. Moreover, requirements to implement the challenged TMDL do not apply uniquely to local government. The TMDL also identified Caltrans, a state agency, as well as agricultural dischargers within the San Diego Region, as contributing sources for the bacteria impairment.¹³⁵ For these reasons, Claimants are not entitled to subvention to comply with Provision A.3.b and related portions of Attachment E.

C. Development, Implementation and Update of Water Quality Improvement Plans (WQIPs) (Provisions B and F)

Claimants challenge these provisions as imposing “new requirements to develop goals, strategies, schedules, panels, assessments and adaptive management strategies, and watershed coordination in the development and implementation of watershed based WQIPs.” Claimants also contend that the requirements shift the state’s responsibility under the Clean Water Act to develop TMDLs.

Not a New Program or Higher Level of Service

For the reasons discussed in the general responses, above, these challenged provisions do not impose a new program or higher level of service on Claimants. Development and implementation of the WQIPs reflects engagement in the iterative process of achieving compliance with water quality standards over time. Prior permits have required Claimants to implement comparable programs central to the iterative process.¹³⁶

Provisions B and F are Necessary to Meet the Federal MEP Standard

Even if the Commission finds that the provisions establish a new program or higher level of service, no subvention is required because the WQIPs are based entirely on federal law and the San Diego Water Board determined they are necessary to meet the MEP standard. As discussed above in the General Responses (Section IV), the San Diego Water Board’s findings concerning the basis for these provisions are entitled to deference under *Department of Finance*. For these reasons, the provisions are a federal, not a state, mandate.

Claimants assert that federal law does not require local agencies to “develop, update, and provide annual reports on a WQIP for each of the Watershed Management Areas.”¹³⁷ And, because the objective of the WQIP is to achieve water quality standards, an objective they claim

¹³⁵ San Diego Water Board Resolution No. R9-2010-0001, *supra*, at e.g., ¶¶ 11, 22, 25.

¹³⁶ See Order No. R9-2002-0001 and Order No. R9-2009-0002.

¹³⁷ Test Claim Narrative Statement, p. 5-30.

is not required by federal law, Claimants contend these provisions are state mandates.¹³⁸ As the Water Board's explained in section V.A., above, the Regional Permit does not require strict compliance with water quality standards, as alleged by Claimants. Instead, the Water Boards anticipate Copermittees will achieve compliance with water quality standards through implementation of the iterative process of successively improving BMPs. Implementation of the WQIP embodies the iterative process determined to satisfy the MEP standard in this case.¹³⁹

The Board recognized in adopting the WQIP provisions, "[t]he purpose of this provision is to develop Water Quality Improvement Plans that guide the Copermittees' jurisdictional runoff management programs towards achieving the outcome of improved water quality in MS4 discharges and receiving waters."¹⁴⁰ As discussed in the Permit Fact Sheet, "federal NPDES regulations require the Copermittees to develop a proposed management program (40 CFR 122.26(d)(2)(iv)). The proposed management program must include 'a comprehensive planning process' and 'where necessary intergovernmental coordination' for the 'duration of the permit.'¹⁴¹ The Water Quality Improvement Plan serves as the Copermittees' comprehensive planning process document for the proposed management program that will be implemented as a WQIP within a Watershed Management Area.

As the Board found:

[t]he Water Quality Improvement Plan is the backbone of the Regional MS4 Permit requirements. Provision B provides the guidance, criteria, and minimum expectations and requirements for the elements of the Water Quality Improvement Plan to be developed and implemented by the Copermittees [and] incorporates a program to monitor and assess the progress of the Copermittees' jurisdictional runoff management programs toward improving the quality of discharges from MS4s, as well as tracking improvements to the quality of the receiving waters.¹⁴²

Provision F includes the process for adapting and improving the effectiveness of the WQIPs to implement the iterative approach to achieve compliance with receiving water limitations. Other regulatory requirements pertaining to certain aspects of the WQIP are discussed more fully in the Fact Sheet for Provisions B and F.

As discussed above, the San Diego Water Board's findings that these provisions are necessary to meet the MEP standard under federal law are entitled to deference under *Department of Finance*. And unlike the LA MS4 Permit provisions considered in *Department of Finance*, the

¹³⁸ Claimants also rely on the Commission's earlier determination on the issue of a federal mandate regarding provisions in its Statement of Decision in 07-TC-09 to argue that the WQIP provisions in the Regional MS4 Permit establish new programs or higher levels of service. As noted elsewhere, and as the Commission is aware, numerous challenges to the 2010 Statement of Decision have not been resolved by the courts, nor has the litigation been reconsidered in light of *Department of Finance*, which recognizes that deference is appropriate when certain findings are made and anticipates a case-specific, factual consideration of whether there is a federal mandate.

¹³⁹ Regional Permit, Provision A.4.

¹⁴⁰ Regional Permit, Provision B, p. 21.

¹⁴¹ *Id.*, Fact Sheet, p. F-47.

¹⁴² *Ibid.*

requirements to implement similar programs also exist in U.S. EPA issued MS4 permits. In the most recent MS4 permit for the District of Columbia MS4, U.S. EPA required development, implementation, assessment and upgrading of the Stormwater Management Program (SWMP) Plan.¹⁴³ While the program titles differ, the elements (development, implementation, updating and reporting) are comparable and serve the same functions. This relevant comparison demonstrates that the Board effectively crafted provisions necessary to meet the MEP standard.

Other Mandates Exceptions Also Apply

Other exceptions to state mandates law also apply to these challenged provisions. First, Claimants' own Report of Waste Discharge establishes that they are already performing the kinds of watershed based monitoring and evaluation required in the WQIP.

The 2012-2013 reporting period marked the tenth year of implementation of Watershed Action Plans/Watershed Workplans. The Watershed Workplans build on the considerable work and studies that have been completed collaboratively over a multi-year period . . . [and] consider the findings of the Receiving Waters and MS4 Discharge Monitoring Program in addition to other characterizations of receiving water quality. This data is used to inform management decisions in each of the watersheds, which includes guiding the type and location of BMPs to employ.¹⁴⁴

Further, Claimants themselves endorsed inclusion of WQIPs in the Permit. (See Comments on Draft Regional MS4 Permit (submitted by County of Orange and on behalf of other copermittees), January 11, 2013, pp. 6-7 ("The WQIP approach represents a significant advance in the development and implementation of stormwater programs.")) Where, as here, Claimants endorsed the challenged provision, the provision is not mandated by state law.

There is No Shifting of State Responsibility

Claimants make a related but separate argument within their challenge to Provision F that the state is shifting costs for state programs to Claimants when, as part of the WQIP requirements for the South Orange County Watershed Management Unit, copermittees are required to update the WQIP "to take on the role of developing TMDLs." Claimants state: "The issue is whether the Board has shifted its federally imposed TMDL responsibility to the Permittees, thus creating a state mandate.[fn]"¹⁴⁵ Claimants mischaracterize the scope of the San Diego Water Boards' responsibilities in developing TMDLs for impaired receiving waters affected by MS4 discharges. No responsibility has been shifted.

¹⁴³ "The permittee shall continue to implement, assess and upgrade all of the controls, procedures and management practices, described in this permit, and in the [Storm Water Management Plan] dated February 19, 2009, and any subsequent updates. This Program has been determined to reduce the discharge of pollutants to the maximum extent practicable. The Stormwater Management Program is comprised of all requirements in this permit. All existing and new strategies, elements, initiatives, schedules or programs required by this permit must be documented in the SWMP Plan, which shall be the consolidated document of all stormwater program elements." (U.S. EPA, MS4 Permit for the District of Columbia, DC0000221, modified October 25, 2012, pp. 7-8.

¹⁴⁴ Orange County Copermittees' Report of Waste Discharge, May 20, 2014, section 4.0.

¹⁴⁵ Test Claim Narrative Statement, p. 5-32.

MS4 dischargers such as Claimants are required to control pollutants in their discharges to address impairments and to achieve compliance with water quality standards using the iterative approach outlined in the Permit. If, as a result of WQIP implementation, Claimants' monitoring demonstrates reductions in impairing pollutants have been achieved such that the receiving water body meets water quality standards, Claimants are correct that it may be unnecessary for the San Diego Water Board to expend resources to develop a TMDL to address the impairment. However, in this event, the San Diego Water Board has not shifted responsibility to the Claimants to develop a TMDL. Rather, a TMDL to address impairments need never be developed--by anybody. TMDLs are developed for impaired waterbodies, designed to restore the quality of those waters. TMDLs are developed based on monitoring data from various sources, including particularly dischargers such as permittees. The Clean Water Act does not impose a requirement on the state to conduct any monitoring of the receiving waters to gauge permittee compliance. If the same monitoring by Claimants that would have supported development of a TMDL by the San Diego Water Board or U.S. EPA in fact demonstrates there no impairment exists, there is no shifting of responsibilities.

D. Alternative Compliance Option

Claimants argue that the alternative compliance option available in the Permit (Provision B.3.c.) is a state mandate because (1) it is not actually an alternative to complying with receiving water limitations in Provision A.2., (2) it is not a truly voluntary alternative, and (3) it either imposes a new program or requires a higher level service than prior permits. The Commission must reject all three of Claimants arguments and find that the challenged provision is not a state mandate. The alternative compliance option in Provision B.3.c. provides just that -- an *option* that Claimants can voluntarily elect to pursue to be "deemed in compliance" with receiving water limitations and prohibitions in the Permit. Once deemed in compliance, permittees are insulated from enforcement actions for specified permit provisions.

Claimants' argument depends (1) on rejection of the Water Boards' and judicial interpretations (including most recently by the Ninth Circuit Court of Appeals in *NRDC v. County of Los Angeles*, that the receiving water limitations language and implementation of the iterative process has never provided a "safe harbor" from enforcement; and (2) on rejection of the unambiguous language in the Regional Permit evidencing that alternative compliance option is just that, an option, that permittees may, but are not required, to pursue. That the Claimants cannot be required to avail themselves of this option, i.e., are not in violation of the permit for choosing not to do so, underscores the voluntary nature of the option.

Not a New Program or Higher Level of Service

While the alternative compliance option is "new" to the permit, it has not been imposed on Claimants as either a new program or to mandate a higher level of service with which Claimants must comply. Claimants' arguments that they have no choice but to pursue this option because they face a "barrage" of litigation such that the provisions are not truly voluntary are wholly unsupported in the Test Claim. As discussed above, compliance with the iterative process alone has never provided a safe harbor from enforcement for violations of MS4 permit receiving water limitations. Claimants face no greater risk of enforcement under the Regional Permit than under prior permits. And with incorporation of Provision B.3.c in the Regional Permit in

November 2015, Claimants may now elect a pathway to be deemed in compliance with receiving water limitations, reducing their risk of enforcement even further.¹⁴⁶

Not only is the alternative compliance option not a mandatory program, but Claimants repeatedly requested that an alternative compliance pathway be included in the Regional Permit, beginning with development of the Regional Permit in 2013.¹⁴⁷ The San Diego Water Board declined to adopt such an approach in May 2013 and again in February 2015. After holding numerous workshops with stakeholders to consider the alternative compliance pathway concept and after receiving State Water Board direction to consider alternative compliance pathways,¹⁴⁸ the alternative compliance option became available to Claimants in November 2015.

Last, Claimants argue that the alternative compliance option in Provision B.3.c. should also be determined to be a state mandate because it “further confirms that the purpose of the WQIP requirements in Provision B of the Regional Permit is to shift the requirements for the Regional Board to develop TMDLs to the Joint Test Claimants.” As the Water Boards explained, above, Claimants have not established any such shifting of responsibilities has occurred. Even if it had, the alternative compliance option remains a wholly voluntary effort. The Water Boards reiterate that for all the reasons discussed above, this compliance option is not a state mandate and no subvention of funds is required.

E. Critical Sediment Yield (Provision E.3.c.(2))

Challenged aspects of Provision E.3.c.(2) specify that Copermittees must require Priority Development Projects¹⁴⁹ to implement onsite BMPs to manage hydromodification effects that may be caused by storm water runoff discharged from a project, including BMPs to avoid known critical sediment yield areas, or “to implement measures that allow critical coarse sediment to be discharged to receiving waters, such that there is no net impact to the receiving waters.”¹⁵⁰

¹⁴⁶ See also Permit Fact Sheet discussion, pp. F-59-62.

¹⁴⁷ See e.g., Comments of Orange County Public Works ((Jan. 11, 2013), p. 5 (“Receiving water limitations must provide a compliance mechanism for exceedances of effluent limitations, water quality standards or TMDLs if the Permittees are diligently following an iterative process and implementing BMPs to the MEP standard.”)); Comments of Orange County Public Works ((Nov. 19, 2014), p. 3 (“The Regional Board has discretion with receiving water limitations language beyond what is required to be included by Order 99-05, and the County envisions the Water Quality Improvement Plans (WQIPs) being the foundation for the required iterative BMP-based compliance approach for the discharge prohibitions and limitations language.”)); and Comments of Orange County Public Works ((Sept. 14, 2015), pp. 4-8 (“The proposed alternative compliance pathway at Provision B.3.c provides flexibility.”))

¹⁴⁸ The Los Angeles Water Board included an alternative compliance option in its 2012 Los Angeles MS4 Permit. In Order WQ 2015-0075, the State Water Board considered petitions challenging aspects of the 2012 Los Angeles MS4 Permit, including the alternative compliance option. The State Water Board’s Order endorsed the concept and directed that regional water boards consider incorporation of alternative compliance pathways in MS4 permits, guided by seven principles. (See State Water Board Order WQ 2015-0075 (June 16, 2015) Conclusion 12, p. 77.)

¹⁴⁹ Priority Development Projects (or PDPs) are defined in the Regional Permit at Provision E.3.b.(1). In general, PDPs are “land development projects that fall under the planning and building authority of the Copermittee for which the Copermittee must impose specific requirements. . . including the implementation of structural BMPs to meet the performance requirements”

¹⁵⁰ Regional Permit Provision E.3.c.2(b).

Claimants contend these requirements are new programs because “[p]revious permits did not include a requirement that Priority Development Projects avoid critical sediment yield areas or to design BMPs that will allow coarse sediment to be discharged to receiving waters.”¹⁵¹

Not a New Program or Higher Level of Service

While the specific provisions concerning coarse sediment and critical sediment yield areas are new to the Regional Permit, their inclusion in hydromodification requirements to be performed by project proponents does not result in imposition of a new program or require that Claimants provide a higher level of service. The purpose of these provisions, as in prior permits, is to protect receiving waters from erosion and sediment loss due to land development.¹⁵² As explained in Permit findings, an objective in including such provisions is to “maintain or restore more natural hydrologic flow regimes to prevent accelerated, unnatural erosion in downstream receiving waters, also to the MEP standard. Provision E.3.c.(2) describes hydromodification management BMP requirements that must be implemented by all Priority Development Projects.”¹⁵³

While specific reference to coarse sediment is new in the Regional MS4 Permit, “performance criteria for the implementation of hydromodification management BMPs on Priority Development Projects are consistent with requirements in the Fourth Term Permits for Orange and Riverside Counties (Order Nos. R9-2009-0002 and R9-2010-0016, respectively). Modifications to the Orange County and Riverside County Hydromodification Management Plans (HMPs) will likely be minor, or may not be necessary.”¹⁵⁴ The requirements result in informing developers what criteria they must follow. They pertain directly to Claimants only when the Priority Development Project is undertaken by the municipality itself. In the latter circumstance, no mandate exists because municipalities voluntarily choose to undertake a Priority Development Project.

Even if the Commission finds that the requirements concerning coarse sediment yield are a new program or higher level of service, exceptions apply that preclude requiring subvention of funds.

The Provisions are Necessary to Meet the Federal MEP Standard

As discussed in General Responses, above, the San Diego Water Board determined that the permit provisions are based entirely on federal law and are necessary to implement the MEP standard. More specifically, federal storm water regulations mandate that MS4 permittees propose a program to develop, implement and enforce controls to reduce the discharge of pollutants from municipal storm sewers which receive discharges from areas of new development and significant redevelopment.¹⁵⁵ The San Diego Water Board considered the permittees’ proposals and explained the basis for development of the permit provision as follows:

¹⁵¹ Test Claim Narrative Statement, p. 5-43.

¹⁵² See generally, Order No. R9-2009-0002 at Dir. F.1.d, p. 33

¹⁵³ Permit Fact Sheet, Provision E.3., p. F-100.

¹⁵⁴ *Id.*, p. F-104.

¹⁵⁵ 40 C.F.R. § 122.26(d)(2)(iv)(A)(2).

Hydrograph modification (hydromodification) management requirements also are included to mitigate the potential for increased erosion in receiving waters due to increased runoff rates and durations often caused by development and increased impervious surfaces.¹⁵⁶

And, the Board found that “[p]lacement of impervious services encapsulates ‘good’ sediment (such as sand, gravel, rocks and cobbles) that would normally replenish creek beds and banks to help stabilize them.”¹⁵⁷

The incorporation of coarse sediment yield requirements was thus determined to be a necessary component of the hydromodification requirements to implement the MEP standard under the factual circumstances here. In considering the coarse sediment yield provision in the development planning section, the San Diego Water Board reiterated in response to comments that the “requirements are necessary to protect receiving waters from erosive flows caused by land development.”¹⁵⁸ The San Diego Water Board also clarified that “strict avoidance of critical sediment yield areas is not mandated and that compliance may be achieved by other methods, provided that the stream experiences ‘no net impact.’”¹⁵⁹ As explained above, the Board’s findings that these provisions are necessary to meet the MEP standard are entitled to deference.

Other Mandates Exceptions Also Apply

Also as discussed above in General Responses (Section IV), to the extent the Commission finds that the challenged requirement was imposed in excess of federal law authority, any incremental costs for activities to implement the requirement in the hydromodification management plan beyond previously existing requirements are *de minimis* and therefore not subject to subvention. The *de minimis* determination is further supported because Claimants must require developers of PDPs to adhere to the requirements, not undertake the requirements themselves (unless voluntarily doing so as a municipal developer).

Finally, Claimants have fee authority to fund the hydromodification requirements and cannot establish that they must raise tax monies to carry out implementation of the coarse sediment yield requirements. Claimants may recover the costs of implementing these requirements through development or other fees. Claimants are not subject to the substantive coarse sediment/critical sediment avoidance provisions unless they are also undertaking a Priority Development Project.¹⁶⁰ In this latter case, the costs to comply with the provisions themselves are voluntary and not subject to subvention. For all these reasons, Claimants are not entitled to subvention for this provision.

¹⁵⁶ Permit Fact Sheet, p. F-13.

¹⁵⁷ *Id.*, at p. F-98.

¹⁵⁸ Response to Comments Table (Nov. 4, 2015), p. 52.

¹⁵⁹ *Id.*, at p. 53.

¹⁶⁰ If a Claimant is also developing a project, it subjects itself to the hydromodification requirements voluntarily.

F. BMP Design Manual Update (Provisions E.3.d. and F.2.b.)

Provisions E.3.d and F.2.b require Copermittees to update the BMP Design Manual to include a variety of updates. Claimants contend that requirements to update the BMP Design Manual are new to the Regional MS4 Permit and that neither the Clean Water Act nor federal regulations require such updates.¹⁶¹

Not a New Program or Higher Level of Service

Claimants' prior permits contained a plan comparable to the BMP Design Manual which, likewise, required updates.¹⁶² Claimants contend that unlike the prior permit, the Regional Permit requires updates with "specific procedures and criteria" not previously required. As discussed above in General Responses (Section IV), the modified requirements do not rise to the level of imposing a new program or higher level of service where the objectives of the applicable federal requirements governing implementation of post-construction controls to limit pollutant discharges from areas of land development are the same.¹⁶³

Even if the Commission accepts Claimants' argument that the requirements to update their BMP Design Manual are a new program or impose a higher level of service, exceptions in mandates law apply to preclude subvention.

The Provisions are Necessary to Meet the Federal MEP Standard

The San Diego Water Board determined that the requirements are necessary to address pollutant discharges from areas of new development and significant redevelopment. In the Regional Permit, the San Diego Water Board found that the BMP Design Manual is necessary to implement the federal requirement that the Copermittees' development planning program included "*a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from municipal storm sewers which receive discharges from areas of new development and significant redevelopment.*"¹⁶⁴ As previously explained, the San Diego Water Board's determination that these provisions satisfy the MEP standard and are entirely based on federal law are entitled to deference under *Department of Finance*. Further, the San Diego Water Board's findings that the provisions are necessary to satisfy the federal MEP standard are underscored by the inclusion of similar update requirements in implementation of land development storm water provisions in at least one U.S. EPA-issued permit.¹⁶⁵

¹⁶¹ As discussed above, to the extent Claimants rely on the Commission's prior Statement of Decision in Case 07-TC-09 as support for their arguments, the Water Boards remind the Commission that the Water Boards and Department of Finance challenged numerous aspects of that Decision and these issues remain unresolved by the courts.

¹⁶² "The BMP Design Manual is formerly known as the Standard Storm Water Mitigation Plan, or SSMP, and was renamed so that the title has a more accurate description of the document content. The contents of the BMP Design Manual are largely unchanged from the prior Standard Storm Water Mitigaion Plans required under the Fourth Term Permits." (Permit Fact Sheet, p. F-108.)

¹⁶³ See 40 C.F.R. § 122.26(d)(2)(iv)(A)(2).

¹⁶⁴ Permit Fact Sheet, p. F-108, quoting 40 C.F.R. § 122.26(d)(2)(iv)(A)(2).

¹⁶⁵ U.S. EPA MS4 Permit DC0000221 for the District of Columbia, as modified October 25, 2012, sec. 4.1.

Other Mandates Exceptions Also Apply

First, to the extent the Commission finds the provisions exceed federal requirements, any associated incremental costs of considering specific types of updates are *de minimis*. Second, as discussed above, the Claimants have fee authority to implement these requirements and have not shown that they are required to raise taxes to fund them. Claimants may recover the costs of implementing these requirements through development or other fees. For these reasons, the Commission should find that no subvention is required to fund these updates.

G. Residential Inventory and Inspections (Provision E.5)

Claimants challenge as new programs requirements to develop and implement a residential inventory and inspection program.¹⁶⁶ Claimants argue that the text of the federal regulations does not support these requirements and that the inventory and inspection requirements constitute new programs.

Not a New Program or Higher Level of Service

The Water Boards disagree that the requirements to inventory and inspect residential areas to identify concerns about pollutant discharges constitute a new program. The prior permit, designed to achieve the same objectives, also applied to residential areas. The San Diego Water Board determined in 2009:

Identification of sources of pollutants in runoff (such as municipal areas and activities, industrial and commercial sites/sources, construction sites, and *residential areas*), development and implementation of BMPs to address those sources, and updating ordinances and approval processes are necessary for the Copermittees to *ensure that discharges of pollutants from its MS4 in storm water are reduced to the MEP* and that non-storm water discharges are not occurring. *Inspections and other compliance verification methods are needed to ensure minimum BMPs are implemented.* Inspections are especially important at high risk areas for pollutant discharges.¹⁶⁷

The prior permit also specified that annual reporting requirements must include: “1. Updated minimum BMPs required for residential areas and activities; 2. Quantification and summary of applicable runoff and storm water enforcement actions within residential areas and activities; [and] 3, Description of efforts to manage runoff and storm water pollution in common interest areas.”¹⁶⁸ As discussed in General Responses, above, the type of added specificity in the Regional Permit determined to be necessary to streamline these objectives as compared to the prior permit does not rise to the level of imposing a new program or requiring that local agencies perform a higher level of service.

¹⁶⁶ Claimants identify several subprovisions contained with Provision E.5 but it appears that they limit their state mandate challenge to the residential inventory and inspection requirements. (See description of Mandated Activities in Regional Permit, Narrative Statement, pp. 5-50 – 5-51.) The Water Boards limit their response accordingly.

¹⁶⁷ Order No. R9-2009-0002, Finding D.3.b. (emphasis added).

¹⁶⁸ *Id.*, Directive K.3.a.

Even if the Commission accepts Claimants' argument that the requirements to inventory and inspect residential facilities are a new program or impose a higher level of service, exceptions in mandates law apply to preclude subvention.

The Provisions are Necessary to Meet the Federal MEP Standard

First, the requirements flow from federal storm water regulations that require each municipality to implement a "management program...to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and other such provisions where applicable."¹⁶⁹ Within this section, subprovisions (iv)(A) and (C) require the management program to reduce impacts on receiving waters and reduce pollutants in storm water discharges to the MEP from commercial and *residential areas*, industrial facilities, and municipal facilities. Copermittees are also required to describe "structural and source control measures to reduce pollutants" in stormwater runoff from existing development. The San Diego Water Board found that in order for a copermittee to "properly manage areas of existing development, having knowledge of what development exists within its jurisdiction is essential." Therefore, the challenged provision "requires each Copermittee to maintain a watershed-based inventory of all the existing development within its jurisdiction."¹⁷⁰ The San Diego Water Board also found that using a watershed-based inventory of all land use types would enable copermittees within a watershed management area to more effectively address pollutant flows from existing development.¹⁷¹

As previously explained, the San Diego Water Board's determined that these provisions are necessary to satisfy the MEP standard and are based entirely on federal law. Under the factual circumstances here, these findings are entitled to deference under *Department of Finance*.

Other Mandates Exceptions Also Apply

Second, if the Commission finds that some aspects of these provisions exceed federal requirements, any associated incremental costs of completing the inventory and inspection requirements would be *de minimis*. Finally, as discussed above, the Claimants have fee authority to implement these requirements and have not shown that they are required to raise taxes to fund them. For these reasons, the Commission should find that no subvention is required for the residential inventory and inspection requirements.

H. Retrofit and Rehabilitation of Streams (Provision E.5.e.)

Provision E.5.e in the Regional Permit requires that Copermittees include in their jurisdictional runoff management program document a description of a program element concerning retrofitting areas of existing development within their respective jurisdictions to address identified sources of pollutants and/or stressors that contribute to the highest priority water quality conditions (Provision E.5.e.(1)), and a description of a program to "rehabilitate streams, channels, and/or habitats in areas of existing development within its jurisdiction to address the highest priority water quality conditions . . ." (Provision E.5.e.(2)).

¹⁶⁹40 C.F.R. § 122.26(d)(2)(iv).

¹⁷⁰Permit Fact Sheet, p. F-114.

¹⁷¹ *Ibid.*

Not a New Program or Higher Level of Service

In asserting that the requirements impose a state mandate, Claimants argue in part that nothing in the Clean Water Act or implementing regulations or case law requires copermittees “to develop, fund, and implement a retrofitting and rehabilitation program.”¹⁷² In fact, the Board determined that the challenged provisions:

do not require the implementation of retrofitting and rehabilitation projects, but do require the Copermittee to develop a program of strategies to facilitate the implementation of these types of projects in areas of existing development. The strategies are expected to include allowing and encouraging Priority Development Projects to implement retrofitting types of projects as a means of compliance with the structural BMP performance criteria requirements of Provisions E.3.c.(1) and E.3.c.(2).¹⁷³

For the general reasons discussed above, the Commission should reject Claimants’ arguments that requirements to facilitate water quality improvements by making available retrofit and rehabilitation opportunities amounts to a new program or requires a higher level of service by Claimants.

Even if the Commission accepts Claimants’ argument that the requirements regarding retrofitting and rehabilitation opportunities are a new program or impose a higher level of service on local agencies, exceptions in mandates law apply to preclude subvention.

The Provisions are Necessary to Meet the Federal MEP Standard

First, while the storm water regulations do not explicitly require these provisions be included in the permit, the provisions require development of potential strategies that can result in significant water quality improvements as the Copermittees implement their WQIPs. The provisions flow from the Clean Water Act requirements to control pollutants in discharges to the MEP standard and to effectively prohibit non-storm water discharges to the MS4s. (CWA, § 402(p)(3)(B)(iii) and (ii).) They also implement the regulatory requirement to address land development controls.¹⁷⁴ As discussed above, the iterative process of implementing WQIPs is designed to allow Claimants to achieve compliance with water quality standards over time. In developing these requirements, the Board determined:

[e]xisting development can generate substantial pollutant loads which are discharged in runoff to receiving waters. Retrofitting areas of existing development with storm water pollutant control and hydromodification management BMPs is necessary to address storm water discharges from existing development that may cause or contribute to a condition of pollution or a violation of water quality standards.¹⁷⁵

¹⁷² Test Claim Narrative Statement, p. 5-54.

¹⁷³ Regional Permit, Fact Sheet, p. F-118.

¹⁷⁴ See 40 C.F.R. § 122.26(d)(2)(iv)(A)(2).

¹⁷⁵ Regional Permit, Finding 17.

These provisions are integral to the iterative process embodied in the WQIP. As previously explained, the San Diego Water Board's findings that these provisions are necessary to satisfy the MEP standard and are based entirely on federal law. These findings are entitled to deference under *Department of Finance*.

Moreover, the Water Boards also observe that U.S. EPA required similar – and in some instances more detailed – requirements to address storm water control opportunities in existing development areas in its most recent MS4 permit issued to the District of Columbia. This federal MS4 Permit requires, among other things, that the District establish a “Retrofit Program” and “implement retrofits for stormwater discharges from a minimum of 18,000,000 square feet of impervious surfaces during the permit term. A minimum of 1,500,000 square feet of this objective must be in transportation rights-of-way,” and the District “shall achieve a minimum net annual tree planting rate of 4,150 plantings annually within the District MS4 area, with the objective of a District-wide urban tree canopy coverage of 40[percent] by 2035. . . . The permittee shall ensure that trees are planted and maintained, including requirements for adequately designed and sized tree boxes, to achieve optimal stormwater retention and tree survival rates.”¹⁷⁶

The fact that this U.S. EPA-issued permit includes such prescriptive requirements that are likewise absent when compared directly to the text of the implementing storm water regulations is strong evidence supporting the San Diego Water Board's findings that the permit provisions, under the factual circumstances of the Regional Permit, are necessary to meet the MEP standard and based entirely on federal law.

Other Mandates Exceptions Also Apply

Second, even if the Commission determines that some aspect of these provisions exceeds federal law, the costs to make these programs available as opportunities for developers would be *de minimis*, and do not entitle Claimants to reimbursement. Third, in their ROWD, Claimants proposed that their permit include continued consideration of retrofit and other hydromodification alternative compliance opportunities. Claimants stated:

[e]xtensive watershed mapping of hydromodification susceptibility . . . and regional BMP opportunity sites for the entire south Orange County area has been completed[,] [and proposed to] [e]xamine public land retrofit opportunities for regional BMPs and propose a program to evaluate previously identified regional retrofit opportunities in jurisdictionally owned areas for use in TMDL compliance and LID and/or hydromodification management alternative compliance. This effort will involve the development of watershed models and evaluation of the previously identified potential BMP retrofit sites.¹⁷⁷

¹⁷⁶ U.S. EPA MS4 Permit DC0000221, issued to District of Columbia, modified October 25, 2012, e.g., section 4.1.5 (Retrofit Program for Existing Discharges) and section 4.1.6 (Tree Canopy).

¹⁷⁷ See ROWD, May 20, 2014, at *Executive Summary*, p. v. and *Controlling Pollutant Sources: Jurisdictional Programs*, p.3.2.8.)

Finally, as discussed above, Claimants have fee authority to implement these requirements and have not shown that they are required to raise taxes to fund them. For these reasons, the Commission should find that no subvention of funds is required.

I. Enforcement Response Plan (Provision E.6.)

Claimants assert that the Regional MS4 Permit's requirement to develop and implement an Enforcement Response Plan as part of the jurisdictional runoff management program document is a state mandate. Claimants primarily rely upon prior Commission determinations in MS4 matters. As noted above, the Commission's prior determinations in its Statement of Decision in 07-TC-09 (San Diego County MS4) are still unresolved by the courts and have not been considered in light of *Department of Finance*.

Not a New Program or Higher Level of Service

The Commission should reject Claimants' argument that the provision imposes a new program or requires a higher level of service by local agencies. The San Diego Water Board determined in the prior Orange County permit:

Enforcement of local runoff related ordinances, permits, and plans is an essential component of every runoff management program and is specifically required in the federal storm water regulations and this Order. Each Copermitee is individually responsible for adoption and enforcement of ordinances and/or policies, implementation of identified control measures/BMPs needed to prevent or reduce pollutants in storm water runoff, and for the allocation of funds for the capital, operation and maintenance, administrative, and enforcement expenditures necessary to implement and enforce such control measures/BMPs under its jurisdiction.¹⁷⁸

Supported by this finding, the prior permit directed implementation of enforcement authorities.¹⁷⁹ As with residential inventory and inspection requirements, the Enforcement Plan streamlines enforcement aspects present in the prior permit but does not impose a new program or require a higher level of service be performed.

Even if the Commission accepts Claimants' argument that the requirement to develop and implement an Enforcement Response Plan imposes a new program or requires a higher level of service by Claimants, exceptions in mandates law apply to preclude subvention.

The Provisions Are Necessary to Meet the Federal MEP Standard

Claimants also assert that the requirements are not mandated by federal law because nothing in the Clean Water Act, its implementing regulations or case law specifically requires local agencies to create and implement the challenged plan. The Water Boards disagree that under *Department of Finance*, absence of the specific requirements in the federal regulations precludes finding a federal mandate. First, while the regulations do not explicitly require

¹⁷⁸ Order No. R9-2009-0002, Finding D.3.f.

¹⁷⁹ See Order No. R9-2009-0002, Directives E.1.f, F.1.g, F.2.f(1), F.3.a(9), F.3.b.(5), F.3.c.(3) and F.4.f.

development and implementation of an “enforcement response plan,” the Regional Permit nonetheless implements applicable storm water regulations that require permittees to demonstrate they have adequate legal authorities to carry out their programs. The San Diego Water Board found:

Pursuant to 40 CFR 122.26(d)(1)(ii) and 40 CFR 122.26(d)(2)(i), each Copermittee must have sufficient “*legal authority to control discharges to the municipal separate storm sewer system*” and be able to demonstrate that it can “*operate pursuant to legal authority established by statute, ordinance or series of contracts*” to control the discharge of non-storm water and pollutants in storm water to and from its MS4. Pursuant to 40 CFR 122.26(d)(2)(i)(E) each Copermittee is specifically required to have the legal authority to “[r]equire compliance with conditions in ordinances, permits, contracts or orders.”¹⁸⁰

The San Diego Water Board identified development of the Enforcement Response Plan as an essential tool for transparency and evaluating implementation of the permit:

The Copermittees are allowed to utilize and implement their existing procedures if they meet the requirements of Provision E.6. Provision E.6, however, requires each Copermittee to develop an Enforcement Response Plan, included as part of its jurisdictional runoff management program document, which the San Diego Water Board and the public may utilize to determine if the Copermittee is indeed implementing its enforcement program according to its procedures. The Enforcement Response Plan is expected to be a tool the Copermittee can refer to when issuing enforcement actions to compel compliance with its statutes, ordinances, permits, contracts, order, or similar means, and the requirements of the Order. The Enforcement Response Plan is also expected to result in more consistent enforcement and enforcement actions by the Copermittee within its jurisdiction.¹⁸¹

After considering the legal authorities and purposes of the federal requirements, the San Diego Water Board found that the provisions in the Regional Permit, inclusive of the enforcement related provisions, are based entirely on federal law and necessary to achieve the MEP standard. As previously explained, the San Diego Water Board’s findings are entitled to deference under *Department of Finance*.

Other Mandates Exceptions Also Apply

Second, as discussed above, the Claimants have fee authority to implement these requirements and have not shown that they are required to raise taxes to fund them. Potentially, monies received from enforcement efforts could be applied to fund these requirements. Finally, if the Commission finds that any portion of the requirement to consolidate enforcement information in an Enforcement Plan exceeds federal law, associated incremental costs of these activities would be *de minimis*. For these reasons, the Commission should find that no subvention is required for this challenged provision.

¹⁸⁰Regional Permit Fact Sheet, p. F-119.

¹⁸¹ Response to Comments, March 27, 2013, Comment E6-4, p. 216.

J. Jurisdictional Urban Runoff Management Plan Update (Provision F.2.a.)

Claimants argue that the requirement to update the Jurisdictional Runoff Management Plan (JRMP) is a state mandate. Claimants rely on prior Commission determinations in municipal storm water test claims which are pending in the courts to support their contention.¹⁸² They also argue that nothing in federal law or implementing regulation requires that permittees “create, review and update a JRMP where that update consists of at least eight elements.”¹⁸³

Not a New Program or Higher Level of Service

The Water Boards disagree that the provision to update the JRMP imposes a new program or requires a higher level of service by Claimants. The prior MS4 permit for Orange County also required preparation of updated JRMPs:

Updated [JRMPs] . . . which describe the Copermittees’ runoff management programs in their entirety, are needed to guide the Copermittees’ runoff management efforts and aid the Copermittees in tracking runoff management program implementation.¹⁸⁴

While the prior permit did not include the listing of each of eight specific elements, it directed Copermittees to “revise and update its existing JRMP so that it describes all activities the Copermittees will undertake to implement the requirements of this Order.”¹⁸⁵ The requirement is not a new program, nor does it impose a higher level of service on Claimants – instead it merely reflects the separately required components of the Regional Permit to the extent they differ from the prior permit.

Even if the Commission accepts Claimants’ argument that the requirement to update the JRMP imposes a new program or requires a higher level of service, exceptions in mandates law apply to preclude subvention for this challenged provision.

The Provision is Necessary to Meet the Federal MEP Standard

It is relevant to evaluate the underlying federal purposes of JRMPs when considering whether the requirement to make updates is likewise necessary to meet the MEP standard. A JRMP is a “program to control the contribution of pollutants to and the discharges from the MS4 within [a] jurisdiction. The goal of the jurisdictional runoff management programs is to implement strategies that effectively prohibit non-storm water discharges to the MS4 and reduce the discharge of pollutants in storm water to the MEP.”¹⁸⁶ Because JRMPs have been developed under prior permits, the requirement to make appropriate updates is essential to the success of a JRMP at achieving federal water quality standards through the iterative process.

¹⁸² As noted above, the Commission’s prior determinations in its Statement of Decision in 07-TC-09 (San Diego County MS4) are still unresolved by the courts and have not been considered in light of *Department of Finance*.

¹⁸³ Test Claim, Narrative Statement, p. 5-59.

¹⁸⁴ Order No. R9-2009-0002, Finding D.1.d, p. 7.

¹⁸⁵ *Id.*, Dir. K.1.a.(1), p. 83.

¹⁸⁶ Regional Permit Fact Sheet, p. 83.

Unlike in the LA Permit case considered in *Department of Finance*, the San Diego Water Board found that the provisions in the Regional Permit are exclusively based on federal law and necessary to achieve the MEP standard. As previously explained, the San Diego Water Board's findings are entitled to deference under *Department of Finance*. Moreover, that the requirement is a federal, not a state mandate, is supported by the inclusion of similar requirements in the most recent U.S. EPA-issued MS4 Permit for the District of Columbia. In that permit, U.S. EPA requires the District to "continue to implement, assess and upgrade all of the controls, procedures and management practices described in this permit, and in the SWMP dated February 19, 2009, and any subsequent updates. . . ." and "No later than 3 years from the issuance date of this permit the permittee shall notice a fully updated Plan including all of the elements required in this permit."¹⁸⁷ U.S. EPA's Annual Report requirements imposed in the same permit also include extensive requirements for proposed revisions, assessments and analyses.¹⁸⁸ The fact that U.S. EPA has issued at least one permit that includes similar requirements demonstrates that the San Diego Water Board's effectively determined what provisions were necessary to meet the MEP standard in this case.

Other Mandates Exceptions Also Apply

First, if the Commission finds that some aspect of the JRMP update provisions exceed federal law, any associated incremental costs would be *de minimis*. Second, as discussed above, the Claimants have fee authority to implement these requirements and have not shown that they are required to raise taxes to fund them. For these reasons, the Commission should find that no subvention is required for implementation of this provision.

K. Requirement to Appear Before San Diego Water Board (Provision F.3.a.)

The Regional Permit requires that Copermittees appear periodically to present progress reports on implementation of their WQIPs and JRMPs. Claimants contend this requirement is a state mandate because it imposes a new program or requires they provide a higher level of service than in prior permits. As explained in the General Responses, above, the Water Boards disagree that such a requirement constitutes a new program or higher level of service within mandates law.

Even if the Commission accepts Claimants' argument that the requirement to personally appear to report progress in program implementation imposes a new program or requires a higher level of service, exceptions in mandates law apply to preclude subvention.

The Provision is Necessary to Meet the Federal MEP Standard

The San Diego Water Board determined that it was necessary to have the flexibility to require periodic progress reports from copermittees in each Watershed Management Area. Unlike in the LA Permit case considered in *Department of Finance*, the San Diego Water Board found that the provisions in the Regional MS4 Permit are necessary to achieve the MEP standard and

¹⁸⁷ U.S. EPA MS4 Permit DC0000221, (modified October 25, 2012) sec. 3.

¹⁸⁸ *Id.*, at sec. 6.2.1

based entirely on federal law. As previously explained, the San Diego Water Board's findings are entitled to deference under *Department of Finance*.

Moreover, that the requirement is a federal, not a state mandate, is further supported by U.S. EPA's inclusion of an in-person *annual* reporting requirement in the most recent U.S. EPA-issued MS4 Permit for the District of Columbia. In that permit, U.S. EPA requires the District of Columbia convene an annual in person meeting with U.S. EPA "to present annual progress and plans for the following year."¹⁸⁹ In contrast to the U.S. EPA's annual requirement, no personal progress reports have yet been required under the Regional Permit, resulting in far less than the annual frequency imposed by U.S. EPA. U.S. EPA's inclusion of a comparable requirement lends support for the San Diego Water Board's determination of what is necessary to meet the MEP standard in the Regional Permit.

Other Mandates Exceptions Also Apply

Even if the Commission nonetheless finds that the requirement for periodic annual reporting exceeds federal law requirements, any associated incremental costs are *de minimis*. Additionally, as discussed above, the Claimants have fee authority to implement these requirements and have not shown that they are required to raise taxes to fund them. For all of these reasons, the Commission should find that no subvention is required for a periodic appearance.

VI. CONCLUSION

The above response clearly establishes that the challenged provisions are not state mandates because they do not impose new programs or higher levels of service on Claimants. For any challenged provision which the Commission nonetheless finds to be mandated by the state, the Commission should find that the provisions are instead mandated by federal law and/or that other exceptions apply, precluding a finding that subvention is required for any of the Test Claim provisions.

The focus of consideration of the federal mandate exception in *Department of Finance* was the application of the MEP standard to two LA MS4 Permit provisions, where the Los Angeles Regional Water Quality Control Board had not explicitly found that the provisions met that standard.¹⁹⁰ In reaching the conclusion that those two provisions did *not* meet MEP, the Court suggested that the result might have been different if the agency *had* found that permit conditions were MEP, and specifically noted that deference to the agency would be appropriate.¹⁹¹ Here, the San Diego Water Board *did* find that the permit conditions of the Regional MS4 Permit were necessary to satisfy the MEP standard and that the permit was based entirely on federal law. Those findings are entitled to deference.

Even if the Commission does not defer to the San Diego Water Board's findings, analogous provisions in U.S. EPA-issued permits independently demonstrate that the Permit's provisions

¹⁸⁹ *Id.* Sec. 6.2.2.

¹⁹⁰ *Department of Finance v. Comm'n on State Mandates*, *supra*, 1 Cal.5th at p. 768.

¹⁹¹ *Id.*

were federally mandated.¹⁹² In addition, the Permit's provisions implement other federal standards, discussed above, that the Supreme Court did not evaluate. Furthermore, the Supreme Court's decision did not address a number of the other exceptions to mandates law present here, such as the existence of fee authority, the absence of a new program or higher level of service, and the absence of requirements "unique" to local governments and situations where costs are *de minimis*.

For these reasons, the Commission should find that the Regional Permit does not impose state mandates requiring subvention and the Commission should deny the Test Claim in its entirety.

I certify and declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my personal knowledge.



Catherine George Hagan

Attorney IV
Office of Chief Counsel
State Water Resources Control Board
c/o San Diego Water Board
2375 Northside Drive, Suite 100
San Diego, CA 92108
Tel. (619) 521-3012
Email: catherine.hagan@waterboards.ca.gov

Attachments

cc: Service List via Commission Drop Box

¹⁹² See *id.*, at p. 772.

ATTACHMENTS TO WATER BOARD COMMENTS¹

Federal Regulations

1. 40 CFR Part 122.42
2. 40 CFR Part 122.48
3. Vol. 55 Fed. Reg. 47990 (Nov. 16, 1990)
4. Vol. 61 Fed. Reg. 41698 (Aug. 9, 1996)
5. Vol. 64 Fed. Reg. 68722 (Dec. 8, 1999)

State Statutes and Regulations

6. Water Code § 13370, et seq. (Division 7, Chapter 5.5)
7. Cal. Code Regs., tit. 23, § 2235.2
8. Cal. Code Regs., tit. 23, § 2235.3

Federal Court Decisions

9. *Environmental Defense Center v. U.S. EPA* (9th Cir. 2003) 344 F.3d 862
10. *Natural Resources Defense Council v. Costle* (D.C. Cir. 1977) 568 F.2d 1369
11. *Waterkeeper Alliance, Inc. v. U.S. EPA* (2nd Cir. 2005) 399 F.3d. 486

State Court Decisions

12. *County of Los Angeles v. State of California* (1987) 43 Cal.3d 46
13. *Connell v. Superior Court* (1997) 59 Cal.App.4th 382
14. *Clovis Unified School District v. Chiang* (2010) 188 Cal.App.4th 794

¹To avoid duplication, most materials referenced in the Test Claim are not also included as attachments to this Response. (Cal. Code Regs., tit. 2, § 1183.2)

Other Administrative Materials

15. State Water Resources Control Board, Order: WQ 99-05 (Environmental Health Coalition)
16. California Regional Water Quality Control Board, *Water Quality Control Plan for the San Diego Region (Basin Plan)* at http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/
17. State Water Resources Control Board, Water Quality Control Plan, Ocean Waters of California (*Ocean Plan*)
18. State Water Resources Control Board, *Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options* (June 16, 2005)
19. State Water Resources Control Board, Water Quality (WQ) Order No. 2012-0175, *Waste Discharge Requirements for the Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4* (June 16, 2015)
20. State Water Resources Control Board, Order 2012-0011-DWQ as Amended, NPDES No. CAS000003, *National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit, Waste Discharge Requirements (WDRs) for State of California, Department of Transportation* (Adopted 2012, Amended 2014 and 2015)
21. State Water Resources Control Board, Order NPDES No. CAS000001, *General Permit for Storm Water Discharges Associated with Industrial Activities* (Adopted April 1, 2014)
22. San Diego Water Board Resolution No. R9-2010-0001, *A Resolution Amending the Water Quality Control Plan for the San Diego Basin (9) To Incorporate Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)* (February 10, 2010)
23. U.S. EPA Letter Approving Revised Beaches and Creeks TMDL (June 22, 2011)
24. San Diego Water Board, Order No. R9-2016-0116, NPDES No. CA0109134, *Waste Discharge Requirements for General Dynamics, National Steel and Shipbuilding Company (NASSCO) Discharge to San Diego Bay*
25. San Diego Water Board Order No. R9-2015-0117, NPDES No. CA0109185, *Waste Discharge Requirements for the United States Department of the Navy, Naval Base Coronado, San Diego County*

Materials in Regional MS4 Permit Proceeding

26. San Diego Water Board Response to Comments on Order No. R9-2013-0001 (March 27, 2013)
27. San Diego Water Board Response to Comments on Order No. R9-2015-0001 (January 21, 2015)

28. San Diego Water Board Response to Comments Report for Order No. R9-2015-0100 (November 4, 2015, Revised November 10, 2015)
29. Orange County Copermittees' Report of Waste Discharge, May 21, 2014
30. Orange County Public Works, Comment Letter (January 11, 2013)
31. Orange County Public Works, Comment Letter (November 19, 2014)
32. Orange County Public Works, Comment Letter (September 14, 2015)
33. U.S. EPA Comment Letter on Draft Regional MS4 Permit (February 14, 2012)
34. U.S. EPA Comment Letter on Draft Regional MS4 Permit (January 11, 2013)
35. U.S. EPA Comment Letter (Email) on Draft Regional MS4 Permit (February 12, 2013)
36. U.S. EPA Letter to Darrell Issa re Draft Regional MS4 Permit (April 24, 2013)
37. Transcript of San Diego Water Board Public Hearing for Order No. R9-2015-0100, November 18, 2015

Materials From Prior San Diego Water Board MS4 Permit Proceedings

38. San Diego Water Board Order No. R9-2009-0002, *Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of Orange, the Incorporated Cities of Orange County and the Orange County Flood Control District Within the San Diego Region* (National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0108740), adopted December 16, 2009
39. Permit Fact Sheet for San Diego Water Board Order No. R9-2009-0002, *Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of Orange, the Incorporated Cities of Orange County and the Orange County Flood Control District Within the San Diego Region* (National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0108740), adopted December 16, 2009
40. San Diego Water Board Order No. R9-2002-0001, *Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of Orange, the Incorporated Cities of Orange County and the Orange County Flood Control District Within the San Diego Region* (National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0108740) (February 2002)
41. Permit Fact Sheet for San Diego Water Board Order No. R9-2002-0001, *Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of Orange, the Incorporated Cities of Orange County and the Orange County Flood Control District Within the San Diego Region* (National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0108740) (February 2002)

42. U.S. EPA Comment Letter on Draft 2009 Orange County MS4 Permit (May 14, 2009)
43. U.S. EPA Comment Letter on Draft 2009 Orange County MS4 Permit (June 18, 2009)
44. U.S. EPA Comment Letter on Draft 2009 Orange County MS4 Permit (Sept. 28, 2009)

Other Jurisdictions' MS4 Permits and Related Correspondence

45. U.S. EPA, NPDES Permit No. DC0000221, *Authorization to Discharge Under the National Pollutant Discharge Elimination System, Municipal Separate Storm Sewer System Permit*, issued to the District of Columbia (Final Modified Permit, October 25, 2012)
46. U.S. EPA, NPDES Permit No. DC0000221, *Authorization to Discharge Under the National Pollutant Discharge Elimination System, Municipal Separate Storm Sewer System Permit*, issued to the District of Columbia, Fact Sheet (September 30, 2011)
47. 2001 Los Angeles Regional Water Board MS4 Permit, Order No. 01-182, *NPDES Permit CAS004001, Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles, and the Incorporated Cities Therein, Except the City of Long Beach* (December 2001, amended in September 2006 and August 2007)

U.S. EPA Correspondence in Other Water Board Proceedings

48. Letter from Alexis Strauss to State Water Board (April 10, 2008)
49. Letter from Alexis Strauss to Mark Grey (July 31, 2008)
50. Letter to Santa Ana Water Board re Draft Permit for Orange County (June 20, 2014)
51. Letter to Los Angeles Water Board re Draft Permit for Long Beach (January 15, 2014)
52. Letter to Los Angeles Water Board re Draft Permit for Los Angeles (July 23, 2012)
53. Letter to State Water Board Concerning Petition A-2236(a)-(kk) (January 20, 2015)

Guidance and Miscellaneous Materials

54. U.S. EPA Memorandum, *Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs* (November 22, 2002)
55. U.S. EPA Memorandum, *Revisions to the November 22, 2002 Memorandum "Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs"* (November 26, 2014)
56. U.S. EPA, *MS4 Program Evaluation Guidance*
57. U.S. EPA, *MS4 Improvement Guidance* (April 2010)
58. U.S. EPA, *National Management Measures to Control Nonpoint Source Pollution from Hydromodification* (July 2007)
59. U.S. EPA Hydromodification Management Program Technical Report (December 2005)
60. 2005 Stormwater Utility Report, Black and Veatch
61. City of Santa Cruz Measure E
62. City of San Jose Storm Sewer Charge (web page listing)
63. City of San Clemente Urban Runoff Management Fee/Clean Ocean Program
64. City of Palo Alto Storm Drainage Fee/San Jose Mercury News Article
65. City of Alameda Sewer and Storm Water Fees Bulletin



ATTACHMENT

1

 KeyCite Yellow Flag - Negative Treatment

Unconstitutional or Preempted Prior Version Held Invalid [Waterkeeper Alliance, Inc. v. U.S. E.P.A.](#), 2nd Cir., Feb. 28, 2005

 KeyCite Yellow Flag - Negative Treatment Proposed Regulation

[Code of Federal Regulations](#)

[Title 40. Protection of Environment](#)

[Chapter I. Environmental Protection Agency \(Refs & Annos\)](#)

[Subchapter D. Water Programs](#)

[Part 122. EPA Administered Permit Programs: The National Pollutant Discharge Elimination System \(Refs & Annos\)](#)

[Subpart C. Permit Conditions](#)

40 C.F.R. § 122.42

§ 122.42 Additional conditions applicable to specified categories of NPDES permits (applicable to State NPDES programs, see § 123.25).

Effective: December 21, 2015

[Currentness](#)

The following conditions, in addition to those set forth in [§ 122.41](#), apply to all NPDES permits within the categories specified below:

(a) Existing manufacturing, commercial, mining, and silvicultural dischargers. In addition to the reporting requirements under [§ 122.41\(1\)](#), all existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:

(1) That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following “notification levels”:

(i) One hundred micrograms per liter (100 µg/l);

(ii) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

(iii) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with [§ 122.21\(g\)\(7\)](#); or

(iv) The level established by the Director in accordance with [§ 122.44\(f\)](#).

(2) That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following “notification levels”:

(i) Five hundred micrograms per liter (500 µg/l);

(ii) One milligram per liter (1 mg/l) for antimony;

(iii) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with § 122.21(g)(7).

(iv) The level established by the Director in accordance with § 122.44(f).

(b) Publicly owned treatment works. All POTWs must provide adequate notice to the Director of the following:

(1) Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to sections 301 or 306 of CWA if it were directly discharging those pollutants; and

(2) Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

(3) For purposes of this paragraph, adequate notice shall include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

(c) Municipal separate storm sewer systems. The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer that has been designated by the Director under § 122.26(a)(1)(v) must submit an annual report by the anniversary of the date of the issuance of the permit for such system. As of December 21, 2020 all reports submitted in compliance with this section must be submitted electronically by the owner, operator, or the duly authorized representative of the MS4 to the Director or initial recipient, as defined in 40 CFR 127.2(b), in compliance with this section and 40 CFR part 3 (including, in all cases, subpart D to part 3), § 122.22, and 40 CFR part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of part 127, the owner, operator, or the duly authorized representative of the MS4 may be required to report electronically if specified by a particular permit or if required to do so by state law. The report shall include:

(1) The status of implementing the components of the storm water management program that are established as permit conditions;

(2) Proposed changes to the storm water management programs that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; and

(3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)(iv) and (d)(2)(v) of this part;

(4) A summary of data, including monitoring data, that is accumulated throughout the reporting year;

(5) Annual expenditures and budget for year following each annual report;

(6) A summary describing the number and nature of enforcement actions, inspections, and public education programs;

(7) Identification of water quality improvements or degradation;

(d) Storm water discharges. The initial permits for discharges composed entirely of storm water issued pursuant to § 122.26(e)(7) of this part shall require compliance with the conditions of the permit as expeditiously as practicable, but in no event later than three years after the date of issuance of the permit.

(e) Concentrated animal feeding operations (CAFOs). Any permit issued to a CAFO must include the requirements in paragraphs (e)(1) through (e)(6) of this section.

(1) Requirement to implement a nutrient management plan. Any permit issued to a CAFO must include a requirement to implement a nutrient management plan that, at a minimum, contains best management practices necessary to meet the requirements of this paragraph and applicable effluent limitations and standards, including those specified in 40 CFR part 412. The nutrient management plan must, to the extent applicable:

(i) Ensure adequate storage of manure, litter, and process wastewater, including procedures to ensure proper operation and maintenance of the storage facilities;

(ii) Ensure proper management of mortalities (i.e., dead animals) to ensure that they are not disposed of in a liquid manure, storm water, or process wastewater storage or treatment system that is not specifically designed to treat animal mortalities;

(iii) Ensure that clean water is diverted, as appropriate, from the production area;

(iv) Prevent direct contact of confined animals with waters of the United States;

(v) Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants;

(vi) Identify appropriate site specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants to waters of the United States;

(vii) Identify protocols for appropriate testing of manure, litter, process wastewater, and soil;

(viii) Establish protocols to land apply manure, litter or process wastewater in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter or process wastewater; and

(ix) Identify specific records that will be maintained to document the implementation and management of the minimum elements described in paragraphs (e)(1)(i) through (e)(1)(viii) of this section.

(2) Recordkeeping requirements.

(i) The permittee must create, maintain for five years, and make available to the Director, upon request, the following records:

(A) All applicable records identified pursuant paragraph (e)(1)(ix) of this section;

(B) In addition, all CAFOs subject to 40 CFR part 412 must comply with record keeping requirements as specified in § 412.37(b) and (c) and § 412.47(b) and (c).

(ii) A copy of the CAFO's site-specific nutrient management plan must be maintained on site and made available to the Director upon request.

(3) Requirements relating to transfer of manure or process wastewater to other persons. Prior to transferring manure, litter or process wastewater to other persons, Large CAFOs must provide the recipient of the manure, litter or process wastewater with the most current nutrient analysis. The analysis provided must be consistent with the requirements of 40 CFR part 412. Large CAFOs must retain for five years records of the date, recipient name and address, and approximate amount of manure, litter or process wastewater transferred to another person.

(4) Annual reporting requirements for CAFOs. The permittee must submit an annual report to the Director. As of December 21, 2020 all annual reports submitted in compliance with this section must be submitted electronically by the permittee to the Director or initial recipient, as defined in 40 CFR 127.2(b), in compliance with this section and 40 CFR part 3 (including, in all cases, subpart D to part 3), § 122.22, and 40 CFR part 127. Part 127 is not

intended to undo existing requirements for electronic reporting. Prior to this date, and independent of part 127, the permittee may be required to report electronically if specified by a particular permit or if required to do so by state law. The annual report must include:

- (i) The number and type of animals, whether in open confinement or housed under roof (beef cattle, broilers, layers, swine weighing 55 pounds or more, swine weighing less than 55 pounds, mature dairy cows, dairy heifers, veal calves, sheep and lambs, horses, ducks, turkeys, other);
- (ii) Estimated amount of total manure, litter and process wastewater generated by the CAFO in the previous 12 months (tons/gallons);
- (iii) Estimated amount of total manure, litter and process wastewater transferred to other person by the CAFO in the previous 12 months (tons/gallons);
- (iv) Total number of acres for land application covered by the nutrient management plan developed in accordance with paragraph (e)(1) of this section;
- (v) Total number of acres under control of the CAFO that were used for land application of manure, litter and process wastewater in the previous 12 months;
- (vi) Summary of all manure, litter and process wastewater discharges from the production area that have occurred in the previous 12 months, including, for each discharge, the date of discovery, duration of discharge, and approximate volume; and
- (vii) A statement indicating whether the current version of the CAFO's nutrient management plan was developed or approved by a certified nutrient management planner; and
- (viii) The actual crop(s) planted and actual yield(s) for each field, the actual nitrogen and phosphorus content of the manure, litter, and process wastewater, the results of calculations conducted in accordance with paragraphs (e)(5)(i) (B) and (e)(5)(ii)(D) of this section, and the amount of manure, litter, and process wastewater applied to each field during the previous 12 months; and, for any CAFO that implements a nutrient management plan that addresses rates of application in accordance with paragraph (e)(5)(ii) of this section, the results of any soil testing for nitrogen and phosphorus taken during the preceding 12 months, the data used in calculations conducted in accordance with paragraph (e)(5)(ii)(D) of this section, and the amount of any supplemental fertilizer applied during the previous 12 months.

(5) Terms of the nutrient management plan. Any permit issued to a CAFO must require compliance with the terms of the CAFO's site-specific nutrient management plan. The terms of the nutrient management plan are the information, protocols, best management practices, and other conditions in the nutrient management plan determined by the Director to be necessary to meet the requirements of paragraph (e)(1) of this section. The terms of the nutrient management plan, with respect to protocols for land application of manure, litter, or process wastewater required

by paragraph (e)(1)(viii) of this section and, as applicable, 40 CFR 412.4(c), must include the fields available for land application; field-specific rates of application properly developed, as specified in paragraphs (e)(5)(i) through (ii) of this section, to ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater; and any timing limitations identified in the nutrient management plan concerning land application on the fields available for land application. The terms must address rates of application using one of the following two approaches, unless the Director specifies that only one of these approaches may be used:

(i) Linear approach. An approach that expresses rates of application as pounds of nitrogen and phosphorus, according to the following specifications:

(A) The terms include maximum application rates from manure, litter, and process wastewater for each year of permit coverage, for each crop identified in the nutrient management plan, in chemical forms determined to be acceptable to the Director, in pounds per acre, per year, for each field to be used for land application, and certain factors necessary to determine such rates. At a minimum, the factors that are terms must include: The outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field; the crops to be planted in each field or any other uses of a field such as pasture or fallow fields; the realistic yield goal for each crop or use identified for each field; the nitrogen and phosphorus recommendations from sources specified by the Director for each crop or use identified for each field; credits for all nitrogen in the field that will be plant available; consideration of multi-year phosphorus application; and accounting for all other additions of plant available nitrogen and phosphorus to the field. In addition, the terms include the form and source of manure, litter, and process wastewater to be land-applied; the timing and method of land application; and the methodology by which the nutrient management plan accounts for the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied.

(B) Large CAFOs that use this approach must calculate the maximum amount of manure, litter, and process wastewater to be land applied at least once each year using the results of the most recent representative manure, litter, and process wastewater tests for nitrogen and phosphorus taken within 12 months of the date of land application; or

(ii) Narrative rate approach. An approach that expresses rates of application as a narrative rate of application that results in the amount, in tons or gallons, of manure, litter, and process wastewater to be land applied, according to the following specifications:

(A) The terms include maximum amounts of nitrogen and phosphorus derived from all sources of nutrients, for each crop identified in the nutrient management plan, in chemical forms determined to be acceptable to the Director, in pounds per acre, for each field, and certain factors necessary to determine such amounts. At a minimum, the factors that are terms must include: the outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field; the crops to be planted in each field or any other uses such as pasture or fallow fields (including alternative crops identified in accordance with paragraph (e)(5)(ii)(B) of this section); the realistic yield goal for each crop or use identified for each field; and the nitrogen and phosphorus recommendations from sources specified by the Director for each crop or use identified for each field. In addition, the terms include the methodology by which the nutrient management plan accounts for the following factors when calculating the amounts of manure, litter, and process wastewater to be land applied: Results of soil tests conducted in accordance with protocols identified in the nutrient management plan, as required by paragraph (e)(1)(vii) of this section; credits for all nitrogen in the field that will be plant available; the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied;

consideration of multi-year phosphorus application; accounting for all other additions of plant available nitrogen and phosphorus to the field; the form and source of manure, litter, and process wastewater; the timing and method of land application; and volatilization of nitrogen and mineralization of organic nitrogen.

(B) The terms of the nutrient management plan include alternative crops identified in the CAFO's nutrient management plan that are not in the planned crop rotation. Where a CAFO includes alternative crops in its nutrient management plan, the crops must be listed by field, in addition to the crops identified in the planned crop rotation for that field, and the nutrient management plan must include realistic crop yield goals and the nitrogen and phosphorus recommendations from sources specified by the Director for each crop. Maximum amounts of nitrogen and phosphorus from all sources of nutrients and the amounts of manure, litter, and process wastewater to be applied must be determined in accordance with the methodology described in paragraph (e)(5)(ii)(A) of this section.

(C) For CAFOs using this approach, the following projections must be included in the nutrient management plan submitted to the Director, but are not terms of the nutrient management plan: The CAFO's planned crop rotations for each field for the period of permit coverage; the projected amount of manure, litter, or process wastewater to be applied; projected credits for all nitrogen in the field that will be plant available; consideration of multi-year phosphorus application; accounting for all other additions of plant available nitrogen and phosphorus to the field; and the predicted form, source, and method of application of manure, litter, and process wastewater for each crop. Timing of application for each field, insofar as it concerns the calculation of rates of application, is not a term of the nutrient management plan.

(D) CAFOs that use this approach must calculate maximum amounts of manure, litter, and process wastewater to be land applied at least once each year using the methodology required in paragraph (e)(5)(ii)(A) of this section before land applying manure, litter, and process wastewater and must rely on the following data:

(1) A field-specific determination of soil levels of nitrogen and phosphorus, including, for nitrogen, a concurrent determination of nitrogen that will be plant available consistent with the methodology required by paragraph (e)(5)(ii)(A) of this section, and for phosphorus, the results of the most recent soil test conducted in accordance with soil testing requirements approved by the Director; and

(2) The results of most recent representative manure, litter, and process wastewater tests for nitrogen and phosphorus taken within 12 months of the date of land application, in order to determine the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied.

(6) Changes to a nutrient management plan. Any permit issued to a CAFO must require the following procedures to apply when a CAFO owner or operator makes changes to the CAFO's nutrient management plan previously submitted to the Director:

(i) The CAFO owner or operator must provide the Director with the most current version of the CAFO's nutrient management plan and identify changes from the previous version, except that the results of calculations made in accordance with the requirements of paragraphs (e)(5)(i)(B) and (e)(5)(ii)(D) of this section are not subject to the requirements of paragraph (e)(6) of this section.

(ii) The Director must review the revised nutrient management plan to ensure that it meets the requirements of this section and applicable effluent limitations and standards, including those specified in 40 CFR part 412, and must determine whether the changes to the nutrient management plan necessitate revision to the terms of the nutrient management plan incorporated into the permit issued to the CAFO. If revision to the terms of the nutrient management plan is not necessary, the Director must notify the CAFO owner or operator and upon such notification the CAFO may implement the revised nutrient management plan. If revision to the terms of the nutrient management plan is necessary, the Director must determine whether such changes are substantial changes as described in paragraph (e)(6)(iii) of this section.

(A) If the Director determines that the changes to the terms of the nutrient management plan are not substantial, the Director must make the revised nutrient management plan publicly available and include it in the permit record, revise the terms of the nutrient management plan incorporated into the permit, and notify the owner or operator and inform the public of any changes to the terms of the nutrient management plan that are incorporated into the permit.

(B) If the Director determines that the changes to the terms of the nutrient management plan are substantial, the Director must notify the public and make the proposed changes and the information submitted by the CAFO owner or operator available for public review and comment. The process for public comments, hearing requests, and the hearing process if a hearing is held must follow the procedures applicable to draft permits set forth in [40 CFR 124.11](#) through [124.13](#). The Director may establish, either by regulation or in the CAFO's permit, an appropriate period of time for the public to comment and request a hearing on the proposed changes that differs from the time period specified in [40 CFR 124.10](#). The Director must respond to all significant comments received during the comment period as provided in [40 CFR 124.17](#), and require the CAFO owner or operator to further revise the nutrient management plan if necessary, in order to approve the revision to the terms of the nutrient management plan incorporated into the CAFO's permit. Once the Director incorporates the revised terms of the nutrient management plan into the permit, the Director must notify the owner or operator and inform the public of the final decision concerning revisions to the terms and conditions of the permit.

(iii) Substantial changes to the terms of a nutrient management plan incorporated as terms and conditions of a permit include, but are not limited to:

(A) Addition of new land application areas not previously included in the CAFO's nutrient management plan. Except that if the land application area that is being added to the nutrient management plan is covered by terms of a nutrient management plan incorporated into an existing NPDES permit in accordance with the requirements of paragraph (e)(5) of this section, and the CAFO owner or operator applies manure, litter, or process wastewater on the newly added land application area in accordance with the existing field-specific permit terms applicable to the newly added land application area, such addition of new land would be a change to the new CAFO owner or operator's nutrient management plan but not a substantial change for purposes of this section;

(B) Any changes to the field-specific maximum annual rates for land application, as set forth in paragraphs (e)(5)(i) of this section, and to the maximum amounts of nitrogen and phosphorus derived from all sources for each crop, as set forth in paragraph (e)(5)(ii) of this section;

(C) Addition of any crop or other uses not included in the terms of the CAFO's nutrient management plan and corresponding field-specific rates of application expressed in accordance with paragraph (e)(5) of this section; and

(D) Changes to site-specific components of the CAFO's nutrient management plan, where such changes are likely to increase the risk of nitrogen and phosphorus transport to waters of the U.S.

(iv) For EPA-issued permits only. Upon incorporation of the revised terms of the nutrient management plan into the permit, [40 CFR 124.19](#) specifies procedures for appeal of the permit decision. In addition to the procedures specified at [40 CFR 124.19](#), a person must have submitted comments or participated in the public hearing in order to appeal the permit decision.

Credits

[[49 FR 38049](#), Sept. 26, 1984; [50 FR 4514](#), Jan. 31, 1985; [55 FR 48073](#), Nov. 16, 1990; [57 FR 60448](#), Dec. 18, 1992; [68 FR 7268](#), Feb. 12, 2003; [71 FR 6984](#), Feb. 10, 2006; [72 FR 40250](#), July 24, 2007; [73 FR 70483](#), Nov. 20, 2008; [80 FR 64098](#), Oct. 22, 2015]

SOURCE: [45 FR 33418](#), May 19, 1980, as amended at [48 FR 14153](#), Apr. 1, 1983, unless otherwise noted.

AUTHORITY: The Clean Water Act, [33 U.S.C. 1251 et seq.](#)

Notes of Decisions (1)

Current through February 9, 2017; [82 FR 9977](#).

ATTACHMENT

2

Code of Federal Regulations

Title 40. Protection of Environment

Chapter I. Environmental Protection Agency (Refs & Annos)

Subchapter D. Water Programs

Part 122. EPA Administered Permit Programs: The National Pollutant Discharge Elimination System
(Refs & Annos)

Subpart C. Permit Conditions

40 C.F.R. § 122.48

§ 122.48 Requirements for recording and reporting of
monitoring results (applicable to State programs, see § 123.25).

Effective: December 21, 2015

[Currentness](#)

All permits shall specify:

(a) Requirements concerning the proper use, maintenance, and installation, when appropriate, of monitoring equipment or methods (including biological monitoring methods when appropriate);

(b) Required monitoring including type, intervals, and frequency sufficient to yield data which are representative of the monitored activity including, when appropriate, continuous monitoring;

(c) Applicable reporting requirements based upon the impact of the regulated activity and as specified in 40 CFR part 3 (Cross-Media Electronic Reporting Regulation), [§ 122.44](#), and 40 CFR part 127 (NPDES Electronic Reporting). Reporting shall be no less frequent than specified in [§ 122.44](#). EPA will maintain the start dates for the electronic reporting of monitoring results for each state on its Web site.

Credits

[[50 FR 6940](#), Feb. 19, 1985; [58 FR 18016](#), April 7, 1993; [80 FR 64098](#), Oct. 22, 2015]

SOURCE: [45 FR 33418](#), May 19, 1980, as amended at [48 FR 14153](#), Apr. 1, 1983, unless otherwise noted.

AUTHORITY: The Clean Water Act, [33 U.S.C. 1251 et seq.](#)

[Notes of Decisions \(15\)](#)

Current through February 9, 2017; 82 FR 9977.

ATTACHMENT

3

RULES and REGULATIONS

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 122, 123, and 124

[FRL-3834-7]

RIN 2040-AA79

National Pollutant Discharge Elimination System Permit Application Regulations
for Storm Water Discharges

Friday, November 16, 1990

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: Today's final rule begins to implement section 402(p) of the Clean Water Act (CWA) (added by section 405 of the Water Quality Act of 1987 (WQA)), which requires the Environmental Protection Agency (EPA) to establish regulations setting forth National Pollutant Discharge Elimination System (NPDES) permit application requirements for: storm water discharges associated with industrial activity; discharges from a municipal separate storm sewer system serving a population of 250,000 or more; and discharges from municipal separate storm sewer systems serving a population of 100,000 or more, but less than 250,000.

Today's rule also clarifies the requirements of section 401 of the WQA, which amended CWA section 402(1)(2) to provide that NPDES permits shall not be required for discharges of storm water runoff from mining operations or oil and gas exploration, production, processing, or treatment operations or transmission facilities, composed entirely of flows which are from conveyances (including but not limited to pipes, conduits, ditches, and channels) used for collecting and conveying precipitation runoff and which are not contaminated by contact with, or do not come into contact with, any overburden, raw material, intermediate product, finished product, byproduct, or waste product located on the site of such operations. This rule sets forth NPDES permit application requirements addressing storm water discharges associated with industrial activity and storm water discharges from large and medium municipal separate storm sewer systems.

DATES: This final rule becomes effective December 17, 1990. In accordance with 40 CFR 23.2, this rule shall be considered final for purposes of judicial review on November 30, 1990, at 1 p.m. eastern daylight time. The public record is located at EPA Headquarters, EPA Public Information Reference Unit, room 2402, 401 M Street SW., Washington DC 20460. A reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: For further information on the rule contact: Thomas J. Seaton, Kevin Weiss, or Michael Mitchell Office of Water Enforcement and Permits (EN-336), United States Environmental Protection Agency, 401 M Street SW., Washington, DC 20460, (202) 475-9518.

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SUPPLEMENTARY INFORMATION:

I. Background and Water Quality Concerns

The 1972 amendments to the Federal Water Pollution Control Act (referred to as the Clean Water Act or CWA), prohibit the discharge of any pollutant to navigable waters from a point source unless the discharge is authorized by an NPDES permit. Efforts to improve water quality under the NPDES program traditionally and primarily focused on reducing pollutants in discharges of industrial process wastewater and municipal sewage. This program emphasis developed for a number of reasons. At the onset of the program in 1972, many sources of industrial process wastewater and municipal sewage were not adequately controlled and represented pressing environmental problems. In addition, sewage outfalls and industrial process discharges were easily identified as responsible for poor, often drastically degraded, water quality conditions. However, as pollution control measures were initially *47991 developed for these discharges, it became evident that more diffuse sources (occurring over a wide area) of water pollution, such as agricultural and urban runoff were also major causes of water quality problems. Some diffuse sources of water pollution, such as agricultural storm water discharges and irrigation return flows, are statutorily exempted from the NPDES program.

Since enactment of the 1972 amendments to the CWA, considering the rise of economic activity and population, significant progress in controlling water pollution has been made, particularly with regard to industrial process wastewater and municipal sewage. Expenditures by EPA, the States, and local governments to construct and upgrade sewage treatment facilities have substantially increased the population served by higher levels of treatment. Backlogs of expired permits for industrial process wastewater discharges have been reduced. Continued improvements are expected for these discharges as the NPDES program continues to place increasing emphasis on water quality-based pollution controls, especially for toxic pollutants.

Although assessments of water quality are difficult to perform and verify, several national assessments of water quality are available. For the purpose of these assessments, urban runoff was considered to be a diffuse source or nonpoint source pollution. From a legal standpoint, however, most urban runoff is discharged through conveyances such as separate storm sewers or other conveyances which are point sources under the CWA. These discharges are subject to the NPDES program. The "National Water Quality Inventory, 1988 Report to Congress" provides a general assessment of water quality based on biennial reports submitted by the States under section 305(b) of the CWA. In preparing the section 305(b) Reports, the States were

asked to indicate the fraction of the States' waters that were assessed, as well as the fraction of the States' waters that were fully supporting, partly supporting, or not supporting designated uses. The Report indicates that of the rivers, lakes, and estuaries that were assessed by States (approximately one-fifth of stream miles, one-third of lake acres and one-half of estuarine waters), roughly 70% to 75% are supporting the uses for which they are designated. For waters with use impairments, States were asked to determine impacts due to diffuse sources (agricultural and urban runoff and other sources), municipal sewage, industrial process wastewaters, combined sewer overflows, and natural and other sources, then combine impacts to arrive at estimates of the relative percentage of State waters affected by each source. In this manner, the relative importance of the various sources of pollution that are causing use impairments was assessed and weighted national averages were calculated. Based on 37 States that provided information on sources of pollution, industrial process wastewaters were cited as the cause of nonsupport for 7.5% of rivers and streams, 10% of lakes, and 6% of estuaries. Municipal sewage was the cause of nonsupport for 13% of rivers and streams, 5% lakes, 48% estuaries, 41% of the Great Lake shoreline, and 11% of coastal waters. The Assessment concluded that pollution from diffuse sources, such as runoff from agricultural, urban areas, construction sites, land disposal and resource extraction, is cited by the States as the leading cause of water quality impairment. These sources appear to be increasingly important contributors of use impairment as discharges of industrial process wastewaters and municipal sewage plants come under increased control and as intensified data collection efforts provide additional information. Some examples of diffuse sources cited as causing use impairment are: for rivers and streams, 9% from separate storm sewers, 6% from construction and 13% from resource extraction; for lakes, 28% from separate storm sewers and 26% from land disposal; for the Great Lakes shoreline, 10% from separate storm sewers, 34% from resource extraction, and 82% from land disposal; for estuaries, 28% from separate storm sewers and 27% from land disposal; and for coastal areas, 20% from separate storm sewers and 29% from land disposal.

The States conducted a more comprehensive study of diffuse pollution sources under the sponsorship of the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) and EPA. The study resulted in the report "America's Clean Water--The States' Nonpoint Source Assessment, 1985" which indicated that 38 States reported urban runoff as a major cause of beneficial use impairment. In addition, 21 States reported construction site runoff as a major cause of use impairment.

To provide a better understanding of the nature of urban runoff from commercial and residential areas, from 1978 through 1983, EPA provided funding and guidance to the Nationwide Urban Runoff Program (NURP). The NURP included 28 projects across the Nation, conducted separately at the local level but centrally reviewed, coordinated, and guided.

One focus of the NURP was to characterize the water quality of discharges from separate storm sewers which drain residential, commercial, and light industrial (industrial parks) sites. The majority of samples collected in the study were analyzed for eight conventional pollutants and three metals. Data collected under the NURP indicated that on an annual loading basis, suspended solids in discharges from separate storm sewers draining runoff from residential, commercial and light industrial areas are around an order of magnitude greater than solids in discharges

from municipal secondary sewage treatment plants. In addition, the study indicated that annual loadings of chemical oxygen demand (COD) are comparable in magnitude to effluent from secondary sewage treatment plants. When analyzing annual loadings associated with urban runoff, it is important to recognize that discharges of urban runoff are highly intermittent, and that the short-term loadings associated with individual events will be high and may have shockloading effects on receiving water, such as low dissolved oxygen levels. NURP data also showed that fecal coliform counts in urban runoff are typically in the tens to hundreds of thousands per 100 ml of runoff during warm weather conditions, although the study suggested that fecal coliform may not be the most appropriate indicator organism for identifying potential health risks in storm water runoff. Although NURP did not evaluate oil and grease, other studies have demonstrated that urban runoff is an extremely important source of oil pollution to receiving waters, with hydrocarbon levels in urban runoff typically being reported at a range of 2 to 15 mg/l. These hydrocarbons tend to accumulate in bottom sediments where they may persist for long periods of time and exert adverse impacts on benthic organisms.

A portion of the NURP study involved monitoring 120 priority pollutants in storm water discharges from lands used for residential, commercial and light industrial activities. Seventy-seven priority pollutants were detected in samples of storm water discharges from residential, commercial and light industrial lands taken during the NURP study, including 14 inorganic and 63 organic pollutants. Table A-1 shows the priority pollutants which were detected in at least ten percent of the discharge samples which were sampled for priority pollutants.

Table A-1.-- Priority Pollutants Detected in at Least 10% of NURP Samples
[In percent]

	Frequency of detection

Metals and inorganics:	
Antimony	13
Arsenic	52
Beryllium	12
Cadmium	48
Chromium	58
Copper	91
Cyanides	23
Lead	94
Nickel	43
Selenium	11
Zinc	94
Pesticides:	
Alpha-hexachlorocyclohexane	20
Alpha-endosulfan	19
Chlordane	17
Lindane	15
Halogenated aliphatics:	
Methane, dichloro-	11
Phenols and cresols:	
Phenol	14

Phenol, pentachloro-	19
Phenol, 4-nitro	10
Phthalate esters:	
Phthalate, bis(2-ethylhexyl)	22
Polycyclic aromatic hydrocarbons:	
Chrysene	10
Fluoranthene	16
Phenanthrene	12
Pyrene	15

*47992 The NURP data also showed a significant number of these samples exceeded various EPA freshwater water quality criteria.

The NURP study provides insight on what can be considered background levels of pollutants for urban runoff, as the study focused primarily on monitoring runoff from residential, commercial and light industrial areas. However, NURP concluded that the quality of urban runoff can be adversely impacted by several sources of pollutants that were not directly evaluated in the study and are generally not reflected in the NURP data, including illicit connections, construction site runoff, industrial site runoff and illegal dumping.

Other studies have shown that many storm sewers contain illicit discharges of non-storm water and that large amounts of wastes, particularly used oils, are improperly disposed in storm sewers. Removal of these discharges present opportunities for dramatic improvements in the quality of storm water discharges. Storm water discharges from industrial facilities may contain toxics and conventional pollutants when material management practices allow exposure to storm water, in addition to wastes from illicit connections and improperly disposed wastes.

In some municipalities, illicit connections of sanitary, commercial and industrial discharges to storm sewer systems have had a significant impact on the water quality of receiving waters. Although the NURP study did not emphasize the identification of illicit connections to storm sewers (other than to assure that monitoring sites used in the study were free from sanitary sewage contamination), the study concluded that illicit connections can result in high bacterial counts and dangers to public health. The study also noted that removing such discharges presented opportunities for dramatic improvements in the quality of urban storm water discharges.

Studies have shown that illicit connections to storm sewers can create severe, wide-spread contamination problems. For example, the Huron River Pollution Abatement Program inspected 660 businesses, homes and other buildings located in Washtenaw County, Michigan and identified 14% of the buildings as having improper storm drain connections. Illicit discharges were detected at a higher rate of 60% for automobile related businesses, including service stations, automobile dealerships, car washes, body shops and light industrial facilities. While some of the problems discovered in this study were the result of improper plumbing or illegal connections, a majority were approved connections at the time they were

built.

Intensive construction activities may result in severe localized impacts on water quality because of high unit loads of pollutants, primarily sediments. Construction sites can also generate other pollutants such as phosphorus and nitrogen from fertilizer, pesticides, petroleum products, construction chemicals and solid wastes. These materials can be toxic to aquatic organisms and degrade water for drinking and water-contact recreation. Sediment loadings rates from construction sites are typically 10 to 20 times that of agricultural lands, with runoff rates as high as 100 times that of agricultural lands, and typically 1,000 to 2,000 times that of forest lands. Even a small amount of construction may have a significant negative impact on water quality in localized areas. Over a short period of time, construction sites can contribute more sediment to streams than was previously deposited over several decades.

II. Water Quality Act of 1987

The WQA contains three provisions which specifically address storm water discharges. The central WQA provision governing storm water discharges is section 405, which adds section 402(p) to the CWA. Section 402(p)(1) provides that EPA or NPDES States cannot require a permit for certain storm water discharges until October 1, 1992, except: for storm water discharges listed under section 402(p)(2). Section 402(p)(2) lists five types of storm water discharges which are required to obtain a permit prior to October 1, 1992:

- (A) A discharge with respect to which a permit has been issued prior to February 4, 1987;
- (B) A discharge associated with industrial activity;
- (C) A discharge from a municipal separate storm sewer system serving a population of 250,000 or more;
- (D) A discharge from a municipal separate storm sewer system serving a population of 100,000 or more, but less than 250,000; or
- (E) A discharge for which the Administrator or the State, as the case may be, determines that the storm water discharge contributes to a violation of a water quality standard or is a significant contributor of pollutants to the waters of the United States.

Section 402(p)(4)(A) requires EPA to promulgate final regulations governing storm water permit application requirements for storm water discharges associated with industrial activity and discharges from large municipal separate storm sewer systems (systems serving a population of 250,000 or more), "no later than two years" after the date of enactment (i.e., no later than February 4, 1989). Section 402(p)(4)(B) also requires EPA to promulgate final regulations governing storm water permit application requirements for discharges from medium municipal separate storm sewer systems (systems serving a population of 100,000 or more but less than 250,000) "no later than four years" after enactment (i.e., no later than February 4, 1991).

In addition, section 402(p)(4) provides that permit applications for storm water discharges associated with industrial activity and discharges from large municipal separate storm sewer systems "shall be filed no later than three years" after the date of enactment of the WQA (i.e., no later than February 4, 1990). Permit applications for discharges from medium municipal systems must be filed "no later than five years" after enactment (i.e., no later than February 4, 1992).

The WQA clarified and amended the requirements for permits for storm water discharges in the new CWA section 402(p)(3). The Act clarified that permits for discharges associated with industrial activity must meet all of the applicable provisions of section 402 and section 301 *47993 including technology and water quality based standards. However, the new Act makes significant changes to the permit standards for discharges from municipal storm sewers. Section 402(p)(3)(B) provides that permits for such discharges:

- (i) May be issued on a system- or jurisdiction-wide basis;
- (ii) Shall include a requirement to effectively prohibit non-storm water discharges into the storm sewers; and
- (iii) Shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.

These changes are discussed in more detail later in today's rule.

The EPA, in consultation with the States, is required to conduct two studies on storm water discharges that are in the class of discharges for which EPA and NPDES States cannot require permits prior to October 1, 1992. The first study will identify those storm water discharges or classes of storm water discharges for which permits are not required prior to October 1, 1992, and determine, to the maximum extent practicable, the nature and extent of pollutants in such discharges. The second study is for the purpose of establishing procedures and methods to control storm water discharges to the extent necessary to mitigate impacts on water quality. Based on the two studies the EPA, in consultation with State and local officials, is required to issue regulations no later than October 1, 1992, which designate additional storm water discharges to be regulated to protect water quality and establish a comprehensive program to regulate such designated sources. This program must, at a minimum, (A) Establish priorities, (B) establish requirements for State storm water management programs, and (C) establish expeditious deadlines. The program may include performance standards, guidelines, guidance, and management practices and treatment requirements, as appropriate.

Section 401 of the WQA amends section 402(1)(2) of the CWA to provide that the EPA shall not require a permit for discharges of storm water runoff from mining operations or oil and gas exploration, production, processing, or treatment operations or transmission facilities if the storm water discharge is not contaminated by contact with, or does not come into contact with, any overburden,

For construction facilities that are not included in the definition of storm water discharge associated with industrial activity, EPA will consider the appropriate procedures and methods to reduce pollutants in construction site runoff under the studies authorized by section 402(p)(5) of the CWA. EPA will also consider under section 402(p)(5) appropriate procedures and methods during post-construction for maintaining structural controls developed pursuant to NPDES permits issued for storm water discharges associated with industrial activity from construction sites.

Numerous commenters requested clarification as to whether permits for storm water discharges from construction activities at an industrial facility are required. EPA is requiring permits for all storm water discharges from construction activities where the land disturbed meets the requirements established in § 122.26(b)(14)(x) and which discharge into waters of the United States. The location of the construction activity or the ultimate land use at the site does not factor into the analysis.

G. Municipal Separate Storm Sewer Systems

1. Municipal Separate Storm Sewers

Today's rule defines "municipal separate storm sewer" at § 122.26(b)(8) to include any conveyance or system of conveyances that is owned or operated by a State or local government entity and is designed for collecting and conveying storm water which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2. It is important to note that today's permit application requirements for discharges from municipal separate storm sewer systems serving a population of 100,000 or more do not apply to discharges from combined sewers (systems designed as both a sanitary sewer and a storm sewer). For purposes of calculating whether a municipal separate storm sewer system meets the large or medium population criteria, a municipality may petition to have the population served by a combined sewer deducted from the total population. Section 122.26(f) of today's rule describes this procedure.

EPA requested comments on whether different language for the definition of municipal separate storm sewer would clarify responsibility under the NPDES permit system. Comments were also requested on whether the definition needed to be clarified by explicitly stating that municipal streets and roads with drainage systems (curb and gutter, ditches, etc.) are part of the municipal storm sewer system, and that the owners or operators of such roads are responsible for such discharges. Numerous comments were received by EPA on this issue. Some commenters questioned whether road culverts and road ditches were municipal separate storm sewers, while others specifically recommended that further clarifying language should be added so that owners and operators of roads and streets understand that they are covered by this regulation. In light of these comments, EPA has clarified that municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains that discharge into the waters of the United States are municipal separate storm sewers. One commenter asked if "other wastes" in the proposed definition of municipal separate storm sewer (40 CFR 122.26(b)(8)(i)) included storm water. In response, EPA has added "storm water" to this definition in order to clarify that the rule addresses such systems.

EPA requested comments on whether legal classifications such as "storm sewers that are not private (e.g. public, district or joint district sewers)" would provide a clearer definition of municipal separate storm sewer than an owner or operator criterion, especially for the purpose of determining responsibility under the NPDES program. Most commenters agreed that the owner/operator concept, and the additional language noted above, is sufficient for this purpose. EPA also requested comments on to what extent the owner/operator concept should apply to municipal governments with land-use authority over lands which contribute storm water runoff to the municipal storm sewer system, and how the responsibility should be clarified. In response to comments on this point, EPA has addressed these concerns in the context of clarifying what municipal entities are responsible for applying for a permit covering storm water discharges from municipal systems in section VI.H. below.

One commenter expressed a desire for clarification as to whether conveyances that were once used for the conveyance of storm water, but are no longer used in that manner, are covered by the definition. EPA emphasizes that this rulemaking only addresses conveyances that are part of a separate storm sewer system that discharges storm water into waters of the United States.

One commenter stated that if EPA intends to regulate roadside collection systems then EPA must repropose since these were not considered by the public. EPA disagrees with this comment since one of the options specifically addressed the inclusion of roadside drainage systems and roads in the definition of municipal separate storm sewer system. In addition, the public recognized the issue in comments on the proposal. EPA would note that several commenters specifically endorsed EPA's inclusion of these conveyances.

2. Effective Prohibition on Non-Storm Water Discharges

Section 402(p)(3)(B)(ii) of the amended CWA requires that permits for discharges from municipal storm sewers shall include a requirement to effectively prohibit non-storm water discharges into the storm sewers. Based on the legislative history of section 405 of the WQA, EPA does not interpret the effective prohibition on non-storm water discharges to municipal separate storm sewers to apply to discharges that are not composed entirely of storm water, as long as such discharge has been issued a separate NPDES permit. Rather, *48037 an "effective prohibition" would require separate NPDES permits for non-storm water discharges to municipal storm sewers. In many cases in the past, applicants for NPDES permits for process wastewaters and other non-storm water discharges have been granted approval to discharge into municipal separate storm sewers, provided that the permit conditions for the discharge are met at the point where the discharge enters into the separate storm sewer. Permits for such discharges must meet applicable technology-based and water-quality based requirements of Sections 402 and 301 of the CWA. If the permit for a non-storm water discharge to a municipal separate storm sewer contains water-quality based limitations, then such limitations should generally be based on meeting applicable water quality standards at the boundary of a State established mixing zone (for States with mixing zones) located in the receiving waters of the United States.

All options will be considered when an applicant applies for a NPDES permit for a

non-storm water discharge to a municipal separate storm sewer. In some cases, permits will be denied for discharges to storm sewers that are causing water quality problems in receiving waters. However, not all discharges present such problems; and in these cases EPA or State permit writers may allow such discharges to municipal separate storm sewers within appropriate permit limits.

Today's rule has two permit application requirements that are designed to begin implementation of the effective prohibition. The first requirement discussed in VI.H.6.a., below, addresses a screening analysis which is intended to provide sufficient information to develop priorities for a program to detect and remove illicit discharges. The second provision, discussed in VI.H.7.b., requires municipal applicants to develop a recommended site-specific management plan to detect and remove illicit discharges (or ensure they are covered by an NPDES permit) and to control improper disposal to municipal separate storm sewer systems.

Several commenters suggested that either the definition of "storm water" should include some additional classes of nonprecipitation sources, or that municipalities should not be held responsible for "effectively prohibiting" some classes of nonstorm water discharges into their municipal storm sewers. The various types of discharges addressed by these comments include detention and retention reservoir releases, water line flushing, fire hydrant flushing, runoff from fire fighting, swimming pool drainage and discharge, landscape irrigation, diverted stream flows, uncontaminated pumped ground water, rising ground water, discharges from potable water sources, uncontaminated waters from cooling towers, foundation drains, non-contact cooling water (such as heating, ventilation, air conditioning (HVAC) water that POTWs require to be discharged to separate storm sewers rather than sanitary sewers), irrigation water, springs, roofdrains, water from crawl space pumps, footing drains, lawn watering, individual car washing, flows from riparian habitats and wetlands. Most of these comments were made with regard to the concern that these were commonly occurring discharges which did not pose significant environmental problems.

EPA disagrees that the above described flows will not pose, in every case, significant environmental problems. At the same time, it is unlikely Congress intended to require municipalities to effectively prohibit individual car washing or discharges resulting from efforts to extinguish a building fire and other seemingly innocent flows that are characteristic of human existence in urban environments and which discharge to municipal separate storm sewers. It should be noted that the legislative history is essentially silent on this point. Accordingly, EPA is clarifying that section 402(p)(3)(B) of the CWA (which requires permits for municipal separate storm sewers to 'effectively' prohibit non-storm water discharges) does not require permits for municipalities to prohibit certain discharges or flows of nonstorm water to waters of the United States through municipal separate storm sewers in all cases. Accordingly, § 122.26(d)(2)(iv)(B)(1) states that the proposed management program shall include: "A description of a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal separate storm sewer system; the program description shall address the following categories of non-storm water discharges or flows only where such discharges are identified by the municipality as sources of pollutants to waters of the United States: Water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR

35.2005(20)) to separate storm sewers, uncontaminated pumped ground water discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash waters. Program descriptions shall address discharges from fire fighting only where such discharges or flows are identified as significant sources of pollutants to waters of the United States."

However, the Director may include permit conditions that either require municipalities to prohibit or otherwise control any of these types of discharges where appropriate. In the case of fire fighting it is not the intention of these rules to prohibit in any circumstances the protection of life and public or private property through the use of water or other fire retardants that flow into separate storm sewers. However, there may be instances where specified management practices are appropriate where these flows do occur (controlled blazes are one example).

Conveyances which continue to accept other "non-storm water" discharges (e.g. discharges without an NPDES permit) with the exceptions noted above do not meet the definition of municipal separate storm sewer and are not subject to section 402(p)(3)(B) of the CWA unless the non-storm water discharges are issued separate NPDES permits. Instead, conveyances which continue to accept non-storm water discharges which have not been issued separate NPDES permits are subject to sections 301 and 402 of the CWA. For example, combined sewers which convey storm water and sanitary sewage are not separate storm sewers and must comply with permit application requirements at 40 CFR 122.21 as well as other regulatory criteria for combined sewers.

3. Site-Specific Storm Water Quality Management Programs for Municipal Systems

Section 402(p)(3)(iii) of the CWA mandates that permits for discharges from municipal separate storm sewers shall require controls to reduce the discharge of pollutants to the maximum extent practicable (MEP), including management practices, control techniques and systems, design and engineering methods, and such other provisions as the Director determines appropriate for the control of such pollutants.

When enacting this provision, Congress was aware of the difficulties in regulating discharges from municipal *48038 separate storm sewers solely through traditional end-of-pipe treatment and intended for EPA and NPDES States to develop permit requirements that were much broader in nature than requirements which are traditionally found in NPDES permits for industrial process discharges or POTWs. The legislative history indicates, municipal storm sewer system "permits will not necessarily be like industrial discharge permits. Often, an end-of-the-pipe treatment technology is not appropriate for this type of discharge." [Vol. 132 Cong. Rec. S16425 (daily ed. Oct. 16, 1986)].

A shift towards comprehensive storm water quality management programs to reduce the discharge of pollutants from municipal separate storm sewer systems is appropriate for a number of reasons. First, discharges from municipal storm

sewers are highly intermittent, and are usually characterized by very high flows occurring over relatively short time intervals. For this reason, municipal storm sewer systems are usually designed with an extremely high number of outfalls within a given municipality to reduce potential flooding. Traditional end-of-pipe controls are limited by the materials management problems that arise with high volume, intermittent flows occurring at a large number of outfalls. Second, the nature and extent of pollutants in discharges from municipal systems will depend on the activities occurring on the lands which contribute runoff to the system. Municipal separate storm sewers tend to discharge runoff drained from lands used for a wide variety of activities. Given the material management problems associated with end-of-pipe controls, management programs that are directed at pollutant sources are often more practical than relying solely on end-of-pipe controls.

In past rulemakings, much of the criticism of the concept of subjecting discharges from municipal separate storm sewers to the NPDES permit program focused on the perception that the rigid regulatory program applied to industrial process waters and effluents from publicly owned treatment works was not appropriate for the site-specific nature of the sources which are responsible for the discharge of pollutants from municipal storm sewers.

The water quality impacts of discharges from municipal separate storm sewer systems depend on a wide range of factors including: The magnitude and duration of rainfall events, the time period between events, soil conditions, the fraction of land that is impervious to rainfall, land use activities, the presence of illicit connections, and the ratio of the storm water discharge to receiving water flow. In enacting section 405 of the WQA, Congress recognized that permit requirements for municipal separate storm sewer systems should be developed in a flexible manner to allow site-specific permit conditions to reflect the wide range of impacts that can be associated with these discharges. The legislative history accompanying the provision explained that "[p]ermits for discharges from municipal separate stormwater systems * * * must include a requirement to effectively prohibit non-stormwater discharges into storm sewers and controls to reduce the discharge of pollutants to the maximum extent practicable, * * * These controls may be different in different permits. All types of controls listed in subsection [(p)(3)(C)] are not required to be incorporated into each permit" [Vol. 132 Cong. Rec. HI0576 (daily ed. October 15, 1986) Conference Report]. Consistent with the intent of Congress, this rule sets out permit application requirements that are sufficiently flexible to allow the development of site-specific permit conditions.

Several commenters agreed with this approach. One municipality recommended that there be as much flexibility as possible so that the permitting authority can work with each municipality in developing meaningful long-term goals with plans for improving storm water quality. This commenter noted that too many specific regulations that apply nationwide do not take into consideration the climatic and governmental differences within the States. EPA agrees that as much flexibility as possible should be incorporated into the program. However, flexibility should not be built into the program to such an extent that all municipalities do not face essentially the same responsibilities and commitment for achieving the goals of the CWA. EPA believes that these final regulations build in substantial flexibility in designing programs that meet particular needs, without abandoning a nationally consistent structure designed to create storm water control programs.

4. Large and Medium Municipal Storm Sewer Systems

During the 1987 reauthorization of the CWA, Congress established a framework for EPA to implement a permit program for municipal separate storm sewers and establishing phased deadlines for its implementation. The amended CWA establishes priorities for EPA to develop permit application requirements and issue permits for discharges from three classes of municipal separate storm sewer systems. The CWA requires that NPDES permits be issued for discharges from large municipal separate storm sewer systems (systems serving a population of more than 250,000) by no later than February 4, 1991. Permits for discharges from medium municipal separate storm sewer systems (systems serving a population of more than 100,000, but less than 250,000) must be issued by February 4, 1992. After October 1, 1992, the requirements of sections 301 and 402 of the CWA are restored for all other discharges from municipal separate storm sewers.

The priorities established in the Act are based on the size of the population served by the system. Municipal operators of these systems are generally thought to be more capable of initiating storm water programs and discharges from municipal separate storm sewers serving larger populations are thought to present a higher potential for contributing to adverse water quality impacts. NURP and other studies have verified that the event mean concentration of pollutants in urban runoff from residential and commercial areas remains relatively constant from one area to another, indicating that pollutant loads from urban runoff strongly depend on the total area and imperviousness of developed land, which in turn is related to population.

The term "municipal separate storm sewer system" is not defined by the Act. By not defining the term, Congress intended to provide EPA discretion to define the scope of municipal systems consistent with the objectives of developing site-specific management programs in NPDES permits. EPA considered two key issues in defining the scope of municipal separate storm sewer system: (1) What is a reasonable definition of the term "system," and (2) how to determine the number of people "served" by a storm sewer system. EPA found these two issues to be intertwined. Different approaches to defining the scope of a system allowed for greater or lesser certainty in determining the population served by the system.

In the December 7, 1988, proposal, EPA described seven options for defining "municipal separate storm sewer system." In developing these options the EPA considered:

- The inter-jurisdiction complexities associated with municipal governments;
- The fact that many municipal storm water management programs have traditionally focused on water quantity *48039 concerns, and have not evaluated water quality impacts of system discharges or developed measures to reduce pollutants in such discharges;
- The advantages of developing system-wide storm water management programs for municipal systems;
- The geographic basis necessary for planning of comprehensive management programs

to reduce pollutants in discharges from municipal separate storm sewers to the maximum extent practicable;

- The geographic basis necessary to provide flexibility to target controls on areas where water quality impacts associated with discharges from municipal systems are the greatest and to provide an opportunity to develop cost effective controls;

- The need to establish a reasonable number of permits for municipal systems during the initial phases of program development that will provide an adequate basis for a storm water quality management program for over 13,000 municipalities after the October 1, 1992 general prohibition on storm water permits expires; and

- Congressional intent to allow the development of jurisdiction-wide, comprehensive storm water management programs with priorities given to the most heavily populated areas of the country.

a. Overview of Proposed Options and Comments. The December 7, 1988, proposal requested comment on seven options for defining large and medium municipal separate storm sewer system. With the addition of a watershed-based approach suggested by certain commenters, eight options or approaches were addressed by the over 200 commenters on this issue: Option 1--systems owned or operated by incorporated places augmented by integrated discharges; Option 2-- systems owned or operated by incorporated places augmented with significant other municipal discharges; Option 3--systems owned or operated by counties; Option 4--systems owned and operated by States or State departments of transportation; Option 5--systems within the boundaries of an incorporated place; Option 6--systems within the boundaries of counties; Option 7--systems in census designated urbanized areas; and Option 8--systems defined by watershed boundaries.

Generally, these options can be classified into two categories. The first category of options, Options 1, 2 and 3, define municipal systems in terms of the municipal entity which owns or operates storm sewers within municipal boundaries of the requisite population. The second category of options would define municipal systems on a geographic basis. Under Options 4, 5, 6, 7 and 8 all municipal separate storm sewers within the specified geographic area would be part of the municipal system, regardless of which municipal entity owns or operates the storm sewer. EPA did not propose to define the scope of a municipal separate storm sewer system in engineering terms because of practical problems determining the boundaries of and the populations served by "systems" defined in such a manner. In addition an engineering approach based on physical interconnections of storm sewer pipes by itself does not provide a rational basis for developing a storm water program to improve water quality where a large number of individual storm water catchments are found within a municipality.

In the December 7, 1988, proposal, EPA favored those options that relied primarily on the municipal entity which owns or operates or otherwise has jurisdiction over storm sewers. These options were preferred because it was anticipated that the administrative complexities of developing the permit programs would be reduced by decreasing the number of affected municipal entities. However, most commenters were not satisfied that such an approach would reduce administrative burdens or complexities.

The diversity of arguments and rationales offered in comments justifying the selection of particular option, or combinations thereof, were generally a function of geographic, climatic, and institutional differences around the country. As such, there was little substantive agreement with how this program should be implemented as far as defining large and medium municipal separate storm sewer systems. Of all the options, Option 1 generally received the most favorable comment. However, the overwhelming majority of comments suggested different options or other alternatives. Having reviewed the comments at length, EPA is convinced that the definition of municipal separate storm sewers should possess elements of several of the options enumerated above and a mechanism that enables States or EPA Regions to define a system that best suits their various political and geographical conditions.

The following comments were the most pervasive, and represent those issues and concerns of greatest importance to the public: (1) The approach chosen initially must be realistic and achievable administratively; (2) the definition must be flexible enough to accommodate development of the program on a watershed basis, and incorporate elements of existing programs and frameworks and regional differences in climate, geography, and political institutions; (3) permittees must have legal authority and control over land use; (4) discharges from State highways, identified as a significant source of runoff and pollutants, should be included in the program and combined in some manner with one or more of the other options; (5) the definition should address how the inclusion of interrelated discharges into the municipal separate storm sewer system are timed, decided upon, dealt with, etc.; (6) any approach must address the major sources of pollutants; (7) development of co-permittee management plans must be coordinated or developed on a regional basis and in the same time frame--fragmented or balkanized programs must be avoided; (8) municipalities should be regulated as equitably as possible; (9) flood control districts should be addressed as a system or part of a system; (10) the definition must conform to the legal requirements of the Clean Water Act; and (11) the definition should limit the number of co-permittees as much as possible.

b. Definition of large and medium municipal separate storm sewer system. A combination of the options outlined in the 1988 proposal would address most of these concerns, while achieving a realistic and environmentally beneficial storm water program. Accordingly, EPA has adopted the following definition of large and medium municipal separate storm sewer systems. Large and medium separate storm sewer systems are municipal separate storm sewers that:

(i) Are located in an incorporated place with a population of 100,000 or more or 250,000 or more as determined by the latest Decennial Census by the Bureau of Census (see appendices F and G of part 122 for a list of these places based on the 1980 Census);

(ii) Are located within counties having areas that are designated as urbanized areas by latest decennial Bureau of Census estimates and where the population of such areas exceeds 100,000, after the population in the incorporated places, townships or towns within such counties is excluded (see appendices H and I for a listing of these counties based on the 1980 census) (incorporated places, towns, and townships within these counties are excluded from permit application

requirements unless they fall under paragraph (i) or are designated under paragraph (iii); or (iii) are owned or *48040 operated by a municipality other than those described in paragraph (i) or (ii) that are designated by the Director as part of the large or medium municipal separate storm sewer system due to the interrelationship between the discharges of the designated storm sewer and the discharges from municipal separate storm sewers described under paragraphs (i) or (ii). In making this determination the Director may consider the following factors:

(A) Physical interconnections between the municipal separate storm sewers;

(B) The location of discharges from the designated municipal separate storm sewer relative to discharges from municipal separate storm sewers described in subparagraph (i);

(C) The quantity and nature of pollutants discharged to waters of the United States;

(D) The nature of the receiving waters; or

(E) Other relevant factors.

(iv) The Director may, upon petition, designate as a system, any municipal separate storm sewers located within the boundaries of a region defined by a storm water management regional authority based on a jurisdictional, watershed, or other appropriate basis that includes one or more of the systems described in paragraphs (i), (ii), and (iii).

Under today's rule at § 122.26(a)(3)(iii) the regional authority shall be responsible for submitting a permit application under the following guidelines: The regional authority together with co-applicants shall have authority over a storm water management program that is in existence, or shall be in existence at the time part 1 of the application is due; the permit applicant or co-applicants shall establish their ability to make a timely submission of part 1 and part 2 of the municipal application; each of the operators of municipal separate storm systems described in paragraphs 122.26(b)(4)(i), (ii), and (iii) and (7)(i), (ii), and (iii), that are under the purview of the designated regional authority, shall comply with the application requirements of § 122.26(d).

As noted above, the finalized definition of large and medium municipal separate storm sewer system is combination of the approaches as proposed. (In the following discussion "paragraph (i)" refers to §§ 122.26(b)(4)(i) and (b)(7)(i); "paragraph (ii)" refers to §§ 122.26(b)(4)(ii) and (b)(7)(ii); "paragraph (iii)" refers to §§ 122.26(b)(4)(iii) and (b)(7)(iii); and "paragraph (iv)" refers to §§ 122.26(b)(4)(iv) and (b)(7)(iv)). Paragraph (i) originates from proposed Option 5 (boundaries of incorporated places); paragraph (ii) originates from Option 6 (boundaries of counties) and Option 7 (urbanized areas); paragraph (iii) originates from Options 1 and 5; and paragraph (iv) is an outgrowth of comments on all options, especially Option 4 (State owned systems/State highways) and Option 8 (watersheds).

This definition creates a system by virtue of the fact that storm sewers within defined geographical and political areas, and the owner/operators of separate storm sewers in those areas, are addressed or required to obtain permits. Although within these systems, different segments and discharges of storm water conveyances may be owned or operated by different public entities, EPA is convinced by comments that discharges from such conveyances are interrelated to such an extent that all of these conveyances may be properly considered a "system." These comments are identified and discussed in greater detail below.

c. Response to comments. Many commenters urged that the approach taken must be administratively achievable. Option 5 of the proposal (boundaries of incorporated places), which can be equated to paragraphs (i) and (iii) above, was identified by several commenters as the most workable of all the options. Many commenters stated that Option 1 (systems owned or operated by incorporated places) was inappropriate because of special districts and other owners of systems within the incorporated area; and although EPA proposed a designation provision for interrelated discharges in Option 1, commenters advised that it would be impossible to identify these systems, account for their discharges, and exclude or include them in a timely manner if Option 1 was selected (Option 1 only addresses those systems owned or operated by the incorporated place). The final rule would obviate these concerns, since all the publicly owned sewers within the boundaries of the municipality will be required to be covered by a permit.

Other commenters noted that cities sometimes have storm water conveyances owned or operated by numerous entities. One municipality commented that these problems could be more easily resolved using a unified permit/district wide approach, which the final approach outlined above can accomplish. One county stated that Option 1 of the proposal would result in a permanent balkanization of stormwater programs and that a regional approach focusing on the entire system should be established. Another municipality recommended that all the systems of conveyances within the incorporated city boundaries be issued a permit. In rejecting Option 1 of the proposal, one municipality stated that program inefficiencies would result from implementing a piecemeal program in a contiguous urban environment with different owners and operators. One State conveyed similar concerns. Using a geographical approach, as described in paragraph (i) of the final definition, will best address all of these concerns.

One commenter criticized proposed Option 1 as being contrary to the legal requirements of the WQA, and a further example of EPA's continuing attempt to minimize the scope of a national storm water program. It was noted that the legislative history regarding requirements for large and medium municipal separate storm sewer systems in section 402(p) of the CWA generally does not reference incorporated cities or towns. As a result, the commenter recommended that the term "municipal" in municipal separate storm sewer system refer to separate storm sewers operated by municipal entities meeting the definition of "municipality" in section 502 of the CWA and that the scope of the term "municipal separate storm sewer system" be defined as broadly as possible. This approach would result in defining large and medium municipal separate storm sewer systems to include all municipal separate storm sewers within the 410 counties with a population of 100,000 or more. EPA has adopted the commenter's recommendation to extend the scope of the program to the extent that today's rule covers all municipal separate storm sewers within certain areas rather than only those operated by an

incorporated place. EPA disagrees however that it must define the term "system" to include sewers within any municipal boundary of sufficient population with reference to section 502(4). By not providing explicit definitions, section 402(p)(3)(B) of the CWA gives EPA discretion to define how municipal separate storm sewer systems are defined. There is no indication in the language of the CWA or the legislative history that Congress intended that the scope of "municipality" and the scope of "municipal separate storm sewer system" to be identical, particularly since the latter term is not defined in the statute. Furthermore, for the reasons discussed elsewhere in this section, EPA believes that today's definition is a reasonable accommodation of the many conflicting concerns surrounding the proper way to delineate the extent of a *48041 municipal separate storm sewer system serving over 100,000 people.

Several commenters concluded that EPA should be flexible enough to allow the permitting authority broad discretion to establish system wide permits, with flood control districts and/or counties acting as co-permittees with the various incorporated cities within the district boundaries. Commenters expressed concern that Option 1 would not allow for such flexibility.

Arguments that were advanced by commenters in support of proposed Option 1 are equally applicable to paragraph (i), above. Like proposed Option 1, the approach outlined above targets major cities. However, it also has the advantage of addressing municipal separate storm sewer systems which may be interrelated to those owned by the city, a benefit recognized by one municipality that endorsed the selection of proposed Option 5. This will also give the permitting authority more discretion to establish co-permittee relationships.

Paragraph (ii) of the final definition also uses a geographical approach to the definition of municipal storm sewer systems to include municipal storm sewers within urbanized counties. Thus, it closely resembles Option 7 of the proposal. The counties identified in paragraph (ii) have, based on the 1980 Census, a population of 100,000 or more in urbanized, [FN5] unincorporated portions of the county. In the unincorporated areas of these counties (or in the 20 States where the Census recognizes minor civil divisions, unincorporated county areas outside of towns or townships), the county is the primary local government entity. In these cases, the county performs many of the same functions as incorporated cities with a population of 100,000, and is generally expected to have the necessary legal and land use authority in these areas to begin to implement storm water management programs. Due to the urbanized nature of their population, discharges from the municipal separate storm sewers in these counties will have many similarities to discharges from municipal systems in incorporated cities with a population of 100,000 or more. Addressing these counties in this fashion will not adversely affect small municipalities (incorporated places, towns and townships) within the county, as municipal separate storm sewers that are located in the small incorporated places, townships or towns within these counties are not automatically included as part of the system.

FN5 The Bureau of Census defines urbanized areas to provide a description of high-density development. Urbanized areas are comprised of a central city (or cities) with a surrounding closely settled area. The population of the entire urbanized area must be greater than 50,000 persons, and the closely settled area outside of the city, the urban fringe, must generally have a population density

greater than 1,000 persons per square mile (just over 1.5 persons per acre) to be included.

EPA has focused on the unincorporated areas because permit applications cannot be required from systems that serve a population less than 100,000, unless designated. EPA received the comment that if the sewers in incorporated places within such counties were included as part of the system for that county, there would be the potential for systems serving a population less than 100,000 to be improperly subject to permit requirements. EPA agrees with the comment, except that EPA reserves the authority to designate sewers in small incorporated places as part of the system subject to permitting, pursuant to paragraph (iii) of the final definition. Incorporated areas within the identified counties will be required to file permit applications if the population served by the municipal separate storm sewer system is 100,000 or more.

As one commenter noted, the counties addressed by the definition will generally be areas of high growth with a growing tax base that can finance a storm water management program. Numerous counties affected by paragraph (ii) commented on the proposal. Several of these indicated a preference for the county government as the permittee. Others indicated that their county had the ability to perform the functions of the permit applicant and permittee. One county brought to EPA's attention that the county had laid plans for a storm water utility scheduled to be in operation in 1989. Several of the counties supported the use of watersheds, or flexible regional approaches, as the basis for the definition of municipal separate storm sewer systems. The modified definition should satisfy these concerns.

EPA recognizes that some of the counties addressed by today's rule have, in addition to areas with high unincorporated urbanized populations, areas that are essentially rural or uninhabited and may not be the subject of planned development. While permits issued for these municipal systems will cover municipal system discharges in unincorporated portions of the county, it is the intent of EPA that management plans and other components of the programs focus on the urbanized and developing areas of the county. Undeveloped lands of the county are not expected to have many, if any, municipal separate storm sewers.

Paragraphs (i) and (ii) above will help resolve the problems associated with permittees not having adequate land use controls, the legal authority to implement controls, and the ownership of the conveyances. This factor was mentioned by numerous commenters on the proposed options, especially county governments. Under paragraphs (i) and (ii), all publicly owned separate storm sewers within the appropriate municipal boundaries will be defined as part of the municipal system. In many cases, a number of municipal operators of these storm sewers will be responsible for discharges from these systems. Since a number of co-permittees may be addressed in the permits for these discharges, problems associated with the ability to control pollutants that are contributed from interrelated discharges will be minimized. State highways or flood control districts, which may have no land use authority in incorporated cities, will be co-permittees with the city which does possess land use authority. EPA envisions that permit conditions for these systems will be written to establish duties that are commensurate with the legal authorities of a co-permittee. For example, under a permit, a flood control district may be responsible for the maintenance of drainage channels that they have jurisdiction over, while a city is responsible for implementing a sediment and

erosion ordinance for construction sites which relates to discharges to the drainage channel. Confusion over ownership of conveyances or systems, at least for the purposes of determining whether they require a permit, will be minimized since all conveyances will be covered. Similarly, under paragraph (ii), the affected counties are expected to have the necessary legal and land use authority to implement programs and controls in unincorporated, urbanized areas because the county government is the primary political or governing entity in these geographical areas.

Many commenters from all levels of State and local government expressed concern about controlling pollutants from State highways. Paragraphs (i) and (ii) will result in discharges from separate storm sewers serving State highways and other highways through storm sewers that are located within incorporated places with the appropriate population or highways in unincorporated portions of specified counties being included as part of the large or medium municipal separate storm sewer system, since all municipal separate storm sewers within the boundaries of these political entities are included. Paragraph (iv) can facilitate *48042 the submission of a permit application for storm sewers operated as part of an entire State highway system. Paragraph (iv) would allow an entire system in a geographical region under the purview of a State agency (such as a State Department of Transportation) to be designated, where all the permit application requirements and requirements established under § 122.26(a)(iii)(C) can be met.

Paragraphs (i) and (ii) can effectively deal with many of the major sources of pollutants. One municipality noted that Option 5 (paragraph (i)) would require all systems in the incorporated boundaries to obtain permits and institute control measures, rather than just the few owned or operated by incorporated cities. Another municipality noted that this approach could deal with many of the regional variations in sources of pollution. Many commenters, including environmental groups, believed that proposed Option 3 (systems owned or operated by counties), Option 6 (systems within the boundaries of counties), and Option 7 (system in urbanized areas) were good approaches because more sources of pollution would be addressed. It was also maintained that Options 3, 6 and 7 could incorporate watershed planning which, in the view of some commenters, is the only effective way to address pollutants in storm water.

Commenters noted that addressing counties and urbanized areas would focus attention on developing areas which would otherwise be left out in the initial phases of permitting. One commenter noted that most new development in large urbanized areas occurs outside of core cities (incorporated cities with a population of 100,000 or more). Newly developing areas provide opportunities for installing pollutant controls cost effectively. EPA agrees with these comments and notes that paragraph (ii) addresses a significant number of counties with highly developed or developing areas.

However, EPA is convinced that addressing all counties or urbanized areas in the initial phases of the storm water program is ill-advised. Commenters noted that some counties have inappropriate or nonexistent governmental structures, and that a program that addressed all counties in the country with a population of 100,000 or more would be unmanageable, because too many municipal entities nationwide would be involved in the program initially. Commenters advised that defining municipal storm sewer systems solely in terms of the boundaries of census urbanized areas (Option

7) would result in systems which did not correspond to jurisdictions that are in a position to implement a storm water programs. Thus, EPA has modified Option 7 and combined it with Option 6 to create paragraph (ii) above.

Paragraph (iii) incorporates a designation authority such that municipalities that own or operate discharges from separate storm sewers systems other than those described in paragraph (i) or (ii) may be designated by the Director as part of the large or medium municipal separate storm sewer system due to the interrelationship between the other discharges of the designated storm sewer and the discharges from the large or medium municipal separate storm sewers. In making this determination the physical interconnections between the municipal separate storm sewers, the location of discharges from the designated municipal separate storm sewer relative to discharges from large or medium municipal separate storm sewers, the quantity and nature of pollutants discharged to waters of the United States, the nature of the receiving waters, or other relevant factors may be considered.

Comments indicated that the designation authority as proposed and described above should be retained. One State noted that this approach gives the most flexibility in making the case-by-case designations, while also delineating in sufficient detail what criteria are used to make the determination. This commenter was concerned about being able to regulate many of the interrelated discharges from counties surrounding incorporated cities.

Paragraph (iv) of the final definition allows the permitting authority, upon petition, to designate as a medium or large municipal separate storm sewer system, municipal separate storm sewers located within the boundaries of a region defined by a storm water management regional authority based on a jurisdictional, watershed, or other appropriate basis that includes one or more of the systems described in paragraphs (i), (ii), (iii).

Paragraph (iv) was added to the final definitions to respond to a variety of concerns of commenters. One of the prime concerns of commenters was that the definition of large and medium municipal separate storm sewer systems must be flexible enough to accommodate: Programs on a watershed basis, existing storm water programs and frameworks and regional differences in climate, geography, and political institutions. Some States were particularly expressive regarding this concern. One State maintained that an inflexible program could totally disrupt ongoing State efforts. Other commenters urged that the regulation encourage the establishment of regional storm water authorities or other mechanisms that can deal with storm water quality on a watershed basis. One State proposed defining the municipal separate storm sewer system to include all municipal separate storm sewers within a core incorporated place of 100,000 or more, and all surrounding incorporated places within the State defined watershed. One of the State water districts advised that the regulations should be flexible enough to allow regional water quality boards to apply the regulations geographically. One national association expressed concern that existing institutional arrangements for flood control and drainage would be ignored, while another warned against fostering a proliferation of inconsistent patchwork programs based on arbitrary definitions and jurisdictions which bear no relationship to water quality.

EPA is convinced that the mechanism described in paragraph (iv) provides a means

whereby the mechanisms and concepts identified above can be utilized or created in appropriate circumstances. In addition, § 122.26(f)(4) provides a means for State or local government agencies to petition the Director for the designation of regional authorities responsible for a portion of the storm water program. For example, some States or counties may currently or in the near future have regional storm water management authorities that have the ability to apply for permits under today's rule and carry out the terms of the permit. Some of these authorities may encompass within their jurisdiction large or medium municipal separate storm sewer systems as defined in today's rule. EPA wishes to encourage such entities to assume the role as permittee under today's rule. That is the purpose of paragraph (iv). Such authorities may petition the Director to assume such a role.

Many commenters expressed the view that municipal management plans must be coordinated or developed among co-permittees on a regional basis and in the same timeframe. Paragraphs (i), (iii) and (iv) would bring in all appropriate municipal entities with jurisdiction over a specified geographical area in the same timeframe. Several commenters, including one State, noted proposed Option 1 would lead to fragmented, ill-coordinated programs. Paragraphs (i), (iii), and (iv) do not suffer this drawback *48043 to the same extent since all the municipal separate storm sewers are addressed within the incorporated place, instead of only those owned or operated by the incorporated place.

Equal treatment of municipalities within a watershed or other specified area was a major subject of comment. Many commenters urged that a degree of fairness could be achieved by requiring permit applications, and the concomitant expenditure of municipal dollars and resources, from all municipalities within an entire urban area that contributes to storm water pollution, rather than from a discrete system within an arbitrary political boundary. Paragraph (i), especially when coupled with paragraphs (ii), (iii), and (iv), can best accomplish a more equitable approach, because all owners and operators of municipal separate storm sewers within a system have responsibilities. In addition, some of the areas outside the incorporated city limits which are engaged in expansive urban or suburban development will be brought into the program. Paragraph (iv) will provide a means for State or regional authorities to use existing or emerging mechanisms to set up storm water management programs, and would require multiple agencies either to become regional co-permittees or to be subject to a regional permit.

Paragraphs (i), (ii), (iii), and (iv) could also require flood control districts to be co-permittees, which was a major concern of counties and numerous cities. One municipality stated that the inclusion of flood control districts would greatly reduce the administrative burden required to prepare a single inter-city discharge agreement and would establish a common legal authority to implement the program. Numerous county agencies believed it imperative that flood control districts be brought into a system-wide permit strategy.

Paragraphs (i) and (iii) may not accommodate the concern of several commenters that the number of co-permittees be kept to a minimum. The fact that all the municipal separate storm sewers within the boundaries of the appropriate incorporated places will be addressed dictates that some permits will have several co-permittees. This is a major concern since it goes directly to achieving an effective initial storm water program. There is concern about being able to bring all the co-permittees together under intra-municipal agreements or contracts within

regulatory deadlines. This problem would be resolved in the short term by selecting Option 1. However, Option 1 may still require inter-municipal agreements because of the designation authority under § 122.26 (b)(4)(ii) and (b)(7)(ii) of the proposal. In addition, such inter-jurisdictional problems will arise after October 1, 1992 when the moratorium on requiring NPDES permits for discharges from other municipal separate storm sewers ends. Under the permitting goals established by the CWA, multi-jurisdictional storm water programs and agreements cannot be avoided. Despite interest in limiting the number of co-permittees, EPA decided not to adopt Option 1 for the reasons already stated.

Section 402(p)(3)(B)(i) of the amended CWA provides that permits for municipal discharges from municipal storm sewers may be issued on a system-wide or jurisdiction-wide basis. This provision is an important mechanism for developing the comprehensive storm water management programs envisioned by the Act.

Under the permit application requirements of today's rule, if the appropriate co-applicants are identified, one permit application may be submitted for a large or medium municipal separate storm sewer system (see section VI.G.4 above). System-wide permit applications can in turn be used to issue system-wide permits which could cover all discharges in the system.

Where several municipal entities are responsible for obtaining a permit for various discharges within a single system, EPA will encourage system-wide permit applications involving the several municipal entities for a number of reasons. The system-wide approach not only provides an appropriate basis for planning activities and coordinating development, but also provides municipal entities participating in a system-wide application the means to spread the resource burden of monitoring, evaluating water quality impacts, and developing and implementing controls.

The system-wide approach provided in today's rule recognizes differences between individual municipalities with responsibilities for discharges from the municipal system. Today's application rule requires information to be submitted that enables the permit issuing authorities to develop tailored programs for each permittee with responsibility for certain components, segments, or portions of the municipal separate storm sewer system. The permit application requirements allow individual municipal entities, participating in system-wide applications, to submit site specific information regarding storm water quality management programs to reduce pollutants in system discharges as a whole, or from specific points within the system.

In some cases, it may be undesirable for all municipal entities with storm water responsibility within a municipal system to be co-permittees under one system-wide permit. The permit application requirements in today's rule allow individual municipal entities within the system to submit permit applications and obtain a permit for that portion of the storm sewer system for which they are responsible. Thus, several permits may be issued to cover various subdivisions of a single municipal system.

In summary, EPA believes that the definition of municipal storm sewer system adopted in today's rule has several distinct advantages that were identified in

comments:

- The definition adopts features of several options;
- The definition targets areas that have the necessary police powers and land use authority to implement the program;
- The definition can utilize watersheds or accommodate existing administrative frameworks and storm water programs;
- The definition provides that all systems within a geographical area including highways and flood control districts will be covered, thereby avoiding fragmented and ill-coordinated programs;
- The definition has flexible designation authority; and
- The definition addresses major sources of pollutants without being overly broad.

H. Permit Application Requirements for Large and Medium Municipal Systems

1. Implementing the Permit Program

Given the differing nature of discharges from municipal separate storm sewer systems in different parts of the country and the varying water quality impacts of municipal storm sewer discharges on receiving waters, today's permit application requirements are designed to lead to the development of site-specific storm water management programs. In order to effectively implement this goal, EPA intends to retain the overall structure of the municipal permit application as proposed in the December 7, 1988, proposal.

2. Structure of the Permit Application

EPA proposed a two-part permit application designed to meet the goal of *48044 developing site-specific storm water quality management programs in NPDES permits. In response to a request for comments on this aspect of the proposal, numerous comments were received. After reviewing these comments, EPA has decided to retain the two-part permit application. Many commenters agreed that the approach as proposed is appropriate for phasing in and developing site specific storm water management programs. One large municipality strongly endorsed the two-part application, stating that it would facilitate the identification of water quality problem areas and the development of priorities for control measures, thereby allowing for more cost-effective program development. Two State agencies expressed the same view, and noted that the two-part approach is reasonable and well structured for efficient development of programs. One large municipality noted it would allow the permit authority and the permit applicant the time needed to gain the knowledge and data to develop site-specific permits. A medium municipality expressed similar views.

Numerous commenters submitted endorsements of a proposal offered by one of the national municipal associations. This approach responded to EPA's request for

on receiving waters requires the analysis of both pollutant loadings and concentrations of pollutants in discharges.

The loading and concentration estimates in today's rule will be used to evaluate two types of water quality impacts: (1) Short-term impacts; and (2) long-term impacts. Specifically, the regulation requires estimates of the annual pollutant load of the cumulative discharges to waters of the United States from municipal outfalls and the event mean concentration of the cumulative discharges to waters of the United States municipal outfalls during a storm event for BOD 5, COD, TSS, dissolved solids, total nitrogen, total ammonia plus organic nitrogen, total phosphorus, dissolved phosphorus, cadmium, copper, lead, and zinc. Estimates shall be accompanied by a description of the procedures for estimating constituent loads and concentrations, including any modelling, data analysis, and calculation methods. Municipalities have options in the use of methodologies, including those presented in NURP for calculating loads.

Short term impacts from discharges from municipal separate storm sewers involve changes in water quality that occur during and shortly after storm events. Examples of short-term impacts that can lead to impairments include periodic dissolved oxygen depression due to the oxidation of contaminants, high bacteria levels, fish kills, acute effects of toxic pollutants, contact recreation impairments and loss of submerged macrophytes. Characterization of instream pollutant concentrations based on estimated pollutant concentrations in system discharges are important for evaluating these types of impacts.

Long-term water quality impacts from discharges from municipal separate storm sewers may be caused by contaminants associated with suspended solids that settle in receiving water sediments and by nutrients which enter receiving water systems with long *48052 retention times. Pollutant loading data are important for evaluation of impairments such as loss of storage capacity in streams, estuaries, reservoirs, lakes and bays, lake eutrophication caused by high nutrient loadings, and destruction of benthic habitat. Other examples of the long-term water quality impacts include depressed dissolved oxygen caused by the oxidation of organics in bottom sediments and biological accumulation of toxics as a result of uptake by organisms in the food chain. An estimate of annual pollutant loading associated with discharges from municipal storm water sewer systems is necessary to evaluate the magnitude and severity of the environmental impacts of such discharges and to evaluate the effectiveness of controls which are imposed at a later time.

Municipal storm water sewer systems generally handle runoff from large drainage areas and the sources of pollution are usually very diffuse. The concentrations of many pollutants in discharges from these systems are often low relative to many industrial process and POTW discharges. The water quality impacts of low concentration pollution discharges tend to be cumulative and need to be evaluated in terms of aggregate loadings as well as pollutant concentrations. A site-specific loading analysis can be used to evaluate the relative contribution of various pollutant sources.

7. Storm Water Quality Management Plans

Today's rule facilitates the development of site-specific permit conditions by

requiring large and medium municipal permit applicants to submit, along with other information, a description of existing structural and non-structural prevention and control measures on discharges of pollutants from municipal storm sewers in part I of the permit application. Section 122.26(d)(2)(iv) requires the applicant to identify in part 2 of the application, to the degree necessary to meet the MEP standard, additional prevention or control measures which will be implemented during the life of the permit. Although, in many cases, it will not be possible to identify all prevention and control measures that are appropriate as permit conditions, EPA believes that the process of identifying components of a comprehensive prevention and/or control program should begin early and that applicants should be given the opportunity to identify and propose the components of the program that they believe are appropriate for first preventing or controlling discharges of pollutants.

As noted earlier, EPA recognizes that problems associated with storm water, combined sewer overflows (CSOs) and infiltration and inflow (I&I) are all inter-related even though they are treated somewhat differently under the law. EPA believes that it is important to begin linking these programs and activities and, because of the potential cost to local governments, to investigate the use of innovative, nontraditional approaches to reducing or preventing contamination of storm water. The application process for developing municipal storm water management plans provides an ideal opportunity between steps 1 and 2 for considering the full range of nontraditional, preventive approaches.

The permit application requirements in today's rule require the applicant or co-applicants to develop management programs for four types of pollutant sources which discharge to large and medium municipal storm sewer systems. Discharges from large and medium municipal storm sewer systems are usually expected to be composed primarily of: (1) Runoff from commercial and residential areas; (2) storm water runoff from industrial areas; (3) runoff from construction sites; and (4) non-storm water discharges. Part 2 of the permit application has been designed to allow the applicant the opportunity to propose MEP control measures for each of these components of the discharge. Discharges from some municipal systems may also contain pollutants from other sources, such as runoff from land disposal activities (leaking septic tanks, landfills and land application of sewage sludge). Where other sources, such as land disposal, contribute significant amounts of pollutants to a municipal storm sewer system, appropriate control measures should be included on a site-specific basis. Proposed management programs will then be evaluated in the development of permit conditions.

There is some overlap in the manner in which these pollutant sources are characterized and their sources identified. For instance, improper disposal of oil into storm drains is often associated with do-it-yourself automobile oil changes in residential areas, or improper application or over-use of herbicides and pesticides in residential areas can also occur in industrial areas. Also, some control measures will reduce pollutant loads for multiple components of the municipal storm sewer discharge. ~~These measures should be identified under all appropriate places in the application; as discussed below, however, double counting of pollutant removal must be avoided when the total assessment of control measures is performed.~~

Although many land use programs have multiple purposes, including the reduction of

pollutants in discharges from municipal separate storm sewer systems, the proposed management programs in today's rule are intended to address only those controls which can be implemented by the permit applicant or co-applicants. EPA cannot abrogate its responsibilities under the CWA to implement the NPDES permit program by relying on pollution control programs that are outside the NPDES program. For example, municipal permit management programs may not rely exclusively on erosion or sediment control laws for implementing that portion of management programs that address discharges from construction sites, unless such laws implement NPDES permit program requirements entirely and that such implementation is a part of the permit.

EPA anticipates that storm water management programs will evolve and mature over time. The permits for discharges from municipal separate storm sewer systems will be written to reflect changing conditions that result from program development and implementation and corresponding improvements in water quality. The proposed permit applications will require applicants to provide a description of the range of control measures considered for implementation during the term of the permit. Flexibility in developing permit conditions will be encouraged by providing applicants an opportunity to identify in the permit application priority controls appropriate for the initial implementation of management programs. Many commenters endorsed the flexible site-specific storm water program approach as proposed as a method for addressing regional water quality control programs in a cost effective manner. To this extent, EPA agrees with one municipality that management programs should focus on more serious problems and sources of pollutants identified in the municipal system. However, EPA believes that to implement section 402(p)(3), comprehensive storm water management programs which address a number of major sources of pollutants to a system are necessary. Municipal programs should not be focused solely on a single source of pollution, such as illicit connections.

One commenter maintained that management program development *48053 should be flexible enough to allow for consideration of what is attainable based on the area's climate, vegetation, hydrology, and land uses. EPA agrees with this comment. Some strategies for reducing pollutants in the northeast will not be practical in the southwest, such as management programs for deicing activities. The permit application process will determine what strategies are appropriate in different locations.

Several commenters supported addressing storm water pollutant problems through management practices or programs rather than end of pipe controls or treatment. EPA agrees with this comment to the extent that storm water management practices are a general theme of this rulemaking with regard to municipal permits. However, there will be cases where such discharges are best addressed through technology such as retention, detention or infiltration ponds.

One commenter reacted unfavorably to the flexible site-specific management plan approach stating that there is no hard criteria upon which to judge the adequacy of programs. Another commenter felt that there should be a BAT standard for municipal permits. Another commenter stated that the rule should contain specific BMPs that the permittee must comply with. EPA disagrees with these comments. The Clean Water Act requires municipalities to apply for permits that will reduce pollutants in discharges to the maximum extent practicable and sets out the types of controls that are contemplated to deal with storm water discharges from municipalities. The language of CWA section 402(p)(3) contemplates that, because

of the fundamentally different characteristics of many municipalities, municipalities will have permits tailored to meet particular geographical, hydrological, and climatic conditions. Management practices and programs may be incorporated into the terms of the permit where appropriate. Permit conditions, which require that storm water management programs be developed and implemented or require specific practices, are enforceable in accordance with the terms of the permit. EPA disagrees with the notion that this regulation, which addressed permit application requirements, should create mandatory permit requirements which may have no legitimate application to a particular municipality. The whole point of the permit scheme for these discharges is to avoid inflexibility in the types and levels of control. Further, to the degree that such mandatory requirements may be appropriate, these requirements should be established under the authority of section 402(p)(6) of the CWA and not in this rulemaking, which addresses permit application requirements.

Some commenters suggested that management programs should be developed as part of the permit conditions and not as part of the permit application. EPA agrees that management programs and their ongoing development should be part of the permit term. However, EPA is convinced, and many commenters agree, that the permit application should contain information on what the permittee has done to date and what it proposes and plans to do during the permit term based upon its discharge characterization and source identification data. This is a reasonable and logical approach and one that meets the intent and letter of section 402(p)(3) of the CWA. As stated above, this would be an appropriate method for implementing storm water management programs that should mature and evolve over time.

Applicants will propose priorities based on a consideration of appropriate controls including, but not limited to, consideration of controls that address: reducing pollutants to municipal separate storm sewer system discharges that are associated with storm water from commercial and residential areas (§ 122.26(d)(2)(iv)(A)); illicit discharges and illegal disposal (§ 122.26(d)(2)(iv)(B)); storm water from industrial areas (§ 122.26(d)(2)(iv)(C)); and runoff from construction sites (§ 122.26(d)(2)(iv)(D)). Permits for different municipalities will place different emphasis on controlling various components of discharges from municipal storm sewers. For example, the potential for cross-connections (such as municipal sewage or industrial process wastewater discharges to a municipal separate storm sewer) is generally expected to be greater in municipalities with older developed areas. On the other hand, municipalities with larger areas of new development will have a greater opportunity to focus controls to reduce pollutants in storm water generated by the area after it is developed, discharges from construction sites, and other planning activities.

EPA requested comments on the process and methods for developing appropriate priorities in management programs proposed in applications and how the development of these priorities can be coordinated with controls on other discharges to ensure the achievement of water quality standards and the goals of the CWA.

Discharges from diffuse sources in residential areas was recognized by several commenters as a significant source of pollutants. Accordingly, these elements of the management plans have been retained. In conjunction with the importance of developing programs for illicit connections, numerous commenters stated that education programs are a priority. Another commenter emphasized that ordinances

prohibiting such discharges and their enforcement is a crucial means of a successful program in this regard. EPA agrees with these comments and consequently will retain those portions of management program development that include a description of a program for educational activities such as public information for the proper disposal of oil and toxic materials and the use of herbicides, pesticides and fertilizers.

Some commenters noted that discharge characterization is necessary for development of appropriate management plans. EPA agrees with these comments and has retained the discharge characterization components in this rulemaking. However, EPA disagrees that the results of all discharge characterization procedures (i.e., part 1 and part 2) are necessary to describe and propose a program as required in part 2 of the application. The application of various models is available to permit applicants, where needed, to develop appropriate management programs. All available site specific discharge characterization data should be available to the permit writer to draft appropriate conditions for the term of the permit.

One commenter noted that an important aspect of developing management plans is establishing the necessary legal authority to improve water quality. EPA agrees with this comment and has retained those aspects of the regulation which call for development and attainment of adequate legal authority in both parts of the municipal application.

One commenter stated that programs should address previously identified water quality problems in other programs that are required by section 304(1) of the CWA. EPA agrees that identified water quality problems need to be addressed by management programs, and the municipal permit application will call for an identification of these waters. However, EPA does not endorse addressing these waters to the exclusion of all others within the boundaries of the municipal separate storm sewer system. Some waters may experience substantial degradation after rain events and still not be listed under 48054 section 304(1). Further, water quality impacts in listed waters may not be related to storm water discharges, while other non-listed waters do have water quality impacts from storm water discharges. Similarly, EPA agrees with one commenter that it may be desirable to focus attention and resources on certain problem watersheds within a municipality, and controls may be imposed and programs prioritized on that basis. However, such a focus should not be to the exclusion of other waters and watersheds that have water quality problems (although less troublesome) traceable to storm water discharges. The CWA requires that permits address discharges to waters of the United States, not just waters previously targeted under special programs.

Some commenters expressed concern that the permit application requires the design of management programs before knowing what will be in the permits. EPA disagrees with the thrust of this comment, that is that the order of requirements is inappropriate. The permit applicant will have two years to develop proposed plans which can be considered by permit writers in the development of the permit. Based upon a consideration of the management program proposed by the municipality and other relevant information, permits can be tailored for individual programs. One commenter stated that the cornerstone of management programs are inspection and enforcement programs. EPA agrees that these two elements are important components. Without inspection and enforcement mechanisms the programs will undoubtedly falter. Accordingly these requirements in the description of management

programs in the permit application have been retained. In a similar vein, one commenter emphasized the importance of developing legal authority, financial capability, and administrative infrastructure. EPA agrees with this comment and has retained those aspects of the regulation that call for a description of applicants plans and resources in these areas.

One commenter stressed that control of discharges into the municipal system from industries is an important goal of municipal storm water management programs. EPA agrees with this comment and has retained the proposed description of management programs to address discharges from industrial sources. Other commenters identified industries as the principal contributors of pollutants to municipal separate storm sewer systems.

In addition, EPA will continue to evaluate procedures and methods to control storm water discharges to the extent necessary to mitigate impacts on water quality in the studies required under section 402(p)(5) of the CWA. One purpose of these studies will be to evaluate the costs and water quality benefits associated with implementing these procedures and methods. This evaluation will address a number of factors which impact the implementation costs associated with these programs, such as the extent to which similar municipal ordinances are currently being implemented, the degree to which existing municipal programs (such as flood management programs or construction site inspections) can be expanded to address water quality concerns, the resource intensiveness of the control, and whether the control program will involve public or private expenditures. This information, along with information gained during permit implementation will aid in the dynamic long-term development of municipal storm water management programs.

a. Measures to reduce pollutants in runoff from commercial and residential areas. The NURP program evaluated runoff from lands primarily dedicated to residential and commercial activities. The areas evaluated in the study reflect some other activities, such as light industry, which are commonly dispersed among residential and commercial areas. The NURP study selected sampling locations that were thought to be relatively free of illicit discharges and storm water from heavy industrial sites including storm water runoff from heavy construction sites. Of course, in a study such as NURP it was impossible to totally isolate various contributions to the runoff. In developing the permit application requirements in today's rule EPA has, in general, relied on the NURP definition of urban runoff--runoff from lands used for residential, commercial and light industrial activities.

NURP and numerous other studies have shown that runoff from residential and commercial areas washes a number of pollutants into receiving waters. Of equal importance is the volume of storm water runoff leaving urban areas during storm events. Large intermittent volumes of runoff can destroy aquatic habitat. As the percentage of paved surfaces increases, the volume and rate of runoff and the corresponding pollutant loads also increase. Thus, the amount of storm water runoff from commercial and residential areas and the pollutant loadings associated with storm water runoff increases as development progresses; and they remain at an elevated level for the lifetime of the development.

Proposed § 122.26(d)(2)(iv)(A) requires municipal storm sewer system applicants to provide in part 2 of the application a description of a proposed management program

that will describe priorities for implementing management programs based on a consideration of appropriate controls including:

- A description of maintenance activities and a maintenance schedule for structural controls;
- A description of planning procedures including a comprehensive master plan to control after construction is completed, the discharge of pollutants from municipal separate storm sewers which receive discharges from new development and significant redevelopment after construction is completed (in response to comment this contemplates an engineering policy and procedure strategy with long term planning);
- A description of practices for operating and maintaining public highways and procedures for reducing the impact on receiving waters of such discharges from municipal storm sewer system;
- A description of procedures to assure that flood management projects assess the impacts on the water quality of receiving water bodies; and
- A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides and fertilizer which will include, as appropriate, controls such as educational activities and other measures for commercial applicators and distributors, and controls for application in public right-of-ways and at municipal facilities.

Water quality problems caused by municipal storm sewer discharges will generally be most acute in heavily developed areas. Prevention measures may be desirable and cost effective. However, structural control measures may also be effective, although opportunities for implementing these measures may be limited in previously developed areas. Commonly used structural technologies include a wide variety of treatment techniques, including first flush diversion systems, detention/infiltration basins, retention basins, extended detention basins, infiltration trenches, porous pavement, oil/grit separators, grass swales, and swirl concentrators. A major problem associated with sound storm water management is the need for operating *48055 and maintaining the system for its expected life.

The unavailability of land in highly developed areas often makes the use of structural controls infeasible for modifying many existing systems. Non-structural practices can play a more important role. Non-structural practices can include erosion control, streambank management techniques, street cleaning operations, vegetation/lawn maintenance controls, debris removal, road salt application management and public awareness programs.

As noted above, the first component of the proposed program to reduce pollutants in storm water from commercial and residential areas which discharge to municipal storm sewer systems is to describe maintenance activities and schedule. The second component of the proposed program to reduce pollutants in storm water from commercial and residential areas which discharge to municipal storm sewer systems provides that applicants describe the planning procedures and a comprehensive master plan that will assure that increases of pollutant loading associated with

newly developed areas are, to the maximum extent practicable, limited. These measures should address storm water from commercial and residential areas which discharge to the municipal storm sewer that occur after the construction phase of development is completed. Controls for construction activities are addressed later in today's rule. One commenter noted the feasibility of developing management plans for newly developing areas. EPA agrees with this comment and has retained that portion of the regulation that deals with a description of controls for areas of new development. Similarly, one municipality stressed the importance and achievability of addressing storm water discharges from construction sites.

As urban development occurs, the volume of storm water and its rate of discharge increases. These increases are caused when pavement and structures cover soils and destroy vegetation which otherwise would slow and absorb runoff. Development also accelerates erosion through alteration of the land surface. Areas that are in the process of development offer the greatest potential for utilizing the full range of structural and non-structural best management practices. If these measures are to provide controls to reduce pollutant discharges after the area has been developed, comprehensive planning must be used to incorporate these measures as the area is in the process of developing. These measures offer an important opportunity to limit increases in pollutant loads.

The third component of § 122.26(d)(2)(iv)(A) provides a description of practices for operating and maintaining public roads and highways and procedures for reducing the impact on receiving waters of discharges from municipal storm sewer systems. General guidelines recommended for managing highway storm water runoff include litter control, pesticide/herbicide use management, reducing direct discharges, reducing runoff velocity, grassed channels, curb elimination, catchbasin maintenance, appropriate streetcleaning, establishing and maintaining vegetation, development of management controls for salt storage facilities, education and calibration practices for deicing application, infiltration practices, and detention/retention practices.

The fourth component of § 122.26(d)(2)(iv)(A) provides that applicants identify procedures that enable flood management agencies to consider the impact of flood management projects on the water quality of receiving streams. A well-developed storm water management program can reduce the amount of pollutants in storm water discharges as well as benefit flood control objectives. As discussed above, increased development can increase both the quantity of runoff from commercial and residential areas and the pollutant load associated with such discharges. Disturbing the land cover, altering natural drainage patterns, and increasing impervious area all increase the quantity and rate of runoff, thereby increasing both erosion and flooding potential. An integrated planning approach helps planners make the best decisions to benefit both flood control and water quality objectives.

The fifth component of § 122.26(d)(2)(iv)(A) would provide that municipal applicants submit a description of a program to reduce, to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides and fertilizer. Such a program may include controls such as educational activities and other measures for commercial applicators and distributors and controls for application in public rights-of-way and at municipal facilities. Discharges of these materials to

municipal storm sewer systems can be controlled by proper application of these materials. Some commenters noted that insecticides used in residential areas are a probable source of pollutants in storm water discharges from residential areas, as well as salting and other de-icing activities. In response to this comment, part of a community management plan may include controls or education programs to limit the impacts of these sources of pollutants. One commenter noted that many communities already have household toxic disposal programs. Where appropriate these can be incorporated into municipal management programs.

Some commenters suggested substituting the management program description for residential and commercial areas with a simple identification of applicable management practices. EPA agrees that identification of appropriate management practices is a critical component of a program description for these areas. In essence, this is what the program description is designed to achieve. However, for the reasons discussed in greater detail above, EPA is convinced that an appropriate program must address all of the components of the management program for residential and commercial areas that are outlined in today's rule. Further, for the purposes of writing a permit with enforceable conditions, the application should identify a schedule to implement management practices. The applicant should be able to estimate the reduction in pollutant loads as a result of the development of certain management practices and programs (§ 122.26(d)(2)(v)). A program may also include public education programs, which are not necessarily viewed as traditional BMPs.

b. Measures for illicit discharges and improper disposal. The CWA requires that NPDES permits for discharges from municipal storm sewers "shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers." In today's rule, EPA will begin to implement this statutory mandate by focusing on two types of discharges to large and medium municipal separate storm sewer systems. See § 122.26(d)(1)(iv)(D) and (d)(2)(iv)(B). One type of non-storm water discharges are illicit discharges which are plumbed into the system or that result from leakage of sanitary sewage system. The other class of non-storm water discharges result from the improper disposal of materials such as used oil and other toxic materials.

Illicit discharges. In some municipalities, illicit connections of sanitary, commercial and industrial discharges to storm sewer systems have had a significant impact on the water quality of receiving waters. Although the *48056 NURP study did not emphasize identifying illicit connections to storm sewers other than to assure that monitoring sites used in the study were free from sanitary sewage contamination, the study concluded that illicit connections can result in high bacterial counts and dangers to public health. The study also noted that removing such discharges presented opportunities for dramatic improvements in the quality of urban storm water discharges.

Other studies have shown that illicit connections to storm sewers can create severe, wide-spread contamination problems. For example, the Huron River Pollution Abatement Program inspected 660 businesses, homes and other buildings located in Washtenaw County, Michigan and identified 14% of the buildings as having improper storm drain connections. Illicit discharges were detected at a higher rate of 60% for automobile related businesses, including service stations, automobile dealerships, car washes, body shops and light industrial facilities.

ATTACHMENT

4

RULES and REGULATIONS
ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 122

[FRL-5533-7]

Interpretative Policy Memorandum on Reapplication Requirements for Municipal
Separate Storm Sewer Systems

Friday, August 9, 1996

***41698** AGENCY: Environmental Protection Agency (EPA).

ACTION: Policy statement; interpretation.

SUMMARY: By today's notice EPA announces federal policy, signed by Robert Perciasepe, Assistant Administrator for Water, on May 17, 1996, regarding application requirements for renewal or reissuance of National Pollutant Discharge Elimination System (NPDES) permits for municipal separate storm sewer systems (MS4s). Today's action responds to requests from municipalities and NPDES permit writers for clarification about regulations which do not appear to address reapplication requirements, i.e., permit reissuance. Today's notice explains that MS4 permit applicants and NPDES permit writers have considerable discretion to customize appropriate and streamlined reapplication requirements on a case-by-case basis, specifically, by using the fourth year annual report as the principal reapplication document.

EFFECTIVE DATE: This policy is effective May 17, 1996.

FOR FURTHER INFORMATION CONTACT: Marilyn Fonseca, Office of Wastewater Management, MC-4203, U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460, (202)-260-0592, e-mail: Fonseca.Marilyn(A)epamail.epa.gov

SUPPLEMENTARY INFORMATION: The text of this policy is as follows:

Municipal Separate Storm Sewer System Permit Reapplication Policy

The 1987 amendments to the Clean Water Act added Section 402(p) which directed the Environmental Protection Agency to establish regulations governing storm water discharges under the National Pollutant Discharge Elimination System (NPDES) program. Early in the program, Congress specifically required NPDES permits for municipal separate storm sewer systems (MS4s) serving populations over 100,000. In response, EPA promulgated regulations in 1990 that established permit application requirements for MS4s that serve populations over 100,000. MS4 permits have since

been drafted and finalized for many municipal systems. A number of MS4 permits are due to expire and must be reissued.

EPA is providing this policy memorandum to outline permit reapplication requirements for regulated MS4s. There are three components to EPA's reapplication policy. First, EPA is not requiring that the process used for part 1 and 2 of the initial permit application be repeated in full. Second, EPA has identified basic information that should be included in every reapplication package. Finally, EPA is seeking to improve existing MS4 storm water management programs by using information and experience municipalities have gained during the previous permit term.

Is a Permit Reapplication Necessary?

Yes. The requirement that all point source discharges authorized by a NPDES permit must reapply is well established at [40 CFR 122.41\(b\)](#) and [122.46\(a\)](#):

Duty to reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.

Duration of permits. NPDES permits shall be effective for a fixed term not to exceed 5 years.

The reapplication requirement is also found at [40 CFR 122.21\(d\)](#):

Duty to reapply. . . . All other permittees with currently effective permits shall submit a new application 180 days before the existing permit expires.

Therefore, all regulated Phase I MS4s need to participate in a permit reapplication process.

Where a complete reapplication package has been submitted as directed by the permit authority, conditions of an expired MS4 permit will continue until the effective date of a new permit, as stated in [40 CFR 122.6\(a\)](#) and [\(b\)](#):

(a) EPA permits. When EPA is the permit-issuing authority, the conditions of an expired permit continue in force . . . until the effective date of a new permit . . . and (b) Effect. Permits continued under this section remain fully effective and enforceable.

Are Initial MS4 Permit Application Requirements Applicable To Permit Reapplication?

No. The scope of the initial permit application requirements was comprehensive and regulated MS4s invested considerable resources to develop these applications. The initial applications have laid the foundation for the long-term implementation of MS4 storm water management programs. EPA believes reapplications should focus on maintenance and improvement of these programs.

The MS4 permit application requirements at [40 CFR 122.26\(d\)\(1\)](#) and (2) apply to

the first round permit applications required of large and medium MS4s. The permit application deadline regulations in [40 CFR 122.26\(e\) \(3\) & \(4\)](#) clearly reflect the "one time" nature of the Part I & II application requirements for large and medium MS4s. EPA has not promulgated regulations applicable to reapplication for MS4s. Requirements to demonstrate adequate legal authority, perform source identification (e.g., identify major outfalls and facility inventory), characterize data, and develop a storm water management program should have been addressed in the initial application phase. Therefore, to request the same information again, where it has already been provided and has not changed, would be needlessly redundant. Thus, as a practical matter, most first-time permit application requirements are unnecessary for purposes of second round MS4 permit application.

What Basic Information Must Be Submitted for an MS4 Permit Reapplication?

EPA is committed to allowing permitting authorities to develop flexible reapplication requirements that are site-specific. In the absence of reapplication regulations specific to MS4s, minimum reapplication requirements are drawn from the generic NPDES permit application regulations at [40 CFR 122.21\(f\)](#). EPA regulations suggest the following basic information be included as part of any permit reapplication:

--name and mailing address(es) of the permittee(s) that operate the MS4, and

--names and titles of the primary administrative and technical contacts for the municipal permittee(s).

In addition, in the reapplication, municipalities should identify any proposed changes or improvements to the storm water management program and monitoring activities for the upcoming five year term of the permit, if those proposed changes have not already been submitted pursuant to [40 CFR 122.42\(c\)](#). [A requirement to submit proposed changes to the storm water management program is specified in the annual reporting requirements in [40 CFR 122.42\(c\)\(2\)](#).] EPA encourages permitting authorities to make use of the fourth year annual report as the basic permit reapplication package.

***41699** Changes to the storm water management program may be justified due to the availability of new information on the relative magnitude of a problem or new data on water quality impacts of the storm water discharges. Municipalities may also propose to de-emphasize some program components and strengthen others, based on the experience gained under the first permit. Proposed elimination of a program component might be justified upon permit renewal; for example, when a component is no longer a problem area (i.e., all detention basins have been retrofitted) or when a different water quality program would serve the same goals.

The components of the original storm water management program which are found to be effective should be continued and made an ongoing part of the proposed new storm water management program. Such components may include:

--continued emphasis on public education programs, particularly programs on proper disposal of waste oil and household hazardous waste and pesticide application;

--continued, if not greater, emphasis on addressing impacts of new development/construction;

--proper storm design criteria for all new developments;

--retrofitting and/or upgrading of the existing storm sewer system according to a priority system;

--more frequent maintenance of storm sewer systems and storm water treatment systems;

--coordination with adjacent MS4s on monitoring or other efforts; and

--using a watershed approach to storm water management.

The accumulated annual report information as outlined in [40 CFR 122.42\(c\)](#) should be evaluated and, to the extent applicable, be incorporated by reference into the reapplication package.

To reiterate, MS4s may use the fourth year annual report, which emphasizes proposed changes to the storm water management program, with the additional required basic information, as the MS4 permit reapplication. Changes to the storm water management program should be jointly developed by the permitting authority and the permit applicant. In this regard, we urge permit issuance authorities and permittees to work together to assure that the permit reapplication is complete and addresses all appropriate issues. The permitting agency may request additional technical information be submitted in the reapplication. NPDES permitting authorities, therefore, can exercise their information gathering authority under CWA Section 308, or analogous State provisions to complete the permit reapplication on a case-by case basis, as appropriate.

What Additional Information Should Be Considered for a Reapplication?

EPA also recommends the following information be provided by reapplicants to the permitting authority, as outlined in [40 CFR 122.26\(d\)\(1\)\(iv\)\(C\)](#):

--identification of any previously unidentified water bodies that receive discharges from the MS4, and

--a summary of any known water quality impacts on the newly identified receiving waters (based on best available data).

In addition, EPA recommends the following information be provided to the permitting authority as well:

--a description of changes in co-applicants since issuance of initial MS4 permit, and

--identification number of the existing NPDES MS4 permit.

Further, EPA encourages permitting authorities to work with permittees to determine if storm water monitoring efforts are appropriate and useful. For example, during the previous permit term, municipalities may have found that their monitoring program was not fully successful in characterizing the nature and extent of storm water problems. Reapplication is an appropriate time for MS4s to evaluate their monitoring program and propose changes to make the program more appropriate and useful. To accomplish this, municipalities may wish to consider using monitoring techniques other than end-of-the pipe chemical-specific monitoring, including habitat assessments, bioassessments and/or other biological methods.

Permitting authorities should incorporate any such new information, together with assembled materials from the initial application and the existing permit, to form the administrative record for any reissued MS4 permits. Such administrative records should be made publicly available as part of the process to reissue the permit.

Dated: June 28, 1996.

Michael B. Cook,

Director, Office of Wastewater Management.

[FR Doc. 96-20228 Filed 8-8-96; 8:45 am]

BILLING CODE 6560-50-P

61 FR 41698-01, 1996 WL 446384 (F.R.)

END OF DOCUMENT

ATTACHMENT

5

64 FR 68722-01, 1999 WL 1111032(F.R.)
RULES and REGULATIONS
ENVIRONMENTAL PROTECTION AGENCY
40 CFR Parts 9, 122 , 123, and 124
[FRL—6470-8]
RIN 2040-AC82

National Pollutant Discharge Elimination System—Regulations for Revision
of the Water Pollution Control Program Addressing Storm Water Discharges

Wednesday, December 8, 1999

***68722** AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: Today's regulations (Phase II) expand the existing National Pollutant Discharge Elimination System (NPDES) storm water program (Phase I) to address storm water discharges from small municipal separate storm sewer systems (MS4s) (those serving less than 100,000 persons) and construction sites that disturb one to five acres. Although these sources are automatically designated by today's rule, the rule allows for the exclusion of certain sources from the national program based on a demonstration of the lack of impact on water quality, as well as the inclusion of others based on a higher likelihood of localized adverse impact on water quality. Today's regulations also exclude from the NPDES program storm water discharges from industrial facilities that have “no exposure” of industrial activities or materials to storm water. Finally, today's rule extends from August 7, 2001 until March 10, 2003 the deadline by which certain industrial facilities owned by small MS4s must obtain coverage under an NPDES permit. This rule establishes a cost-effective, flexible approach for reducing environmental harm by storm water discharges from many point sources of storm water that are currently unregulated.

EPA believes that the implementation of the six minimum measures identified for small MS4s should significantly reduce pollutants in urban storm water compared to existing levels in a cost-effective manner. Similarly, EPA believes that implementation of Best Management Practices (BMP) controls at small construction sites will also result in a significant reduction in pollutant discharges and an improvement in surface water quality. EPA believes this rule will result in monetized financial, recreational and health benefits, as well as benefits that EPA has been unable to monetize. Expected benefits include reduced scouring and erosion of streambeds, improved aesthetic quality of waters, reduced eutrophication of aquatic systems, benefit to wildlife and endangered and threatened species, tourism benefits, biodiversity benefits and reduced costs for siting reservoirs. In addition, the costs of industrial storm water controls will decrease due to the exclusion of storm water discharges from facilities where there is “no exposure” of storm water to industrial activities and materials.

DATES: This regulation is effective on February 7, 2000. The incorporation by reference of the rainfall erosivity factor publication listed in the rule is approved by the Director of the Federal Register as of February 7, 2000. For judicial review purposes, this final rule is promulgated as of 1:00 p.m. Eastern Standard Time, on December 22, 1999 as provided in [40 CFR 23.2](#).

ADDRESSES: The complete administrative record for the final rule and the ICR have been established under docket numbers W-97-12 (rule) and W-97-15 (ICR), and includes supporting documentation as well as printed, paper versions of electronic comments. Copies of information in the record are available upon request. A reasonable fee may be charged for copying. The record is available for inspection and copying from 9 a.m. to 4 p.m., Monday through Friday, excluding

legal holidays, at the Water Docket, EPA, East Tower Basement, 401 M Street, SW, Washington, DC. For access to docket materials, please call 202/260-3027 to schedule an appointment.

FOR FURTHER INFORMATION CONTACT: George Utting, Office of Wastewater Management, Environmental Protection Agency, Mail Code 4203, 401 M Street, SW, Washington, DC 20460; (202) 260-5816; sw2@epa.gov.

SUPPLEMENTARY INFORMATION: Entities potentially regulated by this action include:

Category	Examples of regulated entities
Federal, State, Tribal, and Local Governments	Operators of small separate storm sewer systems, industrial facilities that discharge storm water associated with industrial activity or construction activity disturbing 1 to 5 acres.
Industry	Operators of industrial facilities that discharge storm water associated with industrial activity.
Construction Activity	Operators of construction activity disturbing 1 to 5 acres.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This table lists the types of entities that EPA is now aware could potentially be regulated by this action. Other types of entities not listed in the table could also be regulated. To determine whether your facility or company is regulated by this action, you should carefully examine the applicability criteria in §§122.26(b), 122.31, 122.32, and 123.35 of the final rule. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding FOR FURTHER INFORMATION CONTACT section.

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I. Congressional Review Act

I. Background

A. Proposed Rule and Pre-Proposal Outreach

On January 9, 1998 ([63 FR 1536](#)), EPA proposed to expand the National Pollutant Discharge Elimination System (NPDES) storm water program to include storm water discharges from municipal separate storm sewer systems (MS4s) and construction sites that were smaller than those previously included in the program. The proposal also addressed industrial sources that have “no exposure” of industrial activities and materials to storm water. Today, EPA is promulgating a final rule to implement most of the proposed revisions with minor changes based on public comments received on the proposal. Today's final rule also extends the deadline by which certain industrial facilities operated by municipalities of less than 100,000 population must be covered by a NPDES permit; the deadline is changed from August 7, 2001 until March 10, 2003.

In 1972, Congress amended the Federal Water Pollution Control Act (commonly referred to as the Clean Water Act (CWA)) to prohibit the discharge of any pollutant to waters of the United States from a point source unless the discharge is authorized by an NPDES permit. The NPDES program is a program designed to track point sources and require the implementation of the controls necessary to minimize the discharge of pollutants. Initial efforts to improve water quality under the NPDES program primarily focused on reducing pollutants in industrial process wastewater and municipal sewage. These discharge sources were easily identified as responsible for poor, often drastically degraded, water quality conditions.

As pollution control measures for industrial process wastewater and municipal sewage were implemented and refined, it became increasingly evident that more diffuse sources of water pollution were also significant causes of water quality impairment. Specifically, storm water runoff draining large surface areas, such as agricultural and urban land, was found to be a major cause of water quality impairment, including the nonattainment of designated beneficial uses.

In 1987, Congress amended the CWA to require implementation, in two phases, of a comprehensive national program for addressing storm water discharges. The first phase of the program, commonly referred to as “Phase I,” was promulgated on November 16, 1990 ([55 FR 47990](#)). Phase I requires NPDES permits for storm water discharge from a large number of priority sources including municipal separate storm sewer systems (“MS4s”) generally serving populations of 100,000 or more and several categories of industrial activity, including construction sites that disturb five or more acres of land.

Today's rule, which is the second phase of the storm water program, expands the existing program to include discharges of storm water from smaller municipalities in urbanized areas and from construction sites that disturb between one and five acres of land. Today's rule allows certain sources to be excluded from the national program based on a demonstrable lack of impact on water quality. The rule also allows other sources not automatically regulated on a national basis to be designated for inclusion based on increased likelihood for localized adverse impact on water quality. *68724 Today's rule also conditionally excludes storm water discharges from industrial facilities that have “no exposure” of industrial

activities or materials to storm water. Today's rule and the effort that led to its development are commonly referred to as "Phase II." On August 7, 1995, EPA promulgated a final rule that required facilities to be regulated under Phase II to apply for a NPDES permit by August 7, 2001, unless the NPDES permitting authority designates them as requiring a permit by an earlier date. (60 FR 40230). That rule is referred to as "the Interim Phase II Rule." Today's rule replaces the Interim Phase II rule.

EPA performed extensive outreach and worked with a variety of stakeholders prior to proposing today's rule. On September 9, 1992, EPA published a notice requesting information and public comment on how to prepare regulations under CWA section 402(p)(6) (see 57 FR 41344). The notice identified three sets of issues associated with developing new NPDES storm water regulations: (1) How should EPA identify unregulated sources of storm water to protect water quality, (2) what types of control strategies should EPA develop for these sources, and (3) what are appropriate deadlines for implementing new requirements. The notice recognized that potential sources for coverage under the section 402(p)(6) regulations would fall into two main categories: municipal separate storm sewer systems and individual (commercial and residential) sources. EPA received more than 130 comments on the September 9, 1992, notice. For further discussion of the comments received, see *Storm Water Discharges Potentially Addressed by Phase II of the National Pollutant Discharge Elimination System: Report to Congress* (EPA, 1995a), pp. 1-21 to 1-22, and Appendix J (which provides a detailed summary of the comments received as they relate to the specific issues raised in the notice).

In early 1993, the Rensselaerville Institute and EPA held public and expert meetings to assist in developing and analyzing options for identifying unregulated sources and possible controls. The report on the 1993 meetings identified two options that were favored by the various groups that participated. One option was a program that allowed States to select sources to be controlled in a manner consistent with criteria developed by EPA. A second option was a tiered approach under which EPA would select high priority sources for control by NPDES permits and States would select other sources for control under a State water quality program other than the NPDES program. For additional details see the "Report on the EPA Storm Water Management Program (Rensselaerville Study)," Appendix I of *Storm Water Discharges Potentially Addressed by Phase II of the National Pollutant Discharge Elimination System: Report to Congress* (EPA, 1995a).

EPA also conducted outreach with representatives of small entities in conjunction with the convening of a Small Business Advocacy Review Panel under the Small Business Regulatory Enforcement Fairness Act (SBREFA). This process is discussed in section IV.E of today's preamble. For additional background see the discussion in the preamble to the proposal for today's rule.

To assist EPA by providing advice and recommendations regarding the urban municipal wet weather water pollution control program, EPA established the Urban Wet Weather Flows Federal Advisory Committee (hereinafter, "FACA Committee") under the Federal Advisory Committee Act (FACA). The Office of Management and Budget approved the charter for the FACA Committee on March 10, 1995. The FACA Committee provided a forum for identifying and addressing issues associated with water quality impacts from storm water sources.

The FACA Committee established two subcommittees: the Storm Water Phase II FACA Subcommittee and the Sanitary Sewer Overflows (SSOs) FACA Subcommittee. Consistent with the requirements of FACA, the membership of both the FACA Committee and the subcommittees was balanced among EPA's various outside stakeholder interests, including representatives from municipalities, States, Indian Tribes, EPA, industrial and commercial sectors, agriculture, and environmental and public interest groups.

The Storm Water Phase II FACA Subcommittee ("Subcommittee") met fourteen times between September 1995 and June 1998. The 32 Subcommittee members discussed possible regulatory frameworks at these meetings as well as during numerous other meetings and conference calls. Members of the FACA Committee provided views regarding the development of the "no exposure" provision and other provisions in drafts of the Phase II rule. EPA provided

Subcommittee members with four successive drafts of the proposed rule and preamble, outlines of the rule, summaries of the written comments received on each draft, and documents identifying the changes made to each draft. In the course of providing input to the Committee, individual Subcommittee members provided significant input and advice that EPA considered in the context of public comments received. Ultimately, the Subcommittee did not provide a written report back to the FACA Committee, and the FACA Committee did not provide written advice and recommendations to EPA. The Agency, therefore, did not rely on group recommendations in developing today's rule, but does consider the process to have resulted in important public outreach.

B. Water Quality Concerns/Environmental Impact Studies and Assessments

Storm water runoff from lands modified by human activities can harm surface water resources and, in turn, cause or contribute to an exceedance of water quality standards by changing natural hydrologic patterns, accelerating stream flows, destroying aquatic habitat, and elevating pollutant concentrations and loadings. Such runoff may contain or mobilize high levels of contaminants, such as sediment, suspended solids, nutrients (phosphorous and nitrogen), heavy metals and other toxic pollutants, pathogens, toxins, oxygen-demanding substances (organic material), and floatables (U.S. EPA. 1992. Environmental Impacts of Storm Water Discharges: A National Profile. EPA 841-R-92-001. Office of Water. Washington, DC). After a rain, storm water runoff carries these pollutants into nearby streams, rivers, lakes, estuaries, wetlands, and oceans. The highest concentrations of these contaminants often are contained in “first flush” discharges, which occur during the first major storm after an extended dry period (Schueler, T.R. 1994. “First Flush of Stormwater Pollutants Investigated in Texas.” Note 28. Watershed Protection Techniques 1(2)). Individually and combined, these pollutants impair water quality, threatening designated beneficial uses and causing habitat alteration or destruction.

Uncontrolled storm water discharges from areas of urban development and construction activity negatively impact receiving waters by changing the physical, biological, and chemical composition of the water, resulting in an unhealthy environment for aquatic organisms, wildlife, and humans. The following sections discuss the studies and data that address and support this finding.

Although water quality problems also can occur from agricultural storm water discharges and return flows from irrigated agriculture, this area of *68725 concern is statutorily exempted from regulation as a point source under the Clean Water Act and is not discussed here. (See CWA section 502(14)). Other storm water sources not specifically identified in the regulations may be of concern in certain areas and can be addressed on a case-by-case (or category-by-category) basis through the NPDES designation authority preserved by CWA section 402(p)(2)(6), as well as today's rule.

1. Urban Development

Urbanization alters the natural infiltration capability of the land and generates a host of pollutants that are associated with the activities of dense populations, thus causing an increase in storm water runoff volumes and pollutant loadings in storm water discharged to receiving waterbodies (U.S. EPA, 1992). Urban development increases the amount of impervious surface in a watershed as farmland, forests, and meadowlands with natural infiltration characteristics are converted into buildings with rooftops, driveways, sidewalks, roads, and parking lots with virtually no ability to absorb storm water. Storm water and snow-melt runoff wash over these impervious areas, picking up pollutants along the way while gaining speed and volume because of their inability to disperse and filter into the ground. What results are storm water flows that are higher in volume, pollutants, and temperature than the flows in less impervious areas, which have more natural vegetation and soil to filter the runoff (U.S. EPA, 1997. Urbanization and Streams: Studies of Hydrologic Impacts. EPA 841-R-97-009. Office of Water. Washington, DC).

Studies reveal that the level of imperviousness in an area strongly correlates with the quality of the nearby receiving waters. For example, a study in the Puget Sound lowland ecoregion found that when the level of basin development exceeded 5 percent of the total impervious area, the biological integrity and physical habitat conditions that are necessary

to support natural biological diversity and complexity declined precipitously (May, C.W., E.B. Welch, R.R. Horner, J.R. Karr, and B.W. May. 1997. *Quality Indices for Urbanization Effects in Puget Sound Lowland Streams*, Technical Report No. 154. University of Washington Water Resources Series). Research conducted in numerous geographical areas, concentrating on various variables and employing widely different methods, has revealed a similar conclusion: stream degradation occurs at relatively low levels of imperviousness, such as 10 to 20 percent (even as low as 5 to 10 percent according to the findings of the Washington study referenced above) (Schueler, T.R. 1994. "The Importance of Imperviousness." *Watershed Protection Techniques* 1(3); May, C., R.R. Horner, J.R. Karr, B.W. Mar, and E.B. Welch. 1997. "Effects Of Urbanization On Small Streams In The Puget Sound Lowland Ecoregion." *Watershed Protection Techniques* 2(4); Yoder, C.O., R.J. Miltner, and D. White. 1999. "Assessing the Status of Aquatic Life Designated Uses in Urban and Suburban Watersheds." In *Proceedings: National Conference on Retrofits Opportunities in Urban Environments*. EPA 625-R-99-002, Washington, DC; Yoder, C.O and R.J. Miltner. 1999. "Assessing Biological Quality and Limitations to Biological Potential in Urban and Suburban Watersheds in Ohio." In *Comprehensive Stormwater & Aquatic Ecosystem Management Conference Papers*, Auckland, New Zealand). Furthermore, research has indicated that few, if any, urban streams can support diverse benthic communities at imperviousness levels of 25 percent or more. An area of medium density single family homes can be anywhere from 25 percent to nearly 60 percent impervious, depending on the design of the streets and parking (Schueler, 1994).

In addition to impervious areas, urban development creates new pollution sources as population density increases and brings with it proportionately higher levels of car emissions, car maintenance wastes, pet waste, litter, pesticides, and household hazardous wastes, which may be washed into receiving waters by storm water or dumped directly into storm drains designed to discharge to receiving waters. More people in less space results in a greater concentration of pollutants that can be mobilized by, or disposed into, storm water discharges from municipal separate storm sewer systems. A modeling system developed for the Chesapeake Bay indicated that contamination of the Bay and its tributaries from runoff is comparable to, if not greater than, contamination from industrial and sewage sources (Cohn-Lee, R. and D. Cameron. 1992. "Urban Stormwater Runoff Contamination of the Chesapeake Bay: Sources and Mitigation." *The Environmental Professional*, Vol. 14).

a. Large-Scale Studies and Assessments

In support of today's regulatory designation of MS4s in urbanized areas, the Agency relied on broad-based assessments of urban storm water runoff and related water quality impacts, as well as more site-specific studies. The first national assessment of urban runoff characteristics was completed for the Nationwide Urban Runoff Program (NURP) study (U.S. EPA. 1983. *Results of the Nationwide Urban Runoff Program, Volume 1—Final Report*. Office of Water. Washington, D.C.). The NURP study is the largest nationwide evaluation of storm water discharges, which includes adverse impacts and sources, undertaken to date.

EPA conducted the NURP study to facilitate understanding of the nature of urban runoff from residential, commercial, and industrial areas. One objective of the study was to characterize the water quality of discharges from separate storm sewer systems that drain residential, commercial, and light industrial (industrial parks) sites. Storm water samples from 81 residential and commercial properties in 22 urban/suburban areas nationwide were collected and analyzed during the 5-year period between 1978 and 1983. The majority of samples collected in the study were analyzed for eight conventional pollutants and three heavy metals.

Data collected under the NURP study indicated that discharges from separate storm sewer systems draining runoff from residential, commercial, and light industrial areas carried more than 10 times the annual loadings of total suspended solids (TSS) than discharges from municipal sewage treatment plants that provide secondary treatment. The NURP study also indicated that runoff from residential and commercial areas carried somewhat higher annual loadings of chemical oxygen demand (COD), total lead, and total copper than effluent from secondary treatment plants. Study findings showed that fecal coliform counts in urban runoff typically range from tens to hundreds of thousands per hundred milliliters of runoff during warm weather conditions, with the median for all sites being around 21,000/100

ml. This is generally consistent with studies that found that fecal coliform mean values range from 1,600 coliform fecal units (CFU)/100 ml to 250,000 cfu/100 ml (Makepeace, D.K., D.W. Smith, and S.J. Stanley. 1995. "Urban Storm Water Quality: Summary of Contaminant Data." *Critical Reviews in Environmental Science and Technology* 25(2):93-139). Makepeace, et al., summarized ranges of contaminants from storm water, including physical contaminants such as total solids (76—36,200 mg/L) and copper (up to 1.41 mg/L); organic chemicals; organic compounds, such as oil and grease (up to 110 mg/L); and microorganisms. *68726

Monitoring data summarized in the NURP study provided important information about urban runoff from residential, commercial, and light industrial areas. The study concluded that the quality of urban runoff can be affected adversely by several sources of pollution that were not directly evaluated in the study, including illicit discharges, construction site runoff, and illegal dumping. Data from the NURP study were analyzed further in the U.S. Geological Survey (USGS) Urban Storm Water Data Base for 22 Metropolitan Areas Throughout the United States study (Driver, N.E., M.H. Mustard, R.B. Rhinesmith, and R.F. Middleburg. 1985. U.S. Geological Survey Urban Storm Water Data Base for 22 Metropolitan Areas Throughout the United States. Report No. 85-337 USGS. Lakewood, CO). The USGS report summarized additional monitoring data compiled during the mid-1980s, covering 717 storm events at 99 sites in 22 metropolitan areas and documented problems associated with metals and sediment concentrations in urban storm water runoff. More recent reports have confirmed the pollutant concentration data collected in the NURP study (Marsalek, J. 1990. "Evaluation of Pollutant Loads from Urban Nonpoint Sources." *Wat. Sci. Tech.* 22(10/11):23-30; Makepeace, et al., 1995).

Commenters argued that the NURP study does not support EPA's contention that urban activities significantly jeopardize attainment of water quality standards. One commenter argued that the NURP study and the 1985 USGS study are seriously out of date. Because they were issued 10 years or more before the implementation of the current storm water permit program, the data in those reports do not reflect conditions that exist after implementation of permits issued by authorized States and EPA for storm water from construction sites, large municipalities, and industrial activities.

In response, EPA notes that it is not relying solely on the NURP study to describe current water quality impairment. Rather, EPA is citing NURP as a source of data on typical pollutant concentrations in urban runoff. Recent studies have not found significantly different pollutant concentrations in urban runoff when compared to the original NURP data (see Makepeace, et al., 1995; Marsalek, 1990; and Pitt, et al., 1995).

America's Clean Water—the States' Nonpoint Source Assessment (Association of State and Interstate Water Pollution Control Administrators (ASIWPCA). 1985. *America's Clean Water—The States' Nonpoint Source Assessment*. Prepared in cooperation with the U.S. EPA, Office of Water, Washington, DC), a comprehensive study of diffuse pollution sources conducted under the sponsorship of the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) and EPA revealed that 38 States reported urban runoff as a major cause of designated beneficial use impairment and 21 States reported storm water runoff from construction sites as a major cause of beneficial use impairment. In addition, the 1996 305(b) Report (U.S. EPA. 1998. *The National Water Quality Inventory, 1996 Report to Congress*. EPA 841-R-97-008. Office of Water. Washington, DC), provides a national assessment of water quality based on biennial reports submitted by the States as required under CWA section 305(b) of the CWA. In the CWA 305(b) reports, States, Tribes, and Territories assess their individual water quality control programs by examining the attainment or nonattainment of the designated uses assigned to their rivers, lakes, estuaries, wetlands, and ocean shores. A designated use is the legally applicable use specified in a water quality standard for a watershed, waterbody, or segment of a waterbody. The designated use is the desirable use that the water quality should support. Examples of designated uses include drinking water supply, primary contact recreation (swimming), and aquatic life support. Each CWA 305(b) report indicates the assessed fraction of a State's waters that are fully supporting, partially supporting, or not supporting designated beneficial uses.

In their reports, States, Tribes, and Territories first identified and then assigned the sources of water quality impairment for each impaired waterbody using the following categories: industrial, municipal sewage, combined sewer overflows, urban runoff/storm sewers, agricultural, silvicultural, construction, resource extraction, land disposal, hydrologic modification, and habitat modification. The 1996 Inventory, based on a compilation of 60 individual 305(b) reports submitted by States, Tribes, and Territories, assessed the following percentages of total waters nationwide: 19 percent of river and stream miles; 40 percent of lake, pond, and reservoir acres; 72 percent of estuary square miles; and 6 percent of ocean shoreline waters. The 1996 Inventory indicated that approximately 40 percent of the Nation's assessed rivers, lakes, and estuaries are impaired. Waterbodies deemed as "impaired" are either partially supporting designated uses or not supporting designated uses.

The 1996 Inventory also found urban runoff/discharges from storm sewers to be a major source of water quality impairment nationwide. Urban runoff/storm sewers were found to be a source of pollution in 13 percent of impaired rivers; 21 percent of impaired lakes, ponds, and reservoirs; and 45 percent of impaired estuaries (second only to industrial discharges). In addition, urban runoff was found to be the leading cause of ocean impairment for those ocean miles surveyed.

In addition, a recent USGS study of urban watersheds across the United States has revealed a link between urban development and contamination of local waterbodies. The study found the highest levels of organic contaminants, known as polycyclic aromatic hydrocarbons (PAHs) (products of combustion of wood, grass, and fossil fuels), in the reservoirs of urbanized watersheds (U.S. Geological Survey (USGS). 1998. Research Reveals Link Between Development and Contamination in Urban Watersheds. USGS news release. USGS National Water-Quality Assessment Program).

Urban storm water also can contribute significant amounts of toxicants to receiving waters. Pitt, et. al. (1993), found heavy metal concentrations in the majority of samples analyzed. Industrial or commercial areas were likely to be the most significant pollutant source areas (Pitt, R., R. Field, M. Lator, M. Brown 1993. "Urban stormwater toxic pollutants: assessment, sources, and treatability" *Water Environment Research*, 67(3):260-75).

b. Local and Watershed-Based Studies

In addition to the large-scale nationwide studies and assessments, a number of local and watershed-based studies from across the country have documented the detrimental effects of urban storm water runoff on water quality. A study of urban streams in Milwaukee County, Wisconsin, found local streams to be highly degraded due primarily to urban runoff, while three studies in the Atlanta, Georgia, region were characterized as being "the first documentation in the Southeast of the strong negative relationship between urbanization and stream quality that has been observed in other ecoregions" (Masterson, J. and R. Bannerman. 1994. "Impacts of Storm Water Runoff on Urban Streams in Milwaukee County, Wisconsin." Paper presented at National Symposium on Water Quality: American Water Resources Association; Schueler, T.R. 1997. "Fish Dynamics in Urban Streams Near Atlanta, Georgia." *68727 Technical Note 94. *Watershed Protection Techniques* 2(4)). Several other studies, including those performed in Arizona (Maricopa County), California (San Jose's Coyote Creek), Massachusetts (Green River), Virginia (Tuckahoe Creek), and Washington (Puget Sound lowland ecoregion), all had the same finding: runoff from urban areas greatly impair stream ecology and the health of aquatic life; the more heavily developed the area, the more detrimental the effects (Lopes, T. and K. Fossum. 1995. "Selected Chemical Characteristics and Acute Toxicity of Urban Stormwater, Streamflow, and Bed Material, Maricopa County, Arizona." *Water Resources Investigations Report* 95-4074. USGS; Pitt, R. 1995. "Effects of Urban Runoff on Aquatic Biota." In *Handbook of Ecotoxicology*; Pratt, J. and R. Coler. 1979. "Ecological Effects of Urban Stormwater Runoff on Benthic Macroinvertebrates Inhabiting the Green River, Massachusetts." *Completion Report Project No. A-094*. Water Resources Research Center. University of Massachusetts at Amherst.; Schueler, T.R. 1997. "Historical Change in a Warmwater Fish Community in an Urbanizing Watershed." *Technical Note* 93. *Watershed Protection Techniques* 2(4); May, C., R. Horner, J. Karr, B. Mar, and E. Welch. 1997. "Effects Of Urbanization On Small Streams In The Puget Sound Lowland Ecoregion." *Watershed Protection Techniques* 2(4)).

Pitt and others also described the receiving water effects on aquatic organisms associated with urban runoff (Pitt, R.E. 1995. "Biological Effects of Urban Runoff Discharges" In *Stormwater Runoff and Receiving Systems: Impact, Monitoring, and Assessment*, ed. E.E Herricks, Lewis Publishers; Crunkilton, R., J. Kleist, D. Bierman, J. Ramcheck, and W. DeVita. 1999. "Importance of Toxicity as a Factor Controlling the Distribution of Aquatic Organisms in an Urban Stream." In *Comprehensive Stormwater & Aquatic Ecosystem Management Conference Papers*. Auckland, New Zealand).

In Wisconsin, runoff samples were collected from streets, parking lots, roofs, driveways, and lawns. Source areas were broken up into residential, commercial, and industrial. Geometric mean concentration data for residential areas included total solids of about 500-800 mg/L from streets and 600 mg/L from lawns. Fecal coliform data from residential areas ranged from 34,000 to 92,000 cfu/100 mL for streets and driveways. Contaminant concentration data from commercial and industrial source areas were lower for total solids and fecal coliform, but higher for total zinc (Bannerman, R.T., D.W. Owens, R.B. Dods, and N.J. Hornewer. 1993. "Sources of Pollutants in Wisconsin Stormwater." *Wat. Sci. Tech.* 28(3-5):241-59).

Bannerman, et al. also found that streets contribute higher loads of pollutants to urban storm water than any other residential development source. Two small urban residential watersheds were evaluated to determine that lawns and streets are the largest sources of total and dissolved phosphorus in the basins (Waschbusch, R.J., W.R. Selbig, and R.T. Bannerman. 1999. "Sources of Phosphorus in Stormwater and Street Dirt from Two Urban Residential Basins In Madison, Wisconsin, 1994-95." *Water Resources Investigations Report 99-4021*. U.S. Geological Survey). A number of other studies have indicated that urban roadways often contain significant quantities of metal elements and solids (Sansalone, J.J. and S.G. Buchberger. 1997. "Partitioning and First Flush of Metals in Urban Roadway Storm Water." *ASCE Journal of Environmental Engineering* 123(2); Sansalone, J.J., J.M. Koran, J.A. Smithson, and S.G. Buchberger. 1998. "Physical Characteristics of Urban Roadway Solids Transported During Rain Events" *ASCE Journal of Environmental Engineering* 124(5); Klein, L.A., M. Lang, N. Nash, and S.L. Kirschner. 1974. "Sources of Metals in New York City Wastewater" *J. Water Pollution Control Federation* 46(12):2653-62; Barrett, M.E, R.D. Zuber, E.R. Collins, J.F. Malina, R.J. Charbeneau, and G.H Ward., 1993. "A Review and Evaluation of Literature Pertaining to the Quantity and Control of Pollution from Highway Runoff and Construction." *Research Report 1943-1*. Center for Transportation Research, University of Texas, Austin).

c. Beach Closings/Advisories

Urban wet weather flows have been recognized as the primary sources of estuarine pollution in coastal communities. Urban storm water runoff, sanitary sewer overflows, and combined sewer overflows have become the largest causes of beach closings in the United States in the past three years. Storm water discharges from urban areas not only pose a threat to the ecological environment, they also can substantially affect human health. A survey of coastal and Great Lakes communities reports that in 1998, more than 1,500 beach closings and advisories were associated with storm water runoff (Natural Resources Defense Council. 1999. "A Guide to Water Quality at Vacation Beaches" New York, NY). Other reports also document public health, shellfish bed, and habitat impacts from storm water runoff, including more than 823 beach closings/advisories issued in 1995 and more than 407 beach closing/advisories issued in 1996 due to urban runoff (Natural Resources Defense Council. 1996. *Testing the Waters Volume VI: Who Knows What You're Getting Into*. New York, NY; NRDC. 1997. *Testing the Waters Volume VII: How Does Your Vacation Beach Rate*. New York, NY; Morton, T. 1997. *Draining to the Ocean: The Effects of Stormwater Pollution on Coastal Waters*. American Oceans Campaign, Santa Monica, CA). The Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay (Haile, R.W., et. al. 1996. "An Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay." Final Report prepared for the Santa Monica Bay Restoration Project) concluded that there is a 57 percent higher rate of illness in swimmers who swim adjacent to storm drains than in swimmers who swim more than 400 yards away from storm drains. This and other studies document a relationship between gastrointestinal illness in swimmers and water quality, the latter of which can be heavily compromised by polluted storm water discharges.

2. Non-Storm Water Discharges Through Municipal Storm Sewers

Studies have shown that discharges from MS4s often include wastes and wastewater from non-storm water sources. Federal regulations (§122.26(b)(2)) define an illicit discharge as “* * * any discharge to an MS4 that is not composed entirely of storm water * * *,” with some exceptions. These discharges are “illicit” because municipal storm sewer systems are not designed to accept, process, or discharge such wastes. Sources of illicit discharges include, but are not limited to: sanitary wastewater; effluent from septic tanks; car wash, laundry, and other industrial wastewaters; improper disposal of auto and household toxics, such as used motor oil and pesticides; and spills from roadway and other accidents.

Illicit discharges enter the system through either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration into the MS4 from cracked sanitary systems, spills collected by drain outlets, and paint or used oil dumped directly into a drain). The result is untreated discharges that contribute high levels of pollutants, *68728 including heavy metals, toxics, oil and grease, solvents, nutrients, viruses and bacteria into receiving waterbodies. The NURP study, discussed earlier, found that pollutant levels from illicit discharges were high enough to significantly degrade receiving water quality and threaten aquatic, wildlife, and human health. The study noted particular problems with illicit discharges of sanitary wastes, which can be directly linked to high bacterial counts in receiving waters and can be dangerous to public health.

Because illicit discharges to MS4s can create severe widespread contamination and water quality problems, several municipalities and urban counties performed studies to identify and eliminate such discharges. In Michigan, the Ann Arbor and Ypsilanti water quality projects inspected 660 businesses, homes, and other buildings and identified 14 percent of the buildings as having improper storm sewer drain connections. The program assessment revealed that, on average, 60 percent of automobile-related businesses, including service stations, automobile dealerships, car washes, body shops, and light industrial facilities, had illicit connections to storm sewer drains. The program assessment also showed that a majority of the illicit discharges to the storm sewer system resulted from improper plumbing and connections, which had been approved by the municipality when installed (Washtenaw County Statutory Drainage Board. 1987. Huron River Pollution Abatement Program).

In addition, an inspection of urban storm water outfalls draining into Inner Grays, Washington, indicated that 32 percent of these outfalls had dry weather flows. Of these flows, 21 percent were determined to have pollutant levels higher than the pollutant levels expected in typical urban storm water runoff characterized in the NURP study (U.S. EPA. 1993. Investigation of Inappropriate Pollutant Entries Into Storm Drainage Systems—A User's Guide. EPA 600/R-92/238. Office of Research and Development. Washington, DC). That same document reports a study in Toronto, Canada, that found that 59 percent of outfalls from the MS4 had dry-weather flows. Chemical tests revealed that 14 percent of these dry-weather flows were determined to be grossly polluted.

Inflows from aging sanitary sewer collection systems are one of the most serious illicit discharge-related problems. Sanitary sewer systems frequently develop leaks and cracks, resulting in discharges of pollutants to receiving waters through separate storm sewers. These pollutants include sanitary waste and materials from sewer main construction (e.g., asbestos cement, brick, cast iron, vitrified clay). Municipalities have long recognized the reverse problem of storm water infiltration into sanitary sewer collection systems; this type of infiltration often disrupts the operation of the municipal sewage treatment plant.

The improper disposal of materials is another illicit discharge-related problem that can result in contaminated discharges from separate storm sewer systems in two ways. First, materials may be disposed of directly in a catch basin or other storm water conveyance. Second, materials disposed of on the ground may either drain directly to a storm sewer or be washed into a storm sewer during a storm event. Improper disposal of materials to street catch basins and other storm sewer inlets often occurs when people mistakenly believe that disposal to such areas is an environmentally sound practice. Part of the confusion may occur because some areas are served by combined sewer systems, which are part of the sanitary sewer collection system, and people assume that materials discharged to a catch basin will reach a municipal

sewage treatment plant. Materials that are commonly disposed of improperly include used motor oil; household toxic materials; radiator fluids; and litter, such as disposable cups, cans, and fast-food packages. EPA believes that there has been increasing success in addressing these problems through initiatives such as storm drain stenciling and recycling programs, including household hazardous waste special collection days.

Programs that reduce illicit discharges to separate storm sewers have improved water quality in several municipalities. For example, Michigan's Huron River Pollution Abatement Program found the elimination of illicit connections caused a measurable improvement in the water quality of the Washtenaw County storm sewers and the Huron River (Washtenaw County Statutory Drainage Board, 1987). In addition, an illicit detection and remediation program in Houston, Texas, has significantly improved the water quality of Buffalo Bayou. Houston estimated that illicit flows from 132 sources had a flow rate as high as 500 gal/min. Sources of the illicit discharges included broken and plugged sanitary sewer lines, illicit connections from sanitary lines to storm sewer lines, and floor drain connections (Glanton, T., M.T. Garrett, and B. Goloby. 1992. *The Illicit Connection: Is It the Problem?* *Wat. Env. Tech.* 4(9):63-8).

3. Construction Site Runoff

Storm water discharges generated during construction activities can cause an array of physical, chemical, and biological water quality impacts. Specifically, the biological, chemical, and physical integrity of the waters may become severely compromised. Water quality impairment results, in part, because a number of pollutants are preferentially absorbed onto mineral or organic particles found in fine sediment. The interconnected process of erosion (detachment of the soil particles), sediment transport, and delivery is the primary pathway for introducing key pollutants, such as nutrients (particularly phosphorus), metals, and organic compounds into aquatic systems (Novotny, V. and G. Chesters. 1989. "Delivery of Sediment and Pollutants from Nonpoint Sources: A Water Quality Perspective." *Journal of Soil and Water Conservation*, 44(6):568-76). Estimates indicate that 80 percent of the phosphorus and 73 percent of the Kjeldahl nitrogen in streams is associated with eroded sediment (U.S. Department of Agriculture. 1989. "The Second RCA Appraisal, Soil, Water and Related Resources on Nonfederal Land in the United States, Analysis of Condition and Trends." Cited in Fennessey, L.A.J., and A.R. Jarrett. 1994. "The Dirt in a Hole: a Review of Sedimentation Basins for Urban Areas and Construction Sites." *Journal of Soil and Water Conservation*, 49(4):317-23).

In watersheds experiencing intensive construction activity, the localized impacts of water quality may be severe because of high pollutant loads, primarily sediments. Siltation is the largest cause of impaired water quality in rivers and the third largest cause of impaired water quality in lakes (U.S. EPA, 1998). The 1996 305(b) report also found that construction site discharges were a source of pollution in: 6 percent of impaired rivers; 11 percent of impaired lakes, ponds, and reservoirs; and 11 percent of impaired estuaries. Introduction of coarse sediment (coarse sand or larger) or a large amount of fine sediment is also a concern because of the potential of filling lakes and reservoirs (along with the associated remediation costs for dredging), as well as clogging stream channels (e.g., Paterson, R.G., M.I. Luger, E.J. Burby, E.J. Kaiser, H.R. Malcolm, and A.C. Beard. 1993. "Costs and Benefits of Urban Erosion and Sediment Control: North Carolina Experience." *Environmental Management* 17(2):167-78). Large inputs of coarse sediment into *68729 stream channels initially will reduce stream depth and minimize habitat complexity by filling in pools (U.S. EPA. 1991. *Monitoring Guidelines to Evaluate Effects of Forestry Activities on Streams in the Pacific Northwest and Alaska*. EPA 910/9-91-001. Seattle, WA). In addition, studies have shown that stream reaches affected by construction activities often extend well downstream of the construction site. For example, between 4.8 and 5.6 kilometers of stream below construction sites in the Patuxent River watershed were observed to be impacted by sediment inputs (Fox, H.L. 1974. "Effects of Urbanization on the Patuxent River, with Special Emphasis on Sediment Transport, Storage, and Migration." Ph.D. dissertation. Johns Hopkins University, Baltimore, MD. As Cited in Klein, R.D. 1979. "Urbanization and Stream Quality Impairment." *Water Resources Bulletin* 15(4): 948-63).

A primary concern at most construction sites is the erosion and transport process related to fine sediment because rain splash, rills (i.e., a channel small enough to be removed by normal agricultural practices and typically less than 1-foot deep), and sheetwash encourage the detachment and transport of this material to waterbodies (Storm Water Quality

Task Force. 1993. California Storm Water Best Management Practice Handbooks—Construction Activity. Oakland, CA: Blue Print Service). Construction sites also can generate other pollutants associated with onsite wastes, such as sanitary wastes or concrete truck washout.

Although streams and rivers naturally carry sediment loads, erosion from construction sites and runoff from developed areas can elevate these loads to levels well above those in undisturbed watersheds. It is generally acknowledged that erosion rates from construction sites are much greater than from almost any other land use (Novotny, V. and H. Olem. 1994. *Water Quality: Prevention, Identification, and Management of Diffuse Pollution*. New York: Van Nostrand Reinhold). Results from both field studies and erosion models indicate that erosion rates from construction sites are typically an order of magnitude larger than row crops and several orders of magnitude greater than rates from well-vegetated areas, such as forests or pastures (USDA. 1970. "Controlling Erosion on Construction Sites." *Agriculture Information Bulletin*, Washington, DC; Meyer, L.D., W.H. Wischmeier, and W.H. Daniel. 1971. "Erosion, Runoff and Revegetation of Denuded Construction Sites." *Transactions of the ASAE* 14(1):138-41; Owen, O.S. 1975. *Natural Resource Conservation*. New York: MacMillan. As cited in Paterson, et al., 1993).

A recent review of the efficiency of sediment basins indicated that inflows from 12 construction sites had a mean TSS concentration of about 4,500 mg/L (Brown, W.E. 1997. "The Limits of Settling." Technical Note No. 83. *Watershed Protection Techniques* 2(3)). In Virginia, suspended sediment concentrations from housing construction sites were measured at 500-3,000 mg/L, or about 40 times larger than the concentrations from already-developed urban areas (Kuo, C.Y. 1976. "Evaluation of Sediment Yields Due to Urban Development." *Bulletin No. 98*. Virginia Water Resources Research Center, Virginia Polytechnic Institute and State University, Blacksburg, VA).

Similar impacts from storm water runoff have been reported in a number of other studies. For example, Daniel, et al., monitored three residential construction sites in southeastern Wisconsin and determined that annual sediment yields were more than 19 times the yields from agricultural areas (Daniel, T.C., D. McGuire, D. Stoffel, and B. Miller. 1979. "Sediment and Nutrient Yield from Residential Construction Sites" *Journal of Environmental Quality* 8(3):304-08). Daniel, et al., identified total storm runoff, followed by peak storm runoff, as the most influential factors controlling the sediment loadings from residential construction sites. Daniel, et al., also found that suspended sediment concentrations were 15,000-20,000 mg/L in moderate events and up to 60,000 mg/L in larger events.

Wolman and Schick (Wolman, M.G. and A.P. Schick. 1967. "Effects of Construction on Fluvial Sediment, Urban and Suburban Areas of Maryland." *Water Resources Research* 3(2): 451-64) studied the impacts of development on fluvial systems in Maryland and determined that sediment yields in areas undergoing construction were 1.5 to 75 times greater than detected in natural or agricultural catchments. The authors summarize the potential impacts of construction on sediment yields by stating that "the equivalent of many decades of natural or even agricultural erosion may take place during a single year from areas cleared for construction" (Wolman and Schick, 1967).

A number of studies have examined the effects of road construction on erosion rates and sediment yields. A highway construction project in West Virginia disturbed only 4.2 percent of a 4.72-square-mile basin, but resulted in a three-fold increase in suspended sediment yields (Downs, S.C. and D.H. Appel. 1986. *Progress Report on the Effects of Highway Construction on Suspended-Sediment Discharge in the Coal River and Trace Fork, West Virginia, 1975-81*. USGS Water Resources Investigations Report 84-4275. Charlestown, WV). During the largest storm event, it was estimated that 80 percent of the sediment in the stream originated from the construction site. As is often the case, the increase in suspended sediment load could not be detected further downstream, where the drainage area was more than 50 times larger (269 square miles).

Another study evaluated the effect of 290 acres of highway construction on watersheds ranging in size from 5 to 38 square miles. Suspended sediment loads in the smallest watershed increased by 250 percent, and the estimated sediment yield from the construction area was 37 tons/acre during a 2-year period (Hainly, R.A. 1980. *The Effects of*

Highway Construction on Sediment Discharge into Blockhouse Creek and Stream Valley Run, Pennsylvania. USGS Water Resources Investigations Report 80-68. Harrisburg, PA). A more recent study in Hawaii showed that highway construction increased suspended sediment loads by 56 to 76 percent in three small (1 to 4 square mile) basins (Hill, B.R. 1996. Streamflow and Suspended-Sediment Loads Before and During Highway Construction, North Halawa, Haiku, and Kamooalii Drainage Basins, Oahu, Hawaii, 1983-91. USGS Water Resources Investigations Report 96-4259. Honolulu, HI). A 1970 study determined that sediment yields from construction areas can be as much as 500 times the levels detected in rural areas (National Association of Counties Research Foundation. 1970. Urban Soil Erosion and Sediment Control. Water Pollution Control Research Series, Program #15030 DTL. Federal Water Quality Administration, U.S. Department of Interior. Washington, DC)

Yorke and Herb (Yorke, T.H., and W.J. Herb. 1978. Effects of Urbanization on Streamflow and Sediment Transport in the Rock Creek and Anacostia River Basins, Montgomery County, Maryland, 1962-74. USGS Professional Paper 1003, Washington, DC) evaluated nine subbasins in the Maryland portion of the Anacostia watershed for more than a decade in an effort to define the impacts of changing land use/land cover on sediment in runoff. Average annual suspended sediment yields for construction sites ranged from 7 to 100 tons/acre. Storm water discharges from construction sites that occur when the land area is disturbed (and prior to *68730 surface stabilization) can significantly impact designated uses. Examples of designated uses include public water supply, recreation, and propagation of fish and wildlife. The siltation process described previously can threaten all three designated uses by (1) depositing high concentrations of pollutants in public water supplies; (2) decreasing the depth of a waterbody, which can reduce the volume of a reservoir or result in limited use of a water body by boaters, swimmers, and other recreational enthusiasts; and (3) directly impairing the habitat of fish and other aquatic species, which can limit their ability to reproduce.

Excess sediment can cause a number of other problems for waterbodies. It is associated with increased turbidity and reduced light penetration in the water column, as well as more long-term effects associated with habitat destruction and increased difficulty in filtering drinking water. Numerous studies have examined the effect that excess sediment has on aquatic ecosystems. For example, sediment from road construction activity in Northern Virginia reduced aquatic insect and fish communities by up to 85 percent and 40 percent, respectively (Reed, J.R. 1997. "Stream Community Responses to Road Construction Sediments." [Bulletin No. 97](#). Virginia Water Resources Research Center, Virginia Polytechnic Institute, Blacksburg, VA. As cited in Klein, R.D. 1990. A Survey of Quality of Erosion and Sediment Control and Storm Water Management in the Chesapeake Bay Watershed. Annapolis, MD: Chesapeake Bay Foundation). Other studies have shown that fine sediment (fine sand or smaller) adversely affects aquatic ecosystems by reducing light penetration, impeding sight-feeding, smothering benthic organisms, abrading gills and other sensitive structures, reducing habitat by clogging interstitial spaces within a streambed, and reducing the intergravel dissolved oxygen by reducing the permeability of the bed material (Everest, F.H., J.C. Beschta, K.V. Scrivener, J.R. Koski, J.R. Sedell, and C.J. Cederholm. 1987. "Fine Sediment and Salmonid Production: A Paradox." *Streamside Management: Forestry and Fishery Interactions*, Contract No. 57, Institute of Forest Resources, University of Washington, Seattle, WA). For example, 4.8 and 5.6 kilometers of stream below construction sites in the Patuxent River watershed in Maryland were found to have fine sediment amounts 15 times greater than normal (Fox, 1974. As cited in Klein, 1979). Benthic organisms in the streambed can be smothered by sediment deposits, causing changes in aquatic flora and fauna, such as fish species composition (Wolman and Schick, 1967). In addition, the primary cause of coral reef degradation in coastal areas is attributed to land disturbances and dredging activities due to urban development (Rogers, C.S. 1990. "Responses of Coral Reefs and Reef Organizations to Sedimentation." *Marine Ecology Progress Series*, 62:185-202).

EPA believes that the water quality impact from small construction sites is as high as or higher than the impact from larger sites on a per acre basis. The concentration of pollutants in the runoff from smaller sites is similar to the concentrations in the runoff from larger sites. The proportion of sediment that makes it from the construction site to surface waters is likely the same for larger and smaller construction sites in urban areas because the runoff from either site is usually delivered directly to the storm drain network where there is no opportunity for the sediment to be filtered out.

The expected contribution of total sediment yields from small sites depends, in part, on the extent to which erosion and sedimentation controls are being applied. Because current storm water regulations are more likely to require erosion and sedimentation controls on larger sites in urban areas, smaller construction sites that lack such programs are likely to contribute a disproportionate amount of the total sediment from construction activities (MacDonald, L.H. 1997. Technical Justification for Regulating Construction Sites 1-5 Acres in Size. Unpublished report submitted to U.S. EPA, Washington, DC). Smaller construction sites are less likely to have an effective plan to control erosion and sedimentation, are less likely to properly implement and maintain their plans, and are less likely to be inspected (Brown, W. and D. Caraco. 1997. Controlling Storm Water Runoff Discharges from Small Construction Sites: A National Review. Submitted to Office of Wastewater Management, U.S. EPA, Washington, DC., by the Center for Watershed Protection, Silver Spring, MD). The proportion of sediment that makes it from the construction site to surface waters is likely the same for larger and smaller construction sites in urban areas because the runoff from either site is usually delivered directly to the storm drain network, where there is no opportunity for the sediment to be filtered out.

To confirm its belief that sediment yields from small sites are as high as or higher than the 20 to 150 tons/acre/year measured from larger sites, EPA gave a grant to the Dane County, Wisconsin Land Conservation Department, in cooperation with the USGS, to evaluate sediment runoff from two small construction sites. The first was a 0.34 acre residential lot and the second was a 1.72 acre commercial office development. Runoff from the sites was channeled to a single discharge point for monitoring. Each site was monitored before, during, and after construction.

The Dane County study found that total solids concentrations from these small sites are similar to total solids concentrations from larger construction sites. Results show that for both of the study sites, total solids and suspended solids concentrations were significantly higher during construction than either before or after construction. For example, preconstruction total solids concentrations averaged 642 mg/L during the period when ryegrass was established, active construction total solids concentrations averaged 2,788 mg/L, and post-construction total solids concentrations averaged 132 mg/L (on a pollutant load basis, this equaled 7.4 lbs preconstruction, 35 lbs during construction, and 0.6 lbs post-construction for total solids). While this site was not properly stabilized before construction, after construction was complete and the site was stabilized, post-construction concentrations were more than 20 times less than during construction. The results were even more dramatic for the commercial site. The commercial site had one preconstruction event, which resulted in total solids concentrations of 138 mg/L, while active construction averaged more than 15,000 mg/L and post-construction averaged only 200 mg/L (on a pollutant load basis, this equaled 0.3 lbs preconstruction, 490 lbs during construction, and 13.4 lbs post-construction for total solids). The active construction period resulted in more than 75 times more sediment than either before or after construction (Owens, D.W., P. Jopke, D.W. Hall, J. Balousek and A. Roa. 1999. "Soil Erosion from Small Construction Sites." Draft USGS Fact Sheet. USGS and Dane County Land Conservation Department, WI). The total solids concentrations from these small sites in Wisconsin are similar to total solids concentrations from larger construction sites. For example, a study evaluating the effects of highway construction in West Virginia found that a small storm produced a sediment concentration of 7,520 mg/L (Downs and Appel, 1986).

One important aspect of small construction sites is the number of small sites relative to larger construction sites *68731 and total land area within the watershed. Brown and Caraco surveyed 219 local jurisdictions to assess erosion and sediment control (ESC) programs. Seventy respondents provided data on the number of ESC permits for construction sites smaller than 5 acres. In 27 cases (38 percent of the respondents), more than three-quarters of the permits were for sites smaller than 5 acres; in another 18 cases (26 percent), more than half of the permits were for sites smaller than 5 acres.

In addition, data on the total acreage disturbed by smaller construction sites have been collected recently in two States (MacDonald, 1997). The most recent and complete data set is the listing of the disturbed area for each of the 3,831 construction sites permitted in North Carolina for 1994-1995 and 1995-1996. Nearly 61 percent of the sites that were 1 acre or larger were between 1.0 and 4.9 acres in size. This proportion was consistent between years. Data showed that this range of sites accounted for 18 percent of the total area disturbed by construction. The values showed very little

variation between the 2 years of data. The total disturbed area for all sites over this 2-year period was nearly 33,000 acres, or about 0.1 percent of the total area of North Carolina.

EPA estimates that construction sites disturbing greater than 5 acres disturb 2.1-million acres of land (78.1 percent of the total) while sites disturbing between 1 and 5 acres of land disturb 0.5-million acres of land (19.4 percent). The remaining sites on less than 1 acres of land disturb 0.07-million acres of land (only 2.5 percent of the total). Given the high erosion rates associated with most construction sites, small construction sites can be a significant source of water quality impairment, particularly in small watersheds that are undergoing rapid development. Exempting sites under 1 acre will exclude only about 2.5 percent of acreage from program coverage, but will exclude a far higher number of sites, approximately 25 percent.

Several studies have determined that the most effective construction runoff control programs rely on local plan review and field enforcement (Paterson, R. G. 1994. "Construction Practices: the Good, the Bad, and the Ugly." *Watershed Protection Techniques* 1(3)). In his review, Paterson suggests that, given the critical importance of field implementation of erosion and sediment control programs and the apparent shortcomings that exist, much more focus should be given to plan implementation.

Several commenters disputed the data presented in the proposed rule for storm water discharges from smaller construction sites. One commenter stated that EPA has not adequately explained the basis for permitting construction activity down to 1 disturbed acre. Another commenter stated that EPA did not present sufficient data on water quality impacts from construction sites disturbing less than 5 acres.

EPA believes that the data presented above sufficiently support nationwide designation of storm water discharges from construction activity disturbing more than 1 acre. Based on total disturbed land area within a watershed, the cumulative effects of numerous small construction sites can have impacts similar to those of larger sites in a particular area. In addition, waivers for storm water discharges from smaller construction activity will exclude sites not expected to impair water quality. EPA will continue to collect water quality data on construction site storm water runoff.

C. Statutory Background

In 1972, Congress enacted the CWA to prohibit the discharge of any pollutant to waters of the United States from a point source unless the discharge is authorized by an NPDES permit. Congress added CWA section 402(p) in 1987 to require implementation of a comprehensive program for addressing storm water discharges. Section 402(p)(1) required EPA or NPDES-authorized States or Tribes to issue NPDES permits for the following five classes of storm water discharges composed entirely of storm water ("storm water discharges") specifically listed under section 402(p)(2):

- (A) a discharge subject to an NPDES permit before February 4, 1987
- (B) a discharge associated with industrial activity
- (C) a discharge from a municipal separate storm sewer system serving a population of 250,000 or more
- (D) a discharge from a municipal separate storm sewer system serving a population of 100,000 or more but less than 250,000
- (E) a discharge that an NPDES permitting authority determines to be contributing to a violation of a water quality standard or a significant contributor of pollutants to the waters of the United States.

Section 402(p)(3)(A) requires storm water discharges associated with industrial activity to meet all applicable provisions of section 402 and section 301 of the CWA, including technology-based requirements and any more stringent

requirements necessary to meet water quality standards. Section 402(p)(3)(B) establishes NPDES permit standards for discharges from municipal separate storm sewer systems, or MS4s. NPDES permits for discharges from MS4s (1) may be issued on a system or jurisdiction-wide basis, (2) must include a requirement to effectively prohibit non-storm water discharges into the storm sewers, and (3) must require controls to reduce pollutant discharges to the maximum extent practicable, including best management practices, and other provisions as the Administrator or the States determine to be appropriate for the control of such pollutants. At this time, EPA determines that water quality-based controls, implemented through the iterative processes described today are appropriate for the control of such pollutants and will result in reasonable further progress towards attainment of water quality standards. See sections II.L and II.H.3 of the preamble.

In CWA section 402(p)(4), Congress established statutory deadlines for the initial steps in implementing the NPDES program for storm water discharges. This section required development of NPDES permit application regulations, submission of NPDES permit applications, issuance of NPDES permits for sources identified in section 402(p)(2), and compliance with NPDES permit conditions. In addition, this section required industrial facilities and large MS4s to submit NPDES permit applications for storm water discharges by February 4, 1990. Medium MS4s were to submit NPDES permit applications by February 4, 1992. EPA and authorized NPDES States were prohibited from requiring an NPDES permit for any other storm water discharges until October 1, 1994.

Section 402(p)(5) required EPA to conduct certain studies and submit a report to Congress. This requirement is discussed in the following section.

Section 402(p)(6) requires EPA, in consultation with States and local officials, to issue regulations for the designation of additional storm water discharges to be regulated to protect water quality. It also requires EPA to extend the existing storm water program to regulate newly designated sources. At a minimum, the extension must establish (1) priorities, (2) requirements for State storm water management programs, and (3) expeditious deadlines. Section 402(p)(6) specifies that the program may include performance standards, guidelines, guidance, and management practices and treatment requirements, as *68732 appropriate. Today's rule implements this section.

D. EPA's Reports to Congress

Under CWA section 402(p)(5), EPA, in consultation with the States, was required to conduct a study. The study was to identify unregulated sources of storm water discharges, determine the nature and extent of pollutants in such discharges, and establish procedures and methods to mitigate the impacts of such discharges on water quality. Section 402(p)(5) also required EPA to report the results of the first two components of that study to Congress by October 1, 1988, and the final report by October 1, 1989.

In March 1995, EPA submitted to Congress a report that reviewed and analyzed the nature of storm water discharges from municipal and industrial facilities that were not already regulated under the initial NPDES regulations for storm water (U.S. Environmental Protection Agency, Office of Water. 1995. Storm Water Discharges Potentially Addressed by Phase II of the National Pollutant Discharge Elimination System Storm Water Program: Report to Congress. Washington, D.C. EPA 833-K-94-002) ("Report"). The Report also analyzed associated pollutant loadings and water quality impacts from these unregulated sources. Based on identification of unregulated municipal sources and analysis of information on impacts of storm water discharges from municipal sources, the Report recommended that the NPDES program for storm water focus on the 405 "urbanized areas" identified by the Bureau of the Census. The Report further found that a number of discharges from unregulated industrial facilities warranted further investigation to determine the need for regulation. It classified these unregulated industrial discharges in two groups: Group A and Group B. Group A comprised sources that may be considered a high priority for inclusion in the NPDES program for storm water because discharges from these sources are similar or identical to already regulated sources. These "look alike" storm water discharge sources were not covered in the initial NPDES regulations for storm water due to the language used to define "associated with industrial activity." In the initial regulations for storm water, "industrial activity" is identified

using Standard Industrial Classification (SIC) codes. The use of SIC codes led to incomplete categorization of industrial activities with discharges that needed to be regulated to protect water quality. Group B consisted of 18 industrial sectors, which included sources that EPA expected to contribute to storm water contamination due to the activities conducted and pollutants anticipated onsite (e.g., vehicle maintenance, machinery and electrical repair, and intensive agricultural activities).

EPA reported on the latter component of the section 402(p)(5) study via President Clinton's Clean Water Initiative, which was released on February 1, 1994 (U.S. Environmental Protection Agency, Office of Water. 1994. President Clinton's Clean Water Initiative. Washington, D.C. EPA 800-R-94-001) (“Initiative”). The Initiative addressed a number of issues associated with NPDES requirements for storm water discharges and proposed (1) establishing a phased compliance with a water quality standards approach for discharges from municipal separate storm sewer systems with priority on controlling discharges from municipal growth and development areas, (2) clarifying that the maximum extent practicable standard should be applied in a site-specific, flexible manner, taking into account cost considerations as well as water quality effects, (3) providing an exemption from the NPDES program for storm water discharges from industrial facilities with no activities or significant materials exposed to storm water, (4) providing extensions to the statutory deadlines to complete implementation of the NPDES program for the storm water program, (5) targeting urbanized areas for the requirements in the NPDES program for storm water, and (6) providing control of discharges from inactive and abandoned mines located on Federal lands in a more targeted, flexible manner. Additionally, prior to promulgation of today's rule, section 431 of the Agency's Appropriation Act for FY 2000 (Departments of Veterans Affairs and Housing and Urban Development and Independent Agencies Appropriations Act of 2000, [Public Law 106-74](#), section 432 (1999)) directed EPA to report on certain matters to be covered in today's rule. That report supplements the study required by CWA Section 402(p)(5). EPA is publishing the availability of that report elsewhere in this issue of the Federal Register.

Several commenters asserted that the Report to Congress is an inadequate basis for the designation and regulation of sources covered under today's final rule, specifically the nationwide designation of small municipal separate storm sewer systems within urbanized areas and construction activities disturbing between one and five acres.

EPA believes that it has developed an adequate record for today's regulation both through the Report to Congress and the Clean Water Initiative and through more recent activities, including the FACA Subcommittee process, regulatory notices and evaluation of comments, and recent research and analysis. EPA does not interpret the congressional reporting requirements of CWA section 402(p)(5) to be the sole basis for determining sources to be regulated under today's final rule.

EPA's decision to designate on a national basis small MS4s in urbanized areas is supported by studies that clearly show a direct correlation between urbanization and adverse water quality impacts from storm water discharges. (Schueler, T. 1987. *Controlling Urban Runoff: A Practical Manual for Planning & Designing Urban BMPs*. Metropolitan Washington Council of Governments). “Urbanized areas”—within which all small MS4s would be covered—represent the most intensely developed and dense areas of the Nation. They constitute only two percent of the land area but 63 percent of the total population. See section I.B.1, Urban Development, above, for studies and assessments of the link between urban development and storm water impacts on water resources.

Commenters argued that the Report to Congress does not address storm water discharges from construction sites. They further argued that the designation of small construction sites per today's final rule goes beyond the President's 1994 Initiative because the Initiative only recommends requiring municipalities to implement a storm water management program to control unregulated storm water sources, “including discharges from construction of less than 5 acres, which are part of growth, development and significant redevelopment activities.” They point out that the Initiative provides that unregulated storm water discharges not addressed through a municipal program would not be covered by the NPDES program. Commenters assert that EPA has not developed a record independent of its section 402(p)(5) studies

that demonstrates the necessity of regulating under a separate NPDES permit storm water discharges from smaller construction sites “to protect water quality.” EPA disagrees.

EPA evaluated the nature and extent of pollutants from construction site sources in a process that was separate and distinct from the development of the Report to Congress. Today's decision to regulate certain storm water discharges from construction sites disturbing less than 5 acres arose in part *68733 out of the 9th Circuit remand in [NRDC v. EPA](#), 966 F.2d 1292 (9th Cir. 1992). In that case, the court remanded portions of the Phase I storm water regulations related to discharges from construction sites. Those regulations define “storm water discharges associated with industrial activity” to include only those storm water discharges from construction sites disturbing 5 acres or more of total land area (see [40 CFR 122.26\(b\)\(14\)\(x\)](#)). In its decision, the court concluded that the 5-acre threshold was improper because the Agency had failed to identify information “to support its perception that construction activities on less than 5 acres are non-industrial in nature” (966 F.2d at 1306). The court remanded the below 5 acre exemption to EPA for further proceedings (966 F.2d at 1310).

In a Federal Register notice issued on December 18, 1992, EPA noted that it did not believe that the Court's decision had the effect of automatically subjecting small construction sites to the existing application requirements and deadlines. EPA believed that additional notice and comment were necessary to clarify the status of these sites. The information received during the notice and comment process and additional research, as discussed in section I.B.3 Construction Site Runoff, formed the basis for the designation of construction activity disturbing between one and five acres on a nationwide basis. EPA's objectives in today's proposal include an effort to (1) address the 9th Circuit remand, (2) address water quality concerns associated with construction activities that disturb less than 5 acres of land, and (3) balance conflicting recommendations and concerns of stakeholders.

One commenter noted that EPA's proposal would fail to regulate industrial facilities identified as Group A and Group B in the March 1995 Report to Congress. EPA is relying on the analysis in the Report, which provided that the recommendation for coverage was meant as guidance and was not intended to be an identification of specific categories that must be regulated under Section 402(p)(6). Report to Congress, p. 4-1. The Report recognized the existence of limited data on which to base loadings estimates to support the nationwide designation of individual or categories of sources. Report to Congress, p. 4-44. Furthermore, during FACA Subcommittee discussion, EPA continued to urge stakeholders to provide further data relating to industrial and commercial storm water sources, which EPA did not receive. EPA concluded that, due to insufficient data, these sources were not appropriate for nationwide designation at this time.

E. Industrial Facilities Owned or Operated by Small Municipalities

Congress granted extensions to the NPDES permit application process for selected classes of storm water discharges associated with industrial activity. On December 18, 1991, Congress enacted the Intermodal Surface Transportation Efficiency Act (ISTEA), which postponed NPDES permit application deadlines for most storm water discharges associated with industrial activity at facilities that are owned or operated by small municipalities. EPA and States authorized to administer the NPDES program could not require any municipality with a population of less than 100,000 to apply for or obtain an NPDES permit for any storm water discharge associated with industrial activity prior to October 1, 1992, except for storm water discharges from airports, power plants, or uncontrolled sanitary landfills. See [40 CFR 122.26\(e\)\(1\)](#); [57 FR 11524](#), April 2, 1992 (reservation of NPDES application deadlines for ISTEA facilities).

The facilities exempted by ISTEA discharge storm water in the same manner (and are expected to use identical processes and materials) as the industrial facilities regulated under the 1990 Phase I regulations. Accordingly, these facilities pose similar water quality problems. The extended moratorium for these facilities was necessary to allow municipalities additional time to comply with NPDES requirements. The proposal for today's rule would have maintained the existing deadline for seeking coverage under an NPDES permit (August 7, 2001).

Today's rule changes the permit application deadline for such municipally owned or operated facilities discharging industrial storm water to make it consistent with the application date for small regulated MS4s. Because EPA missed its March 1999 deadline for promulgating today's rule, and the deadline for MS4s to submit permit applications has been extended to three years and 90 days from the date of this notice, the deadline for permitting ISTEA sources has been similarly extended. The permitting of these sources is discussed below in section "II.I.3. ISTEA Sources."

F. Related Nonpoint Source Programs

Today's rule addresses point source discharges of storm water runoff and non-storm water discharges into MS4s. Many of these sources have been addressed by nonpoint source control programs, which are described briefly below.

In 1987, section 319 was added to the CWA to provide a framework for funding State and local efforts to address pollutants from nonpoint sources not addressed by the NPDES program. To obtain funding, States are required to submit Nonpoint Source Assessment Reports identifying State waters that, without additional control of nonpoint sources of pollution, could not reasonably be expected to attain or maintain applicable water quality standards or other goals and requirements of the CWA. States are also required to prepare and submit for EPA approval a statewide Nonpoint Source Management Program for controlling nonpoint source water pollution to navigable waters within the State and improving the quality of such waters. State program submittals must identify specific best management practices (BMPs) and measures that the State proposes to implement in the first four years after program submission to reduce pollutant loadings from identified nonpoint sources to levels required to achieve the stated water quality objectives.

State nonpoint source programs funded under section 319 can include both regulatory and nonregulatory State and local approaches. Section 319(b)(2)(B) specifies that a combination of "nonregulatory or regulatory programs for enforcement, technical assistance, financial assistance, education, training, technology transfer, and demonstration projects" may be used, as necessary, to achieve implementation of the BMPs or measures identified in the section 319 submittals.

Section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA) of 1990 provides that States with approved coastal zone management programs must develop coastal nonpoint pollution control programs and submit them to EPA and the National Oceanic and Atmospheric Administration (NOAA) for approval. Failure to submit an approvable program will result in a reduction of Federal grants under both the Coastal Zone Management Act and section 319 of the CWA.

State coastal nonpoint pollution control programs under CZARA must include enforceable policies and mechanisms that ensure implementation of the management measures throughout the coastal management area. EPA issued Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters under section 6217(g) in *68734 January 1993. The guidance identifies management measures for five major categories of nonpoint source pollution. The management measures reflect the greatest degree of pollutant reduction that is economically achievable for each of the listed sources. These management measures provide reference standards for the States to use in developing or refining their coastal nonpoint programs. A few management measures, however, contain quantitative standards that specify pollutant loading reductions. For example, the New Development Management Measure, which is applicable to construction in urban areas, requires (1) that by design or performance the average annual total suspended solid loadings be reduced by 80 percent and (2) to the extent practicable, that the pre-development peak runoff rate and average volume be maintained.

EPA and NOAA published Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance (1993). The document clarifies that States generally must implement management measures for each source category identified in the EPA guidance developed under section 6217(g). Coastal Nonpoint Pollution Control Programs are not required to address sources that are clearly regulated under the NPDES program as point source discharges.

Specifically, such programs would not need to address small MS4s and construction sites covered under NPDES storm water permits (both general and individual).

II. Description of Program

A. Overview

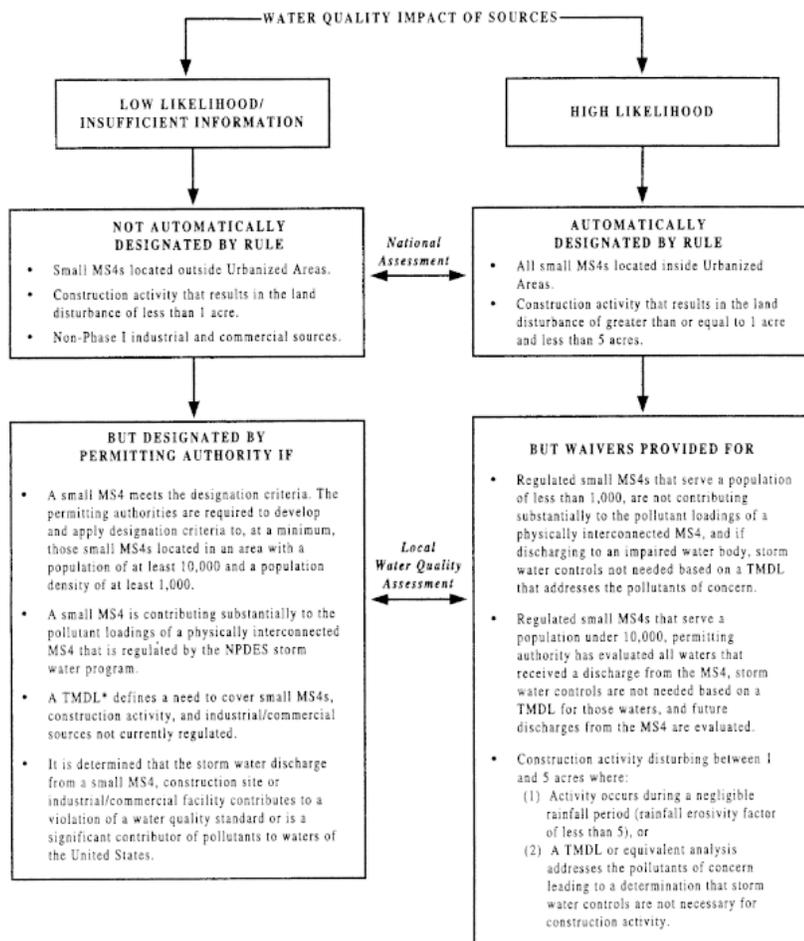
1. Objectives EPA Seeks To Achieve in Today's Rule

EPA seeks to achieve several objectives in today's final rule. First, EPA is implementing the requirement under CWA section 402(p)(6) to provide a comprehensive storm water program that designates and controls additional sources of storm water discharges to protect water quality. Second, EPA is addressing storm water discharges from the activities exempted under the 1990 storm water permit application regulations that were remanded by the Ninth Circuit Court of Appeals in [NRDC v. EPA, 966 F.2d 1292 \(9th Circuit, 1992\)](#). These are construction activities disturbing less than 5 acres and so-called "light" industrial activities not exposed to storm water (see discussion of "no exposure" below). Third, EPA is providing coverage for the so-called "donut holes" created by the existing NPDES storm water program. Donut holes are geographic gaps in the NPDES storm water program's regulatory scheme. They are MS4s located within areas covered by the existing NPDES storm water program, but not currently addressed by the storm water program because it is based on political jurisdictions. Finally, EPA also is trying to promote watershed planning as a framework for implementing water quality programs where possible.

Although EPA had options for different approaches (see alternatives discussed in the January 9, 1998, proposed regulation), EPA believes it can best achieve its objectives through flexible innovations within the framework of the NPDES program. Unlike the interim section 402(p)(6) storm water regulations EPA promulgated in 1995, EPA no longer designates all of the unregulated storm water discharges for nationwide coverage under the NPDES program for storm water. The framework for today's final rule is one that balances automatic designation on a nationwide basis and locally-based designation and waivers. Nationwide designation applies to those classes or categories of storm water discharges that EPA believes present a high likelihood of having adverse water quality impacts, regardless of location. Specifically, today's rule designates discharges from small MS4s located in urbanized areas and storm water discharges from construction activities that result in land disturbance equal to or greater than one and less than five acres. As noted under Section I.B., Water Quality Concerns/Environmental Impact Studies and Assessments, these two categories of storm water sources, when unregulated, tend to cause significant adverse water quality impacts. Additional sources are not covered on a nationwide basis either because EPA currently lacks information indicating a consistent potential for adverse water quality impact or because EPA believes that the likelihood of adverse impacts on water quality is low, with some localized exceptions. Additional individual sources or categories of storm water discharges could, however, be covered under the program through a local designation process. A permitting authority may designate additional small MS4s after developing designation criteria and applying those criteria to small MS4s located outside of an urbanized area, in particular those with a population of 10,000 or more and a population density of at least 1,000. Exhibit 1 illustrates the designation framework for today's final rule.

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EXHIBIT 1.—PHASE II SOURCE DECISIONS



*EPA will continue to require States to comply with their Total Maximum Daily Load (TMDL) implementation schedules.

BILLING CODE 6560-50-C

***68736** The designation framework for today's final rule provides a significant degree of flexibility. The proposed provisions for nationwide designation of storm water discharges from construction and from small MS4s in urbanized areas allowed for a waiver of applicable requirements based on appropriate water quality conditions. Today's final rule expands and simplifies those waivers.

The permitting authority may waive the requirement for a permit for any small MS4 serving a jurisdiction with a population of less than 1,000 unless storm water controls are needed because the MS4 is contributing to a water quality impairment. The permitting authority may also waive permit coverage for MS4s serving a jurisdiction with a population of less than 10,000 if all waters that receive a discharge from the MS4 have been evaluated and discharges from the MS4 do not significantly contribute to a water quality impairment or have the potential to cause an impairment. Today's rule also allows States with a watershed permitting approach to phase in coverage for MS4s in jurisdictions with populations under 10,000.

Water quality conditions are also the basis for a waiver of requirements for storm water discharges from construction activities disturbing between one and five acres. For these small construction sources, the rule provides significant flexibility for waiving otherwise applicable regulatory requirements where a permitting authority determines, based on water quality and watershed considerations, that storm water discharge controls are not needed.

Coverage can be extended to municipal and construction sources outside the nationwide designated classes or categories based on watershed and case-by-case assessments. For the municipal storm water program, today's rule provides broad discretion to NPDES permitting authorities to develop and implement criteria for designating storm water discharges from small MS4s outside of urbanized areas. Other storm water discharges from unregulated industrial, commercial, and residential sources will not be subject to the NPDES permit requirements unless a permitting authority determines on a case-by-case basis (or on a categorical basis within identified geographic areas such as a State or watershed) that regulatory controls are needed to protect water quality. EPA believes that the flexibility provided in today's rule facilitates watershed planning.

2. General Requirements for Regulated Entities Under Today's Rule

As previously noted, today's final rule defines additional classes and categories of storm water discharges for coverage under the NPDES program. These designated dischargers are required to seek coverage under an NPDES permit. Furthermore, all NPDES-authorized States and Tribes are required to implement these provisions and make any necessary amendments to current State and Tribal NPDES regulations to ensure consistency with today's final rule. EPA remains the NPDES permitting authority for jurisdictions without NPDES authorization.

Today's final rule includes some new requirements for NPDES permitting authorities implementing the CWA section 402(p)(6) program. EPA has made a significant effort to build flexibility into the program while attempting to maintain an appropriate level of national consistency. Permitting authorities must ensure that NPDES permits issued to MS4s include the minimum control measures established under the program. Permitting authorities also have the ability to make numerous decisions including who is regulated under the program, i.e., case-by-case designations and waivers, and how responsibilities should be allocated between regulated entities.

Today's final rule extends the NPDES program to include discharges from the following: small MS4s within urbanized areas (with the exception of systems waived from the requirements by the NPDES permitting authority); other small MS4s meeting designation criteria to be established by the permitting authority; and any remaining MS4 that contributes substantially to the storm water pollutant loadings of a physically interconnected MS4 already subject to regulation under the NPDES program. Small MS4s include urban storm sewer systems owned by Tribes, States, political subdivisions of States, as well as the United States, and other systems located within an urbanized area that fall within the definition of an MS4. These include, for example, State departments of transportation (DOTs), public universities, and federal military bases.

Today's final rule requires all regulated small MS4s to develop and implement a storm water management program. Program components include, at a minimum, 6 minimum measures to address: public education and outreach; public involvement; illicit discharge detection and elimination; construction site runoff control; post-construction storm water management in new development and redevelopment; and pollution prevention and good housekeeping of municipal operations. These program components will be implemented through NPDES permits. A regulated small MS4 is required to submit to the NPDES permitting authority, either in its notice of intent (NOI) or individual permit application, the BMPs to be implemented and the measurable goals for each of the minimum control measures listed above.

The rule addresses all storm water discharges from construction site activities involving clearing, grading and excavating land equal to or greater than 1 acre and less than 5 acres, unless requirements are otherwise waived by the NPDES permitting authority. Discharges from such sites, as well as construction sites disturbing less than 1 acre of land that are designated by the permitting authority, are required to implement requirements set forth in the NPDES permit, which may reference the requirements of a qualifying local program issued to cover such discharges.

The rule also addresses certain other sources regulated under the existing NPDES program for storm water. For municipally-owned industrial sources required to be regulated under the existing NPDES storm water program but exempted from immediate compliance by the Intermodal Surface Transportation Act of 1991 (ISTEA), the rule revises

the existing deadline for seeking coverage under an NPDES permit (August 7, 2001) to make it consistent with the application date for small regulated MS4s. (See section I.3. below.) The rule also provides relief from NPDES storm water permitting requirements for industrial sources with no exposure of industrial materials and activities to storm water.

3. Integration of Today's Rule With the Existing Storm Water Program

In developing an approach for today's final rule, numerous early interested stakeholders encouraged EPA to seek opportunities to integrate, where possible, the proposed Phase II requirements with existing Phase I requirements, thus facilitating a unified storm water discharge control program. EPA believes that this objective is met by using the NPDES framework. This framework is already applied to regulated storm water discharge sources and is extended to those sources designated under today's rule. This approach facilitates program consistency, public access to information, and program oversight. *68737

EPA believes that today's final rule provides consistency in terms of program coverage and requirements for existing and newly designated sources. For example, the rule includes most of the municipal donut holes, those MS4s located in incorporated places, townships or towns with a population under 100,000 that are within Phase I counties. These MS4s are not addressed by the existing NPDES storm water program while MS4s in the surrounding county are currently addressed. In addition, the minimum control measures required in today's rule for regulated small MS4s are very similar to a number of the permit requirements for medium and large MS4s under the existing storm water program. Following today's rule, permit requirements for all regulated MS4s (both those under the existing program and those under today's rule) will require implementation of BMPs. Furthermore, with regard to the development of NPDES permits to protect water quality, EPA intends to apply the August 1, 1996, Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits (hereinafter, "Interim Permitting Approach") (see Section II.L.1. for further description) to all MS4s covered by the NPDES program.

EPA is applying NPDES permit requirements to construction sites below 5 acres that are similar to the existing requirements for those above 5 acres and above. In addition, today's rule allows compliance with qualifying local, Tribal, or State erosion and sediment controls to meet the erosion and sediment control requirements of the general permits for storm water discharges associated with construction, both above and below 5 acres.

4. General Permits

EPA recommends using general permits for all newly regulated storm water sources under today's rule. The use of general permits, instead of individual permits, reduces the administrative burden on permitting authorities, while also limiting the paperwork burden on regulated parties seeking permit authorization. Permitting authorities may, of course, require individual permits in some cases to address specific concerns, including permit non-compliance.

EPA recommends that general permits for MS4s, in particular, be issued on a watershed basis, but recognizes that each permitting authority must decide how to develop its general permit(s). Permit conditions developed to address concerns and conditions of a specific watershed could reflect a watershed plan; such permit conditions must provide for attainment of applicable water quality standards (including designated uses), allocations of pollutant loads established by a TMDL, and timing requirements for implementation of a TMDL. If the permitting authority issues a State-wide general permit, the permitting authority may include separate conditions tailored to individual watersheds or urbanized areas. Of course, for a newly regulated MS4, modification of an existing individual MS4 permit to include the newly regulated MS4 as a "limited co-permittee" also remains an option.

5. Tool Box

During the FACA process, many Storm Water Phase II FACA Subcommittee representatives expressed an interest, which was endorsed by the full Committee, in having EPA develop a "tool box" to assist States, Tribes, municipalities,

and other parties involved in the Phase II program. EPA made a commitment to work with Storm Water Phase II FACA Subcommittee representatives in developing such a tool box, with the expectation that a tool box would facilitate implementation of the storm water program in an effective and cost-efficient manner. EPA has developed a preliminary working tool box (available on EPA's web page at www.epa.gov/owm/sw/toolbox). EPA intends to have the tool box fully developed by the time of the first general permits. EPA also intends to update the tool box as resources and data become available. The tool box will include the following eight main components: fact sheets; guidances; a menu of BMPs for the six MS4 minimum measures; an information clearinghouse; training and outreach efforts; technical research; support for demonstration projects; and compliance monitoring/assistance tools. EPA intends to issue the menu of BMPs, both structural and non-structural, by October 2000. In addition, EPA will issue by October 2000 a "model" permit and will issue by October 2001 guidance materials on the development of measurable goals for municipal programs.

In an attempt to avoid duplication, the Agency has undertaken an effort to identify and coordinate sources of information that relate to the storm water discharge control program from both inside and outside the Agency. Such information includes research and demonstration projects, grants, storm water management-related programs, and compendiums of available documents, including guidances, related directly or indirectly to the comprehensive NPDES storm water program. Based on this effort, EPA is developing a tool box containing fact sheets and guidance documents pertaining to the overall program and rule requirements (e.g., guidance on municipal and construction programs, and permitting authority guidance on designation and waiver criteria); models of current programs aimed at assisting States, Tribes, municipalities, and others in establishing programs; a comprehensive list of reference documents organized according to subject area (e.g., illicit discharges, watersheds, water quality standards attainment, funding sources, and similar types of references); educational materials; technical research data; and demonstration project results. The information collected by EPA will not only provide the background for tool box materials, but will also be made available through an information clearinghouse on the world wide web.

With assistance from EPA, the American Public Works Association (APWA) developed a workbook and series of workshops on the proposed Phase II rule. Ten workshops were held from September 1998 through May 1999. Depending on available funding, these workshops may continue after publication of today's final rule. EPA also intends to provide training to enable regional offices to educate States, Tribes, and municipalities about the storm water program and the availability of the tool box materials.

The CWA currently provides funding mechanisms to support activities related to storm water. These mechanisms will be described in the tool box. Activities funded under grant and loan programs, which could be used to assist in storm water program development, include programs in the nonpoint source area, storm water demonstration projects, source water protection and wastewater construction projects. EPA has already provided funding for numerous research efforts in these areas, including a database of BMP effectiveness studies (described below), an assessment of technologies for storm water management, a study of the effectiveness of storm water BMPs for controlling the impacts of watershed imperviousness, protocols for wet weather monitoring, development of a dynamic model for wet weather flows, and numerous outreach projects.

EPA has entered into a cooperative agreement with the Urban Water Resources Research Council of the American Society of Civil Engineers (ASCE) to develop a scientifically-based management tool for the information ***68738** needed to evaluate the effectiveness of urban storm water runoff BMPs nationwide. The long-term goal of the National Stormwater BMP Database project is to promote technical design improvements for BMPs and to better match their selection and design to the local storm water problems being addressed. The project team has collected and evaluated hundreds of existing published BMP performance studies and created a database covering about 75 test sites. The database includes detailed information on the design of each BMP and its watershed characteristics, as well as its performance. Eventually the database will include the nationwide collection of information on the characteristics of structural and non-structural BMPs, data collection efforts (e.g., sampling and flow gaging equipment), climatological characteristics, watershed characteristics, hydrologic data, and constituent data. The database will continue to grow as

new BMP data become available. The initial release of the database, which includes data entry and retrieval software, is available on CD-ROM and operates on Windows^(R)-compatible personal computers. The ASCE project team envisions that periodic updates to the database will be distributed through the Internet. The team is currently developing a system for Internet retrieval of selected database records, and this system is expected to be available in early 2000.

EPA and ASCE invite BMP designers, owners and operators to participate in the continuing database development effort. To make this effort successful, a large database is essential. Interested persons are encouraged to submit their BMP performance evaluation data and associated BMP watershed characteristics for potential entry into the database. The software included in the CD-ROM allows data providers to enter their BMP data locally, retain and edit the data as needed, and submit them to the ASCE Database Clearinghouse when ready.

To obtain a copy of the database, please contact Jane Clary, Database Clearinghouse Manager, Wright Water Engineers, Inc., 2490 W. 26th Ave., Suite 100A, Denver, CO 80211; Phone 303-480-1700; E-mail clary@wrightwater.com.

In addition, EPA requests that researchers planning to conduct BMP performance evaluations compile and collect BMP reporting information according to the standard format developed by ASCE. The format is provided with the database software and is also available on the ASCE website at www.asce.org/peta/tech/nsbd01.html.

6. Deadlines Established in Today's Action

Exhibit 2 outlines the various deadlines established under today's final rule. EPA believes that the dates allow sufficient time for completion of both the NPDES permitting authority's and the permittee's program responsibilities.

Exhibit 2-Storm Water Phase II Actions Deadlines

Activity	Deadline date
NPDES-authorized States modify NPDES program if no statutory change is required	1 year from date of publication of today's rule in the Federal Register.
NPDES-authorized States modify NPDES program if statutory change is required	2 years from date of publication of today's rule in the Federal Register.
EPA issues a menu of BMPs for regulated small MS4s	October 27, 2000
ISTEA sources submit permit application	3 years and 90 days from date of publication of today's rule in the Federal Register.
Permitting authority issues general permit(s) (if this type of permit coverage is selected)	3 years from date of publication of today's rule in the Federal Register.
Regulated small MS4s submit permit application:	
a. If designated under §122.32(a)(1) unless the permitting authority has established a phasing schedule under §123.35(d)(3)	a. 3 years and 90 days from date of publication of today's rule in the Federal Register.
b. If designated under §122.32(a)(2) or §§122.26(a)(9)(i) (C) or (D)	b. Within 180 days of notice.
Storm water discharges associated with small construction activity submit permit application:	

a. If designated under §122.26(b)(15)(i)	a. 3 years and 90 days from date of publication of today's rule in the Federal Register
b. If designated under §122.26(b)(15)(ii)	b. Within 180 days of notice.
Permitting authority designates small MS4s under §123.35(b)(2)	3 years from date of publication of today's rule in the Federal Register or 5 years from date of publication of today's rule in the Federal Register if a watershed plan is in place
Regulated small MS4s' program fully developed and implemented	Up to 5 years from date of permit issuance.
Reevaluation of the municipal storm water rules by EPA	13 years from date of publication of today's rule in the Federal Register
Permitting authority determination on a petition	Within 180 days of receipt.
Non-municipal sources designated under §122.26(a)(9)(i) (C) or (D) submit permit application	Within 180 days of notice.
Submission of No Exposure Certification	Every 5 years.

B. Readable Regulations

Today, EPA is finalizing new regulations in a “readable regulation” format. This reader-friendly, plain language approach is a departure from traditional regulatory language and should enhance the rule's readability. These plain language regulations use questions and answers, “you” to identify the person who must comply, and terms like “must” rather than “shall” to identify a mandate. This new format, which minimizes layers of subparagraphs, should also allow the reader to easily locate specific provisions of the regulation.

Some sections of today's final rule are presented in the traditional language and format because these sections amend existing regulations. The readable regulation format was not used in these existing provisions in an attempt to avoid confusion or disruption *68739 of the readability of the existing regulations.

Most commenters supported EPA's use of plain language and agreed with EPA that the question and answer format makes the rule easier to understand. Three commenters thought that EPA should retain the traditional rule format. The June 1, 1998, Presidential memorandum directs all government agencies to write documents in plain language. Based on the majority of the comments, EPA has retained the plain language format used in the January 9, 1998, proposal in today's final rule.

The proposal to today's final rule included guidance as well as legal requirements. The word “must” indicates a requirement. Words like “should,” “could,” or “encourage” indicate a recommendation or guidance. In addition, the guidance was set off in parentheses to distinguish it from requirements.

EPA received numerous comments supporting the inclusion of guidance in the text of the Code of Federal Regulations (CFR), as well as comments opposing inclusion of guidance. Supporters stated that preambles and guidance documents are often not accessible when rules are implemented. Any language not included in the CFR is therefore not available when it may be most needed. Commenters that opposed including guidance in the CFR expressed the concern that any language in the rule might be interpreted as a requirement, in spite of any clarifying language. They suggested that guidance be presented in the preamble and additional guidance documents.

The majority of commenters on this issue thought that the guidance should be retained but the distinction between requirements and guidance should be better clarified. Suggestions included clarifying text, symbols, and a change from use of the word “should” to “EPA recommends” or “EPA suggests”. EPA believes that it is important to include the guidance in the rule and agrees that the distinction between requirements and EPA recommendations must be very clear. In today's final rule, EPA has put the guidance in paragraphs entitled “Guidance” and replaced the word “should” with “EPA recommends.” This is intended to clarify that the recommendations contained in the guidance paragraphs are not legally binding.

C. Program Framework: NPDES Approach

Today's rule regulates Phase II sources using the NPDES permit program. EPA interprets Clean Water Act section 402(p)(6) as authorizing the Agency to develop a storm water program for Phase II sources either as part of the existing NPDES permit program or as a stand alone non-NPDES program such as a self-implementing rule. Under either approach, EPA interprets section 402(p)(6) as directing EPA to publish regulations that “regulate” the remaining unregulated sources, specifically to establish requirements that are federally enforceable under the CWA. Although EPA believes that it has the discretion to not require sources regulated under CWA section 402(p)(6) to be covered by NPDES permits, the Agency has determined, for the reasons discussed below, that it is most appropriate to use NPDES permits in implementing the program to address the sources designated for regulation in today's rule.

As discussed in Section II.A, Overview, EPA sought to achieve certain goals in today's final rule. EPA believes that the NPDES program best achieves EPA's goals for today's final rule for the reasons discussed below.

Requiring Phase II sources to be covered by NPDES permits helps address the consistency problems currently caused by municipal “donut holes.” Donut holes are gaps in program coverage where a small unregulated MS4 is located next to or within a regulated larger MS4 that is subject to an NPDES permit under the Phase I NPDES storm water program. The existence of such “donut holes” creates an equity problem because similar discharges may remain unregulated even though they cause or contribute to the same adverse water quality impacts. Using NPDES permits to regulate the unregulated discharges in these areas is intended to facilitate the development of a seamless regulatory program for the mitigation and control of contaminated storm water discharges in an urbanized area. For example, today's rule allows a newly regulated MS4 to join as a “limited” co-permittee with a regulated MS4 by referencing a common storm water management program. Such cooperation should be further encouraged by the fact that the minimum control measures required in today's rule for regulated small MS4s are very similar to a number of the permit requirements for medium and large MS4s under the Phase I storm water program. The minimum control measures applicable to discharges from smaller MS4s are described with slightly more generality than under the Phase I permit application regulations for larger MS4s, thus enabling maximum flexibility for operators of smaller MS4s to optimize efforts to protect water quality.

Today's rule also applies NPDES permit requirements to construction sites below 5 acres that are similar to the existing requirements for those 5 acres and above. In addition, the rule would allow compliance with qualifying local, Tribal, or State erosion and sediment controls to meet the erosion and sediment control requirements of the general permits for storm water discharges associated with construction, both above and below 5 acres.

Incorporating the CWA section 402(p)(6) program into the NPDES program capitalizes upon the existing governmental infrastructure for administration of the NPDES program. Moreover, much of the regulated community already understands the NPDES program and the way it works.

Another goal of the NPDES program approach is to provide flexibility in order to facilitate and promote watershed planning and sensitivity to local conditions. NPDES permits promote those goals in several ways. NPDES general permits may be used to cover a category of regulated sources on a watershed basis or within political boundaries. The NPDES permitting process provides a mechanism for storm water controls tailored on a case-by-case basis, where necessary. In addition, the NPDES permit requirements of a permittee may be satisfied by another cooperating

entity. Finally, NPDES permits may incorporate the requirements of existing State, Tribal and local programs, thereby accommodating State and Tribes seeking to coordinate the storm water program with other programs, including those that focus on watershed-based nonpoint source regulation.

In promoting the watershed approach to program administration, EPA believes NPDES general permits can cover a category of dischargers within a defined geographic area. Areas can be defined very broadly to include political boundaries (e.g., county), watershed boundaries, or State or Tribal land.

NPDES permits generally require an application or a notice of intent (NOI) to trigger coverage. This information exchange assures communication between the permitting authority and the regulated community. This communication is critical in ensuring that the regulated community is aware of the requirements and the permitting authority is aware of the potential for adverse impacts to water quality from identifiable locations. The NPDES permitting process includes the public as a valuable stakeholder and ensures ***68740** that the public is included and information is made publicly available.

Another concern for EPA and several stakeholders was that the program ensure citizen participation. The NPDES approach ensures opportunities for citizen participation throughout the permit issuance process, as well as in enforcement actions. NPDES permits are also federally enforceable under the CWA.

EPA believes that the use of NPDES permits makes a significant difference in the degree of compliance with regulations in the storm water program. The NPDES program provides for public participation in the development, enforcement and revision of storm water management programs. Citizen suit enforcement has assisted in focusing attention on adverse water quality impacts on a localized, public priority basis. Citizens frequently rely on the NPDES permitting process and the availability of NOIs to track program implementation and help them enforce regulatory requirements.

NPDES permits are also advantageous to the permittee. The NPDES permit informs the permittee about the scope of what it is expected to do to be in compliance with the Clean Water Act. As explained more fully in EPA's April 1995 guidance, Policy Statement on Scope of Discharge Authorization and Shield Associated with NPDES Permits, compliance with an NPDES permit constitutes compliance with the Clean Water Act (see CWA section 402(k)). In addition, NPDES permittees are excluded from duplicative regulatory regimes under the Resource Conservation and Recovery Act and the Comprehensive Emergency Response, Compensation and Liability Act under RCRA's exclusions to the definition of "solid waste" and CERCLA's exemption for "federally permitted releases."

EPA considered suggestions that the Agency authorize today's rule to be implemented as a self-implementing rule. This would be a regulation promulgated at the Federal, State, or Tribal level to control some or all of the storm water dischargers regulated under today's rule. Under this approach, a rule would spell out the specific requirements for dischargers and impose the restrictions and conditions that would otherwise be contained in an NPDES permit. It would be effective until modified by EPA, a State, or a Tribe, unlike an NPDES permit which cannot exceed a duration of five years. Some stakeholders believed that this approach would reduce the burden on the regulated community (e.g., by not requiring permit applications), and considerably reduce the amount of additional paperwork, staff time and accounting required to administer the proposed permit requirements.

EPA is sensitive to the interest of some stakeholders in having a streamlined program that minimizes the burden associated with permit administration and maximizes opportunities for field time spent by regulatory authorities. Key provisions in today's rule address some of these concerns by promoting a streamlined approach to permit issuance by, for example, using general permits and allowing the incorporation of existing programs. By adopting the NPDES approach rather than a self-implementing rule, today's rule also allows for consistent regulation between larger MS4s and construction sites regulated under the existing storm water management rule and smaller sources regulated under today's rule.

EPA believes that it is most appropriate to use NPDES permits to implement a program to address the sources regulated by today's rule. In addition to the reasons discussed above, NPDES permits provide a better mechanism than would a self-implementing rule for tailoring storm water controls on a case-by-case basis, where necessary. One commenter reasoned this concern could be addressed by including provisions in the regulation that allow site-specific BMPs (i.e., case-by-case permits), suggesting storm water discharges that might require site-specific BMPs can be identified during the designation process of the regulatory authority. EPA believes that, in addition to its complexity, the commenter's approach lacks the other advantages of the NPDES permitting process.

A self-implementing rule would not ensure the degree of public participation that the NPDES permit process provides for the development, enforcement and revision of the storm water management program. A self-implementing rule also might not have provided the regulated community the “permit shield” under CWA section 402(k) that is provided by an NPDES permit. Based on all these considerations, EPA declined to adopt a self-implementing rule approach and adopted the NPDES approach.

Some State representatives sought alternative approaches for State implementation of the storm water program for Phase II sources. These State representatives asserted that a non-NPDES alternative approach best facilitated watershed management and avoided duplication and overlapping regulations. These representatives believed the NPDES approach would undercut State programs that had developed storm water controls tailored to local watershed concerns. Finally, a number of commenters expressed the view that States implement a variety of programs not based on the CWA that are effective in controlling storm water, and that EPA should provide incentives for their implementation and improvement in performance.

Throughout the development of the rule, State representatives sought alternatives to the NPDES approach for State implementation of the storm water program for Phase II sources. Discussions focused on an approach whereby States could develop an alternative program that EPA would approve or disapprove based on identified criteria, including that the alternative non-NPDES program would result in “equivalent or better protection of water quality.” The State representatives, however, were unable to propose or recommend criteria for gauging whether a program would provide equivalent protection. EPA also did not receive any suggestions for objective, workable criteria in response to the Agency's explicit request for specific criteria (by which EPA could objectively judge such programs) in the preamble to the proposed rule.

EPA evaluated several existing State initiatives to address storm water and found many cases where standards under State programs may be coordinated with the Federal storm water program. Where the NPDES permit is developed in coordination with State standards, there are opportunities to avoid duplication and overlapping requirements. Under today's rule, an NPDES permitting authority may include conditions in the NPDES permit that direct an MS4 to follow the requirements imposed under State standards, rather than the requirements of §122.34(b). This is allowed as long as the State program at a minimum imposes the relevant requirements of §122.34(b). Additional opportunities follow from other provisions in today's rule.

Seeking to further explore the feasibility of a non-NPDES approach, the Agency, after the proposal, had extensive discussions with representatives of a number of States. Discussions related specifically to possible alternatives for regulations of urban storm water discharges and MS4s specifically. The Agency also sought input on these issues from other stakeholders.

As a result of these discussions, many of the commenters provided input on issues such as: whether or not the Agency should require NPDES permits; whether location of MS4s in urbanized *68741 areas should be the basis for designation or whether designation should be based on other determinations relating to water quality; whether States should be

allowed to satisfy the conditions of the rule through the use of existing State programs; and issues concerning timing and resources for program implementation.

In response, today's rule still follows the regulatory scheme of the proposed rule, but incorporates additional flexibility to address some of the concerns raised by commenters.

In order to facilitate implementation by States that utilize a watershed permitting approach or similar approach (i.e., based on a State's unified watershed assessments), today's rule allows States to phase in coverage for MS4s in jurisdictions with a population less than 10,000. Under such an approach, States could focus their resources on a rolling basis to assist smaller MS4s in developing storm water programs.

In addition, in response to concerns that the rule should not require permit coverage for MS4s that do not significantly contribute to water quality impairments, today's rule provides options for two waivers for small MS4s. The rule allows permitting authorities to exempt from the requirement for a permit any MS4 serving a jurisdiction with a population less than 1,000, unless the State determines that the MS4 must implement storm water controls because it is significantly contributing to a water quality impairment. A second waiver option applies to MS4s serving a jurisdiction with a population less than 10,000. For those MS4s, the State must determine that discharges from the MS4 do not significantly contribute to a water quality impairment, or have the potential for such an impairment, in order to provide the exemption. The State must review this waiver on a periodic basis no less frequently than once every five years.

Throughout the development of today's rule, commenters questioned whether the Clean Water Act authorized the use of the NPDES permit program, pointing out that the text of CWA 402(p)(6) does not use the word "permit." Based on the absence of the word "permit" and the express mention of State storm water management programs, the commenters asserted that Congress did not intend for Phase II sources to be regulated using NPDES permits.

EPA disagrees with the commenters' interpretation of section 402(p)(6). Section 402(p)(6) does not preclude use of permits as part of the "comprehensive program" to regulate designated sources. The language provides EPA with broad discretion in the establishment of the "comprehensive program." Absence of the word "permit" (a term that the statute does not otherwise define) does not preclude use of a permit, which is a familiar and reasonably well understood regulatory implementation vehicle. First, section 402(p)(6) says that EPA must establish a comprehensive program that "shall, at a minimum, establish priorities, establish requirements for State stormwater management programs, and establish expeditious deadlines." The "at a minimum" language suggests that the Agency may, and perhaps should, develop a comprehensive program that does more than merely attend to these minimum criteria. Use of the term "at a minimum" preserves for the Agency broad discretion to establish a comprehensive program that includes use of NPDES permits.

Further, in the final sentence of the section, Congress included additional language to affirm the Agency's discretion. The final sentence clarifies that the Phase II program "may include performance standards, guidelines, guidance, and management practices and treatment requirements, as appropriate." Under existing CWA programs, performance standards, (effluent limitations) guidelines, management practices, and treatment requirements are typically implemented through NPDES or dredge and fill permits.

Although EPA believes that it had the discretion to not require permits, the Agency has determined that it is reasonable to interpret section 402(p)(6) to authorize permits. Moreover, for the reasons discussed above, the Agency believes that it is appropriate to use NPDES permits in implementing today's rule.

D. Federal Role

Today's final rule describes EPA's approach to expand the existing storm water program under CWA section 402(p)(6). As in all other Federal programs, the Federal government plays an integral role in complying with, developing,

implementing, overseeing, and enforcing the program. This section describes EPA's role in the revised storm water program.

1. Develop Overall Framework of the Program

The storm water discharge control program under CWA section 402(p)(6) consists of the rule, tool box, and permits. EPA's primary role is to ensure timely development and implementation of all components. Today's rule is a refinement of the first step in developing the program. EPA is fully committed to continuing to work with involved stakeholders on developing the tool box and issuing permits. As noted in today's rule, EPA will assess the municipal storm water program based on (1) evaluations of data from the NPDES municipal storm water program, (2) research concerning water quality impacts on receiving waters from storm water, and (3) research on BMP effectiveness. (Section II.H, Municipal Role, provides a more detailed discussion of this provision.)

EPA is planning to standardize minimum requirements for construction and post-construction BMPs in a new rulemaking under Title III of the CWA. While larger construction sites are already subject to NPDES permits (and smaller sites will be subject to permits pursuant to today's rule), the permits generally do not contain specific requirements for BMP design or performance. The permits require the preparation of storm water pollution prevention plans, but actual BMP selection and design is at the discretion of permittees, in conformance with applicable State and local requirements. Where there are existing State and local requirements specific to BMPs, they vary widely, and many jurisdictions do not have such requirements.

In developing these regulations, EPA intends to evaluate the inclusion of design and maintenance criteria as minimum requirements for a variety of BMPs used for erosion and sediment control at construction sites, as well as for permanent BMPs used to manage post-construction storm water discharges. The Agency plans to consider the merits and performance of all appropriate management practices (both structural and non-structural) that can be used to reduce adverse water quality impacts. EPA does not intend to require the use of particular BMPs at specific sites, but plans to assist builders and developers in BMP selection by publishing data on the performance to be expected by various BMP types. EPA would like to build upon the successes of some of the effective State and local storm water programs currently in place around the country, and to establish nation-wide criteria to support builders and local jurisdictions in appropriate BMP selection.

2. Encourage Consideration of Smart Growth Approaches

In the proposal, EPA invited comment on possible approaches for providing ***68742** incentives for local decision making that would limit the adverse impacts of growth and development on water quality. EPA asked for comments on this "smart growth" approach.

EPA received comments on all sides of this issue. A number of commenters supported the idea of "smart growth" incentives but did not present concrete ideas. Several commenters suggested "smart growth" criteria. States that have adopted "smart growth" laws were worried that EPA's focus on urbanized areas for municipal requirements could encourage development outside of designated growth areas. Today's final rule clearly allows States to expand coverage of their municipal storm water program outside of urbanized areas. In addition, the flexibility of the six municipal minimum measures should avoid encouragement of development into rural rather than urban areas. For example, as part of the post-construction minimum measure, EPA recommends that municipalities consider policies and ordinances that encourage infill development in higher density urban areas, and areas with existing infrastructure, in order to meet the measure's intent.

EPA also received several comments expressing concern that incorporating "smart growth" incentives threatened the autonomy of local governments. One commenter was worried that "incentives" could become more onerous than the minimum measures. EPA is very aware of municipal concerns about possible federal interference with local land use

planning. EPA is also cognizant of the difficulty surrounding incentives for “smart growth” activities due to these concerns. However, the Agency believes it has addressed these concerns by proposing a flexible approach and will continue to support the concept of “smart growth” by encouraging policies that limit the adverse impacts of growth and development on water quality.

3. Provide Financial Assistance

Although Congress has not established a fund to fully finance implementation of the proposed extension of the existing NPDES storm water program under CWA section 402(p)(6), numerous federal financing programs (administered by EPA and other federal agencies) can provide some financial assistance. The primary funding mechanism is the Clean Water State Revolving Fund (SRF) program, which provides sources of low-cost financing for a range of water quality infrastructure projects, including storm water. In addition to the SRF, federal financial assistance programs include the Water Quality Cooperative Agreements under CWA section 104(b)(3), Water Pollution Control Program grants to States under CWA [section 106](#), and the Transportation Equity Act for the 21st Century (TEA-21) among others. In addition, Section 319 funds may be used to fund any urban storm water activities that are not specifically required by a draft or final NPDES permit. EPA will develop a list of potential funding sources as part of the tool box implementation effort. EPA anticipates that some of these programs will provide funds to help develop and, in limited circumstances, implement the CWA section 402(p)(6) storm water discharge control program.

EPA received numerous comments that requested additional funding. Congress provided one substantial new source of potential funding for transportation related storm water projects—TEA-21. The Department of Transportation has included a number of water-related provisions in its TEA-21 planning. These include Transportation Enhancements, Environmental Restoration and Pollution Abatement, and Environmental Streamlining. More information on TEA-21 is available at the following internet sites: www.fhwa.dot.gov/tea21/outreach.htm and www.tea21.org.

4. Implement the Program in Jurisdictions Not Authorized To Administer the NPDES Program

Because today's final rule uses the NPDES framework, EPA will be the NPDES permitting authority in several States, Tribal jurisdictions, and Territories. As such, EPA will have the same responsibilities as any other NPDES permitting authority—issuing permits, designating additional sources, and taking appropriate enforcement actions—and will seek to tailor the storm water discharge control program to the specific needs in that State, Tribal jurisdiction, or Territory. EPA also plans to provide support and oversight, including outreach, training, and technical assistance to the regulated communities. Section II.G. of today's preamble provides a separate discussion related to the NPDES permitting authority's responsibilities for today's final rule.

5. Oversee State and Tribal Programs

Under the NPDES program, EPA plays an oversight role for NPDES-approved States and Tribes. In this role, EPA and the State or Tribe work together to implement, enforce, and improve the NPDES program. Part of this oversight role includes working with States and Tribes to modify their programs where programmatic or implementation concerns impede program effectiveness. This role will be vitally important when States and Tribes make adjustments to develop, implement, and enforce today's extension of the existing NPDES storm water discharge control program. In addition, States maintain a continuing planning process (CPP) under CWA section 303(e), which EPA periodically reviews to assess the program's achievements.

In its oversight role, EPA takes action to address States and Tribes who have obtained NPDES authorization but are not fulfilling their obligations under the NPDES program. If an NPDES-authorized State or Tribe fails to implement an adequate NPDES storm water program, for example, EPA typically enters into extensive discussions to resolve outstanding issues. EPA has the authority to withdraw the entire NPDES program when resolution cannot be reached. Partial program withdrawal is not provided for under the CWA except for partial approvals.

EPA is also working with the States and Tribes to improve nonpoint source management programs and assessments to incorporate key program elements. Key nonpoint source program elements include setting short and long term goals and objectives; establishing public and private partnerships; using a balanced approach incorporating Statewide and watershed-wide abatement of existing impairments; preventing future impairments; developing processes to address both impaired and threatened waters; reviewing and upgrading all program components, including program revisions on a 5-year cycle; addressing federal land management and activities inconsistent with State programs; and managing State nonpoint source management programs effectively.

In particular, EPA works with the States and Tribes to strengthen their nonpoint source pollution programs to address all significant nonpoint sources, including agricultural sources, through the CWA section 319 program. EPA is working with other government agencies, as well as with community groups, to effect voluntary changes regarding watershed protection and reduced nonpoint source pollution.

In addition, EPA and NOAA have published programmatic and technical guidance to address coastal nonpoint source pollution. Under Section 6217 of the CZARA, States are developing and implementing coastal nonpoint pollution control programs approved by EPA and NOAA. *68743

6. Comply With Applicable Requirements as a Discharger

Today's final rule covers federally operated facilities in a variety of ways. These facilities are generally areas where people reside, such as a federal prison, hospital, or military base. It also includes federal parkways and road systems with separate storm sewer systems. Today's rule requires federal MS4s to comply with the same application deadlines that apply to regulated small MS4s generally. EPA believes that all federal MS4s serve populations of less than 100,000.

EPA received several comments that asked if individual buildings like post offices are considered to be small MS4s and thereby regulated in today's rule if they are in an urbanized area. Most of these buildings have at most a parking lot with runoff or a storm sewer that connects with a municipality's MS4. EPA does not intend that individual federal buildings be considered to be small MS4s. This is discussed in section II.H.2.b. of today's preamble.

Federal facilities can also be included under requirements addressing storm water discharges associated with small construction activities. In any case, discharges from these facilities will need to comply with all applicable NPDES requirements and any additional water quality-related requirements imposed by a State, Tribal, or local government. Failure to comply can result in enforcement actions. Federal facilities can act as models for municipal and private sector facilities and implement or test state-of-the-art management practices and control measures.

E. State Role

Today's final rule sets forth an NPDES approach for implementing the extension of the existing storm water discharge control program under CWA section 402(p)(6). State assumption of the NPDES program is voluntary, consistent with the principles of federalism. Because most States are approved to implement the NPDES program, they will tailor their storm water discharge control programs to address their water quality needs and objectives. While today's rule establishes the basic framework for the section 402(p)(6) program, States as well as Tribes (see discussion in section II.F) have an important role in fine-tuning the program to address the water quality issues within their jurisdictions. The basic framework allows for adjustments based on factors that vary geographically, including climate patterns and terrain.

Where States do not have NPDES authority, they are not required to implement the storm water discharge control program, but they may still participate in water quality protection through participation in the CWA [section 401](#) certification process (for any permits) and through development of water quality standards and TMDLs.

1. Develop the Program

In expanding the existing NPDES program for storm water discharges, States must evaluate whether revisions to their NPDES programs are necessary. If so, modifications must be made in accordance with §123.62. Under §123.62, States must revise their NPDES programs within 1 year, or within 2 years if statutory changes are necessary.

Some States and departments of transportation (DOTs) commented that this timeframe is too short, anticipating that the State legislative process and the modification of regulations combined would take beyond 2 years. The deadline language in §123.62 is not new language for the storm water discharge control program; it applies to all NPDES programs. EPA believes the vast majority of States will meet the deadline and will work with States in those cases where there may be difficulty meeting this deadline due to the timing of legislative sessions and the regulatory development process.

An authorized State NPDES program must meet the requirements of CWA section 402(b) and conform to the guidelines issued under CWA section 304(i)(2). Today's final rule under §123.25 adds specific cross references to the storm water discharge control program components to ensure that States adequately address these requirements.

2. Comply With Applicable Requirements as a Discharger

Today's final rule covers State operated separate storm sewer systems in a variety of ways. These systems generally drain areas where people reside, such as a prison, hospital, or other populated facility. These systems are included under the definition of a regulated small MS4, which specifically identifies systems operated by State departments of transportation. Alternatively, storm water discharges from State activities may be regulated under the section addressing storm water discharges associated with small construction activities. In any case, discharges from these facilities must comply with all applicable NPDES requirements. Failure to comply can result in enforcement actions. State facilities can act as models for municipal and private sector facilities and implement or test state-of-the-art management practices and control measures.

3. Communicate With EPA

Under approved NPDES programs, States have an ongoing obligation to share information with EPA. This dialogue is particularly important in the CWA section 402(p)(6) storm water program where these governments continue to develop a great deal of the guidance and outreach related to water quality.

F. Tribal Role

The proposal to today's final rule provides background information on EPA's 1984 Indian Policy and the criteria for treatment of an Indian Tribe in the same manner as a State. Today's final rule extends the existing NPDES program for storm water discharges to two types of dischargers located in Indian country. First, the final rule designates storm water discharges from any regulated small MS4, including Tribal systems. Second, the final rule regulates discharges associated with construction activity disturbing between one and five acres of land, including sites located in Indian country. Operators in each of these categories of regulated activity must apply for coverage under an NPDES permit by 3 years and 90 days from the date of publication of today's final rule. Under existing regulations, however, EPA or an authorized NPDES Tribe may require a specified storm water discharger to apply for NPDES permit coverage before this deadline based on a determination that the discharge is contributing to a violation of a water quality standard (including designated uses) or is a significant contributor of pollutants.

Under today's rule, a Tribal governmental entity may regulate storm water discharges on its reservation in two ways—as either an NPDES-authorized Tribe or as a regulated MS4. If a Tribe is authorized to operate the NPDES program, the Tribe must implement today's final rule for the NPDES program for storm water for covered dischargers located within the EPA recognized boundaries. Otherwise, EPA is generally the permitting/program authority within Indian country.

Discussions about the State Role in the preceding section also apply to NPDES authorized Tribes. For additional information on the role and responsibilities of the permitting authority in the NPDES storm water program, see [§123.35](#) (and [Section II.G.](#) of today's preamble) and [§ 123.25\(a\)](#). *68744

Under today's final rule, if the Indian reservation is located entirely or partially within an “urbanized area,” as defined in [§122.32\(a\)\(1\)](#), the Tribe must obtain an NPDES permit if it operates a small MS4 within the urbanized area portion. Tribal MS4s located outside an urbanized area are not automatically covered, but may be designated by EPA pursuant to [§122.32\(a\)\(2\)](#) of today's rule or may request designation as a regulated small MS4 from EPA. A Tribe that is a regulated MS4 for NPDES program purposes is required to implement the six minimum control measures to the extent allowable under Federal law.

The Tribal representative on the Storm Water Phase II FACA Subcommittee asked EPA to provide a list of the Tribes located in urbanized areas that would fall within the NPDES storm water program under today's final rule. In December 1996, EPA developed a list of federally recognized American Indian Areas located wholly or partially in Bureau of the Census-designated urbanized areas (see Appendix 1). Appendix 1 not only provides a listing of reservations and individual Tribes, but also the name of the particular urbanized area in which the reservation is located and an indication of whether the urbanized area contains a medium or large MS4 that is already covered by the existing Phase I regulations.

Some of the Tribes listed in Appendix 1 are only partially located in an urbanized area. If the Tribe's MS4 serves less than 1,000 people within an urbanized area, the permitting authority may waive the Tribe's MS4 storm water requirements if it meets the conditions of [§122.32\(c\)](#). EPA does not have information on the Tribal populations within the urbanized areas, so it can not identify the Tribes that are eligible for a waiver. Therefore, a Tribe that believes it qualifies for a waiver should contact its permitting authority.

G. NPDES Permitting Authority's Role for the NPDES Storm Water Small MS4 Program

As noted previously, the NPDES permitting authority can be EPA or an authorized State or an authorized Tribe. The following discussion describes the role of the NPDES permitting authority under today's final rule.

1. Comply With Implementation Requirements

NPDES permitting authorities must perform certain duties to implement the NPDES storm water municipal program. [Section 123.35\(a\)](#) of today's final rule emphasizes that permitting authorities have existing obligations under the NPDES program. [Section 123.35](#) focuses on specific issues related to the role of the NPDES authority to support administration and implementation of the municipal storm water program under CWA section 402(p)(6).

2. Designate Sources

[Section 123.35\(b\)](#) of today's final rule addresses the requirements for the NPDES permitting authority to designate sources of storm water discharges to be regulated under [§§122.32](#) through [122.36](#). NPDES permitting authorities must develop a process, as well as criteria, to designate small MS4s. They must also have the authority to designate a small MS4 if and when circumstances that support a waiver under [§122.32\(c\)](#) change. EPA may make designations if an NPDES-approved State or Tribe fails to do so.

NPDES permitting authorities must examine geographic jurisdictions that they believe should be included in the storm water discharge control program but are not located in an “urbanized area”. Small MS4s in these areas are not designated automatically. Discharges from such areas should be brought into the program if found to have actual or potential exceedances of water quality standards, including impairment of designated uses, or other adverse impacts on water quality, as determined by local conditions or watershed and TMDL assessments. EPA's aim is to address discharges to impaired waters and to protect waters with the potential for problems. EPA encourages NPDES permitting authorities,

local governments, and the interested public to work together in the context of a watershed plan to address water quality issues, including those associated with municipal storm water runoff.

EPA received comments stating that the process of developing criteria and applying it to all MS4s outside an urbanized area serving a population of 10,000 or greater and with a density of 1,000 people per square mile is too time-consuming and resource-intensive. These commenters believe that the permitting authority should decide which MS4s must be brought into the storm water discharge control program and that population and density should not be an overriding criteria. One suggested way of doing so was to only designate MS4s with demonstrated contributions to the impairment of water quality uses as shown by a TMDL. EPA disagrees with this suggestion. The TMDL process is time-consuming. MS4s outside of urbanized areas may cause water quality problems long before a TMDL is completed.

EPA believes that permitting authorities should consider the potential water quality impacts of storm water from all jurisdictions with a population of 10,000 or greater and a density of 1,000 people per square mile. EPA is using data summarized in the NURP study and in the CWA section 305(b) reports to support this approach for targeted designation outside of urbanized areas. EPA is not mandating which criteria are to be used, but has provided examples of criteria that may be useful in evaluating potential water quality impacts. EPA believes that the flexibility provided in this section of today's final rule allows the permitting authority to develop criteria and a designation process that is easy to use and protects water quality. Therefore, the provisions of § 123.35(b) remain as proposed.

a. Develop Designation Criteria

Under §123.35(b), the NPDES permitting authority must establish designation criteria to evaluate whether a storm water discharge results in or has the potential to result in exceedances of water quality standards, including impairment of designated uses, or other significant water quality impacts, including adverse habitat and biological impacts.

EPA recommends that NPDES permitting authorities consider, in a balanced manner, certain locally-focused criteria for designating any MS4 located outside of an urbanized area on the basis of significant water quality impacts. EPA recommends consideration of criteria such as discharge to sensitive waters, high growth or growth potential, high population density, contiguity to an urbanized area, significant contribution of pollutants to waters of the United States, and ineffective control of water quality concerns by other programs. These suggested designation criteria are intended to help encourage the permitting authority to use an objective method for identifying and designating, on a local basis, sources that adversely impact water quality. More information about these criteria and the reasons why they are suggested by EPA is included in the January 9, 1998, proposal (63 FR 1561) for today's final rule.

The suggested criteria are meant to be taken in the aggregate, with a great deal of flexibility as to how each should be weighed in order to best account for watershed and other local conditions and to allow for a more tailored case-by-case analysis. The application of criteria is meant to be geographically specific. Furthermore, each criterion does not have to be met in order for a small MS4 *68745 to qualify for designation, nor should an MS4 necessarily be designated on the basis of one or two criteria alone.

EPA believes that the application of the recommended designation criteria provides an objective indicator of real and potential water quality impacts from urban runoff on both the local and watershed levels. EPA encourages the application of the recommended criteria in a watershed context, thereby allowing for the evaluation of the water quality impacts of the portions of a watershed outside of an urbanized area. For example, situations exist where the urbanized area represents a small portion of a degraded watershed, and the adjacent nonurbanized areas of the watershed have significant cumulative effects on the quality of the receiving waters.

EPA received numerous suggestions of additional criteria that should be added and reasons why some of the criteria in the proposal to today's final rule were not appropriate. EPA developed its suggested designation criteria based on findings of the NURP study and other studies that indicate pollutants of concern, including total suspended solids, chemical oxygen

demand, and temperature. These criteria were the subject of considerable discussion by the Storm Water Phase II FACA Subcommittee. EPA developed them in response to recommendations from the subcommittee during development of the proposed rule. The listed criteria are only suggestions. Permitting authorities are required to develop their own criteria. EPA has not found any reason to change its suggested list of criteria and the suggestions remain as proposed.

b. Apply Designation Criteria

After customizing the designation criteria for local conditions, the permitting authority must apply such criteria, at a minimum, to any MS4 located outside of an urbanized area serving a jurisdiction with a population of at least 10,000 and a population density of 1,000 people per square mile or greater (see §123.35(b)(2)). If the NPDES permitting authority determines that an MS4 meets the criteria, the permitting authority must designate it as a regulated small MS4. This designation must occur within 3 years of publication of today's final rule. Alternatively, the NPDES authority can designate within 5 years from the date of final regulation if the designation criteria are applied on a watershed basis where a comprehensive watershed plan exists (a comprehensive watershed plan is one that includes the equivalents of TMDLs) (see §123.35(b)(3)). The extended 5 year deadline is intended to provide incentives for watershed-based designations. If an NPDES-authorized State or Tribe does not develop and apply designation criteria within this timeframe, then EPA has the opportunity to do so in lieu of the authorized State or Tribe.

NPDES permitting authorities can designate any small MS4, including one below 10,000 in population and 1,000 in density. EPA established the 10,000/1,000 threshold based on the likelihood of adverse water quality impacts at these population and density levels. In addition, the 1,000 persons per square mile threshold is consistent with both the Bureau of the Census definition of an “urbanized area” (see Section II.H.2. below) and stakeholder discussions concerning the definition of a regulated small MS4.

One commenter requested that EPA develop interim deadlines for development of designation criteria. EPA believes that the designation deadline identified in today's final rule at §123.35(b)(3) provides States and Tribes with a flexibility that allows them to develop and apply the criteria locally in a timely fashion, while at the same time establishing an expeditious deadline.

c. Designate Physically Interconnected Small MS4s

In addition to applying criteria on a local basis for potential designation, the NPDES permitting authority must designate any MS4 that contributes substantially to the pollutant loadings of a physically interconnected municipal separate storm sewer that is regulated by the NPDES program for storm water discharges (see §123.35(b)(4)). To be “physically interconnected,” the MS4 of one entity, including roads with drainage systems and municipal streets, is physically connected directly to the municipal separate storm sewer of another entity. This provision applies to all MS4s located outside of an urbanized area. EPA added this section in recognition of the concerns of local government stakeholders that a local government should not have to shoulder total responsibility for a storm water program when storm water discharges from another MS4 are also contributing pollutants or adversely affecting water quality. This provision also helps to provide some consistency among MS4 programs and to facilitate watershed planning in the implementation of the NPDES storm water program. EPA recommended physical interconnectedness in the existing NPDES storm water regulations as a factor for consideration in the designation of additional sources.

Today's final rule does not include interim deadlines for identifying physically interconnected MS4s. However, consistent with the deadlines identified in §123.35(b)(3) of today's final rule, EPA encourages the permitting authority to make these determinations within 3 years from the date of publication of the final rule or within 5 years if the permitting authority is implementing a comprehensive watershed plan. Alternatively, the affected jurisdiction could use the petition process under 40 CFR 122.26(f) in seeking to have the permitting authority designate the contributing jurisdiction.

Several commenters expressed concerns about who could be designated under this provision (§123.35(b)(4)). One commenter requested that the word “substantially” be deleted from the rule because they believe any MS4 that contributes at all to a physically interconnected municipal separate storm sewer should be regulated. EPA believes that the word “substantially” provides necessary flexibility to the permitting authorities. The permitting authority can decide if an MS4 is contributing discharges to another municipal separate storm sewer in a manner that requires regulation. If the operator of a regulated municipal separate storm sewer believes that some of its pollutant loadings are coming from an unregulated MS4, it can petition the permitting authority to designate the unregulated MS4 for regulation.

d. Respond to Public Petitions for Designation

Today's final rule reiterates the existing opportunity for the public to petition the permitting authority for designation of a point source to be regulated to protect water quality. The petition opportunity also appears in existing NPDES regulations at 40 CFR 122.26(f). Any person may petition the permitting authority to require an NPDES permit for a discharge composed entirely of storm water that contributes to a violation of a water quality standard or is a significant contributor of pollutants to the waters of the United States (see §123.32(b)). The NPDES permitting authority must make a final determination on any petition within 180 days after receiving the petition (see §123.35(c)). EPA believes that a 180 day limit balances the public's need for a timely final determination with the NPDES permitting authority's need to prioritize its workload. If an NPDES-approved State or Tribe fails to act *68746 within the 180-day timeframe, EPA may make a determination on the petition. EPA believes that public involvement is an important component of the NPDES program for storm water and feels that this provision encourages public participation. Section II.K, Public Involvement/Public Role, further discusses this topic.

3. Provide Waivers

Today's rule provides two opportunities for the NPDES permitting authority to exempt certain small MS4s from the need for a permit based on water quality considerations. See §§122.32(d) and (e). The two waiver opportunities have different size thresholds and take different approaches to considering the water quality impacts of discharges from the MS4.

In the proposal, EPA requested comment on the option of waiving coverage for all MS4s with less than 1,000 people unless the permitting authority determined that the small MS4 should be regulated based on significant adverse water quality impacts. A number of commenters supported this option. They expressed concern that compliance with the rule requirements and certification of one of the waiver provisions were both costly for very small communities. They stated that the permitting authority should identify a water quality problem before requiring compliance. Today's rule essentially adopts this alternative approach for MS4s serving a population under 1,000.

The final rule has expanded the waiver provision that EPA proposed for small MS4s with a population less than 1,000. The proposed rule would have required a small MS4 operator to certify that storm water controls are not needed based on either wasteload allocations that are part of TMDLs that address the pollutants of concern, or a comprehensive watershed plan implemented for the waterbody that includes the equivalents of TMDLs and addresses the pollutant(s) of concern. Commenters noted that the proposed waivers would be unattainable if a TMDL or equivalent analysis was required for every pollutant that could possibly be present in any amount in discharges from an MS4 regardless of whether the pollutant is causing water quality impairment. Commenters asked that EPA identify what constitutes the “pollutant(s) of concern” for which a TMDL or its equivalent must be developed. For example, §122.30(c) indicates that the MS4 program is intended to control “sediment, suspended solids, nutrients, heavy metals, pathogens, toxins, oxygen-demanding substances, and floatables.” Commenters asked whether TMDLs or equivalent analyses have to address all of these.

EPA has revised the proposed waiver in response to these concerns. Under today's rule, NPDES permitting authorities may waive the requirements of today's rule for any small MS4 with a population less than 1,000 that does not contribute substantially to the pollutant loadings of a physically interconnected MS4, unless the small MS4 discharges pollutants

that have been identified as a cause of impairment of the waters to which the small MS4 discharges. If the small MS4 does discharge pollutants that have been identified as impairing the water body into which the small MS4 discharges, the NPDES permitting authority may grant a waiver only if it determines that storm water controls are not needed based on an EPA approved or established TMDL that addresses the pollutant(s) of concern.

Unlike the proposed rule, §122.32(d) does not allow the waiver for MS4s serving a population under 1,000 to be based on “the equivalent of a TMDL.” Because §122.32(d) requires a pollutant specific analysis only for a pollutant that has been identified as a cause of impairment, a TMDL is required for such pollutant before the waiver may be granted. Once a pollutant has been identified as the cause of impairment of a water body, the State should develop a TMDL for that pollutant for that water body. Thus, §122.32(d) takes a different approach than that taken for the waiver in §122.32(e) for MS4s serving a population under 10,000, which can be based upon an analysis that is “the equivalent of a TMDL.” This is because §122.32(d) requires an analysis to support the waiver for MS4s under 1,000 only if a waterbody to which the MS4 discharges has been identified as impaired. The §122.32(e) waiver, on the other hand, would be available for larger MS4s but only after the State affirmatively establishes lack of impairment based upon a comprehensive analysis of smaller urban waters that might not otherwise be evaluated for the purposes of CWA [section 303](#). Since §122.32(e) requires the analysis of waters that have not been identified as impaired, an actual TMDL is not required and an analysis that is the equivalent of a TMDL can suffice to support the waiver.

Where a State is the NPDES permitting authority, the permitting authority is responsible for the development of the TMDLs as well as the assessment of the extent to which a small MS4's discharge contributes pollutants to a neighboring regulated system. In States where EPA is the permitting authority, EPA will use a State's TMDLs to determine whether storm water controls are required for the small MS4s.

The proposed rule would have required the operator of the small MS4 serving a population under 1,000 to certify that its discharge was covered under a TMDL that indicated that discharges from its particular system were not having an adverse impact on water quality (i.e., it was either not assigned wasteload allocations under TMDLs or its discharge is within an assigned allocation). Many commenters expressed concerns that MS4 operators serving less than 1,000 persons may lack the technical capacity to certify that their discharges are not contributing to adverse water quality impacts. These commenters thought that the permitting authority should make such a certification. Today's rule provides flexibility as to how the waiver is administered. Permitting authorities are ultimately responsible for granting the waiver, but are free to determine whether or not to require small MS4 operators that are seeking waivers to submit information or a written certification.

Under §122.32(e) a State may grant a waiver to an MS4 serving a population between 1,000 and 10,000 only if the State has made a comprehensive effort to ensure that the MS4 will not cause or contribute to water quality impairment. To grant a §122.32(e) waiver, the NPDES permitting authority must evaluate all waters of the U.S. that receive a discharge from the MS4 and determine that storm water controls are not needed. The permitting authority's evaluation must be based on wasteload allocations that are part of an EPA approved or established TMDL or, if a TMDL has not been developed or approved, an equivalent analysis that determines sources and allocations for the pollutant(s) of concern. The pollutants of concern that the permitting authority must evaluate include biochemical oxygen demand (BOD), sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation), pathogens, oil and grease, and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the MS4. Finally, the permitting authority must have determined that future discharges from the MS4 do not have the potential to result in exceedances of water quality standards, including impairment of designated uses, or other significant ***68747** water quality impacts, including habitat and biological impacts.

Although EPA did not propose this specific approach, the Agency did request comment on whether to increase the proposed 1,000 population threshold for a waiver. The §122.32(e) waiver was developed in response to comments, including States' concerns that they needed greater flexibility to focus their efforts on MS4s that were causing water

quality impairment. Several commenters thought that the threshold should be increased from 1,000 to 5,000 or 10,000. Others suggested additional ways of qualifying for a waiver for MS4s that discharge to waters that are not covered by a TMDL or watershed plan. EPA carefully considered all the options for expanding the waiver provisions and has decided to expand the waiver only in the very narrow circumstances described above where a comprehensive analysis has been undertaken to demonstrate that the MS4 is not causing water quality impairment.

The NPDES permitting authority can, at any time, mandate compliance with program requirements from a previously waived small MS4 if circumstances change. For example, a waiver can be withdrawn in circumstances where the permitting authority later determines that a waived small MS4's storm water discharge to a small stream will cause adverse impacts to water quality or significantly interfere with attainment of water quality standards. A "change in circumstances" could involve receipt of new information. Changed circumstances can also allow a regulated small MS4 operator to request a waiver at any time.

Some commenters expressed concerns about allowing any small MS4 waivers. One commenter stated that storm water pollution prevention plans are necessary to control storm water pollution and should be required from all regulated small MS4s. For the reasons stated in the Background section above, EPA agrees that the discharges from most MS4s in urbanized areas should be addressed by a storm water management program outlined in today's rule. For MS4s serving very small areas, however, the TMDL development process provides an opportunity to determine whether an MS4 serving a population less than 1,000 is having a negative impact on any receiving water that is impaired by a pollutant that the MS4 discharges. MS4s serving populations up to 10,000 may receive a waiver only if a comprehensive analysis of its impact on receiving water has been performed.

Other commenters said that waivers should not be allowed for small MS4s that discharge into another regulated MS4. These commenters stated that the word "substantially" should be removed from §122.32(d)(i) so that a waiver would not be allowed for any system "contributing to the storm water pollutant loadings of a physically interconnected regulated MS4." As previously mentioned under the designation discussion of section II.G.2.c, EPA believes that the word "substantially" provides needed flexibility to the permitting authorities. It is important to note that this is only one aspect that the permitting authority must consider when deciding on the appropriateness of a waiver.

4. Issue Permits

NPDES permitting authorities have a number of responsibilities regarding the permit process. Sections 123.35(d) through (g) ensure a certain level of consistency for permits, yet provide numerous opportunities for flexibility. NPDES permitting authorities must issue NPDES permits to cover municipal sources to be regulated under §122.32, unless waived under §122.32(c). EPA encourages permitting authorities to use general permits as the vehicle for permitting and regulating small MS4s. The Agency notes, however, that some operators may wish to take advantage of the option to join as a co-permittee with an MS4 regulated under the existing NPDES storm water program.

Today's final rule includes a provision, §123.35(f), that requires NPDES permitting authorities to either include the requirements in §122.34 for NPDES permits issued for regulated small MS4s or to develop permit limits based on a permit application submitted by a small MS4. See Section II.H.3.a, Minimum Control Measures, for more details on the actual §122.34 requirements. See Section II.H.3.c for alternative and joint permitting options.

In an attempt to avoid duplication of effort, §122.34(c) allows NPDES permitting authorities to include permit conditions that direct an MS4 to meet the requirements of a qualifying local, Tribal, or State municipal storm water management program. For a local, Tribal, or State program to "qualify," it must impose, at a minimum, the relevant requirements of §122.34(b). A regulated small MS4 must still follow the procedural requirements for an NPDES permit (i.e., submit an application, either an individual application or an NOI under a general permit) but will instead follow the substantive pollutant control requirements of the qualifying local, Tribal, or State program.

Under [§122.35\(b\)](#), NPDES permitting authorities may also recognize existing responsibilities among governmental entities for the minimum control measures in an NPDES small MS4 storm water permit. For example, the permit might acknowledge the existence of a State administered program that addresses construction site runoff and require that the municipalities only develop substantive controls for the remaining minimum control measures. By acknowledging existing programs, this provision is meant to reduce the duplication of efforts and to increase the flexibility of the NPDES storm water program.

[Section 123.35\(e\)](#) of today's final rule requires permitting authorities to specify a time period of up to 5 years from the issuance date of an NPDES permit for regulated small MS4 operators to fully develop and implement their storm water programs. As discussed more fully below, permitting authorities should be providing extensive support to the local governments to assist them in developing and implementing their programs.

In the proposed rule, EPA stated that the permitting authority would develop the menu of BMPs and if they failed to do so, EPA would develop the menu. Commenters felt that EPA should develop a menu of BMPs, rather than just providing guidance. In the settlement agreement for seeking an extension to the deadline for issuing today's rule, EPA committed to developing a menu of BMPs by October 27, 2000. Permitting authorities can adopt EPA's menu or develop their own. The menu itself is not intended to replace more comprehensive BMP guidance materials. As part of the tool box efforts, EPA will provide separate guidance documents that discuss the results from EPA-sponsored nationwide studies on the design, operation and maintenance of BMPs. Additionally, EPA expects that the new rulemaking on construction BMPs may provide more specific design, operation and maintenance criteria.

5. Support and Oversee the Local Programs

NPDES permitting authorities are responsible for supporting and overseeing the local municipal programs. [Section 123.35\(h\)](#) of today's final rule highlights issues associated with these responsibilities.

To the extent possible, NPDES permitting authorities should provide financial assistance to MS4s, which ***68748** often have limited resources, for the development and implementation of local programs. EPA recognizes that funding for programs at the State and Tribal levels may also be limited, but strongly encourages States and Tribes to provide whatever assistance is possible. In lieu of actual dollars, NPDES permitting authorities can provide cost-cutting assistance in a number of ways. For example, NPDES permitting authorities can develop outreach materials for MS4s to distribute or the NPDES permitting authority can actually distribute the materials. Another option is to implement an erosion and sediment control program across an entire State (or Tribal land), thus alleviating the need for the MS4 to implement its own program. The NPDES permitting authority must balance the need for site-specific controls, which are best handled by a local MS4, with its ability to offer financial assistance. EPA, States, Tribes, and MS4s should work as a team in making these kinds of decisions.

NPDES permitting authorities are responsible for overseeing the local programs. Permitting authorities should work with the regulated community and other stakeholders to assist in local program development and implementation. This might include sharing information, analyzing reports, and taking enforcement actions, as necessary. NPDES permitting authorities play a vital role in supporting local programs by providing technical and programmatic assistance, conducting research projects, and monitoring watersheds. The NPDES permitting authority can also assist the MS4 permittee in obtaining adequate legal authority at the local level in order to implement the local component of the CWA section 402(p)(6) program.

NPDES permitting authorities are encouraged to coordinate and utilize the data collected under several programs. States and Tribes address point and nonpoint source storm water discharges through a variety of programs. In developing programs to carry out CWA section 402(p)(6), EPA recommends that States and Tribes coordinate all of their water pollution evaluation and control programs, including the continuing planning process under CWA section 303(e), the existing NPDES program, the CZARA program, and nonpoint source pollution control programs.

In addition, NPDES permitting authorities are encouraged to provide a brief (e.g., two-page) reporting format to facilitate compilation and analysis of data from reports submitted under §122.34(g)(3). EPA intends to develop a model form for this purpose.

H. Municipal Role

1. Scope of Today's Rule

Today's final rule attempts to establish an equitable and comprehensive four-pronged approach for the designation of municipal sources. First, the approach defines for automatic coverage the municipal systems believed to be of highest threat to water quality. Second, the approach designates municipal systems that meet a set of objective criteria used to measure the potential for water quality impacts. Third, the approach designates on a case-by-case basis municipal systems that “contribute substantially to the pollutant loadings of a physically-interconnected [regulated] MS4.” Finally, the approach designates on a case-by-case basis, upon petition, municipal systems that “contribute to a violation of a water quality standard or are a significant contributor of pollutants.”

Today's final rule automatically designates for regulation small MS4s located in urbanized areas, and requires that NPDES permitting authorities examine for potential designation, at a minimum, a particular subset of small MS4s located outside of urbanized areas. Today's rule also includes provisions that allow for waivers from the otherwise applicable requirements for the smallest MS4s that are not causing impairment of a receiving water body. Qualifications for the waivers vary depending on whether the MS4 serves a population under 1,000 or a population under 10,000. See §§122.32(d) and (e). These waivers are discussed further in section II.G.3. Any small MS4 automatically designated by the final rule or designated by the permitting authority under today's final rule is defined as a “regulated” small MS4 unless it receives a waiver.

In today's final rule, all regulated small MS4s must establish a storm water discharge control program that meets the requirements of six minimum control measures. These minimum control measures are public education and outreach on storm water impacts, public involvement participation, illicit discharge detection and elimination, construction site storm water runoff control, post-construction storm water management in new development and redevelopment, and pollution prevention/good housekeeping for municipal operations.

Today's rule allows for a great deal of flexibility in how an operator of a regulated small MS4 is authorized to discharge under an NPDES permit, by providing various options for obtaining permit coverage and satisfying the required minimum control measures. For example, the NPDES permitting authority can incorporate by reference qualifying State, Tribal, or local programs in an NPDES general permit and can recognize existing responsibilities among different governmental entities for the implementation of minimum control measures. In addition, a regulated small MS4 can participate in the storm water management program of an adjoining regulated MS4 and can arrange to have another governmental entity implement a minimum control measure on their behalf.

2. Municipal Definitions

a. Municipal Separate Storm Sewer Systems (MS4s)

The CWA does not define the term “municipal separate storm sewer.” EPA defined municipal separate storm sewer in the existing storm water permit application regulations to mean, in part, a conveyance or system of conveyances (including roads with drainage systems and municipal streets) that is “owned or operated by a State, city, town borough, county, parish, district, association, or other public body * * * designed or used for collecting or conveying storm water which is not a combined sewer and which is not part of a Publicly Owned Treatment Works as defined at 40 CFR 122.2” (see §122.26(b)(8)(i)). Section 122.26 contains definitions of medium and large municipal separate storm sewer systems but

no definition of a municipal separate storm sewer system, even though the term MS4 is commonly used. In today's rule, EPA is adding a definition of municipal separate storm sewer system and small municipal separate storm sewer system along with the abbreviations MS4 and small MS4.

The existing municipal permit application regulations define “medium” and “large” MS4s as those located in an incorporated place or county with a population of at least 100,000 (medium) or 250,000 (large) as determined by the latest Decennial Census (see §§122.26(b)(4) and 122.26(b)(7)). In today's final rule, these regulations have been revised to define all medium and large MS4s as those meeting the above population thresholds according to the 1990 Decennial Census.

Today's rule also corrects the titles and contents of Appendices F, G, H, & I to Part 122. EPA is adding those incorporated places and counties whose 1990 population caused them to be defined as a “medium” or “large” MS4. All of these MS4s have applied for *68749 permit coverage so the effect of this change to the appendices is simply to make them more accurate. They will not need to be revised again because today's rule “freezes” the definition of “medium” and “large” MS4s at those that qualify based on the 1990 census.

EPA received several comments supporting and opposing the proposal to “freeze” the definitions based on the 1990 census. Commenters who disagreed with EPA's position cited the unfairness of municipalities that reach the medium or large threshold at a later date having fewer permitting requirements compared to those that were already at the population thresholds when the existing storm water regulations took effect. EPA recognizes this disparity but does not believe it is unfair, as explained in the proposed rule. The decision was based on the fact that the deadlines from the existing regulations have lapsed, and because the permitting authority can always require more from operators of MS4s serving “newly over 100,000” populations.

b. Small Municipal Separate Storm Sewer Systems

The proposal to today's final rule added “the United States” as a potential owner or operator of a municipal separate storm sewer. This addition was intended to address an omission from existing regulations and to clarify that federal facilities are, in fact, covered by the NPDES program for municipal storm water discharges when the federal facility is like other regulated MS4s. EPA received a comment that this change would cause federal facilities located in Phase 1 areas to be considered Phase 1 dischargers due to the definition of medium and large MS4s. All MS4s located in Phase 1 cities or counties are defined as Phase 1 medium or large MS4s. EPA believes that all federal facilities serve a population of under 100,000 and should be regulated as small MS4s. Therefore, in §122.26(a)(16) of today's final rule, EPA is adding federal facilities to the NPDES storm water discharge control program by changing the proposed definition of small municipal separate storm sewer system. Paragraph (i) of this section restates the definition of municipal separate storm sewer with the addition of “the United States” as a owner or operator of a small municipal separate storm sewer. Paragraph (ii) repeats the proposed language that states that a small MS4 is a municipal separate storm sewer that is not medium or large.

Most commenters agreed that federal facilities should be covered in the same way as other similar MS4s. However, EPA received several comments asking whether individual federal buildings such as post offices or urban offices of the U.S. Park Service must apply for coverage as regulated small MS4s. Most of these buildings have, at most, a parking lot with runoff or a storm sewer that connects with a municipality's MS4. In §122.26(a)(16)(iii), EPA clarifies that the definition of small MS4 does not include individual buildings. These buildings may have a municipal separate storm sewer but they do not have a “system” of conveyances. The minimum measures for small MS4s were written to apply to storm sewer “systems” providing storm water drainage service to human populations and not to individual buildings. This is true of municipal separate storm sewers from State buildings as well as from federal buildings.

There will likely be situations where the permitting authority must decide if a federal or State complex should be regulated as a small MS4. A federal complex of two or three buildings could be treated as a single building and not be required to apply for coverage. In these situations, permitting authorities will have to use their best judgment as to the nature of

the complex and its storm water conveyance system. Permitting authorities should also consider whether the federal or State complex cooperates with its municipality's efforts to implement their storm water management program.

Along with the questions about individual buildings, EPA received many questions about how various provisions of the rule should be interpreted for federal and State facilities. EPA acknowledges that federal and State facilities are different from municipalities. EPA believes, however, that the minimum measures are flexible enough that they can be implemented by these facilities. As an example, DOD commenters asked about how to interpret the term “public” for military installations when implementing the public education measure. EPA agrees with the suggested interpretation of “public” for DOD facilities as “the resident and employee population within the fence line of the facility.”

EPA also received many comments from State departments of transportation (DOTs) that suggested the ways in which they are different from municipalities and should therefore be regulated differently. Storm water discharges from State DOTs in Phase 1 areas should already be regulated under Phase I. The preamble to Phase 1 clearly states that “all systems within a geographical area including highways and flood control districts will be covered.” Many permitting authorities regulated State DOTs as co-permittees with the Phase 1 municipality in which the highway is located. State DOTs that are already regulated under Phase I are not required to comply with Phase II. State DOTs that are not already regulated have various options for meeting the requirements of today's rule. These options are discussed in Section II.H.3.c.iv below. Several DOTs commented that some of the minimum measures are outside the scope of their mission or that they do not have the legal authority required for implementation. EPA believes that the flexibility of the minimum measures allows them to be implemented by most MS4s, including DOTs. When a DOT does not have the necessary legal authority, EPA encourages the DOT to coordinate their storm water management efforts with the surrounding municipalities and other State agencies. Under today's rule, DOTs can use any of the options of [§122.35](#) to share their storm water management responsibilities. DOTs may also want to work with their permitting authority to develop a State-wide DOT storm water permit.

There are many storm water discharges from State DOTs and other State MS4s located in Phase 1 areas that were not regulated under Phase 1. Today's rule adds many more State facilities as well as all federal facilities located in urbanized areas. All of these State and federal facilities that fit the definition of a small MS4 must be covered by a storm water management program. The individual permitting authorities must decide what type of permit is most applicable.

The existing NPDES storm water program already regulates storm water from federally or State-operated industrial sources. Federal or State facilities that are currently regulated due to their industrial discharges may already be implementing some of today's rule requirements.

EPA received comments that questioned the apparent inconsistency between regulating a federal facility such as a hospital and not regulating a similar private facility. Normally, this type of private facility is regulated by the MS4. EPA believes that federal facilities are subject to local water quality regulations, including storm water requirements, by virtue of the waiver of sovereign immunity in CWA section 313. However, there are special problems faced by MS4s in their efforts to regulate federal facilities that have not been encountered in regulating ***68750** similar private facilities. To ensure comprehensive coverage, today's rule merely clarifies the need for permit coverage for these federal facilities.

i. Combined Sewer Systems (CSS). The definition of small MS4s does not include combined sewer systems. A combined sewer system is a wastewater collection system that conveys sanitary wastewater and storm water through a single set of pipes to a publicly-owned treatment works (POTW) for treatment before discharging to a receiving waterbody. During wet weather events when the capacity of the combined sewer system is exceeded, the system is designed to discharge prior to the POTW treatment plant directly into a receiving waterbody. Such an overflow is a combined sewer overflow or CSO. Combined sewer systems are not subject to existing regulations for municipal storm water discharges, nor will they be subject to today's regulations. EPA addresses combined sewer systems and CSOs in the [National Combined Sewer Overflow \(CSO\) Control Policy issued on April 19, 1994 \(59 FR 18688\)](#). The CSO Control Policy contains provisions

for developing appropriate, site-specific NPDES permit requirements for combined sewer systems. CSO discharges are subject to limitations based on the best available technology economically achievable for toxic pollutants and based on the best conventional pollutant control technology for conventional pollutants. MS4s are subject to a different technology standard for all pollutants, specifically to reduce pollutants to the maximum extent practicable.

Some municipalities are served by both separate storm sewer systems and combined sewer systems. If such a municipality is located within an urbanized area, only the separate storm sewer systems within that municipality is included in the NPDES storm water program and subject to today's final rule. If the municipality is not located in an urbanized area, then the NPDES permitting authority has discretion as to whether the discharges from the separate storm sewer system is subject to today's final rule. The NPDES permitting authority will use the same process to designate discharges from portions of an MS4 for permit coverage where the municipality is also served by a combined sewer system.

EPA recognizes that municipalities that have both combined and separate storm sewer systems may wish to find ways to develop a unified program to meet all wet weather water pollution control requirements more efficiently. In the proposal to today's final rule, EPA sought comment on ways to achieve such a unified program. Many municipalities that are served by CSSs and MS4s commented that it is inequitable to force them to comply with Phase II at this time because implementation of the CSO Control Policy through their NPDES permits already imposes a significant financial burden. They requested an extension of the implementation time frame. They did not provide ideas on how to unify the two programs. EPA encourages permitting authorities to work with these municipalities as they develop and begin implementation of their CSO and storm water management programs. If both sets of requirements are carefully coordinated early, a cost-effective wet weather program can be developed that will address both CSO and storm water requirements.

ii. Owners/Operators. Several commenters mentioned the difference between the existing storm water application requirement for municipal operators and the proposed municipal requirement for owners or operators to apply. They felt that this inconsistency is confusing. The preamble to the existing regulations makes numerous references to owner/operator so there was no intent to make a clear distinction between Phase I and Phase II. [Section 122.21\(b\)](#) states that when the owner and operator are different, the operator must obtain the permit. MS4s often have several operators. The owner may be responsible for one part of the system and a regional authority may be responsible for other aspects. EPA proposed the “owner or operator” language to convey this dual responsibility. However, when the owner is responsible for some part of a storm water management plan, it is also an operator.

EPA has revised the regulation language to clarify that “an operator” must apply for a permit. When responsibilities for the MS4 are shared, all operators must apply.

c. Regulated Small MS4s

In today's final rule, all small MS4s located in an urbanized area are automatically designated as “regulated” small MS4s provided that they were not previously designated into the existing storm water program. Unlike medium and large MS4s under the existing storm water regulations, not all small MS4s are designated under today's final rule. Therefore, today's rule distinguishes between “small” MS4s and “regulated small” MS4s.

EPA's definition of “regulated small MS4s” in the proposal to today's rule included mention of incorporated places and counties. Along with the definition, EPA included Appendices 6 and 7 to assist in the identification of areas that would probably require coverage as “automatically designated” (Appendix 6) or “potentially designated” (Appendix 7). The definition and the appendices raised many questions about exactly who was required to comply with the proposed requirements. Commenters raised issues about the definition of “incorporated place” and the status of towns, townships, and other places that are not considered incorporated by the Census Bureau. They also asked about special districts, regional authorities, MS4s already regulated, and other questions in order to clarify the rule's coverage.

EPA has revised §122.32(a) to clarify that discharges are regulated under today's rule if they are from a small MS4 that is in an urbanized area and has not received a waiver or they are designated by the permitting authority. Today's rule does not regulate the county, city, or town. Today's rule regulates the MS4. Therefore, even though a county may be listed in Appendix 6, if that county does not own or operate the municipal storm sewer systems, the county does not have to submit an application or develop a storm water management program. If another entity does own or operate an MS4 within the county, for example, a regional utility district, that other entity needs to submit the application and develop the program.

Some commenters suggested that EPA should change the rule language to specifically allow regional authorities to be the permitted entity and to allow small MS4s to apply as co-permittees. EPA believes that the best way to clarify that regional authorities can be the primary permitted entity is the change to §122.32(a) and the explanation above. Because EPA assumes that today's regulation will be implemented through general permits, MS4s will not be co-permittees under a general permit in the same manner as under individual permits. EPA has added §122.33(a)(4) and made a minor change to §122.35(a) to clarify that small MS4s can work together to share the responsibilities of a storm water management program. This is discussed further in Section II.H.3.c.iv below.

The proposed rule stated that when a county or Federal Indian reservation is only partially included in an urbanized area, only MS4s in the urbanized portion of the county or Federal Indian reservation would be regulated. In the rare cases when an incorporated place is only partially included in the urbanized area, the entire incorporated place would be regulated. EPA received comments asking about towns and *68751 townships, because they were not considered to be incorporated areas according to the Census Bureau's definition. Would the whole town/township be covered or only the part of the town/township in the urbanized area? States use many different types of systems in their geographical divisions. Some towns are similar to incorporated cities and others are large areas that are more similar to counties. Some commenters thought that the urbanized area boundary was arbitrary, and if part of a town or county was covered, it all should be covered. Other commenters noted that some townships and counties encompass very large areas of which only a small portion is urbanized. Due to the great variety of situations, EPA has decided that for all geographical entities, only MS4s in the urbanized area are automatically designated. The population densities associated with the Census Bureau's designation of urbanized areas provide the basis for designation of these areas to protect water quality. This focused designation provides for consistency and allows for flexibility on the part of the MS4 and the permitting authority. In those situations where an incorporated place or a town is not all in an "urbanized area", there is a good possibility that it is served by more than one MS4. In those cases where the area is served by the same MS4, it makes sense to develop a storm water program for the whole area. Permitting authorities may also decide to designate all MS4s within a county or township, if they believe it is necessary to protect water quality.

Most operators of MS4s will not need to independently determine the status of coverage under today's rule. EPA has revised the proposed Appendices 6 and 7 to include towns and townships. Therefore, these appendices will alert most MS4s as to whether they are likely to be covered under today's rule. However, each permitting authority must make the decision as to who requires coverage. Most likely, an illustrative list of the regulated areas will be published with the general permit. If not, the operator can contact its permitting authority or the Bureau of the Census to find out if their separate storm sewer systems are within an urbanized area.

i. Urbanized Area Description. Under the Bureau of the Census definition of "urbanized area," adopted by EPA for the purposes of today's final rule, "an urbanized area (UA) comprises a place and the adjacent densely settled surrounding territory that together have a minimum population of 50,000 people." The proposal to today's rule provided the full definition and case studies to help explain the census category of "urbanized area." Appendix 2 is a simplified urbanized area illustration to help demonstrate the concept of urbanized areas in relation to today's final rule. The "urbanized area" is the shaded area that includes within its boundaries incorporated places, a portion of a Federal Indian reservation, portions of two counties, an entire town, and portions of another town. All small MS4s located in the shaded area are

covered by the rule, unless and until waived by the permitting authority. Any small MS4s located outside of the shaded area are subject to potential designation by the permitting authority.

There are 405 urbanized areas in the United States that cover 2 percent of total U.S. land area and contain approximately 63 percent of the nation's population (see Appendix 3 for a listing of urbanized areas of the United States and Puerto Rico). These numbers include U.S. Territories, although Puerto Rico is the only territory to have Census-designated urbanized areas. Urbanized areas constitute the largest and most dense areas of settlement. The purpose of determining an "urbanized area" is to delineate the boundaries of development and map the actual built-up urban area. The Bureau of the Census geographers liken it to flying over an urban area and drawing a line around the boundary of the built-up area as seen from the air.

Using data from the latest decennial census, the Census Bureau applies the urbanized area definition nationwide (including U.S. Tribes and Territories) and determines which places and counties are included within each urbanized area. For each urbanized area, the Bureau provides full listings of who is included, as well as detailed maps and special CD-ROM files for use with computerized mapping systems (such as GIS). Each State's data center receives a copy of the list, and some maps, automatically. The States also have the CD-ROM files and a variety of publications available to them for reference from the Bureau of the Census. In addition, local or regional planning agencies may have urbanized area files already. New listings for urbanized areas based on the 2000 Census will be available by July/August 2001, but the more comprehensive computer files will not be available until late 2001/early 2002.

Additional designations based on subsequent census years will be governed by the Bureau of the Census' definition of an urbanized area in effect for that year. Based on historical trends, EPA expects that any area determined by the Bureau of the Census to be included within an urbanized area as of the 1990 Census will not later be excluded from the urbanized area as of the 2000 Census. However, it is important to note that even if this situation were to occur, for example, due to a possible change in the Bureau of the Census' urbanized area definition, a small MS4 that is automatically designated into the NPDES program for storm water under an urbanized area calculation for any given Census year will remain regulated regardless of the results of subsequent urbanized area calculations.

ii. Rationale for Using Urbanized Areas. EPA is using urbanized areas to automatically designate regulated small MS4s on a nationwide basis for several reasons: (1) studies and data show a high correlation between degree of development/urbanization and adverse impacts on receiving waters due to storm water (U.S. EPA, 1983; Driver et al., 1985; Pitt, R.E. 1991. "Biological Effects of Urban Runoff Discharges." Presented at the Engineering Foundation Conference: Urban Runoff and Receiving Systems; An Interdisciplinary Analysis of Impact, Monitoring and Management, August 1991. Mt. Crested Butte, CO. American Society of Civil Engineers, New York. 1992.; Pitt, R.E. 1995. "Biological Effects of Urban Runoff Discharges," in Storm water Runoff and Receiving Systems: Impact, Monitoring, and Assessment. Lewis Publishers, New York.; Galli, J. 1990. Thermal Impacts Associated with Urbanization and Storm water Management Best Management Practices. Prepared for the Sediment and Storm water Administration of the Maryland Department of the Environment.; Klein, 1979), (2) the blanket coverage within the urbanized area encourages the watershed approach and addresses the problem of "donut-holes," where unregulated areas are surrounded by areas currently regulated (storm water discharges from donut hole areas present a problem due to their contributing uncontrolled adverse impacts on local waters, as well as by frustrating the attainment of water quality goals of neighboring regulated communities), (3) this approach targets present and future growth areas as a preventative measure to help ensure water quality protection, and (4) the determination of urbanized areas by the Bureau of the Census allows operators of small MS4s to quickly determine whether they are included in the NPDES storm water program as a regulated small MS4.

Urbanized areas have experienced significant growth over the past 50 years. According to EPA calculations *68752 based on Census data from 1980 to 1990, the national average rate of growth in the United States during that 10-year period was more than 4 percent. For the same period, the average growth within urbanized areas was 15.7 percent and

the average for outside of urbanized areas was just more than 1 percent. The new development occurring in these growing areas can provide some of the best opportunities for implementing cost-effective storm water management controls.

EPA received many comments on the proposal to designate discharges based on location within urbanized areas. EPA considered numerous other approaches, several of which are discussed in the proposal to today's final rule. Several commenters wanted designation to be based on proven water quality problems rather than inclusion in an urbanized area. One commenter proposed an approach based on the CWA 303(d) listing of impaired waters and the wasteload allocation conducted under the TMDL process. (See section II.L. on the section 303(d) and TMDL process). The commenter's proposal would designate small MS4s on a case-by-case basis, covering only those discharges where receiving streams are shown to have water quality problems, particularly a failure to meet water quality standards, including designated uses. The commenter further described a non-NPDES approach where a State would require cost-effective measures based on a proportionate share under a waste load allocation, equitably allocated among all pollutant contributors. These waste load allocations would be developed with input from all stakeholders, and remedial measures would be implemented in a phased manner based on the probability of results and/or economic feasibility. The States would then periodically reassess the receiving streams to determine whether the remedial measures are working, and if not, require additional control measures using the same procedure used to establish the initial measures. What the commenter describes is almost a TMDL.

EPA considered a remedial approach based on water quality impairment and rejected it for failure to prevent almost certain degradation caused by urban storm water. EPA's main concern in opting not to take a case-by-case approach to designation was that this approach would not provide controls for storm water discharges in receiving streams until after a site-specific demonstration of adverse water quality impact. The commenter's suggestion would do nothing to prevent pollution in waters that may be meeting water quality standards, including supporting designated uses. The approach would also rely on identifying storm water management programs following comprehensive watershed plans and TMDL development. In most States, water quality assessments have traditionally been conducted for principal mainstream rivers and their major tributaries, not all surface waters. The establishment of TMDLs nationwide will take many years, and many States will conduct additional monitoring to determine water quality conditions prior to establishing TMDLs. In addition, a case-by-case approach would not address the problem of "donut holes" within urbanized areas and a lack of consistency among similarly situated municipal systems would remain commonplace. After careful consideration of all comments, EPA still believes that the approach in today's rule is the most appropriate to protect water quality. Protection includes prevention as well as remediation.

d. Municipal Designation by the Permitting Authority

Today's final rule also allows NPDES permitting authorities to designate MS4s that should be included in the storm water program as regulated small MS4s but are not located within urbanized areas. The final rule requires, at a minimum, that a set of designation criteria be applied to all small MS4s within a jurisdiction that serves a population of at least 10,000 and has a population density of at least 1,000. Appendix 7 to this preamble provides an illustrative list of places that the Agency anticipates meet this criteria. In addition, any small MS4 may be the subject of a petition to the NPDES permitting authority for designation. See Section II.G, NPDES Permitting Authority's Role for more details on the designation and petition processes. EPA believes that the approach of combining nationwide and local designation to determine municipal coverage balances the potential for significant adverse impacts on water quality with local watershed protection and planning efforts.

e. Waiving the Requirements for Small MS4s

Today's final rule includes some flexibility in the nationwide coverage of all small MS4s located in urbanized areas by providing the NPDES permitting authority with the discretion to waive the otherwise applicable requirements of the smallest MS4s that are not causing the impairment of a receiving water body. Qualifications for the waiver vary depending on whether the MS4 serves a population under 1,000 or a population between 1,000 and 10,000. Note that

even if a small MS4 has requirements waived, it can subsequently be brought back into the program if circumstances change. See Section II.G, NPDES Permitting Authority's Role, for more details on this process.

3. Municipal Permit Requirements

a. Overview

i. Summary of Permitting Options. Today's rule outlines six minimum control measures that constitute the framework for a storm water discharge control program for regulated small MS4s that, when properly implemented, will reduce pollutants to the maximum extent practicable (MEP). These six minimum control measures are specified in [§122.34\(b\)](#) and are discussed below in section "II.H.3.b, Program Requirements-Minimum Control Measures." All operators of regulated small MS4s are required to obtain coverage under an NPDES permit, unless the requirement is waived by the permitting authority in accordance with today's rule. Implementation of [§122.34\(b\)](#) may be required either through an individual permit or, if the State or EPA makes one available to the facility, through a general permit. The process for issuing and obtaining these permits is discussed below in section "II.H.3.c, Application Requirements."

As an alternative to implementing a program that complies with the requirements of [§122.34](#), today's rule provides operators of regulated small MS4s with the option of applying for an individual permit under [§122.26\(d\)](#). The permit application requirements in [§122.26](#) were originally drafted to apply to medium and large MS4s. Although EPA believes that the requirements of [§ 122.34](#) provide a regulatory option that is appropriate for most small MS4s, the operators of some small MS4s may prefer more individualized requirements. This alternative permitting option for regulated small MS4s that wish to develop their own program is discussed below in section "II.H.3.c.iii. Alternative Permit Option." The second alternative permitting option for regulated small MS4s is to become co-permittees with a medium or large MS4 regulated under [§ 122.26\(d\)](#), as discussed below in section "II.H.3.c.v. Joint Permit Programs."

ii. Water Quality-Based Requirements. Any NPDES permit issued under today's rule must, at a minimum, require the operator to develop, implement, and ***68753** enforce a storm water management program designed to reduce the discharge of pollutants from a regulated system to the MEP, to protect water quality, and satisfy the appropriate water quality requirements of the Clean Water Act (see MEP discussion in the following section). Absent evidence to the contrary, EPA presumes that a small MS4 program that implements the six minimum measures in today's rule does not require more stringent limitations to meet water quality standards. Proper implementation of the measures will significantly improve water quality. As discussed further below, however, small MS4 permittees should modify their programs if and when available information indicates that water quality considerations warrant greater attention or prescriptiveness in specific components of the municipal program. If the program is inadequate to protect water quality, including water quality standards, then the permit will need to be modified to include any more stringent limitations necessary to protect water quality.

Regardless of the basis for the development of the effluent limitations (whether designed to implement the six minimum measures or more stringent or prescriptive limitations to protect water quality), EPA considers narrative effluent limitations requiring implementation of BMPs to be the most appropriate form of effluent limitations for MS4s. CWA section 402(p)(3)(b)(iii) expresses a preference for narrative rather than numeric effluent limits, for example, by reference to "management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." [33 U.S.C. 1342\(p\)\(3\)\(B\)\(iii\)](#). EPA determines that pollutants from wet weather discharges are most appropriately controlled through management measures rather than end-of-pipe numeric effluent limitations. [As explained in the Interim Permitting Policy for Water Quality-Based Effluent Limitations in Storm Water Permits, issued on August 1, 1996 \[61 FR 43761 \(November 26, 1996\)](#), EPA believes that the currently available methodology for derivation of numeric water quality-based effluent limitations is significantly complicated when applied to wet weather discharges from MS4s (compared to continuous or periodic batch discharges from most other types of discharge). Wet weather discharges from MS4s introduce a high degree of variability in the inputs to the models currently available for derivation of water quality based effluent

limitations, including assumptions about instream and discharge flow rates, as well as effluent characterization. In addition, EPA anticipates that determining compliance with any such numeric limitations may be confounded by practical limitations in sample collection.

In the first two to three rounds of permit issuance, EPA envisions that a BMP-based storm water management program that implements the six minimum measures will be the extent of the NPDES permit requirements for the large majority of regulated small MS4s. Because the six measures represent a significant level of control if properly implemented, EPA anticipates that a permit for a regulated small MS4 operator implementing BMPs to satisfy the six minimum control measures will be sufficiently stringent to protect water quality, including water quality standards, so that additional, more stringent and/or more prescriptive water quality based effluent limitations will be unnecessary.

If a small MS4 operator implements the six minimum control measures in § 122.34(b) and the discharges are determined to cause or contribute to non-attainment of an applicable water quality standard, the operator needs to expand or better tailor its BMPs within the scope of the six minimum control measures. EPA envisions that this process will occur during the first two to three permit terms. After that period, EPA will revisit today's regulations for the municipal separate storm sewer program.

If the permitting authority (rather than the regulated small MS4 operator) needs to impose additional or more specific measures to protect water quality, then that action will most likely be the result of an assessment based on a TMDL or equivalent analysis that determines sources and allocations of pollutant(s) of concern. EPA believes that the small MS4's additional requirements, if any, should be guided by its equitable share based on a variety of considerations, such as cost effectiveness, proportionate contribution of pollutants, and ability to reasonably achieve wasteload reductions. Narrative effluent limitations in the form of BMPs may still be the best means of achieving those reductions.

See [Section II.L](#), Water Quality Issues, for further discussion of this approach to permitting, consistent with EPA's interim permitting guidance. Pursuant to CWA section 510, States implementing their own NPDES programs may develop more stringent or more prescriptive requirements than those in today's rule.

EPA's interpretation of CWA section 402(p)(3)(B)(iii) was recently reviewed by the Ninth Circuit in *Defenders of Wildlife, et al v. Browner*, No. 98-71080 (September 15, 1999). The Court upheld the Agency's action in issuing five MS4 permits that included water quality-based effluent limitations. The Court did, however, disagree with EPA's interpretation of the relationship between CWA sections 301 and 402(p). The Court reasoned that MS4s are not compelled by section 301(b)(1)(C) to meet all State water quality standards, but rather that the Administrator or the State may rely on section 402(p)(3)(B)(iii) to require such controls. Accordingly, the *Defenders of Wildlife* decision is consistent with the Agency's 1996 "Interim Permitting Policy for Water Quality-Based Effluent Limitations in Storm Water Permits."

As noted, the 1996 Policy describes how permits would implement an iterative process using BMPs, assessment, and refocused BMPs, leading toward attainment of water quality standards. The ultimate goal of the iteration would be for water bodies to support their designated uses. EPA believes this iterative approach is consistent with and implements section 301(b)(1)(C), notwithstanding the Ninth Circuit's interpretation. As an alternative to basing these water quality-based requirements on section 301(b)(1)(C), however, EPA also believes the iterative approach toward attainment of water quality standards represents a reasonable interpretation of CWA section 402(p)(3)(B)(iii). For this reason, today's rule specifies that the "compliance target" for the design and implementation of municipal storm water control programs is "to reduce pollutants to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the CWA." The first component, reductions to the MEP, would be realized through implementation of the six minimum measures. The second component, to protect water quality, reflects the overall design objective for municipal programs based on CWA section 402(p)(6). The third component, to implement other applicable water quality requirements of the CWA, recognizes the Agency's specific determination under CWA section 402(p)(3)

(B)(iii) of the need to achieve reasonable further progress toward attainment of water quality standards according to the iterative BMP process, as well as the determination that State or EPA officials who establish TMDLs could allocate waste loads to *68754 MS4s, as they would to other point sources.

EPA does not presume that water quality will be protected if a small MS4 elects not to implement all of the six minimum measures and instead applies for alternative permit limits under §122.26(d). Operators of such small MS4s that apply for alternative permit limits under §122.26(d) must supply additional information through individual permit applications so that the permit writer can determine whether the proposed program reduces pollutants to the MEP and whether any other provisions are appropriate to protect water quality and satisfy the appropriate water quality requirements of the Clean Water Act.

iii. Maximum Extent Practicable. Maximum extent practicable (MEP) is the statutory standard that establishes the level of pollutant reductions that operators of regulated MS4s must achieve. The CWA requires that NPDES permits for discharges from MS4s “shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods.” CWA Section 402(p)(3)(B)(iii). This section also calls for “such other provisions as the [EPA] Administrator or the State determines appropriate for the control of such pollutants.” EPA interprets this standard to apply to all MS4s, including both existing regulated (large and medium) MS4s, as well as the small MS4s regulated under today's rule.

For regulated small MS4s under today's rule, authorization to discharge may be under either a general permit or individual permit, but EPA anticipates and expects that general permits will be the most common permit mechanism. The general permit will explain the steps necessary to obtain permit authorization. Compliance with the conditions of the general permit and the series of steps associated with identification and implementation of the minimum control measures will satisfy the MEP standard. Implementation of the MEP standard under today's rule will typically require the permittee to develop and implement appropriate BMPs to satisfy each of the required six minimum control measures.

In issuing the general permit, the NPDES permitting authority will establish requirements for each of the minimum control measures. Permits typically will require small MS4 permittees to identify in their NOI the BMPs to be performed and to develop the measurable goals by which implementation of the BMPs can be assessed. Upon receipt of the NOI from a small MS4 operator, the NPDES permitting authority will have the opportunity to review the NOI to verify that the identified BMPs and measurable goals are consistent with the requirement to reduce pollutants under the MEP standard, to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act. If necessary, the NPDES permitting authority may ask the permittee to revise their mix of BMPs, for example, to better reflect the MEP pollution reduction requirement. Where the NPDES permit is not written to implement the minimum control measures specified under §122.34(b), for example in the case of an individual permit under §122.33(b)(2)(ii), the MEP standard will be applied based on the best professional judgment of the permit writer.

Commenters argued that MEP is, as yet, an undefined term and that EPA needs to further clarify the MEP standards by providing a regulatory definition that includes recognition of cost considerations and technical feasibility. Commenters argued that, without a definition, the regulatory community is not adequately on notice regarding the standard with which they need to comply. EPA disagrees that affected MS4 permittees will lack notice of the applicable standard. The framework for the small MS4 permits described in this notice provides EPA's interpretation of the standard and how it should be applied.

EPA has intentionally not provided a precise definition of MEP to allow maximum flexibility in MS4 permitting. MS4s need the flexibility to optimize reductions in storm water pollutants on a location-by-location basis. EPA envisions that this evaluative process will consider such factors as conditions of receiving waters, specific local concerns, and other aspects included in a comprehensive watershed plan. Other factors may include MS4 size, climate, implementation

schedules, current ability to finance the program, beneficial uses of receiving water, hydrology, geology, and capacity to perform operation and maintenance.

The pollutant reductions that represent MEP may be different for each small MS4, given the unique local hydrologic and geologic concerns that may exist and the differing possible pollutant control strategies. Therefore, each permittee will determine appropriate BMPs to satisfy each of the six minimum control measures through an evaluative process. Permit writers may evaluate small MS4 operator's proposed storm water management controls to determine whether reduction of pollutants to the MEP can be achieved with the identified BMPs.

EPA envisions application of the MEP standard as an iterative process. MEP should continually adapt to current conditions and BMP effectiveness and should strive to attain water quality standards. Successive iterations of the mix of BMPs and measurable goals will be driven by the objective of assuring maintenance of water quality standards. If, after implementing the six minimum control measures there is still water quality impairment associated with discharges from the MS4, after successive permit terms the permittee will need to expand or better tailor its BMPs within the scope of the six minimum control measures for each subsequent permit. EPA envisions that this process may take two to three permit terms.

One commenter observed that MEP is not static and that if the six minimum control measures are not achieving the necessary water quality improvements, then an MS4 should be expected to revise and, if necessary, expand its program. This concept, it is argued, must be clearly part of the definition of MEP and thus incorporated into the binding and operative aspects of the rule. As is explained above, EPA believes that it is. The iterative process described above is intended to be sensitive to water quality concerns. EPA believes that today's rule contains provisions to implement an approach that is consistent with this comment.

b. Program Requirements' Minimum Control Measures

A regulated small MS4 operator must develop and implement a storm water management program designed to reduce the discharge of pollutants from their MS4 to protect water quality. The storm water management program must include the following six minimum measures.

i. **Public Education and Outreach on Storm Water Impacts.** Under today's final rule, operators of small MS4s must implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps to reduce storm water pollution. The public education program should inform individuals and households about the problem and the steps they can take to reduce or prevent storm water pollution.

EPA believes that as the public gains a greater understanding of the storm water program, the MS4 is likely to gain *68755 more support for the program (including funding initiatives). In addition, compliance with the program will probably be greater if the public understands the personal responsibilities expected of them. Well-informed citizens can act as formal or informal educators to further disseminate information and gather support for the program, thus easing the burden on the municipalities to perform all educational activities.

MS4s are encouraged to enter into partnerships with their States in fulfilling the public education requirement. It may be more cost-effective to utilize a State education program instead of numerous MS4s developing their own programs. MS4 operators are also encouraged to work with other organizations (e.g., environmental, nonprofit and industry organizations) that might be able to assist in fulfilling this requirement.

The public education program should be tailored, using a mix of locally appropriate strategies, to target specific audiences and communities (particularly minority and disadvantaged communities). Examples of strategies include distributing brochures or fact sheets, sponsoring speaking engagements before community groups, providing public service

announcements, implementing educational programs targeted at school age children, and conducting community-based projects such as storm drain stenciling, and watershed and beach cleanups. Operators of MS4s may use storm water educational information provided by the State, Tribe, EPA, or environmental, public interest, trade organizations, or other MS4s. Examples of successful public education efforts concerning polluted runoff can be found in many State nonpoint source pollution control programs under CWA section 319.

The public education program should inform individuals and households about steps they can take to reduce storm water pollution, such as ensuring proper septic system maintenance, ensuring the use and disposal of landscape and garden chemicals including fertilizers and pesticides, protecting and restoring riparian vegetation, and properly disposing of used motor oil or household hazardous wastes. Additionally, the program could inform individuals and groups on how to become involved in local stream and beach restoration activities as well as activities coordinated by youth service and conservation corps and other citizen groups. Finally, materials or outreach programs should be directed toward targeted groups of commercial, industrial, and institutional entities likely to have significant storm water impacts. For example, MS4 operators should provide information to restaurants on the impact of grease clogging storm drains and to auto garages on the impacts of used oil discharges.

EPA received comments from representatives of State DOTs and U.S. Department of Defense (DOD) installations seeking exemption from the public education requirement. While today's rule does not exempt DOTs and military bases from the user education requirement, the Agency believes the flexibility inherent in the Rule addresses many of the concerns expressed by these commenters.

Certain DOT representatives commented that if their agencies were not exempt from the user education measure's requirements, they should at least be allowed to count DOT employee education as an adequate substitute. EPA supports the use of existing materials and programs, granted such materials and programs meet the rule's requirement that the MS4 user community (i.e., the public) is also educated concerning the impacts of storm water discharges on water bodies and the steps to reduce storm water pollution.

Finally, certain DOD representatives requested that "public," as applied to their installations, be defined as the resident and employee populations within the fence line of the facility. EPA agrees that the education effort should be directed toward those individuals who frequent the federally owned land (i.e., residents and individuals who come there to work and use the MS4 facilities).

EPA also received a number of comments from municipalities stating that education would be more thorough and cost effective if accomplished by EPA on the national level. EPA believes that a collaborative State and local approach, in conjunction with significant EPA technical support, will best meet the goal of targeting, and reaching, specific local audiences. EPA technical support will include a tool box which will contain fact sheets, guidance documents, an information clearinghouse, and training and outreach efforts.

Finally, EPA received comments expressing concern that the public education program simply encourages the distribution of printed material. EPA is sensitive to this concern. Upon evaluation, the Agency made changes to the proposal's language for today's rule. The language has been changed to reflect EPA's belief that a successful program is one that includes a variety of strategies locally designed to reach specific audiences.

ii. Public Involvement/Participation. Public involvement is an integral part of the small MS4 storm water program. Accordingly, today's final rule requires that the municipal storm water management program must comply with applicable State and local public notice requirements. [Section 122.34\(b\)\(2\)](#) recommends a public participation process with efforts to reach out and engage all economic and ethnic groups. EPA believes there are two important reasons why the public should be allowed and encouraged to provide valuable input and assistance to the MS4's program.

First, early and frequent public involvement can shorten implementation schedules and broaden public support for a program. Opportunities for members of the public to participate in program development and implementation could include serving as citizen representatives on a local storm water management panel, attending public hearings, working as citizen volunteers to educate other individuals about the program, assisting in program coordination with other pre-existing programs, or participating in volunteer monitoring efforts. Moreover, members of the public may be less likely to raise legal challenges to a MS4's storm water program if they have been involved in the decision making process and program development and, therefore, internalize personal responsibility for the program themselves.

Second, public participation is likely to ensure a more successful storm water program by providing valuable expertise and a conduit to other programs and governments. This is particularly important if the MS4's storm water program is to be implemented on a watershed basis. Interested stakeholders may offer to volunteer in the implementation of all aspects of the program, thus conserving limited municipal resources.

EPA recognizes that there are a number of challenges associated with public involvement. One challenge is in engaging people in the public meeting and program design process. Another challenge is addressing conflicting viewpoints. Nevertheless, EPA strongly believes that these challenges can be addressed by use of an aggressive and inclusive program. Section II.K. provides further discussion on public involvement.

A number of municipalities sought clarification from EPA concerning what the public participation program must ***68756** actually include. In response, the actual requirements are minimal, but the Agency's recommendations are more comprehensive. The public participation program must only comply with applicable State and local public notice requirements. The remainder of the preamble, as well as the Explanatory Note accompanying the regulatory text, provide guidance to the MS4s concerning what elements a successful and inclusive program should include. EPA will provide technical support as part of the tool box (i.e., providing model public involvement programs, conducting public workshops, etc.) to assist MS4 operators meet the intent of this measure.

Finally, the Agency encourages MS4s to seek public participation prior to submitting an NOI. For example, public participation at this stage will allow the MS4 to involve the public in developing the BMPs and measurable goals for their NOI.

iii. Illicit Discharge Detection and Elimination. Discharges from small MS4s often include wastes and wastewater from non-storm water "illicit" discharges. Illicit discharge is defined at [40 CFR 122.26\(b\)\(2\)](#) as any discharge to a municipal separate storm sewer that is not composed entirely of storm water, except discharges pursuant to an NPDES permit and discharges resulting from fire fighting activities. As detailed below, other sources of non-storm water, that would otherwise be considered illicit discharges, do not need to be addressed unless the operator of the MS4 identifies one or more of them as a significant source of pollutants into the system. EPA's Nationwide Urban Runoff Program (NURP) indicated that many storm water outfalls still discharge during substantial dry periods. Pollutant levels in these dry weather flows were shown to be high enough to significantly degrade receiving water quality. Results from a 1987 study conducted in Sacramento, California, revealed that slightly less than one-half of the water discharged from a municipal separate storm sewer system was not directly attributable to precipitation runoff (U.S. Environmental Protection Agency, Office of Research and Development. 1993. Investigation of Inappropriate Pollutant Entries Into Storm Drainage Systems—A User's Guide. Washington, DC EPA 600/R-92/238.) A significant portion of these dry weather flows results from illicit and/or inappropriate discharges and connections to the municipal separate storm sewer system. Illicit discharges enter the system through either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration into the storm drain system or spills collected by drain inlets).

Under the existing NPDES program for storm water, permit applications for large and medium MS4s are to include a program description for effective prohibition against non-storm water discharges into their storm sewers (see [40 CFR](#)

122.26 (d)(1)(v)(B) and (d)(1)(iv)(B)). Further, EPA believes that in implementing municipal storm water management plans under these permits, large and medium MS4 operators generally found their illicit discharge detection and elimination programs to be cost-effective. Properly implemented programs also significantly improved water quality.

In today's rule, any NPDES permit issued to an operator of a regulated small MS4 must, at a minimum, require the operator to develop, implement and enforce an illicit discharge detection and elimination program. Inclusion of this measure for regulated small MS4s is consistent with the "effective prohibition" requirement for large and medium MS4s. Under today's rule, the NPDES permit will require the operator of a regulated small MS4 to: (1) Develop (if not already completed) a storm sewer system map showing the location of all outfalls, and names and location of all waters of the United States that receive discharges from those outfalls; (2) to the extent allowable under State, Tribal, or local law, effectively prohibit through ordinance, or other regulatory mechanism, illicit discharges into the separate storm sewer system and implement appropriate enforcement procedures and actions as needed; (3) develop and implement a plan to detect and address illicit discharges, including illegal dumping, to the system; and (4) inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.

The illicit discharge and elimination program need only address the following categories of non-storm water discharges if the operator of the small MS4 identifies them as significant contributors of pollutants to its small MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water (discharges or flows from fire fighting activities are excluded from the definition of illicit discharge and only need to be addressed where they are identified as significant sources of pollutants to waters of the United States). If the operator of the MS4 identifies one or more of these categories of sources to be a significant contributor of pollutants to the system, it could require specific controls for that category of discharge or prohibit the discharges completely.

Several comments were received on the mapping requirements of the proposal. Most comments said that more flexibility should be given to the MS4s to determine their mapping needs, and that resources could be better spent in addressing problems once the illicit discharges are detected. EPA reviewed the mapping requirements in the proposed rule and agrees that some of the information is not necessary in order to begin an illicit discharge detection and elimination program. Today's rule requires a map or set of maps that show the locations of all outfalls and names and locations of receiving waters. Knowing the locations of outfalls and receiving waters are necessary to be able to conduct dry weather field screening for non-storm water flows and to respond to illicit discharge reports from the public. EPA recommends that the operator collect any existing information on outfall locations (e.g., review city records, drainage maps, storm drain maps), and then conduct field surveys to verify the locations. It will probably be necessary to "walk" (i.e. wade small receiving waters or use a boat for larger receiving waters) the streambanks and shorelines, and it may take more than one trip to locate all outfalls. A coding system should be used to mark and identify each outfall. MS4 operators have the flexibility to determine the type (e.g. topographic, GIS, hand or computer drafted) and size of maps which best meet their needs. The map scale should be such that the outfalls can be accurately located. Once an illicit discharge is detected at an outfall, it may be necessary to map that portion of the storm sewer system leading to the outfall in order to locate the source of the discharge.

Several comments requested clarification of the requirement to develop and implement a plan to detect and eliminate illicit discharges. EPA recommends that plans include procedures for the following: locating priority areas; tracing the source of an illicit discharge; removing the source of the discharge; and program evaluation *68757 and assessment. EPA recommends that MS4 operators identify priority areas (i.e., problems areas) for more detailed screening of their system based on higher likelihood of illicit connections (e.g., areas with older sanitary sewer lines), or by conducting ambient sampling to locate impacted reaches. Once priority areas are identified, EPA recommends

visually screening outfalls during dry weather and conducting field tests, where flow is occurring, of selected chemical parameters as indicators of the discharge source. EPA's manual for investigation of inappropriate pollutant entries into the storm drainage system (EPA, 1993) suggests the following parameter list: specific conductivity, fluoride and/or hardness concentration, ammonia and/or potassium concentration, surfactant and/or fluorescence concentration, chlorine concentration, pH and other chemicals indicative of industrial sources. The manual explains why each parameter is a good indicator and how the information can be used to determine the type of source flow. The Agency is not recommending that fluoride and chlorine, generally used to locate potable water discharges, be addressed under this program, therefore a short list of parameters may include conductivity, ammonia, surfactant and pH. Some MS4s have found it useful to measure for fecal coliform or E. coli in their testing program. Observations of physical characteristics of the discharge are also helpful such as flow rate, temperature, odor, color, turbidity, floatable matter, deposits and stains, and vegetation.

The implementation plan should also include procedures for tracing the source of an illicit discharge. Once an illicit discharge is detected and field tests provide source characteristics, the next step is to determine the actual location of the source. Techniques for tracing the discharge to its place of origin may include: following the flow up the storm drainage system via observations and/or chemical testing in manholes or in open channels; televising storm sewers; using infrared and thermal photography; conducting smoke or dye tests.

The implementation plan should also include procedures for removing the source of the illicit discharge. The first step may be to notify the property owner and specify a length of time for eliminating the discharge. Additional notifications and escalating legal actions should also be described in this part of the plan.

Finally, the implementation plan should include procedures for program evaluation and assessment. Procedures could include documentation of actions taken to locate and eliminate illicit discharges such as: number of outfalls screened, complaints received and corrected, feet of storm sewers televised, numbers of discharges and quantities of flow eliminated, number of dye or smoke tests conducted. Appropriate records of such actions should be kept and should be submitted as part of the annual reports for the first permit term, as specified by the permitting authority (reports only need to be submitted in years 2 and 4 in later permits). For more on reporting requirements, see [§ 122.34\(g\)](#).

EPA received comments regarding an MS4's legal authority beyond its jurisdictional boundaries to inspect or take enforcement against illicit discharges. EPA recognizes that illicit flows may originate in one jurisdiction and cross into one or more jurisdictions before being discharged at an outfall. In such instances, EPA expects the MS4 that detects the illicit flow to trace it to the point where it leaves their jurisdiction and notify the adjoining MS4 of the flow, and any other physical or chemical information. The adjoining MS4 should then trace it to the source or to the location where it enters their jurisdiction. The process of notifying the adjoining MS4 should continue until the source is located and eliminated. In addition, because any non-storm water discharge to waters of the U.S. through an MS4 is subject to the prohibition against unpermitted discharges pursuant to CWA section 301 (a), remedies are available under the federal enforcement provisions of CWA [sections 309](#) and [505](#).

EPA requested and received comments regarding the prohibition and enforcement provision for this minimum measure. Commenters specifically questioned the proposal that the operator only has to implement the appropriate prohibition and enforcement procedures "to the extent allowable under State or Tribal law." They raised concerns that by qualifying prohibition and enforcement procedures in this manner, the operator could altogether ignore this minimum measure where affirmative legal authority did not exist. Comments suggested that EPA require States to grant authority to those municipalities where it did not exist. Other comments, however, stated that municipalities cannot exercise legal authority not granted to them under State law, which varies considerably from one State to another. EPA has no intention of directing State legislatures on how to allocate authority and responsibility under State law. As noted above, there is at least one remedy (the federal CWA) to control non-storm water discharges through MS4s. If State law prevents political

subdivisions from controlling discharges through storm sewers, EPA anticipates common sense will prevail to provide those MS4 operators with the ability to meet the requirements applicable for their discharges.

One comment reinforced the importance of public information and education to the success of this measure. EPA agrees and suggests that MS4 operators consider a variety of ways to inform and educate the public which could include storm drain stenciling; a program to promote, publicize, and facilitate public reporting of illicit connections or discharges; and distribution of visual and/or printed outreach materials. Recycling and other public outreach programs could be developed to address potential sources of illicit discharges, including used motor oil, antifreeze, pesticides, herbicides, and fertilizers.

EPA received comments that State DOT's lack authority to implement this measure. EPA believes that most DOTs can implement most parts of this measure. If a DOT does not have the necessary legal authority to implement any part of this measure, EPA encourages them to coordinate their storm water management efforts with the surrounding MS4s and other State agencies. Many DOTs that are regulated under Phase I of this program are co-permittees with the local regulated MS4. Under today's rule, DOTs can use any of the options of §122.35 to share their storm water management responsibilities.

EPA received comments requesting clarification of various terms such as “outfall” and “illicit discharge.” One comment asked EPA to reinforce the point that a “ditch” could be considered an outfall. The term “outfall” is defined at 40 CFR 122.26(b)(9) as “a point source at the point where a municipal separate storm sewer discharges to waters of the United States * * *”. The term municipal separate storm sewer is defined at 40 CFR § 122.26(b)(8) as “a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) * * *”. Following the logic of these definitions, a “ditch” may be part of the municipal separate storm sewer, and at the point where the ditch discharges to waters of the United States, it would be an outfall. As with any determination about jurisdictional provisions of the CWA, however, final decisions require case specific evaluations of fact. *68758

One commenter specifically requested clarification on the relationship between the term “illicit discharge” and non-storm water discharges from fire fighting. The comment suggested that it would be impractical to attempt to determine whether the flow from a specific fire (i.e., during a fire) is a significant source of pollution. EPA intends that MS4s will address all allowable non-storm water flows categorically rather than individually. If an MS4 is concerned that flows from fire fighting are, as a category, contributing substantial amounts of pollutants to their system, they could develop a program to address those flows prospectively. The program may include an analysis of the flow from several sources, steps to minimize the pollutant contribution, and a plan to work with the sources of the discharge to minimize any adverse impact on water quality. During the development of such a program, the MS4 may determine that only certain types of flows within a particular category are a concern, for example, fire fighting flows at industrial sites where large quantities of chemicals are present. In this example, a review of existing procedures with the fire department and/or hazardous materials team may reveal weaknesses or strengths previously unknown to the MS4 operator.

EPA received comments requesting modifications to the rule to include on-site sewage disposal systems (i.e., septic systems) in the scope of the illicit discharge program. On-site sewage disposal systems that flow into storm drainage systems are within the definition of illicit discharge as defined by the regulations. Where they are found to be the source of an illicit discharge, they need to be eliminated similar to any other illicit discharge source. Today's rule was not modified to include discharges from on-site sewage disposal systems specifically because those sources are already within the scope of the existing definition of illicit discharge.

iv. Construction Site Storm Water Runoff Control. Over a short period of time, storm water runoff from construction site activity can contribute more pollutants, including sediment, to a receiving stream than had been deposited over several decades (see section I.B.3). Storm water runoff from construction sites can include pollutants other than sediment,

such as phosphorus and nitrogen, pesticides, petroleum derivatives, construction chemicals, and solid wastes that may become mobilized when land surfaces are disturbed. Generally, properly implemented and enforced construction site ordinances effectively reduce these pollutants. In many areas, however, the effectiveness of ordinances in reducing pollutants is limited due to inadequate enforcement or incomplete compliance with such local ordinances by construction site operators (Paterson, R.G. 1994. "Construction Practices: The Good, the Bad, and the Ugly." *Watershed Protection Techniques* 1(2)).

Today's rule requires operators of regulated small MS4s to develop, implement, and enforce a pollutant control program to reduce pollutants in any storm water runoff from construction activities that result in land disturbance of 1 or more acres (see [§122.34\(b\)\(4\)](#)). Construction activity on sites disturbing less than one acre must be included in the program if the construction activity is part of a larger common plan of development or sale that would disturb one acre or more.

The construction runoff control program of the regulated small MS4 must include an ordinance or other regulatory mechanism to require erosion and sediment controls to the extent practicable and allowable under State, Tribal or local law. The program also must include sanctions to ensure compliance (for example, non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance). The program must also include, at a minimum: requirements for construction site operators to implement appropriate erosion and sediment control BMPs, such as silt fences, temporary detention ponds and diversions; procedures for site plan review by the small MS4 which incorporate consideration of potential water quality impacts; requirements to control other waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may adversely impact water quality; procedures for receipt and consideration of information submitted by the public to the MS4; and procedures for site inspection and enforcement of control measures by the small MS4.

Today's rule provides flexibility for regulated small MS4s by allowing them to exclude from their construction pollutant control program runoff from those construction sites for which the NPDES permitting authority has waived NPDES storm water small construction permit requirements. For example, if the NPDES permitting authority waives permit coverage for storm water discharges from construction sites less than 5 acres in areas where the rainfall erosivity factor is less than 5, then the regulated small MS4 does not have to include these sites in its storm water management program. Even if requirements for a discharge from a given construction site are waived by the NPDES permitting authority, however, the regulated small MS4 may still choose to control those discharges under the MS4's construction pollutant control program, particularly where such discharges may cause siltation problems in storm sewers. See [Section II.I.1.b](#) for more information on construction waivers by the permitting authority.

Some commenters suggested that the proposed construction minimum measure requirements went beyond the permit application requirements concerning construction for medium and large MS4s. In response, EPA has made changes to the proposed measure so that it more closely resembles the MS4 permit application requirements in existing regulations. For example, as described below, the Agency revised the proposed requirements for "pre-construction review of site management plans" to require "procedures for site plan review."

One commenter expressed concerns that addressing runoff from construction sites within urbanized areas (through the small MS4 program) differently from construction sites outside urbanized areas (which will not be covered by the small MS4 program) will encourage urban sprawl. Today's rule, together with the existing requirements, requires all construction greater than or equal to 1 acre, unless waived, to be covered by an NPDES permit whether it is located inside or outside of an urbanized area (see [§122.26\(b\)\(15\)](#)). Today's rule does not require small MS4s to control runoff from construction sites more stringently or prescriptively than is required for construction site runoff outside urbanized areas. Therefore, today's rule imposes no substantively different onsite controls on runoff of storm water from construction sites in urbanized areas than from construction sites outside of urbanized areas.

One commenter recommended that the small MS4 construction site storm water runoff control program address all storm water runoff from construction sites, not just the runoff into the MS4. The commenter also believed that MS4s should provide clear, objective standards for all construction sites. EPA agrees. Because today's rule only regulates discharges from the MS4, the construction pollutant control measure only requires small MS4 operators to control runoff into its system. As a practical matter, however, EPA anticipates that MS4 operators will find that regulation of all construction site runoff, whether they runoff into the MS4 or not, will prove to be the most simple and efficient program. The Agency may provide more specific criteria for construction site BMPs in the forthcoming rule being developed under CWA section 402(m). See section II.D.1 of today's rule.

One commenter stated that there is no need for penalties at the local level by the small MS4 because the CWA already imposes sufficient penalties to ensure compliance. EPA disagrees and believes that enforcement and compliance at the local level is both necessary and preferable. Examples of sanctions, some not available under the CWA, include non-monetary penalties, monetary fines, bonding requirements, and denial of future or other local permits.

One commenter recommended that EPA should not include the requirement to control pollutants other than sediment from construction sites in this measure. EPA disagrees with this comment. The requirement is to control waste that "may cause adverse impacts on water quality." Such wastes may include discarded building materials, concrete truck washout, chemicals, pesticides, herbicides, litter, and sanitary waste. These wastes, when exposed to and mobilized by storm water, can contribute to water quality impairment.

The proposed rule required "procedures for pre-construction review of site management plans." EPA requested comment on expanding this provision to require both review and approval of construction site storm water plans. Many commenters expressed the concern that review and approval of site plans is not only costly and time intensive, but may unnecessarily delay construction projects and unduly burden staff who administer the local program. In addition, some commenters expressed confusion whether EPA proposed pre-construction review for all site management plans or only higher priority sites. To address these comments, and be consistent with the permit application requirements for larger MS4s, EPA changed "procedures for pre-construction review of site management plans" to "procedures for site plan review." Today's rule requires the small MS4 to develop procedures for site plan review so as to incorporate consideration of adverse potential water quality impacts. Procedures should include review of site erosion and sediment control plans, preferably before construction activity begins on a site. The objective is for the small MS4 operator and the construction site operator to address storm water runoff from construction activity early in the project design process so that potential consequences to the aquatic environment can be assessed and adverse water quality impacts can be minimized or eliminated.

One commenter requested that EPA delete the requirement for "procedures for receipt and consideration of information submitted by the public" because it went beyond existing storm water requirements. Another commenter stated that establishing a separate process to respond to public inquiries on a project is a burden to small communities, especially if the project has gone through an environmental review. One commenter requested clarification of this provision. EPA has retained this requirement in today's final rule to require some formality in the process for addressing public inquiries regarding storm water runoff from construction activities. EPA does not intend that small MS4s develop a separate, burdensome process to respond to every public inquiry. A small MS4 could, for example, simply log public complaints on existing storm water runoff problems from construction sites and pass that information on to local inspectors. The inspectors could then investigate complaints based on the severity of the violation and/or priority area.

One commenter believed that the proposed requirement of "regular inspections during construction" would require every construction project to be inspected more than once by the small MS4 during the term of a construction project. EPA has deleted the reference to "regular inspections." Instead, the small MS4 will be required to "develop procedures for site inspection and enforcement of control measures." Procedures could include steps to identify priority sites for inspection

and enforcement based on the nature and extent of the construction activity, topography, and the characteristics of soils and receiving water quality.

In order to avoid duplication of small MS4 construction requirements with NPDES construction permit requirements, today's rule adds §122.44(s) to recognize that the NPDES permitting authority can incorporate qualifying State, Tribal, or local erosion and sediment control requirements in NPDES permits for construction site discharges. For example, a construction site operator who complies with MS4 construction pollutant control programs that are referenced in the NPDES construction permit would satisfy the requirements of the NPDES permit. See section II.I.1.d for more information on incorporating qualifying programs by reference into NPDES construction permits. This provision has no impact on, or direct relation to, the small MS4 operator's responsibilities under the construction site storm water runoff control minimum measure. Conversely, under §122.35(b), the permitting authority may recognize in the MS4's permit that another governmental entity, or the permitting authority itself, is responsible for implementing one or more of the minimum measures (including construction site storm water runoff control), and not include this measure in the small MS4's permit. In this case, the other governmental entity's program must satisfy all of the requirements of the omitted measure.

v. Post-Construction Storm Water Management in New Development and Redevelopment. The NURP study and more recent investigations indicate that prior planning and designing for the minimization of pollutants in storm water discharges is the most cost-effective approach to storm water quality management. Reducing pollutant concentrations in storm water after the discharge enters a storm sewer system is often more expensive and less efficient than preventing or reducing pollutants at the source. Increased human activity associated with development often results in increased pollutant loading from storm water discharges. If potential adverse water quality impacts are considered from the beginning stages of a project, new development and redevelopment provides more opportunities for water quality protection. For example, minimization of impervious areas, maintenance or restoration of natural infiltration, wetland protection, use of vegetated drainage ways, and use of riparian buffers have been shown to reduce pollutant loadings in storm water runoff from developed areas. EPA encourages operators of regulated small MS4s to identify specific problem areas within their jurisdictions and initiate innovative solutions and designs to focus attention on those areas through local planning.

In today's rule at §122.34(b)(5), NPDES permits issued to an operator of a regulated small MS4 will require the operator to develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that result in land disturbance of greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the MS4. Specifically, the NPDES permit will require the operator of a regulated small MS4 to: (1) Develop and implement *68760 strategies which include a combination of structural and/or non-structural best management practices (BMPs) appropriate for the community; (2) use an ordinance, or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State, Tribal or local law; (3) ensure adequate long-term operation and maintenance of BMPs; and (4) ensure that controls are in place that would minimize water quality impacts. EPA intends the term "redevelopment" to refer to alterations of a property that change the "footprint" of a site or building in such a way that results in the disturbance of equal to or greater than 1 acre of land. The term is not intended to include such activities as exterior remodeling, which would not be expected to cause adverse storm water quality impacts and offer no new opportunity for storm water controls.

EPA received comments requesting guidance and clarification of the rule requirements. The scope of the comments ranged from general requests for more details on how MS4 operators should accomplish the four requirements listed above, to specific requests for information regarding transfer of ownership for structural controls, as well as ongoing responsibility for operation and maintenance. By the term "combination" of BMPs, EPA intends a combination of structural and/or non-structural BMPs. For this requirement, the term "combination" is meant to emphasize that multiple BMPs should be considered and adopted for use in the community. A single BMP generally cannot significantly

reduce pollutant loads because pollutants come from many sources within a community. The BMPs chosen should: (1) Be appropriate for the local community; (2) minimize water quality impacts; and (3) attempt to maintain pre-development runoff conditions. In choosing appropriate BMPs, EPA encourages small MS4 operators to participate in locally-based watershed planning efforts which attempt to involve a diverse group of stakeholders. Each new development and redevelopment project should have a BMP component. If an approach is chosen that primarily focuses on regional or non-structural BMPs, however, then the BMPs may be located away from the actual development site (e.g., a regional water quality pond).

Non-structural BMPs are preventative actions that involve management and source controls such as: (1) Policies and ordinances that provide requirements and standards to direct growth to identified areas, protect sensitive areas such as wetlands and riparian areas, maintain and/or increase open space (including a dedicated funding source for open space acquisition), provide buffers along sensitive water bodies, minimize impervious surfaces, and minimize disturbance of soils and vegetation; (2) policies or ordinances that encourage infill development in higher density urban areas, and areas with existing storm sewer infrastructure; (3) education programs for developers and the public about project designs that minimize water quality impacts; and (4) other measures such as minimization of the percentage of impervious area after development, use of measures to minimize directly connected impervious areas, and source control measures often thought of as good housekeeping, preventive maintenance and spill prevention. Detailed examples of non-structural BMPs follow.

Preserving open space may help to protect water quality as well as provide other benefits such as recharging groundwater supplies, detaining storm water, supporting wildlife and providing recreational opportunities. Although securing funding for open space acquisition may be difficult, various funding mechanisms have been used. New Jersey uses a portion of their State sales tax (voter approved for a ten year period) as a stable source of funding to finance the preservation of historic sites, open space and farmland. Colorado uses part of the proceeds from the State lottery to acquire and manage open space. Some local municipalities use a percentage of the local sales tax revenue to pay for open space acquisition (e.g., Jefferson County, CO has had an open space program in place since 1977 funded by a 0.50 percent sales tax). Open space can be acquired in the form of: fee simple purchase; easements; development rights; purchase and sellback or leaseback arrangements; purchase options; private land trusts; impact fees; and land dedication requirements. Generally, fee simple purchases provide the highest level of development control and certainty of preservation, whereas the other forms of acquisition may provide less control, though they would also generally be less costly.

Cluster development, while allowing housing densities comparable to conventional zoning practice, concentrates housing units in a portion of the total site area which provides for greater open space, recreation, stream protection and storm water control. This type of development, by reducing lot sizes, can protect sensitive areas and result in less impervious surface, as well as reduce the cost for roads and other infrastructure.

Minimizing directly connected impervious areas (DCIAs) is a drainage strategy that seeks to reduce paved areas and directs storm water runoff to landscaped areas or to structural controls such as grass swales or buffer strips. This strategy can slow the rate of runoff, reduce runoff volumes, attenuate peak flows, and encourage filtering and infiltration of storm water. It can be made an integral part of drainage planning for any development (Urban Drainage and Flood Control District, Denver, CO. 1992. Urban Storm Drainage Criteria Manual, Volume 3—Best Management Practices). The Urban Drainage and Flood Control District manual describes three levels for minimizing DCIAs. At Level 1 all impervious surfaces are made to drain over grass-covered areas before reaching a storm water conveyance system. Level 2 adds to Level 1 and replaces street curb and gutter systems with low-velocity grass-lined swales and pervious street shoulders. In addition to Levels 1 and 2, Level 3 over-sizes swales and configures driveway and street crossing culverts to use grass-lined swales as elongated detention basins.

Structural BMPs include: (1) Storage practices such as wet ponds and extended-detention outlet structures; (2) filtration practices such as grassed swales, sand filters and filter strips; and (3) infiltration practices such as infiltration basins and infiltration trenches.

EPA recommends that small MS4 operators ensure the appropriate implementation of the structural BMPs by considering some or all of the following: (1) Pre-construction review of BMP designs; (2) inspections during construction to verify BMPs are built as designed; (3) post-construction inspection and maintenance of BMPs; and (4) sanctions to ensure compliance with design, construction or operation and maintenance (O&M) requirements of the program.

EPA cautions that certain infiltration systems such as dry wells, bored wells or tile drainage fields may be subject to Underground Injection Control (UIC) program requirements (see [40 CFR Part 144.12](#)). To find out more about these requirements, contact your state UIC Program, or call EPA's Safe Drinking Water Hotline at 1-800-426-4791.

In order to meet the third post-construction requirement (ensuring adequate long-term O&M of BMPs), EPA recommends that small MS4 operators evaluate various O&M management agreement options. The most common options are agreements between the MS4 operator and another party such as post-development landowners (e.g., homeowners' associations, office park owners, other government departments or entities), or regional authorities (e.g., flood control districts, councils of government). These agreements typically require the post-construction property owner to be responsible for the O&M and may include conditions which: allow the MS4 operator to be reimbursed for O&M performed by the MS4 operator that is the responsibility of the property owner but is not performed; allow the MS4 operator to enter the property for inspection purposes; and in some cases specify that the property owner submit periodic reports.

In providing the guidance above, EPA intends the requirements in today's rule to be consistent with the permit application requirements for large MS4s for post-construction controls for new development and redevelopment. MS4 operators have significant flexibility both to develop this measure as appropriate to address local concerns, and to apply new control technologies as they become available. Storm water pollution control technologies are constantly being improved. EPA recommends that MS4s be responsive to these changes, developments or improvements in control technologies. EPA will provide more detailed guidance addressing the responsibility for long-term O&M of storm water controls in guidance materials. The guidance will also provide information on appropriate planning considerations, structural controls and non-structural controls. EPA also intends to develop a broad menu of BMPs as guidance to ensure flexibility to accommodate local conditions.

EPA received comments suggesting that requirements for new development be treated separately from redevelopment in the rule. The comment stressed that new development on raw land presents fewer obstacles and more opportunities to incorporate elements for preventing water quality impacts, whereas redevelopment projects are constrained by space limitations and existing infrastructure. Another comment suggested allowing waivers from the redevelopment requirements if the redevelopment does not result in additional adverse water quality impacts, and where BMPs are not technologically or economically feasible. EPA recognizes that redevelopment projects may have more site constraints which narrow the range of appropriate BMPs. Today's rule provides small MS4 operators with the flexibility to develop requirements that may be different for redevelopment projects, and may also include allowances for alternate or off-site BMPs at certain redevelopment projects. Non-structural BMPs may be the most appropriate approach for smaller redevelopment projects.

EPA received comments requesting clarification on what is meant by “pre-development” conditions within the context of redevelopment. Pre-development refers to runoff conditions that exist onsite immediately before the planned development activities occur. Pre-development is not intended to be interpreted as that period before any human-induced land disturbance activity has occurred.

EPA received comments on the guidance language in the proposed rule and preamble which suggest that implementation of this measure should “attempt to maintain pre-development runoff conditions” and that “post-development conditions should not be different than pre-development conditions in a way that adversely affects water quality.” Many comments expressed concern that maintaining pre-development runoff conditions is impossible and cost-prohibitive, and objected to any reference to “flow” or increase in volume of runoff. Other comments support the inclusion of this language in the final rule. Similar references in today's rule relating to pre-development runoff conditions are intended as recommendations to attempt to maintain pre-development runoff conditions. With these recommendations, EPA intends to prevent water quality impacts resulting from increased discharges of pollutants, which may result from increased volume of runoff. In many cases, consideration of the increased flow rate, velocity and energy of storm water discharges following development unavoidably must be taken into consideration in order to reduce the discharge of pollutants, to meet water quality standards and to prevent degradation of receiving streams. EPA recommends that municipalities consider these factors when developing their post-construction storm water management program.

Some comments said that the quoted phrases in the paragraph above are directives that imply federal land use control, which they argue is beyond the authority of the CWA. EPA recognizes that land use planning is within the authority of local governments.

EPA disagrees, however, with the implication that today's rule dictates any such land use decisions. The requirement for small MS4 operators to develop a program to address discharges resulting from new development and redevelopment is essentially a pollution prevention measure. The Rule provides the MS4 operator with flexibility to determine the appropriate BMPs to address local water quality concerns. EPA recognizes that these program goals may not be applied to every site, and expects that MS4s will develop an appropriate combination of BMPs to be applied on a site-by-site, regional or watershed basis.

vi. Pollution Prevention/Good Housekeeping for Municipal Operations. Under today's final rule, operators of MS4s must develop and implement an operation and maintenance program (“program”) that includes a training component and has the ultimate goal of preventing or reducing storm water from municipal operations (in addition to those that constitute storm water discharges associated with industrial activity). This measure's emphasis on proper O&M of MS4s and employee training, as opposed to requiring the MS4 to undertake major new activities, is meant to ensure that municipal activities are performed in the most efficient way to minimize contamination of storm water discharges.

The program must include government employee training that addresses prevention measures pertaining to municipal operations such as: parks, golf courses and open space maintenance; fleet maintenance; new construction or land disturbance; building oversight; planning; and storm water system maintenance. The program can use existing storm water pollution prevention training materials provided by the State, Tribe, EPA, or environmental, public interest, or trade organizations.

EPA also encourages operators of MS4s to consider the following in developing a program: (1) Implement maintenance activities, maintenance schedules, and long-term inspection procedures for structural and non-structural storm water controls to reduce floatables and other pollutants discharged from the separate storm sewers; (2) implement controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, and salt/sand storage locations and snow disposal areas operated by the MS4; (3) adopt procedures for the proper disposal of waste removed from the separate storm sewer systems and areas listed above in (2), including dredge ***68762** spoil, accumulated sediments, floatables, and other debris; and (4) adopt procedures to ensure that new flood management projects are assessed for impacts on water quality and existing projects are assessed for incorporation of additional water quality protection devices or practices. Ultimately, the effective performance of the program measure depends on the proper maintenance of the BMPs, both structural and non-structural. Without proper maintenance, BMP performance declines significantly over time. Additionally, BMP neglect may produce health and safety threats, such as structural failure

leading to flooding, undesirable animal and insect breeding, and odors. Maintenance of structural BMPs could include: replacing upper levels of gravel; dredging of detention ponds; and repairing of retention basin outlet structure integrity. Maintenance of non-structural BMPs could include updating educational materials periodically.

EPA emphasizes that programs should identify and incorporate existing storm water practices and training, as well as non-storm water practices or programs that have storm water pollution prevention benefits, as a means to avoid duplication of efforts and reduce overall costs. EPA recommends that MS4s incorporate these new obligations into their existing programs to the greatest extent feasible and urges States to evaluate MS4 programs with programmatic efficiency in mind. EPA designed this minimum control measure as a modified version of the permit application requirements for medium and large MS4s described at [40 CFR 122.26\(d\)\(2\)\(iv\)](#), in order to provide more flexibility for these smaller MS4s. Today's requirements provide for a consistent approach to control pollutants from O&M among medium, large, and regulated small MS4s.

By properly implementing a program, operators of MS4s serve as a model for the rest of the regulated community. Furthermore, the establishment of a long-term program could result in cost savings by minimizing possible damage to the system from floatables and other debris and, consequently, reducing the need for repairs.

EPA received comments requesting clarification of what this measure requires. Certain municipalities expressed concern that the measure has the potential to impose significant costs associated with EPA's requirement that operators of MS4s consider implementing controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, and salt/sand storage locations and snow disposal areas operated by the municipality. EPA disagrees that a requirement to consider such controls will impose considerable costs.

One commenter objected to the preamble language from the proposal suggesting that EPA does not expect the MS4 to undertake new activity. While it remains the Agency's expectation that major new activity will not be required, the MEP process should drive MS4s to incorporate the measure's obligations into their existing programs to achieve the pollutant reductions to the maximum extent practicable.

Certain commenters requested a definition for "municipal operations." EPA has revised the language to more clearly define municipal operations. Questions may remain concerning whether discharges from specific municipal activities constitute discharges associated with industrial activities (requiring NPDES permit authorization according to the requirements for industrial storm water that apply in that State) or from municipal operations (subject only to the controls developed in the MS4 control program). Even though there may be different substantive requirements that apply depending on the source of the discharge, EPA has modified the deadlines for permit coverage so that all the regulated municipally owned and operated sources become subject to permit requirements on the same date. The deadline is the same for permit coverage for this minimum measure as for permit coverage for municipally owned/operated industrial sources.

c. Application Requirements

An NPDES permit that authorizes the discharge from a regulated small MS4 may take the form of either an individual permit issued to one or more facilities as co-permittees or a general permit that applies to a group of MS4s. For reasons of administrative efficiency and to reduce the paperwork burden on permittees, EPA expects that most discharges from regulated small MS4s will be authorized under general permits. These NPDES general permits will provide specific instructions on how to obtain coverage, including application requirements. Typically, such application requirements will be satisfied by the submission of a Notice of Intent (NOI) to be covered by the general permit. In this section, EPA explains the small MS4 operator's application requirements for obtaining coverage under a NPDES permit for storm water.

i. Best Management Practices and Measurable Goals, [Section 122.34\(d\)](#) of today's rule requires the operator of a regulated small MS4 that wishes to implement a program under [§122.34](#) to identify and submit to the NPDES permitting authority a list of the best management practices (“BMPs”) that will be implemented for each minimum control measure in their storm water management program. They also must submit measurable goals for the development and implementation of each BMP. The BMPs and the measurable goals must be included either in an NOI to be covered under a general permit or in an individual permit application.

The operator's submission must identify, as appropriate, the months and years in which the operator will undertake actions required to implement each of the minimum control measures, including interim milestones and the frequency of periodic actions. The Agency revised references to “starting and completing” actions from the proposed rule because many actions will be repetitive or ongoing. The submission also must identify the person or persons responsible for implementing or coordinating the small MS4 storm water program. See [§ 122.34\(d\)](#). The submitted BMPs and measurable goals become enforceable according to the terms of the permit. The first permit can allow the permittee up to five years to fully implement the storm water management program.

Several commenters opposed making the measurable goals enforceable permit conditions. Some suggested that a permittee should be able to change its goals so that BMPs that are not functioning as intended can be replaced. EPA agrees that a permittee should be free to switch its BMPs and corresponding goals to others that accomplish the minimum measure or measures. The permittee is required to implement BMPs that address the minimum measures in [§122.34\(b\)](#). If the permittee determines that its original combination of BMPs are not adequate to achieve the objectives of the municipal program, the MS4 should revise its program to implement BMPs that are adequate and submit to the permitting authority a revised list of BMPs and measurable goals. EPA suggests that permits describe the process for revising BMPs and measurable goals, such as whether the permittee should follow the same procedures as were required for the submission of the original NOI and whether the permitting authority's approval is necessary prior to the permittee implementing the revised ***68763** BMPs. The permittee should indicate on its periodic report whether any BMPs and measurable goals have been revised since the last periodic report.

Some commenters expressed concern that making the measurable goals enforceable would encourage the development of easily attained goals and, conversely, discourage the setting of ambitious goals. Others noted that it is often difficult to determine the pollutant reduction that can be achieved by BMPs until several years after implementation. Much of the opposition to the enforceability of measurable goals appears to have been based on a mistaken understanding that measurable goals must consist of pollutant reduction targets to be achieved by the corresponding BMPs.

Today's rule requires the operator to submit either measurable goals that serve as BMP design objectives or goals that quantify the progress of implementation of the actions or performance of the permittee's BMPs. At a minimum, the required measurable goals should describe specific actions taken by the permittee to implement each BMP and the frequency and the dates for such actions. Although the operator may choose to do so, it is not required to submit goals that measure whether a BMP or combination of BMPs is effective in achieving a specific result in terms of storm water discharge quality. For example, a measurable goal might involve a commitment to inspect a given number of drainage areas of the collection system for illicit connections by a certain date. The measurable goal need not commit to achieving a specific amount of pollutant reduction through the elimination of illicit connections. Other measurable goals could include the date by which public education materials would be developed, a certain percentage of the community participating in a clean-up campaign, the development of a mechanism to address construction site runoff, and a reduction in the percentage of imperviousness associated with new development projects.

To reduce the risk that permittees will develop inadequate BMPs, EPA intends to develop a menu of BMPs to assist the operators of regulated small MS4s with the development of municipal programs. States may also develop a menu of BMPs. Today's rule provides that the measurable goals that demonstrate compliance with the minimum control measures in [§§122.34 \(b\)\(3\) through \(b\)\(6\)](#) do not have to be met if the State or EPA has not issued a menu of BMPs at

the time the MS4 submits its NOI. Commenters pointed out that the proposed rule would have made the measurable goals unenforceable if the menu of BMPs was not available, but the proposal was silent as to the enforceability of the implementation of BMPs. Today's rule clarifies that the operators are not free to do nothing prior to the issuance of a menu of BMPs; they still must make a good faith effort to implement the BMPs designed to comply with each measure. See §122.34(d)(2). The operators would not, however, be liable for failure to meet its measurable goals if a menu of BMPs was not available at the time they submit their NOI.

The proposed rule provision in §123.35 stated that the “[f]ailure to issue the menu of BMPs would not affect the legal status of the general permit.” This concept is included in the final rule in §122.34(d)(2)'s clarification that the permittee still must comply with other requirements of the general permit.

Unlike the proposed rule, today's rule does not require that each BMP in the menu developed by the State or EPA be regionally appropriate, cost-effective and field-tested. Various commenters criticized those criteria as unworkable, and one described them as “ripe for ambiguity and abuse.” Other commenters feared that the operators of regulated small MS4s would never be required to achieve their goals until menus were developed that were cost-effective, field-tested and appropriate for every conceivable subregion.

While some municipal commenters supported the requirement that a menu of BMPs be made available that included BMPs that had been determined to be regionally appropriate, field-tested and cost-effective, others raised concerns that they would be restricted to a limited menu. Some commenters supported such a detailed menu because they thought they would only be able to select BMPs that were on the menu, while others thought that it was the permitting authority's responsibility to develop BMPs narrowly tailored to their situation. In response, EPA notes that the operators will not be restricted to implementing only, or all of, the BMPs included on the menu. Since the menu does not require permittees to implement the BMPs included on the menu, it is also not necessary to apply the public notice and other procedures that some commenters thought should be applied to the development of the menu of BMPs.

The purpose of the BMP menu is to provide guidance to assist the operators of regulated small MS4s with the development and refinement of their local program, not to limit their options. Permittees may implement BMPs other than those on the menu unless a State restricts its permittees to specific BMPs. To the extent possible, EPA will develop a menu of BMPs that describes the appropriateness of BMPs to specific regions, whether the BMPs have been field-tested, and their approximate costs. The menu, however, is not intended to relieve permittees of the need to implement BMPs that are appropriate for their specific circumstances.

If there are no known relevant BMPs for a specific circumstance, a permittee has the option of developing and implementing pilot BMPs that may be better suited to their circumstances. Where BMPs are experimental, the permittee should consider committing to measurable goals that address its schedule for implementing its selected BMPs rather than goals of achieving specific pollutant reductions. If the BMPs implemented by the permittee do not achieve the desired objective, the permittee may be required to commit to different or revised BMPs.

As stated in §123.35(g), EPA is committed to issuing a menu of BMPs prior to the deadline for the issuance of permits. This menu would serve as guidance for all operators of regulated small MS4s nationwide. After developing the initial menu of BMPs, EPA intends to periodically modify, update, and supplement the menu of BMPs based on the assessments of the MS4 storm water program and research. States may rely on EPA's menu of BMPs or issue their own. If States develop their own menus, they would constitute additional guidance (or perhaps requirements in some States) for the operators to follow. Several commenters were confused by the proposed rule language that stated that States must provide or issue a menu of BMPs and, if they fail to do so, EPA “may” do so. Some read this language as not requiring either EPA or the State to develop the menu. EPA had intended that it would develop a menu and that States could either provide the EPA developed menu or one developed by the State.

EPA has dropped the proposed language that States “must” develop the menu of BMPs. Some commenters thought that it was inappropriate to require States to issue guidance. A menu of BMPs issued by either EPA or a permittee's State will satisfy the condition in §122.34(d) that a regulatory authority provide a menu of BMPs. A State could require its permittees to follow its menu of BMPs provided that they are adequate to implement §122.34(b).

Several commenters raised concerns that operators of small MS4s could be *68764 required to submit their BMPs and measurable goals before EPA or the State has issued a menu of BMPs. EPA has assumed primary responsibility for developing a menu of BMPs to minimize the possibility of this occurring. Should a general permit be issued before a menu of BMPs is available, the permit writer would have the option of delaying the date by which the identification of the BMPs and measurable goals must be submitted to the permitting authority until some time after a menu of BMPs is available.

Several municipal commenters raised concerns that they would begin to develop a program only to be later told by the permitting authority or challenged in a citizen suit that their BMPs were inadequate. They expressed a need for certainty regarding what their permit required. Several commenters suggested that EPA require permitting authorities to approve or disapprove the submitted BMPs and measurable goals. EPA disagrees that formal approval or disapproval by the permitting authority is needed.

EPA acknowledges that the lack of a formal approval process does place on the permittee some responsibility for designing and determining the adequacy of its BMPs. Once the permittee has submitted its BMPs to the permitting authority as part of its NOI, it must implement them in order to achieve the corresponding measurable goals. EPA does not believe that this results in the uncertainty to the extent expressed by some commenters or unduly expose the permittee to the risk of citizen suit. If the permit is very specific regarding what the permittee must do, then the uncertainty is eliminated. If the permit is less prescriptive, the permittee has greater latitude in determining for itself what constitutes an adequate program. A citizen suit could impose liability on the permittee only if the program that it develops and implements clearly does not satisfy the requirements of the general permit. EPA believes today's approach strikes a balance between the competing goals of providing certainty as to what constitutes an adequate program and providing flexibility to the permittees.

Commenters were divided on whether five years was a reasonable and expeditious schedule for a MS4 to implement its program. Some thought that it was an appropriate amount of time to allow for the development and implementation of adequate programs. One questioned whether the permittee had to be implementing all of its program within that time, and suggested that there may be cases where a permitting authority would need flexibility to allow more time. One commenter suggested that five years is too long and would amount to a relaxation of implementation in their area. EPA believes it will take considerable time to complete the tasks of initially developing a program, commencing to implement it, and achieving results. EPA notes, however, that full implementation of an appropriate program must occur as expeditiously as possible, and not later than five years.

EPA solicited comment on how an NOI form might best be formatted to allow for measurable goal information (e.g., through the use of check boxes or narrative descriptions) while taking into account the Agency's intention to facilitate computer tracking. All commenters supported the development of a checklist NOI, but most noted that there would need to be room for additional information to cover unusual situations. One noted that, while a summary of measurable goals might be reduced to one sheet, attachments that more fully described the program and the planned BMPs would be necessary. EPA agrees that in most cases a “checklist” will not be able to capture the information on what BMPs a permittee intends to implement and its measurable goals for their implementation. EPA will continue to consider whether to develop a model NOI form and make it available for permitting authorities that choose to use it. What will be required on an MS4's NOI, however, is more extensive than what is usually required on an NOI, so a “form” NOI for MS4s may be impractical.

ii. Individual Permit Application for a §122.34(b) program. In some cases, an operator of a regulated small MS4s may seek coverage under an individual NPDES permit, either because it chooses to do so or because the NPDES permitting authority has not made the general permit option available to that source. For small MS4s that are to implement a §122.34(b) program in today's rule, EPA is promulgating simplified individual permit application requirements at §122.33(b)(2)(i). Under the simplified individual permit application requirements, the operator submits an application to the NPDES permitting authority that includes the information required under §122.21(f) and an estimate of square mileage served by the small MS4. They are also required to supply the BMP and measurable goal information required under §122.34(d). Consistent with CWA section 308 and analogous State law, the permitting authority could request any additional information to gain a better understanding of the system and the areas draining into the system.

Commenters suggested that the requirements of §122.21(f) are not necessarily applicable to a small MS4. One suggested that it was not appropriate to require the following information: a description of the activities conducted by the applicant which require it to obtain an NPDES permit; the name, mailing address, and location of the facility; and up to four Standard Industrial Classification (“SIC”) codes which best reflect the principal products or services provided by the facility. In response, EPA notes that the requirements in §122.21(f) are generic application requirements applicable to NPDES applicants. With the exception of the SIC code requirement, EPA believes that they are applicable to MS4s. In the SIC code portion of the standard application, the applicant may simply put “not applicable.”

One commenter asked that EPA clarify whether §122.21(f)(5)'s requirement to indicate “whether the facility is located on Indian lands,” referred to tribal lands, Indian country, or Indian reservations. For some local governments this is a complex issue with no easy “yes” or “no” answer. See the discussion in the Section II.F in the proposal to today's rule regarding what tribal lands are subject to the federal trust responsibility for purposes of the NPDES program.

One commenter suggested that the application should not have to list the permits and approvals required under §122.21(f)(6). EPA notes that the applicant must only list the environmental permits that the applicant has received that cover the small MS4. The applicant is not required to list permits for other operations conducted by the small MS4 operator (e.g., for an operation of an airport or landfill). Again, in most cases the applicant could respond “not applicable” to this portion of the application.

One commenter suggested that the topographic map requirement of §122.21(f)(7) was completely different from, and significantly more onerous than, the mapping requirement outlined in the proposed rule at §122.34(b)(3)(i). EPA agrees and has modified the final rule to clarify that a map that satisfies the requirements of §122.34(b)(3)(i) also satisfies the map requirements for MS4 applicants seeking individual permits under §122.33(b)(2)(i).

EPA is adding a new paragraph to §122.44(k) to clarify that requirements to implement BMPs developed pursuant to CWA 402(p) are appropriate permit *68765 conditions. While such conditions could be included under the existing provision in §122.44(k)(3) for “practices reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA,” EPA believes it is clearer to specifically list in §122.44(k) BMPs that implement storm water programs in light of the frequency with which they are used as effluent limitations.

iii. Alternative Permit Options/Tenth Amendment. As an alternative to implementing a program that addresses each of the six minimum measures according to the requirements of §122.34(b), today's rule provides the operators of regulated small MS4s with the option of applying for an individual permit under existing §122.26(d). See §122.33(b)(2)(ii). If a system operator does not want to be held accountable for implementation of each of the minimum measures, an individual permit option under §122.33(b)(2)(ii) remains available. (As explained in the next section of this preamble, §122.35(b) also provides an opportunity for relief from permit obligations for some of the minimum measures, but that relief exists within the framework of the minimum measures.)

EPA originally drafted the individual permit application requirements in § 122.26(d) to apply to medium and large MS4s. Today's rule abbreviates the individual permit application requirements for small MS4s. Although EPA believes that the storm water management program requirements of §122.34, including the minimum measures, provide the most appropriate means to control pollutants from most small MS4s, the Agency does recognize that the operators of some small MS4s may prefer more individualized permit requirements. Among other possible reasons, an operator may seek to avoid having to “regulate” third parties discharging into the separate storm sewer system. Alternatively, an operator may determine that structural controls, such as constructed wetlands, are more appropriate or effective to address the discharges that would otherwise be addressed under the construction and/or development/redevelopment measures.

Some MS4s commenters alleged that an absolute requirement to implement the minimum measures violates the Tenth Amendment to the U.S. Constitution. While EPA disagrees that requiring MS4s to implement the minimum measures would violate the Constitution, today's rule does provide small MS4s with the option of developing more individualized measures to reduce the pollutants and pollution associated with urban storm water that will be regulated under today's rule.

Some commenters specifically objected that §122.34's minimum measures for small MS4s violate the Tenth Amendment insofar as they require the operators of MS4s to regulate third parties. The minimum measures include requirements for small MS4 operators to prohibit certain non-storm water discharges, control storm water discharges from construction greater than one acre, and take other actions to control third party sources of storm water discharges into their MS4s. Commenters also argued that it was inappropriate for EPA to require local governments to enact ordinances that will consume local revenues and put local governments in the position of bearing the political responsibility for implementing the program. One commenter argued that EPA was prohibited from conditioning the issuance of an NPDES permit upon the small MS4 operators waiving their constitutional right to be free from such requirements to regulate third parties. The Agency replies to each comment in turn.

Because the rule does rely on local governments—who operate municipal separate storm sewer systems—to regulate discharges from third parties into storm sewers, EPA acknowledges that the rule implicates the Tenth Amendment and constitutional principles of federalism. EPA disagrees, however, that today's rule is inconsistent with federalism principles. [As political subdivisions of States, municipalities enjoy the same protections as States under the Tenth Amendment.]

The Supreme Court has interpreted the Tenth Amendment to preclude federal actions that compel States or their political subdivisions to enact or administer a federal regulatory program. See [New York v. United States, 505 U.S. 144 \(1992\)](#); [Printz v. United States, 117 S.Ct. 2365 \(1997\)](#). The Printz case, however, did acknowledge that the restriction does not apply when federal requirements of general applicability—requirements that regulate all parties engaging in a particular activity—do not excessively interfere with the functioning of State governments when those requirements are applied to States (or their political subdivisions). See [Printz, 117 S.Ct. at 2383](#).

Today's rule imposes a federal requirement of general applicability, namely, the requirement to obtain and comply with an NPDES permit, on municipalities that operate a municipal separate storm sewer system. By virtue of this rule, the permit will require the municipality/storm sewer operator to develop a storm water control program. The rule specifies the components of the control program, which are primarily “management'-type controls, for example, municipal regulation of third party storm water discharges associated with construction, as well as development and redevelopment, when those discharges would enter the municipal system.

Unlike the circumstances reviewed in the New York and Printz cases, today's rule merely applies a generally applicable requirement (the CWA permit requirement) to municipal point sources. The CWA establishes a generally applicable requirement to obtain an NPDES permit to authorize point source discharge to waters of the United States. Because municipalities own and operate separate storm sewers, including storm sewers into which third parties may discharge

pollutants, NPDES permits may require municipalities to control the discharge of pollutants into the storm sewers in the first instance. Because NPDES permits can impose end-of-pipe numeric effluent limits, narrative effluent limits in the form of “management” program requirements are also within the scope of Clean Water Act authority. As noted above, however, EPA believes that such narrative limitations are the most appropriate form of effluent limitation for these types of permits. For municipal separate storm sewer permits, CWA section 402(p)(3)(B)(iii) specifically authorizes “controls to reduce pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.”

The Agency did not design the minimum measures in §122.34 to “commandeer” state regulatory mechanisms, but rather to reduce pollutant discharges from small MS4s. The permit requirement in CWA section 402 is a requirement of general applicability. The operator of a small MS4 that does not prohibit and/or control discharges into its system essentially accepts “title” for those discharges. At a minimum, by providing free and open access to the MS4s that convey discharges to the waters of the United States, the municipal storm sewer system enables water quality impairment by third parties. Section 122.34 requires the operator of a regulated small MS4 to control a third party only to the extent that the MS4 collection system receives pollutants from that third party and discharges it to the waters of the United States. The operators of regulated small MS4s cannot passively receive and discharge pollutants from third parties. The Agency concedes that administration of a municipal program will consume limited local revenues for implementation; but those consequences stem from the municipal operator's identity as a permitted sewer system operator. The Tenth Amendment does not create a blanket municipal immunity from generally applicable requirements. Development of a program based on the minimum measures and implementation of that program should not “excessively interfere” with the functioning of municipal government, especially given the “practicability” threshold under CWA section 402(p)(3)(B)(iii).

As noted above, today's rule also allows regulated small MS4s to opt out of the minimum measures approach. The individual permit option provides for greater flexibility in program implementation and also responds to the comment about requiring a municipal permit applicant's waiver of any arguable constitutional rights. The individual permit option responds to questions about the rule's alleged unconstitutionality by more specifically focusing on the pollutants discharged from municipal point sources. Today's rule gives operators of MS4s the option to seek an individual permit that varies from the minimum measures/management approach that is otherwise specified in today's rule. Even if the minimum measures approach was constitutionally suspect, a requirement that standing alone would violate constitutional principles of federalism does not raise concerns if the entity subject to the requirement may opt for an alternative action that does not raise a federalism issue.

For municipal system operators who seek to avoid third party regulation according to all or some of the minimum measures, §122.26(d) requires the operator to submit a narrative description of its storm water sewer system and any existing storm water control program, as well as the monitoring data to enable the permit writer to develop appropriate permit conditions. The permit writer can then develop permit conditions and limitations that vary from the six minimum measures prescribed in today's rule. The information will enable the permit writer to develop an NPDES permit that will result in pollutant reduction to the maximum extent practicable. See *NRDC v. EPA*, 966 F.2d at 1308, n17. If determined appropriate under CWA section 402(p)(3)(B)(iii), for example BMPs to meet water quality standards, the permit could also incorporate any more stringent or prescriptive effluent limits based on the individual permit application information.

For small MS4 operators seeking an individual permit, both Part 1 and Part 2 of the application requirements in §122.26(d)(1) and (2) are required to be submitted within 3 years and 90 days of the date of publication of this Federal Register notice. Some of the information required in Part 1 will necessarily have to be developed by the permit applicant prior to the development of Part 2 of the application. The permit applicant should coordinate with its permitting authority regarding the timing of review of the information.

The operators of regulated small MS4s that apply under §122.26(d) may apply to implement certain of the §122.34(b) minimum control measures, and thereby focus the necessary evaluation for additional limitations on alternative controls to the §122.34(b) measures that the small MS4 will not implement. The permit writer may determine “equivalency” for some or all of the minimum measures by developing a rough estimate of the pollutant reduction that would be achieved if the MS4 implemented the §122.34 minimum measure and to incorporate that pollutant reduction estimate in the small MS4's individual permit as an effluent limitation. The Agency recognizes that, based on current information, any such estimates will probably have a wide range. Anticipation of this wide range is one of the reasons EPA believes MS4 operators need flexibility in determining the mix of BMPs (under the minimum measures) to achieve water quality objectives. Therefore, for example, if a system operator seeks to employ an alternative that involves structural controls, wide ranges will probably be associated with gross pollutant reduction estimates. Permit writers will undoubtedly develop other ways to ensure that permit limits ensure reduction of pollutants to the maximum extent practicable.

Small MS4 operators that pursue this individual permit option do not need to submit details about their future program requirements (e.g., the MS4's future plans to obtain legal authority required by §§122.26(d)(1)(ii) and (d)(2)). A small MS4 operator might elect to supply such information if it intends for the permit writer to take those plans into account when developing the small MS4's permit conditions.

Several operators of small MS4s commented that they currently lacked the authority they would need to implement one or more of the minimum measures in §122.34(b). Today's rule recognizes that the operators of some small MS4s might not have the authority under State law to implement one or more of the measures using, for example, an ordinance or other regulatory mechanism. To address these situations, each minimum measure in §122.34(b) that would require the small MS4 operator to develop an ordinance or other regulatory mechanism states that the operator is only required to implement that requirement to “the extent allowable under State, Tribal or local law.” See § 122.34(b)(3)(ii) (illicit discharge elimination), § 122.34(b)(4)(ii) (construction runoff control) and §122.34(b)(5)(ii) (post-construction storm water management). This regulatory language does not mean that a operator of a small MS4 with ordinance making authority can simply fail to pass an ordinance necessary for a §122.34(b) program. The reference to “the extent allowable under * * * local law” refers to the local laws of other political subdivisions to which the MS4 operator is subject. Rather, a small MS4 operator that seeks to implement a program under section §122.34(b) may omit a requirement to develop an ordinance or other regulatory mechanism only to the extent its municipal charter, State constitution or other legal authority prevents the operator from exercising the necessary authority. Where the operator cannot obtain the authority to implement any activity that is only required to “the extent allowable under State, Tribal or local law,” the operator may satisfy today's rule by administering the remaining §122.34(b) requirements.

Finally, although today's rule provides operators of small MS4s with an option of applying for a permit under §122.26(d), States authorized to administer the NPDES program are not required to provide this option. NPDES-authorized States could require all regulated small MS4s to be permitted under the minimum measures management approach in §122.34 as a matter of State law. Such an approach would be deemed to be equally or more stringent than what is required by today's rule. See 40 CFR 123.2(i). The federalism concerns discussed above do not apply to requirements imposed by a State on its political subdivisions.

iv. Satisfaction of Minimum Measure Obligations by Another Entity. An operator of a regulated small MS4 may *68767 satisfy the requirement to implement one or more of the six minimum measures in §122.34(b) by having a third party implement the measure or measures. Today's rule provides a variety of means for small MS4 operators to share responsibility for different aspects of their storm water management program. The means by which the operators of various MS4s share responsibility may affect who is ultimately responsible for performance of the minimum measure and who files the periodic reports on the implementation of the minimum measure. Section 122.35 addresses these issues. The rule describes two different variants on third party implementation with different consequences if the third party fails to implement the measure.

If the permit covering the discharge from a regulated small MS4 identifies the operator as the entity responsible for a particular minimum control measure, then the operator-permittee remains responsible for the implementation of that measure even if another entity has agreed to implement the control measure. [Section 122.35\(a\)](#). Another party may satisfy the operator-permittee's responsibility by implementing the minimum control measure in a manner at least as stringent or prescriptive as the corresponding NPDES permit requirement. If the third party fails to do so, the operator-permittee remains responsible for its performance. The operator of the MS4 should consider entering into an agreement with the third party that acknowledges the responsibility to implement the minimum measure. The operator-permittee's NOI and its annual [§122.34\(f\)\(3\)](#) reports submitted to the NPDES permitting authority must identify the third party that is satisfying one or more of the permit obligations. This requirement ensures that the permitting authority is aware which entity is supposed to implement which minimum measures.

If, on the other hand, the regulated small MS4's permit recognizes that an NPDES permittee other than the operator-permittee is responsible for a particular minimum control measure, then the operator-permittee is relieved from the responsibility for implementing that measure. The operator-permittee is also relieved from the responsibility for implementing any measure that the operator's permit indicates will be performed by the NPDES permitting authority. [Section 122.35\(b\)](#). The MS4 operator-permittee would be responsible for implementing the remaining minimum measures.

Today's final rule differs from the proposed version of [§122.35\(b\)](#), which stated that, even if the third party's responsibility is recognized in the permit, the MS4 operator-permittee remained responsible for performance if the third party failed to perform the measure consistent with [§122.34\(b\)](#). Under today's rule, the operator-permittee is relieved from responsibility for performance of a measure if the third party is an NPDES permittee whose permit makes it responsible for performance of the measure (including, for example, a State agency other than the State agency that issues NPDES permits) or if the third party is the NPDES permitting authority itself. Because the permitting authority is acknowledging the third party's responsibility in the permit, commenters thought that the MS4 operator-permittee should not be responsible for ensuring that the other entity is implementing the control measure properly. EPA agrees that the operator-permittee should not be conditionally responsible when the requirements are enforceable against some other NPDES permittee. If the third party fails to perform the minimum measure, the requirements will be enforceable against the third party. In addition, the NPDES permitting authority could reopen the operator-permittee's permit under [§ 122.62](#) and modify the permit to make the operator responsible for implementing the measure. A new paragraph has been added to [§122.62](#) to clarify that the permit may be reopened in such circumstances.

Today's rule also provides that the operator-permittee is not conditionally responsible where it is the State NPDES permitting authority itself that fails to implement the measure. The permitting authority does not need to issue a permit to itself (i.e., to the same State agency that issues the permit) for the sole purpose of relieving the small MS4 from responsibility in the event the State agency does not satisfy its obligation to implement a measure. EPA does not believe that the small MS4 should be responsible in the situation where the NPDES permit issued to the small MS4 operator recognizes that the State agency that issues the permit is responsible for implementing a measure. If the State does fail to implement the measure, the State agency could be held accountable for its commitment in the permit to implement the measure. Where the State does not fulfill its responsibility to implement a measure, a citizen also could petition for withdrawal of the State's NPDES program or it could petition to have the MS4's permit reopened to require the MS4 operator to implement the measure.

EPA notes that not every State program that addresses erosion and sediment control from construction sites will be adequate to satisfy the requirement that each regulated small MS4 have a program to the extent required by [§ 122.34\(b\)\(4\)](#). For example, although all NPDES States are required to issue NPDES permits for construction activity that disturbs greater than one acre, the State's NPDES permit program will not necessarily be extensive enough to satisfy a regulated small MS4's obligation under [§122.34\(b\)\(4\)](#). NPDES States will not necessarily be implementing all of the required elements of that minimum measure, such as procedures for site plan review in each jurisdiction required to develop a

program and procedures for receipt and consideration of information submitted by the public on individual construction sites. In order for a State erosion and sediment control program to satisfy a small MS4 operator's obligation to implement §122.34(b)(4), the State program would have to include all of the elements of that minimum measure.

Where the operator-permittee is itself performing one or more of the minimum measures, the operator-permittee remains responsible for all of the reporting requirements under §122.34(f)(3). The operator-permittee's reports should identify each entity that is performing the control measures within the geographic jurisdiction of the regulated small MS4. If the other entity also operates a regulated MS4 and files reports on the progress of implementation of the measures within the geographic jurisdiction of the MS4, then the operator-permittee need not include that same information in its own reports.

If the other entity operates a regulated MS4 and is performing all of the minimum measures for the permittee, the permittee is not required to file the reports required by §122.34(f)(3). This relief from reporting is specified in §122.35(a).

Section 122.35 addresses the concerns of some commenters who sought relief for governmental facilities that are classified as small MS4s under today's rule. These facilities frequently discharge storm water through another regulated MS4 and could be regulated by that MS4's program. For example, a State owned office complex that operates its storm sewer system in an urbanized area will be regulated as an MS4 under today's rule even though its system may be subject to the storm water controls of the municipality in *68768 which it is located. Today's rule specifically revised the definition of MS4 to recognize that different levels of government often operate MS4s and that each such separate entity (including the federal government) should be responsible for its discharges. If both MS4s agree, the downstream MS4 can develop a storm water management program that regulates the discharge from both MS4s. The upstream small MS4 operator still must submit an NOI that identifies the entity on which the upstream small MS4 operator is relying to satisfy its permit obligations. No reports are required from the upstream small MS4 operator, but the upstream operator must remain in compliance with the downstream MS4 operator's storm water management program. This option allows small MS4s to work together to develop one storm water management program that satisfies the permit obligations of both. If they cannot agree, the upstream small MS4 operator must develop its own program.

As mentioned previously, comments from federal facilities and State organizations that operate MS4s requested that their permit requirements differ from those of MS4s that are political subdivisions of States (cities, towns, counties, etc.). EPA acknowledges that there are differences; e.g., many federal and State facilities do not serve a resident population and thus might require a different approach to public education. EPA believes, however, that MS4s owned by State and federal governments can develop storm water management plans that address the minimum measures. Federal and State owned small MS4s may choose to work with adjacent municipally owned MS4s to develop a unified plan that addresses all of the required measures within the jurisdiction of all of the contiguous MS4s. The options in §122.35 minimize the burden on small MS4s that are covered by another MS4's program.

One commenter recommended that if one MS4 discharges into a second MS4, the operator of the upstream MS4 should have to provide a copy of its NOI or permit application to the operator of the receiving MS4. EPA did not adopt this recommendation because the NOI and permit application will be publicly available; but EPA does recommend that NPDES permitting authorities consider it as a possible permit requirement. The commenter also suggested that monitoring data should be collected by the upstream MS4 and provided to the downstream MS4. EPA is not adopting such a uniform monitoring requirement because EPA believes it is more appropriate to let the MS4 operators work out the need for such data. If necessary, the downstream MS4s might want to make such data a condition to allowing the upstream MS4 to connect to its system.

v. Joint Permit Programs. Many commenters supported allowing the operators of small MS4s to apply as co-permittees so they each would not have to develop their own storm water management program. Today's rule specifically allows

regulated small MS4s to join with either other small MS4s regulated under §122.34(d) or with medium and large MS4s regulated under §122.26(d).

As is discussed in the previous section, regulated small MS4s may indicate in their NOIs that another entity is performing one or more of its required minimum control measures. Today's rule under §122.33(b)(1) also specifically allows the operators of regulated small MS4s to jointly submit an NOI. The joint NOI must clearly indicate which entity is required to implement which control measure in each geographic jurisdiction within the service area of the entire small MS4. The operator of each regulated small MS4 remains responsible for the implementation of each minimum measure for its MS4 (unless, as is discussed in the previous section above, the permit recognizes that another entity is responsible for completing the measure.) The joint NOI, therefore, is legally equivalent to each entity submitting its own NOI. EPA is, however, revising the rule language to specifically authorize the joint submission of NOIs in response to comments that suggested that such explicit authorization might encourage programs to be coordinated on a watershed basis.

Section 122.33(b)(2)(iii) authorizes regulated small MS4s to jointly apply for an individual permit to implement today's rule, where allowed by an NPDES permitting authority. The permit application should contain sufficient information to allow the permitting authority to allocate responsibility among the parties under one of the two permitting options in §§122.33(b)(2)(i) and (ii).

Section 122.33(b)(3) of today's rule also allows an operator of a regulated small MS4 to join as a co-permittee in an existing NPDES permit issued to an adjoining medium or large MS4 or source designated under the existing storm water program. This co-permittee option applies only with the agreement of all co-permittees. Under this co-permittee arrangement, the operator of the regulated small MS4 must comply with the terms and conditions of the applicable permit rather than the permit condition requirements of §122.34 of today's rule. The regulated small MS4 that wishes to be a co-permittee must comply with the applicable requirements of §122.26(d), but would not be required to fulfill all the permit application requirements applicable to medium and large MS4s. Specifically, the regulated small MS4 is not required to comply with the application requirements of §122.26(d)(1)(iii) (Part 1 source identification), §122.26(d)(1)(iv) (Part 1 discharge characterization), and § 122.26(d)(2)(iii) (Part 2 discharge characterization data). Furthermore, the regulated small MS4 operator could satisfy the requirements in § 122.26(d)(1)(v) (Part 1 management programs) and §122.26(d)(2)(iv) (Part 2 proposed management program) by referring to the adjoining MS4 operator's existing plan. An operator pursuing this option must describe in the permit modification request how the adjoining MS4's storm water program addresses or needs to be supplemented in order to adequately address discharges from the MS4. The request must also explain the role of the small MS4 operator in coordinating local storm water activities and describe the resources available to accomplish the storm water management plan.

EPA sought comments regarding the appropriateness of the application requirements in these subsections of §122.26(d). One commenter stated that newly regulated smaller MS4s should not be required to meet the existing regulations' Part II application requirements under §122.26(d) regarding the control of storm water discharges from industrial activity. EPA disagrees. The smaller MS4 operators designated for regulation in today's rule may satisfy this requirement by referencing the legal authority of the already regulated MS4 program to the extent the newly regulated MS4 will rely on such legal authority to satisfy its permit requirements. If the smaller MS4 operator plans to rely on its own legal authorities, it must identify it in the application. If the smaller MS4 operator does not elect to use its own legal authority, they may file an individual permit application for an alternate program under §122.33(b)(2)(ii).

The explanatory language in §122.33(b)(3) recommends that the smaller MS4s designated under today's rule identify how an existing plan “would need to be supplemented in order to adequately address your discharges.” One commenter suggested that this must be regulatory language and not guidance. EPA disagrees that this needs to be mandatory language. *68769 Since many of the smaller MS4s designated today are “donut holes” within the geographic jurisdiction of an already regulated MS4, the larger MS4's program generally will be adequate to address the newly regulated MS4's discharges. The small MS4 applicant should consider the adequacy of the existing MS4's program to address the smaller

MS4's water quality needs, but EPA is not imposing specific requirements. Where circumstances suggest that the existing program is inadequate with respect to the newly designated MS4 and the applicant does not address the issue, the NPDES permitting authority must require that the existing program be supplemented.

Commenters recommended that the application deadline for smaller MS4s designated today be extended so that existing regulated MS4s would not have to modify their permit in the middle of their permit term, provided that permit renewal would occur within a reasonable time (12 to 18 months) of the deadline. In response, EPA notes that today's rule allows operators of newly designated small MS4s up to three years and 90 days from the promulgation of today's rule to submit an application to be covered under the permit issued to an already regulated MS4. The permitting authority has a reasonable time after receipt of the application to modify the existing permit to include the newly designated source. If an existing MS4's permit is up for renewal in the near future, the operator of a newly designated small MS4 may take that into account when timing its application and the NPDES permitting authority may take that into account when processing the application.

Another commenter suggested that the rule should include a provision to allow permit application requirements for smaller MS4s designated today to be determined by the permitting authority to account for the particular needs/wants of an already regulated MS4 operator. EPA does not believe that the regulations should specifically require this approach. When negotiating whether to include a newly designated MS4 in its program, the already regulated MS4 operator may require the newly designated MS4's operator to provide any information that is necessary.

The co-permitting approach allows small MS4s to take advantage of existing programs to ease the burden of creating their own programs. The operators of regulated small MS4s, however, may find it simpler to apply for a program under today's rule, and to identify the medium or large MS4 operator that is implementing portions of its §122.34(b) minimum measures.

d. Evaluation and Assessment

Under today's rule, operators of regulated small MS4s are required to evaluate the appropriateness of their identified BMPs and progress toward achieving their identified measurable goals. The purpose of this evaluation is to determine whether or not the MS4 is meeting the requirements of the minimum control measures. The NPDES permitting authority is responsible for determining whether and what types of monitoring needs to be conducted and may require monitoring in accordance with State/Tribe monitoring plans appropriate to the watershed. EPA does not encourage requirements for "end-of-pipe" monitoring for regulated small MS4s. Rather, EPA encourages permitting authorities to carefully examine existing ambient water quality and assess data needs. Permitting authorities should consider a combination of physical, chemical, and biological monitoring or the use of other environmental indicators such as exceedance frequencies of water quality standards, impacted dry weather flows, and increased flooding frequency. (Claytor, R. and W. Brown. 1996. Environmental Indicators to Assess Storm Water Control Programs and Practices. Center for Watershed Protection, Silver Spring, MD.) Section II.L., Water Quality Issues, discusses monitoring in greater detail.

As recommended by the Intergovernmental Task Force on Monitoring Water Quality (ITFM), the NPDES permitting authority is encouraged to consider the following watershed objectives in determining monitoring requirements: (1) To characterize water quality and ecosystem health in a watershed over time, (2) to determine causes of existing and future water quality and ecosystem health problems in a watershed and develop a watershed management program, (3) to assess progress of watershed management program or effectiveness of pollution prevention and control practices, and (4) to support documentation of compliance with permit conditions and/or water quality standards. With these objectives in mind, the Agency encourages participation in group monitoring programs that can take advantage of existing monitoring programs undertaken by a variety of governmental and nongovernmental entities. Many States may already have a monitoring program in effect on a watershed basis. The ITFM report is included in the docket for today's rule (Intergovernmental Task Force on Monitoring Water Quality. 1995. The Strategy for Improving Water-Quality

Monitoring in the United States: Final Report of the Intergovernmental Task Force on Monitoring Water Quality. Copies can be obtained from: U.S. Geological Survey, Reston, VA.).

EPA expects that many types of entities will have a role in supporting group monitoring activities—including federal agencies, State agencies, the public, and various classes or categories of point source dischargers. Some regulated small MS4s might be required to contribute to such monitoring efforts. EPA expects, however, that their participation in monitoring activities will be relatively limited. For purposes of today's rule, EPA recommends that, in general, NPDES permits for small MS4s should not require the conduct of any additional monitoring beyond monitoring that the small MS4 may be already performing. In the second and subsequent permit terms, EPA expects that some limited ambient monitoring might be appropriately required for perhaps half of the regulated small MS4s. EPA expects that such monitoring will only be done in identified locations for relatively few pollutants of concern. EPA does not anticipate “end-of-pipe” monitoring requirements for regulated small MS4s.

EPA received a wide range of comments on this section of the rule. Some commenters believe that EPA should require monitoring; others want a strong statement that the newly regulated small MS4s should not be required to monitor. Many commenters raised questions about exactly what EPA expects MS4s to do to evaluate and assess their BMPs. EPA has intentionally written today's rule to provide flexibility to both MS4s and permitting authorities regarding appropriate evaluation and assessment. Permitting authorities can specify monitoring or other means of evaluation when writing permits. If additional requirements are not specified, MS4s can decide what they believe is the most appropriate way to evaluate their storm water management program. As mentioned above, EPA expects that the necessity for monitoring and its extent may change from permit cycle to permit cycle. This is another reason for making the evaluation and assessment rule requirements very flexible.

i. Recordkeeping. The NPDES permitting authority is required to include at least the minimum appropriate recordkeeping conditions in each permit. Additionally, the NPDES permitting authority can specify that permittees develop, maintain, and/or *68770 submit other records to determine compliance with permit conditions. The MS4 operator must keep these records for at least 3 years but is not required to submit records to the NPDES permitting authority unless specifically directed to do so. The MS4 operator must make the records, including the storm water management program, available to the public at reasonable times during regular business hours (see 40 CFR 122.7 for confidentiality provision). The MS4 operator is also able to assess a reasonable charge for copying and to establish advance notice requirements for members of the public.

EPA received a comment that questioned EPA's authority to require MS4s to make their records available to the public. EPA disagrees with the commenter and believes that the CWA does give EPA the authority to require that MS4 records be available. It is also more practical for the public to request records directly from the MS4 than to request them from EPA who would then make the request to the MS4. Based on comments, EPA revised the proposed rule so as not to limit the time for advance notice requirements to 2 business days.

ii. Reporting. Under today's rule, the operator of a regulated small MS4 is required to submit annual reports to the NPDES permitting authority for the first permit term. For subsequent permit terms, the MS4 operator must submit reports in years 2 and 4 unless the NPDES permitting authority requires more frequent reports. EPA received several comments supporting this timing for report submittal. Other commenters suggested that annual reports during the first permit cycle are too burdensome and not necessary. EPA believes that annual reports are needed during the first 5-year permit term to help permitting authorities track and assess the development of MS4 programs, which should be established by the end of the initial term. Information contained in these reports can also be used to respond to public inquiries.

The report must include (1) the status of compliance with permit conditions, an assessment of the appropriateness of identified BMPs and progress toward achieving measurable goals for each of the minimum control measures, (2) results

of information collected and analyzed, including monitoring data, if any, during the reporting period, (3) a summary of what storm water activities the permittee plans to undertake during the next reporting cycle, and (4) a change in any identified measurable goal(s) that apply to the program elements.

The NPDES permitting authority is encouraged to provide a brief two-page reporting format to facilitate compiling and analyzing the data from submitted reports. EPA does not believe that submittal of a brief annual report of this nature is overly burdensome, and has not changed the required reporting time frame from the proposal. The permitting authority will use the reports in evaluating compliance with permit conditions and, where necessary, will modify the permit conditions to address changed conditions.

iii. Permit-As-A-Shield. [Section 122.36](#) describes the scope of authorization (i.e. “permit-as-a-shield”) under an NPDES permit as provided by section 402(k) of the CWA. Section 402(k) provides that compliance with an NPDES permit is deemed compliance, for purposes of enforcement under CWA [sections 309](#) and [505](#), with CWA sections 301, 302, 306, 307, and 403, except for any standard imposed under [section 307](#) for toxic pollutants injurious to human health.

EPA's Policy Statement on Scope of Discharge Authorization and Shield Associated with NPDES Permits, originally issued on July 1, 1994, and revised on April 11, 1995, provides additional information on this matter.

e. Other Applicable NPDES Requirements

Any NPDES permit issued to an operator of a regulated small MS4 must also include other applicable NPDES permit requirements and standard conditions, specifically the applicable requirements and conditions at [40 CFR 122.41](#) through [122.49](#). Reporting requirements for regulated small MS4s are governed by [§122.34](#) and not the existing requirements for medium and large MS4s at [§ 122.42\(c\)](#). In addition, the NPDES permitting authority is encouraged to consult the Interim Permitting Approach, issued on August 1, 1996. The discussion on the Interim Permitting Approach in [Section II.L.1](#), Water Quality Based Effluent Limits, provides more information. The provisions of [§§122.41](#) through [122.49](#) establish permit conditions and limitations that are broadly applicable to the entire range of NPDES permits. These provisions should be interpreted in a manner that is consistent with provisions that address specific classes or categories of discharges. For example, [§122.44\(d\)](#) is a general requirement that each NPDES permit shall include conditions to meet water quality standards. This requirement will be met by the specific approach outlined in today's rule for the implementation of BMPs. BMPs are the most appropriate form of effluent limitations to satisfy technology requirements and water quality-based requirements in MS4 permits (see the introduction to Section II.H.3, Municipal Permit Requirements, Section II.H.3.h, Reevaluation of Rule, and the discussion of the Interim Permitting Policy in [Section II.L.1](#), below).

f. Enforceability

NPDES permits are federally enforceable. Violators may be subject to the enforcement actions and penalties described in CWA [sections 309](#), [504](#), and [505](#) or under similar water pollution enforcement provisions of State, tribal or local law. Compliance with a permit issued pursuant to section 402 of the Clean Water Act is deemed compliance, for purposes of [sections 309](#) and [505](#), with sections 301, 302, 306, 307, and 403 (except any standard imposed under [section 307](#) for toxic pollutants injurious to human health).

g. Deadlines

Today's final rule includes “expeditious deadlines” as directed by CWA section 402(p)(6). In proposed [§122.26\(e\)](#), the permit application for the “ISTEA” facilities was maintained as August 7, 2001 and the permit application deadline for storm water discharges associated with other construction activity was established as 3 years and 90 days from the final rule date. In proposed [§ 122.33\(c\)\(1\)](#), operators of regulated small MS4s were required to seek permit coverage within 3 years and 90 days from the date of publication of the final rule. In proposed [§122.33\(c\)\(2\)](#), operators of regulated small

MS4s designated by the NPDES permitting authority on a local basis under §122.32(a)(2) must seek coverage under an NPDES permit within 60 days of notice, unless the NPDES permitting authority specifies a later date.

In order to increase the clarity of today's final rule, EPA has changed the location of some of the above requirements. All application deadlines for both Phase I and Phase II are now listed or referenced in §122.26(e). Section 122.26(e)(1) contains the deadlines for storm water associated with industrial activity. Paragraph (i) has been changed to correct a typographical error. Paragraph (ii) has been revised to reflect the changed application date for "ISTEA" facilities. (See discussion in section I.3, ISTEAs Sources). The application deadline for storm water discharges associated with other construction activity is now in a new §122.26(e)(8). The application deadline for regulated small MS4s *68771 remains in §122.33(c) because this section is written in "readable regulation" format, but it is also described in a new § 122.26(e)(9).

Under today's rule, permitting authorities are allowed up to 3 years to issue a general permit and MS4s designated under §122.32(a)(1) are allowed up to 3 years and 90 days to submit a permit application. Operators of regulated small MS4s that choose to be a co-permittee with an adjoining MS4 with an existing NPDES storm water permit must apply for a modification of that permit within the same time frame. Several commenters stated that 90 days was not adequate time to submit an NOI. This might be true if facilities did not start developing their storm water program until publication of their general permit. In fact, municipalities should start developing their storm water program upon publication of today's final rule, if they have not already done so. Municipalities that are uncertain if they fall within the urbanized area should ask their permitting authority. EPA believes that municipalities should not automatically take three years and 90 days to develop a program and submit their NOI. Three years is the maximum amount of time to issue a general permit. MS4s that are automatically designated under today's rule may have less than 3 years and 90 days if the permitting authority issues a permit that requires submission of NOIs before that time. EPA encourages States to modify their NPDES program to include storm water and issue their permits as soon as possible. It is important for permitting authorities to keep their municipalities informed of their progress in developing or modifying their NPDES storm water requirements.

EPA recognizes that MS4s brought into the program due to the 2000 Census calculations do not have as much time to develop a program as those already designated from the 1990 Census. However, the official Bureau of the Census urbanized area calculation for the 2000 Census is expected to be published in the Federal Register in the spring of 2002, which should give the potentially affected MS4s adequate time to prepare for compliance under the applicable permit. However, if the publication of this information is delayed, MS4s in newly designated urbanized areas will have 180 days from the time the new designations are published to submit an NOI, consistent with the time frame for other regulated MS4s that are designated after promulgation of the rule.

The proposed application deadline for MS4s designated under §122.32(a)(2) was within 60 days of notice. Many commenters stated that 60 days does not provide adequate time for the preparation of an NOI or permit application. EPA agrees that newly designated MS4s may not be aware that they might be designated since the permitting authority could take several years to develop designation criteria. EPA has decided that the application time frame for these facilities should be consistent with the 180 days allowed for facilities designated under §§122.26(a)(9)(i)(C) and (D). Section 122.33(c)(2) of today's final rule contains the modified time frame of 180 days to apply for coverage.

h. Reevaluation of Rule

The municipal caucus of the Storm Water Phase II FACA Subcommittee asked EPA to demonstrate its commitment to revisit the municipal requirements of today's rule and make changes where necessary after evaluating the storm water program and researching the effectiveness of municipal BMPs. In §122.37 of today's final rule, EPA commits to revisiting the regulations for the municipal storm water discharge control program after completion of the first two permit terms. EPA intends to use this time to work closely with stakeholders on research efforts. Gathering and analyzing data related to the storm water program, including data regarding the effectiveness of BMPs, is critical to EPA's storm water program evaluation. EPA does not intend to change today's NPDES municipal storm water program until the end of this period, except under the following circumstances: a court decision requires changes; a technical change is

necessary for implementation; or the CWA is modified, thereby requiring changes. After careful analysis, EPA might also consider changes from consensus-based stakeholder requests regarding requirements applicable to newly regulated MS4s. EPA will apply the August 1, 1996, Interim Permitting Approach to today's program during this interim period and encourages all permitting authorities to use this approach in municipal storm water permits for newly regulated MS4s and in determining MS4 permit requirements under a TMDL approach. After careful consideration of the data, EPA will make modifications as necessary.

EPA received comments that supported waiting two permit cycles before re-evaluating the rule and other comments that requested re-evaluation much sooner. EPA anticipates two full permit cycles are necessary to obtain enough data to significantly evaluate the rule. The re-evaluation time frame of 13 years from today remains as proposed.

I. Other Designated Storm Water Discharges

1. Discharges Associated with Small Construction Activity

[Section 122.26\(b\)\(15\)](#) of today's rule designates certain construction activities for regulation as “storm water discharges associated with small construction activity.” Specifically, storm water discharges from construction activity equal to or greater than 1 acre and less than 5 acres are automatically designated except in those circumstances where the operator (i.e., person responsible for discharges that might occur) certifies to the permitting authority that one of two specific waiver circumstances (described in section b. below) applies. Sites below one acre may be designated under [§ 122.26\(b\)\(15\)\(ii\)](#) where necessary to protect water quality.

Today's rule regulates these construction-related storm water sources under CWA section 402(p)(6) to protect water quality rather than under CWA section 402(p)(2). Designation under 402(p)(6) gives States and EPA the flexibility to waive the permit requirement for construction activity that is not likely to impair water quality, and to designate additional sources below one acre that are likely to cause water quality impairment. Thus, the one acre threshold of today's rule is not an absolute threshold like the five acre threshold that applies under the existing storm water rule.

Today's rule regulating certain storm water discharges from construction activity disturbing less than 5 acres is consistent with the 9th Circuit remand in [NRDC v. EPA, 966 F.2d 1292 \(9th Cir. 1992\)](#). In that case, the court remanded portions of the existing storm water regulations related to discharges from construction sites. The existing Phase I regulations define “storm water discharges associated with industrial activity” to include storm water discharges from construction sites disturbing 5 acres or more of total land area (see [40 CFR 122.26\(b\)\(14\)\(x\)](#)). In its decision, the court concluded that the 5-acre threshold was improper because the Agency had failed to identify information “to support its perception that construction activities on less than 5 acres are non-industrial in nature” ([966 F.2d at 1306](#)). The court remanded the exemption to EPA for further proceedings ([966 F.2d at 1310](#)). EPA's objectives in today's action include an effort to (1) address the 9th Circuit [*68772](#) remand to reconsider regulation of storm water discharges from construction activities that disturb less than 5 acres of land, (2) address water quality concerns associated with such activities, and (3) balance conflicting recommendations and concerns of stakeholders in the regulation of additional construction activity.

EPA responded to the Ninth Circuit's decision by designating discharges from construction activities that disturb between 1 and 5 acres as “discharges associated with small construction activity” under CWA section 402(p)(6), rather than as “discharges associated with industrial activity” under CWA section 402(p)(2)(B). Although a size criterion alone may be an indicator of whether runoff from construction sites between 1 and 5 acres is “associated with industrial activity,” the Agency is instead relying on a size threshold in tandem with provisions that allow for designations and waivers based on potential for “predicted water quality impairments” to regulate construction sites between 1 and 5 acres under CWA section 402(p)(6). This approach was chosen by the Agency for the sake of simplicity and certainty and, most importantly, to protect water quality consistent with the mandate of CWA section 402(p)(6). Today's rule also includes extended application deadlines for this new category of dischargers under the authority of CWA section 402(p)(6) (see [§122.26\(e\)\(8\)](#) of today's rule).

In today's rule, EPA is regulating storm water discharges from additional construction sites to better protect the Nation's waters, while remaining sensitive to a concern that the Agency should not regulate discharges from construction sites that might not or do not have adverse water quality impacts. EPA believes that today's rule will successfully accomplish this objective by establishing a 1-acre threshold nationwide that includes the flexibility to allow the permitting authority to both waive requirements for discharges from sites that are not expected to cause adverse water quality impacts and to designate discharges from sites below 1-acre based on adverse water quality impacts.

In addition to the diminishing water quality benefits of regulating all sites below one acre, the Agency relied on practical considerations in establishing a one acre threshold and not setting a lower threshold. Regardless of the threshold established by EPA, a NPDES permit can only be required if a construction site has a point source discharge. A point source discharge means that pollutants are added to waters of the United States through a discernible, confined, discrete conveyance. "Sheet flow" runoff from a small construction site would not result in a point source discharge unless and until it channelized. As the amount of disturbed land surface decreases, precipitation is less likely to channelize and create a "point source" discharge (assuming the absence of steep slopes or other factors that lead to increased channelization). Categorical designation of very small sites may create confusion about applicability of the NPDES permitting program to those sites. EPA's one acre threshold reflects, in part, the need to recognize that smaller sites are less likely to result in point source discharges. Of course, the NPDES permitting authority could designate smaller sites (below one acre, assuming point source discharges occur from the smaller designated sites) for regulation if a watershed or other local assessment indicated the need to do so. The Phase II rule includes this designation authority at [40 CFR 122.26\(a\)\(9\)\(i\)](#) (D) and [\(b\)\(15\)\(ii\)](#).

The one acre threshold also provides an administrative tool for more easily identifying those sites that are identified for coverage by the rule (but may receive a waiver) and those that are not automatically covered (but may be designated for inclusion). Although all construction sites less than five acres could have a significant water quality impact cumulatively, EPA is automatically designating for permit coverage only those storm water discharges from construction sites that disturb land equal to or greater than one acre. Categorical regulation of discharges from construction below this one acre threshold would overwhelm the resources of permitting authorities and might not yield corresponding water quality benefits. Construction activities that disturb less than one acre make up, in total, a very small percentage of the total land disturbance from construction nationwide. The one acre threshold is reasonable for accomplishing the water quality goals of CWA section 402(p)(6) because it results in 97.5% of the total acreage disturbed by construction being designated for coverage by the NPDES storm water program, while excluding from automatic coverage the numerous smaller sites that represent 24.7% of the total number of construction sites.

Some commenters believed that EPA has not adequately identified water quality problems associated with storm water discharges from construction activity disturbing less than five acres. Other commenters believed that storm water discharges from small construction activity is a significant water quality problem nationwide. Section I.B.3, Construction Site Runoff, provides a detailed discussion of adverse water quality impacts resulting from construction site storm water discharges. EPA is regulating storm water discharges from construction activity disturbing between 1 and 5 acres because the cumulative impact of many sources, and not just a single identified source, is typically the cause for water quality impairments, particularly for sediment-related water quality standards.

Several commenters requested that EPA regulate discharges from small construction activity as "discharges associated with industrial activity" under CWA 402(p)(4) and not, as proposed, as "storm water discharges associated with other activity" under CWA 402(p)(6). EPA is regulating discharges from small construction sites as "small construction activity" under the authority of CWA section 402(p)(6), rather than section 402(p)(4), to ensure that regulation of these sources is water quality-sensitive. CWA section 402(p)(6) affords the opportunity for designations and waivers of sources based on potential for "predicted water quality impairments." Regulation of storm water "associated with industrial activity" does not necessarily focus regulation to protect water quality.

a. Scope

The definition of “storm water discharges associated with small construction activity” includes discharges from construction activities, such as clearing, grading, and excavating activities, that result in the disturbance of equal to or greater than 1 acre and less than 5 acres (see §122.26(b)(15)(i)). Such activities could include: road building; construction of residential houses, office buildings, or industrial buildings; or demolition activity. The definition of “storm water discharges associated with small construction activity” also includes any other construction activity, regardless of size, designated based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the United States (§122.26(b)(15)(ii)). This designation is made by the Director, or in States with approved NPDES programs, either the Director or the EPA Regional Administrator.

For the purposes of today's rule, the definition of “storm water discharges associated with small construction activity” includes discharges from activities disturbing less than 1 acre if that construction activity is part of a *68773 “larger common plan of development or sale” with a planned disturbance of equal to or greater than 1 acre of land. A “larger common plan of development or sale” means a contiguous area where multiple separate and distinct construction activities are planned to occur at different times on different schedules under one plan, e.g., a housing development of five ¼ acre lots (§122.26(b)(15)(i)).

In addition to the regulatory text for smaller construction, the Agency is also revising the existing text of §122.26(b)(14)(x) to clarify EPA's intention regarding construction projects involving a larger common plan of development or sale ultimately disturbing 5 or more acres. Operators of such sites are required to seek coverage under an NPDES permit regardless of the number of lots in the larger plan because designation for permit coverage is based on the total amount of land area to be disturbed under the common plan. This designation attempts to address the potential cumulative effects of numerous construction activities concentrated in a given area.

Several commenters asked that EPA allow the permitting authority to set the appropriate size threshold based on water quality studies. While EPA agrees that location-specific water quality studies provide an ideal information base from which to make regulatory decisions, today's rule establishes a default standard for regulation in the absence of location-specific studies. The rule does allow for deviation from the default standard through additional designations and waivers, however, when supported by location-specific water quality information. The rule codifies the ability of permitting authorities to provide waivers for sites greater than or equal to one acre (the default standard) and designate additional discharges from small sites below one acre when location-specific information suggests that the default 1 acre standard is either unnecessary (waivers) or too limited (designations) to protect water quality.

Some commenters wanted EPA to base the regulation of storm water discharges from construction sites not only on size, but also on the duration and intensity of activity occurring on the site. EPA believes that a national 1-acre threshold, in combination with waivers and additional designations, is the most effective and simplest way to address adverse water quality impacts from storm water from small construction sites. Moreover, as discussed below, the waiver for rainfall erosivity does account for projects of limited duration. EPA believes, however, that the intensity of activity occurring on-site would be a very difficult condition to quantify.

Many commenters requested that EPA maintain the 5 acre threshold from the existing regulations, which include opportunities for site-specific designation, as the regulatory scope for regulating storm water from construction sites, i.e., that the Agency not automatically regulate storm water discharges from sites less than 5 acres. Several commenters wanted construction requirements to be applied to sites smaller than 1 acre, while some commenters suggested alternative thresholds of 2 or 3 acres. The rest of the commenters supported the 1 acre threshold. None of the commenters presented any data or rationales to support a specific size threshold.

EPA examined alternative size thresholds, including 0.5 acre, 1 acre, 2 acres and 5 acres. EPA had difficulty evaluating the alternative size thresholds because, while directly proportional to the size of the disturbed site, the water quality threat posed by discharges from construction sites of differing sizes varies nationwide, depending on the local climatological, geological, geographical, and hydrological influences. In order to ensure improvements in water quality nationwide, however, today's rule does not allow various permitting authorities to establish different size thresholds except based on the waiver and designation provisions of the rule. EPA believes that the water quality impact from small construction sites is as high as or higher than the impact from larger sites on a per acre basis. By selecting the 1 acre size threshold and coupling it with waivers and additional designations, EPA is seeking to standardize improvement of water quality on a national basis while providing permitting authorities with the opportunity to designate those unregulated activities causing water quality impairments regardless of site size, as well as to waive requirements when information demonstrates that regulation is unnecessary.

EPA recognizes that the size criterion alone may not be the most ideal predictor of the need for regulation, but effective protection of water quality depends as much on simplicity in implementation as it does on the scientific information underlying the regulatory criteria. The default size criterion of 1 acre will ensure protection against adverse water quality impacts from storm water from small construction sites while not overburdening the resources of permitting authorities and the construction industry to implement the program to protect water quality in the first place.

One commenter stated a need to clarify whether routine road maintenance is considered construction activity for the purpose of today's rule. The NPDES general permit for discharges from construction sites larger than 5 acres defined "commencement of construction" as the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities (63 FR 7913). For construction sites disturbing less than 5 acres, EPA does not consider construction activity to include routine maintenance performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

Two commenters believed that the [Multi-Sector General Permit for storm water discharges from industrial activities \(MSGP\) \(60 FR 50804\)](#) already applies to storm water discharges from construction activities at oil and gas exploration and production sites and asked for a clarification on this issue. Commenters also requested a single general permit to authorize both industrial storm water discharges and construction site discharges which occur at the same industrial site.

Currently, when construction activity disturbing more than 5 acres occurs on an industrial site covered by the MSGP, authorization under a separate NPDES construction permit is needed because the MSGP does not include the "construction" industrial sector. While the MSGP does address sediment and erosion control, it is not as specific as the NPDES general permit for storm water discharges from construction activities disturbing more than 5 acres. Though permitting authorities could conceivably develop a single general permit to authorize storm water discharges associated with construction activity at these industrial facilities, the commenter's request is not addressed by today's rulemaking. When today's rule is implemented through general permits (to be issued later), the permitting authority will have discretion whether or not to incorporate the permit requirements for both the industrial storm water discharges and construction site storm water discharges into a single general permit. This type of request should be addressed to the permitting authority.

One commenter suggested that discharges from small construction sites should be regulated through a "self-implementing rule" approach. While today's rule is not a self-implementing rule, it does add [§122.28\(b\)\(2\)\(v\)](#), which [*68774](#) gives the permitting authority the discretion to authorize a construction general permit for sites less than 5 acres without submitting a notice of intent. Such non-registration general permits function similarly to self-implementing rules, but are, in fact, permits. Today's rule will be implemented through NPDES permits rather than self-implementing regulations to capitalize on the compliance, tracking, enforcement, and public participation associated with NPDES permits (see discussion in section II.C).

Other commenters believed that only the permitting authority should regulate construction site storm water discharges (under a NPDES permit) and that a small MS4 operator's regulation of storm water discharges associated with construction (under the small MS4 NPDES storm water program) is redundant. EPA disagrees that control measure implementation by the NPDES authority and the small MS4 operator is redundant. To the extent the two efforts overlap, today's rule provides for consolidation and coordination of substantive requirements via incorporation by reference permitting. Small MS4s operators may choose to impose more prescriptive requirements than an NPDES permitting authority based on localized water quality needs. In those cases, EPA intends that the substantive requirements from the small MS4 program should apply as the NPDES permit requirements for the construction site discharger. In cases where a small MS4 program does not prioritize and focus on storm water from construction sites (beyond the small MS4 minimum control measure in today's rule, which does not require the small MS4 operator to control construction site discharges in a manner as prescriptive as is expected for discharges regulated under NPDES permits), the Agency intends that the NPDES general permit will provide the substantive standards applicable to the construction site discharge. EPA does anticipate, however, that implementation of MS4 programs to address construction site runoff within their jurisdiction will enhance overall NPDES compliance by construction site dischargers. EPA also notes that under [§122.35\(b\)](#), the permitting authority may recognize its own program to control storm water discharges from construction sites in lieu of requiring such a program in an MS4's NPDES permit, provided that the permitting authority's program satisfies the requirements of [§122.34\(b\)\(4\)](#), including, for example, procedures for site plan reviews and consideration of information submitted by the public on individual construction sites in each jurisdiction required to be covered by the program.

b. Waivers

Under [§122.26\(b\)\(15\)\(i\)](#) of today's rule, NPDES permitting authorities may waive today's requirement for construction site operators to obtain a permit in two circumstances. The first waiver is intended to apply where little or no rainfall is expected during the period of construction. The second waiver may be granted when a TMDL or equivalent analysis indicates that controls on construction site discharges are not needed to protect water quality.

The first waiver is based on “low predicted rainfall erosivity” which can be found using tables of rainfall-runoff erosivity (R) values published for each region in the U.S. R factors are published in the U.S. Department of Agriculture (USDA) Agricultural Handbook 703 (Renard, K.G., Foster, G.R., Weesies, G.A., McCool, D.K., and D.C. Yoder. 1997. Predicting Soil Erosion by Water: A Guide to Conservation Planning with the Revised Universal Soil Loss Equation (RUSLE). U.S. Department of Agriculture Handbook 703). The R factor varies based on the time during the year when construction activity occurs, where in the country it occurs, and how long the construction activity lasts. The permitting authority may determine, using Handbook 703, which times of year, if any, the waiver opportunity is available for construction activity. EPA will provide assistance either through computer programs or the World Wide Web on how to determine whether this waiver applies for a particular geographic area and time period. Application of this waiver for regulatory purposes will be determined by the authorized NPDES authority. This waiver is discussed further in the following section titled Rainfall-Erosivity Waiver.

The second waiver is based on a consideration of ambient water quality. This waiver is available after a State or EPA develops and implements TMDLs for the pollutant(s) of concern from storm water discharges associated with construction activity. This waiver is also available for sites discharging to non-impaired waters that do not require TMDLs, when an equivalent analysis has determined allocations for small construction sites for the pollutant(s) of concern or determined that such allocations are not needed to protect water quality based on consideration of existing in-stream concentrations, expected growth in pollutant contributions from all sources, and a margin of safety. The Agency envisions an equivalent analysis that would demonstrate that water quality is not threatened by storm water discharges from small construction activity. This waiver is discussed further below in the sections titled TMDL Waiver and Water Quality Issues.

The proposed rule included a waiver based on “low predicted soil loss.” This waiver provision would have been applicable on a case-by-case basis where the annual soil loss rate for the period of construction for a site, using the Revised Universal Soil Loss Equation (RUSLE), would be less than 2 tons/acre/year. The annual soil loss rate of less than 2 tons/acre/year would be calculated through the use of the RUSLE equation, assuming the constants of no ground cover and no runoff controls in place.

Several commenters found the low soil loss waiver too complex and impractical, and stated that expertise is not available at the local level to prepare and evaluate eligibility for the waiver. Another commenter questioned whether two tons/acre/year was an appropriate threshold for predicting adverse water quality impacts. Two other commenters said that RUSLE was never intended to predict off-site impacts and is not an indicator of potential harm to water quality. EPA agrees with the commenters on the difficulty associated with determining and implementing this waiver. Most construction site operators are not familiar with the RUSLE program, and the potential burden on the permitting authority, construction industry, USDA's Natural Resources Conservation Service and conservation districts probably would have been significant. The Agency has not included this waiver in the final rule.

Two commenters asked that EPA allow States the flexibility to develop their own waiver criteria but did not suggest how the Agency (or affected stakeholders) could evaluate the acceptability of alternative State waiver criteria. Therefore, the final rule does not provide for any such alternative waivers. If a State does seek to develop alternate waiver criteria, then EPA procedures afford the opportunity for subsequent actions, for example, under the Project XL Program in EPA's Office of Reinvention, which seeks cleaner, smarter, and cheaper solutions to environmental problems. Many commenters suggested that EPA extend these waivers to existing industrial storm water regulations for construction activity greater than 5 acres. These construction site discharges are *68775 regulated as industrial storm water discharges under CWA 402(p)(2) and are not eligible for such water quality-based waivers.

Two commenters were concerned that waivers would create a potential for significant degradation of small streams. EPA disagrees. If small streams are threatened, the permitting authority would choose not to provide any waivers. In addition, permitting authorities may protect small streams by designating discharges from small construction activity based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the U.S.

Two commenters asked that the waiver options be eliminated. They felt it would create a gross inequity within the construction community if some projects will not be subject to the requirements of today's rule. While the comments may be valid, EPA disagrees that waivers should be disallowed on this basis. Construction site discharges that qualify for a waiver from permitting requirements are not expected to present a threat to water quality, which is the basis for designation and regulation under today's rule.

A number of commenters suggested additional waivers in cases where new development will result in no additional adverse impacts to water quality as compared to the existing development it replaces. EPA believes these waivers are either unworkable or unnecessary. It would be very difficult for most construction operators to determine, as well as for other stakeholders to verify, on a site-by-site basis, that there is no potential for adverse impact to water quality compared to the replaced development.

Other commenters proposed waivers in cases where a local erosion and sediment control program covers the project or a separate waiver for small linear utility projects. Instead of waivers, today's rule addresses the first suggestion through the qualifying program provision described in the section titled Cross-Referencing State/Local Erosion and Sediment Control Programs below. Today's rule provides waivers for small linear projects in so far as they satisfy conditions for low rainfall erosivity. (See § 122.26(b)(15)(i)(A).)

Other commenters suggested waivers based on distance to water body, existence of vegetated buffer around water body, slope of disturbed land, or if discharging to very large bodies of water. As a result of public outreach, EPA believes that these proposed waivers would be generally unworkable for construction site dischargers and permitting authorities because of the difficulty in applying them to all small sites.

One commenter mentioned that waivers for the R factor (rainfall-erosivity) and soil loss are effluent standards that have not been developed in accordance with sections 301 and 304 of the CWA. EPA disagrees that these sections are relevant to the designation of sources in today's rule. The waiver provisions in this section of the rule are jurisdictional because they affect the scope of the universe of entities subject to the NPDES program. Therefore, the waiver provisions are not themselves substantive control standards implemented through NPDES permits, and thus, not subject to the statutory criteria in [sections 301](#) and [304](#).

Another commenter stated that waivers would allow exemptions to the technology based requirements and would thus be inconsistent with the two-fold approach of the CWA (a technology based minimum and a water quality based overlay). EPA acknowledges that the CWA does not generally provide for waivers for the Act's technology-based requirements. The waiver provisions do not create exemptions from technology-based standards that apply to NPDES dischargers; they provide exemption from the underlying requirement for an NPDES permit in the first place. Protection of water quality is the reason these smaller sites are designated for regulation under NPDES. The Act's two fold approach imposes more stringent water quality based effluent limitations when technology-based limitations applicable to regulated dischargers are insufficient to meet water quality standards. Under today's rule, water quality protection is the basis for determining which of the unregulated sources should be regulated at all. Thus, today's rule is entirely consistent with the Act's two fold approach.

i. **Rainfall-Erosivity Waiver.** The rainfall-erosivity waiver under [§ 122.26\(b\)\(15\)\(i\)\(A\)](#) is intended to exempt the requirements for a permit when and where negligible rainfall/runoff-erosivity is expected. In the development of the Universal Soil Loss Equation, analysis of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy times the maximum 30 minute intensity. The average annual sum of the storm energy and intensity values for an area comprise the R factor—the rainfall erosivity index. A detailed explanation of the R factor can be found in *Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)* (USDA, 1997).

This waiver is time-sensitive and is dependent on when during the year a construction activity takes place, how long it lasts, and the expected rainfall and intensity during that time. R factors vary based on location. EPA anticipates that this waiver opportunity responds to concerns about the requirement for a permit when it is not expected to rain, especially in the arid areas of the U.S. Under today's rule, the permitting authority could waive the requirements for a permit for time periods when the rainfall-erosivity factor (“R” in RUSLE) is less than five during the period of construction. For the purposes of calculating this waiver, the period of construction activity starts at the time of initial disturbance and ends with the time of final stabilization. The operator must submit a written certification to the Director in order to apply for such a waiver. EPA believes that those areas receiving negligible rainfall during certain times of the year are unlikely to have storm events causing discharges that could adversely impact receiving streams. Consequently, BMPs would not be necessary on those smaller sites. This waiver is most applicable to projects of short duration and to the arid regions of the country where the occurrence of rainfall follows a cyclic pattern—between no rain and extremely heavy rain. EPA review of rainfall records for these areas indicates that, during periods of the year when the number of events and quantity of rain are low, storm water discharges from the smaller construction sites regulated under today's rule should be minimal.

Some commenters supported the use of the R factor as a waiver, while others felt that a waiver based on rainfall statistics ignores the fact that it may rain on any given day and it is the cumulative effect of wet weather discharges which cause water quality impairments. A commenter also asked what happens in “El Niño” years when significantly more rainfall than normal occurs. Another commenter also expressed concern that this waiver was not based on a measured water

quality impact, but instead on an indicator of potential impact. In response to the previous comments, EPA notes that, under CWA 402(p)(6), sources are designated on their potential for adverse impact. Designation under the section is prospective, not retrospective or remedial only. For that reason, the waivers under today's rule also operate prospectively. EPA wanted to waive requirements for sites with little ~~*68776~~ potential to impair water quality, and the R factor is the most straightforward way to do this. The permitting authority, if electing to use waivers, could always suspend the use of waivers in certain areas or during certain times. In addition, the permitting authority may choose to use a lower R factor threshold than the one set by EPA. Application of this waiver is at the discretion of the permitting authority, subject only to the limitation that R factors cannot exceed 5.

One commenter expressed the need for EPA to provide a justification for the threshold value used for the R factor. None of the commenters included any data to show that EPA's proposed R factor of 2 was either too high or too low. EPA is using the R factor as an indicator of the potential to impact water quality. In an effort to determine which R threshold should be used, EPA conducted additional analysis of the rainfall/runoff erosivity factor for 134 sites across the country. For an R factor threshold of 5, approximately 12% of sites would be waived if the project period lasted 6 months, 27% for 3 months, 47% for 1 month, and 60% of sites would be waived if the project lasted for only 15 days. None of the 134 sites would be waived if the project lasted an entire year. For an R factor threshold of 2, approximately 9% of sites would be waived if the project period lasted 6 months, 15% for 3 months, 31% for 1 month, and 43% for 15 days. For an R factor threshold of 10, approximately ~~22% of sites would be waived if the project period lasted 6 months, 37% for 3 months, 60% for 1 month, and 78% for 15 days.~~ EPA believes that an R factor of 5 is an adequate threshold to waive requirements for sites because they would not reasonably be expected to impair water quality.

EPA will develop, as part of the tool box described in section II.A.5, guidance materials and computer or web-accessible programs to assist permitting authorities and construction site discharges in determining if any resulting storm water discharges from specific projects are eligible for this waiver.

ii. Water Quality Waiver. The water quality waiver under [§ 122.26\(b\)\(15\)\(i\)\(B\)](#) is available where storm water controls are not needed based on a comprehensive, location-specific evaluation of water quality needs. The waiver is available based on either an EPA-approved “total maximum daily load” (TMDL) under section 303(d) of the CWA that addresses the pollutant(s) of concern or, for sites discharging to non-impaired waters that do not require TMDLs, an equivalent analysis that has either determined allocations for small construction sites for the pollutant(s) of concern or determined that such allocations are not needed to protect water quality based on consideration of existing in-stream concentrations, expected growth in pollutant contributions from all sources, and a margin of safety. The pollutants of concern that must be addressed include sediment or a parameter that addresses sediment (such as total suspended solids (TSS), turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the construction activity. The operator must certify to the NPDES permitting authority that the construction activity will take place, and storm water discharges will occur, within the applicable drainage area evaluated in the TMDLs or equivalent analyses.

Today's rule modifies the approach in the proposed rule. EPA proposed to allow a waiver of permit requirements for small construction if storm water controls were determined to be unnecessary based on “wasteload allocations that are part of ‘total maximum daily loads’ (TMDLs) that address the pollutants of concern,” or “a comprehensive watershed plan, implemented for the water body, that includes the equivalents of TMDLs, and addresses the pollutants of concern.”

Commenters asked for clarification of the terms “comprehensive watershed plans” and “equivalent of TMDLs.” EPA intended that both terms would include a comprehensive analysis that determines that controls on small construction sites are not needed based on consideration of existing in-stream concentrations, expected growth in pollutant contributions from all sources, and a margin of safety. Today's rule makes this clarification.

One commenter pointed out that there are no water quality standards for suspended solids, the major pollutant expected in discharges from construction activity. The commenter asserted that no waiver would ever be available. Another commenter noted that there are no sediment criteria developed for streams, also making this waiver useless. EPA notes that a number of States and Tribes have water quality standards that address TSS, which are narrative in form, and that may serve as a basis for water quality-based effluent limits. As efforts to identify impairments and improve water quality progress, some States may yet develop water quality standards for suspended solids. Although several TMDLs for sediment and related parameters have been established, EPA does recognize that currently it is extremely difficult to develop TMDLs for sediment. EPA is partially addressing this concern by clarifying in today's rule that the waivers may be based on a TMDL or equivalent analyses for sediment or one of the various pollutant parameters that are a proxy for sediment. These include TSS, turbidity and siltation.

Other commenters noted that this waiver was unattainable if a TMDL or equivalent analysis must be available for every pollutant that could possibly be present in any amount in discharges from small construction sites regardless of whether the pollutant is causing water quality impairment. Commenters asked that EPA identify what constitutes the “pollutants of concern” for which a TMDL or its equivalent must be developed. EPA has revised the proposed rule in response to these concerns.

In order for discharges from construction sites under five acres to qualify for the water quality waiver of today's rule, the construction site operator must demonstrate that storm water controls are not necessary for sediment or a parameter that addresses sediment (such as TSS, turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the construction activity. Even if the water body is not currently impaired for sediment, today's rule requires an analysis of the potential impacts of sediment because the storm water discharges from the construction activity will be a new source of loading to the water body that could constitute a new impairment. Because the water body will not necessarily have been included on a “303(d) list” and a TMDL will not necessarily be required, the rule continues to allow an analysis that is the equivalent of a TMDL. The designation of storm water discharges from small construction activity for regulation in today's rule is intended to control pollutants other than sediment. This waiver provision requires a TMDL or equivalent analysis for a pollutant other than gross particulates (i.e., sediment and other particulate-focused pollutant parameters) only if the receiving water is currently impaired for that pollutant.

One commenter expressed the concern that construction operators will not know if they are in a watershed covered by a TMDL. To the extent this is an operator's concern, he or she could contact their NPDES permitting *68777 authority before applying for permit coverage to determine if receiving water is subject to a TMDL. Alternatively, the permitting authority could identify the TMDL (or equivalent analysis) areas in the general permit or another operator-accessible information source.

Another commenter expressed the concern that a TMDL waiver is likely to be ineffective because the TMDL list is submitted only once every 2 years. By the time a water is listed, the activity may have been completed and stabilized. The commenter argued that, if a watershed is impaired due to sediment from construction, then storm water controls will still be needed, because small construction can only be waived when it is not identified as a source of impairment. In response, EPA notes that an analysis that is the equivalent of a TMDL (specifically, equivalent to the component of a TMDL that comprehensively analyses existing ambient conditions against the applicable water quality standards) may also provide a basis for waiver from the default 1 acre designation. Also, even if a water has been identified as impaired for sediment, it is possible that a site or category of sites may receive an allocation that is sufficiently high enough to allow discharges without storm water controls.

c. Permit Process and Administration

The operator of the construction site, as with any operator of a point source discharge, is responsible for obtaining coverage under a NPDES permit as required by §122.21(b). The “operator” of the construction site, as explained in the

current NPDES construction general permit, is typically the party or parties that either individually or collectively meet the following two criteria: (1) Operational control over the site specifications, including the ability to make modifications in the specifications; and (2) day-to-day operational control of those activities at the site necessary to ensure compliance with permit conditions (63 FR 7859). If more than one party meets these criteria, then each party involved would typically be a co-permittee with any other operators. The operator could be the owner, the developer, the general contractor, or individual contractor. When responsibility for operational control is shared, all operators must apply.

In today's rule, EPA is not requiring an NOI for NPDES general permits for storm water discharges from construction activities regulated by §122.26(b)(15) if the NPDES permitting authority finds that the use of NOIs would be inappropriate (see §122.28(b)(2)(v)). Under this approach, the NPDES permitting authority will have the discretion to decide whether or not to require NOIs for discharges from construction activity less than 5 acres. Compared to the existing storm water regulation, the permitting authority thus has increased flexibility in program implementation. EPA does recommend the use of NOIs, however because NOIs track permit coverage and provide a useful information source to prioritize inspections or enforcement. Requiring an NOI allows for greater accountability by, and tracking of, dischargers. This simple permit application and reporting mechanism also allows for better outreach to the regulated community, uses an existing and familiar mechanism, and is consistent with the existing requirements for storm water discharges from larger construction activities. Today's rule does not amend the requirement for NOIs in general permits for storm water discharges from construction activity disturbing 5 acres or more. See §122.28(b)(2)(v).

EPA expects that the vast majority of discharges of storm water associated with small construction activity identified in §122.26(b)(15) will be regulated through general permits. In the event that an NPDES permitting authority decides to issue an individual construction permit, however, individual application requirements for these construction site discharges are found at § 122.26(c)(1)(ii). For any discharges of storm water associated with small construction activity identified in §122.26(b)(15) that are not authorized by a general permit, a permit application made pursuant to §122.26(c) must be submitted to the Director by 3 years and 90 days after publication of the final rule.

Some commenters expressed concern that linear construction projects (e.g., roads, highways, pipelines) that cross several jurisdictions will have to comply with multiple sets of requirements from various jurisdictions, including multiple local governments and States. EPA is limited in its options to address these concerns because the Agency cannot issue NPDES permits in States authorized to implement the NPDES program nor preempt other more stringent local and State requirements. EPA believes, however, that the option for incorporating by reference the State, Tribal or local requirements (see discussion in Section II.I.2.d., Cross-Referencing State/Local Erosion and Sediment Control Programs) should limit the administrative burden on the operator responsible for discharges from linear construction projects. If the operator were to implement the most comprehensive of the various requirements for the whole project, it could avoid confusion due to differing requirements for different sections of the project. In addition, linear utility projects, which usually have a shorter project period, are more likely to be eligible for the rainfall erosivity waiver.

One commenter stated there was no reason to delay the application period for regulated storm water discharges from small construction activities. The commenter requested that the newly regulated construction site discharges should be required to seek permit coverage within 90 days, as opposed to 3 years, of the effective date of the rule. The Agency does not accept this request. EPA anticipates that NPDES permitting authorities will need one to two years to develop adequate legal authority to implement a program to address this new category of discharges, as well as to develop and issue general permits. Moreover, to ensure effective implementation to protect water quality, regulatory authorities will need additional time to inform small construction site operators of requirements and provide guidance and training on these requirements.

Finally, EPA received a comment requesting that the three year file retention requirement be deleted for discharges from small construction sites. While EPA recognizes that the three year record retention schedule may be unnecessary for

certain construction projects, the Agency has determined it is necessary to retain files after the completion of the project to ensure permit compliance, including applicable construction site stabilization enabling permit termination for such sites.

d. Cross-Referencing State, Tribal or Local Erosion and Sediment Control Programs

In developing the NPDES permit requirements for construction sites less than 5 acres, members of the Storm Water Phase II FACA Subcommittee asked EPA to try to minimize redundancy in the construction permit requirements. In response, today's rule at §122.44(s) provides for incorporation of qualifying State, Tribal or local erosion and sediment control program requirements by reference into the NPDES permit authorizing storm water discharges from construction sites (described under §§122.26(b)(15) and (b)(14)(x)). The incorporation by reference approach applies not only to the newly regulated storm water discharges (from construction activity disturbing between 1 and 5 acres, including designated sites, but *68778 excluding waived sites) but also to discharges from construction activity disturbing 5 or more acres already covered by the existing storm water regulations. For this latter category of discharges from construction activity disturbing 5 or more acres, the incorporation by reference approach requires that the pollutant control requirements from the incorporated program also satisfy the statutory standard for limitations representing application of the best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT).

For permits issued for discharges from small construction activity defined under §122.26(b)(15), a qualifying State, Tribal, or local erosion and sediment control program is one that includes the program elements described under §122.44(s)(1). These elements include requirements for construction site operators to implement appropriate erosion and sediment control BMPs, requirements to control waste, a requirement to develop a storm water pollution prevention plan, and requirements to submit a site plan for review. A storm water pollution prevention plan includes site descriptions, descriptions of appropriate control measures, copies of approved State, Tribal or local requirements, maintenance procedures, inspection procedures, and identification of non-storm water discharges. The construction site's permit would require it to follow the requirements of the qualifying local program rather than require it to follow two different sets of requirements. If a partially-qualifying program does not have all of the elements described under §122.44(s)(1), then the NPDES permitting authority may still incorporate language in the small construction site discharge's permit that requires the construction site operator to follow the program, but the construction site discharge permit also must incorporate the missing required elements in order to satisfy CWA requirements.

The term “local” refers to the geographic area of applicability, not the form of government that develops and administers the program. Thus, a qualifying federal erosion and control program, such as certain programs developed and administered by the federal Bureau of Land Management, could be a qualifying local program.

As a result of this provision, local requirements will, in effect, provide the substantive construction site erosion and sediment control requirements for the NPDES permit authorization. Therefore, by following one set of erosion and sediment control requirements, construction site operators satisfy both local and NPDES permit requirements without duplicative effort. At the same time, noncompliance with the referenced local requirements will be considered noncompliance with the NPDES permit which is federally enforceable. The NPDES permitting authority will, of course, retain the discretion to decide whether to include the alternative requirements in the general permit. EPA believes that this approach will best balance the need for consideration of specific local requirements and local implementation with the need for federal and citizen oversight, and will extend supplemental NPDES requirements to control storm water discharges from construction sites.

EPA developed the “incorporation by reference” approach based on implementation efforts designed by the State of Michigan. Michigan relies on localities to develop substantive controls for storm water discharges associated with construction activities on a localized basis. Localities, however, are not required to do so. In areas where the local authority does not choose to participate, the State administers the sedimentation and erosion control requirements. The State agency, as the NPDES permitting authority, receives an NOI (termed “notice of coverage” by Michigan) under the general permit and tracks and exercises oversight, as appropriate, over the activity causing the storm water discharge.

Michigan's goal under these procedures is to utilize the existing erosion and sediment control program infrastructure authorized under State law for storm water discharge regulation. (See U.S. Environmental Protection Agency, Office of Water, January 7, 1994. Memo: From Michael B. Cook, Director OWEC, to Water Management Division Directors, Regarding the "Approach Taken by Michigan to Regulate Storm Water Discharges from Construction Activities.")

Most commenters supported the general concept of incorporating by reference qualifying programs. Two commenters expressed concern that different local construction requirements will create an impossible regulatory scheme for builders who work in different localities. EPA believes that allowing States to incorporate qualifying programs by reference will minimize the differences for builders who work in different areas of the State. These differences already exist, however, not only for erosion and sediment controls, but also other aspects of construction. In any event, the criteria for qualification for localized programs should provide a certain degree of standardization for various localities' requirements. EPA expects that the new rule for construction and post-construction BMPs being developed under CWA section 304(m) will also encourage standardization of local requirements. (See discussion of this new rulemaking in section II.D.1, Federal Role of this preamble).

Two commenters requested that an "incorporation by reference" should include permission, in writing, from the qualifying local program administrator because of a perceived extra burden on the referenced program. Any program requirements incorporated by reference in NPDES permits should already apply to construction site dischargers in the applicable area and therefore should not add any additional burden to the referenced program. EPA has left to the discretion of the permitting authority the decision on whether to seek permission from the qualifying program before cross-referencing it in an NPDES permit.

One commenter stated that a qualifying local program should require a SWPPP. The proposed rule defined the qualifying local program as a program that meets the minimum program requirements established in the proposed construction minimum control measure for small MS4s. To ensure consistency in the controls for storm water discharges between the larger, already regulated construction sites and the discharges from smaller sites that will be regulated as a result of today's rule, EPA has made a change to define a qualifying local program as one that includes the elements described in [§122.44\(s\)\(1\)](#). [Section 122.44\(s\)\(1\)](#) requires the development and implementation of a storm water pollution prevention plan as a criterion for qualification of local programs for incorporation by reference. As noted above, if a qualifying program does not include all the elements in [§122.44\(s\)\(1\)](#) then the permitting authority will need to specify the missing elements in order to rely on the incorporation by reference approach.

One commenter asked what happens in regard to the use of qualifying programs when a construction site operator is also the qualifying local program operator. The provision for incorporation by reference applies in this situation also. The local program operator will be required to comply with requirements it has established for others. *68779

e. Alternative Approaches

EPA received a number of comments on alternative permitting approaches. Several commenters supported regulating discharges only from those construction sites within urbanized areas. Other commenters opposed this approach. EPA chose to address storm water discharges from construction sites located both within and outside urbanized areas because of the potential for adverse water quality impact from storm water discharges from smaller sites in all areas. Regulating only those sites within urbanized areas would have excluded a large number of potential contributors to water quality impairment and would not address large areas of new development occurring on the outer fringes of urbanized areas. In fact, designating only small construction discharges within urbanized areas might create a perverse incentive for building only outside urbanized areas. Such an incentive would be inconsistent with the Agency's intention behind designating to protect water quality. The Agency intends that designation to protect water quality in today's rule should be both remedial and preventive.

A number of commenters encouraged EPA to cover municipal construction activities under the small MS4 general permit, instead of issuing a separate NPDES construction permit to these municipal construction projects. Similarly, a number of commenters supported EPA giving industrial facilities the option of having storm water from construction activities on the site covered by the industrial storm water permit. Several other commenters found that combining multiple permit types under one general permit introduced a degree of complexity which was confusing to permittees. Permitting authorities have the option of combining MS4 and construction permits or industrial and construction permits, however, specific requirements for each would still need to be included in the permit issued. EPA agrees that this would probably result in a more complex and confusing permit compared to the existing component permits.

Several commenters supported an alternative for regulated small MS4s where a local qualified program alone, without an NPDES permit, is sufficient to enforce compliance with construction site discharge requirements. On the other hand, one commenter stated that linking the local construction erosion and sediment control program to the existing NPDES program for storm water from larger construction has driven improvements in many local programs. Another commenter stated that the potential fines under the NPDES program will encourage compliance and will be much stronger than any fines a local program may have. EPA agrees that the NPDES program is the best approach to address water quality impacts from construction sites and provides benefits such as accountability and federal enforcement.

A number of commenters supported issuing one permit for each construction company, instead of a permit for each individual construction activity (also requested for storm water discharges from the larger, already regulated construction sites). Other commenters found that a 'licensing' program for construction site operators would have many problems, including identifying who to permit and tracking information on active sites. EPA is regulating only the storm water discharges associated with construction activity from small sites, not the construction activity itself. Separate NPDES permits (either individual or general permit coverage) for construction site discharges avoid potential problems in tracking sites and operator accountability. [Section 122.28\(b\)\(2\)\(v\)](#) gives permitting authorities the option to issue a general permit without requiring an NOI. If an NOI is not required for each activity, permitting authorities could pursue other options such as a company-wide NOI, license instead of an NOI, or another mechanism.

2. Other Sources

In the Storm Water Discharges Potentially Addressed by Phase II of the National Pollutant Discharge Elimination System Storm Water Program, Report to Congress, March 1995, ("Report") submitted by EPA pursuant to CWA section 402(p)(5), EPA examined the remaining unregulated point sources of storm water for the potential to adversely affect water quality. Due to very limited national data on which to estimate pollutant loadings on the basis of discharge categories, the discussion of the extent of unregulated storm water discharges is limited to an analysis of the number and geographic distribution of the unregulated storm water discharges. Therefore, EPA is not designating any additional unregulated point sources of storm water on a nationwide, categorical basis. Instead, the remainder of the sources will be regulated based on case-by-case post-promulgation designations by the NPDES permitting authority.

EPA did, however, evaluate a variety of categories of discharges for potential designation in the Report. EPA's efforts to identify sources and categories of unregulated storm water discharges for potential designation for regulation in today's rule started with an examination of approximately 7.7 million commercial, retail, industrial, and institutional facilities identified as "unregulated." In general, the distribution of these facilities follows the distribution of population, with a large percentage of facilities concentrated within urbanized areas (see page 4-35 of the Report). This examination resulted in identification of two general classes of facilities with the potential for discharging pollutants to waters of the United States through storm water point sources.

The first group (Group A) included sources that are very similar, or identical, to regulated "storm water discharges associated with industrial activity" but that were not included in the existing storm water regulations because EPA used SIC codes in defining the universe of regulated industrial activities. By relying on SIC codes, a classification system created to identify industries rather than environmental impacts from these industries discharges, some types of storm

water discharges that might otherwise be considered “industrial” were not included in the existing NPDES storm water program. The second general class of facilities (Group B) was identified on the basis of potential for activities and pollutants that could contribute to storm water contamination.

EPA estimates that Group A has approximately 100,000 facilities. Discharges from facilities in this group, which may be of high priority due to their similarity to regulated storm water discharges from industrial facilities, include, for example, auxiliary facilities or secondary activities (e.g., maintenance of construction equipment and vehicles, local trucking for an unregulated facility such as a grocery store) and facilities intentionally omitted from existing storm water regulations (e.g., publicly owned treatment works with a design flow of less than 1 million gallons per day, landfills that have not received industrial waste).

Group B consists of nearly one million facilities. EPA organized Group B sources into 18 sectors for the purposes of the Report. The automobile service sector (e.g., gas/service stations, general automobile repair, new and used car dealerships, car and truck rental) makes up more than one-third of the total number of facilities identified in all 18 sectors.

EPA conducted a geographical analysis of the industrial and commercial facilities in Groups A and ***68780** B. The geographical analysis shows that the majority are located in urbanized areas (see Section 4.2.2, Geographic Extent of Facilities, in the Report). In general, about 61 percent of Group A facilities and 56 percent of Group B facilities are located in urbanized areas. The analysis also showed that nearly twice as many industrial facilities are found in all urbanized areas as are found in large and medium municipalities alone. Notable exceptions to this generalization included lawn/garden establishments, small unregulated animal feedlots, wholesale livestock, farm and garden machinery repair, bulk petroleum wholesale, farm supplies, lumber and building materials, agricultural chemical dealers, and petroleum pipelines, which can frequently be located in smaller municipalities or rural areas.

In identifying potential categories of sources for designation in today's notice, EPA considered designation of discharges from Group A and Group B facilities. EPA applied three criteria to each potential category in both groups to determine the need for designation: (1) The likelihood for exposure of pollutant sources included in that category, (2) whether such sources were adequately addressed by other environmental programs, and (3) whether sufficient data were available at this time on which to make a determination of potential adverse water quality impacts for the category of sources. As discussed previously, EPA searched for applicable nationwide data on the water quality impacts of such categories of facilities.

By application of the first criterion, the likelihood for exposure, EPA considered the nature of potential pollutant sources in exposed portions of such sites. As precipitation contacts industrial materials or activities, the resultant runoff is likely to mobilize and become contaminated by pollutants. As the size of these exposed areas increases, EPA expects a proportional increase in the pollutant loadings leaving the site. If EPA concluded that a category of sources has a high potential for exposure of raw materials, intermediate products, final products, waste materials, byproducts, industrial machinery, or industrial activity to rainfall, the Agency rated that category of sources as having “high” potential for adverse water quality impact. EPA's application of the first criterion showed that a number of Group A and B sources have a high likelihood of exposure of pollutants.

Through application of the second criterion, EPA assessed the likelihood that pollutant sources are regulated in a comprehensive fashion under other environmental protection programs, such as programs under the Resource Conservation and Recovery Act (RCRA) or the Occupational Health and Safety Act (OSHA). If EPA concluded that the category of sources was sufficiently addressed under another program, the Agency rated that source category as having “low” potential for adverse water quality impact. Application of the second criterion showed that some categories were likely to be adequately addressed by other programs.

After application of the third criterion, availability of nationwide data on the various storm water discharge categories, EPA concluded that available data would not support any such nationwide designations. While such data could exist on a regional or local basis, EPA believes that permitting authorities should have flexibility to regulate only those categories of sources contributing to localized water quality impairments.

EPA received comments requesting designation of additional industrial, commercial and retail sources (e.g. industrial activity “look-alikes”, roads, commercial facilities and institutions, and vehicle maintenance facilities) in the final rule, because the commenters believe that the data exist to support national designation of some of these sources. Other comments were received opposing designation of any additional sources. Today's rule does not designate any additional industrial or commercial category of sources either because EPA currently lacks information indicating a consistent potential for adverse water quality impact or because of EPA's belief that the likelihood of adverse impacts on water quality is low, with some possible exceptions on a more local basis. Since the time the Agency submitted the Report, EPA has continued to seek additional data and has requested available data from the FACA members. If sufficient regional or nationwide data become available in the future, the permitting authority could at that time designate a category of sources or individual sources on a case-by-case basis. Therefore, today's rule encourages control of storm water discharges from Groups A and B through self-initiated, voluntary BMPs, unless the discharge (or category of discharges) is designated for permitting by the permitting authority. See discussion in section I.D., EPA's Reports to Congress.

3. ISTEA Sources

Provisions within the Intermodal Surface Transportation and Efficiency Act (ISTEA) of 1991 temporarily exempted storm water discharges associated with industrial activity that are owned or operated by municipalities serving populations less than 100,000 people (except for airports, power plants, and uncontrolled sanitary landfills) from the need to apply for or obtain a storm water discharge permit (section 1068(c) of ISTEA). Congress extended the NPDES permitting moratorium for these facilities to allow small municipalities additional time to comply with NPDES requirements for certain sources of industrial storm water. The August 7, 1995 storm water final rule ([60 FR 40230](#)) further extended this moratorium until August 7, 2001. However, today's rule changes this deadline so that previously exempted industrial facilities owned or operated by municipalities serving populations less than 100,000 people, must now submit an application for a permit within 3 years and 90 days from date of publication of today's rule.

EPA received comments recommending that permit requirements for municipally owned or operated industrial storm water discharges, including those previously exempt under ISTEA, be included in a single NPDES permit for all MS4 storm water discharges. The existing NPDES regulations already provide permitting authorities the ability to issue a single “combination” permit for MS4 discharges. However, if the permitting authorities chose to issue this type of permit, they must make sure that in doing so, they are not creating a double standard for industrial facilities covered under the combination permit versus those covered under separate general or individual permits. In order to avoid this double standard, combination permits would have to contain requirements that are the same or very similar to the requirements found in separate MS4 and industrial permits, i.e., the minimum measures and other necessary requirements of an MS4 permit, and the SWPPP, monitoring and reporting requirements, and other necessary requirements of an industrial permit. If such a combined MS4 general permit were issued, the regulations require that each discharger submit NOIs for their respective discharges, except for discharges from small construction activities. Flexibility exists in developing a combination NOI which could reduce the need to submit duplicative information, e.g. owner/operator name and address. The combination NOI would still need to require specific information for each separate municipally owned or operated industrial location, including ***68781** construction projects disturbing 5 or more acres. The regulations at [§122.28\(b\)\(2\)\(ii\)](#) list the necessary contents of an NOI, which require: the facility name, facility address, type of facility or discharge and receiving stream for each industrial discharge location. When viewed in its entirety, a combination permit, which by necessity would need to contain all elements of otherwise separate industrial and MS4 permit requirements, and require NOI information for each separate industrial activity, may have few advantages when compared to obtaining separate MS4 and industrial general permit coverage.

In order to allow the permitting authority to issue a single storm water permit for the MS4 and all municipally owned or operated industrial facilities, including those previously exempt under ISTEA, today's rule requires applications for ISTEA sources within 3 yrs and 90 days from date of publication of today's rule. The permitting authority has the ultimate decision to determine whether or not a single all-encompassing MS4 permit is appropriate.

4. Residual Designation Authority

The NPDES permitting authority's existing designation authority, as well as the petition provisions are being retained. Today's rule contains two provisions related to designation authority at §§122.26(a)(9)(i)(C) and (D). Subsection (C) adds designation authority where storm water controls are needed for the discharge based upon wasteload allocations that are part of TMDLs that address the pollutant(s) of concern. EPA intends that the NPDES permitting authority have discretion in the matter of designations based on TMDLs under subsection (C). Subsection (D) carries forward residual designation authority under former §122.26(g), and has been modified to provide clarification on categorical designation. Under today's rule, EPA and authorized States continue to exercise the authority to designate remaining unregulated discharges composed entirely of storm water for regulation on a case-by-case basis (including §123.35). Individual sources are subject to regulation if EPA or the State, as the case may be, determines that the storm water discharge from the source contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States. This standard is based on the text of section CWA 402(p). In today's rule, EPA believes, as Congress did in drafting section CWA 402(p)(2)(E), that individual instances of storm water discharge might warrant special regulatory attention, but do not fall neatly into a discrete, predetermined category. Today's rule preserves the regulatory authority to subsequently address a source (or category of sources) of storm water discharges of concern on a localized or regional basis. For example, as States and EPA implement TMDLs, permitting authorities may need to designate some point source discharges of storm water on a categorical basis either locally or regionally in order to assure progress toward compliance with water quality standards in the watershed.

EPA received comments asking that §122.26(a)(9)(i)(D) as proposed be modified to include specific language clarifying the permitting authority's ability to designate additional sources on a categorical basis as explained in the preamble to the proposed rule. One comment requested that the designation language include “categories of sources on a Statewide basis.” EPA agrees that the intent of the language may not have been clear regarding categorical designation. Today's rule modifies subsection (D) to clarify that the designation authority can be applied within different geographic areas to any single discharge (i.e., a specific facility), or category of discharges that are contributing to a violation of a water quality standard or are significant contributors of pollutants to waters of the United States. The added term “within a geographic area” allows “State-wide” or “watershed-wide” designation within the meaning of the terms.

One commenter questioned the Agency's legal authority to provide for such residual designation authority. The stakeholder argued that the lapse of the October 1, 1994, permitting moratorium under CWA section 402(p)(1) eliminated the significance of the CWA section 402(p)(2) exceptions to the moratorium, including the exception for discharges of storm water determined to be contributing to a violation of a water quality standard or a significant contributor of pollutants under CWA section 402(p)(2)(E). The stakeholder further argued that EPA's authority to designate sources for regulation under CWA section 402(p)(6) is limited to storm water discharges other than those described under CWA section 402(p)(2). Because CWA section 402(p)(2)(E) describes individually designated discharges, the stakeholder concluded that regulations under CWA section 402(p)(6) cannot provide for post-promulgation designation of individual sources. EPA disagrees.

First, as explained previously, EPA anticipates that NPDES permitting authorities may yet determine that individual unregulated point sources of storm water discharges require regulation on a case-by-case basis. This conclusion is consistent with the Congress' recognition of the potential need for such designation under the first phase of storm water regulation as described in CWA section 402(p)(2)(E). Under CWA section 402(p)(2)(E), Congress recognized the need for both EPA and the State to retain authority to regulate unregulated point sources of storm water under the NPDES permit program. Second, to the extent that CWA section 402(p)(6) requires designation of a “category” of sources,

the permitting authority may designate such (as yet unidentified) sources as a category that should be regulated to protect water quality. Though such sources may exist and discharge today, if neither EPA nor the State/Tribal NPDES permitting authority has designated the source for regulation under CWA section 402(p)(2)(E) to date, then CWA section 402(p)(6) provides the authority to designate such sources.

The Agency can designate a category of “not yet identified” sources to be regulated, based on local concerns, even if data do not exist to support nationwide regulation of such sources. EPA does not interpret the language in CWA section 402(p) to preclude States from exercising designation authority under these provisions because such designation (and subsequent regulation of designated sources) is within the “scope” of the NPDES program.

EPA also believes that sources regulated pursuant to a State designation are part of (and regulated under) a federally approved State NPDES program, and thus subject to enforcement under CWA sections 309 and 505. Under existing NPDES State program regulations, State programs that are “greater in scope of coverage” are not part of the federally-approved program. By contrast, any such State regulation of sources in this “reserved category” will be within the scope of the federal program because today's rule recognizes the need for such post promulgation designations of unregulated point sources of storm water. Such regulation will be “more stringent” than the federal program rather than “greater in scope of coverage” (40 CFR 123.1(h)).

EPA does not interpret the congressional direction in CWA section 402(p)(6) to preclude regulation of point sources of storm water that should be regulated to protect water quality. Under CWA section 510, Congress expressly recognized and preserved the authority of States to adopt and enforce *68782 more stringent regulation of point sources, as well as any requirement respecting the control or abatement of pollution. Section 510 applies, “except as expressly provided” in the CWA. CWA section 502(14) does expressly provide affirmative limitations on the regulation of certain pollutant sources through the point source control program, the NPDES permitting program. Section 502(14) excludes agricultural storm water and return flows from irrigated agriculture from the definition of point source, and section 402(l) limits applicability of the section 402 permit program for return flows from irrigated agriculture, as well as for storm water runoff from certain oil, gas, and mining operations. Unlike sections 502(14) and 402(l), EPA does not interpret CWA section 402(p)(6) as an express provision limiting the authority to designate point sources of storm water for regulation on a case-by-case basis after the promulgation of final regulations. Any source of storm water discharge is encouraged to assess its potential for storm water contamination and take preventive measures against contamination. Such proactive actions could result in the avoidance of future regulation.

One comment was received requesting clarification of the term “non-municipal” in §122.26(a)(9)(ii). The commenter is concerned that the term “non-municipal,” in this context, implies that municipally owned or operated facilities cannot be designated. The term “non-municipal” in this context refers to the universe of unregulated industrial and commercial facilities that could potentially be designated according to §122.26(a)(9)(i) authority. There is no exemption for municipally owned or operated facilities under these designation provisions.

Finally, EPA received comments and evaluated the proposal under which operators of regulated small, medium, and large MS4s would be responsible for controlling discharges from industrial and other facilities into their systems in lieu of requiring NPDES permit coverage for such facilities. EPA did not adopt this framework due to concerns with administrative and technical burden on the MS4 operators, as well as concerns about such an intergovernmental mandate.

J. Conditional Exclusion for “No Exposure” of Industrial Activities and Materials to Storm Water

1. Background

In 1992, the Ninth Circuit court remanded to EPA for further rulemaking, a portion of the definition of “storm water discharge associated with industrial activity” that excluded the category of industrial activity identified as “light industry”

when industrial materials and/or activities were not exposed to storm water. See [NRDC v. EPA, 966 F.2d 1292, 1305 \(9th Cir. 1992\)](#). Today's final rule responds to that remand. In the 1990 storm water regulations, EPA excluded the light industry category from the requirement for an NPDES permit if the industrial materials and/or activities were not “exposed” to storm water (see [§122.26\(b\)\(14\)](#)). The Agency had reasoned that most of the activity at these types of facilities takes place indoors and that emissions from stacks, use of unhooded manufacturing equipment, outside material storage or disposal, and generation of large amounts of dust or particles would be atypical (55 FR 48008, November 16, 1990).

The Ninth Circuit determined that the exemption was arbitrary and capricious for two reasons. First, the court found that EPA had not established a record to support its assumption that light industry that was not exposed to storm water was not “associated with industrial activity,” particularly when other types of industrial activity not exposed to storm water remained “associated with industrial activity.” The court specifically found that “[t]o exempt these industries from the normal permitting process based on an unsubstantiated assumption about this group of facilities is arbitrary and capricious.” Second, the court concluded that the exemption impermissibly “altered the statutory scheme” for permitting because the exemption relied on the unverified judgment of the light industrial facility operator to determine non-applicability of the permit application requirements. In other words, the court was critical that the operator would determine for itself that there was “no exposure” and then simply not apply for a permit without any further action. Without a basis for ensuring the effective operation of the permitting scheme—either that facilities would self-report actual exposure or that EPA would be required to inspect and monitor such facilities—the court vacated and remanded the rule to EPA for further rulemaking.

One of the major concerns expressed by the FACA Committee, was that EPA streamline and reinvent certain troublesome or problematic aspects of the existing permitting program for storm water discharges. One area identified was the mandatory applicability of the permitting program to all industrial facilities, even those “light industrial” activities that are of very low risk or of no risk to storm water contamination. Such dischargers may not have any industrial sources of storm water contamination on the plant site, yet they are still required to apply for an NPDES storm water permit and meet all permitting requirements. Examples of such facilities are a soap manufacturing plant (SIC Code 28) or hazardous waste treatment and disposal facility, where all industrial activities, even loading docks, are inside a building or under a roof.

Although they did not provide a written report, the FACA Committee members advised EPA that the existing storm water program should be revised to allow such facilities to seek an exclusion from the NPDES storm water permitting requirements. The Committee agreed that such an exclusion should also provide a strong incentive for other industrial facilities that conduct industrial activities outdoors to move the activities under cover or into buildings to prevent contamination of rainfall and storm water runoff. The committee believed that such a “no exposure” permit exclusion could be a valuable incentive for storm water pollution prevention.

In today's final rule, the Agency responds to both of the bases for the court's remand. The exclusion from permitting based on “no exposure” applies to all industrial categories listed in the existing storm water regulations except construction. The court's opinion rejected EPA's distinction between light industry and other industry, but it did not preclude an interpretation that treats all “non-exposed” industrial facilities in the same fashion. Presuming that an industrial facility adequately prevents exposure of industrial materials and activities to storm water, today's rule treats discharges from “non-exposed” industrial facilities in a manner similar to the way Congress intended for discharges from administrative buildings and parking lots. Specifically, permits will not be required for storm water discharges from these facilities on a categorical basis.

To assure that discharges from industrial facilities really are similar to discharges from administrative buildings and parking lots, and to respond to the second basis for the court's remand, the permitting exclusion is “conditional”. The person responsible for a point source discharge from a “no exposure” industrial source must meet the conditions of

the exclusion, and complete, sign and submit the certification to the permitting authority for tracking and *68783 accountability purposes. EPA believes today's rule, therefore, is fully consistent with the direction provided by the court.

EPA relied upon the “no exposure” concept discussed by the FACA Committee in developing the “no exposure” provisions of today's rule. EPA is deleting the sentence regarding “no exposure” for the facilities in §122.26(b)(14)(xi) and adding a new §122.26(g) titled “Conditional Exclusion for No Exposure of Industrial Activities to Storm Water.” The “no exposure” provision will make storm water discharges from all classes of industrial facilities eligible for exclusion, except storm water discharges from regulated construction activities. Regulated construction activities cannot claim “no exposure” because the main pollutants of concern (e.g., sediment) generally cannot entirely be sheltered from storm water.

Today's rule represents a significant expansion in the scope of the “no exposure” provision originally promulgated in the 1990 rule, which was only for storm water discharges from light industry. The intent of today's “no exposure” provision is to provide a simplified method for complying with the CWA to all industrial facilities that are entirely indoors. This includes facilities that are located within a large office building, or at which the only items permanently exposed to precipitation are roofs, parking lots, vegetated areas, and other non-industrial areas or activities.

EPA received several comments related to storm water runoff from parking lots, roof tops, lawns, and other non-industrial areas of an industrial facility. Storm water discharges from these areas, which may contain pollutants or which may result in additional storm water flows, are not directly regulated under the existing storm water permitting program because they are not “storm water discharges associated with industrial activity”. Many comments on this issue supported maintaining the exclusion from the existing regulations for storm water permitting for discharges from administrative buildings, parking lots, and other non-industrial areas. Other comments opposed allowing the continued exclusion for discharges from non-industrial areas of the site because discharges from these areas are potentially a significant cause of receiving water impairment. These comments urged that such discharges should not be excluded from NPDES permit coverage. Today's rule does not require permit coverage for discharges from a facility's exposed areas that are separate from industrial activities such as runoff from office buildings and accompanying parking lots, lawns and other non-industrial areas. This approach is consistent with the existing storm water rules which were based on Congress's intent to exclude non-industrial areas such as “parking lots and administrative and employee buildings.” 133 Cong. Rec. 985 (1987). EPA also lacks data indicating that discharges from these areas at an industrial facility cause significant receiving water impairments. Therefore, the non-industrial areas at a facility do not need to be assessed as part of the “no exposure” certification.

EPA received comments related to industrial facilities that achieve “no exposure” by constructing large amounts of impervious surfaces, such as roofs, where previously there were pervious or porous surfaces into which storm water could infiltrate. Some commenters made the point that large amounts of impervious area may cause a significant increase in storm water volume flowing off the industrial facility, and thus may cause adverse receiving water impacts simply due to the increased quantity of storm water flow. Some commenters said that storm water discharges from impervious areas at an industrial facility are generally more frequent, and often larger, than discharges from the pre-existing natural surfaces. They believe that these discharges will contain pollutants typical of commercial areas and roads and are an equal threat to direct human uses of the water and can cause equal damage to aquatic life and its habitat. Other commenters believe that if Congress or EPA addresses the issue of flow, it should be addressed on a broader scale than merely through the “no exposure” exclusion, and that EPA has no authority under any existing legal framework to regulate flow directly. Some commenters stated that developing federal parameters for the control of water quantity, i.e. flow, would result in federal intrusion into land use planning, an authority that they claim is solely within the purview of State governments and their political subdivisions.

EPA is not attempting to regulate flow via the “no exposure” provisions. EPA does agree, however, that increases in impervious surfaces can result in increased runoff volumes from the site which in turn may increase pollutant loading. In

addition, the Agency notes that in some States water quality standards include water quality criteria for flow or turbidity. Therefore, in order to provide a minimal amount of information on possible impacts from increased pollutant loading and runoff volume, EPA's "no exposure" certification form (see Appendix 4) asks the discharger to indicate if they have paved or roofed over a formerly exposed, pervious area in order to qualify for the "no exposure" exclusion. If the answer is yes, the discharger must indicate, by choosing from three possible responses, approximately how much impervious area was created to achieve "no exposure". The choices are: (1) less than 1 acre, (2) 1 to 5 acres, and (3) more than 5 acres. This requirement provides additional information that will aid in determining if discharges from the facility are causing adverse receiving water impacts. EPA intends to prevent water quality impacts resulting from increased discharges of pollutants, which may result from increased volume of runoff. In many cases, consideration of the increased flow rate, velocity and energy of storm water discharges, following construction of large amounts of impervious surfaces, must be taken into consideration in order to reduce the discharge of pollutants, to meet water quality standards and to prevent degradation of receiving streams. EPA recommends that dischargers consider these factors when making modifications to their site in order to qualify for the "no exposure" exclusion.

2. Today's Rule

In order to claim relief under the "no exposure" provision, the discharger of an otherwise regulated facility must submit a no exposure certification that incorporates the questions of §122.26(g)(4)(iii) to the NPDES permitting authority once every 5 years. This provision applies across all categories of industrial activity covered by the existing program, except discharges from construction activities.

In addition to submitting a "no exposure" certification every 5 years, the facility must allow the NPDES permitting authority or operator of an MS4 (where there is a storm water discharge to the MS4) to inspect the facility and to make such inspection reports publicly available upon request. Also, upon request, the facility must submit a copy of the "no exposure" certification to the operator of the MS4 into which the facility discharges (if applicable). All "no exposure" certifications must be signed in accordance with the signatory requirements of §122.22. The "no exposure" certification is non-transferable. In the event that the facility operator changes, the new discharger must submit a new "no exposure" certification. *68784

Members of the FACA Committee urged that EPA not allow dischargers certifying "no exposure" to take actions to qualify for this provision that result in a net environmental detriment. In developing a regulatory implementation mechanism, however, EPA found that the phrase "no net environmental detriment," was too imprecise to use within this context. Therefore, today's rule addresses this issue by requiring information that should help the permitting authority to determine whether actions taken to qualify for the exclusion interfere with the attainment or maintenance of water quality standards, including designated uses. Permitting authorities will be able, where necessary, to make a determination by evaluating the activities that changed at the industrial site to achieve "no exposure", and assess whether these changes cause an adverse impact on, or have the reasonable potential to cause an instream excursion of, water quality standards, including designated uses. EPA anticipates that many efforts to achieve "no exposure" will employ simple good housekeeping and contaminant cleanup activities. Other efforts may involve moving materials and industrial activities indoors into existing buildings or structures.

In very limited cases, industrial operators may make major changes at a site to achieve "no exposure". These efforts may include constructing a new building or cover to eliminate exposure or constructing structures to prevent run-on and storm water contact with industrial materials or activities. Where major changes to achieve "no exposure" increase the impervious area of the site, the facility operator must provide this information on the "no exposure" certification form as discussed above. Using this and other available data and information, permitting authorities should be able to assess whether any major change has resulted in increased pollutant concentrations or loadings, toxicity of the storm water runoff, or a change in natural hydrological patterns that would interfere with the attainment and maintenance of water quality standards, including designated uses or appropriate narrative, chemical, biological, or habitat criteria where such State or Tribal water quality standards exist. In these instances, the facility operator and their NPDES permitting

authority should take appropriate actions to ensure that attainment or maintenance of water quality standards can be achieved. The NPDES permitting authority should decide if the facility must obtain coverage under an individual or general permit to ensure that appropriate actions are taken to address adverse water quality impacts.

While the intent of today's "no exposure" provision is to reduce the regulatory burdens on industrial facilities and government agencies, the FACA Committee suggested that the NPDES permitting authority consider a compliance assessment program to ensure that facilities that have availed themselves of this "no exposure" option meet the applicable requirements. Inspections could be conducted at the discretion of the NPDES authority and be coordinated with other facility inspections. EPA expects, however, that the permitting authority will conduct inspections when it becomes aware of potential water quality impacts possibly caused by the facility's storm water discharges or when requested to do so by adversely affected members of the public. The intent of this provision is that the 5 year "no exposure" certification be fully available to, and enforceable by, appropriate federal and State authorities under the CWA. Private citizens can enforce against facilities for discharges of storm water that are inconsistent with a "no exposure" certification if storm water discharges from such facilities are not otherwise permitted and in compliance with applicable requirements.

EPA received comments from owners, operators and representatives of Phase I facilities classified as "light industry" as defined by the regulations at [§ 122.26\(b\)\(14\)\(xi\)](#). The comments recommended maintaining the approach of the existing regulations which does not require the discharger to submit any supporting documentation to the permitting authority in order to claim the "no exposure" exclusion from permitting. As discussed previously, the "no exposure" concept was developed in response to the Ninth Circuit court's remand of part of the existing rules back to EPA. The court found that EPA cannot rely on the "unverified judgment" of the facility. The comments opposing documentation did not address the "unverified judgment" concern.

Today's rule is a "conditional" exclusion from permitting which requires all categories, including the "light industrial" facilities that have no exposure of materials to storm water, to submit a certification to the permitting authority. Upon receipt of a complete certification, the permitting authority can review the information, or call, or inspect the facility if there are doubts about the facility's "no exposure" claim. Also, if the facility discharges into an MS4, the operator of the MS4 can request a copy of the certification, and can inspect the facility. The public can request a copy of the certification and/or inspection reports. In adopting these conditional "no exposure" provisions, the Agency addressed the Ninth Circuit court's ruling regarding the discharger's unverified judgment.

EPA received one comment requesting clarification on whether the anti-backsliding provisions in the regulations at [§122.44\(l\)](#) apply to industrial facilities that are currently covered under an NPDES storm water permit, and whether such facilities could qualify for the "no exposure" exclusion under today's rule. The anti-backsliding provisions will not prevent most industrial facilities that can certify "no exposure" under today's rule from qualifying for an exclusion from permitting. The anti-backsliding provisions contain 5 exceptions that allow permits to be renewed, reissued or modified with less stringent conditions. One exception at [§122.44\(l\)\(2\)\(A\)](#) allows less stringent conditions if "material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation." [Section 122.44\(l\)\(B\)\(1\)](#) also allows less stringent requirements if "information is available which was not available at the time of permit issuance and which would have justified the application of less stringent effluent limitations at the time of permit issuance." Facility's operators who certify "no exposure" and submit the required information once every 5 years will have provided the permitting authority "information that was not available at the time of permit issuance." Also, some facilities may, in order to achieve "no exposure", make "material and substantial alterations or additions to the permitted facility." Therefore, most facilities covered under existing NPDES general permits for storm water (e.g., EPA's Multi-Sector General Permit) will be eligible for the conditional "no exposure" exclusion from permitting without concern about the anti-backsliding provisions. Such dischargers will have met one or both of the anti-backsliding exceptions detailed above. Facilities that are covered under individual permits containing numeric limitations for storm water should consult with their permitting authority to determine whether the

anti-backsliding provisions will prevent them from qualifying for the exclusion from permitting (for that discharge point) based on a certification of “no exposure”.

***68785** EPA received several comments regarding the timing of when the “no exposure” certification should be submitted. The proposed rule said that the “no exposure” certification notice must be submitted “at the beginning of each permit term or prior to commencing discharges during a permit term.” Some commenters interpreted this statement to mean that existing facilities can only submit the certification at the time a permit is being issued or renewed. EPA intended the phrase “at the beginning of each permit term” to mean “once every 5 years” and today's rule reflects this clarification. EPA envisions that the NPDES storm water program will be implemented primarily through general permits which are issued for a 5 year term. Likewise the “no exposure” certification term is 5 years. The NPDES permitting authority will maintain a simple registration list that should impose only a minor administrative burden on the permitting authority. The registration list will allow for tracking of industrial facilities claiming the exclusion. This change allows a facility to submit a “no exposure” certification at any time during the term of the permit, provided that a new certification is submitted every 5 years from the time it is first submitted (assuming that the facility maintains a “no exposure” status). Once a discharger has established that the facility meets the definition of “no exposure”, and submits the necessary “no exposure” certification, the discharger must maintain their “no exposure” status. Failure to maintain “no exposure” at their facility could result in the unauthorized discharge of pollutants to waters of the United States and enforcement for violation of the CWA. Where a discharger believes that exposure could occur in the future due to some anticipated change at the facility, the discharger should submit an application and obtain coverage under an NPDES permit prior to such discharge to avoid penalties.

Where EPA is the permitting authority, dischargers may submit a “no exposure” certification at any time after the effective date of today's rule. Where EPA is not the permitting authority, dischargers may not be able to submit the certification until the non-federal permitting authority completes any necessary statutory or regulatory changes to adopt this “no exposure” provision. EPA recommends that the discharger contact the permitting authority for guidance on when the “no exposure” certification should be submitted.

EPA received comments on the proposed rule requirement that the discharger “must comply immediately with all the requirements of the storm water program including applying for and obtaining coverage under an NPDES permit,” if changes occur at the facility which cause exposure of industrial activities or materials to storm water. The comments expressed the difficulty of immediate compliance. EPA expects that most facility changes can be anticipated, therefore dischargers should apply for and obtain NPDES permit coverage in advance of changes that result in exposure to industrial activities or materials. Permitting authorities may grant additional time, on a case-by-case basis, for preparation and implementation of a storm water pollution prevention plan.

Finally, today's rule at [§122.26\(g\)\(4\)](#) includes the information which must be included on the “no exposure” certification. Authorized States, Tribes or U.S. Territories may develop their own form which includes this required information, at a minimum. EPA adopted the requirements (with modification) from the draft “No Exposure Certification Form” published as an appendix to the proposed rule. Modifications were made to the draft form to address comments received and to streamline the required information. EPA included these certification requirements in today's rule in order to preserve its integrity. Dischargers in areas where EPA is the permitting authority should use the “No Exposure Certification” form included in Appendix 4.

3. Definition of “No Exposure”

For purposes of this section, “no exposure” means that all industrial materials or activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product or waste product. However,

storm resistant shelter is not required for: (1) Drums, barrels, tanks, and similar containers that are tightly sealed, provided those containers are not deteriorated and do not leak; (2) adequately maintained vehicles used in material handling; and (3) final products, other than products that would be mobilized in storm water discharge (e.g., rock salt). Each of these three exceptions to the no exposure definition are discussed in more detail below.

EPA intends the term “storm resistant shelter” to include completely roofed and walled buildings or structures, as well as structures with only a top cover but no side coverings, provided material under the structure is not otherwise subject to any run-on and subsequent runoff of storm water. While the Agency intends that this provision promote permanent “no exposure”, EPA understands that certain vehicles could pass between buildings and, during passage, be exposed to rain and snow. Adequately maintained vehicles such as trucks, automobiles, forklifts, or other such general purpose vehicles at the industrial site that are not industrial machinery, and that are not leaking contaminants or are not otherwise a source of industrial pollutants, could be exposed to precipitation or runoff. Such activities alone does not prevent a discharger from being able to certify no exposure under this provision. Similarly, trucks or other vehicles awaiting maintenance at vehicle maintenance facilities, as defined at §122.26(b)(14)(viii), that are not leaking contaminants or are not otherwise a source of industrial pollutants, are not considered exposed.

In addition, EPA recognizes that there are circumstances where permanent “no exposure” of industrial activities or materials is not possible. Under such conditions, materials and activities may be sheltered with temporary covers, such as tarps, between periods of permanent enclosure. The final rule does not specify every such situation. EPA intends that permitting authorities will address this issue on a case-by-case basis. Permitting authorities can determine the circumstances under which temporary structures will or will not meet the requirements of this section. Until permitting authorities specifically determine otherwise, EPA recommends application of the “no exposure” exclusion for temporary sheltering of industrial materials or activities only during facility renovation or construction, provided that the temporary shelter achieves the intent of this section. Moreover, “exposure” that results from a leak in protective covering would only be considered “exposure” if not corrected prior to the next storm water discharge event. EPA received one comment requesting that this allowance for temporary shelter be limited to facility renovation or construction directly related to the industrial activity requiring temporary shelter, and be scheduled to minimize the use of temporary shelter. Another comment suggested placing time limits ***68786** on the use of temporary shelter. The commenter did not recommend a specific time period, rather the comment said that renovation in some instances may take years, and that EPA should not allow temporary shelter over prolonged periods. EPA agrees that the use of temporary shelter must be related to the renovation or construction at the site, and be scheduled or designed to minimize the use of temporary shelter. Further, EPA agrees that the use of temporary shelter should be limited in duration, but does not intend to define “temporary” or “prolonged period”.

Many final products are intended for outdoor use and pose little risk of storm water contamination, such as new cars. Therefore, final products, except those that can be mobilized in storm water discharge, can be “exposed” and still allow the discharge to certify “no exposure”. EPA intends the term “final products” to mean those products that are not used in producing another product. Any product that can be used to make another product is considered an “intermediate product.” For example, a facility that makes horse trailers can store the finished trailers outdoors as a final product. The storage of those final products does not prevent eligibility to claim “no exposure”. However, any facility that makes parts for the horse trailers (e.g., metal tubing, sheet metal, paint) is not eligible for the “no exposure” exclusion from permitting if those “intermediate products” are stored outdoors (i.e., “exposed”).

EPA received comments related to materials in drums, barrels, tanks and similar containers. Some comments objected to the language in the preamble to the proposed rule that would have recommended that the “exposure” determination for drums and barrels be based on the “potential to leak.” Those comments said that all drums and barrels have the potential to leak, thereby making certification impossible. They recommended allowing outdoor storage of drums and barrels except for those that “are leaking” at the time of certification. Other comments suggested allowing drums and barrels to be stored outside only if the drums and barrels: are empty; have secondary containment; or there is a spill

contingency plan in place. Opposing comments suggested that allowing outdoor exposure of drums and barrels, based on existing integrity and condition, is inconsistent with the “however packaged” proposed rule language, and also would not satisfy the Ninth Circuit remand. The comments point out that the former rule was invalidated by the court in part because it relied on the “unverified judgment” of the light industrial facility operator to determine the non-applicability of the permit requirements, and that allowing the facility operator to determine the condition of their drums and barrels would result in the same flaw.

In response, EPA believes that drums and barrels that are stored outdoors pose little risk of storm water contamination unless they are open, deteriorated or leaking. The Agency has modified today's rule accordingly. EPA intends the term “open” to mean any container that is not tightly sealed and “sealed” to mean banded or otherwise secured and without operational taps or valves. Drums, barrels, tanks, and similar containers may only be stored outdoors under this conditional exclusion. The addition of material to or withdrawing of material from these containers while outside is deemed “exposure”. Moving the containers while outside does not create “exposure” provided that the containers are not open, deteriorated or leaking. In order to complete the “no exposure” certification, a facility operator must inspect all drums, barrels, tanks or other containers stored outside to ensure that they are not open, deteriorated, or leaking. EPA recommends that the discharger designate someone at the facility to conduct frequent inspections to verify that the drums, barrels, tanks or other containers remain in a condition such that they are not open, deteriorated or leaking. Drums, barrels, tanks or other containers stored outside that have valves which are used to put material in or take material out of the container, and that have dripped or may drip, are considered to be “leaking” and must be under a storm resistant shelter in order to qualify for the no exposure exclusion. Likewise, leaking pipes containing contaminants exposed to storm water are deemed “exposed.” If at any time drums, barrels, tanks or similar containers are opened, deteriorated or leaking, the discharger should take immediate actions to close or replace the container. Any resulting unpermitted discharge would violate the CWA. The Director, the operator of the MS4, or the municipality may inspect the facility to verify that all of the applicable areas meet the “no exposure” conditions as specified in the rule language. In requiring submission of the conditional “no exposure” certification and allowing the permitting authority and the operator of the MS4 to inspect the facility, today's rule does not rely on the unverified judgment of the facility to determine that the no exposure provision is being met.

EPA received several comments related to trash dumpsters that are located outside. The preamble to the proposed rule listed dumpsters in the same grouping as drums and barrels, which based exposure on the “potential to leak”. Today's rule distinguishes between dumpsters and drums/barrels. In the Phase I Question and Answer document (volume 1, question 52) the Agency noted that a covered dumpster containing waste material that is kept outside is not considered “exposed” as long as “the container is completely covered and nothing can drain out holes in the bottom, or is lost in loading onto a garbage truck.” EPA affirms this approach today. Industrial refuse and industrial trash that is left uncovered is deemed “exposed.”

For purposes of this provision, particulate matter emissions from roof stacks/vents that are regulated and in compliance under other environmental protection programs, such as air quality control programs, and that do not cause storm water contamination, are considered “not exposed.” EPA received comments on the phrase in the draft “no exposure” certification form that asked whether “particulate emissions from roof stacks/vents not otherwise regulated, and in quantities detectable in the storm water outflow,” are exposed to precipitation. One comment expressed concern that the phrase “in quantities detectable in the storm water outflow” implies that the facility must conduct monitoring prior to completing the checklist, and must continue to monitor after receiving the no exposure exclusion, in order to be able to verify compliance with the no exposure provision. Another comment said that current measurement technology allows detection of pollutants at levels that may not cause environmental harm. EPA does not intend to require monitoring of runoff from facilities with roof stacks/vents prior to or after completing and submitting the no exposure certification. EPA has thus replaced the phrase “in quantities detectable” with “evident” to convey the message that emissions from some roof stacks/vents have the potential to contaminate storm water discharges in quantities that are considered significant or that cause or contribute to a water quality standards violation. In those instances where the permitting

authority determines that particulate emissions from facility roof stacks/vents are a significant contributor of pollutants or contributing to water quality violations, the permitting authority may require the discharger to apply for and obtain coverage under a *68787 permit. Visible deposits of residuals (e.g., particulate matter) near roof or side vents are considered “exposed”. Likewise, visible “track out” (i.e., pollutants carried on the tires of vehicles) or windblown raw materials are deemed “exposed.”

EPA received a comment requesting an allowance under the “no exposure” provision for industrial facilities with several outfalls at a site where some, but not all of the outfalls drain non-exposed areas. The commenter provided an example of an industrial facility that has 5 outfalls draining different areas of the site, where two of those outfalls drain areas where industrial activities or materials are not exposed to storm water. The comment requested that the facility in this example be allowed to submit a “no exposure” certification in order to be relieved of permitting obligations for discharges from those two outfalls.

EPA agrees, but the comment would be implemented on an outfall-by-outfall basis in the permitting process, not through the “no exposure” exclusion. The “no exposure” provision was developed to allow exclusion from permitting of discharges from entire industrial facilities (except construction), based on a claim of “no exposure” for all areas of the facility where industrial materials or activities occur. Where exposure to industrial materials or activities exist at some but not all areas of the facility, the “no exposure” exclusion from permitting is not allowed because permit coverage is still required for storm water discharges from the exposed areas. Relief from permit requirements for outfalls draining non-exposed areas should be addressed through the permit process, in coordination with the permitting authority. Most NPDES general permits for storm water discharge provide enough flexibility to allow minimal or no requirements for non-exposed areas at industrial facilities. If the permitting authority determines that additional flexibility is needed for this scenario, the permits could be modified as necessary.

K. Public Involvement/Public Role

The Phase II FACA Subcommittee discussed the appropriate role of the public in successful implementation of a municipal storm water program. EPA believes that an educated and actively involved public is essential to a successful municipal storm water program. An educated public increases program compliance from residents and businesses as they realize their individual and collective responsibility for protecting water resources (e.g., the residents and businesses could be subject to a local ordinance that prohibits dumping used oil down storm sewers). Finally, the program is also more likely to receive public support and participation when the public is actively involved from the program's inception and allowed to participate in the decision making process.

In a time of limited staff and financial resources, public volunteers offer diverse backgrounds and expertise that may be used to plan, develop, and implement a program that is tailored to local needs (e.g., participate in public meetings and other opportunities for input, perform lawful volunteer monitoring, assist in program coordination with other preexisting and related programs, aid in the development and distribution of educational materials, and provide public training activities). The public's participation is also useful in the areas of information dissemination/education and reporting of violators, where large numbers of community members can be more effective than a few regulators.

The public can also petition the NPDES permitting authority to require an NPDES permit for a discharge composed entirely of storm water that contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States. In evaluating such a petition, the NPDES permitting authority is encouraged to consider the set of designation criteria developed for the evaluation of small MS4s located outside of an urbanized area in places with a population of at least 10,000 and a population density of 1,000 or more. Furthermore, any person can protect water bodies by taking civil action under section 505 of the CWA against any person who is alleged to be in violation of an effluent standard or permit condition. If civil action is taken, EPA encourages citizen plaintiffs to resolve any disagreements or concerns directly with the parties involved, either informally or through any available alternative dispute resolution process.

EPA recognizes that public involvement and participation pose challenges. It requires a substantial initial investment of staff and financial resources, which could be very limited. Even with this investment, the public might not be interested in participating. In addition, public participation could slow down the decision making process. However, the benefits are numerous.

EPA encourages members of the public to contact the NPDES permitting authority or local MS4s operator for information on the municipal storm water program and ways to participate. Such information may also be available from local environmental, nonprofit and industry groups.

Some commenters stressed the need to suggest to the public that they have a responsibility to fund the municipal storm water program. While EPA believes it is important that the program be adequately funded, today's rule does not address appropriate mechanisms or levels for such funding.

EPA received comments expressing concern that considerable public involvement requirements could result in increased litigation. EPA is not convinced there is a correlation between meaningful public education programs and any increased probability of litigation.

Finally, EPA received comments stating that the Agency should not encourage volunteer monitoring unless proper procedures are followed. EPA agrees. EPA encourages only lawful monitoring, i.e., obtaining the necessary approval if there is any question about lawful access to sites. Moreover, as a matter of good practice and to enhance the validity and usefulness of the results, any party, public or private, conducting water quality monitoring is encouraged to use appropriate quality control procedures and approved sampling and analytic methods.

L. Water Quality Issues

1. Water Quality Based Effluent Limits

In addition to technology based requirements, all point source discharges of industrial storm water are subject to more stringent NPDES permitting requirements when necessary to meet water quality standards. CWA sections 402(p)(3)(A) and 301(b)(1)(C). For municipal separate storm sewers, EPA or the State may determine that other permit provisions (e.g. one of the minimum measures) are appropriate to protect water quality and, for discharges to impaired waters, to achieve reasonable further progress toward attainment of water quality standards pending implementation of a TMDL. CWA section 402(p)(3)(B)(iii). See *Defenders of Wildlife, et al. Browner*, No. 98-71080 (9th cir., August 11, 1999). Discharges of storm water also must comply with applicable antidegradation policies and implementation methods to maintain and protect water quality. [40 CFR 131.12](#). Section 122.34(a) emphasizes this point by specifically noting that a storm water management program designed to reduce the discharge of pollutants from the storm sewer system “to the maximum extent practicable” is also designed to protect water quality. *68788 Permits issued to non-municipal sources of storm water must include water quality-based effluent limits where necessary to meet water quality standards.

Commenters challenged EPA's interpretation of the CWA as requiring water quality-based effluent limits for MS4s when necessary to protect water quality. Commenters asserted that CWA 402(p)(3)(B), which addresses permit requirements for municipal discharges, limits the scope of municipal program requirements to an effective prohibition on non-storm water discharges to a separate storm sewer and to controls which reduce pollutants to the “maximum extent practicable, including management practices, control techniques and system design and engineering methods.” They asserted that the final rule should clarify that neither numeric nor narrative water quality-based limits are appropriate or authorized for MS4s.

EPA disagrees that section 402(p)(3) divests permitting authorities of the tools necessary to issue permits to meet water quality standards. Section 402(p)(3)(B)(iii) specifically preserves the authority for EPA or the State to include other

provisions determined appropriate to reduce pollutants in order to protect water quality. Defenders of Wildlife, slip op. at 11688. Small MS4s regulated under today's rule are designated under CWA 402(p)(6) "to protect water quality."

Commenters argued that water quality standards, particularly numeric criteria, were not designed to address storm water discharges. The episodic nature and magnitude of storm water events, they argue, make it impossible to apply the "end of pipe" compliance assessment approach, for example, in the development of water quality based effluent limits.

EPA's disagrees with the commenters arguments about the inability of water quality criteria to address high flow conditions. Today's final rule does, however, address the concern that numeric effluent limits will necessitate end of pipe treatment and the need to provide a workable alternative.

Today's rule was developed under the approach outlined in the [Interim Permitting Policy for Water Quality-Based Effluent Limitations in Storm Water Permits, issued on August 1, 1996. 61 FR 43761 \(November 26, 1996\)](#) (the "Interim Permitting Policy"). EPA intends to issue NPDES permits consistent with the Interim Permitting Policy, which provides as follows:

In response to recent questions regarding the type of water quality-based effluent limitations that are most appropriate for NPDES storm water permits, EPA is adopting an interim permitting approach for regulating wet weather storm water discharges. Due to the nature of storm water discharges, and the typical lack of information on which to base numeric water quality-based effluent limitations (expressed as concentration and mass), EPA will use an interim permitting approach for NPDES storm water permits.

"The interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards. In cases where adequate information exists to develop more specific conditions or limitations to meet water quality standards, these conditions or limitations are to be incorporated into storm water permits, as necessary and appropriate. This interim permitting approach is not intended to affect those storm water permits that already include appropriately derived numeric water quality-based effluent limitations. Since the interim permitting approach only addresses water quality-based effluent limitations, it also does not affect technology-based effluent limitations, such as those based on effluent limitations guidelines or developed using best professional judgment, that are incorporated into storm water permits.

"Each storm water permit should include a coordinated and cost-effective monitoring program to gather necessary information to determine the extent to which the permit provides for attainment of applicable water quality standards and to determine the appropriate conditions or limitations of subsequent permits. Such a monitoring program may include ambient monitoring, receiving water assessment, discharge monitoring (as needed), or a combination of monitoring procedures designed to gather necessary information.

"This interim permitting approach applies only to EPA; however, EPA also encourages authorized States and Tribes to adopt similar policies for storm water permits. This interim permitting approach provides time, where necessary, to more fully assess the range of issues and possible options for the control of storm water discharges for the protection of water quality. This interim permitting approach may be modified as a result of the ongoing Urban Wet Weather Flows Federal Advisory Committee policy dialogue on this subject."

One commenter challenged the Interim Permitting Policy on a procedural basis, arguing that it was published without opportunity for public notice and comment. In response, EPA notes that the Policy was included verbatim and made available for public comment in the proposal to today's final rule. Prior to that proposal, the Agency defended the application of the Policy on a case-by-case basis in individual permit proceedings. Moreover, the essential elements of the Policy—that narrative effluent limitations are the most appropriate form of effluent limitations for storm water

dischargers from municipal sources—was inherent in §122.34(a) of the proposed rule, and was the subject of extensive public comment. In any event, the Policy does not constitute a binding obligation. It is policy, not regulation.

Consistent with the recognition of data needs underlying the Policy, EPA will evaluate the small MS4 storm water regulations after the second round of permit issuance. Section 122.34(e)(2) of today's rule expressly provides that for the interim ten-year period, “EPA strongly recommends that until the evaluation of the storm water program in §122.37, no additional requirements beyond the minimum control measures be imposed on regulated small MS4s without the agreement of the operator of the affected small MS4, except where an approved TMDL or equivalent analysis provides adequate information to develop more specific measures to protect water quality.” This approach addresses the concern for protecting water resources from the threat posed by storm water discharges with the important qualification that there must be adequate information on the watershed or a specific site as a basis for requiring tailored storm water controls beyond the minimum control measures. As indicated, the Interim Permitting Policy has several important limitations—it does not apply to technology-based controls or to sources that already have numeric end of pipe effluent limitations. EPA encourages authorized States and Tribes to adopt policies similar to the Interim Permitting Policy when developing storm water discharge programs. For a discussion of appropriate monitoring activities, see Section H.3.d., Evaluation and Assessment.

Where a water quality analysis indicates there is a need and basis for deriving water quality-based effluent limits in NPDES permits for storm water discharges regulated under today's rule, EPA believes that most of these cases would be satisfied by narrative effluent *68789 limitations that require the implementation of BMPs. NPDES permit limits will in most cases continue to be based on the specific approach outlined in today's rule for the implementation of BMPs as the most appropriate form of effluent limitation to satisfy technology and water quality-based requirements. See §122.34(a). For storm water management plans with existing BMPs, this may require further tailoring of BMPs to address the pollutant(s) of concern, the nature of the discharge and the receiving water. If the permitting authority determines that, through implementation of appropriate BMPs required by the NPDES storm water permit, the discharge has the necessary controls to provide for attainment of water quality standards, additional controls are not needed in the permit. Conversely, if a discharger (MS4, industrial or construction) fails to adopt and implement adequate BMPs, the permittee and/or the permitting authority should consider a different mix of BMPs or more specific conditions to ensure water quality protection.

Some commenters observed that there was no evidence from the experience of storm water dischargers regulated under the existing NPDES storm water program, or from studies or reports that allegedly support EPA's position, that implementation of BMPs to satisfy the six minimum control measures would meet applicable water quality standards for a regulated small MS4. In response, EPA acknowledges that the six minimum measures are intended to implement the statutory requirement to control discharges to the maximum extent practicable, and they may not result in the attainment of water quality standards in all cases. The control measures do, however, focus on and address well-documented threats to water quality associated with storm water discharges. Based on the collective expertise of the FACA Sub-committee, EPA believes that implementation of the six minimum measures will, for most regulated small MS4s, be adequate to protect water quality, and for other regulated small MS4s will substantially reduce the adverse impacts of their discharges on water quality.

Some commenters asserted that analyses of existing water quality criteria suggest that numeric criteria for aquatic life may be overprotective if applied to storm water discharges. These comments maintained that an approach that prohibits exceedance of applicable water quality criteria is unworkable. Various commenters recommended wet weather specific criteria, variances to the criteria during wet weather events, and seasonal designated uses. Other commenters noted that water quality-based effluent limits in NPDES permits have traditionally been developed based on dry weather flow conditions (e.g., assuming critical low-flow conditions in the receiving water to ensure protection of aquatic life and human health). Wet weather discharges, however, typically occur under high-flow conditions in the receiving water. Assumptions regarding mass balance equations and size of mixing zones may also not be pertinent during wet weather.

EPA acknowledges the need to devise a regulatory program that is both flexible enough to accommodate the episodic nature, variability and volume of wet weather discharges and prescriptive enough to ensure protection of the water resource. EPA believes that wet weather discharges can be adequately addressed in the existing regulations through refining designated uses and assigning criteria that are tailored to the level of water quality protection described by the refined designated use.

EPA believes that lack of precision in assigning designated uses and corresponding criteria by States and Tribes, in many cases may result in application of water quality criteria that may not appropriately match the intended condition of the water body. States and Tribes have frequently designated uses without regard to site-specific wet weather conditions. Because certain uses (swimming, for example) might not exist during high-intensity storm events or in the winter, States may factor such climatic conditions and seasonal uses into their use designations with appropriate analyses. This would acknowledge that a lower level of control, at lower compliance cost, would be appropriate to protect that use. Before modifying any designated use, however, States would need to evaluate the effect of less stringent water quality criteria on protecting other uses, including any threatened or endangered species, drinking water supplies and downstream uses. EPA will further evaluate these issues in the context of the [Water Quality Standards Regulation, Advance Notice of Proposed Rule Making \(ANPRM\)](#), 63 FR, 36742, July 7, 1998.

One of the major themes presented by EPA in the ANPRM is that refinement in use designations and tailoring of water quality criteria to match refined use designations is an important future direction of the water quality standards program. In assigning criteria to protect general use classifications, a State or Tribe must ensure that the criteria are sufficiently protective to safeguard the full range of waters of the State, i.e., criteria would be based on the most sensitive use. This approach has been disputed, especially for aquatic life uses, where evidence suggests that the general use criteria will require controls more stringent than needed to protect the existing or potential aquatic life community for a specific water body. EPA recognizes that there is a growing need to more precisely tailor use descriptions and criteria to match site-specific conditions, ensuring that uses and criteria provide an appropriate level of protection, which, to the extent possible, are not overprotective. EPA is engaged in an ongoing evaluation of its regulations in this area through the ANPRM effort. At the same time, EPA continues to encourage States and Tribes to review the applicability of the designated uses and associated criteria using existing provisions in the water quality standards regulation.

2. Total Maximum Daily Loads and Analysis To Determine the Need for Water Quality-Based Limitations

The development and implementation of total maximum daily loads (TMDLs) provide a link between water quality standards and effluent limitations. CWA section 303(d) requires States to develop TMDLs to provide more stringent water quality-based controls when technology-based controls are inadequate to achieve applicable water quality standards. A TMDL is the sum of the individual wasteload allocations for point sources and load allocations for nonpoint sources, with consideration for natural background conditions. A TMDL quantifies the maximum allowable loading of a pollutant to a water body and allocates this maximum load to contributing point and nonpoint sources so that water quality criteria will not be exceeded and designated uses will be protected. A TMDL also includes a margin of safety to account for uncertainty about the relationship between pollutant loads and water quality.

Today's final rule refers to TMDLs in several provisions. For the purpose of today's rule, EPA relies on the component of the TMDL that evaluates existing conditions and allocates loads. For discharges to waters that are not impaired and for which a TMDL has not been developed, today's rule also refers to an "equivalent analysis." The discussion that follows uses the term "TMDL" for both.

Under revised [§122.26\(a\)\(9\)\(i\)\(C\)](#), the permitting authority may designate *68790 storm water discharges that require NPDES permits based on TMDLs that address the pollutants of concern. For storm water discharges associated with small construction activity, [§122.26\(b\)\(15\)\(i\)\(B\)](#) provides a waiver provision where it may be determined that storm water controls are not needed based on TMDLs that address sediment and any other pollutants of concern. The NPDES

permitting authority may waive requirements under the program for certain small MS4s within urbanized areas serving less than 1,000 persons provided that, if the small MS4 discharges any pollutant that has been identified as a cause of impairment of a water body into which it discharges, the discharge is in compliance with a wasteload allocation in a TMDL for the pollutant of concern. The permitting authority may also waive requirements for MS4s in urbanized areas serving between 1,000 and 10,000 persons, if the permitting authority determines that storm water controls are not needed, as provided in §123.35(d)(2). See §122.32(c).

Under CWA section 303(d), States identify which of their water bodies need TMDLs and rank them in order of priority. Generally, once a TMDL has been completed for one or more pollutants in a water body, a wasteload allocation for each point source discharging the pollutant(s) is implemented as an enforceable condition in the NPDES permit. Regulated small MS4s are essentially like other point source discharges for purposes of the TMDL process.

A TMDL and the resulting wasteload allocations for pollutant(s) of concern in a water body may not be available because the water body is not on the State's 303(d) list, the TMDL has not yet been completed, or the TMDL did not include specific pollutants of concern. In these cases, the permitting authority must determine whether point sources discharge pollutant(s) in amounts that cause, have the reasonable potential to cause, or contribute to excursions above State water quality standards, including narrative water quality criteria. This so-called “reasonable potential” analysis is intended to determine whether and for what pollutants water quality based effluent limits are required. The analysis is, in effect, a substitute for a similar determination that would be made as part of a TMDL, where necessary. When “reasonable potential” exists, regulations at §122.44(d) require a water quality-based effluent limit for the pollutant(s) of concern in NPDES permits. The water quality-based effluent limits may be narrative requirements to implement BMPs or, where necessary, may be numeric pollutant effluent limitations.

Commenters, generally from the regulated community, objected that, due to references to the need to develop a program “to protect water quality” and to additional NPDES permit requirements beyond the minimum control measures based on TMDLs or their equivalent, regulated small MS4s will be subject to uncertain permit limitations beyond the six minimum control measures. Commenters also asserted that through the imposition of a wasteload allocation under a TMDL in impaired water bodies, there is a likelihood that unattainable, yet enforceable narrative and numeric standards will be imposed on regulated small MS4s.

As is discussed in the preceding section, NPDES permits must include any more stringent limitations when necessary to meet water quality standards. However, even if a regulated small MS4 is subject to water quality based effluent limits, such limits may be in the form of narrative effluent limitations that require the implementation of BMPs. As discussed earlier, EPA has adopted the Interim Permitting Policy and incorporated it in the development of today's rule to recognize the appropriateness of BMP-based limits developed on a case-by-case basis.

EPA formed a Federal Advisory Committee to provide advice to EPA on identifying water quality-limited water bodies, establishing TMDLs for them as appropriate, and developing appropriate watershed protection programs for these impaired waters in accordance with CWA section 303(d). Operating under the auspices of the National Advisory Council for Environmental Policy and Technology (NACEPT), the committee produced its Report of the Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program (July 1998). EPA recently published a proposed rule to implement the Report's recommendations (64 FR 46012, August 23, 1999).

3. Anti-Backsliding

In general, the term “anti-backsliding” refers to statutory provisions at CWA sections 303(d)(4) and 402(o) and regulatory provisions at 40 CFR 122.44(l). These provisions prohibit the renewal, reissuance, or modification of an existing NPDES permit that contain effluent limits, permit terms, limitations and conditions, or standards that are less stringent than those established in the previous permit. There are also exceptions to this prohibition known as “antibacksliding exceptions.”

The issue of backsliding from prior permit limits, standards, or conditions is not expected to initially apply to most storm water dischargers designated under today's proposal because they generally have not been previously authorized by an NPDES permit. However, the backsliding prohibition would apply if a storm water discharge was previously covered under another NPDES permit. Also, the backsliding prohibition could apply when an NPDES storm water permit is reissued, renewed, or modified. In most cases, however, EPA does not believe that these provisions would restrict revisions to storm water NPDES permits.

One commenter questioned whether, if BMPs implemented by a regulated small MS4 operator fail to produce results in removal of pollutants and the permittee attempts to substitute a more effective BMP, the small MS4 operator could be accused of violating the anti-backsliding provisions and also be exposed to citizen lawsuits. In response, EPA notes that in such circumstances the MS4's permit has not changed and, therefore, the prohibition against backsliding is not applicable. Further, any change in the mix of BMPs that was intended to be more effective at controlling pollutants would not be considered backsliding, even if it did not include all of the previously implemented BMPs.

4. Water Quality-Based Waivers and Designations

Several sections of today's final rule refer to water quality standards in identifying those storm water discharges that are and are not required to be permitted under today's rule. As noted in §122.30 of today's rule, CWA section 402(p)(6) requires the designation of municipal storm water sources that need to be regulated to protect water quality and the establishment of a comprehensive storm water program to regulate these sources. Requirements applicable to certain municipal sources may be waived based on the absence of demonstrable water quality impacts. Section 122.32(c). The section 402(p)(6) mandate to protect water quality also provides the basis for regulating discharges associated with small construction. See also §122.26(b)(15)(i). Further, today's rule carries forward the existing authority for the permitting authority to designate sources of storm water discharges based upon water quality considerations. Section 122.26(a)(9)(i)(C) and (D).

As is discussed above in sections II.H.2.e (for small MS4s) and II.I.1.b.ii *68791 (for small construction), the requirements of today's rule may be waived based on wasteload allocations that are part of “total maximum daily loads” (TMDLs) that address the pollutants of concern or, in the case of small construction and municipalities serving between 1,000 and 10,000 persons, the equivalents of TMDLs. One commenter stated that waivers would allow exemptions to the technology based requirements and would thus be inconsistent with the two-fold approach of the CWA (a technology based minimum and a water quality based overlay). EPA acknowledges that waivers are not allowed for other technology-based requirements under the CWA. A more flexible approach is allowed, however, for sources designated for regulation under 402(p)(6) to protect water quality. For such sources EPA may allow a waiver where it is demonstrated that an individual source does not present the threat to water quality that was the basis for EPA's designation.

III. Cost-Benefit Analysis

EPA has determined that the range of the rule's benefits exceeds the range of regulatory costs. The estimated rule costs range from \$847.6 million to \$981.3 million annually with corresponding estimated monetized annual benefits which range from \$671.5 million to \$1.628 billion, expected to exceed costs.

The rule's cost and benefit estimates are based on an annual comparison of costs and benefits for a representative year (1998) in which the rule is implemented. This differs from the approach used for the proposed rule which projected cost and benefits over three permit terms. EPA has chosen to use the current approach because it determined that the ratio of annual benefits and costs would not change significantly over time. Moreover, because there is not an initial outlay of capital costs with benefits accruing in the future (i.e., benefits and costs are almost immediately at a steady state), it is not necessary to discount costs in order to account for a time differential.

EPA developed detailed estimates of the costs and benefits of complying with each of the incremental requirements imposed by the rule. The Agency used two approaches, a national water quality model and national water quality assessment, to estimate the potential benefits of the rule. Both approaches show that the benefits are likely to exceed costs.

These estimates, including descriptions of the methodology and assumptions used, are described in detail in the Economic Analysis of the Final Phase II Rule, which is included in the record of this rule making. Exhibit 3 summarizes costs and benefits associated with the basic elements of today's rule.

Exhibit 3.—Comparison of Annual Compliance Cost and Benefit Estimates¹

Monetized benefits	National water quality model (millions of 1998 dollars)	National water quality assessment (millions of 1998 dollars)
Municipal Minimum Measures	\$131.0-\$410.2
Controls for Construction Sites	\$540.5-\$686.0
Total Annual Benefits	\$1,628.5	\$671.5-\$1,096.2

Costs	Millions of 1998 dollars²
Municipal Minimum Measures	\$297.3
Controls/Waivers for Construction Sites	\$545.0-\$678.7
Federal/State Administrative Costs	\$5.3
Total Annual Costs	\$847.6-\$981.31

A. Costs

1. Municipal Costs

Initially, to determine municipal costs for the proposed rule, EPA used anticipated expenditure data included in permit applications from a sample of 21 Phase I MS4s. Certain commenters criticized the Agency for using anticipated expenditures because they could be significantly different from the actual expenditures. These commenters suggested that the Agency use the actual cost incurred by the Phase I MS4s. Other comments stated that because the Phase I MS4s, in general, are large municipalities, they may not be representative of the Phase II MS4s for estimating regulatory costs. Finally, one commenter noted that the sample of 21 municipalities used to project cost was relatively small.

To address the concerns of the commenters, EPA utilized a National Association of Flood and Stormwater Management Agencies (NAFSMA) survey of the Phase II community to obtain incremental cost estimates for Phase II municipalities. Using the list of potential Phase II designees published in the Federal Register (63 FR 1616), NAFSMA contacted more than 1,600 jurisdictions. The goal of the survey was to solicit information from those communities about the proposed Phase II NPDES storm water program. Several of the survey questions corresponded directly to the minimum measures required by the Phase II rule. One hundred twenty-one surveys were returned to NAFSMA and were used to develop municipal costs.

Using the NAFSMA information, EPA estimated average annual per household program costs for automatically designated municipalities. EPA also estimated an average annual per household administrative cost for municipalities to address application, record keeping, and reporting requirements of the Rule. The total average per household cost of the rule is expected to \$9.16 per household.

To determine potential national level costs for municipalities, EPA multiplied the number of households (32.5 million) by the per household cost (\$9.16). EPA estimates the annual cost of the Phase II municipal program at \$298 million.

As an alternative method, and point of comparison, to the NAFSMA-based approach, EPA reviewed actual expenditures reported from 35 Phase I MS4s. The Agency targeted these 35 Phase I MS4s because they had participated in the NPDES program for *68792 nearly one permit term, were smaller in size and had detailed data reflecting their actual program implementation costs. Of the 35 MS4s, appropriate cost data was only available for 26 of those MS4s. EPA analyzed the expenditure data and identified the relevant expenditures, excluding costs presented in the annual reports unrelated to the requirements of the Rule. The cost range and annual per household program costs of \$9.08 are similar to those found using the NAFSMA survey data.

2. Construction Costs

In order to estimate the rule's construction-related cost on a national level (the soil and erosion controls (SEC) requirements of the rule and the potential impacts of the post-construction municipal measure on construction), EPA estimated a per site cost for sites of one, three, and five acres and multiplied these costs by the total number of estimated Phase II construction starts across these size categories.

To estimate the percentage of starts subject to the soil and erosion control requirements between 1 and 5 acres, with respect to each category of building permits (residential, commercial, etc.), EPA initially used data from Prince George's County (PGC), Maryland, and applied these percentages to national totals. In the proposal, EPA recognized that the PGC data may not be representative of the entire country and requested data that could be used to develop better estimates of the number of construction sites between 1 and 5 acres. EPA did not receive any substantiated national data from commenters.

In view of the unavailability of national data from commenters, EPA made extensive efforts to collect construction site data around the country. The Agency contacted more than 75 municipalities. EPA determined that 14 of the contacted municipalities had useable construction site data. Using data from these 14 municipalities, EPA developed an estimate of the percentage of construction starts on one to five acres. EPA then multiplied this percentage by the number of building permits issued nationwide to determine the total number of construction starts occurring on one to five acres. Finally, to isolate the number of construction starts incrementally regulated by Phase II, EPA subtracted the number of activities regulated under equivalent programs (e.g., areas covered by the Coastal Zone Act Reauthorization Amendments of 1990, and areas covered by equivalent State level soil and erosion control requirements). Ultimately, EPA estimated that 110,223 construction starts would be incrementally covered by the rule annually.

EPA then used standard cost estimates from Building Construction Cost Data and Site Work Landscape Cost Data (R.S. Means, 1997a and 1997b) to estimate construction BMP costs for 27 model sites in a variety of typical site conditions across the United States. The model sites included three different site sizes (one, three and five acres), three slope variations (3%, 7%, and 12%), and three soil erosivity conditions (low, medium, and high). EPA chose BMP combinations appropriate to the model site conditions. Based on the assumption that any combination of site factors is equally likely to occur in a given site, EPA developed average cost of sediment and erosion control for all model sites. EPA estimated that, on average, BMPs for a 1 acre site will cost \$1,206, for a 3 acre site \$4,598 and for a 5 acre site \$8,709.

EPA then estimated administrative costs per construction site for the following elements required under the rule: Submittal of a notice of intent for permit coverage; notification to municipalities; development of a storm water

pollution prevention plan; record retention; and submittal of a notice of termination. EPA estimated the average total administrative cost per site to be \$937.

EPA also considered the cost implications of NPDES permit authorities waiving the applicability of requirements to storm water discharges from small construction sites based on two different criteria involving water quality impact and low rainfall. EPA received comments stating that a waiver would require a significant investment in training or acquisition of a consultant. Based on comments received, EPA eliminated one of the waiver conditions involving low soil loss threshold because it necessitated use of the Revised Universal Soil Loss Equation which could require extensive technical expertise.

Based on the opinions of construction industry experts, EPA estimates that 15 percent of the construction sites that would otherwise be covered by today's rule will be eligible to receive waivers. Therefore, the Agency has excluded 15 percent of the construction sites when deriving costs of sediment and erosion control. The average cost for sites to qualify for the waiver is expected to be \$34 per site. The construction cost analysis for the proposed rule did not include any costs for the preparation and submission of waiver applications because EPA believed those costs would be negligible. However, in response to public comments, EPA has estimated these potential costs.

EPA has also estimated the potential costs for construction site operators to implement the post-construction minimum measure. These are costs that may be incurred by construction site operators if the MS4 chooses to meet the post-construction minimum measure by requiring on-site structural, site-by-site control of post-construction runoff. Municipalities may select from an array of structural and non-structural options in implementing this measure, so the potential costs to construction operators is uncertain. Nonetheless, EPA developed average annual BMP costs for sites of one, three, five and seven acres. EPA's analysis accounted for varying levels of imperviousness that characterize residential, commercial, and institutional land uses. Nationwide, these costs are expected to range from \$44 million to \$178 million annually.

Finally, to establish national incremental annual costs for Phase II construction starts, EPA multiplied the total costs of compliance for the chosen site size categories by the total number of Phase II construction starts and added post-construction costs. EPA estimates the annual compliance cost to range from \$545 million to \$678.7 million.

B. Quantitative Benefits

In the Economic Analysis for the proposed rule, a “top-down” approach was used to estimate economic benefits. Under this approach, the combined economic benefits for wet weather programs were estimated first, and then were divided among various water programs on the basis of expert opinion. As a result, the benefits estimates for an individual program were rather uncertain. Moreover, this approach was inconsistent with the approach used to estimate the cost of the proposed storm water rule, which was developed using municipal-based and cost-based data to develop “bottom-up” costs. Therefore, EPA decided to use a “bottom-up” approach for estimating benefits of the Phase II rule. To adequately reflect the quantifiable benefits of the rule, EPA used two different methods: (1) National Water Quality Model and (2) National Water Quality Assessment.

To monetize benefits in both approaches, the Agency applied Carson and Mitchell's (1993) estimates of household willingness-to-pay (WTP) for water quality improvement to estimates of waters impaired by storm water discharges. Carson and Mitchell's 1993 study reports the results of their 1983 national survey of WTP for incremental ***68793** improvements in fresh water quality. Carson and Mitchell estimate the WTP for three minimum levels of fresh water quality: boatable, fishable, and sizable. EPA adjusted the WTP amounts to account for inflation, growth in real per capita income, and increased attitudes towards pollution control. The adjusted WTP amounts for improvements in fresh water quality are \$210 for boatable, \$158 for fishable, and \$177 for sizable. A brief summary of the national water quality model and national water quality assessment approaches follow.

1. National Water Quality Model

One approach EPA used to estimate the benefits of the Phase II municipal and construction site controls was the National Water Pollution Control Assessment Model (NWPCAM). NWPCAM estimates benefits of the storm water program at the national level, including the impact on small streams. This model estimates water quality and the resultant use support for the 632,000 miles of rivers and streams in the USEPA Reach File Version 1 (RF1), which covers the continental United States. The model analyzes water quality changes by stream reach. The parameters modeled in the NWPCAM are biological oxygen demand (BOD), total suspended solids (TSS), dissolved oxygen (DO), and fecal coliforms (FC).

The model projects changes in water quality due to the Phase II municipal and construction site controls. To calculate the economic benefits of change in water quality, the number of households in the proximity of the stream reach are determined, by overlaying the model results on the 1990 Census of Populated Places and Minor Civil Divisions, and updating the population to 1998. Economic benefits are calculated using the Carson and Mitchell WTP values. The benefits are separately estimated for local and non-local waters on the basis of WTP values and proximity to water quality changes.

The value of the change in use support for local waters is greater than the value of the non-local waters because of the opportunity to use local waters by the local population. This model assumes that if improvement occurs in waters that are not close to population centers the economic value is lower. Therefore, benefits are estimated for local and non-local waters separately. This assumption is based on Carson and Mitchell's survey which asked respondents to apportion each of their stated WTP values between achieving the water quality goals in their own State and achieving those goals in the nation as a whole. On average, respondents allocated 67% of their values to achieving in-State water quality goals and the remainder to the nation as a whole. Carson and Mitchell argue that for valuing local water quality changes 67% is a reasonable upper bound for the local multiplier and 33% for the non-local water quality changes. For the purposes of this analysis, the locality is defined as urban sites and associated populations linked into the NWPCAM framework. Using this methodology, the total monetized benefits of Phase II control of urban and construction site runoff is estimated to be \$1.628 billion per year. The local and non-local benefits due to Phase II controls are presented in Exhibit 4.

Exhibit 4.—Local and Non-local Benefits Estimates Due to Phase II Controls National Water Quality Model Estimate

Use support	Local benefits (\$million/yr)	Non-local benefits ¹ (\$million/yr)	Total benefits (\$million/yr)
Swimming, Fishing, and Boating	306.20	60.60	366.80
Fishing and Boating	395.10	51.90	447.00
Boating	700.10	114.60	814.70
Total	1401.40	227.10	1628.50

While the numbers of miles that are estimated to change their use support are small, the benefits estimates are quite significant. This is because urban runoff and, to a large extent, construction activity occurs where the people actually reside and the water quality changes mostly occur close to these population centers. NWPCAM indicates that changes in pollution loads have the most effect immediately downstream of pollution changes. As a result, the aggregate WTP is large because large numbers of households in these population centers are associated with the local waters that reflect improvement in designated use support.

2. National Water Quality Assessment

EPA also estimated benefits of the Phase II Storm Water program using the 1998 National Water Quality Inventory (305(b)) Report to Congress, rather than the NWPCAM as a basis for estimating impairment addressed by the rule. The Water Quality Assessment method separately estimates benefits associated with improvements to fresh water, marine water and construction site controls, and then aggregates these separate categories into an estimate of total annual benefits.

a. Municipal Measures

i. Fresh Waters Benefits

In order to develop estimates for the potential value of the municipal measures (except storm water runoff controls for construction sites), EPA applied Carson & Mitchell WTP values to estimated existing and projected future fresh water impairment. Carson & Mitchell did not evaluate marine waters, so only fresh water values were available from their research. Even though the Carson and Mitchell estimates apply to all fresh water, it is not clear how these values would be apportioned among rivers, lakes, and the Great Lakes. The 305(b) data indicate that lakes are the most impaired by urban runoff/storm sewers, followed closely by the Great Lakes, and then rivers. Therefore, EPA applied the WTP values to the categories separately and assumed that the higher resulting value for lakes represents the high end of the range (i.e., assuming that lake impairment is more indicative of national fresh water impairment) and that the lower resulting value for impaired rivers represents the low end of a value range for all fresh waters (i.e., assuming that river impairment is more indicative of national fresh water impairment). In addition, EPA estimated that the post-construction runoff ***68794** requirements of the municipal program might result in benefits of at least \$16.8 million annually from avoided future runoff. The post-construction estimate significantly underestimates potential program benefits because it does not account for avoided hydrologic changes and resulting water quality impairment associated with increases in imperviousness from development and redevelopment. Summing the benefits across the water quality use support levels yields an estimate of benefits ranging from approximately \$121.9 million to \$378.2 million per year.

ii. Marine Waters Benefits

In addition to the fresh water benefits captured by the Carson and Mitchell study, EPA anticipates benefits as a result of improvements to marine waters. Sufficient methods have not been developed to quantify national-level benefits for commercial or recreational fishing. EPA used beach closure data and visitation estimates from its Beach Watch Program to estimate potential reductions in marine swimming visits due to storm water runoff contamination events in 1997. The estimated 86,100 trips that did not occur because of beach closures in coastal Phase II communities is a lower bound because it represents only those beaches that report both closures and visitation data. EPA estimates potential swimming benefits from the rule to be at least \$2.1 million annually.

EPA developed an analysis of potential benefits associated with avoided health impacts from exposure to contaminants in storm sewer effluent. Based on a study of incremental illnesses found among people who swam within one yard of storm drains in Santa Monica Bay, EPA estimated a range of incremental illnesses (Haile et al., 1996). Depending on assumptions made about number of exposures to contaminants and contaminant concentrations, benefits ranged from \$7.0 million to \$29.9 million annually.

b. Construction Benefits

The major pollutant resulting from construction activities is sediment. However, in addition to sediment, construction activities also yield pollutants such as pesticides, petroleum products, and solvents. Because circumstances will vary considerably from site to site, data is not available with which to develop estimates of benefits for each site and aggregate to obtain a national-level estimate.

In the proposed rule, EPA estimated the combined benefits of all wet weather programs, and then used expert opinions to allocate them to different individual programs. To eliminate the possible overlap between the benefits of the soil and erosion control requirements, municipal measures, and other wet weather storm water programs, EPA chose to use an approach in today's final rule that directly estimates the benefits of soil and erosion requirements.

A survey of North Carolina residents (Paterson et al., 1993) indicated that households are willing to pay for erosion and sediment controls similar to those in today's rule. Based on income and other indicators, the values derived from the study are expected to be similar to values held in the rest of the country. Using the mean value of the willingness to pay of \$25 per household, EPA projects annual benefits of the soil and erosion requirements to range from \$540.5-\$686 million.

c. Summary of Benefits From the National Water Quality Assessment

Total benefits from municipal measures and construction site controls are expected to range from \$671.5 million to \$1.1 billion per year, including benefits of approximately \$13.7 million per year associated with small stream improvements. A summary of the potential benefits is presented in Exhibit 5.

As shown in Exhibit 5, it was not possible to monetize all categories of benefits using the WTP estimates. In particular, benefits for improving marine water quality such as fishing and passive use benefits are not included in the values used to estimate the potential benefits of the municipal minimum measures (excluding construction sites controls), and they are not estimated separately, because information is not currently available.

Exhibit 5.—Potential Annual Benefits of the Phase II Storm Water Rule National Water Quality Assessment Estimate

Benefit category	Annual WTP
Municipal Minimum Measures ¹	
Fresh Water Use and Passive Use ²	\$121.9-\$378.2
Marine Recreational Swimming	\$2.1
Human Health (Marine Waters)	\$7.0-\$29.9
Other Marine Use and Passive Use	+
Erosion and Sediment Controls for Construction Sites	
Fresh Water and Marine Use and Passive Use ³	\$540.5-\$686
Total Phase II Program	
Total Use & Passive Use (Fresh Water and Marine)	>\$671.5->\$1,096.2

C. Qualitative Benefits

There are additional benefits to storm water control that cannot be quantified or monetized. Thus, the current estimate of monetized benefits may understate the true value of storm water controls because it omits many ways in which society is likely to benefit from reduced storm water pollution, such as improved *68795 aesthetic quality of waters, benefits to wildlife and to threatened and endangered species, cultural values, and biodiversity benefits.

A benefit that EPA did not monetize completely is the flood control benefits attributable to municipal storm water controls reducing downstream flooding, although flood control benefits associated with sediment and erosion control are already reflected to some extent in the construction benefits. Similarly, the Agency could not value the benefits from increased property value due to storm water controls reflected in the rule, even though a commenter suggested inclusion of these benefits in the estimates.

Moreover, while a number of commenters requested that EPA include ecological benefits, the Agency was not able to fully monetize these benefits. Urbanization usually increases the amount of sediment, nutrients, metals and other pollutants associated with land disturbance and development. Development usually not only results in a dramatic increase in the volume of water runoff, but also in a substantial decrease in that water's quality due to stream scour, runoff and dispersion of toxic pollutants, and oversiltation. These kinds of secondary benefits could not be fully reflected in the monetized benefits. EPA was able to only monetize the aquatic life support benefits for waters assumed to be impaired. Thus, only the aquatic life support benefits attributable to municipal controls, reflected through human satisfaction, are taken into account.

Reduced nutrient level is another benefit of the storm water control which is not fully captured by the economic analysis. High nutrient levels often lead to eutrophication of the aquatic system. The quality change in ecological sources as the result of storm water controls to reduce pollutants is not fully reflected in the present benefits.

D. National Economic Impact

Finally, the Agency determined that the rule will have minimal impacts on the economy or employment. This is because the final rule regulates small MS4s and construction sites under 5 acres, not the typical industrial plants or other non-construction activities that could directly impact production and thus those sectors of the economy.

Discussions with representatives within the construction industry indicate that construction costs will likely be passed on to buyers, thus not seriously affecting the housing industry directly. One commenter argued that the rule will have a negative employment effect because the builders will build fewer homes requiring less building materials as a result of the declining demand induced by the cost of the soil and erosion controls. EPA disagrees with this argument because the cost of the controls, as the percentage of the price of a median home, is negligible and will be passed on to final buyers.

Flexibility within the rule allows MS4s to tailor the storm water program requirements to their needs and financial position, minimizing impacts. For sedimentation and erosion controls on construction sites, the rule contemplates application of commonly used BMPs to reduce costs for the construction industry. Thus, the rule attempts to use existing practices to prevent pollution, which should minimize impacts on States, Tribes, municipalities and the construction industry.

Thus, EPA concludes that the effect of the rule, if any, on the national economy will be minimal. The benefits of today's rule more than offset any cost impacts on the national economy.

IV. Regulatory Requirements

A. Paperwork Reduction Act

The Office of Management and Budget (OMB) has approved some of the information collection requirements contained in this final rule (i.e. those found in [40 CFR 122.26\(g\)](#) and [123.35\(b\)](#)) under the provisions of the Paperwork Reduction Act, [44 U.S.C. 3501 et seq.](#) and has assigned OMB control number 2040-0211.

The burden and costs described below are for the information collection, reporting, and record keeping requirements for the three year period beginning with the effective date of today's rule. Additional information collection requirements

for regulated small MS4s and small construction sites will occur after this initial three year period and will be counted in a subsequent information collection requirement. The total burden of the information collection requirements for the first three years of this rule is estimated at 56,369 hours with a corresponding cost of \$2,151,305 million annually. This burden and cost is for industrial facilities to complete and submit the no exposure certification, for NPDES-authorized States to process and review the no exposure certification, and for the NPDES-authorized States to develop designation criteria and assess additional MS4s outside of urbanized areas. Compliance with the applicable information collection requirements imposed under this rule are mandatory, pursuant to CWA [section 402](#).

Exhibit 6 presents average annual burden and cost estimates for Phase II respondents for the first three years. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust existing ways for complying with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

Exhibit 6.—Average Annual Burden and Cost Estimates for Phase II Respondents

Information collection activity	A	B	(A)x(B)=C	D	(C)x(D)=E
	Respondents per year (projected) ¹	Burden hours per respondent per year (predicted)	Annual respondent burden hours (projected)	Respondent labor cost (\$/hr) (1998 \$)	Annual Cost (\$) (projected)
Ind. No Expos. Facilities: ²					
No Expos. Certification	36,377	1.0	36,377	44.35	1,613,320
Annual Subtotal			36,377		1,613,320
NPDES-Authorized States: ³					
Designation of Addit. MS4s ⁴	15	332.8	4,892	26.91	131,644
No Exp. Cert. Proc. & Rev	30,200	0.5	15,100	26.91	406,341
Annual Subtotal			19,992		537,985
Annual Totals			56,369		2,151,305

*68796 Given the requirements of today's regulation, EPA believes there will be no capital startup and no operation and maintenance costs associated with information collection requirements of the rule.

The government burden associated with today's rule will impact State, Tribal, and Territorial governments (NPDES-authorized governmental entities) that have storm water program authority, as well as the federal government (i.e., EPA), where it is the NPDES permitting authority. As of March 1999, 43 States and the Virgin Islands had NPDES authority.

The annual burden imposed upon authorized governmental entities (delegated States and the Virgin Islands) and the federal government for the next three years is estimated to be 19,992 hours (\$537,985) and 4,087 hours (\$115,948) respectively, for a total of 24,079 hours (\$653,933). This estimate is based on the average time that governments will expend to carry out the following activities: designate additional MS4s (332.8 hours) and process and review “no exposure” certificates from industrial dischargers (0.5 hour).

Under the existing rule, storm water discharges from light industrial activities identified under §122.26(b)(14)(xi) were exempted from the permit application requirements if they were not exposed to storm water. Today's rule expands the applicability of the “no exposure” exclusion to include all industrial activity regulated under §122.26(b)(14) (except category (x), construction). The “no exposure” provision is applied through the use of a written certification process, thus representing a slight reporting burden increase for “light” industries with “no exposure”.

In addition to the information collection, reporting, and record keeping burden for the next three years, today's rule contains information collection requirements that will not begin until three years or more from the effective date of today's rule. These information collection requirements were not included in the information collection request approved by OMB. EPA will submit these burden estimates for OMB approval when it submits ICR 2040-0211 to OMB for renewal in three years. The rule burdens for regulated small MS4s and small construction sites that will be included in the ICR renewal fall into three areas: application for an NPDES permit or submittal of waiver information, record keeping of storm water management activities, and submittal of reports to the permitting authority. There will also be an additional burden for the permitting authority to review this information.

An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR Part 9 and 48 CFR Chapter 15. EPA is amending the table in 40 CFR Part 9 of currently approved ICR control numbers issued by OMB for various regulations to list the first three years of information requirements contained in this final rule.

B. Executive Order 12866

Under [Executive Order 12866](#), [58 FR 51,735 (October 4, 1993)] the Agency must determine whether the regulatory action is “significant” and therefore subject to OMB review and the requirements of the Executive Order. The Order defines “significant regulatory action” as one that is likely to result in a rule that may:

- (1) have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
- (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of [Executive Order 12866](#), it has been determined that this rule is a “significant regulatory action”. As such, this action was submitted to OMB for review. Changes made in response to OMB suggestions or recommendations will be documented in the public record.

C. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), [Public Law 104-4](#), establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with “Federal mandates” that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of \$100 million or more in any one year. Before promulgating an EPA rule for which a ***68797** written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of [section 205](#) do not apply when they are inconsistent with applicable law. Moreover, [section 205](#) allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted.

EPA has determined that today's rule contains a Federal mandate that may result in expenditures of \$100 million or more in any one year for both State, local, and tribal governments, in the aggregate, and the private sector. Accordingly, EPA has prepared under section 202 of the UMRA a written statement which is summarized below.

1. Summary of UMRA Section 202 Written Statement

EPA promulgates today's storm water regulation pursuant to the specific mandate of Clean Water Act section 402(p)(6), as well as sections 301, 308, 402, and 501. ([33 U.S.C. sections 1342\(p\)\(6\), 1311, 1318, 1342, 1361.](#)) Section 402(p)(6) of the CWA requires that EPA designate sources to be regulated to protect water quality and establish a comprehensive program to regulate those sources.

In the Economic Analysis of the Final Phase II Rule (EA), EPA describes the qualitative and monetized benefits associated with today's rule and then compares the monetized benefits with the estimated costs for the rule. EPA developed detailed estimates of the costs and benefits of complying with each of the incremental requirements imposed by the rule. These estimates, including descriptions of the methodology and assumptions used, are described in detail in the EA. The Agency used two approaches, a national water quality model and national water quality assessment, to estimate the potential benefits of the rule. Both approaches show that the benefits are likely to exceed costs. Exhibit 3 in section III of this preamble summarizes the costs and benefits associated with the basic elements of today's rule.

There are additional benefits to storm water control that cannot be quantified or monetized. Thus, the current estimate of monetized benefits may understate the true value of storm water controls because it omits many ways by which society is likely to benefit from reduced storm water pollution, such as improved aesthetic quality of waters, benefits to wildlife and to threatened and endangered species, cultural values, and biodiversity benefits.

Several commenters asserted that today's rule is an unfunded mandate and that, without funding, the monitoring of the already existing pollution control programs would suffer. In section II.D.3 of the preamble, EPA lists some of the programs that EPA anticipates may provide funds to help develop and, in limited circumstances, implement storm water management programs.

In the EA, EPA reviewed the expected effect of today's rule on the national economy. The Agency determined that the rule will have minimal impacts on the economy or employment. This is because the final rule regulates small MS4s and

construction sites under 5 acres, not the typical industrial plants or other non-construction activities that could directly impact production and thus those sectors of the economy.

Discussions with representatives within the construction industry indicate that construction costs will likely be passed on to buyers, thus not seriously affecting the housing industry directly. Flexibility within the rule allows MS4s to tailor the storm water program requirements to their needs and financial position, minimizing impacts. For sedimentation and erosion controls on construction sites, the rule contemplates application of commonly used BMPs to reduce costs for the construction industry. Thus, the rule attempts to use existing practices to prevent pollution, which should minimize impacts on States, Tribes, municipalities and the construction industry.

Thus, EPA concludes that the effect of the rule, if any, on the national economy would be minimal. The benefits of today's rule more than offset any cost impacts on the national economy.

Consistent with the intergovernmental consultation provisions of section 204 of the UMRA and [Executive Order 12875](#), "Enhancing the Intergovernmental Partnership," EPA consulted with the governmental entities affected by this rule.

First, EPA provided States, Tribal and local governments with the opportunity to comment on draft alternative approaches for the proposed rule through publishing a notice requesting information and public comment in the Federal Register on September 9, 1992 ([57 FR 41344](#)). This notice presented a full range of regulatory alternatives. At that time, EPA received more than 130 comments, including approximately 43 percent from municipalities and 24 percent from State or Federal agencies. These comments were the genesis of many of the provisions in the today's rule, including reliance on the NPDES program framework (including general permits), providing State and local governments flexibility in selecting additional sources requiring regulation, and focusing on high priority polluters. These comments helped to focus on pollution prevention, watershed-based concerns and BMPs. They also led to certain exemptions for facilities that do not pollute national waters.

In early 1993, EPA, in conjunction with the Rensselaerville Institute, held public and expert meetings to assist in developing and analyzing options for identifying unregulated storm water sources and possible controls. These meetings provided participants an additional opportunity to provide input into the CWA section 402(p)(6) program development process. The final rule addresses several of the key concerns identified in these groups, including provisions that provide flexibility to the States to select sources to be controlled and types of permits to be issued, and flexibility to MS4s in selecting BMPs.

EPA also conducted outreach with representatives of small entities, including small government representatives, in conjunction with the convening of a Small Business Advocacy Review Panel under SBREFA which is discussed in section IV.E. of the preamble.

In addition, EPA established the Urban Wet Weather Flows Advisory Committee under the Federal Advisory Committee Act (FACA). The Urban Wet Weather Flows Advisory Committee, in turn established the Storm Water Phase II Subcommittee. Consistent with FACA, the membership of the Committee and the Storm Water Phase II Subcommittee was balanced among EPA's various outside stakeholder interests, including representatives from State governments, municipal governments (both elected officials and appointed officials) and Tribal governments, as well as industrial and commercial sectors, agriculture, environmental and public interest groups.

In general, municipal and Tribal government representatives supported the NPDES approach in today's rule for the following reasons: It will be uniformly applied on a nationwide basis; it provides flexibility to allow incorporation of State and local programs; it resolves the problem of donut holes that cause water quality impacts in urbanized areas; and it allows co-permitting of small regulated ***68798** MS4s with those regulated under the existing storm water program.

In contrast, State representatives sought alternative approaches for State implementation of the storm water program for Phase II sources. State representatives asserted that a non-NPDES alternative approach best facilitated watershed management and avoided duplication and overlapping regulations. These representatives pointed out that there are a variety of State programs—not based on the CWA—implementing effective storm water controls, and that EPA should provide incentives for their implementation and improvement in performance. EPA continues to believe that an NPDES approach is the best approach in order to adequately protect water quality. However, EPA has worked with States on an alternative approach that provides flexibility within the NPDES framework. The final rule allows States with a watershed permitting approach to phase in permit coverage for MS4s in jurisdictions with a population less than 10,000 and provides two waivers from coverage for small MS4s. This issue is discussed in section II.C of the preamble, Program Framework: NPDES Approach.

Some municipal governments objected that the rule's minimum measures for small MS4s violate the Tenth Amendment insofar as they require the operators of MS4s to regulate third parties according to the “minimum measures” for municipal storm water management programs. EPA disagrees that today's rule is inconsistent with Tenth Amendment principles. Permits issued under today's rule will not compel political subdivisions of States to regulate in their sovereign capacities, but rather to effectively control discharges out of their storm sewer systems in their owner/operator capacities. For MS4s that do not accept this “default” minimum measures-based approach (to control discharges out of the storm sewer system by exercising local powers to control discharges into the storm sewer system), today's rule allows for alternative permits through individual permit applications. EPA made revisions to the rule to allow regulated small MS4s to opt out of the minimum measures approach and instead apply for an individual permit. This issue is discussed in section II.H.3.c.iii of the preamble, Alternative Permit Option/Tenth Amendment.

2. Selection of the Least Costly, Most Cost-Effective or Least Burdensome Alternative That Achieves the Objectives of the Statute

Today's rule evolved over time and incorporated aspects of alternatives that responded to concerns presented by the various stakeholders. A primary characteristic of today's rule is the flexibility it offers both the permitting authority and the regulated sources (small MS4s and small construction sites), by the use of general permits, implementation of BMPs suited to specific locations, and allowing MS4s to develop their own program goals.

In the administrative record supporting the proposed rule, EPA estimated ranges of costs associated with six different options, including a no action option, the proposed option, and four other options that considered various combinations of the following: Covering all the unregulated construction sites below 5 acres, all small MS4s, certain industrial and commercial activities, and all point sources. EPA developed detailed cost estimates for the incremental requirements imposed under the final regulation, and for each of the alternatives, and applied these estimates to the remaining unregulated point sources of storm water. The Agency compared the estimated annual range of costs imposed under today's rule and other major options considered. The range of values for each option included the costs for compliance, including paperwork requirements for the operators of small construction sites, industrial facilities, and MS4s and administrative costs for State and Federal NPDES permitting authorities.

Today's rule reflects the least costly option that achieves the objectives of the statute, thus meeting the requirements of [section 205](#). EPA did not consider “no regulation” to be an “option” because it would not achieve the objectives of CWA section 402(p)(6). A portion of currently unregulated point sources of storm water need to reduce pollutants to protect water quality.

Today's rule is estimated to range in cost from \$847.6 million to \$981.3 million annually, although the cost estimate for the proposed rule was reported as a range of \$138 to \$869 million annually. That range reflected a unit cost range for the municipal minimum measures and a cost range per construction site for soil erosion control. EPA has since revised its cost analysis to allow it to report the current estimate, which is toward the high end of the original cost range. The

four other regulatory options considered at proposal involved higher regulatory costs and, therefore, were not selected. These four options and their estimated costs are as follows:

- (1) An option based on the August 7, 1995 direct final rule was estimated to cost between \$2.2 billion and \$78.9 billion per year.
- (2) A “Plan B” option was estimated to cost between \$0.6 billion and \$3.2 billion per year.
- (3) An option based on the September 30, 1996 draft proposed rule was estimated to cost between \$0.2 billion and \$3.7 billion per year.
- (4) An option based on the February 13, 1997 draft proposed rule, was estimated to cost between \$0.2 billion and \$3.5 billion.

There are three reasons why the costs for these four options exceeded the estimated cost range for the proposed rule. The first two options regulated substantially more municipal governments. The first, third, and fourth options required industrial facilities to apply for permits. Finally, the first three options applied permit requirements to construction sites below 1 acre. Consequently, these options would be more costly than today's rule even with the revised analysis methods used to estimate costs.

3. Effects on Small Governments

Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements. EPA has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments. Although today's rule expands the NPDES program (with modifications) to certain MS4s serving populations below 100,000 and although many MS4s are owned by small governments, EPA does not believe today's rule significantly or uniquely affects small governments. As explained in section IV.E. of the preamble, EPA today certifies that the rule will not have a significant impact on small governmental jurisdictions. In addition, the rule will not have a unique impact on small governments because the rule will affect small governments in *68799 to the same extent as (or to a lesser extent than) larger governments that are already covered by the existing storm water rules. Thus, today's rule is not subject to the requirements of section 203 of UMRA.

Notwithstanding this finding, in developing today's rule, EPA provided notice of the requirements to potentially affected small governments; enabled officials of affected small governments to provide meaningful and timely input in the development of regulatory proposals; and informed, educated and advised small governments on compliance with the requirements.

Concerning notice, EPA provided States, local, and Tribal governments with the opportunity to comment on alternative approaches for an early draft of the proposed rule by publishing a notice requesting information and public comment in the Federal Register on September 9, 1992 (57 FR 41344). This notice presented a full range of regulatory alternatives. At that time, EPA received more than 130 comments, including approximately 43 percent from municipalities and 24 percent from State or Federal agencies.

The Agency also provided, through the SBREFA panel process and the FACA process, the opportunity for elected officials of small governments (and their representatives) to meaningfully participate in the development of the rule. Through such participation and exchange, EPA not only notified potentially affected small governments of requirements

of the developing rule, but also allowed officials of affected small governments to have meaningful and timely input into the development of regulatory proposals.

In addition to involving municipalities in the development of the rule, EPA also continues to inform, educate, and advise small governments on compliance with the requirements of today's rule. For example, EPA supported 10 workshops, presented by the American Public Works Association from September 1998 through May 1999, designed to educate local governments on the implementation of the rule. The workshop curriculum included information on a variety of key issues such as anticipated regulatory requirements, agency reporting, best management practices, construction site controls, post construction management for new and redeveloped sites, public education and public involvement strategies, detection and control of illicit discharges, and good housekeeping practices. Moreover, EPA has prepared a series of fact sheets, available on the EPA website at www.epa.gov/owm/sw/toolbox, that explains the rule in detail.

Finally, to assist small governments in implementing the Phase II program, EPA is committed to the following: (1) developing a tool box of implementation strategies; (2) providing written technical assistance, including guidance on developing BMPs and measurable goals; and (3) compiling a comprehensive evaluation of the NPDES municipal storm water Phase II program over the next 13 years.

D. Executive Order 13132

[Executive Order 13132](#), entitled “Federalism” (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure “meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.” “Policies that have federalism implications” is defined in the Executive Order to include regulations that have “substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.” Under [Executive Order 13132](#), EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or EPA consults with State and local officials early in the process of developing the proposed regulation. EPA also may not issue a regulation that has federalism implications and that preempts State law unless the Agency consults with State and local officials early in the process of developing the proposed regulation.

If EPA complies by consulting, [Executive Order 13132](#) requires EPA to provide to the Office of Management and Budget (OMB), in a separately identified section of the preamble to the rule, a federalism summary impact statement (FSIS). The FSIS must include a description of the extent of EPA's prior consultation with State and local officials, a summary of the nature of their concerns and the agency's position supporting the need to issue the regulation, and a statement of the extent to which the concerns of State and local officials have been met. For final rules subject to [Executive Order 13132](#), EPA also must submit to OMB a statement from the agency's Federalism Official certifying that EPA has fulfilled the Executive Order's requirements.

EPA has concluded that this final rule may have federalism implications. As discussed above in section IV.C., the rule contains a Federal mandate that may result in the expenditure by State, local and tribal governments, in the aggregate, of \$100 million or more in any one year. Accordingly, the rule may have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in [Executive Order 13132](#). Moreover, the rule will impose substantial direct compliance costs on State or local governments. Accordingly, EPA provides the following [FSIS under section 6\(b\) of Executive Order 13132](#).

1. Description of the Extent of the Agency's Prior Consultation with State and Local Governments

Although this rule was proposed long before the November 2, 1999 effective date of [Executive Order 13132](#), EPA consulted extensively with affected State and local governments pursuant to the intergovernmental consultation provisions of [Executive Order 12875](#), “Enhancing the Intergovernmental Partnership” (now revoked by [Executive Order 13132](#)) and section 204 of UMRA.

First, EPA provided State and local governments the opportunity to comment on draft alternative approaches for the proposed rule through publishing a notice requesting information and public comment in the Federal Register on September 9, 1992 ([57 FR 41344](#)). This notice presented a full range of regulatory alternatives. At that time, EPA received more than 130 comments, including approximately 43 percent from municipalities and 24 percent from State or Federal agencies. These comments were the genesis of many of the provisions in the today's rule, including reliance on the NPDES program framework (including general permits), providing State and local governments flexibility in selecting additional sources requiring regulation, and focusing on high priority polluters. These comments helped to focus on pollution prevention, watershed-based concerns and BMPs. They also led to certain exemptions for facilities that do not pollute national waters.

In early 1993, EPA, in conjunction with the Rensselaerville Institute, held public and expert meetings to assist in developing and analyzing options for identifying unregulated storm water sources and possible controls. These meetings provided participants an additional opportunity to provide input into the CWA section 402(p)(6) program ***68800** development process. The final rule addresses several of the key concerns identified in these groups, including provisions that provide flexibility to the States to select sources to be controlled and types of permits to be issued, and flexibility to MS4s in selecting BMPs.

EPA also conducted outreach with representatives of small entities, including small governments, in conjunction with the convening of a Small Business Advocacy Review Panel under SBREFA which is discussed in section III.F. of the preamble.

In addition, EPA established the Urban Wet Weather Flows Advisory Committee (FACA), which in turn established the Storm Water Phase II Subcommittee. Consistent with the Federal Advisory Committee Act, the membership of the Committee and the Storm Water Phase II Subcommittee was balanced among EPA's various outside stakeholder interests, including representatives from State governments, municipal governments (both elected officials and appointed officials) and Tribal governments, as well as industrial and commercial sectors, agriculture, environmental and public interest groups.

2. Summary of Nature of State and Local Government Concerns, and Statement of the Extent to Which Those Concerns Have Been Met

In general, municipal government representatives supported the NPDES approach in today's rule for the following reasons: it will be uniformly applied on a nationwide basis; it provides flexibility to allow incorporation of State and local programs; it resolves the problem of donut holes that cause water quality impacts in urbanized areas; and it allows co-permitting of small regulated MS4s with those regulated under the existing storm water program.

In contrast, State representatives sought alternative approaches for State implementation of the storm water program for Phase II sources. State representatives asserted that a non-NPDES alternative approach best facilitated watershed management and avoided duplication and overlapping regulations. These representatives pointed out that there are a variety of State programs—not based on the CWA—implementing effective storm water controls, and that EPA should provide incentives for their implementation and improvement in performance. EPA continues to believe that an NPDES approach is the best approach in order to adequately protect water quality. However, EPA has worked with States on an alternative approach that provides flexibility within the NPDES framework. The final rule allows States with a watershed permitting approach to phase in permit coverage for MS4s in jurisdictions with a population less than 10,000

and provides two waivers from coverage for small MS4s. This issue is discussed in section II.C of the preamble, Program Framework: NPDES Approach.

Some municipal governments objected that the rule's minimum measures for small MS4s violate the Tenth Amendment insofar as they require the operators of MS4s to regulate third parties according to the "minimum measures" for municipal storm water management programs. EPA disagrees that today's rule is inconsistent with Tenth Amendment principles. Permits issued under today's rule will not compel political subdivisions of States to regulate in their sovereign capacities, but rather to effectively control discharges out of their storm sewer systems in their owner/operator capacities. For MS4s that do not accept this "default" minimum measures-based approach (to control discharges out of the storm sewer system by exercising local powers to control discharges into the storm sewer system), today's rule allows for alternative permits through individual permit applications. EPA made revisions to the rule to allow regulated small MS4s to opt out of the minimum measures approach and instead apply for an individual permit. This issue is discussed in section II.H.3.c.iii of the preamble, Alternative Permit Option/Tenth Amendment.

3. Summary of the Agency's Position Supporting the Need To Issue the Regulation

As discussed more fully in section I.B. above, today's rule is needed because uncontrolled storm water discharges from areas of urban development and construction activity have been shown to have negative impacts on receiving waters by changing the physical, biological, and chemical composition of the water, resulting in an unhealthy environment for aquatic organisms, wildlife, and people. As discussed in section II.C., the NPDES approach in today's rule is needed to ensure uniform application on a nationwide basis, to provide flexibility to allow incorporation of State and local programs, to resolve the problem of donut holes that cause water quality impacts in urbanized areas, and to allow co-permitting of small regulated MS4s with those regulated under the existing storm water program.

The draft final rule was transmitted to OMB on July 6, 1999. Because transmittal occurred before the November 2, 1999 effective date of [Executive Order 13132](#), certification under section 8 of the Executive Order is not required.

E. Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601 et seq.

The RFA generally requires an Agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impact of today's rule on small entities, small entity is defined as: (1) a building contractor (SIC 15) with up to \$17.0 million in annual revenue; (2) a small governmental jurisdiction that is a government of a city, county, town, school district, or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of today's final rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities.

Although this final rule will not have a significant economic impact on a substantial number of small entities, EPA nonetheless has tried to reduce the impact of this rule on small entities.

For purposes of evaluating the economic impact of this rule on small governmental jurisdictions, EPA compared annual compliance costs with annual government revenues obtained from the 1992 Census of Governments, using state-specific estimates of annual revenue per capita for municipalities in three population size categories (fewer than 10,000, 10,000-25,000, and 25,000-50,000).

In order to estimate the annual compliance cost for small governmental jurisdictions, EPA used the mean variable municipal cost of \$8.93 per household as calculated in a 1998 study of 121 municipalities conducted by the national Association of Flood and Stormwater Management Agencies (NAFSMA). In addition, EPA used the estimated fixed administrative costs of \$1,545 per municipality for reporting, *68801 recordkeeping, and application requirements for today's rule.

In evaluating the economic impact of this rule on small governmental jurisdictions, EPA determined that compliance costs represent more than 1 percent of estimated revenues for only 10 percent of small governments and more than 3 percent of the revenue for 0.7 percent of these entities. In both absolute and relative terms, EPA does not consider this a significant economic impact on a substantial number of small entities.

EPA normally uses the “sales test” for determining the economic impact on small businesses. Under a sales test, annual compliance costs are compared with the small business's total annual sales. However, the direct application of the sales test is not suitable in this case, because of the uncertainty associated with estimating the number of units an “average” developer/contractor develops or builds in a typical year. For this rule, EPA has approximated the sales test by estimating compliance costs for three sizes of construction sites and comparing them with a representative sale price for three building categories. Although EPA's analysis is not exactly a “sales test,” it is similar to the sales test, producing comparable results.

For small building contractors, EPA estimated administrative compliance costs of \$870 per site for applying for coverage, reporting, record keeping, monitoring and preparing a storm water pollution prevention plan. EPA estimated compliance costs for installing soil and erosion controls as ranging from \$1,206 to \$8,709 per site. EPA compliance cost estimates are based on 27 theoretical model construction sites designed to mimic the mostly likely used best management practices around the country.

In evaluating the economic impact on small building contractors, EPA divided the revised compliance costs per construction start by the appropriate homes-to-site ratio for each of the three sizes of construction sites. The average compliance cost per home ranges from approximately \$450 to \$650. EPA concluded that compliance costs are roughly 0.22 to 0.43 percent of both the mean, \$181,300, and median, \$151,000, sale price of a home.

The absence of data to specifically assess annual compliance costs for building contractors as a percentage of annual sales (i.e., a very direct estimate of the impact on potentially affected small businesses) led EPA to perform additional market analysis to examine the ability of potentially affected firms to pass along regulatory costs to buyers for single-family homes constructed subject to today's rule. If the small building contractors covered by the rule are able to pass on the costs of compliance, either completely or partially, to their purchasers, then the rule's impact on these small business entities is significantly reduced. The market analysis shows that demand for homes is not overly sensitive to small changes in price, therefore builders should be able to pass on at least a significant fraction of the compliance costs to buyers.

EPA also assessed the effect of the building contractors' costs on average monthly mortgage rates and on the demand for new homes. Based on that screening analysis, EPA concludes that the costs to building contractors, and the potential changes in housing prices and monthly mortgage payments for single-family home buyers, are not expected to have a significant impact on the market for single-family houses. In both absolute and relative terms, EPA does not consider this a significant economic impact on a substantial number of small entities.

EPA also certified this rule at proposal. Even though the Agency was not required to, we convened a Small Business Advocacy Review Panel (“Panel”) in June 1997. A number of small entity representatives had already been actively involved with EPA through the FACA process, and were, therefore, broadly knowledgeable about the development of the proposed and final rules. Prior to convening the Panel, EPA consulted with the Small Business Administration to

identify a group of small entity representatives to advise the Panel. The Agency distributed a briefing package describing its preliminary analysis under the RFA to the small entity representatives (as well as to representatives from OMB and SBA) and conducted two telephone conference calls and an all-day meeting at EPA Headquarters in May of 1997 with small entity representatives. With this preliminary work complete, in June 1997, EPA formally convened the SBREFA Panel, comprising representatives from OMB, SBA, EPA's Office of Water and EPA's Small Business Advocacy Chair. The Panel received written comments from small entity representatives based on their involvement in the earlier meetings, and invited additional comments.

Consistent with requirements of the RFA, the Panel evaluated the assembled materials and small-entity comments on issues related to: (1) a description and the number of small entities that would be regulated; (2) a description of the projected record keeping, reporting and other compliance requirements applicable to small entities; (3) identification of other Federal rules that may duplicate, overlap, or conflict with the proposal to the final rule; and (4) regulatory alternatives that would minimize any significant economic impact of the rule on small entities while accomplishing the stated objectives of the CWA section 402(p)(6).

On August 7, 1997, the Panel provided a Final Report (hereinafter, "Report") to the EPA Administrator. A copy of the Report is included in the docket for the rule. The Panel acknowledged and commended EPA's efforts to work with stakeholders, including small entities, through the FACA process. The SBREFA Panel stated that, because of EPA's extensive outreach and responsiveness in addressing stakeholder concerns, commenters during the SBREFA process raised fewer concerns than might otherwise have been expected. Based on the advice and recommendations of the Panel, today's rule includes a number of provisions designed to minimize any significant impact on small entities. (See Appendix 5).

F. National Technology Transfer And Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), [Public Law 104-113](#), section 12(d) ([15 U.S.C. 272](#) note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standard bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This action does not mandate the use of any particular technical standards, although in designing appropriate BMPs regulated small MS4s and small construction sites are encouraged to use any voluntary consensus standards that may be applicable and appropriate. Because no specific technical standards are included in the rule, section 12(d) of the NTTAA is not applicable.

G. Executive Order 13045

[Executive Order 13045](#): "Protection of Children from Environmental Health Risks and Safety Risks" ([62 FR 19885](#), April 23, 1997) applies to any rule that: (1) Is determined to be "economically *68802 significant" as defined under [E.O. 12866](#), and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

This final rule is not subject to [E.O. 13045](#) because it does not concern an environmental health or safety risk that may have a disproportionate effect on children. The rule expands the scope of the existing NPDES permitting program to require small municipalities and small construction sites to regulate their storm water discharges. The rule does not itself, however, establish standards or criteria that would be included in permits for those sources. Such standards or criteria

will be developed through other actions, for example, in the establishment of water quality standards or subsequently in the issuance of permits themselves. As such, today's action does not concern an environmental health or safety risk that may have a disproportionate effect on children. To the extent it does address a risk that may have a disproportionate effect on children, expanding the scope of the permitting program will have a corresponding disproportionate benefit to children to protect them from such risk.

H. Executive Order 13084

Under [Executive Order 13084](#), EPA may not issue a regulation that is not required by statute, that significantly or uniquely affects the communities of Indian tribal governments, and that imposes substantial direct compliance costs on those communities, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by the Tribal governments, or EPA consults with those governments. If EPA complies by consulting, [Executive Order 13084](#) requires EPA to provide to the Office of Management and Budget, in a separately identified section of the preamble to the rule, a description of the extent of EPA's prior consultation with representatives of affected Tribal governments, a summary of the nature of their concerns, and a statement supporting the need to issue the regulation. In addition, [Executive Order 13084](#) requires EPA to develop an effective process permitting elected officials and other representatives of Indian Tribal governments “to provide meaningful and timely input in the development of regulatory policies on matters that significantly or uniquely affect their communities.”

Today's rule does not significantly or uniquely affect the communities of Indian Tribal governments. Even though the Agency is not required to address Tribes under the Regulatory Flexibility Act, EPA used the same revenue test that was used for municipalities to assess the impact of the rule on communities of Tribal governments and determine that they will not be significantly affected. In addition, the rule will not have a unique impact on the communities of Tribal governments because small municipal governments are also covered by this rule and larger municipal governments are already covered by the existing storm water rules. Accordingly, the requirements of [section 3\(b\) of Executive Order 13084](#) do not apply to this rule.

I. Congressional Review Act

The Congressional Review Act, [5 U.S.C. section 801 et seq.](#), as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the Federal Register. A major rule cannot take effect until 60 days after it is published in the Federal Register. This rule is a “major rule” as defined by [5 U.S.C. 804\(2\)](#). This rule will be effective on February 7, 2000.

List of Subjects

40 CFR Part 9

Environmental protection, Reporting and recordkeeping requirements.

40 CFR Part 122

Administrative practice and procedure, Confidential business information, Environmental protection, Hazardous substances, Incorporation by reference, Reporting and recordkeeping requirements, Sewage disposal, Waste treatment and disposal, Water pollution control.

40 CFR Part 123

Administrative practice and procedure, Confidential business information, Hazardous materials, Indians—lands, Intergovernmental relations, Penalties, Reporting and recordkeeping requirements, Sewage disposal, Waste treatment and disposal, Water pollution control, Penalties.

40 CFR Part 124

Administrative practice and procedure, Air pollution control, Hazardous waste, Indians—lands, Reporting and recordkeeping requirements, Water pollution control, Water supply.

Dated: October 29, 1999.

Carol M. Browner,

Administrator.

Appendices to the Preamble

Appendix 1 to Preamble—Federally-Recognized American Indian Areas Located Fully or Partially in Bureau of the Census Urbanized Areas

[Based on 1990 Census data]

State	American Indian Area	Urbanized Area
AZ	Pascua Yacqui Reservation (pt.): Pascua Yacqui Tribe of Arizona	Tucson, AZ (Phase I).
AZ	Salt River Reservation (pt.): Salt River Pima-Maricopa Indian Community of the Salt River Reservation, California	Phoenix, AZ (Phase I).
AZ	San Xavier Reservation (pt.): Tohono O'odham Nation of Arizona (formerly known as the Papago Tribe of the Sells, Gila Bend & San Xavier Reservation)	Tucson, AZ (Phase I).
CA	Augustine Reservation: Augustine Band of Cahuilla Mission of Indians of the Augustine Reservation, CA	Indio- Coachella, CA (Phase I).
CA	Cabazon Reservation: Cabazon Band of Cahuilla Mission Indians of the Cabazon Reservation, CA	Indio- Coachella, CA (Phase I).
CA	Fort Yuma (Quechan) (pt.): Quechan Tribe of the Fort Yuma Indian Reservation, California & Arizona	Yuma, AZ-CA.
CA	Redding Rancheria: Redding Rancheria of California	Redding, CA.
FL	Hollywood Reservation: Seminole Tribe	Fort Lauderdale, FL (Phase I).

FL	Seminole Trust Lands: Seminole Tribe of Florida, Dania, Big Cypress & Brighton Reservations	Fort Lauderdale, FL (Phase I).
ID	Fort Hall Reservation and Trust Lands: Shosone-Bannock Tribes of the Fort Hall Reservation of Idaho	Pocatello, ID.
ME	Penobscot Reservation and Trust Lands (pt.): Penobscot Tribe of Maine	Bangor, ME.
MN	Shakopee Community: Shakopee Mdewakanton Sioux Community of Minnesota (Prior Lake)	Minneapolis-St. Paul, MN (Phase I).
NM	Sandia Pueblo (pt.): Pueblo of Sandia, New Mexico	Albuquerque, NM (Phase I).
NV	Las Vegas Colony: Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony, Nevada	Las Vegas, NV (Phase I).
NV	Reno-Sparks Colony: Reno-Sparks Indian Colony, Nevada	Reno, NV (Phase I).
OK	Osage Reservation (pt.): Osage Nation of Oklahoma	Tulsa, OK (Phase I).
OK	Absentee Shawnee-Citizens Band of Potawatomi TJSAs (pt.): Absentee-Shawnee Tribe of Indians of Oklahoma; Citizen Potawatomi Nation, Oklahoma	Oklahoma City, OK (Phase I).
OK	Cherokee TJSAs 9 (pt.): Cherokee Nation of Oklahoma; United Keetoowah Band of Cherokee Indians of Oklahoma	Ft. Smith, AR-OK; Tulsa, OK (Phase I).
OK	Cheyenne-Arapaho TJSAs (pt.): Cheyenne-Arapaho Tribes of Oklahoma	Oklahoma City, OK (Phase I).
OK	Choctaw TJSAs (pt.): Choctaw Nation of Oklahoma	Ft. Smith, AR-OK (Phase I).
OK	Creek TJSAs (pt.): Alabama-Quassarte Tribal Town of the Creek Nation of Oklahoma; Kialegee Tribal Town of the Creek Indian Nation of Oklahoma; Muscogee (Creek) Nation of Oklahoma; Thlopthlocco Tribal Town of the Creek Nation of Oklahoma	Tulsa, OK (Phase I).
OK	Kiowa-Comanche-Apache-Ft. Sill Apache: Apache Tribe of Oklahoma; Comanche Indian Tribe, Oklahoma; Fort Sill Apache Tribe of Oklahoma; Kiowa Indian Tribe of Oklahoma	Lawton, OK.
TX	Ysleta del Sur Reservation: Ysleta Del Sur Pueblo of Texas	El Paso, TX-NM (Phase I).
WA	Muckleshoot Reservation and Trust Lands (pt.): Muckleshoot Indian Tribe of the Muckleshoot Reservation	Seattle, WA (Phase I).

WA	Puyallup Reservation and Trust Lands (pt.): Puyallup Tribe of the Puyallup Reservation, WA	Tacoma, WA (Phase I).
WA	Yakima Reservation (pt.): Confederated Tribes and Bands of the Yakama Indian Nation of the Yakama Reservation, WA	Yakima, WA.
WI	Oneida (West) (pt.): Oneida Tribe of Wisconsin	Green Bay, WI.

***68803 Please Note**

“(pt.)” indicates that the American Indian Area (AIA) listed is only partially located within the referenced urbanized area.

The first line under “American Indian Area” is the name of the federally-recognized reservation/colony/rancheria or trust land as it appears in the Bureau of the Census data. After this first line, the names of the tribes included in the AIA are listed as they appear in the Bureau of Indian Affairs' list of Federally Recognized Indian Tribes. [Federal Register: Nov. 13, 1996, Vol. 66, No. 220, pgs. 58211-58216]

“TJSAs” are Tribal Jurisdiction Statistical Areas in Oklahoma that are defined in conjunction with the federally-recognized tribes in Oklahoma who have definite land areas under their jurisdiction, but do not have reservation status.

“(Phase I)” indicates that the referenced urbanized area includes a medium or large MS4 currently regulated under the existing NPDES storm water program (i.e., Phase I). Any Tribally operated MS4 within these such urban areas would not automatically have been covered under Phase I, however.

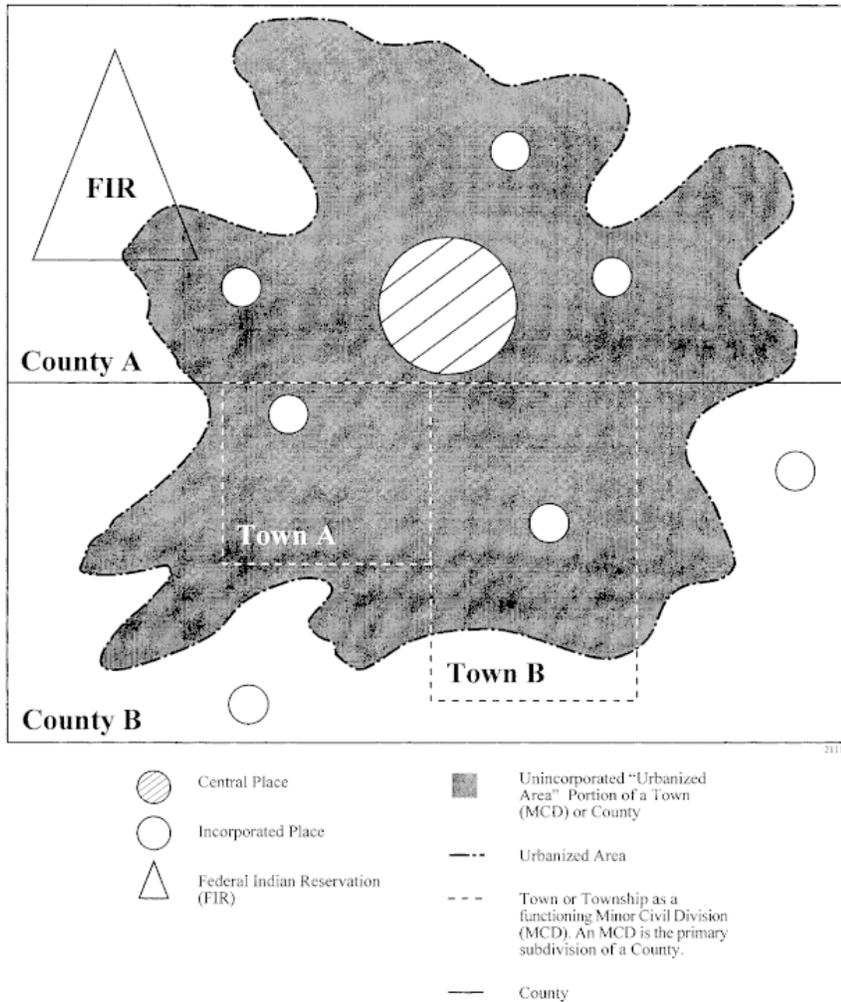
Sources

Michael Ratcliffe, Geographic Concepts Division, Bureau of the Census, U.S. Department of Commerce.

1990 Census of Population and Housing, Summary Population and Housing Characteristics, United States. Tables 9 & 10. [1990 CPH-1-1]. Bureau of the Census, U.S. Department of Commerce.

BILLING CODE 6560-50-P

APPENDIX 2 TO PREAMBLE—URBANIZED AREA ILLUSTRATION



BILLING CODE 6560-50-C

***68805 Appendix 3 to the Preamble—Urbanized Areas of the United States and Puerto Rico**

(Source: 1990 Census of Population and Housing, U.S. Bureau of the Census—This list is subject to change with the Decennial Census)

Alabama

Anniston

Auburn-Opelika

Birmingham

Columbus, GA-AL

Decatur

Dothan

Florence

Gadsden

Huntsville

Mobile

Montgomery

Tuscaloosa

Alaska

Anchorage

Arizona

Phoenix

Tucson

Yuma, AZ-CA

Arkansas

Fayetteville-Springdale

Fort Smith, AR-OK

Little Rock-North Little Rock

Memphis, TN-AR-MS

Pine Bluff

Texarkana, AR-TX

California

Antioch-Pittsburgh

Bakersfield

Chico

Davis

Fairfield

Fresno

Hemet-San Jacinto

Hesperia-Apple Valley-Victorville

Indio-Coachella

Lancaster-Palmdale

Lodi

Lompoc

Los Angeles

Merced

Modesto

Napa

Oxnard-Ventura

Palm Springs

Redding

Riverside-San Bernardino

Sacramento

Salinas

San Diego

San Francisco-Oakland

San Jose

San Luis Obispo

Santa Barbara

Santa Cruz

Santa Maria

Santa Rosa

Seaside-Monterey

Simi Valley

Stockton

Vacaville

Visalia

Watsonville

Yuba City

Yuma

Colorado

Boulder

Colorado Springs

Denver

Fort Collins

Grand Junction

Greeley

Longmont

Pueblo

Connecticut

Bridgeport-Milford

Bristol

Danbury, CT-NY

Hartford-Middletown

New Britain

New Haven-Meriden

New London-Norwich

Norwalk

Springfield, MA-CT

Stamford, CT-NY

Waterbury

Worcester, MA-CT

Delaware

Dover

Wilmington, DE-NJ-MD-PA

District of Columbia

Washington, DC-MD-VA

Florida

Daytona Beach

Deltona

Fort Lauderdale-Hollywood-Pompano Beach

Fort Myers-Cape Coral

Fort Pierce

Fort Walton Beach

Gainesville

Jacksonville

Kissimmee

Lakeland

Melbourne-Palm Bay

Miami-Hialeah

Naples

Ocala

Orlando

Panama City

Pensacola

Punta Gorda

Sarasota-Bradenton

Spring Hill

Stuart

Tallahassee

Tampa-St. Petersburg-Clearwater

Titusville

Vero Beach

West Palm Beach-Boca Raton-Delray Beach

Winter Haven

Georgia

Albany

Athens

Atlanta

Augusta

Brunswick

Chattanooga

Columbus

Macon

Rome

Savannah

Warner Robins

Hawaii

Honolulu

Kailua

Idaho

Boise City

Idaho Falls

Pocatello

Illinois

Alton

Aurora

Beloit, WI-IL

Bloomington-Normal

Champaign-Urbana

Chicago, IL-Northwestern IN

Crystal Lake

Davenport-Rock Island-Moline, IA-IL

Decatur

Dubuque

Elgin

Joliet

Kankakee

Peoria

Rockford

Round Lake Beach-McHenry, IL-WI

St. Louis, MO-IL

Springfield

Indiana

Anderson

Bloomington

Chicago, IL-Northwestern IN

Elkhart-Goshen

Evansville, IN-KY

Fort Wayne

Indianapolis

Kokomo

Lafayette-West Lafayette

Louisville, KY-IN

Muncie

South Bend-Mishawaka, IN-MI

Terre Haute

Iowa

Cedar Rapids

Davenport-Rock Island-Moline, IA-IL

Des Moines

Dubuque, IA-IL-WI

Iowa City

Omaha, NE-IA

Sioux City, IA-NE-SD

Waterloo-Cedar Falls

Kansas

Kansas City, MO-KS

Lawrence

St. Joseph, MO-KS

Topeka

Wichita

Kentucky

Cincinnati, OH-KY

Clarksville, TN-KY

Evansville, IN-KY

Huntington-Ashland, WV-KY-OH

Lexington-Fayette

Louisville, KY-IN

Owensboro

Louisiana

Alexandria

Baton Rouge

Houma

Lafayette

Lake Charles

Monroe

New Orleans

Shreveport *68806

Slidell

Maine

Bangor

Lewiston-Auburn

Portland

Portsmouth-Dover-Rochester, NH-ME

Maryland

Annapolis

Baltimore

Cumberland

Frederick

Hagerstown, MD-PA-WV

Washington, DC-MD-VA

Wilmington, DE-NJ-MD-PA

Massachusetts

Boston

Brockton

Fall River, MA-RI

Fitchburg-Leominster

Hyannis

Lawrence-Haverhill, MA-NH

Lowell, MA-NH

New Bedford

Pittsfield

Providence-Pawtucket, RI-MA

Springfield, MA-CT

Taunton

Worcester, MA-CT

Michigan

Ann Arbor

Battle Creek

Bay City

Benton Harbor

Detroit

Flint

Grand Rapids

Holland

Jackson

Kalamazoo

Lansing-East Lansing

Muskegon

Port Huron

Saginaw

South Bend-Mishawaka, IN-MI

Toledo, OH-MI

Minnesota

Duluth, MN-WI

Fargo-Moorhead, ND-MN

Grand Forks, ND-MN

La Crosse, WI-MN

Minneapolis-St.Paul

Rochester

St. Cloud

Mississippi

Biloxi-Gulfport

Hattiesburg

Jackson

Memphis, TN-AR-MS

Pascagoula

Missouri

Columbia

Joplin

Kansas City, MO-KS

St. Joseph, MO-KS

St. Louis, MO-IL

Springfield

Montana

Billings

Great Falls

Missoula

Nebraska

Lincoln

Omaha, NE-IA

Sioux City, IA-NE-SD

Nevada

Las Vegas

Reno

New Hampshire

Lawrence-Haverhill, MA-NH

Lowell, MA-NH

Manchester

Nashua

Portsmouth-Dover-Rochester, NH-ME

New Jersey

Allentown-Bethlehem-Easton, PA-NJ

Atlantic City

New York, NY-Northeastern NJ

Philadelphia, PA-NJ

Trenton, NJ-PA

Vineland-Millville

Wilmington, DE-NJ-MD-PA

New Mexico

Albuquerque

El Paso

Las Cruces

Santa Fe

New York

Albany-Schenectady-Troy

Binghamton

Buffalo-Niagara Falls

Danbury, CT-NY

Elmira

Glens Falls

Ithaca

Newburgh

New York, NY-Northeastern NJ

Poughkeepsie

Rochester

Stamford, CT-NY

Syracuse

Utica-Rome

North Carolina

Asheville

Burlington

Charlotte

Durham

Fayetteville

Gastonia

Goldsboro

Greensboro

Greenville

Hickory

High Point

Jacksonville

Kannapolis

Raleigh

Rocky Mount

Wilmington

Winston-Salem

North Dakota

Bismark

Fargo-Moorhead, ND-MN

Grand Forks, ND-MN

Ohio

Akron

Canton

Cincinnati, OH-KY

Cleveland

Columbus

Dayton

Hamilton

Huntington-Ashland, WV-KY-OH

Lima

Lorain-Elyria

Mansfield

Middletown

Newark

Parkersburg, WV-OH

Sharon, PA-OH

Springfield

Steubenville-Weirton, OH-WV-PA

Toledo, OH-MI

Wheeling, WV-OH

Youngstown-Warren

Oklahoma

Fort Smith, AR-OK

Lawton

Oklahoma City

Tulsa

Oregon

Eugene-Springfield

Longview

Medford

Portland-Vancouver, OR-WA

Salem

Pennsylvania

Allentown-Bethlehem-Easton, PA-NJ

Altoona

Erie

Hagerstown, MD-PA-WV

Harrisburg

Johnstown

Lancaster

Monessen

Philadelphia, PA-NJ

Pittsburgh

Pottstown

Reading

Scranton-Wilkes-Barre

Sharon, PA-OH

State College

Steubenville-Weirton, OH-WV-PA

Trenton, NJ-PA

Williamsport

Wilmington, DE-NJ-MD-PA

York

Rhode Island

Fall River, MA-RI

Newport

Providence-Pawtucket, RI-MA

South Carolina

Anderson

Augusta, GA-SC

Charleston

Columbia

Florence

Greenville

Myrtle Beach

Rock Hill

Spartanburg

Sumter

South Dakota

Rapid City

Sioux City, IA-NE-SD

Sioux Falls

Tennessee

Bristol, TN-Bristol, VA *68807

Chattanooga, TN-GA

Clarksville, TN-KY

Jackson

Johnson City

Kingsport, TN-VA

Knoxville

Memphis, TN-AR-MS

Nashville

Texas

Abilene

Amarillo

Austin

Beaumont

Brownsville

Bryan-College Station

Corpus Christi

Dallas-Fort Worth

Denton

El Paso, TX-NM

Galveston

Harlingen

Houston

Killeen

Laredo

Lewisville

Longview

Lubbock

McAllen-Edinburg-Mission

Midland

Odessa

Port Arthur

San Angelo

San Antonio

Sherman-Denison

Temple

Texarkana, TX-Texarkana, AR

Texas City

Tyler

Victoria

Waco

Wichita Falls

Utah

Logan

Ogden

Provo-Orem

Salt Lake City

Vermont

Burlington

Virginia

Bristol, TN-Bristol, VA

Charlottesville

Danville

Fredericksburg

Kingsport, TN-VA

Lynchburg

Norfolk-Virginia Beach-Newport News

Petersburg

Richmond

Roanoke

Washington, DC-MD-VA

Washington

Bellingham

Bremerton

Longview, WA-OR

Olympia

Portland-Vancouver, OR-WA

Richland-Kennewick-Pasco

Seattle

Spokane

Tacoma

Yakima

West Virginia

Charleston

Cumberland, MD-WV

Hagerstown, MD-PA-WV

Huntington-Ashland, WV-KY-OH

Parkersburg, WV-OH

Steubenville-Weirton, OH-WV-PA

Wheeling, WV-OH

Wisconsin

Appleton-Neenah

Beloit, WI-IL

Duluth, MN-WI

Eau Claire

Green Bay

Janesville

Kenosha

La Crosse, WI-MN

Madison

Milwaukee

Oshkosh

Racine

Round Lake Beach-McHenry, IL-WI

Sheboygan

Wausau

Wyoming

Casper

Cheyenne

Puerto Rico

Aquadilla

Arecibo

Caguas

Cayey

Humacao

Mayaguez

Ponce

San Juan

Vega Baja-Manati

BILLING CODE 6560-50-P

***68808 Appendix 4 to the Preamble—No Exposure Certification Form**

NPDES FORM 3510-11		United States Environmental Protection Agency Washington, DC 20460 NO EXPOSURE CERTIFICATION for Exclusion from NPDES Storm Water Permitting	Form Approved OMB No. 2040-0211
<p>Submission of this No Exposure Certification constitutes notice that the entity identified in Section A does not require permit authorization for its storm water discharges associated with industrial activity in the State identified in Section B under EPA's Storm Water Multi-Sector General Permit due to the existence of a condition of no exposure.</p> <p>A condition of no exposure exists at an industrial facility when all industrial materials and activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product or waste product. A storm resistant shelter is not required for the following industrial materials and activities:</p> <ul style="list-style-type: none"> - drums, barrels, tanks, and similar containers that are tightly sealed, provided those containers are not deteriorated and do not leak. "Sealed" means banded or otherwise secured and without operational taps or valves; - adequately maintained vehicles used in material handling; and - final products, other than products that would be mobilized in storm water discharges (e.g., rock salt). <p>A No Exposure Certification must be provided for each facility qualifying for the no exposure exclusion. In addition, the exclusion from NPDES permitting is available on a facility-wide basis only, not for individual outfalls. If any industrial activities or materials are or will be exposed to precipitation, the facility is not eligible for the no exposure exclusion.</p> <p>By signing and submitting this No Exposure Certification form, the entity in Section A is certifying that a condition of no exposure exists at its facility or site, and is obligated to comply with the terms and conditions of 40 CFR 122.26(g).</p> <p>ALL INFORMATION MUST BE PROVIDED ON THIS FORM.</p> <p>Detailed instructions for completing this form and obtaining the no exposure exclusion are provided on pages 3 and 4.</p>			
<p>A. Facility Operator Information</p> <p>1. Name: _____ 2. Phone: _____</p> <p>3. Mailing Address: a. Street: _____</p> <p>b. City: _____ c. State: _____ d. Zip Code: _____</p>			
<p>B. Facility/Site Location Information</p> <p>1. Facility Name: _____</p> <p>2. a. Street Address: _____</p> <p>b. City: _____ c. County: _____</p> <p>d. State: _____ e. Zip Code: _____</p> <p>3. Is the facility located on Indian Lands? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>4. Is this a Federal facility? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>5. a. Latitude: _____° _____' _____" b. Longitude: _____° _____' _____"*</p> <p>6. a. Was the facility or site previously covered under an NPDES storm water permit? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>b. If yes, enter NPDES permit number: _____</p> <p>7. SIC/Activity Codes: Primary: _____ Secondary (if applicable): _____</p> <p>8. Total size of site associated with industrial activity: _____ acres</p> <p>9. a. Have you paved or roofed over a formerly exposed, pervious area in order to qualify for the no exposure exclusion? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>b. If yes, please indicate approximately how much area was paved or roofed over. Completing this question does not disqualify you for the no exposure exclusion. However, your permitting authority may use this information in considering whether storm water discharges from your site are likely to have an adverse impact on water quality, in which case you could be required to obtain permit coverage.</p> <p style="text-align: center;"> Less than one acre <input type="checkbox"/> One to five acres <input type="checkbox"/> More than five acres <input type="checkbox"/> </p>			

NPDES FORM 3510-11		NO EXPOSURE CERTIFICATION for Exclusion from NPDES Storm Water Permitting	Form Approved OMB No. 2040-0211
C. Exposure Checklist Are any of the following materials or activities exposed to precipitation, now or in the foreseeable future? (Please check either "Yes" or "No" in the appropriate box.) If you answer "Yes" to any of these questions (1) through (11), you are <u>not</u> eligible for the no exposure exclusion.			
		Yes	No
1.	Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed to storm water	<input type="checkbox"/>	<input type="checkbox"/>
2.	Materials or residuals on the ground or in storm water inlets from spills/leaks	<input type="checkbox"/>	<input type="checkbox"/>
3.	Materials or products from past industrial activity	<input type="checkbox"/>	<input type="checkbox"/>
4.	Material handling equipment (except adequately maintained vehicles)	<input type="checkbox"/>	<input type="checkbox"/>
5.	Materials or products during loading/unloading or transporting activities	<input type="checkbox"/>	<input type="checkbox"/>
6.	Materials or products stored outdoors (except final products intended for outside use (e.g., new cars) where exposure to storm water does not result in the discharge of pollutants)	<input type="checkbox"/>	<input type="checkbox"/>
7.	Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers	<input type="checkbox"/>	<input type="checkbox"/>
8.	Materials or products handled/stored on roads or railways owned or maintained by the discharger	<input type="checkbox"/>	<input type="checkbox"/>
9.	Waste material (except waste in covered, non-leaking containers (e.g., dumpsters))	<input type="checkbox"/>	<input type="checkbox"/>
10.	Application or disposal of process wastewater (unless otherwise permitted)	<input type="checkbox"/>	<input type="checkbox"/>
11.	Particulate matter or visible deposits of residuals from roof stacks and/or vents not otherwise regulated (i.e., under an air quality control permit) and evident in the storm water outflow	<input type="checkbox"/>	<input type="checkbox"/>
D. Certification Statement I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of "no exposure" and obtaining an exclusion from NPDES storm water permitting. I certify under penalty of law that there are no discharges of storm water contaminated by exposure to industrial activities or materials from the industrial facility or site identified in this document (except as allowed under 40 CFR 122.26(g)(2)). I understand that I am obligated to submit a no exposure certification form once every five years to the NPDES permitting authority and, if requested, to the operator of the local municipal separate storm sewer system (MS4) into which the facility discharges (where applicable). I understand that I must allow the NPDES permitting authority, or MS4 operator where the discharge is into the local MS4, to perform inspections to confirm the condition of no exposure and to make such inspection reports publicly available upon request. I understand that I must obtain coverage under an NPDES permit prior to any point source discharge of storm water from the facility. Additionally, I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Print Name: _____ Print Title: _____ Signature: _____ Date: _____			

NPDES FORM 3510-11		Instructions for the NO EXPOSURE CERTIFICATION for Exclusion from NPDES Storm Water Permitting	Form Approved OMB No. 2040-0211
Who May File a No Exposure Certification		Section B. Facility/Site Location Information	
Federal law at 40 CFR Part 122.26 prohibits point source discharges of storm water associated with industrial activity to waters of the U.S. without a National Pollutant Discharge Elimination System (NPDES) permit. However, NPDES permit coverage is not required for discharges of storm water associated with industrial activities identified at 40 CFR 122.26(b)(14)(i)-(ix) and (xi) if the discharger can certify that a condition of "no exposure" exists at the industrial facility or site.		1. Enter the official or legal name of the facility or site.	
Storm water discharges from construction activities identified in 40 CFR 122.26(b)(14)(x) and (b)(15) are not eligible for the no exposure exclusion.		2. Enter the complete street address (if no street address exists, provide a geographic description (e.g., Intersection of Routes 9 and 55)), city, county, state, and zip code. Do not use a P.O. Box number.	
Obtaining and Maintaining the No Exposure Exclusion		3. Indicate whether the facility is located on Indian Lands.	
This form is used to certify that a condition of no exposure exists at the industrial facility or site described herein. This certification is only applicable in jurisdictions where EPA is the NPDES permitting authority and must be re-submitted at least once every five years.		4. Indicate whether the industrial facility is operated by a department or agency of the Federal Government (see also Section 313 of the Clean Water Act).	
The industrial facility operator must maintain a condition of no exposure at its facility or site in order for the no exposure exclusion to remain applicable. If conditions change resulting in the exposure of materials and activities to storm water, the facility operator must obtain coverage under an NPDES storm water permit immediately.		5. Enter the latitude and longitude of the approximate center of the facility or site in degrees/minutes/seconds. Latitude and longitude can be obtained from United States Geological Survey (USGS) quadrangle or topographic maps, by calling 1-(888) ASK-USGS, or by accessing EPA's web site at http://www.epa.gov/owm/sw/industry/index.htm and selecting Latitude and Longitude Finders under the Resources/Permit section.	
Where to File the No Exposure Certification Form		Latitude and longitude for a facility in decimal form must be converted to degrees (°), minutes (′), and seconds (″) for proper entry on the certification form. To convert decimal latitude or longitude to degrees/minutes/seconds, follow the steps in the following example.	
Mail the completed no exposure certification form to:		<u>Example:</u> Convert decimal latitude 45.1234567 to degrees (°), minutes (′), and seconds (″).	
Storm Water No Exposure Certification (4203) USEPA 401 M Street, SW Washington, D.C. 20460		a) The numbers to the left of the decimal point are the degrees: 45°.	
Completing the Form		b) To obtain minutes, multiply the first four numbers to the right of the decimal point by 0.006: 1234 x 0.006 = 7.404.	
You <u>must</u> type or print, using uppercase letters, in appropriate areas only. Enter only one character per space (i.e., between the marks). Abbreviate if necessary to stay within the number of characters allowed for each item. Use one space for breaks between words. One form must be completed for each facility or site for which you are seeking to certify a condition of no exposure. Additional guidance on completing this form can be accessed through EPA's web site at www.epa.gov/owm/sw . Please make sure you have addressed all applicable questions and have made a photocopy for your records before sending the completed form to the above address.		c) The numbers to the left of the decimal point in the result obtained in (b) are the minutes: 7′.	
Section A. Facility Operator Information		d) To obtain seconds, multiply the remaining three numbers to the right of the decimal from the result obtained in (b) by 0.06: 404 x 0.06 = 24.24. Since the numbers to the right of the decimal point are not used, the result is 24″.	
1. Provide the legal name of the person, firm, public organization, or any other entity that operates the facility or site described in this certification. The name of the operator may or may not be the same as the name of the facility. The operator is the legal entity that controls the facility's operation, rather than the plant or site manager.		e) The conversion for 45.1234567 = 45° 7′ 24″.	
2. Provide the telephone number of the facility operator.		6. Indicate whether the facility was previously covered under an NPDES storm water permit. If so, include the permit number.	
3. Provide the mailing address of the operator (P.O. Box numbers may be used). Include the city, state, and zip code. All correspondence will be sent to this address.		7. Enter the 4-digit SIC code which identifies the facility's primary activity, and second 4-digit SIC code identifying the facility's secondary activity, if applicable. SIC codes can be obtained from the <u>Standard Industrial Classification Manual, 1987</u> .	
		8. Enter the total size of the site associated with industrial activity in acres. Acreage may be determined by dividing square footage by 43,560, as demonstrated in the following example.	
		<u>Example:</u> Convert 54,450 ft ² to acres Divide 54,450 ft ² by 43,560 square feet per acre: 54,450 ft ² ÷ 43,560 ft ² /acre = 1.25 acres.	
		9. Check "Yes" or "No" as appropriate to indicate whether you have paved or roofed over a formerly exposed, pervious area (i.e., lawn, meadow, dirt or gravel road/parking lot) in order to qualify for no exposure. If yes, also indicate approximately how much area was paved or roofed over and is now impervious area.	

NPDES FORM 3510-11		Instructions for the NO EXPOSURE CERTIFICATION for Exclusion from NPDES Storm Water Permitting	Form Approved OMB No. 2040-0211
Section C. Exposure Checklist		authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures:	
Check "Yes" or "No" as appropriate to describe the exposure conditions at your facility. If you answer "Yes" to ANY of the questions (1) through (11) in this section, a potential for exposure exists at your site and you cannot certify to a condition of no exposure. You must obtain (or already have) coverage under an NPDES storm water permit. After obtaining permit coverage, you can institute modifications to eliminate the potential for a discharge of storm water exposed to industrial activity, and then certify to a condition of no exposure.		For a partnership or sole proprietorship: by a general partner or the proprietor; or	
Section D. Certification Statement		Paperwork Reduction Act Notice	
Federal statutes provide for severe penalties for submitting false information on this application form. Federal regulations require this application to be signed as follows:		Public reporting burden for this certification is estimated to average 1.0 hour per certification, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose to provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding the burden estimate, any other aspect of the collection of information, or suggestions for improving this form, including any suggestions which may increase or reduce this burden to: Director, OPPE Regulatory Information Division (2137), USEPA, 401 M Street, SW, Washington, D.C. 20460. Include the OMB control number of this form on any correspondence. Do not send the completed No Exposure Certification form to this address.	
For a corporation: by a responsible corporate officer, which means:			
(i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation, or			
(ii) the manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where			

EPA Form 3510-11 (10-99)

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BILLING CODE 6560-50-C

68811 Appendix 5 to Preamble—Regulatory Flexibility for Small Entities*A. Regulatory Flexibility for Small Municipal Storm Sewer Systems (MS4s)*****Different Compliance, Reporting, or Timetables That Are Responsive to Resources of Small Entities***

NPDES permitting authorities can issue general permits instead of requiring individual permits. This flexibility avoids the high application costs and administrative burden associated with individual permits.

NPDES permitting authorities can specify a time period of up to five years for small MS4s to fully develop and implement their program

Analytic monitoring is not required.

After the first permit term and subsequent permit terms, submittal of a summary report is only required in years two and four (Phase I municipalities are currently required to submit a detailed report each year).

A brief reporting format is encouraged to facilitate compiling and analyzing data from submitted reports. EPA intends to develop a model form for this purpose.

NPDES Permitting Authorities can phase in permit coverage for small MS4s serving jurisdictions with a population under 10,000 on a schedule consistent with a State watershed permitting approach.

Clarifying, Consolidating, or Simplifying Compliance and Reporting Requirements

The rule avoids duplication in permit requirements by allowing NPDES permitting authorities to include permit conditions that direct an MS4 to follow the requirements of a qualifying local program rather than the requirements of a minimum measure. Compliance with these programs is considered compliance with the NPDES general permit.

The rule allows NPDES permitting authorities to recognize existing responsibilities among different municipal entities to satisfy obligations for the minimum control measures.

A further alternative allows a small MS4 to satisfy its NPDES permit obligations if another governmental entity is already implementing a minimum control measure in the jurisdiction of the small MS4. The following conditions must be met:

1. The other entity is implementing the control measure,
2. The particular control measure (or component thereof) is at least as stringent as the corresponding NPDES permit requirement, and
3. The other entity agrees to implement the control measure on your behalf.

The rule allows a covered small MS4 to “piggy-back” on to the storm water management program of an adjoining Phase I MS4. A small MS4 is waived from the application requirements of §122.26(d)(1)(iii), (iv) and (d)(2)(iii) [discharge characterization] and may satisfy the requirements of §122.26(d)(1)(v) and (d)(2)(iv) [identifying a management plan] by referencing the adjoining Phase I MS4's storm water management plan.

The rule accommodates the use of the watershed approach through NPDES general permits that could be issued on a watershed basis. The small MS4 can develop measures that are tailored to meet their watershed requirements. The small MS4's storm water management program can tie into watershed-wide plans.

Performance Rather Than Design Standards for Small Entities

Small governmental jurisdictions whose MS4s are covered by this rule are allowed to choose the best management practices (BMPs) to be implemented and the measurable goals for each of the minimum control measures:

1. Public education and outreach on storm water impacts
2. Public Involvement/Participation
3. Illicit discharge detection and elimination *68812
4. Construction site storm water runoff control
5. Post-construction storm water management in new development and redevelopment
6. Pollution prevention/good housekeeping for municipal operations

EPA will provide guidance and recommend, but not mandate, certain BMPs for some of the minimum control measures listed above. States can provide guidance to supplement or supplant EPA guidance.

Small MS4s can identify the measurable goals for each of the minimum control measures listed above. In their reports to the NPDES permitting authority, the small MS4s must evaluate their progress towards achievement of their identified measurable goals.

Waivers for Small Entities From Coverage

The rule allows permitting authorities to waive from coverage MS4s operated by small governmental jurisdictions located within an urbanized area and serving a population less than 1,000 people where the permitting authority has determined the MS4 is not contributing substantially to the pollutant loadings of an interconnected MS4 and, if the MS4 discharges pollutants that have been identified as a cause of impairment in the receiving water of the MS4 then the permitting authority has determined that storm water controls are not needed based on a TMDL that addresses the pollutants of concern.

The rule allows the permitting authority to waive from coverage MS4s serving a population under 10,000 where the permitting authority has evaluated all waters that receive a discharge from the MS4 and the permitting authority has determined that storm water controls are not needed based on a TMDL that addresses the pollutants of concern and future discharges do not have the potential to result in exceedances of water quality standards.

B. Regulatory Flexibility for Small Construction Activities***Different Compliance, Reporting, or Timetables That Are Responsive to Resources of Small Entities***

The rule gives NPDES permitting authorities discretion not to require the submittal of a notice of intent (NOI) for coverage under a NPDES general permit, thereby reducing administrative and financial burden. All construction sites disturbing greater than 5 acres must submit an NOI.

Clarifying, Consolidating, or Simplifying Compliance and Reporting Requirements

The rule avoids duplication by allowing the NPDES permitting authority to incorporate by reference State, Tribal, or local programs under a NPDES general permit. Compliance with these programs is considered compliance with the NPDES general permit.

Performance Rather Than Design Standards for Small Entities

The operator of a covered construction activity selects and implement the BMPs most appropriate for the construction site based on the operator's storm water pollution prevention plan.

Waivers for Small Entities From Coverage

Waivers could be granted based on the use of a rainfall erosivity factor or a comprehensive analysis of water quality impacts.

(A) Low rainfall waiver: When the rainfall erosivity factor ("R" from Revised Universal Soil Loss Equation) is less than 5 during the period of construction activity, a permit is not required.

(B) Determination based on Water Quality Analysis: The NPDES permitting authority can waive from coverage construction activities disturbing from 1 acre up to 5 acres of land where storm water controls are not needed based on:

1. A TMDL approved or established by EPA that addresses the pollutants of concern, or
2. For non-impaired waters, an equivalent analysis that determines that such allocations are not needed to protect water quality based on consideration of existing in-stream concentrations, expected growth in pollutant contributions from all sources, and a margin of safety.

C. Regulatory Flexibility for Industrial/Commercial Facilities

Waivers for Small Entities From Coverage

The rule provides a “no-exposure” waiver provision for Phase I industrial/commercial facilities. Qualifying facilities seeking this provision simply need to complete a self-certification form indicating that no industrial materials or activities are exposed to rain, snow, snow melt and/or runoff.

Appendix 6 of Preamble—Governmental Entities Located Fully or Partially Within an Urbanized Area

(This is a reference list only, not a list of all operators of small MS4s subject to §§122.32-122.36. For example, a listed governmental entity is only regulated if it operates a small MS4 within an “urbanized area” boundary as determined by the Bureau of the Census. Furthermore, entities such as military bases, large hospitals, prison complexes, universities, sewer districts, and highway departments that operate a small MS4 within an urbanized area are also subject to the permitting regulations but are not individually listed here. See [§122.26\(b\)\(16\)](#) for the definition of a small MS4 and [§122.32\(a\)](#) for the definition of a regulated small MS4.)

(Source: 1990 Census of Population and Housing, U.S. Bureau of the Census. This list is subject to change with the Decennial Census)

AL Anniston city

AL Attalla city

AL Auburn city

AL Autauga County

AL Blue Mountain town

AL Calhoun County

AL Colbert County

AL Dale County

AL Decatur city

AL Dothan city

AL Elmore County

AL Etowah County

AL Flint City town

AL Florence city

AL Gadsden city

AL Glencoe city

AL Grimes town

AL Hartselle city
AL Hobson City town
AL Hokes Bluff city
AL Houston County
AL Kinsey town
AL Lauderdale County
AL Lee County
AL Limestone County
AL Madison County
AL Midland City town
AL Montgomery County
AL Morgan County
AL Muscle Shoals city
AL Napier Field town
AL Northport city
AL Opelika city
AL Oxford city
AL Phenix City city
AL Prattville city
AL Priceville town
AL Rainbow City city
AL Russell County
AL Sheffield city
AL Southside city
AL Sylvan Springs town
AL Talladega County
AL Tuscaloosa city
AL Tuscaloosa County

AL Tuscumbia city
AL Weaver city
AR Alexander town
AR Barling city
AR Benton County
AR Cammack Village city
AR Crawford County
AR Crittenden County
AR Farmington city
AR Fayetteville city
AR Fort Smith city
AR Greenland town
AR Jacksonville city
AR Jefferson County
AR Johnson city
AR Marion city
AR Miller County
AR North Little Rock city
AR Pine Bluff city
AR Pulaski County
AR Saline County
AR Sebastian County
AR Shannon Hills city
AR Sherwood city
AR Springdale city
AR Sunset town
AR Texarkana city
AR Van Buren city

AR Washington County

AR West Memphis city

AR White Hall city

AZ Apache Junction city

AZ Chandler city

AZ El Mirage town

AZ Gilbert town

AZ Guadalupe town

AZ Maricopa County

AZ Oro Valley town

AZ Paradise Valley town

AZ Peoria city

AZ Pinal County ***68813**

AZ South Tucson city

AZ Surprise town

AZ Tolleson city

AZ Youngtown town

AZ Yuma city

AZ Yuma County

CA Apple Valley town

CA Belvedere city

CA Benicia city

CA Brentwood city

CA Butte County

CA Capitola city

CA Carmel-by-the-Sea city

CA Carpinteria city

CA Ceres city

CA Chico city
CA Compton city
CA Corte Madera town
CA Cotati city
CA Davis city
CA Del Rey Oaks city
CA Fairfax town
CA Hesperia city
CA Imperial County
CA Lakewood city
CA Lancaster city
CA Larkspur city
CA Lodi city
CA Lompoc city
CA Marin County
CA Marina city
CA Marysville city
CA Merced city
CA Merced County
CA Mill Valley city
CA Monterey city
CA Monterey County
CA Morgan Hill city
CA Napa city
CA Napa County
CA Novato city
CA Pacific Grove city
CA Palm Desert city

CA Palmdale city
CA Piedmont city
CA Placer County
CA Redding city
CA Rocklin city
CA Rohnert Park city
CA Roseville city
CA Ross town
CA San Anselmo town
CA San Buenaventura (Ventura) city
CA San Francisco city
CA San Joaquin County
CA San Luis Obispo city
CA San Luis Obispo County
CA San Rafael city
CA Sand City city
CA Santa Barbara city
CA Santa Barbara County
CA Santa Cruz city
CA Santa Cruz County
CA Santa Maria city
CA Sausalito city
CA Scotts Valley city
CA Seaside city
CA Shasta County
CA Solano County
CA Sonoma County
CA Stanislaus County

CA Suisun City city
CA Sutter County
CA Tiburon town
CA Tulare County
CA Vacaville city
CA Victorville city
CA Villa Park city
CA Visalia city
CA Watsonville city
CA West Sacramento city
CA Yolo County
CA Yuba City city
CA Yuba County
CO Adams County
CO Arvada city
CO Boulder city
CO Boulder County
CO Bow Mar town
CO Broomfield city
CO Cherry Hills Village city
CO Columbine Valley town
CO Commerce City city
CO Douglas County
CO Edgewater city
CO El Paso County
CO Englewood city
CO Evans city
CO Federal Heights city

CO Fort Collins city
CO Fountain city
CO Garden City town
CO Glendale city
CO Golden city
CO Grand Junction city
CO Greeley city
CO Greenwood Village city
CO Jefferson County
CO La Salle town
CO Lakeside town
CO Larimer County
CO Littleton city
CO Longmont city
CO Manitou Springs city
CO Mesa County
CO Mountain View town
CO Northglenn city
CO Pueblo city
CO Pueblo County
CO Sheridan city
CO Thornton city
CO Weld County
CO Westminster city
CO Wheat Ridge city
CT Ansonia city
CT Avon town
CT Beacon Falls town

CT Berlin town
CT Bethel town
CT Bloomfield town
CT Bozrah town
CT Branford town
CT Bridgeport city
CT Bristol city
CT Brookfield town
CT Burlington town
CT Cheshire town
CT Cromwell town
CT Danbury city
CT Darien town
CT Derby city
CT Durham town
CT East Granby town
CT East Hartford town
CT East Haven town
CT East Lyme town
CT East Windsor town
CT Easton town
CT Ellington town
CT Enfield town
CT Fairfield County
CT Fairfield town
CT Farmington town
CT Franklin town
CT Glastonbury town

CT Greenwich town
CT Groton city
CT Groton town
CT Guilford town
CT Hamden town
CT Hartford city
CT Hartford County
CT Ledyard town
CT Lisbon town
CT Litchfield County
CT Manchester town
CT Meriden city
CT Middlebury town
CT Middlefield town
CT Middlesex County
CT Middletown city
CT Milford city (remainder)
CT Monroe town
CT Montville town
CT Naugatuck borough
CT New Britain city
CT New Canaan town
CT New Fairfield town
CT New Haven city
CT New Haven County
CT New London city
CT New London County
CT New Milford town

CT Newington town

CT Newtown town

CT North Branford town

CT North Haven town

CT Norwalk city

CT Norwich city

CT Orange town

CT Oxford town

CT Plainville town

CT Plymouth town

CT Portland town

CT Preston town

CT Prospect town

CT Rocky Hill town

CT Seymour town

CT Shelton city

CT Sherman town

CT Somers town

CT South Windsor town

CT Southington town

CT Sprague town

CT Stonington town

CT Stratford town

CT Suffield town

CT Thomaston town

CT Thompson town

CT Tolland County

CT Tolland town

CT Trumbull town

CT Vernon town

CT Wallingford town

CT Waterbury city

CT Waterford town

CT Watertown town

CT West Hartford town

CT West Haven city

CT Weston town

CT Westport town

CT Wethersfield town

CT Wilton town

CT Windham County

CT Windsor Locks town

CT Windsor town

CT Wolcott town

CT Woodbridge town ***68814**

CT Woodmont borough

DE Camden town

DE Dover city

DE Kent County

DE Newark city

DE Wyoming town

FL Alachua County

FL Baldwin town

FL Bay County

FL Belleair Shore town

FL Biscayne Park village

FL Brevard County
FL Callaway city
FL Cape Canaveral city
FL Cedar Grove town
FL Charlotte County
FL Cinco Bayou town
FL Clay County
FL Cocoa Beach city
FL Cocoa city
FL Collier County
FL Daytona Beach city
FL Daytona Beach Shores city
FL Destin city
FL Edgewater city
FL El Portal village
FL Florida City city
FL Fort Pierce city
FL Fort Walton Beach city
FL Gainesville city
FL Gulf Breeze city
FL Hernando County
FL Hillsboro Beach town
FL Holly Hill city
FL Indialantic town
FL Indian Harbour Beach city
FL Indian River County
FL Indian River Shores town
FL Indian Shores town

FL Kissimmee city
FL Lazy Lake village
FL Lynn Haven city
FL Malabar town
FL Marion County
FL Martin County
FL Mary Esther city
FL Melbourne Beach town
FL Melbourne city
FL Melbourne Village town
FL Naples city
FL New Smyrna Beach city
FL Niceville city
FL Ocala city
FL Ocean Breeze Park town
FL Okaloosa County
FL Orange Park town
FL Ormond Beach city
FL Osceola County
FL Palm Bay city
FL Panama City city
FL Parker city
FL Ponce Inlet town
FL Port Orange city
FL Port St. Lucie city
FL Punta Gorda city
FL Rockledge city
FL Santa Rosa County

FL Satellite Beach city
FL Sewall's Point town
FL Shalimar town
FL South Daytona city
FL Springfield city
FL St. Johns County
FL St. Lucie County
FL St. Lucie village
FL Stuart city
FL Sweetwater city
FL Titusville city
FL Valparaiso city
FL Vero Beach city
FL Virginia Gardens village
FL Volusia County
FL Walton County
FL Weeki Wachee city
FL West Melbourne city
FL Windermere town
GA Albany city
GA Athens city
GA Bartow County
GA Brunswick city
GA Catoosa County
GA Centerville city
GA Chattahoochee County
GA Cherokee County
GA Chickamauga city

GA Clarke County
GA Columbia County
GA Conyers city
GA Dade County
GA Dougherty County
GA Douglas County
GA Douglasville city
GA Fayette County
GA Floyd County
GA Fort Oglethorpe city
GA Glynn County
GA Grovetown city
GA Henry County
GA Houston County
GA Jones County
GA Lee County
GA Lookout Mountain city
GA Mountain Park city
GA Oconee County
GA Payne city
GA Rockdale County
GA Rome city
GA Rossville city
GA Stockbridge city
GA Vernonburg town
GA Walker County
GA Warner Robins city
GA Winterville city

GA Woodstock city
IA Altoona city
IA Asbury city
IA Bettendorf city
IA Black Hawk County
IA Buffalo city
IA Carter Lake city
IA Cedar Falls city
IA Clive city
IA Coralville city
IA Council Bluffs city
IA Dallas County
IA Dubuque city
IA Dubuque County
IA Elk Run Heights city
IA Evansdale city
IA Hiawatha city
IA Iowa City city
IA Johnson County
IA Johnston city
IA Le Claire city
IA Linn County
IA Marion city
IA Norwalk city
IA Panorama Park city
IA Pleasant Hill city
IA Polk County
IA Pottawattamie County

IA Raymond city
IA Riverdale city
IA Robins city
IA Scott County
IA Sergeant Bluff city
IA Sioux City city
IA University Heights city
IA Urbandale city
IA Warren County
IA Waterloo city
IA West Des Moines city
IA Windsor Heights city
IA Woodbury County
ID Ada County
ID Ammon city
ID Bannock County
ID Bonneville County
ID Chubbuck city
ID Idaho Falls city
ID Iona city
ID Pocatello city
ID Power County
IL Addison township
IL Addison village
IL Algonquin township
IL Algonquin village
IL Alorton village
IL Alsip village

IL Alton city
IL Antioch township
IL Antioch village
IL Arlington Heights village
IL Aroma Park village
IL Aroma township
IL Aurora city
IL Aurora township
IL Avon township
IL Ball township
IL Bannockburn village
IL Barrington township
IL Barrington village
IL Bartlett village
IL Bartonville village
IL Batavia city
IL Batavia township
IL Beach Park village
IL Bedford Park village
IL Belleville city
IL Bellevue village
IL Bellwood village
IL Bensenville village
IL Benton township
IL Berkeley village
IL Berwyn city
IL Bethalto village
IL Blackhawk township

IL Bloom township
IL Bloomingdale township
IL Bloomingdale village
IL Bloomington city
IL Bloomington township
IL Blue Island city
IL Bolingbrook village
IL Bourbonnais township
IL Bourbonnais village
IL Bowling township
IL Bradley village
IL Bremen township
IL Bridgeview village
IL Bristol township
IL Broadview village
IL Brookfield village
IL Brooklyn village
IL Buffalo Grove village
IL Burbank city
IL Burnham village
IL Burr Ridge village *68815
IL Burritt township
IL Burton township
IL Cahokia village
IL Calumet City city
IL Calumet Park village
IL Calumet township
IL Canteen township

IL Capital township
IL Carbon Cliff village
IL Carol Stream village
IL Carpentersville Village
IL Cary village
IL Caseyville township
IL Caseyville village
IL Centreville city
IL Centreville township
IL Champaign city
IL Champaign County
IL Champaign township
IL Channahon township
IL Cherry Valley township
IL Cherry Valley village
IL Chicago city
IL Chicago Heights city
IL Chicago Ridge village
IL Chouteau township
IL Cicero town
IL Cincinnati township
IL Clarendon Hills village
IL Coal Valley township
IL Coal Valley village
IL Collinsville city
IL Collinsville township
IL Colona township
IL Colona village

IL Columbia city
IL Country Club Hills city
IL Countryside city
IL Crest Hill city
IL Crestwood village
IL Crete township
IL Crete village
IL Creve Coeur village
IL Crystal Lake city
IL Cuba township
IL Curran township
IL Darien city
IL Decatur city
IL Decatur township
IL Deer Park village
IL Deerfield township
IL Deerfield village
IL Des Plaines city
IL Dixmoor village
IL Dolton village
IL Dorr township
IL Downers Grove township
IL Downers Grove village
IL Dry Grove township
IL Du Page township
IL Dundee township
IL Dunleith township
IL Dupo village

IL East Alton village
IL East Dubuque city
IL East Dundee village
IL East Hazel Crest village
IL East Moline city
IL East Peoria city
IL East St. Louis city
IL Edwardsville city
IL Edwardsville township
IL Ela township
IL Elgin city
IL Elgin township
IL Elk Grove township
IL Elk Grove Village village
IL Elm Grove township
IL Elmhurst city
IL Elmwood Park village
IL Evanston city
IL Evergreen Park village
IL Fairmont City village
IL Fairview Heights city
IL Flossmoor village
IL Fondulac township
IL Ford Heights village
IL Forest Park village
IL Forest View village
IL Forsyth village
IL Fort Russell township

IL Foster township

IL Fox Lake village

IL Fox River Grove village

IL Frankfort township

IL Frankfort village

IL Franklin Park village

IL Fremont township

IL Gardner township

IL Geneva city

IL Geneva township

IL Gilberts village

IL Glen Carbon village

IL Glen Ellyn village

IL Glencoe village

IL Glendale Heights village

IL Glenview village

IL Glenwood village

IL Godfrey township

IL Golf village

IL Grafton township

IL Grandview village

IL Granite City city

IL Grant township

IL Grayslake village

IL Green Oaks village

IL Green Rock city

IL Groveland township

IL Gurnee village

IL Hainesville village
IL Hampton township
IL Hampton village
IL Hanna township
IL Hanover Park village
IL Hanover township
IL Harlem township
IL Harristown township
IL Harristown village
IL Hartford village
IL Harvey city
IL Harwood Heights village
IL Hawthorn Woods village
IL Hazel Crest village
IL Henry County
IL Hensley township
IL Hickory Hills city
IL Hickory Point township
IL Highland Park city
IL Highwood city
IL Hillside village
IL Hinsdale village
IL Hodgkins village
IL Hoffman Estates village
IL Hollis township
IL Homer township
IL Hometown city
IL Homewood village

IL Indian Creek village
IL Indian Head Park village
IL Inverness village
IL Itasca village
IL Jarvis township
IL Jerome village
IL Jo Daviess County
IL Joliet city
IL Joliet township
IL Justice village
IL Kane County
IL Kankakee city
IL Kankakee County
IL Kankakee township
IL Kendall County
IL Kenilworth village
IL Kickapoo township
IL Kildeer village
IL La Grange Park village
IL La Grange village
IL Lake Barrington village
IL Lake Bluff village
IL Lake Forest city
IL Lake in the Hills village
IL Lake Villa township
IL Lake Villa village
IL Lake Zurich village
IL Lakemoor village

IL Lakewood village
IL Lansing village
IL Leland Grove city
IL Lemont township
IL Leyden township
IL Libertyville township
IL Libertyville village
IL Limestone township
IL Lincolnshire village
IL Lincolnwood village
IL Lindenhurst village
IL Lisle township
IL Lisle village
IL Lockport city
IL Lockport township
IL Lombard village
IL Long Creek township
IL Long Grove village
IL Loves Park city
IL Lynwood village
IL Lyons township
IL Lyons village
IL Machesney Park village
IL Macon County
IL Madison city
IL Madison County
IL Maine township
IL Markham city

IL Marquette Heights city
IL Maryville village
IL Matteson village
IL Maywood village
IL McCook village
IL McCullom Lake village
IL McHenry city
IL McHenry County
IL McHenry township
IL McLean County
IL Medina township
IL Melrose Park village
IL Merrionette Park village
IL Midlothian village
IL Milan village
IL Milton township
IL Moline city
IL Moline township
IL Monee township
IL Monroe County
IL Montgomery village
IL Moro township
IL Morton Grove village
IL Morton township
IL Morton village *68816
IL Mount Prospect village
IL Mount Zion township
IL Mount Zion village

IL Mundelein village
IL Nameoki township
IL Naperville city
IL Naperville township
IL National City village
IL New Lenox township
IL New Lenox village
IL New Millford village
IL New Trier township
IL Newport township
IL Niles township
IL Niles village
IL Normal town
IL Normal township
IL Norridge village
IL North Aurora village
IL North Barrington village
IL North Chicago city
IL North Pekin village
IL North Riverside village
IL Northbrook village
IL Northfield township
IL Northfield village
IL Northlake city
IL Norwood Park township
IL Norwood village
IL Nunda township
IL Oak Brook village

IL Oak Forest city
IL Oak Grove village
IL Oak Lawn village
IL Oak Park village
IL Oakbrook Terrace city
IL Oakley township
IL Oakwood Hills village
IL O'Fallon city
IL O'Fallon township
IL Olympia Fields village
IL Orland Hills village
IL Orland Park village
IL Orland township
IL Oswego township
IL Oswego village
IL Otto township
IL Owen township
IL Palatine township
IL Palatine village
IL Palos Heights city
IL Palos Hills city
IL Palos Park village
IL Palos township
IL Park City city
IL Park Forest village
IL Park Ridge city
IL Pekin city
IL Pekin township

IL Peoria city
IL Peoria County
IL Peoria Heights village
IL Phoenix village
IL Pin Oak township
IL Plainfield township
IL Plainfield village
IL Pontoon Beach village
IL Posen village
IL Precinct 10
IL Prospect Heights city
IL Proviso township
IL Rich township
IL Richton Park village
IL Richwoods township
IL River Forest village
IL River Grove village
IL Riverdale village
IL Riverside township
IL Riverside village
IL Riverwoods village
IL Robbins village
IL Rochester township
IL Rock Island city
IL Rock Island County
IL Rock Island township
IL Rockdale village
IL Rockford township

IL Rockton township
IL Rockton village
IL Rolling Meadows city
IL Romeoville village
IL Roscoe township
IL Roscoe village
IL Roselle village
IL Rosemont village
IL Round Lake Beach village
IL Round Lake Heights village
IL Round Lake Park village
IL Round Lake village
IL Roxana village
IL Rutland township
IL Sangamon County
IL Sauget village
IL Sauk Village village
IL Savoy village
IL Schaumburg township
IL Schaumburg village
IL Schiller Park village
IL Shields township
IL Shiloh Valley township
IL Shiloh village
IL Shorewood village
IL Silvis city
IL Skokie village
IL Sleepy Hollow village

IL Somer township
IL South Beloit city
IL South Chicago Heights village
IL South Elgin village
IL South Holland village
IL South Moline township
IL South Rock Island township
IL South Roxana village
IL South Wheatland township
IL Southern View village
IL Spring Bay township
IL Springfield city
IL Springfield township
IL St. Charles city
IL St. Charles township
IL St. Clair County
IL St. Clair township
IL Steger village
IL Stickney township
IL Stickney village
IL Stites township
IL Stone Park village
IL Stookey township
IL Streamwood village
IL Sugar Grove township
IL Sugar Loaf township
IL Summit village
IL Sunnyside village

IL Swansea village
IL Tazewell County
IL Thornton township
IL Thornton village
IL Tinley Park village
IL Tolono township
IL Tower Lakes village
IL Tremont township
IL Troy city
IL Troy township
IL University Park village
IL Urbana city
IL Urbana township
IL Venice city
IL Venice township
IL Vernon Hills village
IL Vernon township
IL Villa Park village
IL Warren township
IL Warrenville city
IL Washington city
IL Washington Park village
IL Washington township
IL Wauconda township
IL Waukegan city
IL Waukegan township
IL Wayne township
IL West Chicago city

IL West Deerfield township
IL West Dundee village
IL West Peoria township
IL Westchester village
IL Western Springs village
IL Westmont village
IL Wheatland township
IL Wheaton city
IL Wheeling township
IL Wheeling village
IL Whitmore township
IL Will County
IL Willow Springs village
IL Willowbrook village
IL Wilmette village
IL Winfield township
IL Winfield village
IL Winnebago County
IL Winnetka village
IL Winthrop Harbor village
IL Wood Dale city
IL Wood River city
IL Wood River township
IL Woodford County
IL Woodridge village
IL Woodside township
IL Worth township
IL Worth village

IL York township

IL Zion city

IN Aboite township

IN Adams township

IN Allen County

IN Anderson city

IN Anderson township

IN Baugo township

IN Beech Grove city

IN Bloomington city

IN Bloomington township

IN Boone County

IN Buck Creek township

IN Calumet township

IN Carmel city

IN Castleton town

IN Cedar Creek township

IN Center township

IN Centre township

IN Chesterfield town

IN Chesterton town

IN Clark County

IN Clarksville town

IN Clay township

IN Clermont town

IN Cleveland township

IN Concord township

IN Country Club Heights town *68817

IN Crown Point city
IN Crows Nest town
IN Cumberland town
IN Daleville town
IN Delaware County
IN Delaware township
IN Dyer town
IN Eagle township
IN East Chicago city
IN Edgewood town
IN Elkhart city
IN Elkhart County
IN Elkhart township
IN Evansville city
IN Fairfield township
IN Fall Creek township
IN Fishers town
IN Floyd County
IN Fort Wayne city
IN Franklin township
IN Gary city
IN German township
IN Goshen city
IN Greenwood city
IN Griffith town
IN Hamilton County
IN Hamilton township
IN Hammond city

IN Hancock County
IN Hanover township
IN Harris township
IN Harrison township
IN Hendricks County
IN Highland town
IN Hobart city
IN Hobart township
IN Homecroft town
IN Honey Creek township
IN Howard County
IN Howard township
IN Indian Village town
IN Jackson township
IN Jefferson township
IN Jeffersonville city
IN Jeffersonville township
IN Johnson County
IN Knight township
IN Kokomo city
IN Lafayette city
IN Lafayette township
IN Lake County
IN Lake Station city
IN Lawrence city
IN Lawrence township
IN Liberty township
IN Lincoln township

IN Lost Creek township
IN Madison County
IN Meridian Hills town
IN Merrillville town
IN Mishawaka city
IN Monroe County
IN Mount Pleasant township
IN Muncie city
IN Munster town
IN New Albany city
IN New Albany township
IN New Chicago town
IN New Haven city
IN New Whiteland town
IN Newburgh town
IN North Crows Nest town
IN North township
IN Ogden Dunes town
IN Ohio township
IN Osceola town
IN Osolo township
IN Otter Creek township
IN Penn township
IN Perry township
IN Pigeon township
IN Pike township
IN Pleasant township
IN Portage city

IN Portage township
IN Porter County
IN Porter town
IN Richland township
IN Riley township
IN River Forest town
IN Rocky Ripple town
IN Roseland town
IN Ross township
IN Salem township
IN Schererville town
IN Seelyville town
IN Sellersburg town
IN Selma town
IN Silver Creek township
IN South Bend city
IN Southport city
IN Speedway town
IN Spring Hill town
IN St. John town
IN St. John township
IN St. Joseph County
IN St. Joseph township
IN Sugar Creek township
IN Taylor township
IN Terre Haute city
IN Tippecanoe County
IN Tippecanoe township

IN Union township
IN Utica township
IN Van Buren township
IN Vanderburgh County
IN Vigo County
IN Wabash township
IN Warren Park town
IN Warren township
IN Warrick County
IN Washington township
IN Wayne township
IN Wea township
IN West Lafayette city
IN West Terre Haute town
IN Westchester township
IN Westfield town
IN White River township
IN Whiteland town
IN Whiting city
IN Williams Creek town
IN Woodlawn Heights town
IN Wynnedale town
IN Yorktown town
IN Zionsville town
KS Attica township
KS Bel Aire city
KS Countryside city
KS Delano township

KS Doniphan County
KS Douglas County
KS Eastborough city
KS Elwood city
KS Fairway city
KS Gypsum township
KS Haysville city
KS Johnson County
KS Kechi city
KS Kechi township
KS Lake Quivira city
KS Lawrence city
KS Leawood city
KS Lenexa city
KS Merriam city
KS Minneha township
KS Mission city
KS Mission Hills city
KS Mission township
KS Mission Woods city
KS Monticello township
KS Ohio township
KS Olathe city
KS Olathe township
KS Park City city
KS Park township
KS Prairie Village city
KS Riverside township

KS Roeland Park city
KS Salem township
KS Sedgwick County
KS Shawnee city
KS Shawnee County
KS Shawnee township
KS Soldier township
KS Tecumseh township
KS Topeka township
KS Waco township
KS Wakarusa township
KS Washington township
KS Westwood city
KS Westwood Hills city
KS Williamsport township
KS Wyandotte County
KY Alexandria city
KY Ashland city
KY Bellefonte city
KY Bellevue city
KY Boone County
KY Boyd County
KY Bromley city
KY Bullitt County
KY Campbell County
KY Catlettsburg city
KY Christian County
KY Covington city

KY Crescent Park city

KY Crescent Springs city

KY Crestview city

KY Crestview Hills city

KY Daviess County

KY Dayton city

KY Edgewood city

KY Elsmere city

KY Erlanger city

KY Fairview city

KY Flatwoods city

KY Florence city

KY Forest Hills city

KY Fort Mitchell city

KY Fort Thomas city

KY Fort Wright city

KY Fox Chase city

KY Greenup County

KY Hebron Estates city

KY Henderson city

KY Henderson County

KY Highland Heights city

KY Hillview city

KY Hunters Hollow city

KY Independence city

KY Jessamine County

KY Kenton County

KY Kenton Vale city

KY Lakeside Park city

KY Latonia Lakes city

KY Ludlow city

KY Melbourne city *68818

KY Newport city

KY Oak Grove city

KY Owensboro city

KY Park Hills city

KY Pioneer Village city

KY Raceland city

KY Russell city

KY Silver Grove city

KY Southgate city

KY Taylor Mill city

KY Villa Hills city

KY Wilder city

KY Woodlawn city

KY Wurtland city

LA Alexandria city

LA Baker city

LA Ball town

LA Bossier City city

LA Bossier Parish

LA Broussard town

LA Caddo Parish

LA Calcasieu Parish

LA Carencro city

LA Denham Springs city

LA Houma city

LA Lafayette city

LA Lafayette Parish

LA Lafourche Parish

LA Lake Charles city

LA Livingston Parish

LA Monroe city

LA Ouachita Parish

LA Pineville city

LA Plaquemines Parish

LA Port Allen city

LA Rapides Parish

LA Richwood town

LA Scott town

LA Slidell city

LA St. Bernard Parish

LA St. Charles Parish

LA St. Tammany Parish

LA Sulphur city

LA Terrebonne Parish

LA West Baton Rouge Parish

LA West Monroe city

LA Westlake city

LA Zachary city

MA Abington town

MA Acton town

MA Acushnet town

MA Agawam town

MA Amesbury town
MA Andover town
MA Arlington town
MA Ashland town
MA Attleboro city
MA Auburn town
MA Avon town
MA Barnstable County
MA Barnstable town
MA Bedford town
MA Bellingham town
MA Belmont town
MA Berkshire County
MA Beverly city
MA Billerica town
MA Blackstone town
MA Boxborough town
MA Boylston town
MA Braintree town
MA Bridgewater town
MA Bristol County
MA Brockton city
MA Brookline town
MA Burlington town
MA Cambridge city
MA Canton town
MA Charlton town
MA Chelmsford town

MA Chelsea city
MA Chicopee city
MA Cohasset town
MA Concord town
MA Dalton town
MA Danvers town
MA Dartmouth town
MA Dedham town
MA Dennis town
MA Dighton town
MA Dover town
MA Dracut town
MA Dudley town
MA East Bridgewater town
MA East Longmeadow town
MA Easthampton town
MA Easton town
MA Essex County
MA Essex town
MA Everett city
MA Fairhaven town
MA Fall River city
MA Fitchburg city
MA Foxborough town
MA Framingham town
MA Franklin town
MA Freetown town
MA Georgetown town

MA Gloucester city
MA Grafton town
MA Granby town
MA Groton town
MA Groveland town
MA Hadley town
MA Halifax town
MA Hamilton town
MA Hampden County
MA Hampden town
MA Hampshire County
MA Hanover town
MA Hanson town
MA Haverhill city
MA Hingham town
MA Hinsdale town
MA Holbrook town
MA Holden town
MA Holliston town
MA Holyoke city
MA Hudson town
MA Hull town
MA Lanesborough town
MA Lawrence city
MA Leicester town
MA Leominster city
MA Lexington town
MA Lincoln town

MA Littleton town

MA Longmeadow town

MA Lowell city

MA Ludlow town

MA Lunenburg town

MA Lynn city

MA Lynnfield town

MA Malden city

MA Manchester town

MA Mansfield town

MA Marblehead town

MA Marlborough city

MA Mashpee town

MA Maynard town

MA Medfield town

MA Medford city

MA Medway town

MA Melrose city

MA Merrimac town

MA Methuen town

MA Middlesex County

MA Middleton town

MA Millbury town

MA Millis town

MA Millville town

MA Milton town

MA Nahant town

MA Natick town

MA Needham town

MA New Bedford city

MA Newton city

MA Norfolk town

MA North Andover town

MA North Attleborough town

MA North Reading town

MA Northampton city

MA Northborough town

MA Northbridge town

MA Norton town

MA Norwell town

MA Norwood town

MA Oxford town

MA Paxton town

MA Peabody city

MA Pembroke town

MA Pittsfield city

MA Plainville town

MA Plymouth County

MA Quincy city

MA Randolph town

MA Raynham town

MA Reading town

MA Rehoboth town

MA Revere city

MA Rockland town

MA Rockport town

MA Salem city
MA Sandwich town
MA Saugus town
MA Scituate town
MA Seekonk town
MA Sharon town
MA Shrewsbury town
MA Somerset town
MA Somerville city
MA South Hadley town
MA Southampton town
MA Southborough town
MA Southwick town
MA Springfield city
MA Stoneham town
MA Stoughton town
MA Stow town
MA Sudbury town
MA Sutton town
MA Swampscott town
MA Swansea town
MA Taunton city
MA Tewksbury town
MA Tyngsborough town
MA Uxbridge town
MA Wakefield town
MA Walpole town
MA Waltham city

MA Watertown town

MA Wayland town

MA Webster town

MA Wellesley town

MA Wenham town

MA West Boylston town

MA West Bridgewater town

MA West Springfield town ***68819**

MA Westborough town

MA Westfield city

MA Westford town

MA Westminster town

MA Weston town

MA Westport town

MA Westwood town

MA Weymouth town

MA Whitman town

MA Wilbraham town

MA Williamsburg town

MA Wilmington town

MA Winchester town

MA Winthrop town

MA Woburn city

MA Worcester County

MA Wrentham town

MA Yarmouth town

MD Allegany County

MD Annapolis city

MD Bel Air town

MD Berwyn Heights town

MD Bladensburg town

MD Bowie city

MD Brentwood town

MD Brookeville town

MD Capitol Heights town

MD Cecil County

MD Cheverly town

MD Chevy Chase Section Five village

MD Chevy Chase Section Three village

MD Chevy Chase town

MD Chevy Chase Village town

MD College Park city

MD Colmar Manor town

MD Cottage City town

MD Cumberland city

MD District Heights city

MD Edmonston town

MD Elkton town

MD Fairmount Heights town

MD Forest Heights town

MD Frederick city

MD Frostburg city

MD Funkstown town

MD Gaithersburg city

MD Garrett Park town

MD Glen Echo town

MD Glenarden town

MD Greenbelt city

MD Hagerstown city

MD Highland Beach town

MD Hyattsville city

MD Kensington town

MD Landover Hills town

MD Laurel city

MD Martin's Additions village

MD Morningside town

MD Mount Rainier city

MD New Carrollton city

MD North Brentwood town

MD Riverdale town

MD Rockville city

MD Seat Pleasant city

MD Smithsburg town

MD Somerset town

MD Takoma Park city

MD University Park town

MD Walkersville town

MD Washington Grove town

MD Williamsport town

ME Androscoggin County

ME Auburn city

ME Bangor city

ME Berwick town

ME Brewer city

ME Cape Elizabeth town
ME Cumberland County
ME Eliot town
ME Falmouth town
ME Gorham town
ME Kittery town
ME Lebanon town
ME Lewiston city
ME Lisbon town
ME Old Town city
ME Orono town
ME Penobscot County
ME Penobscot Indian Island Reservation
ME Portland city
ME Sabattus town
ME Scarborough town
ME South Berwick town
ME South Portland city
ME Veazie town
ME Westbrook city
ME York County
MI Ada township
MI Allegan County
MI Allen Park city
MI Alpine township
MI Ann Arbor township
MI Auburn Hills city
MI Bangor township

MI Bath township

MI Battle Creek city

MI Bay City city

MI Bay County

MI Bedford township

MI Belleville city

MI Benton Charter township

MI Benton Harbor city

MI Berkley city

MI Berlin township

MI Berrien County

MI Beverly Hills village

MI Bingham Farms village

MI Birmingham city

MI Blackman township

MI Bloomfield Hills city

MI Bloomfield township

MI Bridgeport township

MI Brownstown township

MI Buena Vista Charter township

MI Burtchville township

MI Burton city

MI Byron township

MI Calhoun County

MI Canton township

MI Carrollton township

MI Cascade township

MI Cass County

MI Center Line city
MI Chesterfield township
MI Clarkston village
MI Clawson city
MI Clay township
MI Clayton township
MI Clinton County
MI Clinton township
MI Clio city
MI Clyde township
MI Commerce township
MI Comstock township
MI Cooper township
MI Dalton township
MI Davison city
MI Davison township
MI De Witt township
MI Dearborn city
MI Dearborn Heights city
MI Delhi Charter township
MI Delta township
MI Detroit city
MI East China township
MI East Detroit city
MI East Grand Rapids city
MI East Lansing city
MI Eaton County
MI Ecorse city

MI Emmett township

MI Erie township

MI Essexville city

MI Farmington city

MI Farmington Hills city

MI Ferndale city

MI Fillmore township

MI Flat Rock city

MI Flint township

MI Flushing city

MI Flushing township

MI Fort Gratiot township

MI Frankenlust township

MI Franklin village

MI Fraser city

MI Fruitport township

MI Gaines township

MI Garden City city

MI Genesee County

MI Genesee township

MI Georgetown township

MI Gibraltar city

MI Grand Blanc city

MI Grand Blanc township

MI Grand Rapids Charter township

MI Grandville city

MI Grosse Ile township

MI Grosse Pointe city

MI Grosse Pointe Farms city

MI Grosse Pointe Park city

MI Grosse Pointe Shores village

MI Grosse Pointe Woods city

MI Hampton township

MI Hamtramck city

MI Harper Woods city

MI Harrison township

MI Hazel Park city

MI Highland Park city

MI Highland township

MI Holland city

MI Holland township

MI Howard township

MI Hudsonville city

MI Huntington Woods city

MI Huron township

MI Independence township

MI Ingham County

MI Inkster city

MI Ira township

MI Jackson city

MI Jackson County

MI James township

MI Kalamazoo city

MI Kalamazoo County

MI Kalamazoo township

MI Keego Harbor city

MI Kent County
MI Kentwood city
MI Kimball township
MI Kochville township
MI Lake Angelus city
MI Laketon township
MI Laketown township
MI Lansing city
MI Lansing township
MI Lathrup Village city
MI Leoni township
MI Lincoln Park city ***68820**
MI Lincoln township
MI Livonia city
MI Macomb County
MI Macomb township
MI Madison Heights city
MI Marysville city
MI Melvindale city
MI Meridian township
MI Milford township
MI Milton township
MI Monitor township
MI Monroe County
MI Mount Clemens city
MI Mount Morris city
MI Mount Morris township
MI Mundy township

MI Muskegon city

MI Muskegon County

MI Muskegon Heights city

MI Muskegon township

MI New Baltimore city

MI Niles city

MI Niles township

MI North Muskegon city

MI Northville city

MI Northville township

MI Norton Shores city

MI Novi city

MI Novi township

MI Oak Park city

MI Oakland Charter township

MI Oakland County

MI Orchard Lake Village city

MI Orion township

MI Oshtemo township

MI Ottawa County

MI Parchment city

MI Park township

MI Pavilion township

MI Pennfield township

MI Pittsfield township

MI Plainfield township

MI Pleasant Ridge city

MI Plymouth city

MI Plymouth township

MI Pontiac city

MI Port Huron city

MI Port Huron township

MI Portage city

MI Portsmouth township

MI Redford township

MI Richfield township

MI River Rouge city

MI Riverview city

MI Rochester city

MI Rochester Hills city

MI Rockwood city

MI Romulus city

MI Roosevelt Park city

MI Roseville city

MI Ross township

MI Royal Oak city

MI Royal Oak township

MI Saginaw city

MI Saginaw County

MI Saginaw township

MI Schoolcraft township

MI Scio township

MI Shelby township

MI Shoreham village

MI Sodus township

MI South Rockwood village

MI Southfield city

MI Southfield township

MI Southgate city

MI Spaulding township

MI Spring Arbor township

MI Springfield city

MI Springfield township

MI St. Clair city

MI St. Clair County

MI St. Clair Shores city

MI St. Clair township

MI St. Joseph Charter township

MI St. Joseph city

MI Stevensville village

MI Sullivan township

MI Summit township

MI Sumpter township

MI Superior township

MI Swartz Creek city

MI Sylvan Lake city

MI Taylor city

MI Texas township

MI Thetford township

MI Thomas township

MI Trenton city

MI Troy city

MI Utica city

MI Van Buren township

MI Vienna township
MI Walker city
MI Walled Lake city
MI Washington township
MI Washtenaw County
MI Waterford township
MI Wayne city
MI West Bloomfield township
MI Westland city
MI White Lake township
MI Whiteford township
MI Williamstown township
MI Wixom city
MI Wolverine Lake village
MI Woodhaven city
MI Wyandotte city
MI Wyoming city
MI Ypsilanti city
MI Ypsilanti township
MI Zeeland city
MI Zilwaukee city
MN Andover city
MN Anoka city
MN Anoka County
MN Apple Valley city
MN Arden Hills city
MN Benton County
MN Birchwood Village city

MN Blaine city
MN Bloomington city
MN Brooklyn Center city
MN Brooklyn Park city
MN Burnsville city
MN Carver County
MN Cascade township
MN Champlin city
MN Chanhassen city
MN Circle Pines city
MN Clay County
MN Coon Rapids city
MN Cottage Grove city
MN Credit River township
MN Crystal city
MN Dakota County
MN Dayton city
MN Deephaven city
MN Dilworth city
MN Duluth city
MN Eagan city
MN East Grand Forks city
MN Eden Prairie city
MN Excelsior city
MN Falcon Heights city
MN Farmington city
MN Fort Snelling unorg.
MN Fridley city

MN Gem Lake city
MN Golden Valley city
MN Grant township
MN Greenwood city
MN Ham Lake city
MN Haven township
MN Hennepin County
MN Hermantown city
MN Hilltop city
MN Hopkins city
MN Houston County
MN Inver Grove Heights city
MN La Crescent city
MN La Crescent township
MN Lake Elmo city
MN Lakeville city
MN Landfall city
MN Lauderdale city
MN Le Sauk township
MN Lexington city
MN Lilydale city
MN Lino Lakes city
MN Little Canada city
MN Long Lake city
MN Loretto city
MN Mahtomedi city
MN Maple Grove city
MN Maple Plain city

MN Maplewood city
MN Marion township
MN Medicine Lake city
MN Medina city
MN Mendota city
MN Mendota Heights city
MN Midway township
MN Minden township
MN Minnetonka Beach city
MN Minnetonka city
MN Minnetrista city
MN Moorhead city
MN Moorhead township
MN Mound city
MN Mounds View city
MN New Brighton city
MN New Hope city
MN Newport city
MN North Oaks city
MN North St. Paul city
MN Oakdale city
MN Oakport township
MN Olmsted County
MN Orono city
MN Osseo city
MN Plymouth city
MN Polk County
MN Prior Lake city

MN Proctor city
MN Ramsey city
MN Robbinsdale city
MN Rochester city
MN Rochester township
MN Rosemount city
MN Roseville city
MN Sartell city
MN Sauk Rapids city
MN Sauk Rapids township
MN Savage city
MN Scott County
MN Sherburne County
MN Shoreview city
MN Shorewood city
MN South St. Paul city *68821
MN Spring Lake Park city
MN Spring Park city
MN St. Anthony city
MN St. Cloud city
MN St. Cloud township
MN St. Louis County
MN St. Paul Park city
MN Stearns County
MN Sunfish Lake city
MN Tonka Bay city
MN Vadnais Heights city
MN Victoria city

MN Waite Park city

MN Washington County

MN Wayzata city

MN West St. Paul city

MN White Bear Lake city

MN White Bear township

MN Willernie city

MN Woodbury city

MN Woodland city

MN Wright County

MO Airport Drive village

MO Airport township

MO Andrew County

MO Arnold city

MO Avondale city

MO Ballwin city

MO Battlefield town

MO Bella Villa city

MO Bellefontaine Neighbors city

MO Bellerive village

MO Bel-Nor village

MO Bel-Ridge village

MO Belton city

MO Berkeley city

MO Beverly Hills city

MO Big Creek township

MO Birmingham village

MO Black Jack city

MO Blanchette township

MO Blue Springs city

MO Blue township

MO Bonhomme township

MO Boone County

MO Boone township

MO Breckenridge Hills village

MO Brentwood city

MO Bridgeton city

MO Brooking township

MO Buchanan County

MO Calverton Park village

MO Campbell No. 1 township

MO Campbell No. 2 township

MO Carl Junction city

MO Carroll township

MO Cartersville city

MO Cass County

MO Cedar township

MO Center township

MO Charlack city

MO Chesterfield city

MO Chouteau township

MO Christian County

MO Clarkson Valley city

MO Clay County

MO Clay township

MO Claycomd village

MO Clayton city
MO Clayton township
MO Cliff Village village
MO Columbia city
MO Columbia township
MO Concord township
MO Cool Valley city
MO Cottleville town
MO Cottleville township
MO Country Club Hills city
MO Country Club village
MO Country Life Acres village
MO Crestwood city
MO Creve Coeur city
MO Creve Coeur township
MO Crystal Lake Park city
MO Dardenne township
MO Dellwood city
MO Dennis Acres village
MO Des Peres city
MO Duquesne village
MO Edmundson village
MO Ellisville city
MO Fenton city
MO Ferguson city
MO Ferguson township
MO Flordell Hills city
MO Florissant city

MO Florissant township
MO Fox township
MO Friedens township
MO Frontenac city
MO Galena township
MO Gallatin township
MO Gladstone city
MO Glen Echo Park village
MO Glenaire village
MO Glendale city
MO Grandview city
MO Grantwood Village town
MO Gravois township
MO Greendale city
MO Greene County
MO Hadley township
MO Hanley Hills village
MO Harvester township
MO Hazelwood city
MO High Ridge township
MO Hillsdale village
MO Houston Lake city
MO Huntleigh city
MO Imperial township
MO Iron Gates village
MO Jackson County
MO Jasper County
MO Jefferson County

MO Jefferson township
MO Jennings city
MO Joplin city
MO Joplin township
MO Kickapoo township
MO Kimmswick city
MO Kinloch city
MO Kirkwood city
MO Ladue city
MO Lake St. Louis city
MO Lake Tapawingo city
MO Lake Waukomis city
MO Lakeshire city
MO Leawood village
MO Lee's Summit city
MO Lemay township
MO Lewis and Clark township
MO Liberty city
MO Liberty township
MO Mac Kenzie village
MO Manchester city
MO Maplewood city
MO Marlborough village
MO Maryland Heights city
MO May township
MO Meramec township
MO Midland township
MO Mineral township

MO Missouri River township
MO Missouri township
MO Moline Acres city
MO Mount Pleasant township
MO Newton County
MO Normandy city
MO Normandy township
MO North Campbell No. 1 township
MO North Campbell No. 2 township
MO North Campbell No. 3 township
MO North Kansas City city
MO North View township
MO Northmoor city
MO Northwest township
MO Northwoods city
MO Norwood Court town
MO Oakland city
MO Oakland Park village
MO Oaks village
MO Oakview village
MO Oakwood Park village
MO Oakwood village
MO O'Fallon city
MO O'Fallon township
MO Olivette city
MO Overland city
MO Pagedale city
MO Parkdale town

MO Parkville city

MO Pasadena Hills city

MO Pasadena Park village

MO Pettis township

MO Pine Lawn city

MO Platte County

MO Platte township

MO Platte Woods city

MO Pleasant Valley city

MO Prairie township

MO Queeny township

MO Randolph village

MO Raymore city

MO Raymore township

MO Raytown city

MO Redings Mill village

MO Richmond Heights city

MO Rivers township

MO Riverside city

MO Riverview village

MO Rock Hill city

MO Rock township

MO Rocky Fork township

MO Saginaw village

MO Shoal Creek Drive village

MO Shoal Creek township

MO Shrewsbury city

MO Silver Creek village

MO Sioux township

MO Sni-A-Bar township

MO Spanish Lake township

MO Spencer Creek township

MO St. Ann city

MO St. Charles city

MO St. Ferdinand township

MO St. George city

MO St. John city

MO St. Joseph city

MO St. Louis city

MO St. Peters city

MO St. Peters township

MO Sugar Creek city

MO Sunset Hills city

MO Sycamore Hills village

MO Town and Country city

MO Twin Groves township

MO Twin Oaks village

MO Unity Village village ***68822**

MO University City city

MO Uplands Park village

MO Valley Park city

MO Velda Village city

MO Velda Village Hills village

MO Vinita Park city

MO Vinita Terrace village

MO Warson Woods city

MO Washington township
MO Wayne township
MO Weatherby Lake city
MO Webb City city
MO Webster Groves city
MO Wellston city
MO Wentzville township
MO Westwood village
MO Wilbur Park village
MO Wilson township
MO Winchester city
MO Windsor township
MO Woodson Terrace city
MO Zumbahl township
MS Bay St. Louis city
MS Biloxi city
MS Brandon city
MS Clinton city
MS DeSoto County
MS D'Iberville city
MS Flowood town
MS Forrest County
MS Gautier city
MS Gulfport city
MS Hancock County
MS Harrison County
MS Hattiesburg city
MS Hinds County

MS Horn Lake city
MS Jackson County
MS Lamar County
MS Long Beach city
MS Madison city
MS Madison County
MS Moss Point city
MS Ocean Springs city
MS Pascagoula city
MS Pass Christian city
MS Pearl city
MS Petal city
MS Rankin County
MS Richland city
MS Ridgeland city
MS Southaven city
MS Waveland city
MT Billings city
MT Cascade County
MT Great Falls city
MT Missoula city
MT Missoula County
MT Yellowstone County
NC Alamance County
NC Apex town
NC Archdale city
NC Asheville city
NC Belmont city

NC Belville town
NC Bessemer City city
NC Biltmore Forest town
NC Black Mountain town
NC Brookford town
NC Brunswick County
NC Buncombe County
NC Burke County
NC Burlington city
NC Cabarrus County
NC Carrboro town
NC Cary town
NC Catawba County
NC Chapel Hill town
NC China Grove town
NC Clemmons village
NC Concord city
NC Conover city
NC Cramerton town
NC Dallas town
NC Davidson County
NC Durham County
NC Edgecombe County
NC Elon College town
NC Fletcher town
NC Forsyth County
NC Garner town
NC Gaston County

NC Gastonia city

NC Gibsonville town

NC Goldsboro city

NC Graham city

NC Greenville city

NC Guilford County

NC Harnett County

NC Haw River town

NC Henderson County

NC Hickory city

NC High Point city

NC Hildebran town

NC Hope Mills town

NC Indian Trail town

NC Jacksonville city

NC Jamestown town

NC Kannapolis city

NC Landis town

NC Leland town

NC Long View town

NC Lowell city

NC Matthews town

NC McAdenville town

NC Mebane city

NC Mecklenburg County

NC Mint Hill town

NC Montreat town

NC Mount Holly city

NC Nash County
NC New Hanover County
NC Newton city
NC Onslow County
NC Orange County
NC Pineville town
NC Pitt County
NC Randolph County
NC Ranlo town
NC Rocky Mount city
NC Rowan County
NC Rural Hall town
NC Spring Lake town
NC Stallings town
NC Thomasville city
NC Union County
NC Wake County
NC Walkertown town
NC Wayne County
NC Weaverville town
NC Wilmington city
NC Winterville town
NC Woodfin town
NC Wrightsville Beach town
ND Barnes township
ND Bismarck city
ND Bismarck unorg.
ND Burleigh County

ND Captain's Landing township
ND Cass County
ND Fargo city
ND Grand Forks city
ND Grand Forks County
ND Grand Forks township
ND Hay Creek township
ND Lincoln city
ND Mandan city
ND Mandan unorg.
ND Morton County
ND Reed township
ND West Fargo city
NE Bellevue city
NE Bellevue No. 2 precinct
NE Benson precinct
NE Boys Town village
NE Chicago precinct
NE Covington precinct
NE Dakota County
NE Douglas County
NE Douglas precinct
NE Florence precinct
NE Garfield precinct
NE Gilmore No. 1 precinct
NE Gilmore No. 2 precinct
NE Gilmore No. 3 precinct
NE Grant precinct

NE Highland No. 1 precinct
NE Highland No. 2 precinct
NE Jefferson precinct
NE La Platte precinct
NE La Vista city
NE Lancaster County
NE Lancaster precinct
NE McArdle precinct
NE Millard precinct
NE Papillion city
NE Papillion No. 2 precinct
NE Pawnee precinct
NE Ralston city
NE Richland No. 1 precinct
NE Richland No. 2 precinct
NE Richland No. 3 precinct
NE Sarpy County
NE South Sioux City city
NE Union precinct
NE Yankee Hill precinct
NH Amherst town
NH Auburn town
NH Bedford town
NH Dover city
NH Durham town
NH Goffstown town
NH Hillsborough County
NH Hollis town

NH Hooksett town
NH Hudson town
NH Litchfield town
NH Londonderry town
NH Madbury town
NH Manchester city
NH Merrimack County
NH Merrimack town
NH Nashua city
NH New Castle town
NH Newington town
NH Pelham town
NH Plaistow town
NH Portsmouth city
NH Rochester city
NH Rockingham County
NH Rollinsford town
NH Rye town
NH Salem town
NH Somersworth city
NH Strafford County
NH Windham town
NJ Aberdeen township
NJ Absecon city *68823
NJ Allendale borough
NJ Allenhurst borough
NJ Alpha borough
NJ Alpine borough

NJ Asbury Park city
NJ Atlantic City city
NJ Atlantic County
NJ Atlantic Highlands borough
NJ Audubon borough
NJ Audubon Park borough
NJ Avon-by-the-Sea borough
NJ Barrington borough
NJ Bay Head borough
NJ Bayonne city
NJ Beachwood borough
NJ Bedminster township
NJ Belleville township
NJ Bellmawr borough
NJ Belmar borough
NJ Bergenfield borough
NJ Berkeley Heights township
NJ Berkeley township
NJ Berlin borough
NJ Berlin township
NJ Bernards township
NJ Bernardsville borough
NJ Beverly city
NJ Bloomfield township
NJ Bloomingdale borough
NJ Bogota borough
NJ Boonton town
NJ Boonton township

NJ Bordentown city
NJ Bordentown township
NJ Bound Brook borough
NJ Bradley Beach borough
NJ Branchburg township
NJ Brick township
NJ Bridgewater township
NJ Brielle borough
NJ Brigantine city
NJ Brooklawn borough
NJ Buena borough
NJ Buena Vista township
NJ Burlington city
NJ Burlington County
NJ Burlington township
NJ Butler borough
NJ Byram township
NJ Caldwell Borough township
NJ Camden city
NJ Cape May County
NJ Carlstadt borough
NJ Carneys Point township
NJ Carteret borough
NJ Cedar Grove township
NJ Chatham borough
NJ Chatham township
NJ Cherry Hill township
NJ Chesilhurst borough

NJ Chester township
NJ Chesterfield township
NJ Cinnaminson township
NJ City of Orange township
NJ Clark township
NJ Clayton borough
NJ Clementon borough
NJ Cliffside Park borough
NJ Clifton city
NJ Closter borough
NJ Collingswood borough
NJ Colts Neck township
NJ Commercial township
NJ Cranford township
NJ Cresskill borough
NJ Cumberland County
NJ Deal borough
NJ Delanco township
NJ Delran township
NJ Demarest borough
NJ Denville township
NJ Deptford township
NJ Dover town
NJ Dover township
NJ Dumont borough
NJ Dunellen borough
NJ East Brunswick township
NJ East Greenwich township

NJ East Hanover township
NJ East Newark borough
NJ East Orange city
NJ East Rutherford borough
NJ Eastampton township
NJ Eatontown borough
NJ Edgewater borough
NJ Edgewater Park township
NJ Edison township
NJ Egg Harbor township
NJ Elizabeth city
NJ Elk township
NJ Elmwood Park borough
NJ Emerson borough
NJ Englewood city
NJ Englewood Cliffs borough
NJ Englishtown borough
NJ Essex Fells township
NJ Evesham township
NJ Ewing township
NJ Fair Haven borough
NJ Fair Lawn borough
NJ Fairfield township
NJ Fairview borough
NJ Fanwood borough
NJ Fieldsboro borough
NJ Florence township
NJ Florham Park borough

NJ Fort Lee borough
NJ Franklin Lakes borough
NJ Franklin township
NJ Freehold borough
NJ Freehold township
NJ Galloway township
NJ Garfield city
NJ Garwood borough
NJ Gibbsboro borough
NJ Glassboro borough
NJ Glen Ridge Borough township
NJ Glen Rock borough
NJ Gloucester City city
NJ Gloucester County
NJ Gloucester township
NJ Green Brook township
NJ Greenwich township
NJ Guttenberg town
NJ Hackensack city
NJ Haddon Heights borough
NJ Haddon township
NJ Haddonfield borough
NJ Hainesport township
NJ Haledon borough
NJ Hamilton township
NJ Hanover township
NJ Harding township
NJ Harrington Park borough

NJ Harrison town

NJ Hasbrouck Heights borough

NJ Haworth borough

NJ Hawthorne borough

NJ Hazlet township

NJ Helmetta borough

NJ Highland Park borough

NJ Highlands borough

NJ Hillsborough township

NJ Hillsdale borough

NJ Hillside township

NJ Hi-Nella borough

NJ Hoboken city

NJ Ho-Ho-Kus borough

NJ Holmdel township

NJ Hopatcong borough

NJ Hopewell township

NJ Howell township

NJ Hunterdon County

NJ Interlaken borough

NJ Irvington township

NJ Island Heights borough

NJ Jackson township

NJ Jamesburg borough

NJ Jefferson township

NJ Jersey City city

NJ Keansburg borough

NJ Kearny town

NJ Kenilworth borough
NJ Keyport borough
NJ Kinnelon borough
NJ Lakehurst borough
NJ Lakewood township
NJ Laurel Springs borough
NJ Lavallette borough
NJ Lawnside borough
NJ Lawrence township
NJ Leonia borough
NJ Lincoln Park borough
NJ Linden city
NJ Lindenwold borough
NJ Linwood city
NJ Little Falls township
NJ Little Ferry borough
NJ Little Silver borough
NJ Livingston township
NJ Loch Arbour village
NJ Lodi borough
NJ Long Branch city
NJ Longport borough
NJ Lopatcong township
NJ Lumberton township
NJ Lyndhurst township
NJ Madison borough
NJ Magnolia borough
NJ Mahwah township

NJ Manalapan township
NJ Manasquan borough
NJ Manchester township
NJ Mantoloking borough
NJ Mantua township
NJ Manville borough
NJ Maple Shade township
NJ Maplewood township
NJ Margate City city
NJ Marlboro township
NJ Matawan borough
NJ Maywood borough
NJ Medford Lakes borough
NJ Medford township
NJ Mendham borough
NJ Mendham township
NJ Mercer County
NJ Merchantville borough
NJ Metuchen borough
NJ Middlesex borough
NJ Middlesex County
NJ Middletown township
NJ Midland Park borough
NJ Millburn township
NJ Millstone borough
NJ Milltown borough
NJ Millville city
NJ Mine Hill township *68824

NJ Monmouth Beach borough
NJ Monmouth County
NJ Monroe township
NJ Montclair township
NJ Montvale borough
NJ Montville township
NJ Moonachie borough
NJ Moorestown township
NJ Morris County
NJ Morris Plains borough
NJ Morris township
NJ Morristown town
NJ Mount Arlington borough
NJ Mount Ephraim borough
NJ Mount Holly township
NJ Mount Laurel township
NJ Mount Olive township
NJ Mountain Lakes borough
NJ Mountainside borough
NJ National Park borough
NJ Neptune City borough
NJ Neptune township
NJ Netcong borough
NJ New Brunswick city
NJ New Milford borough
NJ New Providence borough
NJ Newark city
NJ Newfield borough

NJ North Arlington borough
NJ North Bergen township
NJ North Brunswick township
NJ North Caldwell township
NJ North Haledon borough
NJ North Plainfield borough
NJ Northfield city
NJ Northvale borough
NJ Norwood borough
NJ Nutley township
NJ Oakland borough
NJ Oaklyn borough
NJ Ocean City city
NJ Ocean County
NJ Ocean Gate borough
NJ Ocean township
NJ Oceanport borough
NJ Old Bridge township
NJ Old Tappan borough
NJ Oradell borough
NJ Palisades Park borough
NJ Palmyra borough
NJ Paramus borough
NJ Park Ridge borough
NJ Parsippany-Troy Hills township
NJ Passaic city
NJ Passaic County
NJ Passaic township

NJ Paterson city
NJ Paulsboro borough
NJ Pennington borough
NJ Penns Grove borough
NJ Pennsauken township
NJ Pennsville township
NJ Pequannock township
NJ Perth Amboy city
NJ Phillipsburg town
NJ Pine Beach borough
NJ Pine Hill borough
NJ Pine Valley borough
NJ Piscataway township
NJ Pitman borough
NJ Pittsgrove township
NJ Plainfield city
NJ Pleasantville city
NJ Pohatcong township
NJ Point Pleasant Beach borough
NJ Point Pleasant borough
NJ Pompton Lakes borough
NJ Prospect Park borough
NJ Rahway city
NJ Ramsey borough
NJ Randolph township
NJ Raritan borough
NJ Readington township
NJ Red Bank borough

NJ Ridgefield borough
NJ Ridgefield Park village
NJ Ridgewood village
NJ Ringwood borough
NJ River Edge borough
NJ River Vale township
NJ Riverdale borough
NJ Riverside township
NJ Riverton borough
NJ Rochelle Park township
NJ Rockaway borough
NJ Rockaway township
NJ Rockleigh borough
NJ Roseland borough
NJ Roselle borough
NJ Roselle Park borough
NJ Roxbury township
NJ Rumson borough
NJ Runnemede borough
NJ Rutherford borough
NJ Saddle Brook township
NJ Saddle River borough
NJ Salem County
NJ Sayreville borough
NJ Scotch Plains township
NJ Sea Bright borough
NJ Sea Girt borough
NJ Seaside Heights borough

NJ Seaside Park borough
NJ Secaucus town
NJ Shamong township
NJ Shrewsbury borough
NJ Shrewsbury township
NJ Somerdale borough
NJ Somers Point city
NJ Somerset County
NJ Somerville borough
NJ South Amboy city
NJ South Belmar borough
NJ South Bound Brook borough
NJ South Brunswick township
NJ South Hackensack township
NJ South Orange Village township
NJ South Plainfield borough
NJ South River borough
NJ South Toms River borough
NJ Spotswood borough
NJ Spring Lake borough
NJ Spring Lake Heights borough
NJ Springfield township
NJ Stanhope borough
NJ Stratford borough
NJ Summit city
NJ Sussex County
NJ Tabernacle township
NJ Tavistock borough

NJ Teaneck township
NJ Tenaflly borough
NJ Teterboro borough
NJ Tinton Falls borough
NJ Totowa borough
NJ Trenton city
NJ Union Beach borough
NJ Union City city
NJ Union township
NJ Upper Saddle River borough
NJ Upper township
NJ Ventnor City city
NJ Verona township
NJ Victory Gardens borough
NJ Vineland city
NJ Voorhees township
NJ Waldwick borough
NJ Wall township
NJ Wallington borough
NJ Wanaque borough
NJ Warren County
NJ Warren township
NJ Washington township
NJ Watchung borough
NJ Waterford township
NJ Wayne township
NJ Weehawken township
NJ Wenonah borough

NJ West Caldwell township
NJ West Deptford township
NJ West Long Branch borough
NJ West New York town
NJ West Orange township
NJ West Paterson borough
NJ Westampton township
NJ Westfield town
NJ Westville borough
NJ Westwood borough
NJ Wharton borough
NJ Willingboro township
NJ Winfield township
NJ Winslow township
NJ Woodbridge township
NJ Woodbury city
NJ Woodbury Heights borough
NJ Woodcliff Lake borough
NJ Woodlynne borough
NJ Wood-Ridge borough
NJ Wyckoff township
NM Bernalillo County
NM Corrales village
NM Dona Ana County
NM Las Cruces city
NM Los Ranchos de Albuquerque village
NM Mesilla town
NM Rio Rancho city

NM Sandoval County

NM Santa Fe city

NM Santa Fe County

NM Sunland Park city

NY Albany city

NY Albany County

NY Amherst town

NY Amityville village

NY Ardsley village

NY Ashland town

NY Atlantic Beach village

NY Babylon town

NY Babylon village

NY Baldwinsville village

NY Ballston town

NY Barker town

NY Baxter Estates village

NY Bayville village

NY Beacon city

NY Bedford town

NY Belle Terre village

NY Bellerose village

NY Bellport village

NY Bethlehem town

NY Big Flats town

NY Binghamton city

NY Binghamton town

NY Blasdell village

NY Boston town

NY Briarcliff Manor village

NY Brighton town

NY Brightwaters village *68825

NY Bronxville village

NY Brookhaven town

NY Brookville village

NY Broome County

NY Brunswick town

NY Buchanan village

NY Buffalo city

NY Camillus town

NY Camillus village

NY Carmel town

NY Cayuga Heights village

NY Cedarhurst village

NY Charlton town

NY Cheektowaga town

NY Chemung County

NY Chenango town

NY Chestnut Ridge village

NY Chili town

NY Cicero town

NY Clarence town

NY Clarkstown town

NY Clay town

NY Clayville village

NY Clifton Park town

NY Clinton village

NY Cohoes city

NY Colonie town

NY Colonie village

NY Conklin town

NY Cornwall on Hudson village

NY Cornwall town

NY Cortlandt town

NY Croton-on-Hudson village

NY De Witt town

NY Deerfield town

NY Depew village

NY Dickinson town

NY Dobbs Ferry village

NY Dryden town

NY Dutchess County

NY East Fishkill town

NY East Greenbush town

NY East Hills village

NY East Rochester village

NY East Rockaway village

NY East Syracuse village

NY East Williston village

NY Eastchester town

NY Elma town

NY Elmira city

NY Elmira Heights village

NY Elmira town

NY Elmsford village

NY Endicott village

NY Erie County

NY Evans town

NY Fairport village

NY Farmingdale village

NY Fayetteville village

NY Fenton town

NY Fishkill town

NY Fishkill village

NY Floral Park village

NY Flower Hill village

NY Floyd town

NY Fort Edward town

NY Fort Edward village

NY Frankfort town

NY Freeport village

NY Garden City village

NY Gates town

NY Geddes town

NY Glen Cove city

NY Glens Falls city

NY Glenville town

NY Grand Island town

NY Grand View-on-Hudson village

NY Great Neck Estates village

NY Great Neck Plaza village

NY Great Neck village

NY Greece town
NY Green Island village
NY Greenburgh town
NY Guilderland town
NY Halfmoon town
NY Hamburg town
NY Hamburg village
NY Harrison village
NY Hastings-on-Hudson village
NY Haverstraw town
NY Haverstraw village
NY Hempstead town
NY Hempstead village
NY Henrietta town
NY Herkimer County
NY Hewlett Bay Park village
NY Hewlett Harbor village
NY Hewlett Neck village
NY Hillburn village
NY Horseheads town
NY Horseheads village
NY Hudson Falls village
NY Huntington Bay village
NY Huntington town
NY Hyde Park town
NY Irondequoit town
NY Irvington village
NY Island Park village

NY Islandia village
NY Islip town
NY Ithaca city
NY Ithaca town
NY Johnson City village
NY Kenmore village
NY Kensington village
NY Kent town
NY Kings Point village
NY Kingsbury town
NY Kirkland town
NY Kirkwood town
NY La Grange town
NY Lackawanna city
NY LaFayette town
NY Lake Grove village
NY Lake Success village
NY Lancaster town
NY Lancaster village
NY Lansing town
NY Lansing village
NY Larchmont village
NY Lattingtown village
NY Lawrence village
NY Lee town
NY Lewiston town
NY Lewiston village
NY Lindenhurst village

NY Liverpool village
NY Lloyd Harbor village
NY Lloyd town
NY Long Beach city
NY Lynbrook village
NY Lysander town
NY Malta town
NY Malverne village
NY Mamaroneck town
NY Mamaroneck village
NY Manlius town
NY Manlius village
NY Manorhaven village
NY Marcy town
NY Massapequa Park village
NY Matinecock village
NY Menands village
NY Mill Neck village
NY Mineola village
NY Minoa village
NY Monroe County
NY Montebello village
NY Montgomery town
NY Moreau town
NY Mount Kisco village
NY Mount Pleasant town
NY Mount Vernon city
NY Munsey Park village

NY Muttontown village
NY New Castle town
NY New Hartford town
NY New Hartford village
NY New Hempstead village
NY New Hyde Park village
NY New Rochelle city
NY New Square village
NY New Windsor town
NY New York Mills village
NY Newburgh city
NY Newburgh town
NY Niagara County
NY Niagara Falls city
NY Niagara town
NY Niskayuna town
NY North Castle town
NY North Greenbush town
NY North Hempstead town
NY North Hills village
NY North Syracuse village
NY North Tarrytown village
NY North Tonawanda city
NY Northport village
NY Nyack village
NY Ogden town
NY Old Brookville village
NY Old Westbury village

NY Oneida County
NY Onondaga County
NY Onondaga town
NY Orange County
NY Orangetown town
NY Orchard Park town
NY Orchard Park village
NY Oriskany village
NY Ossining town
NY Ossining village
NY Oswego County
NY Owego town
NY Oyster Bay town
NY Paris town
NY Patchogue village
NY Patterson town
NY Peekskill city
NY Pelham Manor village
NY Pelham town
NY Pelham village
NY Pendleton town
NY Penfield town
NY Perinton town
NY Philipstown town
NY Phoenix village
NY Piermont village
NY Pittsford town
NY Pittsford village

NY Plandome Heights village
NY Plandome Manor village
NY Plandome village
NY Pleasant Valley town
NY Pleasantville village
NY Poestenkill town
NY Pomona village
NY Poospatuck Reservation *68826
NY Poquott village
NY Port Chester village
NY Port Dickinson village
NY Port Jefferson village
NY Port Washington North village
NY Poughkeepsie city
NY Poughkeepsie town
NY Pound Ridge town
NY Putnam County
NY Putnam Valley town
NY Queensbury town
NY Ramapo town
NY Rensselaer city
NY Rensselaer County
NY Riverhead town
NY Rochester city
NY Rockville Centre village
NY Rome city
NY Roslyn Estates village
NY Roslyn Harbor village

NY Roslyn village
NY Rotterdam town
NY Russell Gardens village
NY Rye Brook village
NY Rye city
NY Rye town
NY Saddle Rock village
NY Salina town
NY Sands Point village
NY Saratoga County
NY Scarsdale town
NY Scarsdale village
NY Schaghticoke town
NY Schenectady city
NY Schenectady County
NY Schodack town
NY Schroepel town
NY Schuyler town
NY Scotia village
NY Sea Cliff village
NY Shoreham village
NY Sloan village
NY Sloatsburg village
NY Smithtown town
NY Solvay village
NY Somers town
NY South Floral Park village
NY South Glens Falls village

NY South Nyack village
NY Southampton town
NY Southport town
NY Spencerport village
NY Spring Valley village
NY Stewart Manor village
NY Stony Point town
NY Suffern village
NY Suffolk County
NY Syracuse city
NY Tarrytown village
NY Thomaston village
NY Tioga County
NY Tompkins County
NY Tonawanda city
NY Tonawanda town
NY Troy city
NY Tuckahoe village
NY Ulster County
NY Union town
NY Upper Brookville village
NY Upper Nyack village
NY Utica city
NY Valley Stream village
NY Van Buren town
NY Vestal town
NY Veteran town
NY Village of the Branch village

NY Wappinger town
NY Wappingers Falls village
NY Warren County
NY Washington County
NY Waterford town
NY Waterford village
NY Watervliet city
NY Webster town
NY Webster village
NY Wesley Hills village
NY West Haverstraw village
NY West Seneca town
NY Westbury village
NY Westchester County
NY Western town
NY Wheatfield town
NY White Plains city
NY Whitesboro village
NY Whitestown town
NY Williamsville village
NY Williston Park village
NY Woodsburgh village
NY Yonkers city
NY Yorktown town
NY Yorkville village
OH Addyston village
OH Allen County
OH Allen township

OH Amberley village
OH Amelia village
OH American township
OH Amherst city
OH Amherst township
OH Anderson township
OH Arlington Heights village
OH Auglaize County
OH Aurora city
OH Austintown township
OH Avon city
OH Avon Lake city
OH Bainbridge township
OH Barberton city
OH Batavia township
OH Bath township
OH Bay Village city
OH Beachwood city
OH Beaver township
OH Beavercreek city
OH Beavercreek township
OH Bedford city
OH Bedford Heights city
OH Bellaire city
OH Bellbrook city
OH Belmont County
OH Belpre city
OH Belpre township

OH Bentleyville village

OH Berea city

OH Bethel township

OH Bexley city

OH Blendon township

OH Blue Ash city

OH Boardman township

OH Brady Lake village

OH Bratenahl village

OH Brecksville city

OH Brice village

OH Bridgeport village

OH Brilliant village

OH Brimfield township

OH Broadview Heights city

OH Brook Park city

OH Brookfield township

OH Brooklyn city

OH Brooklyn Heights village

OH Brookside village

OH Brown township

OH Brownhelm township

OH Brunswick city

OH Brunswick Hills township

OH Butler County

OH Butler township

OH Campbell city

OH Canfield city

OH Canfield township
OH Canton city
OH Canton township
OH Carlisle township
OH Carlisle village
OH Centerville city
OH Chagrin Falls township
OH Chagrin Falls village
OH Champion township
OH Chesapeake village
OH Cheviot city
OH Chippewa township
OH Cincinnati city
OH Clark County
OH Clear Creek township
OH Clermont County
OH Cleveland city
OH Cleveland Heights city
OH Cleves village
OH Clinton township
OH Coal Grove village
OH Coitsville township
OH Colerain township
OH Columbia township
OH Concord township
OH Copley township
OH Coventry township
OH Cridersville village

OH Cross Creek township

OH Cuyahoga County

OH Cuyahoga Falls city

OH Cuyahoga Heights village

OH Deer Park city

OH Deerfield township

OH Delaware County

OH Delhi township

OH Doylestown village

OH Dublin city

OH Duchouquet township

OH East Cleveland city

OH Eastlake city

OH Eaton township

OH Elmwood Place village

OH Elyria city

OH Elyria township

OH Englewood city

OH Erie County

OH Etna township

OH Euclid city

OH Evendale village

OH Fairborn city

OH Fairfax village

OH Fairfield city

OH Fairfield County

OH Fairfield township

OH Fairlawn city

OH Fairport Harbor village
OH Fairview Park city
OH Fayette township
OH Forest Park city
OH Fort Shawnee village
OH Franklin city
OH Franklin County
OH Franklin township
OH Gahanna city
OH Garfield Heights city
OH Geauga County
OH Genoa township *68827
OH German township
OH Girard city
OH Glendale village
OH Glenwillow village
OH Golf Manor village
OH Goshen township
OH Grand River village
OH Grandview Heights city
OH Green township
OH Green village
OH Greene County
OH Greenhills village
OH Grove City city
OH Groveport village
OH Hamilton city
OH Hamilton County

OH Hamilton township
OH Hanging Rock village
OH Hanover township
OH Harbor View village
OH Harrison township
OH Hartville village
OH Heath city
OH Highland Heights city
OH Hilliard city
OH Hills and Dales village
OH Hinckley township
OH Holland village
OH Howland township
OH Hubbard city
OH Hubbard township
OH Huber Heights city
OH Hudson township
OH Hudson village
OH Independence city
OH Ironton city
OH Island Creek township
OH Jackson township
OH Jefferson County
OH Jefferson township
OH Jerome township
OH Kent city
OH Kettering city
OH Kirtland city

OH Lake County
OH Lake township
OH Lakeline village
OH Lakemore village
OH Lakewood city
OH Lawrence County
OH Lawrence township
OH Lemon township
OH Lexington village
OH Liberty township
OH Licking County
OH Licking township
OH Lima city
OH Lima township
OH Lincoln Heights city
OH Linndale village
OH Lockland village
OH Lorain city
OH Lorain County
OH Louisville city
OH Loveland city
OH Lowellville village
OH Lucas County
OH Lyndhurst city
OH Macedonia city
OH Mad River township
OH Madeira city
OH Madison township

OH Mahoning County
OH Maineville village
OH Mansfield city
OH Maple Heights city
OH Marble Cliff village
OH Mariemont village
OH Martins Ferry city
OH Mason city
OH Massillon city
OH Maumee city
OH Mayfield Heights city
OH Mayfield village
OH McDonald village
OH Mead township
OH Medina County
OH Mentor city
OH Mentor-on-the-Lake city
OH Meyers Lake village
OH Miami County
OH Miami township
OH Miamisburg city
OH Middleburg Heights city
OH Middletown city
OH Mifflin township
OH Milford city
OH Millbury village
OH Millville village
OH Minerva Park village

OH Mingo Junction city
OH Mogadore village
OH Monclova township
OH Monroe township
OH Monroe village
OH Montgomery city
OH Montgomery County
OH Moorefield township
OH Moraine city
OH Moreland Hills village
OH Mount Healthy city
OH Munroe Falls village
OH New Miami village
OH New Middletown village
OH New Rome village
OH Newark city
OH Newark township
OH Newburgh Heights village
OH Newton township
OH Newtown village
OH Niles city
OH Nimishillen township
OH North Bend village
OH North Canton city
OH North College Hill city
OH North Olmsted city
OH North Randall village
OH North Ridgeville city

OH North Royalton city

OH Northfield Center township

OH Northfield village

OH Northwood city

OH Norton city

OH Norwich township

OH Norwood city

OH Oakwood city

OH Oakwood village

OH Obetz village

OH Ohio township

OH Olmsted Falls city

OH Olmsted township

OH Ontario village

OH Orange township

OH Orange village

OH Oregon city

OH Ottawa County

OH Ottawa Hills village

OH Painesville city

OH Painesville township

OH Palmyra township

OH Parma city

OH Parma Heights city

OH Pease township

OH Pepper Pike city

OH Perry township

OH Perrysburg city

OH Perrysburg city
OH Perrysburg township
OH Pierce township
OH Plain township
OH Pleasant township
OH Poland township
OH Poland village
OH Portage County
OH Powell village
OH Prairie township
OH Proctorville village
OH Pultney township
OH Randolph township
OH Ravenna city
OH Ravenna township
OH Reading city
OH Reminderville village
OH Reynoldsburg city
OH Richfield township
OH Richfield village
OH Richland County
OH Richmond Heights city
OH Riveredge township
OH Riverlea village
OH Riverside village
OH Rocky River city
OH Rome township
OH Ross township

OH Rossford city
OH Russell township
OH Russia township
OH Sagamore Hills township
OH Seven Hills city
OH Shadyside village
OH Shaker Heights city
OH Sharon township
OH Sharonville city
OH Shawnee Hills village
OH Shawnee township
OH Sheffield Lake city
OH Sheffield township
OH Sheffield village
OH Silver Lake village
OH Silverton city
OH Solon city
OH South Amherst village
OH South Euclid city
OH South Point village
OH South Russell village
OH Springboro city
OH Springdale city
OH Springfield city
OH Springfield township
OH St. Bernard city
OH St. Clair township
OH Stark County

OH Steubenville city
OH Steubenville township
OH Stow city
OH Strongsville city
OH Struthers city
OH Suffield township
OH Sugar Bush Knolls village
OH Sugar Creek township
OH Summit County
OH Sycamore township
OH Sylvania city
OH Sylvania township
OH Symmes township
OH Tallmadge city
OH Terrace Park village
OH The Village of Indian Hill city ***68828**
OH Timberlake village
OH Trenton city
OH Trotwood city
OH Troy township
OH Trumbull County
OH Truro township
OH Turtle Creek township
OH Tuscarawas township
OH Twinsburg city
OH Twinsburg township
OH Union city
OH Union County

OH Union township
OH University Heights city
OH Upper Arlington city
OH Upper township
OH Urbancrest village
OH Valley View village
OH Valleyview village
OH Vandalia city
OH Vermilion city
OH Vermilion township
OH Violet township
OH Wadsworth city
OH Wadsworth township
OH Waite Hill village
OH Walbridge village
OH Walton Hills village
OH Warren city
OH Warren County
OH Warren township
OH Warrensville Heights city
OH Warrensville township
OH Washington County
OH Washington township
OH Wayne County
OH Wayne township
OH Weathersfield township
OH Wells township
OH West Carrollton City city

OH West Milton village

OH Westerville city

OH Westlake city

OH Whitehall city

OH Whitewater township

OH Wickliffe city

OH Willoughby city

OH Willoughby Hills city

OH Willowick city

OH Wintersville village

OH Wood County

OH Woodlawn village

OH Woodmere village

OH Worthington city

OH Wyoming city

OH Youngstown city

OK Arkoma town

OK Bethany city

OK Bixby city

OK Broken Arrow city

OK Canadian County

OK Catoosa city

OK Choctaw city

OK Cleveland County

OK Comanche County

OK Creek County

OK Del City city

OK Edmond city

OK Forest Park town
OK Hall Park town
OK Harrah town
OK Jenks city
OK Jones town
OK Lake Aluma town
OK Lawton city
OK Le Flore County
OK Logan County
OK Midwest City city
OK Moffett town
OK Moore city
OK Mustang city
OK Nichols Hills city
OK Nicoma Park city
OK Norman city
OK Oklahoma County
OK Osage County
OK Pottawatomie County
OK Rogers County
OK Sand Springs city
OK Sequoyah County
OK Smith Village town
OK Spencer city
OK The Village city
OK Tulsa County
OK Valley Brook town
OK Wagoner County

OK Warr Acres city
OK Woodlawn Park town
OK Yukon city
OR Central Point city
OR Columbia County
OR Durham city
OR Jackson County
OR Keizer city
OR King City city
OR Lane County
OR Marion County
OR Maywood Park city
OR Medford city
OR Phoenix city
OR Polk County
OR Rainier city
OR Springfield city
OR Troutdale city
OR Tualatin city
OR Wood Village city
PA Abington township
PA Adamsburg borough
PA Alburtis borough
PA Aldan borough
PA Aleppo township
PA Aliquippa city
PA Allegheny County
PA Allegheny township

PA Allen township

PA Allenport borough

PA Alsace township

PA Altoona city

PA Ambler borough

PA Ambridge borough

PA Amwell township

PA Antis township

PA Antrim township

PA Archbald borough

PA Arnold city

PA Ashley borough

PA Aspinwall borough

PA Aston township

PA Avalon borough

PA Avoca borough

PA Baden borough

PA Baldwin borough

PA Baldwin township

PA Beaver borough

PA Beaver County

PA Beaver Falls city

PA Bell Acres borough

PA Belle Vernon borough

PA Bellevue borough

PA Ben Avon borough

PA Ben Avon Heights borough

PA Bensalem township

PA Berks County

PA Bern township

PA Bethel Park borough

PA Bethel township

PA Bethlehem city

PA Bethlehem township

PA Big Beaver borough

PA Birdsboro borough

PA Birmingham township

PA Blair County

PA Blair township

PA Blakely borough

PA Blawnox borough

PA Boyertown borough

PA Brackenridge borough

PA Braddock borough

PA Braddock Hills borough

PA Bradfordwoods borough

PA Brentwood borough

PA Bridgeport borough

PA Bridgeville borough

PA Bridgewater borough

PA Brighton township

PA Bristol borough

PA Bristol township

PA Brookhaven borough

PA Brownstown borough

PA Brownsville borough

PA Brownsville township
PA Bryn Athyn borough
PA Buckingham township
PA Bucks County
PA California borough
PA Caln township
PA Cambria County
PA Camp Hill borough
PA Canonsburg borough
PA Canton township
PA Carbondale city
PA Carbondale township
PA Carnegie borough
PA Carroll township
PA Castle Shannon borough
PA Catasauqua borough
PA Cecil township
PA Center township
PA Centre County
PA Chalfant borough
PA Chalfont borough
PA Charleroi borough
PA Charlestown township
PA Chartiers township
PA Cheltenham township
PA Chester city
PA Chester County
PA Chester Heights borough

PA Chester township

PA Cheswick borough

PA Chippewa township

PA Churchill borough

PA Clairton city

PA Clarks Green borough

PA Clarks Summit borough

PA Clifton Heights borough

PA Coal Center borough

PA Coatesville city

PA Colebrookdale township

PA College township

PA Collegeville borough

PA Collier township

PA Collingdale borough

PA Columbia borough

PA Colwyn borough

PA Concord township

PA Conemaugh township

PA Conestoga township ***68829**

PA Conewago township

PA Conshohocken borough

PA Conway borough

PA Coplay borough

PA Coraopolis borough

PA Courtdale borough

PA Crafton borough

PA Crescent township

PA Cumberland County
PA Cumru township
PA Daisytown borough
PA Dale borough
PA Dallas borough
PA Dallas township
PA Dallastown borough
PA Darby borough
PA Darby township
PA Daugherty township
PA Dauphin County
PA Delaware County
PA Delmont borough
PA Derry township
PA Dickson City borough
PA Donora borough
PA Dormont borough
PA Douglass township
PA Dover borough
PA Dover township
PA Downingtown borough
PA Doylestown borough
PA Doylestown township
PA Dravosburg borough
PA Duboistown borough
PA Duncansville borough
PA Dunlevy borough
PA Dunmore borough

PA Dupont borough

PA Duquesne city

PA Duryea borough

PA East Allen township

PA East Bradford township

PA East Brandywine township

PA East Caln township

PA East Conemaugh borough

PA East Coventry township

PA East Deer township

PA East Fallowfield township

PA East Goshen township

PA East Hempfield township

PA East Lampeter township

PA East Lansdowne borough

PA East McKeesport borough

PA East Norriton township

PA East Pennsboro township

PA East Petersburg borough

PA East Pikeland township

PA East Pittsburgh borough

PA East Rochester borough

PA East Taylor township

PA East Vincent township

PA East Washington borough

PA East Whiteland township

PA Easton city

PA Easttown township

PA Eastvale borough
PA Economy borough
PA Eddystone borough
PA Edgewood borough
PA Edgeworth borough
PA Edgmont township
PA Edwardsville borough
PA Elco borough
PA Elizabeth borough
PA Elizabeth township
PA Ellport borough
PA Ellwood City borough
PA Emmaus borough
PA Emsworth borough
PA Erie city
PA Erie County
PA Etna borough
PA Exeter borough
PA Exeter township
PA Export borough
PA Fairfield township
PA Fairview township
PA Fallowfield township
PA Falls township
PA Fallston borough
PA Farrell city
PA Fayette City borough
PA Fayette County

PA Fell township
PA Ferguson township
PA Ferndale borough
PA Findlay township
PA Finleyville borough
PA Folcroft borough
PA Forest Hills borough
PA Forks township
PA Forty Fort borough
PA Forward township
PA Fountain Hill borough
PA Fox Chapel borough
PA Franconia township
PA Franklin borough
PA Franklin County
PA Franklin Park borough
PA Franklin township
PA Frankstown township
PA Frazer township
PA Freedom borough
PA Freemansburg borough
PA Geistown borough
PA Glassport borough
PA Glendon borough
PA Glenfield borough
PA Glenolden borough
PA Green Tree borough
PA Greensburg city

PA Hallam borough
PA Hampden township
PA Hampton township
PA Hanover township
PA Harborcreek township
PA Harmar township
PA Harmony township
PA Harris township
PA Harrisburg city
PA Harrison township
PA Harveys Lake borough
PA Hatboro borough
PA Hatfield borough
PA Hatfield township
PA Haverford township
PA Haysville borough
PA Heidelberg borough
PA Hellam township
PA Hellertown borough
PA Hempfield township
PA Hepburn township
PA Hermitage city
PA Highspire borough
PA Hilltown township
PA Hollidaysburg borough
PA Homestead borough
PA Homewood borough
PA Hopewell township

PA Horsham township

PA Houston borough

PA Hughestown borough

PA Hulmeville borough

PA Hummelstown borough

PA Hunker borough

PA Indiana township

PA Ingram borough

PA Irwin borough

PA Ivyland borough

PA Jackson township

PA Jacobus borough

PA Jeannette city

PA Jefferson borough

PA Jenkins township

PA Jenkintown borough

PA Jermyn borough

PA Jessup borough

PA Johnstown city

PA Juniata township

PA Kenhorst borough

PA Kennedy township

PA Kilbuck township

PA Kingston borough

PA Kingston township

PA Koppel borough

PA Lackawanna County

PA Laflin borough

PA Lancaster city
PA Lancaster County
PA Lancaster township
PA Langhorne borough
PA Langhorne Manor borough
PA Lansdale borough
PA Lansdowne borough
PA Larksville borough
PA Laurel Run borough
PA Laureldale borough
PA Lawrence County
PA Lawrence Park township
PA Lebanon County
PA Leesport borough
PA Leet township
PA Leetsdale borough
PA Lehigh County
PA Lehman township
PA Lemoyne borough
PA Liberty borough
PA Limerick township
PA Lincoln borough
PA Lititz borough
PA Logan township
PA Loganville borough
PA London Britain township
PA Londonderry township
PA Lorain borough

PA Lower Allen township
PA Lower Alsace township
PA Lower Burrell city
PA Lower Chichester township
PA Lower Frederick township
PA Lower Gwynedd township
PA Lower Heidelberg township
PA Lower Macungie township
PA Lower Makefield township
PA Lower Merion township
PA Lower Moreland township
PA Lower Nazareth township
PA Lower Paxton township
PA Lower Pottsgrove township
PA Lower Providence township
PA Lower Salford township
PA Lower Saucon township
PA Lower Southampton township
PA Lower Swatara township
PA Lower Yoder township
PA Loyalsock township
PA Luzerne borough
PA Luzerne County
PA Luzerne township *68830
PA Lycoming County
PA Lycoming township
PA Macungie borough
PA Madison borough

PA Maidencreek township
PA Malvern borough
PA Manchester township
PA Manheim township
PA Manor borough
PA Manor township
PA Marcus Hook borough
PA Marple township
PA Marshall township
PA Marysville borough
PA Mayfield borough
PA McCandless township
PA McKean township
PA McKees Rocks borough
PA McKeesport city
PA Mechanicsburg borough
PA Media borough
PA Mercer County
PA Middle Taylor township
PA Middletown borough
PA Middletown township
PA Millbourne borough
PA Millcreek township
PA Millersville borough
PA Millvale borough
PA Modena borough
PA Mohnton borough
PA Monaca borough

PA Monessen city
PA Monongahela city
PA Monroe township
PA Montgomery County
PA Montgomery township
PA Montoursville borough
PA Moon township
PA Moosic borough
PA Morrisville borough
PA Morton borough
PA Mount Lebanon township
PA Mount Oliver borough
PA Mount Penn borough
PA Mountville borough
PA Muhlenberg township
PA Munhall borough
PA Municipality of Monroeville borough
PA Municipality of Murrysville borough
PA Nanticoke city
PA Narberth borough
PA Nether Providence township
PA Neville township
PA New Brighton borough
PA New Britain borough
PA New Britain township
PA New Cumberland borough
PA New Eagle borough
PA New Galilee borough

PA New Garden township
PA New Hanover township
PA New Kensington city
PA New Sewickley township
PA New Stanton borough
PA Newell borough
PA Newport township
PA Newton township
PA Newtown borough
PA Newtown township
PA Norristown borough
PA North Belle Vernon borough
PA North Braddock borough
PA North Catasauqua borough
PA North Charleroi borough
PA North Coventry township
PA North Franklin township
PA North Huntingdon township
PA North Irwin borough
PA North Londonderry township
PA North Sewickley township
PA North Strabane township
PA North Versailles township
PA North Wales borough
PA North Whitehall township
PA North York borough
PA Northampton borough
PA Northampton County

PA Northampton township
PA Norwood borough
PA Oakmont borough
PA O'Hara township
PA Ohio township
PA Old Forge borough
PA Old Lycoming township
PA Olyphant borough
PA Ontelaunee township
PA Osborne borough
PA Paint borough
PA Paint township
PA Palmer township
PA Palmyra borough
PA Parkside borough
PA Patterson Heights borough
PA Patterson township
PA Patton township
PA Paxtang borough
PA Penbrook borough
PA Penn borough
PA Penn Hills township
PA Penn township
PA Penndel borough
PA Pennsbury Village borough
PA Pequea township
PA Perkiomen township
PA Perry County

PA Perry township

PA Peters township

PA Phoenixville borough

PA Pine township

PA Pitcairn borough

PA Pittsburgh city

PA Pittston city

PA Pittston township

PA Plains township

PA Pleasant Hills borough

PA Plum borough

PA Plymouth borough

PA Plymouth township

PA Port Vue borough

PA Potter township

PA Pottstown borough

PA Pringle borough

PA Prospect Park borough

PA Pulaski township

PA Radnor township

PA Rankin borough

PA Ransom township

PA Reading city

PA Red Lion borough

PA Reserve township

PA Richland township

PA Ridley Park borough

PA Ridley township

PA Robinson township
PA Rochester borough
PA Rochester township
PA Rockledge borough
PA Roscoe borough
PA Rose Valley borough
PA Ross township
PA Rosslyn Farms borough
PA Rostraver township
PA Royalton borough
PA Royersford borough
PA Rutledge borough
PA Salem township
PA Salisbury township
PA Scalp Level borough
PA Schuylkill township
PA Schwenksville borough
PA Scott township
PA Scranton city
PA Sewickley borough
PA Sewickley Heights borough
PA Sewickley Hills borough
PA Sewickley township
PA Shaler township
PA Sharon city
PA Sharon Hill borough
PA Sharpsburg borough
PA Sharpville borough

PA Shenango township

PA Shillington borough

PA Shiremanstown borough

PA Silver Spring township

PA Sinking Spring borough

PA Skippack township

PA Somerset County

PA Souderton borough

PA South Abington township

PA South Coatesville borough

PA South Fayette township

PA South Greensburg borough

PA South Hanover township

PA South Heidelberg township

PA South Heights borough

PA South Huntingdon township

PA South Park township

PA South Pymatuning township

PA South Strabane township

PA South Whitehall township

PA South Williamsport borough

PA Southmont borough

PA Southwest Greensburg borough

PA Speers borough

PA Spring City borough

PA Spring Garden township

PA Spring township

PA Springdale borough

PA Springdale township
PA Springettsbury township
PA Springfield township
PA St. Lawrence borough
PA State College borough
PA Steelton borough
PA Stockdale borough
PA Stonycreek township
PA Stowe township
PA Sugar Notch borough
PA Summit township
PA Susquehanna township
PA Sutersville borough
PA Swarthmore borough
PA Swatara township
PA Swissvale borough
PA Swoyersville borough
PA Tarentum borough
PA Taylor borough
PA Telford borough
PA Temple borough
PA Thornburg borough
PA Thornbury township
PA Throop borough
PA Tinicum township
PA Towamencin township
PA Trafford borough
PA Trainer borough *68831

PA Trappe borough
PA Tredyffrin township
PA Tullytown borough
PA Turtle Creek borough
PA Union township
PA Upland borough
PA Upper Allen township
PA Upper Chichester township
PA Upper Darby township
PA Upper Dublin township
PA Upper Gwynedd township
PA Upper Leacock township
PA Upper Macungie township
PA Upper Makefield township
PA Upper Merion township
PA Upper Milford township
PA Upper Moreland township
PA Upper Pottsgrove township
PA Upper Providence township
PA Upper Saucon township
PA Upper Southampton township
PA Upper St. Clair township
PA Upper Yoder township
PA Uwchlan township
PA Valley township
PA Vanport township
PA Verona borough
PA Versailles borough

PA Wall borough
PA Warminster township
PA Warrington township
PA Warrior Run borough
PA Warwick township
PA Washington city
PA Washington County
PA Washington township
PA Wayne township
PA Wernersville borough
PA Wesleyville borough
PA West Bradford township
PA West Brownsville borough
PA West Chester borough
PA West Conshohocken borough
PA West Deer township
PA West Earl township
PA West Easton borough
PA West Elizabeth borough
PA West Fairview borough
PA West Goshen township
PA West Hanover township
PA West Hempfield township
PA West Homestead borough
PA West Lampeter township
PA West Lawn borough
PA West Manchester township
PA West Mayfield borough

PA West Middlesex borough
PA West Mifflin borough
PA West Newton borough
PA West Norriton township
PA West Pikeland township
PA West Pittston borough
PA West Pottsgrove township
PA West Reading borough
PA West Taylor township
PA West View borough
PA West Whiteland township
PA West Wyoming borough
PA West York borough
PA Westmont borough
PA Westmoreland County
PA Westtown township
PA Wheatland borough
PA Whitaker borough
PA White Oak borough
PA White township
PA Whitehall township
PA Whitemarsh township
PA Whitpain township
PA Wilkes-Barre city
PA Wilkes-Barre township
PA Wilkins township
PA Wilkesburg borough
PA Williams township

PA Williamsport city
PA Willistown township
PA Wilmerding borough
PA Wilson borough
PA Windber borough
PA Windsor borough
PA Windsor township
PA Worcester township
PA Wormleysburg borough
PA Wrightsville borough
PA Wyoming borough
PA Wyomissing borough
PA Wyomissing Hills borough
PA Yardley borough
PA Yatesville borough
PA Yeadon borough
PA Yoe borough
PA York city
PA York County
PA York township
PA Youngwood borough
PR Aibonita
PR Anasco
PR Aquada
PR Aquadilla
PR Aquas Buenas
PR Arecibo
PR Bayamon

PR Cabo Rojo

PR Caguas

PR Camuy

PR Canovanas

PR Catano

PR Cayey

PR Cidra

PR Dorado

PR Guaynabo

PR Gurabo

PR Hatillo

PR Hormigueros

PR Humacao

PR Juncos

PR Las Piedras

PR Loiza

PR Manati

PR Mayaguez

PR Moca

PR Naguabo

PR Naranjito

PR Penuelas

PR Ponce

PR Rio Grande

PR San German

PR San Lorenzo

PR Toa Alta

PR Toa Baja

PR Trujillo Alto

PR Vega Alta

PR Vega Baja

PR Yabucao

RI Barrington town

RI Bristol town

RI Burrillville town

RI Central Falls city

RI Coventry town

RI Cranston city

RI Cumberland town

RI East Greenwich town

RI East Providence city

RI Glocester town

RI Jamestown town

RI Johnston town

RI Lincoln town

RI Middletown town

RI Newport city

RI Newport County

RI North Kingstown town

RI North Providence town

RI North Smithfield town

RI Pawtucket city

RI Portsmouth town

RI Providence city

RI Providence County

RI Scituate town

RI Smithfield town

RI Tiverton town

RI Warren town

RI Warwick city

RI Washington County

RI West Greenwich town

RI West Warwick town

RI Woonsocket city

SC Aiken city

SC Aiken County

SC Anderson city

SC Anderson County

SC Arcadia Lakes town

SC Berkeley County

SC Burnetown town

SC Cayce city

SC Charleston city

SC Charleston County

SC City View town

SC Columbia city

SC Cowpens town

SC Darlington County

SC Dorchester County

SC Edgefield County

SC Florence city

SC Florence County

SC Folly Beach city

SC Forest Acres city

SC Fort Mill town
SC Georgetown County
SC Goose Creek city
SC Hanahan city
SC Horry County
SC Irmo town
SC Isle of Palms city
SC Lexington County
SC Lincolville town
SC Mount Pleasant town
SC Myrtle Beach city
SC North Augusta city
SC North Charleston city
SC Pickens County
SC Pineridge town
SC Quinby town
SC Rock Hill city
SC South Congaree town
SC Spartanburg city
SC Spartanburg County
SC Springdale town
SC Sullivan's Island town
SC Summerville town
SC Sumter city
SC Sumter County
SC Surfside Beach town
SC West Columbia city
SC York County

SD Big Sioux township

SD Central Pennington unorg.

SD Lincoln County

SD Mapleton township *68832

SD Minnehaha County

SD North Sioux City city

SD Pennington County

SD Rapid City city

SD Split Rock township

SD Union County

SD Wayne township

TN Alcoa city

TN Anderson County

TN Bartlett town

TN Belle Meade city

TN Berry Hill city

TN Blount County

TN Brentwood city

TN Bristol city

TN Carter County

TN Church Hill town

TN Clarksville city

TN Collegedale city

TN Davidson County

TN East Ridge city

TN Elizabethton city

TN Farragut town

TN Forest Hills city

TN Germantown city
TN Goodlettsville city
TN Hamilton County
TN Hawkins County
TN Hendersonville city
TN Jackson city
TN Johnson City city
TN Jonesborough town
TN Kingsport city
TN Knox County
TN Lakesite city
TN Lakewood city
TN Lookout Mountain town
TN Loudon County
TN Madison County
TN Maryville city
TN Montgomery County
TN Mount Carmel town
TN Mount Juliet city
TN Oak Hill city
TN Red Bank city
TN Ridgeside city
TN Rockford city
TN Shelby County
TN Signal Mountain town
TN Soddy-Daisy city
TN Sullivan County
TN Sumner County

TN Washington County
TN Williamson County
TN Wilson County
TX Addison city
TX Alamo city
TX Alamo Heights city
TX Allen city
TX Archer County
TX Azle city
TX Balch Springs city
TX Balcones Heights city
TX Bayou Vista village
TX Baytown city
TX Bedford city
TX Bell County
TX Bellaire city
TX Bellmead city
TX Belton city
TX Benbrook city
TX Beverly Hills city
TX Bexar County
TX Blue Mound city
TX Bowie County
TX Brazoria County
TX Brazos County
TX Brookside Village city
TX Brownsville city
TX Bryan city

TX Buckingham town

TX Bunker Hill Village city

TX Cameron County

TX Carrollton city

TX Castle Hills city

TX Cedar Hill city

TX Cedar Park city

TX Chambers County

TX Cibolo city

TX Clear Lake Shores city

TX Clint town

TX Cockrell Hill city

TX College Station city

TX Colleyville city

TX Collin County

TX Comal County

TX Combes town

TX Converse city

TX Copperas Cove city

TX Corinth town

TX Coryell County

TX Crowley city

TX Dallas County

TX Dalworthington Gardens city

TX Deer Park city

TX Denison city

TX Denton city

TX Denton County

TX DeSoto city
TX Dickinson city
TX Donna city
TX Double Oak town
TX Duncanville city
TX Ector County
TX Edgecliff village
TX Edinburg city
TX El Lago city
TX El Paso County
TX Ellis County
TX Euless city
TX Everman city
TX Farmers Branch city
TX Flower Mound town
TX Forest Hill city
TX Fort Bend County
TX Friendswood city
TX Galena Park city
TX Galveston city
TX Galveston County
TX Grand Prairie city
TX Grapevine city
TX Grayson County
TX Gregg County
TX Groves city
TX Guadalupe County
TX Haltom City city

TX Hardin County

TX Harker Heights city

TX Harlingen city

TX Harrison County

TX Hedwig Village city

TX Hewitt city

TX Hickory Creek town

TX Hidalgo County

TX Highland Park town

TX Highland Village city

TX Hill Country Village city

TX Hilshire Village city

TX Hitchcock city

TX Hollywood Park town

TX Howe town

TX Humble city

TX Hunters Creek Village city

TX Hurst city

TX Hutchins city

TX Impact town

TX Jacinto City city

TX Jefferson County

TX Jersey Village city

TX Johnson County

TX Jones County

TX Katy city

TX Kaufman County

TX Keller city

TX Kemah city
TX Kennedale city
TX Killeen city
TX Kirby city
TX Kleberg County
TX La Marque city
TX La Porte city
TX Lacy-Lakeview city
TX Lake Dallas city
TX Lake Worth city
TX Lakeside City town
TX Lakeside town
TX Lampasas County
TX Lancaster city
TX League City city
TX Leander city
TX Leon Valley city
TX Lewisville city
TX Live Oak city
TX Longview city
TX Lubbock County
TX Lumberton city
TX Martin County
TX McAllen city
TX McLennan County
TX Meadows city
TX Midland city
TX Midland County

TX Mission city
TX Missouri City city
TX Montgomery County
TX Morgan's Point city
TX Nash city
TX Nassau Bay city
TX Nederland city
TX Nolanville city
TX North Richland Hills city
TX Northcrest town
TX Nueces County
TX Odessa city
TX Olmos Park city
TX Palm Valley town
TX Palmview city
TX Pantego town
TX Parker County
TX Pearland city
TX Pflugerville city
TX Pharr city
TX Piney Point Village city
TX Port Arthur city
TX Port Neches city
TX Portland city
TX Potter County
TX Primera town
TX Randall County
TX Richardson city

TX Richland Hills city
TX River Oaks city
TX Robinson city
TX Rockwall city
TX Rockwall County
TX Rollingwood city
TX Rose Hill Acres city
TX Rowlett city *68833
TX Sachse city
TX Saginaw city
TX San Angelo city
TX San Benito city
TX San Juan city
TX San Patricio County
TX Sansom Park city
TX Santa Fe city
TX Schertz city
TX Seabrook city
TX Seagoville city
TX Selma city
TX Shavano Park city
TX Sherman city
TX Shoreacres city
TX Smith County
TX Socorro town
TX South Houston city
TX Southside Place city
TX Spring Valley city

TX Stafford town

TX Sugar Land city

TX Sunset Valley city

TX Tarrant County

TX Taylor County

TX Taylor Lake Village city

TX Temple city

TX Terrell Hills city

TX Texarkana city

TX Texas City city

TX Tom Green County

TX Travis County

TX Tye town

TX Tyler city

TX Universal City city

TX University Park city

TX Victoria city

TX Victoria County

TX Wake Village city

TX Waller County

TX Watauga city

TX Webb County

TX Webster city

TX Weslaco city

TX West Lake Hills city

TX West University Place city

TX Westover Hills town

TX Westworth village

TX White Oak city

TX White Settlement city

TX Wichita County

TX Wichita Falls city

TX Williamson County

TX Wilmer city

TX Windcrest city

TX Woodway city

UT American Fork city

UT Bluffdale city

UT Bountiful city

UT Cache County

UT Cedar Hills town

UT Centerville city

UT Clearfield city

UT Clinton city

UT Davis County

UT Draper city

UT Farmington city

UT Farr West city

UT Fruit Heights city

UT Harrisville city

UT Highland city

UT Hyde Park city

UT Kaysville city

UT Layton city

UT Lehi city

UT Lindon city

UT Logan city
UT Mapleton city
UT Midvale city
UT Millville city
UT Murray city
UT North Logan city
UT North Ogden city
UT North Salt Lake city
UT Ogden city
UT Orem city
UT Pleasant Grove city
UT Pleasant View city
UT Providence city
UT Provo city
UT River Heights city
UT Riverdale city
UT Riverton city
UT Roy city
UT Sandy city
UT Smithfield city
UT South Jordan city
UT South Ogden city
UT South Salt Lake city
UT South Weber city
UT Springville city
UT Sunset city
UT Syracuse city
UT Uintah town

UT Utah County

UT Washington Terrace city

UT Weber County

UT West Bountiful city

UT West Jordan city

UT West Point city

UT West Valley City city

UT Woods Cross city

VA Albemarle County

VA Alexandria city

VA Amherst County

VA Bedford County

VA Botetourt County

VA Bristol city

VA Campbell County

VA Charlottesville city

VA Colonial Heights city

VA Danville city

VA Dinwiddie County

VA Fairfax city

VA Falls Church city

VA Fredericksburg city

VA Gate City town

VA Gloucester County

VA Hanover County

VA Herndon town

VA Hopewell city

VA James City County

VA Loudoun County
VA Lynchburg city
VA Manassas city
VA Manassas Park city
VA Occoquan town
VA Petersburg city
VA Pittsylvania County
VA Poquoson city
VA Prince George County
VA Richmond city
VA Roanoke city
VA Roanoke County
VA Salem city
VA Scott County
VA Spotsylvania County
VA Stafford County
VA Suffolk city
VA Vienna town
VA Vinton town
VA Washington County
VA Weber City town
VA Williamsburg city
VA York County
VT Burlington city
VT Chittenden County
VT Colchester town
VT Essex Junction village
VT Essex town

VT Shelburne town

VT South Burlington city

VT Williston town

VT Winooski city

WA Algona city

WA Auburn city

WA Beaux Arts Village town

WA Bellevue city

WA Bellingham city

WA Benton County

WA Bonney Lake city

WA Bothell city

WA Bremerton city

WA Brier city

WA Clyde Hill town

WA Cowlitz County

WA Des Moines city

WA DuPont city

WA Edmonds city

WA Everett city

WA Fife city

WA Fircrest town

WA Franklin County

WA Gig Harbor city

WA Hunts Point town

WA Issaquah city

WA Kelso city

WA Kennewick city

WA Kent city

WA Kirkland city

WA Kitsap County

WA Lacey city

WA Lake Forest Park city

WA Longview city

WA Lynnwood city

WA Marysville city

WA Medina city

WA Mercer Island city

WA Mill Creek city

WA Millwood town

WA Milton city

WA Mountlake Terrace city

WA Mukilteo city

WA Normandy Park city

WA Olympia city

WA Pacific city

WA Pasco city

WA Port Orchard city

WA Puyallup city

WA Redmond city

WA Renton city

WA Richland city

WA Ruston town

WA Selah city

WA Steilacoom town

WA Sumner city

WA Thurston County
WA Tukwila city
WA Tumwater city
WA Union Gap city
WA Vancouver city
WA West Richland city
WA Whatcom County
WA Woodway city
WA Yakima city
WA Yakima County
WA Yarrow Point town
WI Algoma town *68834
WI Allouez village
WI Altoona city
WI Appleton city
WI Ashwaubenon village
WI Bayside village
WI Bellevue town
WI Beloit city
WI Beloit town
WI Big Bend village
WI Black Wolf town
WI Blooming Grove town
WI Brookfield city
WI Brookfield town
WI Brown County
WI Brown Deer village
WI Brunswick town

WI Buchanan town
WI Burke town
WI Butler village
WI Caledonia town
WI Calumet County
WI Campbell town
WI Cedarburg city
WI Cedarburg town
WI Chippewa County
WI Chippewa Falls city
WI Clayton town
WI Combined Locks village
WI Cudahy city
WI Dane County
WI De Pere city
WI De Pere town
WI Delafield town
WI Douglas County
WI Dunn town
WI Eagle Point town
WI Eau Claire city
WI Eau Claire County
WI Elm Grove village
WI Elmwood Park village
WI Fitchburg city
WI Fox Point village
WI Franklin city
WI Germantown town

WI Germantown village
WI Glendale city
WI Grafton town
WI Grafton village
WI Grand Chute town
WI Green Bay city
WI Greendale village
WI Greenfield city
WI Greenville town
WI Hales Corners village
WI Hallie town
WI Harmony town
WI Harrison town
WI Hobart town
WI Holmen village
WI Howard village
WI Janesville city
WI Janesville town
WI Kaukauna city
WI Kenosha city
WI Kenosha County
WI Kimberly village
WI Kohler village
WI La Crosse city
WI La Crosse County
WI La Prairie town
WI Lafayette town
WI Lannon village

WI Lima town
WI Lisbon town
WI Little Chute village
WI Madison town
WI Maple Bluff village
WI Marathon County
WI McFarland village
WI Medary town
WI Menasha city
WI Menasha town
WI Menomonee Falls village
WI Mequon city
WI Middleton city
WI Middleton town
WI Monona city
WI Mount Pleasant town
WI Muskego city
WI Neenah city
WI Neenah town
WI Nekimi town
WI New Berlin city
WI North Bay village
WI Norway town
WI Oak Creek city
WI Onalaska city
WI Onalaska town
WI Oshkosh city
WI Oshkosh town

WI Outagamie County

WI Ozaukee County

WI Pewaukee town

WI Pewaukee village

WI Pleasant Prairie town

WI Pleasant Prairie village

WI Racine city

WI Racine County

WI Rib Mountain town

WI River Hills village

WI Rock County

WI Rock town

WI Rothschild village

WI Salem town

WI Schofield city

WI Scott town

WI Sheboygan city

WI Sheboygan County

WI Sheboygan Falls city

WI Sheboygan Falls town

WI Sheboygan town

WI Shelby town

WI Shorewood Hills village

WI Shorewood village

WI Somers town

WI South Milwaukee city

WI St. Francis city

WI Stettin town

WI Sturtevant village
WI Superior city
WI Superior village
WI Sussex village
WI Thiensville village
WI Turtle town
WI Union town
WI Vandebroek town
WI Vernon town
WI Washington County
WI Washington town
WI Waukesha city
WI Waukesha County
WI Waukesha town
WI Wausau city
WI Wauwatosa city
WI West Allis city
WI West Milwaukee village
WI Weston town
WI Westport town
WI Wheaton town
WI Whitefish Bay village
WI Wilson town
WI Wind Point village
WI Winnebago County
WV Bancroft town
WV Barboursville village
WV Belle town

WV Benwood city
WV Berkeley County
WV Bethlehem village
WV Brooke County
WV Cabell County
WV Cedar Grove town
WV Ceredo city
WV Charleston city
WV Chesapeake town
WV Clearview village
WV Dunbar city
WV East Bank town
WV Follansbee city
WV Glasgow town
WV Glen Dale city
WV Hancock County
WV Huntington city
WV Hurricane city
WV Kanawha County
WV Kenova city
WV Marmet city
WV Marshall County
WV McMechen city
WV Mineral County
WV Moundsville city
WV Nitro city
WV North Hills town
WV Ohio County

WV Parkersburg city

WV Poca town

WV Putnam County

WV Ridgeley town

WV South Charleston city

WV St. Albans city

WV Triadelphia town

WV Vienna city

WV Wayne County

WV Weirton city

WV Wheeling city

WV Wood County

WY Casper city

WY Cheyenne city

WY Evansville town

WY Laramie County

WY Mills town

WY Natrona County

***68835 Appendix 7 of Preamble—Governmental Entities (Located Outside of an Urbanized Area) That Must Be Examined By the NPDES Permitting Authority for Potential Designation Under §123.35(b)(2)**

(All listed entities have a population of at least 10,000 and a population density of at least 1,000. A listed entity would only be potentially designated if it operates a small MS4. See §122.26(b)(16) for the definition of a small MS4.)

(This list does not include all operators of small MS4s that may be designated by the NPDES permitting authority. Operators of small MS4s in areas with populations below 10,000 and densities below 1,000 may also be designated but examination of them is not required. Also, entities such as military bases, large hospitals, prison complexes, universities, sewer districts, and highway departments that operate a small MS4 in an area listed here, or in an area otherwise designated by the NPDES permitting authority, may be designated and become subject to permitting regulations.) (Source: 1990 Census of Population and Housing, U.S. Bureau of the Census. This list is subject to change with the Decennial Census)

AL Daphne city

AL Jacksonville city

AL Selma city

AR Arkadelphia city

AR Benton city

AR Blytheville city

AR Conway city

AR El Dorado city

AR Hot Springs city

AR Magnolia city

AR Rogers city

AR Searcy city

AR Stuttgart city

AZ Douglas city

CA Arcata city

CA Arroyo Grande city

CA Atwater city

CA Auburn city

CA Banning city

CA Brawley city

CA Calexico city

CA Clearlake city

CA Corcoran city

CA Delano city

CA Desert Hot Springs city

CA Dinuba city

CA Dixon city

CA El Centro city

CA El Paso de Robles (Paso Robles) city

CA Eureka city

CA Fillmore city
CA Gilroy city
CA Grover City city
CA Hanford city
CA Hollister city
CA Lemoore city
CA Los Banos city
CA Madera city
CA Manteca city
CA Oakdale city
CA Oroville city
CA Paradise town
CA Petaluma city
CA Porterville city
CA Red Bluff city
CA Reedley city
CA Ridgecrest city
CA Sanger city
CA Santa Paula city
CA Selma city
CA South Lake Tahoe city
CA Temecula city
CA Tracy city
CA Tulare city
CA Turlock city
CA Ukiah city
CA Wasco city
CA Woodland city

CO Canon City city
CO Durango city
CO Lafayette city
CO Louisville city
CO Loveland city
CO Sterling city
FL Bartow city
FL Belle Glade city
FL De Land city
FL Eustis city
FL Haines City city
FL Key West city
FL Leesburg city
FL Palatka city
FL Plant City city
FL St. Augustine city
FL St. Cloud city
GA Americus city
GA Carrollton city
GA Cordele city
GA Dalton city
GA Dublin city
GA Griffin city
GA Hinesville city
GA Moultrie city
GA Newnan city
GA Statesboro city
GA Thomasville city

GA Tifton city

GA Valdosta city

GA Waycross city

IA Ames city

IA Ankeny city

IA Boone city

IA Burlington city

IA Fort Dodge city

IA Fort Madison city

IA Indianola city

IA Keokuk city

IA Marshalltown city

IA Mason City city

IA Muscatine city

IA Newton city

IA Oskaloosa city

IA Ottumwa city

IA Spencer city

ID Caldwell city

ID Coeur d'Alene city

ID Lewiston city

ID Moscow city

ID Nampa city

ID Rexburg city

ID Twin Falls city

IL Belvidere city

IL Canton city

IL Carbondale city

IL Centralia city
IL Charleston city
IL Danville city
IL De Kalb city
IL Dixon city
IL Effingham city
IL Freeport city
IL Galesburg city
IL Jacksonville city
IL Macomb city
IL Mattoon city
IL Mount Vernon city
IL Ottawa city
IL Pontiac city
IL Quincy city
IL Rantoul village
IL Sterling city
IL Streator city
IL Taylorville city
IL Woodstock city
IN Bedford city
IN Columbus city
IN Crawfordsville city
IN Frankfort city
IN Franklin city
IN Greenfield city
IN Huntington city
IN Jasper city

IN La Porte city

IN Lebanon city

IN Logansport city

IN Madison city

IN Marion city

IN Martinsville city

IN Michigan City city

IN New Castle city

IN Noblesville city

IN Peru city

IN Plainfield town

IN Richmond city

IN Seymour city

IN Shelbyville city

IN Valparaiso city

IN Vincennes city

IN Wabash city

IN Warsaw city

IN Washington city

KS Arkansas City city

KS Atchison city

KS Coffeyville city

KS Derby city

KS Dodge City city

KS El Dorado city

KS Emporia city

KS Garden City city

KS Great Bend city

KS Hays city

KS Hutchinson city

KS Junction City city

KS Leavenworth city

KS Liberal city

KS Manhattan city

KS McPherson city

KS Newton city

KS Ottawa city

KS Parsons city

KS Pittsburg city

KS Salina city

KS Winfield city

KY Bowling Green city

KY Danville city

KY Frankfort city

KY Georgetown city

KY Glasgow city

KY Hopkinsville city

KY Madisonville city

KY Middlesborough city

KY Murray city

KY Nicholasville city

KY Paducah city

KY Radcliff city

KY Richmond city

KY Somerset city

KY Winchester city *68836

LA Abbeville city

LA Bastrop city

LA Bogalusa city

LA Crowley city

LA Eunice city

LA Hammond city

LA Jennings city

LA Minden city

LA Morgan City city

LA Natchitoches city

LA New Iberia city

LA Opelousas city

LA Ruston city

LA Thibodaux city

MA Amherst town

MA Clinton town

MA Milford town

MA Newburyport city

MD Aberdeen town

MD Cambridge city

MD Salisbury city

MD Westminster city

ME Waterville city

MI Adrian city

MI Albion city

MI Alpena city

MI Big Rapids city

MI Cadillac city

MI Escanaba city

MI Grand Haven city

MI Marquette city

MI Midland city

MI Monroe city

MI Mount Pleasant city

MI Owosso city

MI Sturgis city

MI Traverse City city

MN Albert Lea city

MN Austin city

MN Bemidji city

MN Brainerd city

MN Faribault city

MN Fergus Falls city

MN Hastings city

MN Hutchinson city

MN Mankato city

MN Marshall city

MN New Ulm city

MN North Mankato city

MN Northfield city

MN Owatonna city

MN Stillwater city

MN Willmar city

MN Winona city

MO Cape Girardeau city

MO Farmington city

MO Hannibal city

MO Jefferson City city

MO Kennett city

MO Kirksville city

MO Marshall city

MO Maryville city

MO Poplar Bluff city

MO Rolla city

MO Sedalia city

MO Sikeston city

MO Warrensburg city

MO Washington city

MS Brookhaven city

MS Canton city

MS Clarksdale city

MS Cleveland city

MS Columbus city

MS Greenville city

MS Greenwood city

MS Grenada city

MS Indianola city

MS Laurel city

MS McComb city

MS Meridian city

MS Natchez city

MS Starkville city

MS Vicksburg city

MS Yazoo City city

MT Bozeman city

MT Havre city

MT Helena city

MT Kalispell city

NC Albemarle city

NC Asheboro city

NC Boone town

NC Eden city

NC Elizabeth City city

NC Havelock city

NC Henderson city

NC Kernersville town

NC Kinston city

NC Laurinburg city

NC Lenoir city

NC Lexington city

NC Lumberton city

NC Monroe city

NC New Bern city

NC Reidsville city

NC Roanoke Rapids city

NC Salisbury city

NC Sanford city

NC Shelby city

NC Statesville city

NC Tarboro town

NC Wilson city

ND Dickinson city

ND Jamestown city

ND Minot city

ND Williston city

NE Beatrice city

NE Columbus city

NE Fremont city

NE Grand Island city

NE Hastings city

NE Kearney city

NE Norfolk city

NE North Platte city

NE Scottsbluff city

NJ East Windsor township

NJ Plainsboro township

NJ Bridgeton city

NJ Princeton borough

NM Alamogordo city

NM Artesia city

NM Clovis city

NM Deming city

NM Farmington city

NM Gallup city

NM Hobbs city

NM Las Vegas city

NM Portales city

NM Roswell city

NM Silver City town

NV Elko city

NY Amsterdam city
NY Auburn city
NY Batavia city
NY Canandaigua city
NY Corning city
NY Cortland city
NY Dunkirk city
NY Fredonia village
NY Fulton city
NY Geneva city
NY Gloversville city
NY Jamestown city
NY Kingston city
NY Lockport city
NY Massena village
NY Middletown city
NY Ogdensburg city
NY Olean city
NY Oneonta city
NY Oswego city
NY Plattsburgh city
NY Potsdam village
NY Watertown city
OH Alliance city
OH Ashland city
OH Ashtabula city
OH Athens city
OH Bellefontaine city

OH Bowling Green city
OH Bucyrus city
OH Cambridge city
OH Chillicothe city
OH Circleville city
OH Coshocton city
OH Defiance city
OH Delaware city
OH Dover city
OH East Liverpool city
OH Findlay city
OH Fostoria city
OH Fremont city
OH Galion city
OH Greenville city
OH Lancaster city
OH Lebanon city
OH Marietta city
OH Marion city
OH Medina city
OH Mount Vernon city
OH New Philadelphia city
OH Norwalk city
OH Oxford city
OH Piqua city
OH Portsmouth city
OH Salem city
OH Sandusky city

OH Sidney city
OH Tiffin city
OH Troy city
OH Urbana city
OH Washington city
OH Wilmington city
OH Wooster city
OH Xenia city
OH Zanesville city
OK Ada city
OK Altus city
OK Bartlesville city
OK Chickasha city
OK Claremore city
OK McAlester city
OK Miami city
OK Muskogee city
OK Okmulgee city
OK Owasso city
OK Ponca City city
OK Stillwater city
OK Tahlequah city
OK Weatherford city
OR Albany city
OR Ashland city
OR Astoria city
OR Bend city
OR City of the Dalles city

OR Coos Bay city

OR Corvallis city

OR Grants Pass city

OR Hermiston city *68837

OR Klamath Falls city

OR La Grande city

OR Lebanon city

OR McMinnville city

OR Newberg city

OR Pendleton city

OR Roseburg city

OR Woodburn city

PA Berwick borough

PA Bloomsburg town

PA Butler city

PA Carlisle borough

PA Chambersburg borough

PA Ephrata borough

PA Hanover borough

PA Hazleton city

PA Indiana borough

PA Lebanon city

PA Meadville city

PA New Castle city

PA Oil City city

PA Pottsville city

PA Sunbury city

PA Uniontown city

PA Warren city

RI Narragansett town

SC Clemson city

SC Easley city

SC Gaffney city

SC Greenwood city

SC Newberry town

SC Orangeburg city

SD Aberdeen city

SD Brookings city

SD Huron city

SD Mitchell city

SD Vermillion city

SD Watertown city

SD Yankton city

TN Brownsville city

TN Cleveland city

TN Collierville town

TN Cookeville city

TN Dyersburg city

TN Greeneville town

TN Lawrenceburg city

TN McMinnville city

TN Millington city

TN Morristown city

TN Murfreesboro city

TN Shelbyville city

TN Springfield city

TN Union City city
TX Alice city
TX Alvin city
TX Andrews city
TX Angleton city
TX Bay City city
TX Beeville city
TX Big Spring city
TX Borger city
TX Brenham city
TX Brownwood city
TX Burkburnett city
TX Canyon city
TX Cleburne city
TX Conroe city
TX Coppell city
TX Corsicana city
TX Del Rio city
TX Dumas city
TX Eagle Pass city
TX El Campo city
TX Gainesville city
TX Gatesville city
TX Georgetown city
TX Henderson city
TX Hereford city
TX Huntsville city
TX Jacksonville city

TX Kerrville city

TX Kingsville city

TX Lake Jackson city

TX Lamesa city

TX Levelland city

TX Lufkin city

TX Mercedes city

TX Mineral Wells city

TX Mount Pleasant city

TX Nacogdoches city

TX New Braunfels city

TX Palestine city

TX Pampa city

TX Pecos city

TX Plainview city

TX Port Lavaca city

TX Robstown city

TX Rosenberg city

TX Round Rock city

TX San Marcos city

TX Seguin city

TX Snyder city

TX Stephenville city

TX Sweetwater city

TX Taylor city

TX The Colony city

TX Uvalde city

TX Vernon city

TX Vidor city

UT Brigham City city

UT Cedar City city

UT Spanish Fork city

UT Tooele city

VA Blacksburg town

VA Christiansburg town

VA Front Royal town

VA Harrisonburg city

VA Leesburg town

VA Martinsville city

VA Radford city

VA Staunton city

VA Waynesboro city

VA Winchester city

VT Rutland city

WA Aberdeen city

WA Anacortes city

WA Centralia city

WA Ellensburg city

WA Moses Lake city

WA Mount Vernon city

WA Oak Harbor city

WA Port Angeles city

WA Pullman city

WA Sunnyside city

WA Walla Walla city

WA Wenatchee city

WI Beaver Dam city

WI Fond du Lac city

WI Fort Atkinson city

WI Manitowoc city

WI Marinette city

WI Marshfield city

WI Menomonie city

WI Monroe city

WI Oconomowoc city

WI Stevens Point city

WI Sun Prairie city

WI Two Rivers city

WI Watertown city

WI West Bend city

WI Whitewater city

WI Wisconsin Rapids city

WV Beckley city

WV Bluefield city

WV Clarksburg city

WV Fairmont city

WV Martinsburg city

WV Morgantown city

WY Evanston city

WY Gillette city

WY Green River city

WY Laramie city

WY Rock Springs city

WY Sheridan city

For the reasons set forth in the preamble, chapter I of title 40 of the Code of Federal Regulations is amended as follows:

PART 9—OMB APPROVALS UNDER THE PAPERWORK REDUCTION ACT

1. The authority citation for part 9 continues to read as follows:

Authority: 7 U.S.C. 135 et seq., 136-136y; 15 U.S.C. 2001, 2003, 2005, 2006, 2601-2671; 21 U.S.C. 331j, 346a, 348; 31 U.S.C. 9701; 33 U.S.C. 1251 et seq., 1311, 1313d, 1314, 1318, 1321, 1326, 1330, 1342, 1344, 1345 (d) and (e), 1361; E.O. 11735, 38 FR 21243, 3 CFR, 1971-1975 Comp. p. 973; 42 U.S.C. 241, 242b, 243, 246, 300f, 300g, 300g-1, 300g-2, 300g-3, 300g-4, 300g-5, 300g-6, 300j-1, 300j-2, 300j-3, 300j-4, 300j-9, 1857 et seq., 6901-6992k, 7401-7671q, 7542, 9601-9657, 11023, 11048.

40 CFR § 9.1

2. In §9.1 the table is amended by adding entries in numerical order under the indicated heading to read as follows:

40 CFR § 9.1

§9.1 OMB approvals under the Paperwork Reduction Act.

* * * * *

40 CFR citation	OMB control No.
* * * * *	
EPA Administered Permit Programs: The National Pollutant Discharge Elimination System	
* * * * *	
122.26(g)	2040-0211
* * * * *	
State Permit Requirements	
* * * * *	
123.35(b)	2040-0211
* * * * *	

***68838 PART 122—EPA ADMINISTERED PERMIT PROGRAMS: THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

1. The authority citation for part 122 continues to read as follows:

Authority: The Clean Water Act, 33 U.S.C. 1251 et seq.

40 CFR § 122.21

2. Revise §122.21(c)(1) to read as follows:

40 CFR § 122.21

§122.21 Application for a permit (applicable to State programs, see §123.25).

* * * * *

(c) Time to apply. (1) Any person proposing a new discharge, shall submit an application at least 180 days before the date on which the discharge is to commence, unless permission for a later date has been granted by the Director. Facilities proposing a new discharge of storm water associated with industrial activity shall submit an application 180 days before that facility commences industrial activity which may result in a discharge of storm water associated with that industrial

activity. Facilities described under §122.26(b)(14)(x) or (b)(15)(i) shall submit applications at least 90 days before the date on which construction is to commence. Different submittal dates may be required under the terms of applicable general permits. Persons proposing a new discharge are encouraged to submit their applications well in advance of the 90 or 180 day requirements to avoid delay. See also paragraph (k) of this section and §122.26(c)(1)(i)(G) and (c)(1)(ii).

* * * * 40 CFR § 122.26

3. Amend §122.26 as follows:

- a. Revise paragraphs (a)(9), (b)(4)(i), (b)(7)(i), (b)(14) introductory text, (b)(14)(x), (b)(14)(xi);
- b. Redesignate paragraph (b)(15) as paragraph (b)(20) and add new paragraphs (b)(15) through (b)(19);
- c. Revise the heading for paragraph (c), the first sentence of paragraph (c)(1) introductory text, the first sentence of paragraph (c)(1)(ii) introductory text, paragraphs (e) heading and introductory text, (e)(1), (e)(5) introductory text, and (e)(5)(i);
- d. Add paragraphs (e)(8) and (e)(9); and
- e. Revise paragraphs (f)(4), (f)(5), and (g).

The additions and revisions read as follows:

40 CFR § 122.26

§122.26 Storm water discharges (applicable to State NPDES programs, see § 123.25).

(a) * * *

(9)(i) On and after October 1, 1994, for discharges composed entirely of storm water, that are not required by paragraph (a)(1) of this section to obtain a permit, operators shall be required to obtain a NPDES permit only if:

(A) The discharge is from a small MS4 required to be regulated pursuant to § 122.32;

(B) The discharge is a storm water discharge associated with small construction activity pursuant to paragraph (b)(15) of this section;

(C) The Director, or in States with approved NPDES programs either the Director or the EPA Regional Administrator, determines that storm water controls are needed for the discharge based on wasteload allocations that are part of “total maximum daily loads” (TMDLs) that address the pollutant(s) of concern; or

(D) The Director, or in States with approved NPDES programs either the Director or the EPA Regional Administrator, determines that the discharge, or category of discharges within a geographic area, contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.

(ii) Operators of small MS4s designated pursuant to paragraphs (a)(9)(i)(A), (a)(9)(i)(C), and (a)(9)(i)(D) of this section shall seek coverage under an NPDES permit in accordance with §§122.33 through 122.35. Operators of non-municipal sources designated pursuant to paragraphs (a)(9)(i)(B), (a)(9)(i)(C), and (a)(9)(i)(D) of this section shall seek coverage under an NPDES permit in accordance with paragraph (c)(1) of this section.

(iii) Operators of storm water discharges designated pursuant to paragraphs (a)(9)(i)(C) and (a)(9)(i)(D) of this section shall apply to the Director for a permit within 180 days of receipt of notice, unless permission for a later date is granted by the Director (see §124.52(c) of this chapter).

(b) * * *

(4) * * *

(i) Located in an incorporated place with a population of 250,000 or more as determined by the 1990 Decennial Census by the Bureau of the Census (Appendix F of this part); or

* * * * *

(7) * * *

(i) Located in an incorporated place with a population of 100,000 or more but less than 250,000, as determined by the 1990 Decennial Census by the Bureau of the Census (Appendix G of this part); or

* * * * *

(14) Storm water discharge associated with industrial activity means the discharge from any conveyance that is used for collecting and conveying storm ~~*68839~~ water and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program under this part 122. For the categories of industries identified in this section, the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined at part 401 of this chapter); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and final products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the purposes of this paragraph, material handling activities include storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are federally, State, or municipally owned or operated that meet the description of the facilities listed in paragraphs (b)(14)(i) through (xi) of this section) include those facilities designated under the provisions of paragraph (a)(1)(v) of this section. The following categories of facilities are considered to be engaging in "industrial activity" for purposes of paragraph (b)(14):

* * * * *

(x) Construction activity including clearing, grading and excavation, except operations that result in the disturbance of less than five acres of total land area. Construction activity also includes the disturbance of less than five acres of total land area that is a part of a larger common plan of development or sale if the larger common plan will ultimately disturb five acres or more;

(xi) Facilities under Standard Industrial Classifications 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39, and 4221-25;

(15) Storm water discharge associated with small construction activity means the discharge of storm water from:

(i) Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than one acre and less than five acres. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one and less than five acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. The Director may waive the otherwise applicable requirements in a general permit for a storm water discharge from construction activities that disturb less than five acres where:

(A) The value of the rainfall erosivity factor (“R” in the Revised Universal Soil Loss Equation) is less than five during the period of construction activity. The rainfall erosivity factor is determined in accordance with Chapter 2 of Agriculture Handbook Number 703, Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE), pages 21-64, dated January 1997. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C 552(a) and 1 CFR part 51. Copies may be obtained from EPA's Water Resource Center, Mail Code RC4100, 401 M St. S.W., Washington, DC 20460. A copy is also available for inspection at the U.S. EPA Water Docket, 401 M Street S.W., Washington, DC. 20460, or the Office of the Federal Register, 800 N. Capitol Street N.W. Suite 700, Washington, DC. An operator must certify to the Director that the construction activity will take place during a period when the value of the rainfall erosivity factor is less than five; or

(B) Storm water controls are not needed based on a “total maximum daily load” (TMDL) approved or established by EPA that addresses the pollutant(s) of concern or, for non-impaired waters that do not require TMDLs, an equivalent analysis that determines allocations for small construction sites for the pollutant(s) of concern or that determines that such allocations are not needed to protect water quality based on consideration of existing in-stream concentrations, expected growth in pollutant contributions from all sources, and a margin of safety. For the purpose of this paragraph, the pollutant(s) of concern include sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the construction activity. The operator must certify to the Director that the construction activity will take place, and storm water discharges will occur, within the drainage area addressed by the TMDL or equivalent analysis.

(ii) Any other construction activity designated by the Director, or in States with approved NPDES programs either the Director or the EPA Regional Administrator, based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the United States.

Exhibit 1 to §122.26(b)(15).—Summary of Coverage of “Storm Water Discharges Associated with Small Construction Activity” Under the NPDES Storm Water Program

Automatic Designation: Required Nationwide Coverage	<p>- Construction activities that result in a land disturbance of equal to or greater than one acre and less than five acres.</p> <p>- Construction activities disturbing less than one acre if part of a larger common plan of development or sale with a planned disturbance of equal to or greater than one acre and less than five acres. (see §122.26(b)(15)(i).)</p>
Potential Designation: Optional Evaluation and Designation by the NPDES Permitting Authority or EPA Regional Administrator.	<p>- Construction activities that result in a land disturbance of less than one acre based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants. (see §122.26(b)(15)(ii).)</p>
Potential Waiver: Waiver from Requirements as Determined by the NPDES Permitting Authority.	<p>Any automatically designated construction activity where the operator certifies: (1) A rainfall erosivity factor of less than five, or (2) That the activity will occur within an area where controls are not needed based on a TMDL or, for non-impaired waters that do not require a TMDL, an equivalent analysis for the pollutant(s) of concern. (see §122.26(b)(15)(i).)</p>

*68840 (16) Small municipal separate storm sewer system means all separate storm sewers that are:

(i) Owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States.

(ii) Not defined as “large” or “medium” municipal separate storm sewer systems pursuant to paragraphs (b)(4) and (b)(7) of this section, or designated under paragraph (a)(1)(v) of this section.

(iii) This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.

(17) Small MS4 means a small municipal separate storm sewer system.

(18) Municipal separate storm sewer system means all separate storm sewers that are defined as “large” or “medium” or “small” municipal separate storm sewer systems pursuant to paragraphs (b)(4), (b)(7), and (b)(16) of this section, or designated under paragraph (a)(1)(v) of this section.

(19) MS4 means a municipal separate storm sewer system.

* * * * *

(c) Application requirements for storm water discharges associated with industrial activity and storm water discharges associated with small construction activity—(1) Individual application. Dischargers of storm water associated with industrial activity and with small construction activity are required to apply for an individual permit or seek coverage under a promulgated storm water general permit. * * *

* * * * *

(ii) An operator of an existing or new storm water discharge that is associated with industrial activity solely under paragraph (b)(14)(x) of this section or is associated with small construction activity solely under paragraph (b)(15) of this section, is exempt from the requirements of § 122.21(g) and paragraph (c)(1)(i) of this section. * * *

* * * * *

(e) Application deadlines. Any operator of a point source required to obtain a permit under this section that does not have an effective NPDES permit authorizing discharges from its storm water outfalls shall submit an application in accordance with the following deadlines:

(1) Storm water discharges associated with industrial activity. (i) Except as provided in paragraph (e)(1)(ii) of this section, for any storm water discharge associated with industrial activity identified in paragraphs (b)(14)(i) through (xi) of this section, that is not part of a group application as described in paragraph (c)(2) of this section or that is not authorized by a storm water general permit, a permit application made pursuant to paragraph (c) of this section must be submitted to the Director by October 1, 1992;

(ii) For any storm water discharge associated with industrial activity from a facility that is owned or operated by a municipality with a population of less than 100,000 that is not authorized by a general or individual permit, other than an airport, powerplant, or uncontrolled sanitary landfill, the permit application must be submitted to the Director by March 10, 2003.

* * * * *

(5) A permit application shall be submitted to the Director within 180 days of notice, unless permission for a later date is granted by the Director (see § 124.52(c) of this chapter), for:

(i) A storm water discharge that the Director, or in States with approved NPDES programs, either the Director or the EPA Regional Administrator, determines that the discharge contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States (see paragraphs (a)(1)(v) and (b)(15)(ii) of this section);

* * * * *

(8) For any storm water discharge associated with small construction activity identified in paragraph (b)(15)(i) of this section, see [§122.21\(c\)\(1\)](#). Discharges from these sources require permit authorization by March 10, 2003, unless designated for coverage before then.

(9) For any discharge from a regulated small MS4, the permit application made under [§122.33](#) must be submitted to the Director by:

(i) March 10, 2003 if designated under [§122.32\(a\)\(1\)](#) unless your MS4 serves a jurisdiction with a population under 10,000 and the NPDES permitting authority has established a phasing schedule under [§123.35\(d\)\(3\)](#) (see [§122.33\(c\)\(1\)](#)); or

(ii) Within 180 days of notice, unless the NPDES permitting authority grants a later date, if designated under [§122.32\(a\)\(2\)](#) (see [§122.33\(c\)\(2\)](#)).

(f) * * *

(4) Any person may petition the Director for the designation of a large, medium, or small municipal separate storm sewer system as defined by paragraph (b)(4)(iv), (b)(7)(iv), or (b)(16) of this section.

(5) The Director shall make a final determination on any petition received under this section within 90 days after receiving the petition with the exception of petitions to designate a small MS4 in which case the Director shall make a final determination on the petition within 180 days after its receipt.

(g) Conditional exclusion for “no exposure” of industrial activities and materials to storm water. Discharges composed entirely of storm water are not storm water discharges associated with industrial activity if there is “no exposure” of industrial materials and activities to rain, snow, snowmelt and/or runoff, and the discharger satisfies the conditions in paragraphs (g)(1) through (g)(4) of this section. “No exposure” means that all industrial materials and activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste ***68841** products. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product or waste product.

(1) Qualification. To qualify for this exclusion, the operator of the discharge must:

(i) Provide a storm resistant shelter to protect industrial materials and activities from exposure to rain, snow, snow melt, and runoff;

(ii) Complete and sign (according to [§122.22](#)) a certification that there are no discharges of storm water contaminated by exposure to industrial materials and activities from the entire facility, except as provided in paragraph (g)(2) of this section;

(iii) Submit the signed certification to the NPDES permitting authority once every five years;

(iv) Allow the Director to inspect the facility to determine compliance with the “no exposure” conditions;

- (v) Allow the Director to make any “no exposure” inspection reports available to the public upon request; and
 - (vi) For facilities that discharge through an MS4, upon request, submit a copy of the certification of “no exposure” to the MS4 operator, as well as allow inspection and public reporting by the MS4 operator.
- (2) Industrial materials and activities not requiring storm resistant shelter. To qualify for this exclusion, storm resistant shelter is not required for:
- (i) Drums, barrels, tanks, and similar containers that are tightly sealed, provided those containers are not deteriorated and do not leak (“Sealed” means banded or otherwise secured and without operational taps or valves);
 - (ii) Adequately maintained vehicles used in material handling; and
 - (iii) Final products, other than products that would be mobilized in storm water discharge (e.g., rock salt).
- (3) Limitations. (i) Storm water discharges from construction activities identified in paragraphs (b)(14)(x) and (b)(15) are not eligible for this conditional exclusion.
- (ii) This conditional exclusion from the requirement for an NPDES permit is available on a facility-wide basis only, not for individual outfalls. If a facility has some discharges of storm water that would otherwise be “no exposure” discharges, individual permit requirements should be adjusted accordingly.
 - (iii) If circumstances change and industrial materials or activities become exposed to rain, snow, snow melt, and/or runoff, the conditions for this exclusion no longer apply. In such cases, the discharge becomes subject to enforcement for un-permitted discharge. Any conditionally exempt discharger who anticipates changes in circumstances should apply for and obtain permit authorization prior to the change of circumstances.
 - (iv) Notwithstanding the provisions of this paragraph, the NPDES permitting authority retains the authority to require permit authorization (and deny this exclusion) upon making a determination that the discharge causes, has a reasonable potential to cause, or contributes to an instream excursion above an applicable water quality standard, including designated uses.
- (4) Certification. The no exposure certification must require the submission of the following information, at a minimum, to aid the NPDES permitting authority in determining if the facility qualifies for the no exposure exclusion:
- (i) The legal name, address and phone number of the discharger (see [§ 122.21\(b\)](#));
 - (ii) The facility name and address, the county name and the latitude and longitude where the facility is located;
 - (iii) The certification must indicate that none of the following materials or activities are, or will be in the foreseeable future, exposed to precipitation:
 - (A) Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed to storm water;
 - (B) Materials or residuals on the ground or in storm water inlets from spills/leaks;
 - (C) Materials or products from past industrial activity;

- (D) Material handling equipment (except adequately maintained vehicles);
- (E) Materials or products during loading/unloading or transporting activities;
- (F) Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants);
- (G) Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;
- (H) Materials or products handled/stored on roads or railways owned or maintained by the discharger;
- (I) Waste material (except waste in covered, non-leaking containers, e.g., dumpsters);
- (J) Application or disposal of process wastewater (unless otherwise permitted); and
- (K) Particulate matter or visible deposits of residuals from roof stacks/vents not otherwise regulated, i.e., under an air quality control permit, and evident in the storm water outflow;

(iv) All “no exposure” certifications must include the following certification statement, and be signed in accordance with the signatory requirements of § 122.22: “I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of “no exposure” and obtaining an exclusion from NPDES storm water permitting; and that there are no discharges of storm water contaminated by exposure to industrial activities or materials from the industrial facility identified in this document (except as allowed under paragraph (g)(2)) of this section. I understand that I am obligated to submit a no exposure certification form once every five years to the NPDES permitting authority and, if requested, to the operator of the local MS4 into which this facility discharges (where applicable). I understand that I must allow the NPDES permitting authority, or MS4 operator where the discharge is into the local MS4, to perform inspections to confirm the condition of no exposure and to make such inspection reports publicly available upon request. I understand that I must obtain coverage under an NPDES permit prior to any point source discharge of storm water from the facility. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly involved in gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

[40 CFR § 122.28](#)

4. Revise [§122.28\(b\)\(2\)\(v\)](#) to read as follows:

[40 CFR § 122.28](#)

[§122.28](#) General permits (applicable to State NPDES programs, see [§123.25](#)).

* * * * *

(b) * * *

(2) * * *

(v) Discharges other than discharges from publicly owned treatment works, combined sewer overflows, municipal *68842 separate storm sewer systems, primary industrial facilities, and storm water discharges associated with industrial activity, may, at the discretion of the Director, be authorized to discharge under a general permit without submitting a notice of intent where the Director finds that a notice of intent requirement would be inappropriate. In making such a finding, the Director shall consider: the type of discharge; the expected nature of the discharge; the potential for toxic and

conventional pollutants in the discharges; the expected volume of the discharges; other means of identifying discharges covered by the permit; and the estimated number of discharges to be covered by the permit. The Director shall provide in the public notice of the general permit the reasons for not requiring a notice of intent.

* * * * *

5. Add §§122.30 through 122.37 to subpart B to read as follows:

40 CFR § 122.30

§122.30 What are the objectives of the storm water regulations for small MS4s?

(a) Sections 122.30 through 122.37 are written in a “readable regulation” format that includes both rule requirements and EPA guidance that is not legally binding. EPA has clearly distinguished its recommended guidance from the rule requirements by putting the guidance in a separate paragraph headed by the word “guidance”.

(b) Under the statutory mandate in section 402(p)(6) of the Clean Water Act, the purpose of this portion of the storm water program is to designate additional sources that need to be regulated to protect water quality and to establish a comprehensive storm water program to regulate these sources. (Because the storm water program is part of the National Pollutant Discharge Elimination System (NPDES) Program, you should also refer to §122.1 which addresses the broader purpose of the NPDES program.)

(c) Storm water runoff continues to harm the nation's waters. Runoff from lands modified by human activities can harm surface water resources in several ways including by changing natural hydrologic patterns and by elevating pollutant concentrations and loadings. Storm water runoff may contain or mobilize high levels of contaminants, such as sediment, suspended solids, nutrients, heavy metals, pathogens, toxins, oxygen-demanding substances, and floatables.

(d) EPA strongly encourages partnerships and the watershed approach as the management framework for efficiently, effectively, and consistently protecting and restoring aquatic ecosystems and protecting public health.

40 CFR § 122.31

§122.31 As a Tribe, what is my role under the NPDES storm water program?

As a Tribe you may:

(a) Be authorized to operate the NPDES program including the storm water program, after EPA determines that you are eligible for treatment in the same manner as a State under §§123.31 through 123.34 of this chapter. (If you do not have an authorized NPDES program, EPA implements the program for discharges on your reservation as well as other Indian country, generally.);

(b) Be classified as an owner of a regulated small MS4, as defined in §122.32. (Designation of your Tribe as an owner of a small MS4 for purposes of this part is an approach that is consistent with EPA's 1984 Indian Policy of operating on a government-to-government basis with EPA looking to Tribes as the lead governmental authorities to address environmental issues on their reservations as appropriate. If you operate a separate storm sewer system that meets the definition of a regulated small MS4, you are subject to the requirements under §§122.33 through 122.35. If you are not designated as a regulated small MS4, you may ask EPA to designate you as such for the purposes of this part.); or

(c) Be a discharger of storm water associated with industrial activity or small construction activity under §§122.26(b)(14) or (b)(15), in which case you must meet the applicable requirements. Within Indian country, the NPDES permitting authority is generally EPA, unless you are authorized to administer the NPDES program.

40 CFR § 122.32

§122.32 As an operator of a small MS4, am I regulated under the NPDES storm water program?

(a) Unless you qualify for a waiver under paragraph (c) of this section, you are regulated if you operate a small MS4, including but not limited to systems operated by federal, State, Tribal, and local governments, including State departments of transportation; and:

(1) Your small MS4 is located in an urbanized area as determined by the latest Decennial Census by the Bureau of the Census. (If your small MS4 is not located entirely within an urbanized area, only the portion that is within the urbanized area is regulated); or

(2) You are designated by the NPDES permitting authority, including where the designation is pursuant to §§123.35(b)(3) and (b)(4) of this chapter, or is based upon a petition under §122.26(f).

(b) You may be the subject of a petition to the NPDES permitting authority to require an NPDES permit for your discharge of storm water. If the NPDES permitting authority determines that you need a permit, you are required to comply with §§122.33 through 122.35.

(c) The NPDES permitting authority may waive the requirements otherwise applicable to you if you meet the criteria of paragraph (d) or (e) of this section. If you receive a waiver under this section, you may subsequently be required to seek coverage under an NPDES permit in accordance with §122.33(a) if circumstances change. (See also §123.35(b) of this chapter.)

(d) The NPDES permitting authority may waive permit coverage if your MS4 serves a population of less than 1,000 within the urbanized area and you meet the following criteria:

(1) Your system is not contributing substantially to the pollutant loadings of a physically interconnected MS4 that is regulated by the NPDES storm water program (see §123.35(b)(4) of this chapter); and

(2) If you discharge any pollutant(s) that have been identified as a cause of impairment of any water body to which you discharge, storm water controls are not needed based on wasteload allocations that are part of an EPA approved or established “total maximum daily load” (TMDL) that addresses the pollutant(s) of concern.

(e) The NPDES permitting authority may waive permit coverage if your MS4 serves a population under 10,000 and you meet the following criteria:

(1) The permitting authority has evaluated all waters of the U.S., including small streams, tributaries, lakes, and ponds, that receive a discharge from your MS4;

(2) For all such waters, the permitting authority has determined that storm water controls are not needed based on wasteload allocations that are part of an EPA approved or established TMDL that addresses the pollutant(s) of concern or, if a TMDL has not been developed or approved, an equivalent analysis that determines sources and allocations for the pollutant(s) of concern;

(3) For the purpose of this paragraph (e), the pollutant(s) of concern include biochemical oxygen demand (BOD), sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation), pathogens, oil and grease, and any pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from your MS4; and *68843

(4) The permitting authority has determined that future discharges from your MS4 do not have the potential to result in exceedances of water quality standards, including impairment of designated uses, or other significant water quality impacts, including habitat and biological impacts.

40 CFR § 122.33

§122.33 If I am an operator of a regulated small MS4, how do I apply for an NPDES permit and when do I have to apply?

(a) If you operate a regulated small MS4 under §122.32, you must seek coverage under a NPDES permit issued by your NPDES permitting authority. If you are located in an NPDES authorized State, Tribe, or Territory, then that State, Tribe, or Territory is your NPDES permitting authority. Otherwise, your NPDES permitting authority is the EPA Regional Office.

(b) You must seek authorization to discharge under a general or individual NPDES permit, as follows:

(1) If your NPDES permitting authority has issued a general permit applicable to your discharge and you are seeking coverage under the general permit, you must submit a Notice of Intent (NOI) that includes the information on your best management practices and measurable goals required by §122.34(d). You may file your own NOI, or you and other municipalities or governmental entities may jointly submit an NOI. If you want to share responsibilities for meeting the minimum measures with other municipalities or governmental entities, you must submit an NOI that describes which minimum measures you will implement and identify the entities that will implement the other minimum measures within the area served by your MS4. The general permit will explain any other steps necessary to obtain permit authorization.

(2)(i) If you are seeking authorization to discharge under an individual permit and wish to implement a program under §122.34, you must submit an application to your NPDES permitting authority that includes the information required under §§122.21(f) and 122.34(d), an estimate of square mileage served by your small MS4, and any additional information that your NPDES permitting authority requests. A storm sewer map that satisfies the requirement of § 122.34(b)(3)(i) will satisfy the map requirement in §122.21(f)(7).

(ii) If you are seeking authorization to discharge under an individual permit and wish to implement a program that is different from the program under §122.34, you will need to comply with the permit application requirements of §122.26(d). You must submit both Parts of the application requirements in §§122.26(d)(1) and (2) by March 10, 2003. You do not need to submit the information required by §§122.26(d)(1)(ii) and (d)(2) regarding your legal authority, unless you intend for the permit writer to take such information into account when developing your other permit conditions.

(iii) If allowed by your NPDES permitting authority, you and another regulated entity may jointly apply under either paragraph (b)(2)(i) or (b)(2)(ii) of this section to be co-permittees under an individual permit.

(3) If your small MS4 is in the same urbanized area as a medium or large MS4 with an NPDES storm water permit and that other MS4 is willing to have you participate in its storm water program, you and the other MS4 may jointly seek a modification of the other MS4 permit to include you as a limited co-permittee. As a limited co-permittee, you will be responsible for compliance with the permit's conditions applicable to your jurisdiction. If you choose this option you will need to comply with the permit application requirements of §122.26, rather than the requirements of §122.34. You do not need to comply with the specific application requirements of §122.26(d)(1)(iii) and (iv) and (d)(2)(iii) (discharge characterization). You may satisfy the requirements in §122.26 (d)(1)(v) and (d)(2)(iv) (identification of a management program) by referring to the other MS4's storm water management program.

(4) Guidance: In referencing an MS4's storm water management program, you should briefly describe how the existing plan will address discharges from your small MS4 or would need to be supplemented in order to adequately address your discharges. You should also explain your role in coordinating storm water pollutant control activities in your MS4, and detail the resources available to you to accomplish the plan.

(c) If you operate a regulated small MS4:

(1) Designated under §122.32(a)(1), you must apply for coverage under an NPDES permit, or apply for a modification of an existing NPDES permit under paragraph (b)(3) of this section by March 10, 2003, unless your MS4 serves a jurisdiction with a population under 10,000 and the NPDES permitting authority has established a phasing schedule under §123.35(d)(3) of this chapter.

(2) Designated under §122.32(a)(2), you must apply for coverage under an NPDES permit, or apply for a modification of an existing NPDES permit under paragraph (b)(3) of this section, within 180 days of notice, unless the NPDES permitting authority grants a later date.

40 CFR § 122.34

§122.34 As an operator of a regulated small MS4, what will my NPDES MS4 storm water permit require?

(a) Your NPDES MS4 permit will require at a minimum that you develop, implement, and enforce a storm water management program designed to reduce the discharge of pollutants from your MS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act. Your storm water management program must include the minimum control measures described in paragraph (b) of this section unless you apply for a permit under §122.26(d). For purposes of this section, narrative effluent limitations requiring implementation of best management practices (BMPs) are generally the most appropriate form of effluent limitations when designed to satisfy technology requirements (including reductions of pollutants to the maximum extent practicable) and to protect water quality. Implementation of best management practices consistent with the provisions of the storm water management program required pursuant to this section and the provisions of the permit required pursuant to §122.33 constitutes compliance with the standard of reducing pollutants to the “maximum extent practicable.” Your NPDES permitting authority will specify a time period of up to 5 years from the date of permit issuance for you to develop and implement your program.

(b) Minimum control measures—(1) Public education and outreach on storm water impacts. (i) You must implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff.

(ii) Guidance: You may use storm water educational materials provided by your State, Tribe, EPA, environmental, public interest or trade organizations, or other MS4s. The public education program should inform individuals and households about the steps they can take to reduce storm water pollution, such as ensuring proper septic system maintenance, ensuring the proper use and disposal of landscape and garden chemicals including fertilizers and pesticides, protecting and restoring riparian vegetation, and properly disposing of used motor oil or *68844 household hazardous wastes. EPA recommends that the program inform individuals and groups how to become involved in local stream and beach restoration activities as well as activities that are coordinated by youth service and conservation corps or other citizen groups. EPA recommends that the public education program be tailored, using a mix of locally appropriate strategies, to target specific audiences and communities. Examples of strategies include distributing brochures or fact sheets, sponsoring speaking engagements before community groups, providing public service announcements, implementing educational programs targeted at school age children, and conducting community-based projects such as storm drain stenciling, and watershed and beach cleanups. In addition, EPA recommends that some of the materials or outreach programs be directed toward targeted groups of commercial, industrial, and institutional entities likely to have significant storm water impacts. For example, providing information to restaurants on the impact of grease clogging storm drains and to garages on the impact of oil discharges. You are encouraged to tailor your outreach program to address the viewpoints and concerns of all communities, particularly minority and disadvantaged communities, as well as any special concerns relating to children.

(2) Public involvement/participation. (i) You must, at a minimum, comply with State, Tribal and local public notice requirements when implementing a public involvement/ participation program.

(ii) Guidance: EPA recommends that the public be included in developing, implementing, and reviewing your storm water management program and that the public participation process should make efforts to reach out and engage all economic and ethnic groups. Opportunities for members of the public to participate in program development and implementation include serving as citizen representatives on a local storm water management panel, attending public hearings, working as citizen volunteers to educate other individuals about the program, assisting in program coordination with other pre-existing programs, or participating in volunteer monitoring efforts. (Citizens should obtain approval where necessary for lawful access to monitoring sites.)

(3) Illicit discharge detection and elimination. (i) You must develop, implement and enforce a program to detect and eliminate illicit discharges (as defined at [§122.26\(b\)\(2\)](#)) into your small MS4.

(ii) You must:

(A) Develop, if not already completed, a storm sewer system map, showing the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls;

(B) To the extent allowable under State, Tribal or local law, effectively prohibit, through ordinance, or other regulatory mechanism, non-storm water discharges into your storm sewer system and implement appropriate enforcement procedures and actions;

(C) Develop and implement a plan to detect and address non-storm water discharges, including illegal dumping, to your system; and

(D) Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.

(iii) You need address the following categories of non-storm water discharges or flows (i.e., illicit discharges) only if you identify them as significant contributors of pollutants to your small MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at [40 CFR 35.2005\(20\)](#)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water (discharges or flows from fire fighting activities are excluded from the effective prohibition against non-storm water and need only be addressed where they are identified as significant sources of pollutants to waters of the United States).

(iv) Guidance: EPA recommends that the plan to detect and address illicit discharges include the following four components: procedures for locating priority areas likely to have illicit discharges; procedures for tracing the source of an illicit discharge; procedures for removing the source of the discharge; and procedures for program evaluation and assessment. EPA recommends visually screening outfalls during dry weather and conducting field tests of selected pollutants as part of the procedures for locating priority areas. Illicit discharge education actions may include storm drain stenciling, a program to promote, publicize, and facilitate public reporting of illicit connections or discharges, and distribution of outreach materials.

(4) Construction site storm water runoff control. (i) You must develop, implement, and enforce a program to reduce pollutants in any storm water runoff to your small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of storm water discharges from construction activity disturbing less than one acre must be included in your program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. If the NPDES permitting authority waives requirements for storm water

discharges associated with small construction activity in accordance with [§ 122.26\(b\)\(15\)\(i\)](#), you are not required to develop, implement, and/or enforce a program to reduce pollutant discharges from such sites.

(ii) Your program must include the development and implementation of, at a minimum:

(A) An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State, Tribal, or local law;

(B) Requirements for construction site operators to implement appropriate erosion and sediment control best management practices;

(C) Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;

(D) Procedures for site plan review which incorporate consideration of potential water quality impacts;

(E) Procedures for receipt and consideration of information submitted by the public, and

(F) Procedures for site inspection and enforcement of control measures.

(iii) Guidance: Examples of sanctions to ensure compliance include non-monetary penalties, fines, bonding requirements and/or permit denials for non-compliance. EPA recommends that procedures for site plan review include the review of individual pre-construction site plans to ensure consistency with local sediment and erosion control requirements. Procedures for site inspections and enforcement of control measures could include steps to identify priority sites for inspection and enforcement based on the nature of the construction activity, topography, and the characteristics of soils and receiving *68845 water quality. You are encouraged to provide appropriate educational and training measures for construction site operators. You may wish to require a storm water pollution prevention plan for construction sites within your jurisdiction that discharge into your system. See [§ 122.44\(s\)](#) (NPDES permitting authorities' option to incorporate qualifying State, Tribal and local erosion and sediment control programs into NPDES permits for storm water discharges from construction sites). Also see [§ 122.35\(b\)](#) (The NPDES permitting authority may recognize that another government entity, including the permitting authority, may be responsible for implementing one or more of the minimum measures on your behalf.)

(5) Post-construction storm water management in new development and redevelopment.

(i) You must develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into your small MS4. Your program must ensure that controls are in place that would prevent or minimize water quality impacts.

(ii) You must:

(A) Develop and implement strategies which include a combination of structural and/or non-structural best management practices (BMPs) appropriate for your community;

(B) Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State, Tribal or local law; and

(C) Ensure adequate long-term operation and maintenance of BMPs.

(iii) Guidance: If water quality impacts are considered from the beginning stages of a project, new development and potentially redevelopment provide more opportunities for water quality protection. EPA recommends that the BMPs chosen: be appropriate for the local community; minimize water quality impacts; and attempt to maintain pre-development runoff conditions. In choosing appropriate BMPs, EPA encourages you to participate in locally-based watershed planning efforts which attempt to involve a diverse group of stakeholders including interested citizens. When developing a program that is consistent with this measure's intent, EPA recommends that you adopt a planning process that identifies the municipality's program goals (e.g., minimize water quality impacts resulting from post-construction runoff from new development and redevelopment), implementation strategies (e.g., adopt a combination of structural and/or non-structural BMPs), operation and maintenance policies and procedures, and enforcement procedures. In developing your program, you should consider assessing existing ordinances, policies, programs and studies that address storm water runoff quality. In addition to assessing these existing documents and programs, you should provide opportunities to the public to participate in the development of the program. Non-structural BMPs are preventative actions that involve management and source controls such as: policies and ordinances that provide requirements and standards to direct growth to identified areas, protect sensitive areas such as wetlands and riparian areas, maintain and/or increase open space (including a dedicated funding source for open space acquisition), provide buffers along sensitive water bodies, minimize impervious surfaces, and minimize disturbance of soils and vegetation; policies or ordinances that encourage infill development in higher density urban areas, and areas with existing infrastructure; education programs for developers and the public about project designs that minimize water quality impacts; and measures such as minimization of percent impervious area after development and minimization of directly connected impervious areas. Structural BMPs include: storage practices such as wet ponds and extended-detention outlet structures; filtration practices such as grassed swales, sand filters and filter strips; and infiltration practices such as infiltration basins and infiltration trenches. EPA recommends that you ensure the appropriate implementation of the structural BMPs by considering some or all of the following: pre-construction review of BMP designs; inspections during construction to verify BMPs are built as designed; post-construction inspection and maintenance of BMPs; and penalty provisions for the noncompliance with design, construction or operation and maintenance. Storm water technologies are constantly being improved, and EPA recommends that your requirements be responsive to these changes, developments or improvements in control technologies.

(6) Pollution prevention/good housekeeping for municipal operations. (i) You must develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations. Using training materials that are available from EPA, your State, Tribe, or other organizations, your program must include employee training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.

(ii) Guidance: EPA recommends that, at a minimum, you consider the following in developing your program: maintenance activities, maintenance schedules, and long-term inspection procedures for structural and non-structural storm water controls to reduce floatables and other pollutants discharged from your separate storm sewers; controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations and snow disposal areas operated by you, and waste transfer stations; procedures for properly disposing of waste removed from the separate storm sewers and areas listed above (such as dredge spoil, accumulated sediments, floatables, and other debris); and ways to ensure that new flood management projects assess the impacts on water quality and examine existing projects for incorporating additional water quality protection devices or practices. Operation and maintenance should be an integral component of all storm water management programs. This measure is intended to improve the efficiency of these programs and require new programs where necessary. Properly developed and implemented operation and maintenance programs reduce the risk of water quality problems.

(c) If an existing qualifying local program requires you to implement one or more of the minimum control measures of paragraph (b) of this section, the NPDES permitting authority may include conditions in your NPDES permit that direct you to follow that qualifying program's requirements rather than the requirements of paragraph (b) of this section. A qualifying local program is a local, State or Tribal municipal storm water management program that imposes, at a minimum, the relevant requirements of paragraph (b) of this section.

(d)(1) In your permit application (either a notice of intent for coverage *68846 under a general permit or an individual permit application), you must identify and submit to your NPDES permitting authority the following information:

(i) The best management practices (BMPs) that you or another entity will implement for each of the storm water minimum control measures at paragraphs (b)(1) through (b)(6) of this section;

(ii) The measurable goals for each of the BMPs including, as appropriate, the months and years in which you will undertake required actions, including interim milestones and the frequency of the action; and

(iii) The person or persons responsible for implementing or coordinating your storm water management program.

(2) If you obtain coverage under a general permit, you are not required to meet any measurable goal(s) identified in your notice of intent in order to demonstrate compliance with the minimum control measures in paragraphs (b)(3) through (b)(6) of this section unless, prior to submitting your NOI, EPA or your State or Tribe has provided or issued a menu of BMPs that addresses each such minimum measure. Even if no regulatory authority issues the menu of BMPs, however, you still must comply with other requirements of the general permit, including good faith implementation of BMPs designed to comply with the minimum measures.

(3) Guidance: Either EPA or your State or Tribal permitting authority will provide a menu of BMPs. You may choose BMPs from the menu or select others that satisfy the minimum control measures.

(e)(1) You must comply with any more stringent effluent limitations in your permit, including permit requirements that modify, or are in addition to, the minimum control measures based on an approved total maximum daily load (TMDL) or equivalent analysis. The permitting authority may include such more stringent limitations based on a TMDL or equivalent analysis that determines such limitations are needed to protect water quality.

(2) Guidance: EPA strongly recommends that until the evaluation of the storm water program in §122.37, no additional requirements beyond the minimum control measures be imposed on regulated small MS4s without the agreement of the operator of the affected small MS4, except where an approved TMDL or equivalent analysis provides adequate information to develop more specific measures to protect water quality.

(f) You must comply with other applicable NPDES permit requirements, standards and conditions established in the individual or general permit, developed consistent with the provisions of §§122.41 through 122.49, as appropriate.

(g) Evaluation and assessment—(1) Evaluation. You must evaluate program compliance, the appropriateness of your identified best management practices, and progress towards achieving your identified measurable goals.

Note to Paragraph (g)(1): The NPDES permitting authority may determine monitoring requirements for you in accordance with State/Tribal monitoring plans appropriate to your watershed. Participation in a group monitoring program is encouraged.

(2) Recordkeeping. You must keep records required by the NPDES permit for at least 3 years. You must submit your records to the NPDES permitting authority only when specifically asked to do so. You must make your records, including

a description of your storm water management program, available to the public at reasonable times during regular business hours (see §122.7 for confidentiality provision). (You may assess a reasonable charge for copying. You may require a member of the public to provide advance notice.)

(3) Reporting. Unless you are relying on another entity to satisfy your NPDES permit obligations under §122.35(a), you must submit annual reports to the NPDES permitting authority for your first permit term. For subsequent permit terms, you must submit reports in year two and four unless the NPDES permitting authority requires more frequent reports. Your report must include:

(i) The status of compliance with permit conditions, an assessment of the appropriateness of your identified best management practices and progress towards achieving your identified measurable goals for each of the minimum control measures;

(ii) Results of information collected and analyzed, including monitoring data, if any, during the reporting period;

(iii) A summary of the storm water activities you plan to undertake during the next reporting cycle;

(iv) A change in any identified best management practices or measurable goals for any of the minimum control measures; and

(v) Notice that you are relying on another governmental entity to satisfy some of your permit obligations (if applicable).
[40 CFR § 122.35](#)

§122.35 As an operator of a regulated small MS4, may I share the responsibility to implement the minimum control measures with other entities?

(a) You may rely on another entity to satisfy your NPDES permit obligations to implement a minimum control measure if:

(1) The other entity, in fact, implements the control measure;

(2) The particular control measure, or component thereof, is at least as stringent as the corresponding NPDES permit requirement; and

(3) The other entity agrees to implement the control measure on your behalf. In the reports you must submit under §122.34(g)(3), you must also specify that you rely on another entity to satisfy some of your permit obligations. If you are relying on another governmental entity regulated under section 122 to satisfy all of your permit obligations, including your obligation to file periodic reports required by §122.34(g)(3), you must note that fact in your NOI, but you are not required to file the periodic reports. You remain responsible for compliance with your permit obligations if the other entity fails to implement the control measure (or component thereof). Therefore, EPA encourages you to enter into a legally binding agreement with that entity if you want to minimize any uncertainty about compliance with your permit.

(b) In some cases, the NPDES permitting authority may recognize, either in your individual NPDES permit or in an NPDES general permit, that another governmental entity is responsible under an NPDES permit for implementing one or more of the minimum control measures for your small MS4 or that the permitting authority itself is responsible. Where the permitting authority does so, you are not required to include such minimum control measure(s) in your storm water management program. (For example, if a State or Tribe is subject to an NPDES permit that requires it to administer a program to control construction site runoff at the State or Tribal level and that program satisfies all of the requirements of §122.34(b)(4), you could avoid responsibility for the construction measure, but would be responsible for the remaining minimum control measures.) Your permit may be reopened and modified to include the requirement to implement a minimum control measure if the entity fails to implement it. *68847

[40 CFR § 122.36](#)**§122.36 As an operator of a regulated small MS4, what happens if I don't comply with the application or permit requirements in §§122.33 through 122.35?**

NPDES permits are federally enforceable. Violators may be subject to the enforcement actions and penalties described in Clean Water Act sections 309 (b), (c), and (g) and [505](#), or under applicable State, Tribal, or local law. Compliance with a permit issued pursuant to section 402 of the Clean Water Act is deemed compliance, for purposes of [sections 309](#) and [505](#), with sections 301, 302, 306, 307, and 403, except any standard imposed under [section 307](#) for toxic pollutants injurious to human health. If you are covered as a co-permittee under an individual permit or under a general permit by means of a joint Notice of Intent you remain subject to the enforcement actions and penalties for the failure to comply with the terms of the permit in your jurisdiction except as set forth in [§122.35\(b\)](#).

[40 CFR § 122.37](#)**§122.37 Will the small MS4 storm water program regulations at §§122.32 through 122.36 and §123.35 of this chapter change in the future?**

EPA will evaluate the small MS4 regulations at [§§122.32](#) through [122.36](#) and [§ 123.35](#) of this chapter after December 10, 2012 and make any necessary revisions. (EPA intends to conduct an enhanced research effort and compile a comprehensive evaluation of the NPDES MS4 storm water program. EPA will re-evaluate the regulations based on data from the NPDES MS4 storm water program, from research on receiving water impacts from storm water, and the effectiveness of best management practices (BMPs), as well as other relevant information sources.)

[40 CFR § 122.44](#)

6. In [§122.44](#), redesignate paragraphs (k)(2) and (k)(3) as paragraphs (k)(3) and (k)(4), remove the comma at the end of newly redesignated paragraph (k)(3) and add a semicolon in its place, and add new paragraphs (k)(2) and (s) to read as follows:

[40 CFR § 122.44](#)**§122.44 Establishing limitations, standards, and other permit conditions (applicable to State NPDES programs, see §123.25).**

* * * * *

(k) * * *

(2) Authorized under section 402(p) of CWA for the control of storm water discharges;

* * * * *

(s) Qualifying State, Tribal, or local programs. (1) For storm water discharges associated with small construction activity identified in [§ 122.26\(b\)\(15\)](#), the Director may include permit conditions that incorporate qualifying State, Tribal, or local erosion and sediment control program requirements by reference. Where a qualifying State, Tribal, or local program does not include one or more of the elements in this paragraph (s)(1), then the Director must include those elements as conditions in the permit. A qualifying State, Tribal, or local erosion and sediment control program is one that includes:

(i) Requirements for construction site operators to implement appropriate erosion and sediment control best management practices;

(ii) Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;

(iii) Requirements for construction site operators to develop and implement a storm water pollution prevention plan. (A storm water pollution prevention plan includes site descriptions, descriptions of appropriate control measures, copies of approved State, Tribal or local requirements, maintenance procedures, inspection procedures, and identification of non-storm water discharges); and

(iv) Requirements to submit a site plan for review that incorporates consideration of potential water quality impacts.

(2) For storm water discharges from construction activity identified in § 122.26(b)(14)(x), the Director may include permit conditions that incorporate qualifying State, Tribal, or local erosion and sediment control program requirements by reference. A qualifying State, Tribal or local erosion and sediment control program is one that includes the elements listed in paragraph (s)(1) of this section and any additional requirements necessary to achieve the applicable technology-based standards of “best available technology” and “best conventional technology” based on the best professional judgment of the permit writer.

40 CFR § 122.62

7. Add §122.62(a)(14) to read as follows:

40 CFR § 122.62

§122.62 Modification or revocation and reissuance of permits (applicable to State programs, see §123.25).

* * * * *

(a) * * *

(14) For a small MS4, to include an effluent limitation requiring implementation of a minimum control measure or measures as specified in § 122.34(b) when:

(i) The permit does not include such measure(s) based upon the determination that another entity was responsible for implementation of the requirement(s); and

(ii) The other entity fails to implement measure(s) that satisfy the requirement(s).

* * * * *

8. Revise Appendices F, G, H, and I to Part 122 to read as follows:

Appendix F to Part 122.—Incorporated Places With Populations Greater Than 250,000 According to the 1990 Decennial Census by the Bureau of the Census

State	Incorporated Place
Alabama	Birmingham.
Arizona	Phoenix. Tucson.
California	Long Beach. Los Angeles. Oakland. Sacramento. San Diego. San Francisco. San Jose.
Colorado	Denver.

District of Columbia

Florida

Jacksonville.

Miami.

Tampa.

Georgia.

Atlanta.

Illinois

Chicago.

Indiana

Indianapolis.

Kansas

Wichita.

Kentucky

Louisville.

Louisiana

New Orleans.

Maryland

Baltimore.

Massachusetts

Boston.

Michigan

Detroit.

Minnesota

Minneapolis.

St. Paul.

Missouri

Kansas City.

St. Louis.

Nebraska

Omaha.

New Jersey

Newark.

New Mexico

Albuquerque.

New York

Buffalo.

Bronx Borough.

Brooklyn Borough.

Manhattan Borough.

Queens Borough.

Staten Island Borough.

North Carolina

Charlotte.

Ohio

Cincinnati.

Cleveland.

	Columbus.
	Toledo.
Oklahoma	Oklahoma City.
	Tulsa.
Oregon	Portland.
Pennsylvania	Philadelphia.
	Pittsburgh.
Tennessee	Memphis.
	Nashville/Davidson.
Texas	Austin.
	Dallas.
	El Paso.
	Fort Worth.
	Houston.
	San Antonio.
Virginia	Norfolk.
	Virginia Beach.
Washington	Seattle.
Wisconsin	Milwaukee.

Appendix G to Part 122.—Incorporated Places With Populations Greater Than 100,000 But Less Than 250,000 According to the 1990 Decennial Census by the Bureau of the Census

State	Incorporated place
Alabama	Huntsville.
	Mobile.
	Montgomery.
Alaska	Anchorage.
Arizona	Mesa.
	Tempe.
Arkansas	Little Rock.

California

Anaheim.

Bakersfield.

Berkeley.

Chula Vista.

Concord.

El Monte.

Escondido.

Fremont.

Fresno.

Fullerton.

Garden Grove.

Glendale.

Hayward.

Huntington Beach.

Inglewood.

Irvine.

Modesto.

Moreno Valley.

Oceanside.

Ontario.

Orange.

Colorado

Aurora.

Colorado Springs.

Lakewood.

Pueblo.

Connecticut

Bridgeport.

Hartford.

New Haven.

Stamford.

	Waterbury.
Florida	Fort Lauderdale.
	Hialeah.
	Hollywood.
	Orlando.
	St. Petersburg.
	Tallahassee.
Georgia	Columbus.
	Macon.
	Savannah.
Idaho	Boise City.
Illinois	Peoria.
	Rockford.
Indiana	Evansville.
	Fort Wayne.
	Gary.
	South Bend.
Iowa	Cedar Rapids.
	Davenport.
	Des Moines.
Kansas	Kansas City.
	Topeka.
Kentucky	Lexington-Fayette.
Louisiana	Baton Rouge.
	Shreveport.
Massachusetts	Springfield.
	Worcester.
Michigan	Ann Arbor.
	Flint.

	Grand Rapids.
	Lansing.
	Livonia.
	Sterling Heights.
	Warren.
Mississippi	Jackson.
Missouri	Independence.
	Springfield.
Nebraska	Lincoln.
Nevada	Las Vegas.
	Reno.
New Jersey	Elizabeth.
	Jersey City.
	Paterson.
New York	Albany.
	Rochester.
	Syracuse.
	Yonkers.
North Carolina	Durham.
	Greensboro.
	Raleigh.
	Winston-Salem.
Ohio	Akron.
	Dayton.
	Youngstown.
Oregon	Eugene.
Pennsylvania	Allentown.
	Erie.
Rhode Island	Providence.

South Carolina	Columbia.
Tennessee	Chattanooga. Knoxville.
Texas	Abilene. Amarillo. Arlington. Beaumont. Corpus Christi. Garland. Irving. Laredo. Lubbock. Mesquite. Pasadena. Plano. Waco.
Utah	Salt Lake City.
Virginia	Alexandria. Chesapeake. Hampton. Newport News. Portsmouth. Richmond. Roanoke.
Washington	Spokane. Tacoma.
Wisconsin	Madison.

Appendix H to Part 122.—Counties With Unincorporated Urbanized Areas With a Population of 250,000 or More According to the 1990 Decennial Census by the Bureau of the Census

State	County	Unincorporated urbanized population
California	Los Angeles	886,780
	Sacramento	594,889
	San Diego	250,414
Delaware	New Castle	296,996
Florida	Dade	1,014,504
Georgia	DeKalb	448,686
Hawaii	Honolulu ¹	114,506
Maryland	Anne Arundel	344,654
	Baltimore	627,593
	Montgomery	599,028
	Prince George's	494,369
Texas	Harris	729,206
Utah	Salt Lake	270,989
Virginia	Fairfax	760,730
Washington	King	520,468

**Appendix I to Part 122.—Counties With Unincorporated Urbanized Areas Greater Than 100,000
But Less Than 250,000 According to the 1990 Decennial Census by the Bureau of the Census**

State	County	Unincorporated urbanized population
Alabama	Jefferson	78,608
Arizona	Pima	162,202
California	Alameda	115,082
	Contra Costa	131,082
	Kern	128,503
	Orange	223,081
	Riverside	166,509
	San Bernardino	162,202
Colorado	Arapahoe	103,248

Florida	Broward	142,329
	Escambia	167,463
	Hillsborough	398,593
	Lee	102,337
	Manatee	123,828
	Orange	378,611
	Palm Beach	360,553
	Pasco	148,907
	Pinellas	255,772
	Polk	121,528
Georgia	Sarasota	172,600
	Seminole	127,873
	Clayton	133,237
	Cobb	322,595
	Fulton	127,776
Kentucky	Gwinnett	237,305
	Richmond	126,476
	Jefferson	239,430
Louisiana	East Baton Rouge	102,539
	Parish	331,307
	Jefferson Parish
Maryland	Howard	157,972
North Carolina	Cumberland	146,827
Nevada	Clark	327,618
Oregon	Multnomah ¹	52,923
	Washington	116,687
South Carolina	Greenville	147,464
	Richland	130,589
Virginia	Arlington	170,936

	Chesterfield	174,488
	Henrico	201,367
	Prince William	157,131
Washington	Pierce	258,530
	Snohomish	157,218

***68849 PART 123—STATE PROGRAM REQUIREMENTS**

1. The authority citation for part 123 continues to read as follows:

Authority: The Clean Water Act, 33 U.S.C. 1251 et seq.

[40 CFR § 123.25](#)

2. Amend [§123.25](#) by removing the word “and” at the end of paragraph (a)(37), by removing the period at the end of paragraph (a)(38) and adding a semicolon in its place, and by adding paragraphs (a)(39) through (a)(45) to read as follows:

[40 CFR § 123.25](#)

§123.25 Requirements for permitting.

(a) * * * ***68850**

(39) [§122.30](#) (What are the objectives of the storm water regulations for small MS4s?);

(40) [§122.31](#) (For Indian Tribes only) (As a Tribe, what is my role under the NPDES storm water program?);

(41) [§122.32](#) (As an operator of a small MS4, am I regulated under the NPDES storm water program?);

(42) [§122.33](#) (If I am an operator of a regulated small MS4, how do I apply for an NPDES permit? When do I have to apply?);

(43) [§122.34](#) (As an operator of a regulated small MS4, what will my NPDES MS4 storm water permit require?);

(44) [§122.35](#) (As an operator of a regulated small MS4, may I share the responsibility to implement the minimum control measures with other entities?); and

(45) [§122.36](#) (As an operator of a regulated small MS4, what happens if I don't comply with the application or permit requirements in [§§122.33](#) through [122.35](#)?).

* * * *[40 CFR § 123.35](#)

3. Add [§123.35](#) to subpart B to read as follows:

[40 CFR § 123.35](#)

§123.35 As the NPDES Permitting Authority for regulated small MS4s, what is my role?

(a) You must comply with the requirements for all NPDES permitting authorities under Parts 122, 123, 124, and 125 of this chapter. (This section is meant only to supplement those requirements and discuss specific issues related to the small MS4 storm water program.)

(b) You must develop a process, as well as criteria, to designate small MS4s other than those described in [§122.32\(a\)\(1\)](#) of this chapter, as regulated small MS4s to be covered under the NPDES storm water discharge control program. This

process must include the authority to designate a small MS4 waived under paragraph (d) of this section if circumstances change. EPA may make designations under this section if a State or Tribe fails to comply with the requirements listed in this paragraph. In making designations of small MS4s, you must:

(1)(i) Develop criteria to evaluate whether a storm water discharge results in or has the potential to result in exceedances of water quality standards, including impairment of designated uses, or other significant water quality impacts, including habitat and biological impacts.

(ii) Guidance: For determining other significant water quality impacts, EPA recommends a balanced consideration of the following designation criteria on a watershed or other local basis: discharge to sensitive waters, high growth or growth potential, high population density, contiguity to an urbanized area, significant contributor of pollutants to waters of the United States, and ineffective protection of water quality by other programs;

(2) Apply such criteria, at a minimum, to any small MS4 located outside of an urbanized area serving a jurisdiction with a population density of at least 1,000 people per square mile and a population of at least 10,000;

(3) Designate any small MS4 that meets your criteria by December 9, 2002. You may wait until December 8, 2004 to apply the designation criteria on a watershed basis if you have developed a comprehensive watershed plan. You may apply these criteria to make additional designations at any time, as appropriate; and

(4) Designate any small MS4 that contributes substantially to the pollutant loadings of a physically interconnected municipal separate storm sewer that is regulated by the NPDES storm water program.

(c) You must make a final determination within 180 days from receipt of a petition under §122.26(f) of this chapter (or analogous State or Tribal law). If you do not do so within that time period, EPA may make a determination on the petition.

(d) You must issue permits consistent with §§122.32 through 122.35 of this chapter to all regulated small MS4s. You may waive or phase in the requirements otherwise applicable to regulated small MS4s, as defined in § 122.32(a)(1) of this chapter, under the following circumstances:

(1) You may waive permit coverage for each small MS4s in jurisdictions with a population under 1,000 within the urbanized area where all of the following criteria have been met:

(i) Its discharges are not contributing substantially to the pollutant loadings of a physically interconnected regulated MS4 (see paragraph (b)(4) of this section); and

(ii) If the small MS4 discharges any pollutant(s) that have been identified as a cause of impairment of any water body to which it discharges, storm water controls are not needed based on wasteload allocations that are part of an EPA approved or established “total maximum daily load” (TMDL) that address the pollutant(s) of concern.

(2) You may waive permit coverage for each small MS4 in jurisdictions with a population under 10,000 where all of the following criteria have been met:

(i) You have evaluated all waters of the U.S., including small streams, tributaries, lakes, and ponds, that receive a discharge from the MS4 eligible for such a waiver.

(ii) For all such waters, you have determined that storm water controls are not needed based on wasteload allocations that are part of an EPA approved or established TMDL that addresses the pollutant(s) of concern or, if a TMDL has

not been developed or approved, an equivalent analysis that determines sources and allocations for the pollutant(s) of concern.

(iii) For the purpose of paragraph (d)(2)(ii) of this section, the pollutant(s) of concern include biochemical oxygen demand (BOD), sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation), pathogens, oil and grease, and any pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the MS4.

(iv) You have determined that current and future discharges from the MS4 do not have the potential to result in exceedances of water quality standards, including impairment of designated uses, or other significant water quality impacts, including habitat and biological impacts.

(v) Guidance: To help determine other significant water quality impacts, EPA recommends a balanced consideration of the following criteria on a watershed or other local basis: discharge to sensitive waters, high growth or growth potential, high population or commercial density, significant contributor of pollutants to waters of the United States, and ineffective protection of water quality by other programs.

(3) You may phase in permit coverage for small MS4s serving jurisdictions with a population under 10,000 on a schedule consistent with a State watershed permitting approach. Under this approach, you must develop and implement a schedule to phase in permit coverage for approximately 20 percent annually of all small MS4s that qualify for such phased-in coverage. Under this option, all regulated small MS4s are required to have coverage under an NPDES permit by no later than March 8, 2007. Your schedule for phasing in permit coverage for small MS4s must be approved by the Regional Administrator no later than December 10, 2001.

(4) If you choose to phase in permit coverage for small MS4s in jurisdictions with a population under 10,000, in accordance with paragraph (d)(3) of this section, you may also provide waivers in accordance with paragraphs (d)(1) and (d)(2) of this section pursuant to your approved schedule. *68851

(5) If you do not have an approved schedule for phasing in permit coverage, you must make a determination whether to issue an NPDES permit or allow a waiver in accordance with paragraph (d)(1) or (d)(2) of this section, for each eligible MS4 by December 9, 2002.

(6) You must periodically review any waivers granted in accordance with paragraph (d)(2) of this section to determine whether any of the information required for granting the waiver has changed. At a minimum, you must conduct such a review once every five years. In addition, you must consider any petition to review any waiver when the petitioner provides evidence that the information required for granting the waiver has substantially changed.

(e) You must specify a time period of up to 5 years from the date of permit issuance for operators of regulated small MS4s to fully develop and implement their storm water program.

(f) You must include the requirements in §§122.33 through 122.35 of this chapter in any permit issued for regulated small MS4s or develop permit limits based on a permit application submitted by a regulated small MS4. (You may include conditions in a regulated small MS4 NPDES permit that direct the MS4 to follow an existing qualifying local program's requirements, as a way of complying with some or all of the requirements in §122.34(b) of this chapter. See §122.34(c) of this chapter. Qualifying local, State or Tribal program requirements must impose, at a minimum, the relevant requirements of §122.34(b) of this chapter.)

(g) If you issue a general permit to authorize storm water discharges from small MS4s, you must make available a menu of BMPs to assist regulated small MS4s in the design and implementation of municipal storm water management programs

to implement the minimum measures specified in §122.34(b) of this chapter. EPA plans to develop a menu of BMPs that will apply in each State or Tribe that has not developed its own menu. Regardless of whether a menu of BMPs has been developed by EPA, EPA encourages State and Tribal permitting authorities to develop a menu of BMPs that is appropriate for local conditions. EPA also intends to provide guidance on developing BMPs and measurable goals and modify, update, and supplement such guidance based on the assessments of the NPDES MS4 storm water program and research to be conducted over the next thirteen years.

(h)(1) You must incorporate any additional measures necessary to ensure effective implementation of your State or Tribal storm water program for regulated small MS4s.

(2) Guidance: EPA recommends consideration of the following:

(i) You are encouraged to use a general permit for regulated small MS4s;

(ii) To the extent that your State or Tribe administers a dedicated funding source, you should play an active role in providing financial assistance to operators of regulated small MS4s;

(iii) You should support local programs by providing technical and programmatic assistance, conducting research projects, performing watershed monitoring, and providing adequate legal authority at the local level;

(iv) You are encouraged to coordinate and utilize the data collected under several programs including water quality management programs, TMDL programs, and water quality monitoring programs;

(v) Where appropriate, you may recognize existing responsibilities among governmental entities for the control measures in an NPDES small MS4 permit (see §122.35(b) of this chapter); and

(vi) You are encouraged to provide a brief (e.g., two page) reporting format to facilitate compiling and analyzing data from submitted reports under § 122.34(g)(3) of this chapter. EPA intends to develop a model form for this purpose.

PART 124—PROCEDURES FOR DECISIONMAKING

1. The authority citation for part 124 continues to read as follows:

Authority: Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq.; Safe Drinking Water Act, 42 U.S.C. 300(f) et seq.; Clean Water Act, 33 U.S.C. 1251 et seq.; Clean Air Act, 42 U.S.C. 7401 et seq.

40 CFR § 124.52

2. Revise §124.52(c) to read as follows:

40 CFR § 124.52

§124.52 Permits required on a case-by-case basis.

* * * * *

(c) Prior to a case-by-case determination that an individual permit is required for a storm water discharge under this section (see §122.26(a)(1)(v), (c)(1)(v), and (a)(9)(iii) of this chapter), the Regional Administrator may require the discharger to submit a permit application or other information regarding the discharge under section 308 of the CWA. In requiring such information, the Regional Administrator shall notify the discharger in writing and shall send an application form with the notice. The discharger must apply for a permit within 180 days of notice, unless permission for a later date is granted by the Regional Administrator. The question whether the initial designation was proper will remain open for consideration during the public comment period under §124.11 or §124.118 and in any subsequent hearing.

[FR Doc. 99-29181 Filed 12-7-99; 8:45 am]

BILLING CODE 6560-50-P

Footnotes

- 1 National level benefits are not inclusive of all categories of benefits that can be expected to result from the regulation.
- 2 Total may not add due to rounding.
- 1 To estimate non-local willingness to pay per household, the 33% of willingness is multiplied by the fraction of previously impaired national waters (in each use category) that attain the beneficial use as a result of the Phase II rule. To estimate the aggregate non-local benefits, non-local willingness to pay is multiplied with the total number of households in the US.
+= positive benefits expected but not monetized.
- 1 Includes water quality benefit of municipal programs, based on 80% effectiveness of municipal programs.
- 2 Based on research by Carson and Mitchell (1993). Fresh water value only. Does not include commercial fishery, navigation, or diversionary (e.g. municipal drinking water cost savings or risk reductions) benefits. May not fully capture human health risk reduction or ecological values.
- 3 Based on research by Paterson et al. (1993). Although the survey's description of the benefits of reducing soil erosion from construction sites included reduced dredging, avoided flooding, and water storage capacity benefits, these benefit categories may not be fully incorporated in the WTP values. Small streams may account for over 2% of total benefits.

Notes:

- 1 Source: U.S. EPA, Office of Wastewater Management. Economic Analysis for the Storm Water Phase II Rule.
- 2 The total number of potential no exposure respondents was divided by 5 to estimate an annual total. It was assumed that the annual number of respondents for the no exposure certification would be spread over the five year period the exclusion applies.
- 3 The number of respondents in each category represents only those respondents located within the 44 NPDES-authorized States and Territories. The burden and cost estimates provided in this section are for the NPDES-authorized States in their role as the permitting authority for municipal designations and industrial no exposure.
- 4 The number of respondents for this activity, 15, represents the number of NPDES-authorized States and Territories that must develop designation criteria and assess small MS4s located outside of an urbanized area for possible Phase II coverage divided by the three year ICR period.
- 1 County was previously listed in this appendix; however, population dropped to below 250,000 in the 1990 Census.
- 1 County was previously listed in this appendix; however, population dropped to below 100,000 in the 1990 Census.

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ATTACHMENT

6

West's Annotated California Codes

Water Code

Division 7. Water Quality

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972

West's Ann.Cal.Water Code D. 7, Ch. 5.5, Refs & Annos
[Currentness](#)

Editors' Notes

GENERAL NOTES

2009 Main Volume

<Chapter 5.5 was added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 12, 1972.>

West's Ann. Cal. Water Code D. 7, Ch. 5.5, Refs & Annos, CA WATER D. 7, Ch. 5.5, Refs & Annos
Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

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West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13370

§ 13370. Legislative findings and declarations

Currentness

The Legislature finds and declares as follows:

(a) The Federal Water Pollution Control Act ([33 U.S.C. Sec. 1251 et seq.](#)), as amended, provides for permit systems to regulate the discharge of pollutants and dredged or fill material to the navigable waters of the United States and to regulate the use and disposal of sewage sludge.

(b) The Federal Water Pollution Control Act, as amended, provides that permits may be issued by states which are authorized to implement the provisions of that act.

(c) It is in the interest of the people of the state, in order to avoid direct regulation by the federal government of persons already subject to regulation under state law pursuant to this division, to enact this chapter in order to authorize the state to implement the provisions of the Federal Water Pollution Control Act and acts amendatory thereof or supplementary thereto, and federal regulations and guidelines issued pursuant thereto, provided, that the state board shall request federal funding under the Federal Water Pollution Control Act for the purpose of carrying out its responsibilities under this program.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 746, p. 2343, § 1; Stats.1980, c. 676, p. 2028, § 319; [Stats.1987, c. 1189, § 1.](#))

West's Ann. Cal. Water Code § 13370, CA WATER § 13370

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13370.5

§ 13370.5. Additional findings and declarations; pretreatment program

Currentness

(a) The Legislature finds and declares that, since the Federal Water Pollution Control Act (33 U.S.C. Sec. 1251 et seq.), as amended, and applicable federal regulations (40 C.F.R. § 403 et seq.) provide for a pretreatment program to regulate the discharge of pollutants into publicly owned treatment works and provide that states with approved national pollutant discharge elimination system (NPDES) permit programs shall apply for approval of a state pretreatment program, it is in the interest of the people of the state to enact this section in order to avoid direct regulation by the federal government of publicly owned treatment works already subject to regulation under state law pursuant to this division.

(b) The state board shall develop a state pretreatment program and shall, not later than September 1, 1985, apply to the Environmental Protection Agency for approval of the pretreatment program in accordance with federal requirements.

Credits

(Added by Stats.1984, c. 1542, § 1.)

West's Ann. Cal. Water Code § 13370.5, CA WATER § 13370.5

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.



KeyCite Red Flag - Severe Negative Treatment

KeyCite Red Flag Negative Treatment§13371. Repealed by Stats.1987, c. 1189, §2

[West's Annotated California Codes](#)

[Water Code \(Refs & Annos\)](#)

[Division 7. Water Quality \(Refs & Annos\)](#)

[Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 \(Refs & Annos\)](#)

West's Ann.Cal.Water Code § 13371

§ 13371. Repealed by Stats.1987, c. 1189, § 2

[Currentness](#)

West's Ann. Cal. Water Code § 13371, CA WATER § 13371

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West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13372

§ 13372. Construction and application of chapter

Effective: January 1, 2004

[Currentness](#)

(a) This chapter shall be construed to ensure consistency with the requirements for state programs implementing the Federal Water Pollution Control Act and acts amendatory thereof or supplementary thereto. To the extent other provisions of this division are consistent with the provisions of this chapter and with the requirements for state programs implementing the Federal Water Pollution Control Act and acts amendatory thereof or supplementary thereto, those provisions apply to actions and procedures provided for in this chapter. The provisions of this chapter shall prevail over other provisions of this division to the extent of any inconsistency. The provisions of this chapter apply only to actions required under the Federal Water Pollution Control Act and acts amendatory thereof or supplementary thereto.

(b) The provisions of [Section 13376](#) requiring the filing of a report for the discharge of dredged or fill material and the provisions of this chapter relating to the issuance of dredged or fill material permits by the state board or a regional board shall be applicable only to discharges for which the state has an approved permit program, in accordance with the provisions of the Federal Water Pollution Control Act, as amended, for the discharge of dredged or fill material.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by [Stats.1987, c. 1189, § 3](#); [Stats.2003, c. 683 \(A.B.897\), § 5](#).)

[Notes of Decisions \(1\)](#)

West's Ann. Cal. Water Code § 13372, CA WATER § 13372

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13373

§ 13373. Certain definitions; same as federal act

Currentness

The terms “navigable waters,” “administrator,” “pollutants,” “biological monitoring,” “discharge” and “point sources” as used in this chapter shall have the same meaning as in the Federal Water Pollution Control Act and acts amendatory thereof or supplementary thereto.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1987, c. 1189, § 4.)

Notes of Decisions (2)

West's Ann. Cal. Water Code § 13373, CA WATER § 13373

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Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13374

§ 13374. Waste discharge requirements; equivalent to “permits” under federal act

Currentness

The term “waste discharge requirements” as referred to in this division is the equivalent of the term “permits” as used in the Federal Water Pollution Control Act, as amended.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972.)

Notes of Decisions (1)

West's Ann. Cal. Water Code § 13374, CA WATER § 13374

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Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13375

§ 13375. Radiological, chemical or biological warfare agents; discharge prohibited

[Currentness](#)

The discharge of any radiological, chemical, or biological warfare agent into the waters of the state is hereby prohibited.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972.)

West's Ann. Cal. Water Code § 13375, CA WATER § 13375

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Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13376

§ 13376. Discharging pollutants or dredged or fill material or operating treatment works; reports of discharges or proposed discharges; prohibited discharges; exceptions

Effective: January 1, 2011

[Currentness](#)

A person who discharges pollutants or proposes to discharge pollutants to the navigable waters of the United States within the jurisdiction of this state or a person who discharges dredged or fill material or proposes to discharge dredged or fill material into the navigable waters of the United States within the jurisdiction of this state shall file a report of the discharge in compliance with the procedures set forth in [Section 13260](#). Unless required by the state board or a regional board, a report need not be filed under this section for discharges that are not subject to the permit application requirements of the Federal Water Pollution Control Act, as amended. ¹ A person who proposes to discharge pollutants or dredged or fill material or to operate a publicly owned treatment works or other treatment works treating domestic sewage shall file a report at least 180 days in advance of the date on which it is desired to commence the discharge of pollutants or dredged or fill material or the operation of the treatment works. A person who owns or operates a publicly owned treatment works or other treatment works treating domestic sewage, which treatment works commenced operation before January 1, 1988, and does not discharge to navigable waters of the United States, shall file a report within 45 days of a written request by a regional board or the state board, or within 45 days after the state has an approved permit program for the use and disposal of sewage sludge, whichever occurs earlier. The discharge of pollutants or dredged or fill material or the operation of a publicly owned treatment works or other treatment works treating domestic sewage by any person, except as authorized by waste discharge requirements or dredged or fill material permits, is prohibited. This prohibition does not apply to discharges or operations if a state or federal permit is not required under the Federal Water Pollution Control Act, as amended.

Credits

(Added by [Stats.1987, c. 1189, § 6](#). Amended by [Stats.2010, c. 288 \(S.B.1169\), § 32](#).)

[Notes of Decisions \(11\)](#)

Footnotes

¹ [33 U.S.C.A. § 1251 et seq.](#)

West's Ann. Cal. Water Code § 13376, CA WATER § 13376

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.



KeyCite Yellow Flag - Negative Treatment

Unconstitutional or Preempted Limited on Preemption Grounds by [Karuk Tribe of Northern California v. California Regional Water Quality Control Bd., North Coast Region](#), Cal.App. 1 Dist., Mar. 30, 2010

[West's Annotated California Codes](#)

[Water Code \(Refs & Annos\)](#)

[Division 7. Water Quality \(Refs & Annos\)](#)

[Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 \(Refs & Annos\)](#)

West's Ann.Cal.Water Code § 13377

§ 13377. Issuance of waste discharge requirements and dredged or fill material permits

[Currentness](#)

Notwithstanding any other provision of this division, the state board or the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge requirements and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 618, p. 2068, § 1; Stats.1978, c. 746, p. 2344, § 3.)

[Notes of Decisions \(6\)](#)

West's Ann. Cal. Water Code § 13377, CA WATER § 13377

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Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13378

§ 13378. Adoption of waste discharge requirements and dredged or fill material permits; notice and hearing; term

Currentness

Waste discharge requirements and dredged or fill material permits shall be adopted only after notice and any necessary hearing. Such requirements or permits shall be adopted for a fixed term not to exceed five years for any proposed discharge, existing discharge, or any material change therein.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 746, p. 2344, § 4.)

Notes of Decisions (2)

West's Ann. Cal. Water Code § 13378, CA WATER § 13378

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KeyCite Red Flag - Severe Negative Treatment

KeyCite Red Flag Negative Treatment§13379. Repealed by Stats.1978, c. 618, p. 2069, §2

[West's Annotated California Codes](#)

[Water Code \(Refs & Annos\)](#)

[Division 7. Water Quality \(Refs & Annos\)](#)

[Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 \(Refs & Annos\)](#)

West's Ann.Cal.Water Code § 13379

§ 13379. Repealed by Stats.1978, c. 618, p. 2069, § 2

[Currentness](#)

West's Ann. Cal. Water Code § 13379, CA WATER § 13379

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Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13380

§ 13380. Review of waste discharge requirements and dredged or fill material permits

Currentness

Any waste discharge requirements or dredged or fill material permits adopted under this chapter shall be reviewed at least every five years and, if appropriate, revised.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 746, p. 2344, § 5.)

West's Ann. Cal. Water Code § 13380, CA WATER § 13380

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Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13381

§ 13381. Termination or modification of waste discharge requirements and dredged or fill material permits

Currentness

Waste discharge requirements or dredged or fill material permits may be terminated or modified for cause, including, but not limited to, all of the following:

- (a) Violation of any condition contained in the requirements or permits.
- (b) Obtaining the requirements by misrepresentation, or failure to disclose fully all relevant facts.
- (c) A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 746, p. 2344, § 6.)

West's Ann. Cal. Water Code § 13381, CA WATER § 13381

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13382

§ 13382. Control of disposal of pollutants into wells or surrounding groundwater

Currentness

Waste discharge requirements shall be adopted to control the disposal of pollutants into wells or in areas where pollutants may enter into a well from the surrounding groundwater.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1984, c. 1461, § 1.)

West's Ann. Cal. Water Code § 13382, CA WATER § 13382

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Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13382.5

§ 13382.5. Discharge of pollutants from a point source to aquaculture project

Currentness

Waste discharge requirements shall be adopted to permit the discharge of a specific pollutant or pollutants in a controlled manner from a point source to a defined managed aquaculture project if such discharge meets all applicable requirements of the Federal Water Pollution Control Act¹ and acts amendatory thereof and supplementary thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans.

Credits

(Added by Stats.1978, c. 618, p. 2069, § 3.)

Footnotes

¹ 33 U.S.C.A. § 1251 et seq.

West's Ann. Cal. Water Code § 13382.5, CA WATER § 13382.5

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13383

§ 13383. Monitoring, inspection, entry, reporting, and recordkeeping requirements; establishment and maintenance; inspections

Effective: January 1, 2004

[Currentness](#)

(a) The state board or a regional board may establish monitoring, inspection, entry, reporting, and recordkeeping requirements, as authorized by [Section 13160](#), [13376](#), or [13377](#) or by subdivisions (b) and (c) of this section, for any person who discharges, or proposes to discharge, to navigable waters, any person who introduces pollutants into a publicly owned treatment works, any person who owns or operates, or proposes to own or operate, a publicly owned treatment works or other treatment works treating domestic sewage, or any person who uses or disposes, or proposes to use or dispose, of sewage sludge.

(b) The state board or the regional boards may require any person subject to this section to establish and maintain monitoring equipment or methods, including, where appropriate, biological monitoring methods, sample effluent as prescribed, and provide other information as may be reasonably required.

(c) The state board or a regional board may inspect the facilities of any person subject to this section pursuant to the procedure set forth in [subdivision \(c\) of Section 13267](#).

Credits

(Added by [Stats.1987, c. 1189, § 8](#). Amended by [Stats.2003, c. 683 \(A.B.897\), § 6](#).)

West's Ann. Cal. Water Code § 13383, CA WATER § 13383

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13383.5

§ 13383.5. Storm water discharge; monitoring requirements;
application to specified municipalities and regulated industries

Effective: January 1, 2002

[Currentness](#)

(a) As used in this section, “regulated municipalities and industries” means the municipalities and industries required to obtain a storm water permit under Section 402(p) of the Clean Water Act ([33 U.S.C. Sec. 1342\(p\)](#)) and implementing regulations.

(b) This section only applies to regulated municipalities that were subject to a storm water permit on or before December 31, 2001, and to regulated industries that are subject to the General Permit for Storm Water Discharges Associated with Industrial Activities Excluding Construction Activities.

(c) Before January 1, 2003, the state board shall develop minimum monitoring requirements for each regulated municipality and minimum standard monitoring requirements for regulated industries. This program shall include, but is not limited to, all of the following:

(1) Standardized methods for collection of storm water samples.

(2) Standardized methods for analysis of storm water samples.

(3) A requirement that every sample analysis under this program be completed by a state certified laboratory or by the regulated municipality or industry in the field in accordance with the quality assurance and quality control protocols established pursuant to this section.

(4) A standardized reporting format.

(5) Standard sampling and analysis programs for quality assurance and quality control.

(6) Minimum detection limits.

(7) Annual reporting requirements for regulated municipalities and industries.

(8) For the purposes of determining constituents to be sampled for, sampling intervals, and sampling frequencies, to be included in a municipal storm water permit monitoring program, the regional board shall consider the following information, as the regional board determines to be applicable:

(A) Discharge characterization monitoring data.

(B) Water quality data collected through the permit monitoring program.

(C) Applicable water quality data collected, analyzed, and reported by federal, state, and local agencies, and other public and private entities.

(D) Any applicable listing under Section 303(d) of the Clean Water Act ([33 U.S.C. Sec. 1313](#)).

(E) Applicable water quality objectives and criteria established in accordance with the regional board basin plans, statewide plans, and federal regulations.

(F) Reports and studies regarding source contribution of pollutants in runoff not based on direct water quality measurements.

(d) The requirements prescribed pursuant to this section shall be included in all storm water permits for regulated municipalities and industries that are reissued following development of the requirements described in subdivision (c). Those permits shall include these provisions on or before July 1, 2008. In a year in which the Legislature appropriates sufficient funds for that purpose, the state board shall make available to the public via the Internet a summary of the results obtained from storm water monitoring conducted in accordance with this section.

Credits

(Added by [Stats.2001, c. 492 \(S.B.72\)](#), § 1.)

West's Ann. Cal. Water Code § 13383.5, CA WATER § 13383.5

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13383.6

§ 13383.6. Educational materials on stormwater pollution; permits issued with the requirement; satisfaction

Effective: January 1, 2006

[Currentness](#)

On and after January 1, 2007, if a regional board or the state board issues a municipal stormwater permit pursuant to Section 402(p) of the Clean Water Act ([33 U.S.C. Sec. 1342\(p\)](#)) that includes a requirement to provide elementary and secondary public schools with educational materials on stormwater pollution, the permittee may satisfy the requirement, upon approval by the regional board or state board, by contributing an equivalent amount of funds to the Environmental Education Account established pursuant to [subdivision \(a\) of Section 71305 of the Public Resources Code](#).

Credits

(Added by [Stats.2005, c. 581 \(A.B.1721\)](#), § 7.)

West's Ann. Cal. Water Code § 13383.6, CA WATER § 13383.6

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13383.7

§ 13383.7. Comprehensive guidance document for evaluating and measuring effectiveness of municipal stormwater management programs; quantifiable measures; reference to guidelines in establishing municipal stormwater programs and permits

Effective: January 1, 2008

[Currentness](#)

(a) No later than July 1, 2009, and after holding public workshops and soliciting public comments, the state board shall develop a comprehensive guidance document for evaluating and measuring the effectiveness of municipal stormwater management programs undertaken, and permits issued, in accordance with Section 402(p) of the Clean Water Act ([33 U.S.C. Sec. 1342\(p\)](#)) and this division.

(b) For the purpose of implementing subdivision (a), the state board shall promote the use of quantifiable measures for evaluating the effectiveness of municipal stormwater management programs and provide for the evaluation of, at a minimum, all of the following:

(1) Compliance with stormwater permitting requirements, including all of the following:

(A) Inspection programs.

(B) Construction controls.

(C) Elimination of unlawful discharges.

(D) Public education programs.

(E) New development and redevelopment requirements.

(2) Reduction of pollutant loads from pollution sources.

(3) Reduction of pollutants or stream erosion due to stormwater discharge.

(4) Improvements in the quality of receiving water in accordance with water quality standards.

(c) The state board and the regional boards shall refer to the guidance document developed pursuant to subdivision (a) when establishing requirements in municipal stormwater programs and permits.

Credits

(Added by [Stats.2007, c. 610 \(A.B.739\)](#), § 6.)

West's Ann. Cal. Water Code § 13383.7, CA WATER § 13383.7

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

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West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13383.8

§ 13383.8. Stormwater management task force; report on implementation of priority goals and objectives of Ocean Protection Council's strategic plan

Effective: January 1, 2008

[Currentness](#)

(a) The state board shall appoint a stormwater management task force comprised of public agencies, representatives of the regulated community, and nonprofit organizations with expertise in water quality and stormwater management. The task force shall provide advice to the state board on its stormwater management program that may include, but is not limited to, program priorities, funding criteria, project selection, and interagency coordination of state programs that address stormwater management.

(b) The state board shall submit a report, including, but not limited to, stormwater and other polluted runoff control information, to the Ocean Protection Council no later than January 1, 2009, on the way in which the state board is implementing the priority goals and objectives of the council's strategic plan.

Credits

(Added by [Stats.2007, c. 610 \(A.B.739\)](#), § 7.)

West's Ann. Cal. Water Code § 13383.8, CA WATER § 13383.8

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13384

§ 13384. Applications for requirements and permits; notice to public and affected states; hearing

Currentness

The state board or the regional boards shall ensure that the public, and that any other state, the waters of which may be affected by any discharge of pollutants or dredged or fill material to navigable waters within this state, shall receive notice of each application for requirements or report of waste discharge or application for a dredged or fill material permit or report of dredged or fill material discharge and are provided an opportunity for public hearing before adoption of such requirements or permit.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 746, p. 2344, § 8.)

West's Ann. Cal. Water Code § 13384, CA WATER § 13384

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13385

§ 13385. Violations; civil liability; applicability; compliance projects; annual report

Effective: January 1, 2012

[Currentness](#)

(a) A person who violates any of the following shall be liable civilly in accordance with this section:

(1) [Section 13375](#) or [13376](#).

(2) A waste discharge requirement or dredged or fill material permit issued pursuant to this chapter or any water quality certification issued pursuant to [Section 13160](#).

(3) A requirement established pursuant to [Section 13383](#).

(4) An order or prohibition issued pursuant to [Section 13243](#) or Article 1 (commencing with [Section 13300](#)) of Chapter 5, if the activity subject to the order or prohibition is subject to regulation under this chapter.

(5) A requirement of Section 301, 302, 306, 307, 308, 318, 401, or 405 of the federal Clean Water Act ([33 U.S.C. Sec. 1311](#), [1312](#), [1316](#), [1317](#), [1318](#), [1341](#), or [1345](#)), as amended.

(6) A requirement imposed in a pretreatment program approved pursuant to waste discharge requirements issued under [Section 13377](#) or approved pursuant to a permit issued by the administrator.

(b)(1) Civil liability may be imposed by the superior court in an amount not to exceed the sum of both of the following:

(A) Twenty-five thousand dollars (\$25,000) for each day in which the violation occurs.

(B) Where there is a discharge, any portion of which is not susceptible to cleanup or is not cleaned up, and the volume discharged but not cleaned up exceeds 1,000 gallons, an additional liability not to exceed twenty-five dollars (\$25) multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons.

(2) The Attorney General, upon request of a regional board or the state board, shall petition the superior court to impose the liability.

(c) Civil liability may be imposed administratively by the state board or a regional board pursuant to Article 2.5 (commencing with [Section 13323](#)) of Chapter 5 in an amount not to exceed the sum of both of the following:

(1) Ten thousand dollars (\$10,000) for each day in which the violation occurs.

(2) Where there is a discharge, any portion of which is not susceptible to cleanup or is not cleaned up, and the volume discharged but not cleaned up exceeds 1,000 gallons, an additional liability not to exceed ten dollars (\$10) multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons.

(d) For purposes of subdivisions (b) and (c), “discharge” includes any discharge to navigable waters of the United States, any introduction of pollutants into a publicly owned treatment works, or any use or disposal of sewage sludge.

(e) In determining the amount of any liability imposed under this section, the regional board, the state board, or the superior court, as the case may be, shall take into account the nature, circumstances, extent, and gravity of the violation or violations, whether the discharge is susceptible to cleanup or abatement, the degree of toxicity of the discharge, and, with respect to the violator, the ability to pay, the effect on its ability to continue its business, any voluntary cleanup efforts undertaken, any prior history of violations, the degree of culpability, economic benefit or savings, if any, resulting from the violation, and other matters that justice may require. At a minimum, liability shall be assessed at a level that recovers the economic benefits, if any, derived from the acts that constitute the violation.

(f)(1) Except as provided in paragraph (2), for the purposes of this section, a single operational upset that leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation.

(2)(A) For the purposes of subdivisions (h) and (i), a single operational upset in a wastewater treatment unit that treats wastewater using a biological treatment process shall be treated as a single violation, even if the operational upset results in violations of more than one effluent limitation and the violations continue for a period of more than one day, if all of the following apply:

(i) The discharger demonstrates all of the following:

(I) The upset was not caused by wastewater treatment operator error and was not due to discharger negligence.

(II) But for the operational upset of the biological treatment process, the violations would not have occurred nor would they have continued for more than one day.

(III) The discharger carried out all reasonable and immediately feasible actions to reduce noncompliance with the applicable effluent limitations.

(ii) The discharger is implementing an approved pretreatment program, if so required by federal or state law.

(B) Subparagraph (A) only applies to violations that occur during a period for which the regional board has determined that violations are unavoidable, but in no case may that period exceed 30 days.

(g) Remedies under this section are in addition to, and do not supersede or limit, any other remedies, civil or criminal, except that no liability shall be recoverable under [Section 13261](#), [13265](#), [13268](#), or [13350](#) for violations for which liability is recovered under this section.

(h)(1) Notwithstanding any other provision of this division, and except as provided in subdivisions (j), (k), and (l), a mandatory minimum penalty of three thousand dollars (\$3,000) shall be assessed for each serious violation.

(2) For the purposes of this section, a “serious violation” means any waste discharge that violates the effluent limitations contained in the applicable waste discharge requirements for a Group II pollutant, as specified in Appendix A to [Section 123.45 of Title 40 of the Code of Federal Regulations](#), by 20 percent or more or for a Group I pollutant, as specified in Appendix A to [Section 123.45 of Title 40 of the Code of Federal Regulations](#), by 40 percent or more.

(i)(1) Notwithstanding any other provision of this division, and except as provided in subdivisions (j), (k), and (l), a mandatory minimum penalty of three thousand dollars (\$3,000) shall be assessed for each violation whenever the person does any of the following four or more times in any period of six consecutive months, except that the requirement to assess the mandatory minimum penalty shall not be applicable to the first three violations:

(A) Violates a waste discharge requirement effluent limitation.

(B) Fails to file a report pursuant to [Section 13260](#).

(C) Files an incomplete report pursuant to [Section 13260](#).

(D) Violates a toxicity effluent limitation contained in the applicable waste discharge requirements where the waste discharge requirements do not contain pollutant-specific effluent limitations for toxic pollutants.

(2) For the purposes of this section, a “period of six consecutive months” means the period commencing on the date that one of the violations described in this subdivision occurs and ending 180 days after that date.

(j) Subdivisions (h) and (i) do not apply to any of the following:

(1) A violation caused by one or any combination of the following:

(A) An act of war.

(B) An unanticipated, grave natural disaster or other natural phenomenon of an exceptional, inevitable, and irresistible character, the effects of which could not have been prevented or avoided by the exercise of due care or foresight.

(C) An intentional act of a third party, the effects of which could not have been prevented or avoided by the exercise of due care or foresight.

(D)(i) The operation of a new or reconstructed wastewater treatment unit during a defined period of adjusting or testing, not to exceed 90 days for a wastewater treatment unit that relies on a biological treatment process and not to exceed 30 days for any other wastewater treatment unit, if all of the following requirements are met:

(I) The discharger has submitted to the regional board, at least 30 days in advance of the operation, an operations plan that describes the actions the discharger will take during the period of adjusting and testing, including steps to prevent violations and identifies the shortest reasonable time required for the period of adjusting and testing, not to exceed 90 days for a wastewater treatment unit that relies on a biological treatment process and not to exceed 30 days for any other wastewater treatment unit.

(II) The regional board has not objected in writing to the operations plan.

(III) The discharger demonstrates that the violations resulted from the operation of the new or reconstructed wastewater treatment unit and that the violations could not have reasonably been avoided.

(IV) The discharger demonstrates compliance with the operations plan.

(V) In the case of a reconstructed wastewater treatment unit, the unit relies on a biological treatment process that is required to be out of operation for at least 14 days in order to perform the reconstruction, or the unit is required to be out of operation for at least 14 days and, at the time of the reconstruction, the cost of reconstructing the unit exceeds 50 percent of the cost of replacing the wastewater treatment unit.

(ii) For the purposes of this section, “wastewater treatment unit” means a component of a wastewater treatment plant that performs a designated treatment function.

(2)(A) Except as provided in subparagraph (B), a violation of an effluent limitation where the waste discharge is in compliance with either a cease and desist order issued pursuant to [Section 13301](#) or a time schedule order issued pursuant to [Section 13300](#), if all of the following requirements are met:

(i) The cease and desist order or time schedule order is issued after January 1, 1995, but not later than July 1, 2000, specifies the actions that the discharger is required to take in order to correct the violations that would otherwise be subject to subdivisions (h) and (i), and the date by which compliance is required to be achieved and, if the final date by which compliance is required to be achieved is later than one year from the effective date of the cease and desist order or time schedule order, specifies the interim requirements by which progress towards compliance will be measured and the date by which the discharger will be in compliance with each interim requirement.

(ii) The discharger has prepared and is implementing in a timely and proper manner, or is required by the regional board to prepare and implement, a pollution prevention plan that meets the requirements of [Section 13263.3](#).

(iii) The discharger demonstrates that it has carried out all reasonable and immediately feasible actions to reduce noncompliance with the waste discharge requirements applicable to the waste discharge and the executive officer of the regional board concurs with the demonstration.

(B) Subdivisions (h) and (i) shall become applicable to a waste discharge on the date the waste discharge requirements applicable to the waste discharge are revised and reissued pursuant to [Section 13380](#), unless the regional board does all of the following on or before that date:

(i) Modifies the requirements of the cease and desist order or time schedule order as may be necessary to make it fully consistent with the reissued waste discharge requirements.

(ii) Establishes in the modified cease and desist order or time schedule order a date by which full compliance with the reissued waste discharge requirements shall be achieved. For the purposes of this subdivision, the regional board may not establish this date later than five years from the date the waste discharge requirements were required to be reviewed pursuant to [Section 13380](#). If the reissued waste discharge requirements do not add new effluent limitations or do not include effluent limitations that are more stringent than those in the original waste discharge requirements, the date shall be the same as the final date for compliance in the original cease and desist order or time schedule order or five years from the date that the waste discharge requirements were required to be reviewed pursuant to [Section 13380](#), whichever is earlier.

(iii) Determines that the pollution prevention plan required by clause (ii) of subparagraph (A) is in compliance with the requirements of [Section 13263.3](#) and that the discharger is implementing the pollution prevention plan in a timely and proper manner.

(3) A violation of an effluent limitation where the waste discharge is in compliance with either a cease and desist order issued pursuant to [Section 13301](#) or a time schedule order issued pursuant to [Section 13300](#) or [13308](#), if all of the following requirements are met:

(A) The cease and desist order or time schedule order is issued on or after July 1, 2000, and specifies the actions that the discharger is required to take in order to correct the violations that would otherwise be subject to subdivisions (h) and (i).

(B) The regional board finds that, for one of the following reasons, the discharger is not able to consistently comply with one or more of the effluent limitations established in the waste discharge requirements applicable to the waste discharge:

(i) The effluent limitation is a new, more stringent, or modified regulatory requirement that has become applicable to the waste discharge after the effective date of the waste discharge requirements and after July 1, 2000, new or modified control measures are necessary in order to comply with the effluent limitation, and the new or modified control measures cannot be designed, installed, and put into operation within 30 calendar days.

(ii) New methods for detecting or measuring a pollutant in the waste discharge demonstrate that new or modified control measures are necessary in order to comply with the effluent limitation and the new or modified control measures cannot be designed, installed, and put into operation within 30 calendar days.

(iii) Unanticipated changes in the quality of the municipal or industrial water supply available to the discharger are the cause of unavoidable changes in the composition of the waste discharge, the changes in the composition of the waste discharge are the cause of the inability to comply with the effluent limitation, no alternative water supply is reasonably available to the discharger, and new or modified measures to control the composition of the waste discharge cannot be designed, installed, and put into operation within 30 calendar days.

(iv) The discharger is a publicly owned treatment works located in Orange County that is unable to meet effluent limitations for biological oxygen demand, suspended solids, or both, because the publicly owned treatment works meets all of the following criteria:

(I) Was previously operating under modified secondary treatment requirements pursuant to Section 301(h) of the Clean Water Act (33 U.S.C. Sec. 1311(h)).

(II) Did vote on July 17, 2002, not to apply for a renewal of the modified secondary treatment requirements.

(III) Is in the process of upgrading its treatment facilities to meet the secondary treatment standards required by Section 301(b)(1)(B) of the Clean Water Act (33 U.S.C. Sec. 1311(b)(1)(B)).

(C)(i) The regional board establishes a time schedule for bringing the waste discharge into compliance with the effluent limitation that is as short as possible, taking into account the technological, operational, and economic factors that affect the design, development, and implementation of the control measures that are necessary to comply with the effluent limitation. Except as provided in clause (ii), for the purposes of this subdivision, the time schedule shall not exceed five years in length.

(ii)(I) For purposes of the upgrade described in subclause (III) of clause (iv) of subparagraph (B), the time schedule shall not exceed 10 years in length.

(II) Following a public hearing, and upon a showing that the discharger is making diligent progress toward bringing the waste discharge into compliance with the effluent limitation, the regional board may extend the time schedule for an additional period not exceeding five years in length, if the discharger demonstrates that the additional time is necessary to comply with the effluent limitation. This subclause does not apply to a time schedule described in subclause (I).

(iii) If the time schedule exceeds one year from the effective date of the order, the schedule shall include interim requirements and the dates for their achievement. The interim requirements shall include both of the following:

(I) Effluent limitations for the pollutant or pollutants of concern.

(II) Actions and milestones leading to compliance with the effluent limitation.

(D) The discharger has prepared and is implementing in a timely and proper manner, or is required by the regional board to prepare and implement, a pollution prevention plan pursuant to [Section 13263.3](#).

(k)(1) In lieu of assessing all or a portion of the mandatory minimum penalties pursuant to subdivisions (h) and (i) against a publicly owned treatment works serving a small community, the state board or the regional board may elect to require the publicly owned treatment works to spend an equivalent amount towards the completion of a compliance project proposed by the publicly owned treatment works, if the state board or the regional board finds all of the following:

(A) The compliance project is designed to correct the violations within five years.

(B) The compliance project is in accordance with the enforcement policy of the state board, excluding any provision in the policy that is inconsistent with this section.

(C) The publicly owned treatment works has prepared a financing plan to complete the compliance project.

(2) For the purposes of this subdivision, “a publicly owned treatment works serving a small community” means a publicly owned treatment works serving a population of 10,000 persons or fewer or a rural county, with a financial hardship as determined by the state board after considering such factors as median income of the residents, rate of unemployment, or low population density in the service area of the publicly owned treatment works.

(l)(1) In lieu of assessing penalties pursuant to subdivision (h) or (i), the state board or the regional board, with the concurrence of the discharger, may direct a portion of the penalty amount to be expended on a supplemental environmental project in accordance with the enforcement policy of the state board. If the penalty amount exceeds fifteen thousand dollars (\$15,000), the portion of the penalty amount that may be directed to be expended on a supplemental environmental project may not exceed fifteen thousand dollars (\$15,000) plus 50 percent of the penalty amount that exceeds fifteen thousand dollars (\$15,000).

(2) For the purposes of this section, a “supplemental environmental project” means an environmentally beneficial project that a person agrees to undertake, with the approval of the regional board, that would not be undertaken in the absence of an enforcement action under this section.

(3) This subdivision applies to the imposition of penalties pursuant to subdivision (h) or (i) on or after January 1, 2003, without regard to the date on which the violation occurs.

(m) The Attorney General, upon request of a regional board or the state board, shall petition the appropriate court to collect any liability or penalty imposed pursuant to this section. Any person who fails to pay on a timely basis any liability or penalty imposed under this section shall be required to pay, in addition to that liability or penalty, interest, attorney's fees, costs for collection proceedings, and a quarterly nonpayment penalty for each quarter during which the

failure to pay persists. The nonpayment penalty shall be in an amount equal to 20 percent of the aggregate amount of the person's penalty and nonpayment penalties that are unpaid as of the beginning of the quarter.

(n)(1) Subject to paragraph (2), funds collected pursuant to this section shall be deposited in the State Water Pollution Cleanup and Abatement Account.

(2)(A) Notwithstanding any other provision of law, moneys collected for a violation of a water quality certification in accordance with paragraph (2) of subdivision (a) or for a violation of Section 401 of the federal Clean Water Act ([33 U.S.C. Sec. 1341](#)) in accordance with paragraph (5) of subdivision (a) shall be deposited in the Waste Discharge Permit Fund and separately accounted for in that fund.

(B) The funds described in subparagraph (A) shall be expended by the state board, upon appropriation by the Legislature, to assist regional boards, and other public agencies with authority to clean up waste or abate the effects of the waste, in cleaning up or abating the effects of the waste on waters of the state or for the purposes authorized in [Section 13443](#).

(o) The state board shall continuously report and update information on its Internet Web site, but at a minimum, annually on or before January 1, regarding its enforcement activities. The information shall include all of the following:

(1) A compilation of the number of violations of waste discharge requirements in the previous calendar year, including stormwater enforcement violations.

(2) A record of the formal and informal compliance and enforcement actions taken for each violation, including stormwater enforcement actions.

(3) An analysis of the effectiveness of current enforcement policies, including mandatory minimum penalties.

(p) The amendments made to subdivisions (f), (h), (i), and (j) during the second year of the 2001-02 Regular Session apply only to violations that occur on or after January 1, 2003.

Credits

(Added by [Stats.1987, c. 1189, § 10](#). Amended by [Stats.1999, c. 92 \(A.B.1104\), § 6](#); [Stats.1999, c. 93 \(S.B.709\), § 6](#); [Stats.2000, c. 807 \(S.B.2165\), § 2](#); [Stats.2001, c. 869 \(A.B.1664\), § 7](#); [Stats.2002, c. 995 \(A.B.2351\), § 1](#); [Stats.2002, c. 1019 \(A.B.1969\), § 2](#), eff. Sept. 28, 2002; [Stats.2002, c. 1019 \(A.B.1969\), § 3](#), eff. Sept. 28, 2002, operative Jan. 1, 2003; [Stats.2003, c. 683 \(A.B.897\), § 7](#); [Stats.2004, c. 644 \(A.B.2701\), § 41](#); [Stats.2006, c. 404 \(S.B.1733\), § 3](#); [Stats.2007, c. 130 \(A.B.299\), § 239](#); [Stats.2010, c. 645 \(S.B.1284\), § 1](#); [Stats.2011, c. 296 \(A.B.1023\), § 314](#).)

[Notes of Decisions \(9\)](#)

West's Ann. Cal. Water Code § 13385, CA WATER § 13385

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

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West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13385.1

§ 13385.1. Discharge monitoring reports; serious violation; time to file report and penalties for failure to file; deposit and expenditure of penalty funds; “effluent limitation” defined

Effective: January 1, 2011

[Currentness](#)

(a)(1) For the purposes of [subdivision \(h\) of Section 13385](#), a “serious violation” also means a failure to file a discharge monitoring report required pursuant to [Section 13383](#) for each complete period of 30 days following the deadline for submitting the report, if the report is designed to ensure compliance with limitations contained in waste discharge requirements that contain effluent limitations. This paragraph applies only to violations that occur on or after January 1, 2004.

(2)(A) Notwithstanding paragraph (1), a failure to file a discharge monitoring report is not a serious violation for purposes of [subdivision \(h\) of Section 13385](#) at any time prior to the date a discharge monitoring report is required to be filed or within 30 days after receiving written notice from the state board or a regional board of the need to file a discharge monitoring report, if the discharger submits a written statement to the state board or the regional board that includes both of the following:

(i) A statement that there were no discharges to waters of the United States reportable under the applicable waste discharge requirements during the relevant monitoring period.

(ii) The reason or reasons the required report was not submitted to the regional board by the deadline for filing that report.

(B) Upon the request of the state board or regional board, the discharger may be required to support the statement with additional explanation or evidence.

(C) If, in a statement submitted pursuant to subparagraph (A), the discharger willfully states as true any material fact that he or she knows to be false, that person shall be subject to a civil penalty not exceeding ten thousand dollars (\$10,000). Any public prosecutor may bring an action for a civil penalty under this subparagraph in the name of the people of the State of California, and the penalty imposed shall be enforced as a civil judgment.

(D) Notwithstanding subparagraph (A), the failure to file a discharge monitoring report is subject to penalties in accordance with [subdivisions \(c\) and \(e\) of Section 13385](#).

(b)(1) Notwithstanding paragraph (1) of subdivision (a), a mandatory minimum penalty shall continue to apply and shall be assessed pursuant to [subdivision \(h\) of Section 13385](#), but only for each required report that is not timely filed, and shall not be separately assessed for each 30-day period following the deadline for submitting the report, if both of the following conditions are met:

(A) The discharger did not on any occasion previously receive, from the state board or a regional board, a complaint to impose liability pursuant to [subdivision \(b\) or \(c\) of Section 13385](#) arising from a failure to timely file a discharge monitoring report, a notice of violation for failure to timely file a discharge monitoring report, or a notice of the obligation to file a discharge monitoring report required pursuant to [Section 13383](#), in connection with its corresponding waste discharge requirements.

(B) The discharges during the period or periods covered by the report do not violate effluent limitations, as defined in subdivision (d), contained in waste discharge requirements.

(2) Paragraph (1) shall only apply to a discharger who does both of the following:

(A) Files a discharge monitoring report that had not previously been timely filed within 30 days after the discharger receives written notice, including notice transmitted by electronic mail, from the state board or regional board concerning the failure to timely file the report.

(B) Pays all penalties assessed by the state board or regional board in accordance with paragraph (1) within 30 days after an order is issued to pay these penalties pursuant to [Section 13385](#).

(3) Notwithstanding paragraph (1), the failure to file a discharge monitoring report is subject to penalties in accordance with [subdivisions \(c\) and \(e\) of Section 13385](#).

(4) This subdivision shall become inoperative on January 1, 2014.

(c)(1) Notwithstanding any other provision of law, moneys collected pursuant to this section for a failure to timely file a report, as described in subdivision (a), shall be deposited in the State Water Pollution Cleanup and Abatement Account.

(2) Notwithstanding [Section 13340 of the Government Code](#), the funds described in paragraph (1) are continuously appropriated, without regard to fiscal years, to the state board for expenditure by the state board to assist regional boards, and other public agencies with authority to clean up waste or abate the effects of the waste, in responding to significant water pollution problems.

(d) For the purposes of this section, [paragraph \(2\) of subdivision \(f\) of Section 13385](#), and [subdivisions \(h\), \(i\), and \(j\) of Section 13385](#) only, “effluent limitation” means a numeric restriction or a numerically expressed narrative restriction, on the quantity, discharge rate, concentration, or toxicity units of a pollutant or pollutants that may be discharged from an authorized location. An effluent limitation may be final or interim, and may be expressed as a prohibition. An

effluent limitation, for those purposes, does not include a receiving water limitation, a compliance schedule, or a best management practice.

(e) The amendments made to this section by Senate Bill 1284 of the 2009-10 Regular Session of the Legislature shall apply to violations for which an administrative civil liability complaint or a judicial complaint has not been filed before July 1, 2010, without regard to the date on which the violations occurred.

Credits

(Added by Stats.2003, c. 609 (A.B.1541), § 1. Amended by Stats.2005, c. 145 (A.B.495), § 1; Stats.2006, c. 538 (S.B.1852), § 677; Stats.2008, c. 760 (A.B.1338), § 23, eff. Sept. 30, 2008; Stats.2010, c. 645 (S.B.1284), § 2.)

Editors' Notes

APPLICATION

<For application of the amendment by Stats.2010, c. 645 (S.B.1284), see the terms of this section.>

West's Ann. Cal. Water Code § 13385.1, CA WATER § 13385.1

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13385.2

§ 13385.2. Publicly owned treatment works (POTW) to demonstrate that financing plan is designed to generate sufficient funding to complete compliance program

Effective: September 29, 2006

[Currentness](#)

(a) Prior to the state board or regional board making its findings pursuant to [subdivision \(k\) of Section 13385](#), the publicly owned treatment works shall demonstrate to the satisfaction of the state board or regional board that the financing plan prepared pursuant to subparagraph (C) of paragraph (1) of subdivision (k) of that section is designed to generate sufficient funding to complete the compliance project within the time period specified pursuant to subparagraph (A) of paragraph (1) of subdivision (k) of that section.

(b) This section shall only become operative if Senate Bill 1733¹ of the 2005-06 Regular Session is enacted and becomes operative.

Credits

(Added by [Stats.2006, c. 725 \(A.B.1752\)](#), § 1, eff. Sept. 29, 2006.)

Editors' Notes

OPERATIVE EFFECT

<For operative effect of this section, see its terms.>

Footnotes

¹ [Stats.2006, c. 404 \(S.B.1733\)](#).

West's Ann. Cal. Water Code § 13385.2, CA WATER § 13385.2

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13385.3

§ 13385.3. Operative effect

Effective: September 29, 2006

[Currentness](#)

(a) The amendments made to [subdivision \(k\) of Section 13385 of the Water Code](#) by Senate Bill 1733¹ of the 2005-06 Regular Session shall become operative on July 1, 2007.

(b) This section shall only become operative if Senate Bill 1733 of the 2005-06 Regular Session is enacted and becomes operative.

Credits

(Added by [Stats.2006, c. 725 \(A.B.1752\)](#), § 2, eff. Sept. 29, 2006.)

Footnotes

¹ [Stats.2006, c. 404 \(S.B.1733\)](#).

West's Ann. Cal. Water Code § 13385.3, CA WATER § 13385.3

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13386

§ 13386. Threatened or continuing violations or failure of discharger to comply with cost or charge; injunctions

[Currentness](#)

Upon any threatened or continuing violation of any of the requirements listed in [paragraphs \(1\) to \(6\), inclusive, of subdivision \(a\) of Section 13385](#), or upon the failure of any discharger into a public treatment system to comply with any cost or charge adopted by any public agency under Section 204(b) of the Federal Water Pollution Control Act, as amended,¹ the Attorney General, upon the request of the state board or regional board shall petition the appropriate court for the issuance of a preliminary or permanent injunction, or both, as appropriate, restraining that person or persons from committing or continuing the violation. Subdivision (b) of [Section 13331](#) shall be applicable to proceedings under this section.

Credits

(Added by [Stats.1987, c. 1189, § 12](#). Amended by [Stats.1996, c. 659 \(A.B.3036\), § 27](#).)

Footnotes

¹ [33 U.S.C.A. § 1284\(b\)](#).

West's Ann. Cal. Water Code § 13386, CA WATER § 13386

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13387

§ 13387. Violations; criminal penalties

Effective: October 1, 2011

[Currentness](#)

(a) Any person who knowingly or negligently does any of the following is subject to criminal penalties as provided in subdivisions (b), (c), and (d):

(1) Violates [Section 13375](#) or [13376](#).

(2) Violates any waste discharge requirements or dredged or fill material permit issued pursuant to this chapter or any water quality certification issued pursuant to [Section 13160](#).

(3) Violates any order or prohibition issued pursuant to [Section 13243](#) or [13301](#), if the activity subject to the order or prohibition is subject to regulation under this chapter.

(4) Violates any requirement of Section 301, 302, 306, 307, 308, 318, 401, or 405 of the Clean Water Act ([33 U.S.C. Sec. 1311](#), [1312](#), [1316](#), [1317](#), [1318](#), [1328](#), [1341](#), or [1345](#)), as amended.

(5) Introduces into a sewer system or into a publicly owned treatment works any pollutant or hazardous substances that the person knew or reasonably should have known could cause personal injury or property damage.

(6) Introduces any pollutant or hazardous substance into a sewer system or into a publicly owned treatment works, except in accordance with any applicable pretreatment requirements, which causes the treatment works to violate waste discharge requirements.

(b) Any person who negligently commits any of the violations set forth in subdivision (a) shall, upon conviction, be punished by a fine of not less than five thousand dollars (\$5,000), nor more than twenty-five thousand dollars (\$25,000), for each day in which the violation occurs, by imprisonment for not more than one year in a county jail, or by both that fine and imprisonment. If a conviction of a person is for a violation committed after a first conviction of the person under this subdivision, subdivision (c), or subdivision (d), punishment shall be by a fine of not more than fifty thousand dollars (\$50,000) for each day in which the violation occurs, by imprisonment pursuant to [subdivision \(h\) of Section 1170 of the Penal Code](#) for 16, 20, or 24 months, or by both that fine and imprisonment.

(c) Any person who knowingly commits any of the violations set forth in subdivision (a) shall, upon conviction, be punished by a fine of not less than five thousand dollars (\$5,000), nor more than fifty thousand dollars (\$50,000), for each day in which the violation occurs, by imprisonment pursuant to [subdivision \(h\) of Section 1170 of the Penal Code](#), or by both that fine and imprisonment. If a conviction of a person is for a violation committed after a first conviction of the person under this subdivision or subdivision (d), punishment shall be by a fine of not more than one hundred thousand dollars (\$100,000) for each day in which the violation occurs, by imprisonment pursuant to [subdivision \(h\) of Section 1170 of the Penal Code](#) for two, four, or six years, or by both that fine and imprisonment.

(d)(1) Any person who knowingly commits any of the violations set forth in subdivision (a), and who knows at the time that the person thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be punished by a fine of not more than two hundred fifty thousand dollars (\$250,000), imprisonment pursuant to [subdivision \(h\) of Section 1170 of the Penal Code](#) for 5, 10, or 15 years, or by both that fine and imprisonment. A person that is an organization shall, upon conviction under this subdivision, be subject to a fine of not more than one million dollars (\$1,000,000). If a conviction of a person is for a violation committed after a first conviction of the person under this subdivision, the punishment shall be by a fine of not more than five hundred thousand dollars (\$500,000), by imprisonment pursuant to [subdivision \(h\) of Section 1170 of the Penal Code](#) for 10, 20, or 30 years, or by both that fine and imprisonment. A person that is an organization shall, upon conviction for a violation committed after a first conviction of the person under this subdivision, be subject to a fine of not more than two million dollars (\$2,000,000). Any fines imposed pursuant to this subdivision shall be in addition to any fines imposed pursuant to subdivision (c).

(2) In determining whether a defendant who is an individual knew that the defendant's conduct placed another person in imminent danger of death or serious bodily injury, the defendant is responsible only for actual awareness or actual belief that the defendant possessed, and knowledge possessed by a person other than the defendant, but not by the defendant personally, cannot be attributed to the defendant.

(e) Any person who knowingly makes any false statement, representation, or certification in any record, report, plan, notice to comply, or other document filed with a regional board or the state board, or who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required under this division shall be punished by a fine of not more than twenty-five thousand dollars (\$25,000), by imprisonment pursuant to [subdivision \(h\) of Section 1170 of the Penal Code](#) for 16, 20, or 24 months, or by both that fine and imprisonment. If a conviction of a person is for a violation committed after a first conviction of the person under this subdivision, punishment shall be by a fine of not more than twenty-five thousand dollars (\$25,000) per day of violation, by imprisonment pursuant to [subdivision \(h\) of Section 1170 of the Penal Code](#) for two, three, or four years, or by both that fine and imprisonment.

(f) For purposes of this section, a single operational upset which leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation.

(g) For purposes of this section, "organization," "serious bodily injury," "person," and "hazardous substance" shall have the same meaning as in Section 309(c) of the Clean Water Act ([33 U.S.C. Sec. 1319\(c\)](#)), as amended.

(h)(1) Subject to paragraph (2), funds collected pursuant to this section shall be deposited in the State Water Pollution Cleanup and Abatement Account.

(2)(A) Notwithstanding any other provision of law, fines collected for a violation of a water quality certification in accordance with paragraph (2) of subdivision (a) or for a violation of Section 401 of the Clean Water Act (33 U.S.C. Sec. 1341) in accordance with paragraph (4) of subdivision (a) shall be deposited in the Water Discharge Permit Fund and separately accounted for in that fund.

(B) The funds described in subparagraph (A) shall be expended by the state board, upon appropriation by the Legislature, to assist regional boards, and other public agencies with authority to clean up waste or abate the effects of the waste, in cleaning up or abating the effects of the waste on waters of the state, or for the purposes authorized in Section 13443.

Credits

(Added by Stats.1987, c. 1189, § 14. Amended by Stats.1996, c. 775 (A.B.2937), § 5; Stats.2001, c. 869 (A.B.1664), § 8; Stats.2003, c. 683 (A.B.897), § 8; Stats.2004, c. 183 (A.B.3082), § 362; Stats.2005, c. 22 (S.B.1108), § 211; Stats.2006, c. 347 (A.B.2367), § 23; Stats.2011, c. 15 (A.B.109), § 616, eff. April 4, 2011, operative Oct. 1, 2011.)

Notes of Decisions (20)

West's Ann. Cal. Water Code § 13387, CA WATER § 13387

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13388

§ 13388. Board members; disqualification if income from person subject to requirements

Effective: June 27, 2012

[Currentness](#)

(a) Notwithstanding any other provision of this division or [Section 175](#), and except as provided in subdivision (b), a person shall not be a member of the state board or a regional board if that person receives, or has received during the previous two years, a significant portion of his or her income directly or indirectly from any person subject to waste discharge requirements or applicants for waste discharge requirements pursuant to this chapter.

(b)(1) A person shall not be disqualified from being a member of a regional board because that person receives, or has received during the previous two years, a significant portion of his or her income directly or indirectly from a person subject to waste discharge requirements, or an applicant for waste discharge requirements, that are issued pursuant to this chapter by the state board or regional board other than the regional board of which that person is a member.

(2) Paragraph (1) shall be implemented only if the United States Environmental Protection Agency either determines that no program approval is necessary for that implementation, or approves of a change in California's National Pollutant Discharge Elimination System program, to allow the state to administer the National Pollutant Discharge Elimination System permit program consistent with paragraph (1).

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972, operative March 1, 1973. Amended by [Stats.2012, c. 39 \(S.B.1018\)](#), § 121, eff. [June 27, 2012](#).)

[Notes of Decisions \(1\)](#)

West's Ann. Cal. Water Code § 13388, CA WATER § 13388

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13389

§ 13389. Applicability of environmental impact reports

[Currentness](#)

Neither the state board nor the regional boards shall be required to comply with the provisions of Chapter 3 (commencing with [Section 21100](#)) of Division 13 of the Public Resources Code prior to the adoption of any waste discharge requirement, except requirements for new sources as defined in the Federal Water Pollution Control Act or acts amendatory thereof or supplementary thereto.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972.)

[Notes of Decisions \(3\)](#)

West's Ann. Cal. Water Code § 13389, CA WATER § 13389

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

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ATTACHMENT

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WESTLAW California Code of Regulations[Home](#) [Table of Contents](#)**§ 2235.2. Compliance with Regulations of the U.S. Environmental Protection Agency.**

23 CA ADC § 2235.2

BARCLAYS OFFICIAL CALIFORNIA CODE OF REGULATIONS

Barclays Official California Code of Regulations [Currentness](#)

Title 23. Waters

Division 3. State Water Resources Control Board and Regional Water Quality Control Boards

Chapter 9. Waste Discharge Reports and Requirements

Article 3. Waste Discharges from Point Sources to Navigable Waters

23 CCR § 2235.2

§ 2235.2. Compliance with Regulations of the U.S. Environmental Protection Agency.

Waste discharge requirements for discharge from point sources to navigable waters shall be issued and administered in accordance with the currently applicable federal regulations for the National Pollutant Discharge Elimination System (NPDES) program.

Note: Authority cited: Section 1058, Water Code. Reference: Chapter 5.5 (commencing with Section 13370) of Division 7, Water Code.

This database is current through 9/23/16 Register 2016, No. 39

23 CCR § 2235.2, 23 CA ADC § 2235.2

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ATTACHMENT

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THOMSON REUTERS

WESTLAW California Code of Regulations[Home](#) [Table of Contents](#)**§ 2235.3. Additional Requirements.**

23 CA ADC § 2235.3

BARCLAYS OFFICIAL CALIFORNIA CODE OF REGULATIONS

Barclays Official California Code of Regulations [Currentness](#)

Title 23. Waters

Division 3. State Water Resources Control Board and Regional Water Quality Control Boards

Chapter 9. Waste Discharge Reports and Requirements

Article 3. Waste Discharges from Point Sources to Navigable Waters

23 CCR § 2235.3

§ 2235.3. Additional Requirements.

In addition to the federal regulations, waste discharge requirements prescribed for discharges to navigable water shall be in compliance with applicable state regulations, including, when appropriate, the requirements of Sections 2230(c), 2232 and 2233.

Note: Authority cited: Sections 185 and 1058, Water Code. Reference: Section 13263, Water Code.

HISTORY

1. Amendment filed 4-16-82; effective upon filing pursuant to Government Code Section 11346.2(d) (Register 82, No. 16).

This database is current through 9/23/16 Register 2016, No. 39

23 CCR § 2235.3, 23 CA ADC § 2235.3

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ATTACHMENT

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United States Court of Appeals, Ninth Circuit.
 ENVIRONMENTAL DEFENSE CENTER, INC.,
 Petitioner,
 Natural Resources Defense Council, Inc., Petitioner-
 Intervenor,

v.

UNITED STATES ENVIRONMENTAL
 PROTECTION AGENCY, Respondent.
 American Forest & Paper Association; National
 Association of Home Builders, Petitioners,

v.

United States Environmental Protection Agency,
 Respondent,
 Natural Resources Defense Council, Inc., Applicant-
 Intervenor.

Texas Cities Coalition on Stormwater; Texas
 Counties Storm Water Coalition, Petitioners,

v.

United States Environmental Protection Agency,
 Respondent,
 Natural Resources Defense Council, Inc.,
 Respondent-Intervenor.

Nos. 00-70014, 00-70734, 00-70822.

Argued and Submitted Dec. 3, 2001.
 Filed Sept. 15, 2003.

Environmental, municipal, and industry groups brought petitions for review of Environmental Protection Agency (EPA) rule mandating that discharges from small municipal storm sewers and construction sites be subject to National Pollutant Discharge Elimination System (NPDES) permitting requirements. On denial of rehearing, the Court of Appeals, James R. Browning, Circuit Judge, held that: (1) EPA had authority to impose rule; (2) rule did not violate the Tenth Amendment; (3) rule improperly failed to provide for review of notices of intent and public participation in NPDES permitting process; (4) EPA's failure to designate industrial sources of storm water pollution for permitting requirements was not arbitrary and capricious; (5) challenge to rule's exclusion of forest roads was not time-barred; (6) forestry trade association lacked standing to challenge rule; (7) EPA properly consulted with state and local officials; (8) sites subject to rule were properly designated; and (9) EPA

properly retained authority to designate future sources of storm water pollution for regulation.

Petitions for review granted in part and denied in part.

Tallman, Circuit Judge, filed opinion concurring in part and dissenting in part, and would have granted petition for rehearing.

Opinion, 319 F.3d 398, vacated.

***839** Victoria Clark, Environmental Defense Center, Santa Barbara, CA, for petitioner Environmental Defense Center, Inc.

Andrew G. Frank and Arlene Yang, Paul, Weiss, Rifkind, Wharton & Garrison, New York, NY, and Nancy K. Stoner, Natural Resources Defense Council, Washington, DC, for intervenor National Resources Defense Council, Inc.

R. Timothy McCrum, Ellen B. Steen, and Donald J. Kochan, Crowell & Moring, Washington, DC, for petitioners American Forest & Paper Association and National Association of Home Builders.

Steven P. Quarles and J. Michael Klise, Crowell & Moring, Washington, DC, and William R. Murray, American Forest & Paper Association, Washington, DC, for petitioner American Forest & Paper Association.

Jim Mathews and Clarence Joe Freeland, Mathews & Freeland, Austin, TX, for petitioner Texas Cities Coalition on Stormwater.

Sydney W. Falk, Jr. and William D. Dugat III, Bickerstaff, Heath, Smiley, Pollan, Kever & McDaniel, Austin, TX, for petitioner Texas Counties Storm Water Coalition.

John C. Cruden, Daniel M. Flores and Kent E. Hanson, United States Department of Justice, Washington, DC, and Stephen J. Sweeny, United States Environmental Protection Agency, Washington, DC, for respondent United States Environmental Protection Agency.

On Petition for Review of an Order of the Environmental Protection Agency. EPA No. Clean Water 40 CFR.

Before BROWNING, REINHARDT, and TALLMAN, Circuit Judges.

Opinion by Judge JAMES R. BROWNING; Partial Concurrence and Partial Dissent by Judge TALLMAN.

ORDER AND OPINION

ORDER

The opinion and dissent filed in this case on January 14, 2003, and published at 319 F.3d 398 are vacated. They are replaced by the Opinion and Dissent filed today.

With the filing of the new Opinion and Dissent, the panel has voted to deny the petitions for rehearing and the petition for rehearing en banc. (Judge Tallman would grant the petition for rehearing filed by *840 the Environmental Protection Agency.) The full court has been advised of the new Opinion, new Dissent, and petition for rehearing en banc. No judge has requested a vote on the petition for rehearing en banc. Fed. R.App. P. 35.

The petitions for rehearing and the petition for rehearing en banc are DENIED. The clerk is instructed not to accept for filing any new petitions for rehearing or petitions for rehearing en banc in this case.

Each party shall bear its own costs in this appeal.

OPINION

JAMES R. BROWNING, Circuit Judge.

Petitioners challenge a rule issued by the United States Environmental Protection Agency pursuant to the Clean Water Act, 33 U.S.C. §§ 1251-1387, to control pollutants introduced into the nation's waters by storm sewers.

Storm sewers drain rainwater and melted snow from developed areas into water bodies that can handle the excess flow. Draining stormwater picks up a variety of contaminants as it filters through soil and over pavement on its way to sewers. Sewers are also used on occasion as an easy (if illicit) means for the direct discharge of unwanted contaminants. Since storm

sewer systems generally channel collected runoff into federally protected water bodies, they are subject to the controls of the Clean Water Act.

In October of 1999, after thirteen years in process, the Environmental Protection Agency ("EPA") promulgated a final administrative rule (the "Phase II Rule,"^{FN1} or "the Rule") under § 402(p) of the Clean Water Act, 33 U.S.C. § 1342(p), mandating that discharges from small municipal separate storm sewer systems and from construction sites between one and five acres in size be subject to the permitting requirements of the National Pollutant Discharge Elimination System ("NPDES"), 33 U.S.C. §§ 1311(a), 1342. EPA preserved authority to regulate other harmful stormwater discharges in the future.

FN1. The "Phase II Rule" reviewed here is the product of the second stage of EPA's two-phase stormwater rulemaking effort. The "Phase I Rule," governing larger-scale stormwater discharges, was issued in 1990 and reviewed by this court in *Natural Res. Def. Council v. EPA*, 966 F.2d 1292 (9th Cir.1992).

In the three cases consolidated here, petitioners and intervenors challenge the Phase II Rule on twenty-two constitutional, statutory, and procedural grounds. We remand three aspects of the Rule concerning the issuance of notices of intent under the Rule's general permitting scheme, and a fourth aspect concerning the regulation of forest roads. We affirm the Rule against all other challenges.

I.

BACKGROUND

A. The Problem of Stormwater Runoff

Stormwater runoff is one of the most significant sources of water pollution in the nation, at times "comparable to, if not greater than, contamination from industrial and sewage sources."^{FN2} Storm sewer waters carry suspended metals, sediments, algae-promoting nutrients (nitrogen and phosphorus), floatable trash, used motor oil, raw sewage, pesticides, and other toxic contaminants into streams, rivers, lakes, *841 and estuaries across the United

States.^{FN3} In 1985, three-quarters of the States cited urban stormwater runoff as a major cause of waterbody impairment, and forty percent reported construction site runoff as a major cause of impairment.^{FN4} Urban runoff has been named as the foremost cause of impairment of surveyed ocean waters.^{FN5} Among the sources of stormwater contamination are urban development, industrial facilities, construction sites, and illicit discharges and connections to storm sewer systems.^{FN6}

FN2. Richard G. Cohn-Lee and Diane M. Cameron, *Urban Stormwater Runoff Contamination of the Chesapeake Bay: Sources and Mitigation*, THE ENVIRONMENTAL PROFESSIONAL, Vol. 14, p. 10, at 10 (1992); see also *Natural Res. Def. Council*, 966 F.2d at 1295 (citing a study by the Nationwide Urban Runoff Program).

FN3. Regulation for Revision of the Water Pollution Control Program Addressing Storm Water, 64 Fed. Reg. 68,722, 68,724, 68,727 (Dec. 8, 1999) (codified at 40 C.F.R. pts. 9, 122, 123, and 124).

FN4. *Id.* at 68,726.

FN5. *Id.*

FN6. *Id.* at 68,725-31.

B. Stormwater and the Clean Water Act

Congress enacted the Clean Water Act in 1948 to “restore and maintain the chemical, physical, and biological integrity of the Nation's waters.” 33 U.S.C. § 1251(a) (originally codified as the Federal Water Pollution Control Act, 62 Stat. 1155). The Clean Water Act prohibits the discharge of pollutants from a “point source”^{FN7} into the waters of the United States without a permit issued under the terms of the National Pollutant Discharge Elimination System, 33 U.S.C. §§ 1311(a), 1342, which requires dischargers to comply with technology-based pollution limitations (generally according to the “best available technology economically achievable,” or “BAT” standard). 33 U.S.C. § 1311(b)(2)(A). NPDES permits are issued by EPA or by States that have

been authorized by EPA to act as NPDES permitting authorities. 33 U.S.C. § 1342(a)-(b). The permitting authority must make copies of all NPDES permits and permit applications available to the public, 33 U.S.C. §§ 1342(j), 1342(b)(3); state permitting authorities must provide EPA notice of each permit application, 33 U.S.C. § 1342(b)(4); and a permitting authority must provide an opportunity for a public hearing before issuing any permit, 33 U.S.C. §§ 1342(a)(1), 1342(b)(3); cf. 33 U.S.C. § 1251(e) (requiring public participation).

FN7. A point source is “any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.” 33 U.S.C. § 1362(14).

[1][2] Storm sewers are established point sources subject to NPDES permitting requirements. *Natural Res. Def. Council v. Costle*, 568 F.2d 1369, 1379 (D.C.Cir.1977) (holding unlawful EPA's exemption of stormwater discharges from NPDES permitting requirements); *Natural Res. Def. Council v. EPA*, 966 F.2d 1292, 1295 (9th Cir.1992).^{FN8} In 1987, to better regulate pollution conveyed by stormwater runoff, Congress enacted Clean Water Act § 402(p), 33 U.S.C. § 1342(p), “Municipal and Industrial Stormwater Discharges.” Sections 402(p)(2) and 402(p)(3) mandate NPDES permits for stormwater discharges “associated with industrial activity,” discharges from large and medium-sized municipal storm sewer systems, and certain other discharges. Section 402(p)(4) sets out a timetable for promulgation of the first of a *842 two-phase overall program of stormwater regulation. *Id.* at § 1342(p)(2)-(4); *Natural Res. Def. Council*, 966 F.2d at 1296. In 1990, pursuant to § 402(p)(4), EPA issued the Phase I Rule regulating large discharge sources.^{FN9}

FN8. Diffuse runoff, such as rainwater that is not channeled through a point source, is considered nonpoint source pollution and is not subject to federal regulation. *Oregon Natural Desert Ass'n v. Dombeck*, 172 F.3d 1092, 1095 (9th Cir.1998).

FN9. National Pollutant Discharge Elimination System Permit Application Regulations for Stormwater Discharges, 55 Fed. Reg. 47,990 (Nov. 16, 1990) (codified at 40 C.F.R. pt. 122-124). The Phase I rule was challenged in this court in *Natural Res. Def. Council*, 966 F.2d at 1292. We held, *inter alia*, that EPA must impose deadlines for permit approvals, *id.* at 1300, that EPA's decision to regulate construction sites only over five acres in size was arbitrary and capricious, *id.* at 1306, and that EPA did not act capriciously in defining "municipal," *id.* at 1304, or in placing differently-sized municipalities on different permitting schedules, *id.* at 1301.

C. The Phase II Stormwater Rule

In Clean Water Act § 402(p), Congress also directed a second stage of stormwater regulation by ordering EPA to identify and address sources of pollution not covered by the Phase I Rule. Section 402(p)(1) placed a temporary moratorium (expiring in 1994) on the permitting of other stormwater discharges pending the results of studies mandated in § 402(p)(5) to identify the sources and pollutant content of such discharges and to establish procedures and methods to control them as "necessary to mitigate impacts on water quality." 33 U.S.C. § 1342(p)(5). Section 402(p)(6) required that EPA establish "a comprehensive program to regulate" these stormwater discharges "to protect water quality," following the studies mandated in § 402(p)(5) and consultation with state and local officials. *Id.* at § 1342(p)(6).

EPA proposed the Phase II Rule in January of 1998.^{FN10} In October, 1999, Congress passed legislation precluding EPA from promulgating the new Rule until EPA submitted an additional report to Congress supporting certain anticipated aspects of the Rule.^{FN11} EPA was also required to publish its report in the Federal Register for public comment. Pub. L. No. 106-74, § 431(c), 113 Stat. at 1097. Later that month, EPA submitted the required ("Appropriations Act") study and promulgated the Rule.^{FN12}

FN10. Proposed Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges, 63

Fed. Reg. 1536 (proposed Jan. 9, 1998).

FN11. Pub. L. No. 106-74, § 431(a), 113 Stat. 1047, 1096 (1999) ("Appropriations, 2000-Department of Veterans Affairs and Housing and Urban Development, and Independent Agencies").

FN12. Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges, 64 Fed. Reg. 68,722 (Dec. 8, 1999) (codified at 40 C.F.R. pts. 9, 122, 123, and 124).

Under the Phase II Rule, NPDES permits are required for discharges from small municipal separate storm sewer systems ("small MS4s") and stormwater discharges from construction activity disturbing between one and five acres ("small construction sites"). 40 C.F.R. §§ 122.26(a)(9)(i)(A)-(B). Small MS4s may seek permission to discharge by submitting an individualized set of best-management plans in six specified categories, *id.* at § 122.34, either in the form of an individual permit application, or in the form of a notice of intent to comply with a general permit. *Id.* at § 122.33(b). Small MS4s may also seek permission to discharge through an alternative process, under which a permit may be sought without requiring the operator to regulate third parties, *id.* at §§ 122.33(b)(2)(ii), 122.26(d).^{FN13} Small construction sites may *843 apply for individual NPDES permits or seek coverage under a promulgated general permit. *Id.* at § 122.26(c). EPA also preserved authority to regulate other categories of harmful stormwater discharges on a regional, as-needed basis. *Id.* at § 122.26(a)(9)(i)(C)-(D).

FN13. The Rule also allows a small MS4 to be regulated under an individual NPDES permit covering a nearby large or medium MS4, with provisions adapted to address the small MS4. 40 C.F.R. § 122.33(b)(3).

D. Facial Challenges to the Phase II Rule

The Rule was challenged in the Fifth, Ninth, and D.C. Circuits in three separate actions ultimately consolidated before the Ninth Circuit.

The Texas Cities Coalition on Stormwater and the

Texas Counties Stormwater Coalition (collectively, “the Municipal Petitioners”) assert that EPA lacked authority to require permitting, that its promulgation of the Rule was procedurally defective, that the Rule establishes categories that are arbitrary and capricious, and that the Rule impermissibly requires municipalities to regulate their own citizens in contravention of the Tenth Amendment and to communicate a federally mandated message in contravention of the First Amendment. The Natural Resources Defense Council (“NRDC”) intervened on behalf of EPA.

Environmental Defense Center, joined by petitioner-intervenor NRDC (“the Environmental Petitioners”), asserts that the regulations fail to meet minimum Clean Water Act statutory requirements because they constitute a program of impermissible self-regulation, fail to provide required avenues of public participation, and neglect to address stormwater runoff associated with forest roads and other significant sources of runoff pollution.

The American Forest & Paper Association (“AF&PA”) and the National Association of Home Builders (“the Industrial Petitioners”) assert that promulgation of the Rule was procedurally defective and violated the Regulatory Flexibility Act, that EPA's retention of authority to regulate future sources of runoff pollution is *ultra vires*, and that the decision to regulate discharge from construction sites one to five acres in size is arbitrary and capricious. NRDC again intervened on behalf of EPA.

We have jurisdiction pursuant to section 509(b)(1) of the Clean Water Act, 33 U.S.C. § 1369(b)(1) (assigning review of EPA effluent and permitting regulations to the Federal Courts of Appeals).

II.

DISCUSSION

A. The Permit Requirements

[3] The Municipal Petitioners' primary contention is that the Phase II Rule compels small MS4s to regulate citizens as a condition of receiving a permit to operate, and that EPA lacks both statutory and constitutional authority to impose such a requirement.

Because we avoid considering constitutionality if an issue may be resolved on narrower grounds, *Greater New Orleans Broadcasting Ass'n v. United States*, 527 U.S. 173, 184, 119 S.Ct. 1923, 144 L.Ed.2d 161 (1999), we first ask whether the Phase II Rule is supported by statutory authority.

1. Statutory Authority

[4] The Municipal Petitioners assert that the statutory command in Clean Water Act § 402(p)(6) that EPA develop a “comprehensive program to regulate” small MS4s did not authorize a program based on NPDES permits. Petitioners argue that because § 402(p)(6) explicitly indicates elements that the program may *844 contain (performance standards, guidelines, etc.) without mentioning “permits,” Congress must have intended that the program exclude permitting.^{FN14}

FN14. The text of that section reads: “Not later than October 1, 1993, [EPA], in consultation with state and local officials, shall issue regulations (based on the results of the studies conducted under paragraph (5)) which designate stormwater discharges, other than those discharges described in paragraph (2), to be regulated to protect water quality and shall establish a comprehensive program to regulate such designated sources. The program shall, at a minimum, (A) establish priorities, (B) establish requirements for State stormwater management programs, and (C) establish expeditious deadlines. The program may include performance standards, guidelines, guidance, and management practices and treatment requirements, as appropriate.” 33 U.S.C. § 1342(p)(6).

The fact that “permitting” is not included on a statutory list of elements that the program “may” include is not determinative, because the list is manifestly nonexclusive. The only constraints are that the § 402(p)(6) regulations be based on the § 402(p)(5) studies, that they be issued in consultation with state and local officials, and that—“at a minimum”—they establish priorities, requirements for state stormwater management programs, and expeditious deadlines, and constitute a comprehensive program “to protect water quality.”

33 U.S.C. § 1342(p)(6). EPA was free to adopt any regulatory program, including a permitting program, that included these elements. See *Chevron, U.S.A. v. Natural Res. Def. Council*, 467 U.S. 837, 842-43, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984) (deference to an agency's reasonable interpretation is required unless Congress expressed its intent unambiguously). It is more reasonable to interpret congressional silence about permits as an indication of EPA's flexibility not to use them than as an outright prohibition.^{FN15}

FN15. The lesser category of "permits" may also be implied by the inclusion of "performance standards" in the list of possible program features.

The Municipal Petitioners further contend that their interpretation is supported by the structure of § 402(p), which expressly requires permits for large and medium sized MS4s in a separate section, § 402(p)(3)(B).^{FN16} However, as EPA counters, the language in § 402(p)(3) requiring permits for municipal storm sewers may be interpreted to apply both to Phase I and Phase II MS4s. Moreover, as respondent-intervenor NRDC notes, the mere existence of the § 402(p)(1) permitting moratorium, designed to apply only to Phase II dischargers, necessarily implies that EPA has the authority to require permits from these sources after the 1994 expiration of the moratorium.

FN16. "Where Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion." *Bates v. United States*, 522 U.S. 23, 29-30, 118 S.Ct. 285, 139 L.Ed.2d 215 (1997).

Since there would have been no need to establish a permitting moratorium for these sources if the sources could never be subject to permitting requirements, petitioners' interpretation violates the bedrock principle that statutes not be interpreted to render any provision superfluous. See *Burrey v. Pacific Gas & Elec. Co.*, 159 F.3d 388, 394 (9th Cir.1998). EPA's interpretation of its mandate under § 402(p)(6) was reasonable and EPA acted within its statutory authority in formulating the Phase II Rule as

a permitting program.

2. The Tenth Amendment

The Municipal Petitioners contend that the Phase II Rule on its face compels *845 operators of small MS4s to regulate third parties in contravention of the Tenth Amendment. We conclude that the Rule does not violate the Tenth Amendment, because it directs no unconstitutional coercion.

The Phase II Rule contemplates several avenues through which a small MS4 may obtain permission to discharge. First, if the NPDES Permitting Authority overseeing the small MS4 has issued an applicable general permit, the small MS4 may submit a notice of intent wherein the small MS4 agrees to comply with the terms of the general permit and specifies plans for implementing six "Minimum Measures" designed to protect water quality. 40 C.F.R. §§ 122.33(b)(1), 122.34(d)(1)(i), 122.34(b). Second, the small MS4 may apply for an individual permit under 40 C.F.R. § 122.34, which would again require compliance with the six Minimum Measures. *Id.* at §§ 122.33(b)(2)(i), 122.34(a), 122.34(b). Third, under an "Alternative Permit" option, the small MS4 may apply for an individualized permit under 40 C.F.R. § 122.26(d), the permitting program established by the Phase I Rule for large and medium-sized MS4s. *Id.* at §§ 122.33(b)(2)(ii), 122.26(d).^{FN17}

FN17. The Phase II Rule also allows a small MS4 to be regulated under an NPDES permit covering a nearby large or medium-sized MS4, with provisions adapted to address the small MS4. 40 C.F.R. § 122.33(b)(3).

[5] The Minimum Measures mentioned above require small MS4s to implement programs for: (1) conducting public education and outreach on stormwater impacts, *id.* at § 122.34(b)(1); (2) engaging public participation in the development of stormwater management programs, *id.* at § 122.34(b)(2); (3) detecting and eliminating illicit discharges to the MS4, *id.* at § 122.34(b)(3); (4) reducing pollution to the MS4 from construction activities disturbing one acre or more, *id.* at § 122.34(b)(4); (5) minimizing water quality impacts from development and redevelopment activities that disturb one acre or more, *id.* at § 122.34(b)(5); and

(6) preventing or reducing pollutant runoff from municipal activities, *id.* at § 122.34(b)(6).^{FN18}

FN18. The Municipal Petitioners argue that the Minimum Measures exceed EPA's statutory authority under § 402(p) of the Clean Water Act. We disagree. The list of elements for a regulatory program that appears in § 402(p)(6) is nonexclusive, and EPA's adoption of the Minimum Measures represents a permissible interpretation of its authority under § 402(p)(6). *See Chevron*, 467 U.S. at 843-44, 104 S.Ct. 2778.

The Municipal Petitioners argue that EPA is not entitled to *Chevron* deference, and that the Minimum Measures must be rejected absent a clear statement of congressional intent that EPA enact the Minimum Measures. The Municipal Petitioners argue that this clear statement requirement arises because there are "significant constitutional questions" about the permissibility of the Minimum Measures under the Tenth Amendment, and because the Minimum Measures alter "the federal-state framework by permitting federal encroachment upon a traditional state power." *Solid Waste Agency of N. Cook County v. Army Corps of Eng'rs*, 531 U.S. 159, 173, 121 S.Ct. 675, 148 L.Ed.2d 576 (2001).

As we explain, because the Phase II Rule includes at least one alternative to the Minimum Measures, *i.e.*, the option of seeking a permit under 40 C.F.R. § 122.26(d), the Minimum Measures do not present significant Tenth Amendment problems demanding a clear statement of congressional intent. Nor does the Phase II Rule alter the federal-state balance. To the contrary, the option of seeking a permit under 40 C.F.R. § 122.26(d) maintains precisely the same federal-state balance as existed prior to the Phase II Rule. *See, e.g., Natural Res. Def. Council v. EPA*, 966 F.2d 1292 (9th Cir.1992) (reviewing Phase I Rule); *Natural Res. Def. Council v. Costle*, 568 F.2d 1369, 1379 (D.C.Cir.1977) (denying EPA

authority to exempt MS4s from regulation under the Clean Water Act). Furthermore, even if a clear statement of congressional intent were necessary, § 402(p) of the Clean Water Act is replete with clear statements that Congress intended EPA to require MS4s either to obtain NPDES permits or to stop discharging stormwater.

***846** The Municipal Petitioners contend that the measures regulating illicit discharges, small construction sites, and development activities unconstitutionally compel small MS4 operators to regulate third parties, *i.e.*, upstream dischargers. The Illicit Discharge Detection and Elimination measure requires that a permit seeker prohibit non-stormwater discharges to the MS4 and implement appropriate enforcement procedures. 40 C.F.R. § 122.34(b)(3)(ii)(B).^{FN19} The Construction Site Stormwater Runoff Control measure requires a permit seeker to implement and enforce a program to reduce stormwater pollutants from small construction sites. *Id.* at §§ 122.34(b)(4)(i)-(ii).^{FN20} It mandates erosion and sedimentation controls, site plan reviews that take account of water quality impacts, site inspections, and the consideration of public comment, and requires that construction site operators implement erosion, sedimentation, and waste management best management practices. *Id.* The Post-Construction/New Development measure requires permit seekers to address post-construction runoff from new development and redevelopment projects disturbing one acre or more. *Id.* at § 122.34(b)(5)(ii)(B).^{FN21}

FN19. This subsection provides that permit seekers must, "[t]o the extent allowable under State, Tribal, or local law, effectively prohibit, through ordinance or other regulatory mechanism, non-stormwater discharges into your storm sewer systems and implement appropriate enforcement procedures and actions...." 40 C.F.R. § 122.34(b)(3)(ii)(B).

FN20. This subsection provides that permit seekers "must develop, implement, and enforce a program to reduce pollutants in any storm water runoff to your small MS4 from construction activities that result in a land disturbance of greater than or equal to

one acre.... [The] program must include the development and implementation of, at a minimum: (A) An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State, Tribal, or local law; (B) Requirements for construction site operators to implement appropriate erosion and sediment control best management practices; (C) Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality; (D) Procedures for site plan review which incorporate consideration of potential water quality impacts; (E) Procedures for receipt and consideration of information submitted by the public, and (F) Procedures for site inspection and enforcement control measures.” 40 C.F.R. §§ 122.34(b)(4)(i)-(ii).

FN21. This subsection provides that permit seekers must “[u]se an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects [disturbing one acre or more] to the extent allowable under State, Tribal or local law.” 40 C.F.R. §§ 122.34(b)(5)(ii)(B).

Noting that most MS4s are operated by municipal governments, and that “[t]he drainage of a city in the interest of the public health and welfare is one of the most important purposes for which the police power can be exercised,” *New Orleans Gaslight Co. v. Drainage Comm’n*, 197 U.S. 453, 460, 25 S.Ct. 471, 49 L.Ed. 831 (1905), the Municipal Petitioners argue that requiring operators of small MS4s to implement “through ordinance or other regulatory mechanism” the regulations required by the Minimum Measures contravenes the Tenth Amendment. *See, e.g., New York v. United States*, 505 U.S. 144, 188, 112 S.Ct. 2408, 120 L.Ed.2d 120 (1992).

EPA counters that the Phase II Rule does not violate the Tenth Amendment because operators of small MS4s may opt to avoid the Minimum Measures by

seeking a permit under the Alternative Permit *847 option, 40 C.F.R. § 122.33(b)(2)(ii).^{FN22}

FN22. EPA and NRDC also argue that the Minimum Measures are facially constitutional, and that the Phase II Rule presents no Tenth Amendment difficulties because operators of small MS4s may avoid stormwater regulation entirely by electing not to discharge stormwater into federal waters in the first place. In light of our holding with regard to the Alternative Permit option, we do not consider these arguments.

[6][7][8] Under the Tenth Amendment, “the Federal Government may not compel States to implement, by legislation or executive action, federal regulatory programs.” *Printz v. United States*, 521 U.S. 898, 925, 117 S.Ct. 2365, 138 L.Ed.2d 914 (1997); *see also New York*, 505 U.S. at 188, 112 S.Ct. 2408. Similarly, the federal government may not force the States to regulate third parties in furtherance of a federal program. *See Reno v. Condon*, 528 U.S. 141, 151, 120 S.Ct. 666, 145 L.Ed.2d 587 (2000) (upholding a federal statutory scheme because it “does not require the States in their sovereign capacity to regulate their own citizens”). These protections extend to municipalities. *See, e.g., Printz* 521 U.S. at 931 n. 15, 117 S.Ct. 2365.

[9][10] However, while the federal government may not *compel* them to do so, it may *encourage* States and municipalities to implement federal regulatory programs. *See New York*, 505 U.S. at 166-68, 112 S.Ct. 2408. For example, the federal government may make certain federal funds available only to those States or municipalities that enact a given regulatory regime. *See, e.g., South Dakota v. Dole*, 483 U.S. 203, 205-08, 107 S.Ct. 2793, 97 L.Ed.2d 171 (1987) (upholding federal statute conditioning state receipt of federal highway funds on state adoption of minimum drinking age of twenty-one). The crucial proscribed element is coercion; the residents of the State or municipality must retain “the ultimate decision” as to whether or not the State or municipality will comply with the federal regulatory program. *New York*, 505 U.S. at 168, 112 S.Ct. 2408. However, as long as “the alternative to implementing a federal regulatory program does not offend the Constitution's guarantees of federalism,

the fact that the alternative is difficult, expensive or otherwise unappealing is insufficient to establish a Tenth Amendment violation.” *City of Abilene v. EPA*, 325 F.3d 657, 662 (5th Cir.2003).

[11] With the Phase II Rule, EPA gave the operators of small MS4s a choice: either implement the regulatory program spelled out by the Minimum Measures described at 40 C.F.R. § 122.34(b), or pursue the Alternative Permit option and seek a permit under the Phase I Rule as described at 40 C.F.R. § 122.26(d). Thus, unless § 122.26(d) itself offends the Constitution's guarantees of federalism, the Phase II Rule does not violate the Tenth Amendment.

Pursuing a permit under the Alternative Permit option does require permit seekers, in their application for a permit to discharge, to propose management programs that address substantive concerns similar to those addressed by the Minimum Measures. *See* 40 C.F.R. § 122.26(d). However, § 122.26(d) lists the requirements for an *application* for a permit to discharge, not the requirements of the permit itself. Therefore, nothing in § 122.26(d) requires the operator of an MS4 to implement a federal regulatory program in order to receive a permit to discharge, because nothing in § 122.26(d) specifies the contents of the permit that will result from the application process.

City of Abilene, 325 F.3d 657, provides a helpful illustration. The cities of Abilene and Irving, Texas, have populations between 100,000 and 250,000, and so were *848 required to apply for permits under the Phase I Rule, 40 C.F.R. § 122.26(d). *City of Abilene*, 325 F.3d at 659-60. Under § 122.26(d) the cities were required to submit proposed stormwater management programs. *Id.* at 660. They negotiated the terms of those programs with EPA, and EPA eventually presented the cities with proposed management permits that contained conditions requiring the implementation of stormwater regulatory programs, and potentially requiring the regulation of third parties. *Id.* But, as the Fifth Circuit noted, this did not mean that the cities had no choice but to implement a federal regulatory program. Instead:

The Cities filed comments objecting to those conditions, and negotiations continued until the

EPA offered the Cities the option of pursuing numeric end-of-pipe permits, which would have required the Cities to satisfy specific effluent limitations rather than implement management programs. The Cities declined this offer, electing to continue negotiations on the management permits.

Id. The Fifth Circuit rejected the cities' contention that the resulting permits violated the Tenth Amendment by requiring the cities to regulate third parties according to federal standards. *Id.* at 661-63. Because the cities chose to pursue the management permits despite the fact that EPA provided them with an option for obtaining permits that would not have involved implementing a management program or regulating third parties, no unconstitutional coercion occurred. *Id.* at 663. The ultimate decision to implement the federal program remained with the cities.

Any operator of a small MS4 that wishes to avoid the Minimum Measures may seek a permit under § 122.26(d), and, as *City of Abilene* demonstrates, nothing in § 122.26(d) will compel the operator of a small MS4 to implement a federal regulatory program or regulate third parties, because § 122.26(d) specifies application requirements, not permit requirements. Therefore, by presenting the option of seeking a permit under § 122.26(d), the Phase II Rule avoids any unconstitutional coercion. The Municipal Petitioners' claim that the Phase II Rule violates the Tenth Amendment therefore fails.

3. *The First Amendment and the Minimum Measures*

The Municipal Petitioners contend that the Public Education and Illicit Discharge Minimum Measures compel municipalities to deliver EPA's political message in violation of the First Amendment. The Phase II Rule's “Public Education and Outreach” Minimum Measure directs regulated small MS4s to “distribute educational materials to the community ... about the impacts of stormwater discharges on water bodies and the steps the public can take to reduce pollutants in stormwater runoff.” 40 C.F.R. § 122.34(b)(1)(i). The “Illicit Discharge Detection and Elimination” measure requires regulated small MS4s to “[i]nform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.” 40

C.F.R. § 122.34(b)(3)(ii)(D).

[12] The Municipal Petitioners argue that the First Amendment prohibits EPA from compelling small MS4s to communicate messages that they might not otherwise wish to deliver. They further contend that EPA's interpretation of § 402(p) as authorizing these Measures does not warrant *Chevron* deference because it raises serious constitutional issues, but that even if deference were given, the resulting rule is unconstitutional because neither Congress nor EPA may dictate the speech of MS4s. They contend that municipalities are protected by the First Amendment, *849 *Pacific Gas & Elec. v. Public Utilities Comm'n*, 475 U.S. 1, 8, 106 S.Ct. 903, 89 L.Ed.2d 1 (1986) (“Corporations and other associations, like individuals, contribute to the [discourse] that the First Amendment seeks to foster...”), which applies as much to compelled statements of “fact” as to those of “opinion.” *Riley v. Nat'l Fed. of the Blind*, 487 U.S. 781, 797-98, 108 S.Ct. 2667, 101 L.Ed.2d 669 (1988).

We conclude that the purpose of the challenged provisions is legitimate and consistent with the regulatory goals of the overall scheme of the Clean Water Act, *cf. Glickman v. Wileman Bros. & Elliott, Inc.*, 521 U.S. 457, 476, 117 S.Ct. 2130, 138 L.Ed.2d 585 (1997), and does not offend the First Amendment.^{FN23} The State may not constitutionally require an individual to disseminate an ideological message, *Wooley v. Maynard*, 430 U.S. 705, 713, 97 S.Ct. 1428, 51 L.Ed.2d 752 (1977), but requiring a provider of storm sewers that discharge into national waters to educate the public about the impacts of stormwater discharge on water bodies and to inform affected parties, including the public, about the hazards of improper waste disposal falls short of compelling such speech.^{FN24} These broad requirements do not dictate a specific message. They require appropriate educational and public information activities that need not include any specific speech at all. A regulation is facially unconstitutional only when every possible reading compels it, *Meinhold v. U.S. Dep't of Def.*, 34 F.3d 1469, 1476 (9th Cir.1994),^{FN25} but this is clearly not the case here.

FN23. We decline to address two further arguments raised by EPA: first, that municipalities do not receive full First

Amendment protections, under *Muir v. Alabama Educational Television Commission*, 688 F.2d 1033, 1038 n. 12 (5th Cir.1982) (*en banc*) (“Government expression, being unprotected by the First Amendment, may be subject to legislative limitation which would be impermissible if sought to be applied to private expression ...”), and *Aldrich v. Knab*, 858 F.Supp. 1480, 1491 (W.D.Wash.1994) (holding that “unlike private broadcasters, the state itself does not enjoy First Amendment rights”), and second, that even if the First Amendment were fully applicable, the Phase II regulations would satisfy them because MS4s may avoid the compulsion to speak by seeking a permit under the Alternative option, 40 C.F.R. § 122.26(d)(2)(iv), rather than under the Minimum Measures.

FN24. As a subsidiary matter, we note that it also falls short of compelling the MS4 to “regulate” third parties in contravention of the Tenth Amendment. Dispensing information to facilitate public awareness about safe disposal of toxic materials constitutes “encouragement,” not regulation.

FN25. “When the constitutional validity of a statute or regulation is called into question, it is a cardinal rule that courts must first determine whether a construction is possible by which the constitutional problem may be avoided.” *Meinhold*, 34 F.3d at 1476.

As in *Zauderer v. Office of Disciplinary Counsel of the Sup. Ct. of Ohio*, 471 U.S. 626, 105 S.Ct. 2265, 85 L.Ed.2d 652 (1985), where the Supreme Court upheld certain disclosure requirements in attorney advertising, “[t]he interests at stake in this case are not of the same order as those discussed in *Wooley* [invalidating a law requiring that drivers display the motto ‘Live Free or Die’ on New Hampshire license plates] ... and *Barnette* [forbidding the requirement that public school students salute the flag because the State may not impose on the individual ‘a ceremony so touching matters of opinion and political attitude’].” *Id.* at 651. EPA has not attempted to “prescribe what shall be orthodox in politics, nationalism, religion, or other matters of opinion or force citizens to confess by word or act their faith

therein.” *West Virginia State Bd. of Ed. v. Barnette*, 319 U.S. 624, 642, 63 S.Ct. 1178, 87 L.Ed. 1628 (1943).

***850** Informing the public about safe toxin disposal is non-ideological; it involves no “compelled recitation of a message” and no “affirmation of belief.” *PruneYard Shopping Ctr. v. Robins*, 447 U.S. 74, 88, 100 S.Ct. 2035, 64 L.Ed.2d 741 (1980) (upholding state law protecting petitioning in malls and noting that “*Barnette* is inapposite because it involved the compelled recitation of a message containing an affirmation of belief”). It does not prohibit the MS4 from stating its own views about the proper means of managing toxic materials, or even about the Phase II Rule itself. Nor is the MS4 prevented from identifying its dissemination of public information as required by federal law, or from making available federally produced informational materials on the subject and identifying them as such.

Even if such a loosely defined public information requirement could be read as compelling speech, the regulation resembles another regulation that the Supreme Court has held permissible. In *Glickman*, 521 U.S. 457, 117 S.Ct. 2130, 138 L.Ed.2d 585, the Court upheld a generic advertising assessment promulgated by the Department of Agriculture on behalf of California tree fruit growers because the order was consistent with an overall regulatory program that did not abridge protected speech:

Three characteristics of the regulatory scheme at issue distinguish it from laws that we have found to abridge the freedom of speech protected by the First Amendment. First, the marketing orders impose no restraint on the freedom of any producer to communicate any message to any audience. Second, they do not compel any person to engage in any actual or symbolic speech. Third, they do not compel the producers to endorse or to finance any political or ideological views. Indeed, since all of the respondents are engaged in the business of marketing California nectarines, plums, and peaches, it is fair to presume that they agree with the central message of the speech that is generated by the generic program.

Id. at 469-70, 117 S.Ct. 2130 (footnotes omitted). Here, as in *Glickman*, the Phase II regulations impose

no restraint on the freedom of any MS4 to communicate any message to any audience. They do not compel any specific speech, nor do they compel endorsement of political or ideological views. And since all permittees are engaged in the handling of stormwater runoff that must be conveyed in reasonably unpolluted form to national waters, it is similarly fair to presume that they will agree with the central message of a public safety alert encouraging proper disposal of toxic materials.^{FN26} The Phase II regulation departs only from the second element in the *Glickman* analysis, because the public information requirement may compel a ***851** regulated party to engage in some speech at some time; but unlike the offensive messages in *Maynard* and *Barnette* (and even the inoffensive advertising messages at issue in *Glickman*) that speech is not specified by the regulation.^{FN27}

FN26. In its most recent treatment of compelled speech, the Supreme Court held that a generic advertising campaign violated free speech where the message was specific and antagonistic to the preferred advertising message of the plaintiff, and the regulation compelling participation was not part of a broader regulatory apparatus already constraining the plaintiff's autonomy in the relevant arena. *United States Dep't. of Agriculture v. United Foods*, 533 U.S. 405, 410-17, 121 S.Ct. 2334, 150 L.Ed.2d 438 (2001). The court distinguished this advertising program from the one in *Glickman* on the latter point: “[t]he program sustained in *Glickman* differs from the one under review in a most fundamental respect. In *Glickman* the mandated assessments for speech were ancillary to a more comprehensive program restricting market autonomy.” *Id.* at 411, 121 S.Ct. 2334. Although the Phase II Rule is not an advertising or marketing regulation, it constitutes a “comprehensive program” restricting the autonomy of MS4s in the relevant arena of controlling toxic discharges to storm sewers that drain to U.S. waters.

FN27. In deciding the similar question of whether a regulation impermissibly compelled speech by requiring

manufacturers of mercury-containing products to inform consumers how to dispose safely of the toxic material, the Second Circuit held that “mandated disclosure of accurate, factual, commercial information does not offend the core First Amendment values of promoting efficient exchange of information or protecting individual liberty interests.” *Nat'l Elec. Mfrs. Ass'n v. Sorrell*, 272 F.3d 104, 114 (2d Cir.2001). What speech may follow from the Phase II directive will not be “commercial” in the same sense that manufacturer labeling is, but it will be similar in substance to *Sorrell* to the extent that it informs the public how to dispose safely of toxins. We think the policy considerations underlying the commercial speech treatment of labeling requirements, *see, e.g.*, the Federal Cigarette Labeling and Advertising Act, 15 U.S.C. §§ 1333-39, apply similarly in the context of the market-participant municipal storm sewer provider.

The public information requirement does not impermissibly compel speech, and nothing else in the Phase II Rule offends the First Amendment.^{FN28} The Rule does not compel a recitation of a specific message, let alone an affirmation of belief. To the extent MS4s are regulated by the public information requirement, the regulation is consistent with the overall regulatory program of the Clean Water Act and the responsibilities of point source dischargers.

FN28. The Alternative option contains a public education requirement that is similar but even less specific, and therefore even less burdensome, than the requirements in the Minimum Measures. *See* § 122.26(d)(2)(iv)(B)(6) (requiring permit seekers to propose programs to counter illicit discharges, including a “description of educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials”).

4. Notice and Comment on the Alternative Permit Option

The Municipal Petitioners contend that, in adopting

the Alternative Permit option, EPA did not comply with the minimum notice and comment procedures required in informal rulemaking by the Administrative Procedures Act (“APA”), 5 U.S.C. § 553. The APA requires an agency to publish notice of a proposed rulemaking that includes “either the terms or substance of the proposed rule or a description of the subjects and issues involved.” *Id.* at § 553(b)(3).

[13] We have held that a “final regulation that varies from the proposal, even substantially, will be valid as long as it is ‘in character with the original proposal and a logical outgrowth of the notice and comments.’” *Hodge v. Dalton*, 107 F.3d 705, 712 (9th Cir.1997). In determining whether notice was adequate, we consider whether the complaining party should have anticipated that a particular requirement might be imposed. The test is whether a new round of notice and comment would provide the first opportunity for interested parties to offer comments that could persuade the agency to modify its rule. *Am. Water Works Ass'n v. EPA*, 40 F.3d 1266, 1274 (D.C.Cir.1994).

The Municipal Petitioners argue that the Alternative Permit option is not a logical outgrowth of EPA's proposed rule because, although numerous alternatives were discussed in the Preamble to the proposed rule, 63 Fed. Reg. at 1554-1557, the Alternative Permit option eventually adopted was not. EPA counters that the proposed rule included a supplementary alternative permitting system based on concepts similar to those in the Minimum *852 Measures, including “simplified individual permit application requirements.”^{FN29} EPA contends that the Alternative Permit option was a logical outgrowth of the comments it received on the proposal expressing concern that the Minimum Measures might violate the Tenth Amendment. 64 Fed. Reg. at 68,765.

FN29. Municipal Petitioners concede that “simplified individual permit application requirements” were discussed, but they contend that the permit requirements discussed are not sufficiently similar to those promulgated to establish a logical outgrowth.

[14] The Alternative Permit option passes the *Hodge* test. The proposed rule suggested an individualized

permitting option to be developed in response to comments during the notice and comment period. The Alternative option contains no elements that were not part of the original rule, even if they are configured differently in the final rule. Petitioners had, and took, their opportunity to object to the aspects of the Rule that they did not support in their comments on the Minimum Measures.

B. The General Permit Option and Notices of Intent

The Environmental Petitioners contend that the general permitting scheme of the Phase II Rule allows regulated small MS4s to design stormwater pollution control programs without adequate regulatory and public oversight, and that it contravenes the Clean Water Act because it does not require EPA to review the content of dischargers' notices of intent and does not contain express requirements for public participation in the NPDES permitting process.

In reviewing a federal administrative agency's interpretation of a statute it administers, we first determine whether Congress has expressed its intent unambiguously on the question before the court. *See Chevron*, 467 U.S. 837, 842-44, 104 S.Ct. 2778, 81 L.Ed.2d 694 (“If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress.”). “If, instead, Congress has left a gap for the administrative agency to fill, we proceed to step two. At step two, we must uphold the administrative regulation unless it is arbitrary, capricious, or manifestly contrary to the statute.” *Defenders of Wildlife v. Browner*, 191 F.3d 1159, 1162, amended by 197 F.3d 1035 (9th Cir.1999) (citations and internal quotations omitted).

[15] We conclude that the Phase II General Permit option violates the Clean Water Act's requirement that permits for discharges “require controls to reduce the discharge of pollutants to the maximum extent practicable,” 33 U.S.C. § 1342(p)(3)(B)(iii). We also conclude that the Phase II General Permit option violates the Clean Water Act because it does not contain express requirements for public participation in the NPDES permitting process. We remand these aspects of the Phase II Rule.^{FN30}

FN30. EPA argues that the Environmental Petitioner's challenge is not ripe for review because “the question of whether some general permit somewhere might fail to assure that pollutants are reduced to the maximum extent practicable is not ripe for review.” But we are not addressing the merits of any specific permit. Rather, the question before us “is purely one of statutory interpretation that would not benefit from further factual development of the issues presented.” *Whitman v. American Trucking*, 531 U.S. 457, 479, 121 S.Ct. 903, 149 L.Ed.2d 1 (2001). Specifically, we are addressing whether EPA, in promulgating the Phase II Rule, has accomplished the substantive controls for municipal stormwater that Congress mandated in § 402(p) of the Clean Water Act. As we held in *Natural Resources Defense Council v. EPA*, 966 F.2d at 1296-97, 1308, this question is ripe for review.

***853 I. Phase II General Permits and Notices of Intent**

Primary responsibility for enforcement of the requirements of the Clean Water Act is vested in the Administrator of the EPA. 33 U.S.C. § 1251(d); *see also* 33 U.S.C. § 1361(a) (“The Administrator [of EPA] is authorized to prescribe such regulations as are necessary to carry out his functions under this chapter.”). The Clean Water Act renders illegal any discharge of pollutants not specifically authorized by a permit. 33 U.S.C. § 1311(a) (“Except in compliance with this section and [other sections detailing permitting requirements] of this title, the discharge of any pollutant by any person shall be unlawful.”). Under the Phase II Rule, dischargers may apply for an individualized permit with the relevant permitting authority, or may file a “Notice of Intent” (“NOI”) to seek coverage under a “general permit.” 40 C.F.R. § 122.33(b).

A general permit is a tool by which EPA regulates a large number of similar dischargers. Under the traditional general permitting model, each general permit identifies the output limitations and technology-based requirements necessary to adequately protect water quality from a class of dischargers. Those dischargers may then acquire

permission to discharge under the Clean Water Act by filing NOIs, which embody each discharger's agreement to abide by the terms of the general permit. Because the NOI represents no more than a formal acceptance of terms elaborated elsewhere, EPA's approach does not require that permitting authorities review an NOI before the party who submitted the NOI is allowed to discharge. General permitting has long been recognized as a lawful means of authorizing discharges. *Natural Res. Def. Council v. Costle*, 568 F.2d 1369 (D.C.Cir.1977).

The Phase II general permitting scheme differs from the traditional general permitting model. The Clean Water Act requires EPA to ensure that operators of small MS4s "reduce the discharge of pollutants to the maximum extent practicable." 33 U.S.C. § 1342(p)(3)(B). To ensure that operators of small MS4s achieve this "maximum extent practicable" standard, the Phase II Rule requires that each NOI contain information on an individualized pollution control program that addresses each of the six general criteria specified in the Minimum Measures; thus, according to the Phase II Rule, submitting an NOI and implementing the Minimum Measures it contains "constitutes compliance with the standard of reducing pollutants to the 'maximum extent practicable.'" 40 C.F.R. § 122.34(a).

Because a Phase II NOI establishes what the discharger will do to reduce discharges to the "maximum extent practicable," the Phase II NOI crosses the threshold from being an item of procedural correspondence to being a substantive component of a regulatory regime. The text of the Rule itself acknowledges that a Phase II NOI is a permit application that is, at least in some regards, functionally equivalent to a detailed application for an individualized permit. *See, e.g.*, 40 C.F.R. § 122.34(d)(1) ("In your permit application (either a notice of intent for coverage under a general permit or an individual permit application), you must identify and submit to your NPDES permitting authority the following information..."). For this reason, EPA rejected the possibility of providing a "form NOI" to Phase II permittees, explaining that "[w]hat will be required on an MS4's NOI ... is more extensive than what is usually required on *854 an NOI, so a 'form' NOI for MS4s may be impractical." 64 Fed. Reg. at 68,764.

2. Failure to Regulate

The Environmental Petitioners argue that, by allowing NPDES authorities to grant dischargers permits based on unreviewed NOIs, the Rule creates an impermissible self-regulatory system.^{FN31} Petitioners contend the Rule impermissibly fails to require that the permitting authority review an NOI to assure compliance with Clean Water Act standards, including the standard that municipal stormwater pollution be reduced to "the maximum extent practicable." 33 U.S.C. § 1342(p)(3)(B)(iii). *See* 40 C.F.R. § 123.35 (setting out requirements for permitting authorities, but not requiring review of NOI); 64 Fed. Reg. at 68,764 ("EPA disagrees that formal approval or disapproval by the permitting authority is needed").

FN31. Petitioners suggest that EPA should be held to the standard it espoused to procure judicial approval for the Phase I program. In 1991, responding to NRDC's assertion that the Phase I Rule failed to set "hard criteria" for review of MS4 stormwater programs, EPA responded that "inadequate proposals will result in the denial of permit applications." Respondent's Brief at 67, *Natural Res. Def. Council v. EPA*, 966 F.2d 1292 (9th Cir.1992) (Nos. 91-70200, 91-70176, & 90-70671). Petitioners contend that this court relied on that representation in ruling for EPA on that issue. *Natural Res. Def. Council v. EPA*, 966 F.2d at 1308 n. 17 ("Individual NPDES permit writers ... will decide whether application proposals are adequate....").

EPA maintains that the Phase II permit system is fully consistent with the authorizing statute. It contends that § 402(p)(6) granted EPA flexibility in designing the Phase II "comprehensive program," and notes that while the statute does not require general permits, neither does it preclude them. EPA contends that Congress delegated the task of designing the program to EPA, and that EPA reasonably adopted a "flexible version" of the NPDES permit program to suit the unique needs of the Phase II program. It disputes that the general permit program creates "paper tigers," especially since EPA, States, and citizens may initiate enforcement actions. Finally, EPA argues that the

Rule does not create a self-regulatory program, but that even if it did, nothing in § 402(p)(6) precludes such a program.

Reviewing the Phase II Rule under the first step of *Chevron*, we note that the plain language of § 402(p) of the Clean Water Act, 33 U.S.C. § 1342(p), expresses unambiguously Congress's intent that EPA issue no permits to discharge from municipal storm sewers unless those permits "require controls to reduce the discharge of pollutants to the maximum extent practicable."

Phase II general permits will likely impose requirements that ensure that operators of small MS4s comply with many of the standards of the Clean Water Act. Thus, general permits issued under Phase II will ordinarily contain numerous substantive requirements, just as did the permits issued under Phase I. *See* 40 C.F.R. §§ 123.35 & 123.35(a) ("§ 123.35 As the NPDES Permitting Authority for regulated small MS4s, what is my role? (a) You must comply with the requirements for all NPDES permitting authorities under Parts 122, 123, 124 and 125 of this chapter."); *see also* 40 C.F.R. § 122.28 (outlining requirements for NPDES authorities issuing general permits). And every operator of a small MS4 who files an NOI under Phase II "must comply with other applicable NPDES permit requirements, standards, and conditions established in *855 the ... general permit." *See* 40 C.F.R. §§ 122.34 & 122.34(f).

[16] However, while each Phase II general permit will likely ensure that operators of small MS4s comply with certain standards of the Clean Water Act, they will not "require controls to reduce the discharge of pollutants to the maximum extent practicable." According to the Phase II Rule, the operator of a small MS4 has complied with the requirement of reducing discharges to the "maximum extent practicable" when it implements its stormwater management program, *i.e.*, when it implements its Minimum Measures. 40 C.F.R. § 122.34(a); *see also* 64 Fed. Reg. at 68753 (stating EPA's anticipation that limitations more stringent than the minimum control measures "will be unnecessary"). Nothing in the Phase II regulations requires that NPDES permitting authorities review these Minimum Measures to ensure that the measures that any given operator of a small MS4 has decided

to undertake will *in fact* reduce discharges to the maximum extent practicable.^{FN32}

FN32. That the Rule allows a permitting authority to review an NOI is not enough; every permit must comply with the standards articulated by the Clean Water Act, and unless every NOI issued under a general permit is reviewed, there is no way to ensure that such compliance has been achieved.

The regulations do require NPDES permitting authorities to provide operators of small MS4s with "menus" of management practices to assist in implementing their Minimum Measures, *see* 40 C.F.R. § 123.35(g), but again, nothing requires that the combination of items that the operator of a small MS4 selects from this "menu" will have the combined effect of reducing discharges to the maximum extent practicable.

Nor is the availability of citizen enforcement actions a substitute for EPA's enforcement responsibility, especially because, as discussed below, the Rule does not require that NOIs be publicly available. Absent review on the front end of permitting, the general permitting regulatory program loses meaning even as a procedural exercise.

See 40 C.F.R. § 123.35 ("As the NPDES Permitting Authority for regulated small MS4s, what is my role?"). Therefore, under the Phase II Rule, nothing prevents the operator of a small MS4 from misunderstanding or misrepresenting its own stormwater situation and proposing a set of minimum measures for itself that would reduce discharges by far less than the maximum extent practicable.

In fact, under the Phase II Rule, in order to receive the protection of a general permit, the operator of a small MS4 needs to do nothing more than decide for itself what reduction in discharges would be the maximum practical reduction. No one will review that operator's decision to make sure that it was reasonable, or even good faith.^{FN33} Therefore, as the Phase II Rule stands, EPA would allow permits to

issue that would do less than *require* controls to reduce the discharge of pollutants to the maximum extent practicable.^{FN34} See*856 64 Fed. Reg. at 68753 (explaining that the minimum control measures will protect water quality if they are “properly implemented”). We therefore must reject this aspect of the Phase II Rule as contrary to the clear intent of Congress. Cf. *Natural Res. Def. Council*, 966 F.2d at 1305 (rejecting as arbitrary and capricious a permitting system that allowed regulated industrial stormwater dischargers to “self-report” whether they needed permit coverage).

FN33. EPA identifies no other general permitting program that leaves the choice of substantive pollution control requirements to the regulated entity, and we are not persuaded by the analogy it urges to the traditional model of general permitting (where NOIs routinely are not reviewed), because, as we have noted, the Phase II general permit model is substantially dissimilar.

FN34. In its petition for rehearing, EPA argues for the first time that because the regulations require NPDES Permitting Authorities to include in general permits “any additional measures necessary” to ensure that the maximum extent practicable standard is met, 40 C.F.R. §§ 123.35(h)(1), 123.35(f) (incorporating by reference the “maximum extent practicable” requirement of 40 C.F.R. §§ 122.34(a)), 122.34(f) (requiring small MS4s to comply with additional measures), the Phase II Rule ensures that discharges will be reduced to the maximum extent practicable.

The trouble with EPA's reasoning is that the Phase II Rule defines the “maximum extent practicable” standard in such a way that no “additional measures” will ever be necessary under § 123.35(h)(1). While a Permitting Authority may impose additional measures, nothing compels it to do so because, merely by implementing the best management practices that the operator of a small MS4 has chosen for itself, that small MS4 will already have met the “maximum extent practicable”

standard. See 40 C.F.R. § 122.34(a).

Involving regulated parties in the development of individualized stormwater pollution control programs is a laudable step consistent with the directive to consult with state and local authorities in the development of the § 402(p)(6) comprehensive program. But EPA is still required to ensure that the individual programs adopted are consistent with the law. Our holding should not prevent the Phase II general permitting program from proceeding mostly as planned. Our holding does not preclude regulated parties from designing aspects of their own stormwater management programs, as contemplated under the Phase II Rule. However, stormwater management programs that are designed by regulated parties must, in every instance, be subject to meaningful review by an appropriate regulating entity to ensure that each such program reduces the discharge of pollutants to the maximum extent practicable. We therefore remand this aspect of the Rule.

3. Public Participation

The Environmental Petitioners contend that the Phase II Rule fails to provide for public participation as required by the Clean Water Act, because the public receives neither notice nor opportunity for hearing regarding an NOI. The EPA replies on the one hand by arguing that NOIs are not “permits” and therefore are not subject to the public availability and public hearing requirements of the Clean Water Act, and on the other hand by arguing that the combination of the public involvement minimum measure, 40 C.F.R. § 122.34(b)(2), the Federal Freedom of Information Act, 5 U.S.C. § 552, and state freedom of information acts would fulfill any such requirements if NOIs were permits.

Reviewing the Phase II Rule under *Chevron* step one, we conclude that clear Congressional intent requires that NOIs be subject to the Clean Water Act's public availability and public hearings requirements. The Clean Water Act requires that “[a] copy of each permit application and each permit issued under [the NPDES permitting program] shall be available to the public,” 33 U.S.C. § 1342(j), and that the public shall have an opportunity for a hearing before an permit application is approved, 33 U.S.C. § 1342(a)(1). Congress identified public participation rights as a

critical means of advancing the goals of the Clean Water Act in its primary statement of the Act's approach and philosophy. See 33 U.S.C. § 1251(e); see also *Costle v. Pacific Legal Found.*, 445 U.S. 198, 216, 100 S.Ct. 1095, 63 L.Ed.2d 329 (1980) (noting the “general policy of encouraging public participation is applicable to the administration of the NPDES permit program”). EPA has acknowledged that technical issues relating to the issuance of NPDES permits should be decided in “the most open, accessible forum possible,*857 and at a stage where the [permitting authority] has the greatest flexibility to make appropriate modifications to the permit.” 44 Fed. Reg. 32,854, 32,885 (June 7, 1979).

As we noted above, under the Phase II Rule it is the NOIs, and not the general permits, that contain the substantive information about how the operator of a small MS4 will reduce discharges to the maximum extent practicable. Under the Phase II Rule, NOIs are functionally equivalent to the permit applications Congress envisioned when it created the Clean Water Act's public availability and public hearing requirements. Thus, if the Phase II Rule does not make NOIs “available to the public,” and does not provide for public hearings on NOIs, the Phase II Rule violates the clear intent of Congress. EPA's first argument—that NOIs are not subject to the public availability and public hearings requirements of the Clean Water Act—therefore fails.

We therefore reject the Phase II Rule as contrary to the clear intent of Congress insofar as it does not provide for public hearings on NOIs as required by 33 U.S.C. § 1342(a)(1). However, Congress has not directly addressed the question of what would constitute an NOI being “available to the public” as required by 33 U.S.C. § 1342(j). Under *Chevron* step two, we must defer to EPA's interpretation of “available to the public” unless it is arbitrary, capricious, or manifestly contrary to the statute.

[17] EPA argues that the NOIs are “available to the public” as a result of the combined effects of the public participation minimum measures, and of federal and state freedom of information acts. This argument is unconvincing. First, the public participation Minimum Measure only requires dischargers to design a program minimally consistent with State, Tribal, and local requirements. 40 C.F.R. § 122.34(b)(2). Second, the federal Freedom of

Information Act only applies to documents that are actually in EPA's possession, not to documents that are in the possession of state or tribal NPDES authorities, see 40 C.F.R. § 2 (providing EPA's policy for releasing documents under the federal Freedom of Information Act), and nothing in the Phase II Rule provides that EPA obtain possession of every NOI that is submitted to a NPDES permitting authority. See 40 C.F.R. § 123.41(a) (making information provided to state NPDES authorities available to EPA only upon request). Thus, under the Phase II Rule, NOIs will only “be available to the public” subject to the vagaries of state and local freedom of information acts. We conclude that EPA's interpretation of 33 U.S.C. § 1342(j), as embodied in the provisions of the Phase II Rule providing for the public availability of NOIs, is manifestly contrary to the Clean Water Act, which contemplates greater scope, greater certainty, and greater uniformity of public availability than the Phase II Rule provides. We therefore reject this aspect of the Phase II Rule.^{FN35}

FN35. EPA argues for the first time in its petition for rehearing that NOIs will be publicly available under 40 C.F.R. § 122.34(g)(2). Addressing operators of regulated small MS4s, this section provides: “You must make your records, including a description of your storm water management program, available to the public at reasonable times during regular business hours.” While this section does seem to provide for the public availability of a small MS4's records, we are troubled that nothing in EPA's initial briefs indicated that EPA considered NOIs to be subject to this section. We normally defer to an agency's interpretations of its own regulations, but we may decline to defer to the *post hoc* rationalizations of appellate counsel. See, e.g., *Martin v. Occupational Safety and Health Review Commission*, 499 U.S. 144, 150, 156, 111 S.Ct. 1171, 113 L.Ed.2d 117 (1991). If EPA intends this section to provide for the public availability of NOIs—for example because it intends NOIs to be among the records subject to this section—it may clarify on remand.

*858 In sum, we conclude that EPA's failure to require review of NOIs, which are the functional

equivalents of permits under the Phase II General Permit option, and EPA's failure to make NOIs available to the public or subject to public hearings contravene the express requirements of the Clean Water Act. We therefore vacate those portions of the Phase II Rule that address these procedural issues relating to the issuance of NOIs under the Small MS4 General Permit option, and remand so that EPA may take appropriate action to comply with the Clean Water Act.

C. Failure to Designate

We reject the Environmental Petitioners' contention that EPA's failure to designate for Phase II regulation serious sources of stormwater pollution, including certain industrial ("Group A") sources and forest roads, was arbitrary and capricious. See *Marsh v. Oregon Natural Res. Council*, 490 U.S. 360, 378, 109 S.Ct. 1851, 104 L.Ed.2d 377 (1989).^{FN36}

FN36. Agency determinations based on the record are reviewed under the "arbitrary and capricious" standard. 5 U.S.C. § 706(2)(A). The standard is narrow and the reviewing court may not substitute its judgment for that of the agency. *Marsh*, 490 U.S. at 378, 109 S.Ct. 1851. However, the agency must articulate a rational connection between the facts found and the conclusions made. *Washington v. Daley*, 173 F.3d 1158, 1169 (9th Cir.1999). The reviewing court must determine whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment. *Marsh*, 490 U.S. at 378, 109 S.Ct. 1851. The court may reverse under the "arbitrary and capricious" standard only if the agency:

has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.

Motor Vehicle Mfrs. Ass'n, 463 U.S. at

43, 103 S.Ct. 2856.

1. "Group A" Facilities

In addition to the small MS4s and construction sites ultimately designated for regulation under the Phase II Rule, EPA evaluated a variety of other point-source discharge categories for potential Phase II regulation. One group of dischargers (referred to as the "Group A" facilities) included sources that "are very similar, or identical" to regulated stormwater discharges associated with industrial activity that were not designated for Phase I regulation for administrative reasons unrelated to their environmental impacts.^{FN37} 64 Fed. Reg. at 68,779. EPA estimates that Group A includes approximately 100,000 facilities, including auxiliary facilities and secondary activities ("e.g., maintenance of construction equipment and vehicles, local trucking for an unregulated facility such as a grocery store,"*id.*) and facilities intentionally omitted from Phase I designation ("e.g., publicly owned treatment works with a design flow of less than 1 million gallons per day, landfills that have not received industrial waste,"*id.*).

FN37. EPA explains that the Group A facilities were not regulated with the other Phase I sources because EPA used Standard Industrial Classification Index (SIC) codes in defining the universe of regulated industrial activities: "By relying on SIC codes, a classification system created to identify industries rather than environmental impacts from these industries [sic] discharges, some types of storm water discharges that might otherwise be considered 'industrial' were not included in the existing NPDES storm water program." 64 Fed. Reg. at 68,779.

*859 The Environmental Petitioners contend that EPA should have designated the Group A facilities for categorical Phase II regulation after finding (1) that stormwater discharges from these facilities are the same as those from the industrial sources regulated under Phase I, and (2) that such discharges may cause "adverse water quality impacts." *Id.* Petitioners argue that these findings, and EPA's failure to provide individualized analysis regarding whether any specific source category within Group A

requires regulation, render EPA's decision not to regulate any of these sources under the Rule arbitrary and capricious. They maintain that EPA's "line-drawing," which regulates some pollution sources but leaves nearly identical sources unregulated without any persuasive rationale, is necessarily arbitrary and capricious. See *Natural Res. Def. Council*, 966 F.2d at 1306 (EPA's decision not to regulate construction sites smaller than five acres was arbitrary when EPA provided no data to justify the five-acre threshold and admitted that unregulated sites could have significant water quality impacts).

Petitioners argue that § 402(p)(6) at least required EPA to make findings with respect to individual Group A categories, and that data collected from Phase I permit applications could be used to evaluate the pollutant potential of the identical Group A sources. They contend that these findings should have sufficed as a basis for designating at least some Group A sources, and that EPA's conclusion that it lacked adequate nationwide data upon which to designate any of these sources is not supported by the record evidence. Comparing EPA's identification of the serious polluting potential of some of these sources with its statutory mandate under § 402(p)(6) "to protect water quality," they argue that EPA fails even the forgiving standard of arbitrary and capricious review in that it has "offered an explanation for its decision that runs counter to the evidence before [it]" and "is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." See *Motor Vehicle Mfrs.*, 463 U.S. at 43, 103 S.Ct. 2856.

EPA maintains that it considered Group A facilities' similarity to already regulated sources as only one of several criteria that it used in designating sources for regulation under Phase II, 64 Fed. Reg. at 68,780, and that sources that appear "similarly situated" under one criterion are not necessarily similarly situated under all. EPA asserts that nothing in § 402(p)(6) implied a responsibility to make individualized findings regarding each Group A subcategory, and it maintains that it simply lacked sufficient data to support nationwide designation of the Group A facilities. EPA notes that, after failing to receive requested comment providing such data, it proposed instead "to protect water quality" by allowing regional regulation of problem Group A facilities under the residual designation authority.

EPA contends that agencies must be afforded deference in determining the data necessary to support regulatory decisionmaking and that it reasonably determined the quantum of data it would need to support the designation of additional sources on a nationwide basis. See *Sierra Club v. EPA*, 167 F.3d 658, 662 (D.C.Cir.1999).

[18] We conclude that sufficient evidence supports EPA's decision not to designate Group A sources on a nationwide basis, and instead to establish local and regional designation authority to account for these sources and protect water quality. Although we are troubled by the purely administrative basis for the distinction between facilities regulated under the Phase I Rule and the Group A facilities *860 that remain unregulated under Phase II,^{FN38} EPA's choice of the Phase I standard for designation is not the issue before us. Before us is whether EPA acted arbitrarily in declining to designate the Group A sources on a nationwide basis under the Phase II Rule, and we cannot say that it did.

FN38. As discussed in footnote 37, Group A facilities were not regulated with other Phase I industrial sources based on a government coding system used to distinguish different types of industry (without reference to their similar environmental impacts). See 64 Fed. Reg. at 68,779.

EPA has articulated a rational connection between record facts indicating insufficient data to categorically regulate Group A facilities and its corresponding conclusion not to do so, and we defer to that decision. See *Washington v. Daley*, 173 F.3d 1158, 1169 (9th Cir.1999). In the text of the Rule, EPA explains that the process behind its decision not to nationally designate Group A sources for Phase II regulation focused not only on the likelihood of contamination from a source category, but also on the sufficiency of national data about each category and whether pollution concerns were adequately addressed by existing environmental regulations.^{FN39} We cannot say that EPA relied on factors Congress had not intended it to consider, that it failed to consider an important aspect of the problem, or that its rationale is implausible. See *Motor Vehicle Mfrs.*, 463 U.S. at 43, 103 S.Ct. 2856. Nor did EPA's decision run counter to the evidence before it. *Id.*

The Environmental Petitioners allege that its decision not to regulate Group A facilities runs counter to evidence that similar sources are highly polluting, but as EPA considered evidence beyond those similarities that persuaded it not to regulate, we cannot say that EPA's decision is unsupported by the record. Nothing in § 402(p)(6) unambiguously requires EPA to evaluate the Group A source categories individually, and we defer to EPA's interpretation of the statute it is charged with administering. See *Royal Foods Co. v. RJR Holdings*, 252 F.3d 1102, 1106 (9th Cir.2001).

FN39. "In identifying potential categories of sources for designation in today's notice, EPA considered designation of discharges from Group A and Group B facilities. EPA applied three criteria to each potential category in both groups to determine the need for designation: (1) The likelihood for exposure of pollutant sources included in that category, (2) whether such sources were adequately addressed by other environmental programs, and (3) whether sufficient data were available at this time on which to make a determination of potential adverse water quality impacts for the category of sources. As discussed previously, EPA searched for applicable nationwide data on the water quality impacts of such categories of facilities...."

"EPA's application of the first criterion showed that a number of Group A and B sources have a high likelihood of exposure of pollutants.... Application of the second criterion showed that some categories were likely to be adequately addressed by other programs."

"After application of the third criterion, availability of nationwide data on the various storm water discharge categories, EPA concluded that available data would not support any such nationwide designations. While such data could exist on a regional or local basis, EPA believes that permitting authorities should have flexibility to regulate only those categories of sources contributing to localized water quality impairments.... If

sufficient regional or nationwide data become available in the future, the permitting authority could at that time designate a category of sources or individual sources on a case-by-case basis." 64 Fed. Reg. at 68,780.

2. Forest Roads

The Environmental Petitioners also contend that EPA arbitrarily failed to regulate forest roads under the Rule despite clear evidence in the record documenting the need for stormwater pollution control *861 of drainage from these roads. Petitioners again contend that this agency action is arbitrary, because EPA has offered an explanation for its decision that runs counter to the evidence before it.

Petitioners point to EPA's own conclusion that forest roads "are considered to be the major source of erosion from forested lands, contributing up to 90 percent of the total sediment production from forestry operations."^{FN40} They note that both unimproved forest roads and construction sites create large expanses of non-vegetated soil subject to stormwater erosion, and argue that construction site data thus also support regulation of forest roads. Petitioners observe that EPA has cited no contrary evidence indicating that forest roads are not sources of stormwater pollutant discharges to U.S. waters, and they argue that Phase II regulation is necessary "to protect water quality," because proper planning and road design can minimize erosion and prevent stream sedimentation. Petitioners note that this court has previously held that, in the absence of such "supportable facts," EPA is not entitled to the usual assumption that it has "rationally exercised the duties delegated to it by Congress." *Natural Res. Def. Council*, 966 F.2d at 1305.

FN40. *Guidance Specifying Management Measures For Sources of Nonpoint Pollution in Coastal Waters*, EPA guidance paper 840-B-93-001c (Jan. 1993), available at <http://www.epa.gov/owow/nps/mmgi/index.html> (last visited Sept. 18, 2002) ("Coastal Waters").

[19] EPA's response is that we have no jurisdiction to hear this challenge, chiefly because, it believes, the

challenge is time-barred by Clean Water Act § 509(b)(1), 33 U.S.C. § 1369(b)(1) (providing that “application for review shall be made within 120 days from the date of [agency action]”). EPA promulgated silviculture regulations in 1976 that exclude from NPDES permit requirements certain silvicultural activities that EPA determined constitute non-point source activities, including “surface drainage, or road construction and maintenance from which there is natural runoff.” 40 C.F.R. § 122.27(b)(1).^{FN41} EPA asserts that the exclusion applies to forest roads in general, not only to “construction” and “maintenance”—an assertion disputed by Petitioners—and that any challenge to the decision not to regulate forest roads should have been brought within 120 days of the promulgation of that rule. See 33 U.S.C. § 1369(b)(1).

FN41. The provision provides in full as follows:

Silvicultural point source means any discernible, confined and discrete conveyance related to rock crushing, gravel washing, log sorting, or log storage facilities which are operated in connection with silvicultural activities and from which pollutants are discharged into waters of the United States. The term does not include non-point source silvicultural activities such as nursery operations, site preparation, reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvesting operations, surface drainage, or road construction and maintenance from which there is natural runoff. However, some of these activities (such as stream crossing for roads) may involve point source discharges of dredged or fill material which may require a CWA section 404 permit (See 33 CFR 209.120 and part 233).

40 C.F.R. § 122.27(b)(1).

EPA's argument might be more persuasive if Petitioners' contention could be understood essentially as a direct challenge to the 1976 silviculture regulations, but this is not the case. Even were we to assume that EPA exempted forest roads

from NPDES permit requirements in 1976 under 40 C.F.R. § 122.27(b)(1), that would not resolve the question whether EPA should have addressed forest roads in its “comprehensive program ... to protect *862 water quality” under § 402(p)(6), because § 402(p)(6) was not enacted until 1987. Petitioners challenge EPA's decision not to regulate under the new portion of the statute, not the decision not to regulate under other provisions that were in effect earlier.

EPA argues in the alternative that Petitioners should have sought judicial review when EPA considered amending § 122.27(b)(1)—to delete the language that it asserts renders forest roads non-point sources—but then determined not to make the amendment. However, we are aware of no statute or legal doctrine providing that a party's failure to challenge an agency's decision *not* to amend its rules in one proceeding deprives the party of the right to challenge, in a contemporaneous proceeding, the promulgation of an entire new rule which could have, but did not, provide the full relief the party seeks. Assuming that EPA is correct that § 122.27(b)(1) defines forest roads as non-point sources, both the Phase II Rule proceedings and the proceedings in which the proposed amendment to § 122.27(b)(1) was considered and rejected were proper proceedings in which to raise the issue whether discharges from forest roads should be regulated. Petitioners chose to raise the issue in their comments to the proposed Phase II Rule, because they believed that Clean Water Act § 402(p)(6) mandates the regulation of forest roads. They did not lose their right to challenge the final Phase II Rule's failure to regulate forest roads simply because they did not also raise a challenge to EPA's failure to adopt an amendment to § 122.27(b)(1) that the agency initially proposed. (We note, incidentally, that it appears that even a successful challenge to § 122.27(b)(1) would likely not have achieved the objective the Environmental Petitioners sought: it would only have allowed case-by-case coverage for forest roads, and not for overall coverage.)

[20] Finally, EPA suggests that Petitioners' comments during the Phase II rulemaking process were too short to create jurisdiction in this court to hear this challenge. However, EPA exaggerates the slightness of those comments, which comprised two paragraphs, with footnotes, stating objections and providing

support. We also agree with Petitioners that EPA was aware of the forest road sedimentation problem at the time of the rulemaking.^{FN42} Indeed, EPA responded to the comments without disputing that the problem is serious. 3 EPA, *Response to Public Comments* 8 (Oct. 29, 1999). Rather, the agency relied on 40 C.F.R. § 122.27(b)(1), indicating that it was barred from acting under the Phase II Rule by § 122.27(b)(1).

FN42. Nonpoint Source Pollution: The Nation's Largest Water Quality Problem, EPA841-F-96-004A ("Pointer # 1") ("The latest *National Water Quality Inventory* indicates that agriculture is the leading contributor to water quality impairments, degrading 60 percent of the impaired river miles and half of the impaired lake acreage surveyed by states, territories, and tribes.").

EPA does not seriously address the merits of Petitioners' objections to the Rule in its brief to this court. Instead, EPA relies almost entirely on its assertion that we lack jurisdiction to decide this question. It does, however, strongly imply that its failure to adopt its own proposed amendment in the proceeding pertaining to § 122.27(b)(1) relieves it of its obligation to consider including forest roads in the Phase II Rule proceedings. We reject any such contention. Petitioners' assertion that § 402(p)(6) requires that the Phase II Rule contain provisions regulating forest roads necessitates a response from EPA on the merits.

*863 Having concluded that the objections of the Environmental Petitioners are not time-barred, and that we have jurisdiction to hear them, but that EPA failed to consider those objections on the merits, we remand this issue to the EPA, so that it may consider in an appropriate proceeding Petitioners' contention that § 402(p)(6) requires EPA to regulate forest roads. EPA may then either accept Petitioners' arguments in whole or in part, or reject them on the basis of valid reasons that are adequately set forth to permit judicial review.

D. AF&PA's Standing

The American Forestry & Paper Association (AF&PA), a national trade association representing the forest, pulp, paperboard, and wood products

industry, is one of the two Industry Petitioners asserting the remaining claims.^{FN43} Before considering these challenges, however, we consider whether AF&PA has standing to raise them.

FN43. The Municipal Petitioners join in asserting the "regulatory basis" claim at Part II(F)(1).

EPA argues that AF&PA lacks standing because it cannot show that it represents entities that suffer a cognizable injury under the Phase II Rule as promulgated. EPA argues that the interests of AF&PA entities might have supported standing had EPA decided to regulate forest roads as Phase II stormwater dischargers, but since EPA declined to do so, none of AF&PA's members are currently subject to the Rule. AF&PA contends that its members have a cognizable legal interest in the Rule because they risk becoming subject to regulation at any future time under the continuing designation authority.

[21] We agree that AF&PA lacks standing. A claimant meeting Article III standing requirements must show that "(1) it has suffered an 'injury in fact' ...; (2) the injury is fairly traceable to the challenged action of the defendant; and (3) it is likely, as opposed to merely speculative, that the injury will be redressed by a favorable decision." *Friends of the Earth v. Laidlaw Env'tl. Servs. (TOC)*, 528 U.S. 167, 180-81, 120 S.Ct. 693, 145 L.Ed.2d 610 (2000). Standing requires an injury that is "actual or imminent, not 'conjectural or hypothetical.'" *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560, 112 S.Ct. 2130, 119 L.Ed.2d 351 (1992). AF&PA's interest in avoiding future regulation of forest roads is not actually or imminently threatened by any potential result in this case. No ripe claim about misuse of the residual authority to regulate forest road discharge, or any other kind of discharge, is before the court. Should members of AF&PA become subject to Phase II regulation through subsequent administrative action, it will have standing to challenge those actions at that time. In the meanwhile, we proceed to the merits of the remaining claims on behalf of AF&PA's co-petitioner, the National Association of Home Builders, which has established its standing to raise them.

E. Consultation with State and Local Officials

The Industry Petitioners contend that EPA failed to consult with the States on the Phase II Rule as required by § 402(p)(5), which instructs EPA to conduct studies “in consultation with the States,” and § 402(p)(6), which instructs the Administrator to issue regulations based on these studies “in consultation with State and local officials.” 33 U.S.C. §§ 1342(p)(5)-(6). We conclude that EPA satisfied its statutory duty of consultation. *See Marsh*, 490 U.S. at 378, 109 S.Ct. 1851.

***864** Petitioners concede several instances in which EPA circulated drafts of the Phase II Rule to state and local authorities, but argue that these consultations were meaningless because (1) the reports were circulated too far in advance of the actual rulemaking, (2) the rulemaking wrongfully proceeded based on other sources of input, (3) standard APA notice and comment procedures could not suffice because Congress must have intended something more when it added the consultation requirements to the language of § 402, and (4) consultation at the final stage of rulemaking was inadequate because comment was sought on the final report only after it had been submitted to Congress and the Phase II Rule had been promulgated. Petitioners provide examples of state feedback that allegedly went unheeded by EPA in its promulgation of the final Rule.

EPA maintains that it consulted extensively with States and localities in developing the Phase II Rule, discharging its obligations under §§ 402(p)(5) & (6). EPA contends that the comments Petitioners cite as unheeded by EPA demonstrate that EPA *did* consult with States concerning the Rule, even if some States did not concur in EPA's ultimate conclusion, and that the final rule adopted a good measure of the flexibility sought by state representatives. EPA argues that Industry Petitioners cannot complain that consultation was inadequate simply because it did not result in the adoption of Petitioners' preferred views.

EPA also disputes Petitioners' allegation that while EPA did comply with the terms of the 1999 Appropriations Act (requiring EPA to defend the proposed Phase II Rule before Congress and then publish the final report for public comment), it demonstrated its failure to adequately consult by publishing the report for public comment *after* the Phase II Rule had been formally promulgated,

rendering any subsequent public comment meaningless. EPA counters that these actions do not indicate that it failed to satisfy Congress's directive that it consult with state and local officials, because EPA had engaged in extensive consultation before Congress requested the Appropriations Act report, and Congress did not require further consultation when it conditioned promulgation of the Rule only on the submission of this final report. EPA claims that while Congress required it to publish the report after its submission, public comment on the report was not required before promulgation, and that the statutory deadline structure rendered any other interpretation impossible.

[22] We conclude that the overall record indicates EPA met its statutory duty of consultation. A draft of the first report was circulated to States, EPA regional offices, the Association of State and Interstate Water Pollution Control Administrators (“ASIWPCA”), and other stakeholders in November, 1993, and was revised based on comments received. EPA established the Urban Wet Weather Flows Federal Advisory Committee (“FACA Committee”), balancing membership between EPA's various outside stakeholder interests, including representatives from States, municipalities, Tribes, commercial and industrial sectors, agriculture, and environmental and public interest groups. 64 Fed. Reg. 68,724. The 32 members of the Phase II FACA Subcommittee, reflecting the same balance of interests, met fourteen times over three years and state and municipal representatives provided substantial input regarding the draft reports, the ultimate Phase II Rule, and the supporting data.^{FN44} *Id.* EPA ***865** instituted the Phase II Subcommittee meetings in addition to the standard APA notice and comment procedures, which EPA also followed.

FN44. NRDC argues that this claim is not only meritless for the reasons stated by EPA, but also frivolous, since industry petitioner National Association of Home Builders, as a member of the FACA Phase II Subcommittee, participated in and affirmed that such consultation took place.

The fact that the Rule did not conform to Petitioners' hopes and expectations does not bear on whether EPA adequately consulted state and local officials. Although required to consult with States and

localities, EPA was free to chart the substantive course it saw fit. EPA was not required to consult with States on the Appropriations Act report. Even if EPA should have sought further comment at that late stage, failure to do so does not outweigh the evidence demonstrating extensive consultation and cooperation with local authorities on development of the Rule.

F. Designation of Certain Small MS4s and Construction Sites

The Industry Petitioners contend that, in designating certain small MS4s and construction sites for regulation under the Phase II Rule, EPA failed to adhere to the statutorily required regulatory basis and misinterpreted record evidence. We disagree.

1. Regulatory Basis

The Industry Petitioners and the Municipal Petitioners contend that EPA violated the statutory command to base the Phase II regulations on § 402(p)(5) studies. We review EPA's interpretation of its statutory authority under the *Chevron* standard, 467 U.S. at 842-44, 104 S.Ct. 2778, and affirm.

Petitioners argue that the studies mandated by § 402(p)(5) were intended to provide the sole substantive basis for the “comprehensive program” envisioned in § 402(p)(6), but that EPA also (and thus improperly) based its designation of small MS4s and construction sites on (1) public comment received in the aftermath of judicial invalidation of the scope of construction sites regulated by the Phase I Rule,^{FN45} and (2) additional research discussed in the Preamble to the Phase II Rule.^{FN46}

FN45. See *Natural Res. Def. Council*, 966 F.2d at 1306 (remanding EPA's decision to regulate only construction sites disturbing more than five acres, after EPA had initially proposed to regulate all sites disturbing more than one acre).

FN46. The Industry Petitioners contend that EPA lacked authority to issue the Phase II regulation of construction sites based on a process EPA itself characterized as “separate and distinct” from the development of the Report to Congress. 64

Fed. Reg. at 68,732. They add that the Phase II Rule was not “based on” the 1999 Report ultimately requested by Congress in the Appropriations Act, since EPA's report in response was released on the very day that the final Phase II Rule was published.

EPA contends that the statute did not require it to base its designations exclusively on the § 402(p)(5) studies, and that it was in fact required to take account of information from other sources in promulgating the regulations. It argues that it based the Phase II Rule on conclusions reported in the § 402(p)(5) studies, but then appropriately supported these results with data described in the additional study requested by Congress in the Appropriations Act, comments submitted during the statutorily required notice-and-comment process, and other available information. To read the authorizing statute as limiting reliance to the § 402(p)(5) studies, EPA claims, would preclude it from relying on recommendations received through the separate, post-study requirement to “consult with State and local officials” under *866 § 402(p)(6), and through the notice and comment process mandated by the APA, 5 U.S.C. § 553(b).

Respondent-intervenor NRDC adds that the Phase II Rule is consistent with the § 402(p)(5) studies reported in 1995, and moreover, that the Industry Petitioners lack standing to raise the “regulatory basis” claim because they cannot show the requisite injury. See *Friends of the Earth*, 528 U.S. at 180-81, 120 S.Ct. 693.

a. Standing. Industry Petitioners^{FN47} contend that they have suffered injury in fact, because their members are now either automatically regulated by the permitting requirements or subject to future regulation (under the residual authority, discussed below) that otherwise would not have been authorized, and that this is a direct result of EPA's failure to adhere to the framework of the 1995 Report, which allegedly would have precluded these aspects of the Rule. NRDC contends that the Industry Petitioners lack standing because they cannot show that being subject to NPDES permitting is the causal result of the procedural injury they urge, and because they cannot base standing on hypothetical injury that may arise in the future.

FN47. Since we have already determined that AF & PA lacks standing to raise any of its claims, *see* Section D above, this discussion pertains to the remaining Industry Petitioner, National Association of Home Builders.

NRDC argues that the injuries Petitioners allege are not consistent with the guidelines laid out in *Friends of the Earth*, 528 U.S. at 180-81, 120 S.Ct. 693. It insists that Petitioners' only possible claims of injury from the alleged "regulatory basis" violation are purported harm to members caused by the final Phase II Rule itself or harm to members caused by EPA's alleged failure to provide adequate notice of future regulatory requirements in the 1995 Report. However, NRDC contends that Petitioners have not suffered the requisite injury, because they had actual notice that EPA might regulate small construction sites, 63 Fed. Reg. at 1583, and they can show no chain of causation linking their alleged injury from the Rule itself to the actions challenged here.

NRDC's causation argument is complex. Although the Petitioners purport to challenge EPA's failure to follow all of the 1995 Report's recommendations in the final Phase II Rule, NRDC contends, they are really challenging the subsequent proceedings through which EPA developed the final Rule. Even if there were some unlawful variance between the 1995 report and final rule, NRDC continues, the cause of that variance would have been some failure to abide by rulemaking standards during administrative proceedings that produced the text of the final Rule—not EPA's attention to sources of input other than the 1995 Report. NRDC maintains that these intervening acts of rulemaking (e.g., Phase II Subcommittee activities and the notice-and-comment process) break the requisite chain of causation between EPA's alleged failure to adhere to recommendations in the 1995 report and the flaws Petitioners allege in the Phase II Rule, which NRDC claims would have been due to "purportedly unlawful EPA decisions on the merits during the subsequent administrative proceedings." *See Northside Sanitary Landfill v. Thomas*, 804 F.2d 371, 381-84 (7th Cir.1986) (finding no standing to challenge EPA statements concerning the fate of a hazardous waste facility when subsequent state administrative acts, not EPA comments, would determine the facility's actual fate).

[23] We note that NRDC's standing arguments apply equally to the Municipal Petitioners, who can also assert only the *867 harms resulting to members from the Rule itself or from a lack of notice, and that we are thus not only considering the standing of the Industry Petitioners but also that of the Municipal Petitioners to raise the "regulatory basis" claim.^{FN48} That established, we find standing for both.

FN48. Although the issue of Municipal Petitioners' standing has not been raised by the parties, we are obliged to consider it to determine whether the case-or-controversy requirement of Article III is satisfied. *See, e.g., Boeing Co. v. Van Gemert*, 444 U.S. 472, 488 n. 4, 100 S.Ct. 745, 62 L.Ed.2d 676 (1980); *Juidice v. Vail*, 430 U.S. 327, 331, 97 S.Ct. 1211, 51 L.Ed.2d 376 (1977).

NRDC essentially argues that petitioners lack standing because (1) they cannot show that being subject to NPDES permitting is the causal result of the procedural injury they urge, (2) they cannot claim any actual notice injury from the alleged procedural wrong because notice was actually given, and (3) they cannot claim standing based on hypothetical injury that may (or may not) arise from future regulation under the residual authority. We can readily agree with the latter two contentions. As discussed above, the "actual injury" requirement of Article III standing precludes judicial consideration of exactly the kind of hypothetical harm the Industry Petitioners allege may follow from use of Phase II authority for future designations of regional sources. *Friends of the Earth*, 528 U.S. at 180-81, 120 S.Ct. 693. If future Phase II designations cause identifiable injury to Petitioners, they will then be free to pursue that ripe claim. And because EPA clearly issued notice to all regulated parties that they may be subject to regulation under the proposed rule, 63 Fed. Reg. at 1568 (MS4s) and 1582 (construction), petitioners cannot show injury from lack of actual notice.

However, NRDC's causation argument is less persuasive. NRDC correctly argues that the petitioners cannot establish a definite chain of causation between the EPA's alleged failure to limit their regulatory basis to the § 402(p)(5) studies and the fact that they now must obtain permits. But this will almost always be true of petitions challenging an agency's failure to abide by statutory procedural

requirements. Because all administrative decisionmaking following an alleged procedural irregularity could always be considered an intervening factor breaking the chain of causation, NRDC's interpretation of the requisite chain of causation would dubiously shield administrative decisions from procedural review.

For this reason, we have held that the failure of an administrative agency to comply with procedural requirements in itself establishes sufficient injury to confer standing, even though the administrative result might have been the same had proper procedure been followed. *City of Davis v. Coleman*, 521 F.2d 661, 671 (9th Cir.1975) (agency's failure to comply with National Environmental Policy Act's procedural requirements constituted injury sufficient to support standing of a geographically related plaintiff regardless of potentially similar regulatory outcome). In *City of Davis*, we noted that the standing inquiry represents "a broad test, but because the nature and scope of environmental consequences are often highly uncertain before study we think it an appropriate test." *Id.* A plaintiff who shows that a causal relation is "probable" has standing, even if the chain cannot be definitively established. *Johnson v. Stuart*, 702 F.2d 193, 195-96 (9th Cir.1983) (school students and their parents had standing to challenge a statute that limited the texts that might be selected for teaching, even *868 though it could not be shown whether any specific book had been rejected under this statute or for other reasons).

The Supreme Court has also acknowledged that standing may be established by harm resulting indirectly from the challenged acts, *Warth v. Seldin*, 422 U.S. 490, 504-05, 95 S.Ct. 2197, 45 L.Ed.2d 343 (1975), and that causation may be established if the plaintiff shows a good probability that, absent the challenged action, the alleged harm would not have occurred, *Arlington Heights v. Metro. Hous. Dev. Corp.*, 429 U.S. 252, 262-64, 97 S.Ct. 555, 50 L.Ed.2d 450 (1977).

Thus, although the petitioners cannot show with certainty that the alleged "regulatory basis" violation caused them to be wrongfully subjected to Phase II permitting requirements, we hold that they have alleged a procedural injury sufficient to support their standing to bring the claim.

b. Merits. Although we resolve the standing issue in favor of the petitioners, we nevertheless affirm the Rule against their claim that EPA violated procedural constraints implied by the authorizing statute, § 402(p)(6).

Congress intended EPA to use all sources of information in developing a comprehensive program to protect water quality to the maximum extent practicable. The statute unambiguously required EPA to base its regulations both on the § 402(p)(5) studies and on consultation with state and local officials. Congress enacted § 402 with full knowledge that EPA would also be required to take account of public comments during the notice and comment phase of administrative rulemaking prescribed by the APA.^{FN49}

FN49. Even if the statute *were* ambiguous, we would defer to EPA's reasonable interpretation. *Chevron*, 467 U.S. at 843-44, 104 S.Ct. 2778.

2. MS4s in Urbanized Areas

The Municipal Petitioners contend that the designation of small MS4s for Phase II regulation according to Census Bureau defined areas of population density ("urbanized areas") is arbitrary and capricious. They argue that EPA has not established that the Census Bureau's designation of urbanized areas is correlated with actual levels of pollution runoff in stormwater, and that EPA adopted the designations simply for administrative convenience. We affirm, because the record reflects a reasoned basis for EPA's decision. *See Marsh*, 490 U.S. at 378, 109 S.Ct. 1851.

Conceding that the Preamble cites studies purporting to establish "a high correlation between the degree of development/urbanization and adverse impacts on receiving waters due to stormwater,"⁶⁴ Fed. Reg. at 68,751, the Municipal Petitioners nevertheless contend that the record contains no "demonstrably correlated, *quantified* basis on which EPA may reasonably have concluded that any particular population, or any population density, *per se* establishes that all urban areas having that same characteristic in gross are necessarily appropriate for inclusion as Phase II sources." Pointing to *Leather Industries of America v. EPA*, 40 F.3d 392, 401

(D.C.Cir.1994) (rejecting as arbitrary EPA's regulation of pollutant levels in the absence of data supporting a relationship between the caps and level of risk), Petitioners argue that EPA simply assumed the relationship Congress contemplated it would establish by the § 402(p)(5) studies.

EPA responds that it extensively documented the relationship between urbanization and harmful water quality impacts from stormwater runoff, pointing to its findings that the degree of surface imperviousness in an area directly corresponds *869 to the degree of harmful downstream pollution from stormwater runoff, 64 Fed. Reg. at 68,724-27, and that it articulated a rational connection between these record facts and its decision to designate small MS4s serving areas of high population density ("urbanized areas") to protect water quality.

[24] We treat EPA's decision with great deference because we are reviewing the agency's technical analysis and judgments, based on an evaluation of complex scientific data within the agency's technical expertise. See *Baltimore Gas & Elec. Co. v. NRDC*, 462 U.S. 87, 103, 103 S.Ct. 2246, 76 L.Ed.2d 437 (1983); see also *Chem. Mfrs. Ass'n v. EPA*, 919 F.2d 158, 167 (D.C.Cir.1990) ("It is not the role of courts to 'second-guess the scientific judgments of the EPA....' "). We conclude that the record supports EPA's choice.

The statute simply called upon EPA to "designate stormwater discharges," other than those designated in Phase I, "to be regulated to protect water quality."

33 U.S.C. § 1342(p)(6). EPA did so, based on record evidence showing a compelling and widespread correlation between urban stormwater runoff and deleterious impacts on water quality. Petitioners' assertion that EPA failed to establish a "quantified" basis for its designation is inapposite. The statute did not require EPA to establish with pinpoint precision a numeric population threshold within urbanized areas that would justify regulation under Phase II. In areas implicating technical expertise and judgment, courts do not require "perfect stud[ies]" or data. *Sierra Club*, 167 F.3d at 662. EPA satisfied the *Leather Industries* standard by adopting a threshold consistent with the criterion of "protecting water quality," and did not assume, but instead sufficiently documented, the relationship between urbanization and harmful stormwater

discharge.

3. Small Construction Sites

Industry and Municipal Petitioners also argue that EPA's decision to regulate under Phase II all construction sites disturbing between one and five acres of land ("small construction sites") is arbitrary and unsupported by the record. We do not agree. See *Marsh*, 490 U.S. at 378, 109 S.Ct. 1851.

a. Record Evidence. Municipal Petitioners claim that EPA arrived at the one-acre standard based not on factual findings in the record but instead as a reaction to the earlier Ninth Circuit remand of the Phase I five-acre designation. They allege that the one-acre standard is no more based on supporting data than the rejected five-acre standard, and is thus quantitatively arbitrary.

Industry Petitioners argue that EPA's findings do not support regulation of *all* small construction sites, but indicate only that small construction sites, taken cumulatively, may cause effects similar to large sites in a given area. They contend that EPA's conclusion that adverse effects are possible under certain circumstances cannot support categorical designation of all small construction sites nationwide, and that the Rule is arbitrary because (1) it is based on an analysis that fails to take account of the frequency of negative impacts, (2) it fails to take account of acknowledged factors that determine whether small construction activities cumulatively cause harm (such as the degree of development in a watershed at any given time), and (3) EPA has acknowledged that the actual water quality impact of construction sites of all sizes varies widely from area to area depending on climatological, geological, geographical,*870 and hydrological influences.^{FN50}

FN50. The Industrial Petitioners argue that although the Phase I authorizing statute required EPA to regulate all sources associated with "industrial activity," Congress expressly directed that the Phase II regulatory program be focused on sources that require regulation "to protect water quality." They assert that because EPA's rule ignores the variability of water quality impacts nationwide, the Rule is not appropriately targeted on the protection of

water quality.

Industry Petitioners further contend that the record does not support the designation of small sites, because almost all of the technical papers EPA relied on focused on larger sites or failed to take account of size,^{FN51} and because the lack of an adequate factual basis for nationwide regulation of small sites makes the Phase II Rule arbitrary and capricious. *Am. Petroleum Inst. v. EPA*, 216 F.3d 50, 58 (D.C.Cir.2000) (invalidating a solid waste rule because EPA “failed to provide a rational explanation for its decision” declining to exclude oilbearing waste waters from the statutory definition of solid waste).

FN51. Petitioners heavily critique two studies relied on by EPA that dealt specifically with the water quality impacts of small construction sites, noting that one concludes it is impossible to generalize about the impacts of small sites, Lee H. MacDonald, *Technical Justification for Regulating Construction Sites 1-5 Acres in Size*, July 22, 1997, and that the other merely concludes that small sites “can have” significant effects if erosion controls are not implemented, David W. Owens, et al., *Soil Erosion from Small Construction Sites*. Petitioners contend that the latter study was managed with no erosion controls, intentionally producing worst-case sediment runoff and unreasonable estimates of actual sediment yields for small sites nationwide. EPA vigorously defends the studies.

EPA maintains that construction sites regulated under the Phase II Rule degrade water quality across the United States and that the administrative record unambiguously documents that harm. EPA disputes Petitioners' assertion that it failed to establish the need to regulate small sites nationwide, but also contends that it is not required to base every administrative decision on a precise quantitative analysis. *See Sierra Club*, 167 F.3d at 662 (“EPA typically has wide latitude in determining the extent of data-gathering necessary to solve a problem.”).

EPA also disputes petitioners' assertions that data from studies involving larger construction sites are irrelevant to the Phase II Rule. EPA explains that discharges of sediment due to erosion are the result of

the interaction of several factors including soils, slope, precipitation, and vegetation:

For construction sites that are one acre or more, none of the environmental factors contributing to sediment discharges is dependent on the size of the site disturbed. A one-acre site can have the same combination of soils, slope, degree of disturbance and precipitation as a 100-acre site, and consequently can lose soil at the same rate ... and discharge sediments in the same concentrations ... as a 100-acre site.

EPA contends that it is thus reasonable to extrapolate data about small sites from studies of larger ones-and that such an extrapolation may even be forgiving, since small sites are currently less likely to have effective erosion and sedimentation control plans.^{FN52}

FN52. NRDC adds that notwithstanding the clear interest of the National Association of Home Builders (“NAHB,” one of the Industry Petitioners), NAHB's multi-year participation in the FACA Phase II Subcommittee Small Construction and No-Exposure Sites Work Group, and NAHB's own submission of detailed comments on the proposed Rule, NAHB failed to enter into the administrative record any study contradicting the proposition that small construction sites cause water quality problems. NRDC points to the record's showing that NAHB had itself proposed that regulation of construction sites of two acres or greater was appropriate, and contends that this is thus not a dispute over whether small construction sites should be regulated on a nationwide basis, but instead a technical disagreement over whether EPA should establish a one-acre threshold or a different threshold on a similar small scale.

*871 Indeed, EPA argues that although adverse water quality impacts of small construction sites have been widely recognized, effective local erosion and sedimentation control programs have not been adopted in many areas.^{FN53} Though not all watersheds are currently adversely effected by small construction sites,^{FN54} EPA notes that the Phase II Rule acts “to protect water quality” both remedially and preventively, and argues that it need not quantify

the cumulative effects of discharges from these sites or identify all watersheds that are currently harmed before acting to limit pollution from small sites.^{FN55}

FN53. Whitney Brown and Deborah Caraco, *Controlling Stormwater Runoff Discharges from Small Construction Sites: A National Review*, Task 5 Final Report submitted by the Center for Watershed Protection to the EPA Office of Wastewater Management, March 1997, IP E.R. 633, 643.

FN54. EPA adds that operators of small sites in areas unlikely to suffer adverse impacts may apply for a permit waiver if little or no rainfall is expected during the period of construction (the "rainfall erosivity waiver") or if regulation is unnecessary based on a location-specific evaluation of water quality (the "water quality waiver"). 64 Fed. Reg. at 68,776.

FN55. EPA also implies permission to regulate for potential cumulative impacts of small sites from the past directive of this court. When the Phase I industrial discharge regulations were challenged, we found no record data to support that rule's exemption of construction activities on less than five acres and held that small sites did not categorically qualify for a *de minimis* exemption because "even small construction sites can have a significant impact on local water quality." *Natural Res. Def. Council*, 966 F.2d at 1306.

[25] We reverse under the arbitrary and capricious standard only if the agency has relied on factors Congress did not intend it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision contrary to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise. *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43, 103 S.Ct. 2856. Petitioners' contention that EPA relied on factors Congress did not intend it to consider was rejected in our earlier discussion of the regulatory basis challenge. They submit no evidence that EPA failed to consider an important aspect of the problem. We cannot say that EPA's designation of small construction sites is

implausible (especially given the support of twenty-some-odd studies of sedimentation from construction sites that EPA reviewed in promulgating the challenged regulations, 64 Fed. Reg. 68,728-31). We could remand this aspect of the Rule only if, as the petitioners urge, EPA's explanation for its decision to regulate small construction sites were contrary to the record evidence, and it is not.

Petitioners' primary contention is that evidence in the record suggests it is not possible to provide an explicit, quantitative link between small construction sites and an adverse effect on water quality. But even if this were so, EPA's decision to regulate preventively small construction sites "to protect water quality" is not inconsistent with the record. Petitioners contend that EPA's reliance on data from studies of large construction sites is insufficient to support EPA's designation of small sites, but EPA has adequately supported its contention that experts can reasonably*872 extrapolate projected water quality impacts from large to small sites. We apply the substantial evidence standard when reviewing the factual findings of an agency, *Dickinson v. Zurko*, 527 U.S. 150, 156-58, 119 S.Ct. 1816, 144 L.Ed.2d 143 (1999),^{FN56} and find it satisfied here.

FN56. The "substantial evidence" standard requires a showing of such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. *Edlund v. Massanari*, 253 F.3d 1152, 1156 (9th Cir.2001).

Moreover, EPA is not required to conduct the "perfect study." *Sierra Club*, 167 F.3d at 662. We defer to an agency decision not to invest the resources necessary to conduct the perfect study, and we defer to a decision to use available data unless there is no rational relationship between the means EPA uses to account for any imperfections in its data and the situation to which those means are applied. *Id.*; *Am. Iron & Steel Inst. v. EPA*, 115 F.3d 979, 1004 (D.C.Cir.1997). The record indicates a reasoned basis for EPA's decision that regulating small construction sites was necessary "to protect water quality" as required by § 402(p)(6).

[26] **b. Waivers.** Industry Petitioners further contend that EPA's allowance of regulatory waivers for small construction sites not likely to cause adverse water

quality impacts inappropriately supplements the permitting regulations.

Petitioners argue that EPA has the burden of establishing a comprehensive program to control sources as necessary to protect water quality, and that shifting the burden to individual contractors, businesses, and homeowners to prove they do not harm water quality falls short of meeting this statutory obligation. Citing *National Mining Association v. Babbitt*, 172 F.3d 906, 910 (D.C.Cir.1999), they argue that EPA's rebuttable regulatory presumption of water quality impact from small construction activity is unreasonable because the agency has established no scientific likelihood that any given small site will affect water quality. EPA defends the waiver approach as fair and efficient, and argues that the Industrial Petitioners are confusing arguments about the limits of presumptions in evidentiary hearings conducted under the APA.^{FN57}

FN57. EPA further argues that even if the waiver provision were properly characterized as an evidentiary presumption, it should be sustained because the record demonstrates that the presumed fact of the water quality impact of small sites is more likely true than not.

EPA is correct; the Phase II Rule creates no presumption applicable to an evidentiary hearing, and a regulation creating exemptions by waiver is reviewed under the familiar arbitrary and capricious standard. The use of waivers to allow permit exemptions for small sites unlikely to cause adverse impacts is reasonable under that standard.

[27] *c. Consistency.* Industry Petitioners also argue that EPA's decision to regulate all small construction sites under the Phase II Rule is arbitrary and capricious because EPA applied a different standard in regulating small construction projects than it applied to other potential sources of stormwater runoff subject to Phase II regulation.

Petitioners contend that EPA decided not to designate other potential sources identified in the § 402(p)(5) studies because it determined that there are not "sufficient data ... available at this time on which to make a determination of potential adverse water quality impacts for the category of sources." 64 Fed.

Reg. at 68,780. Petitioners contend this standard should have been applied to small construction sites as well, but EPA opted to *873 regulate these sources despite an alleged lack of coherent data on small site impacts as a general category.

EPA counters, once again, that it did have adequate data to regulate small construction sites. It contends that construction sites of all sizes have greater erosion rates than almost any other land use, and thus are not similarly situated to the potential polluters that EPA chose not to regulate at this time.^{FN58}

These sources include secondary industrial activities (for example, maintenance of construction equipment or local trucking for an unregulated facility such as a grocery store) and other unregulated commercial activities (for example, car and truck rental facilities).^{64 Fed. Reg. at 68,779.} EPA reports that it decided not to categorically regulate these potential sources based both on available data about water quality impacts and on the extent to which potentially adverse water quality impacts are mitigated by existing regulations to which these sources are already subject. *Id.* at 68,780.

FN58. EPA notes that the Phase II Rule empowers regional permitting authorities to regulate local sources of these types known to be responsible for harmful water quality impacts via the continuing "residual designation" authority (an aspect of the Rule that Petitioners also challenge).

We find no error. *See Marsh*, 490 U.S. at 378, 109 S.Ct. 1851. EPA acted reasonably in designating all small construction sites for Phase II regulation, and Industry Petitioners point to no record evidence that the nature of pollutant contributions from small construction site discharge is sufficiently similar to pollutants from the non-regulated sources to support the analogy they seek to draw. *New Orleans Channel 20 v. FCC*, 830 F.2d 361, 366 (D.C.Cir.1987) (an agency does not act irrationally when it treats parties differently, unless the parties are similarly situated). Sufficient evidence supports EPA's conclusion that small construction sites are not similar enough to these "other sources" to support petitioner's challenge.

G. Continuing ("Residual") Designation Authority

The Industry Petitioners argue that EPA acted improperly in retaining authority to designate future sources of stormwater pollution for Phase II regulation as needed to protect federal waters. We disagree.

The Phase II Rule preserves authority for EPA and authorized States to designate currently unregulated stormwater dischargers as requiring permits under the Rule if future circumstances indicate that they warrant regulation “to protect water quality” under the terms of § 402(p)(6). 40 C.F.R. § 122.26(a)(9). In the Phase II Preamble, EPA explains this aspect of the Rule:

Under today's rule, EPA and authorized States continue to exercise the authority to designate remaining unregulated discharges composed entirely of stormwater for regulation on a case-by-case basis.... Individual sources are subject to regulation if EPA or the State, as the case may be, determines that the stormwater discharge from the source contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States. This standard is based on the text of section CWA 402(p). In today's rule, EPA believes, as Congress did in drafting section CWA 402(p)(2)(E), that individual instances of stormwater discharge might warrant special regulatory attention, but do not fall neatly into a discrete, predetermined category. Today's rule preserves the regulatory authority*874 to subsequently address a source (or category of sources) of stormwater discharges of concern on a localized or regional basis.

64 Fed. Reg. 68,781. The text of the Rule requires a discharger to obtain a permit if the NPDES permit authority determines that “stormwater controls are needed for the discharge based on wasteload allocations that are part of ‘total maximum daily loads’ (TMDLs^{FN59}) that address the pollutant(s) of concern” or that “the discharge, or category of discharges within a geographic area, contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.”40 C.F.R. §§ 122.26(a)(9)(i)(C)-(D).

FN59. TMDLs are pollutant loading limits established by NPDES permitting authorities under the Clean Water Act for waters that do

not meet a water quality standard due to the presence of a pollutant. *See* 33 U.S.C. § 1313(d).

1. Statutory Authority

The Industry Petitioners contend that this “residual” designation authority, which would allow a NPDES permitting authority to require at any future time a permit from any stormwater discharge not already regulated, is *ultra vires*. Although they concede that Congress authorized case-by-case designation in § 402(p)(2)(E),^{FN60} they argue that this authority attached only during the permitting moratorium that ended in 1994, prior to the Phase II rulemaking. They object that EPA has impermissibly designated a category of “not yet identified” sources and preserved authority to regulate them on a case-by-case basis indefinitely into the future.^{FN61}

FN60. This section enables a NPDES permitting authority to designate for regulation: “[a] discharge for which the Administrator or the State, as the case may be, determines that the stormwater discharge contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.” 33 U.S.C. § 1342(p)(2)(E).

FN61. Notably, Industry Petitioner NAHB itself took the position during Phase II Subcommittee proceedings that the power to designate additional sources survived the promulgation of the Phase II Rule. In a 1996 comment letter to EPA, NAHB asserted its understanding that “[t]he permitting authority still reserves the right to designate additional sources if they are shown to be a contributor of water quality impairment.” NRDC Supplemental Excerpts of Record at 58.

[28] Petitioners contend that § 402(p)(6)^{FN62} cannot rescue the residual authority because it does not authorize case-by-case identification of discharges to be regulated, and that Congress, had it intended otherwise, would have included language in § 402(p)(6) similar to the case-by-case authority explicitly granted in § 402(p)(2)(E).^{FN63} They also contend that *875 continuing authority to designate

sources based on waste load allocations that are part of TMDLs exceeds the scope of authority in § 402(p)(2), which nowhere mentions TMDLs. Finally, they argue that the categorical designation authorized by § 402(p)(6) is only permissible when based on the § 402(p)(5) studies and carried out in consultation with state and local authorities, but that the Rule allows future designations based on agency discretion unaccompanied by adequate demonstration that the source itself is a significant threat to water quality.

FN62. The full text of § 402(p)(6), which specifically authorizes the Phase II program, reads: “Not later than October 1, 1993, the Administrator, in consultation with State and local officials, shall issue regulations (based on the results of the studies conducted under paragraph (5)) which designate stormwater discharges, other than those discharges described in paragraph (2), to be regulated to protect water quality and shall establish a comprehensive program to regulate such designated sources. The program shall, at a minimum, (A) establish priorities, (B) establish requirements for State stormwater management programs, and (C) establish expeditious deadlines. The program may include performance standards, guidelines, guidance, and management practices and treatment requirements, as appropriate.” 33 U.S.C. § 1342(p)(6).

FN63. Petitioners further argue that even if EPA could preserve the case-by-case authority conferred in § 402(p)(2)(E), that section confers authority only to regulate “a discharge” determined to threaten water quality, not a category of discharges. However, we agree with respondent-intervenor NRDC's argument that § 402(p)(2)(E) does not preclude EPA from designating entire categories of sources. Petitioners' argument follows from its reliance on the fact that § 402(p)(2)(E) refers to “discharge” in the singular rather than the plural to conclude that EPA may only designate sources meeting the § 402(p)(2)(E) description on a case-by-case basis. But all five of the § 402(p)(2)(5) categories refer to “discharge” in the singular, even in reference to discharges

clearly intended for categorical regulation, like “a discharge from a municipal separate storm sewer system serving a population of 250,000 or more.” 33 U.S.C. § 1342(p)(2)(C). The error in petitioners' interpretation is exposed by 1 U.S.C. § 1, which provides that “[i]n determining the meaning of any Act of Congress, unless the context indicates otherwise-words importing the singular include and apply to several persons, parties, or things.”

EPA counters that § 402(p)(6) authorized the designation, made on the basis of statutorily required sources of input and in consultation with the States, of a third class of discharges to be identified on location-specific bases by the NPDES permitting authority. EPA contends that Petitioners mistake the source of its authority for continuing designations as arising only from § 402(p)(2), discounting the full scope of its authority under § 402(p)(6). EPA argues that it permissibly interpreted § 402(p)(6) as allowing the residual designation authority because its language does not expressly preclude it, and because such authority is consistent with (and arguably required by) that section's mandate to establish a “comprehensive program” to protect water quality from adverse stormwater discharges. EPA maintains that the structure of § 402(p) reflects “Congress' intent to assure regulation of all problematic stormwater discharges as expeditiously as reasonably possible-not to limit EPA to a one-time-only opportunity to designate discharges for regulation.”

[29] We review EPA's interpretation of the statute it administers with deference, *Royal Foods Co.*, 252 F.3d at 1106, and affirm this aspect of the Phase II Rule as a legitimate exercise of regulatory authority conferred by § 402(p). The residual designation authority is grounded both on § 402(p)(6), which broadly authorizes a comprehensive program to protect water quality, and on § 402(p)(2)(5), which authorizes case-by-case designation of certain polluters and categories of polluters.

While not a blank check, § 402(p)(6) authorizes a comprehensive program that allows regional designation of polluting discharges that compromise water quality locally, even if they have not been established as compromising water quality nationally at the time Phase II was promulgated. In allowing

continuing designation authority, EPA permissibly designated a third category of dischargers subject to Phase II regulation—those established locally as polluting U.S. waters—following all required studies and consultation with state and local officials. EPA reasonably determined that discharges other than those from small MS4s and construction sites were likely to require regulation “to protect water quality” in satisfaction of the § 402(p)(6) mandate. EPA reasonably determined that, although it lacked sufficient data to support nationwide, categorical*876 designation of these sources, particularized data might support their designations on a more localized basis. EPA reasonably interpreted § 402(p)(6) as authorizing regional designation of sources and regional source categories, based on water quality standards including TMDLs.

Petitioners' § 402(p)(2)(5) argument (that EPA could not draw support for the residual designation authority from § 402(p)(2)(5) because such authority expired in 1994) is contradicted by the plain language of the statute. Respondent-intervenor NRDC correctly notes that § 402(p)(1) sets forth a permitting moratorium for stormwater discharges prior to 1994, and that § 402(p)(2) exempts certain categories of sources from that permitting moratorium, including those to be regulated on a case-by-case basis under § 402(p)(2)(5). Specifically, the statute provides that the 1994 date “shall not apply” to the five categories of discharges listed in § 402(p)(2). The termination of a moratorium that “shall not apply” to the continuing designation authority under § 402(p)(2)(5) cannot rescind EPA's authority to regulate sources in that category. Nothing in § 402(p) suggests that authority to designate these sources ends at any time, and EPA remains free to designate § 402(p)(2)(E) dischargers.

Finally, although Petitioners may be legitimately concerned that a permitting authority may designate a source without adequately establishing its eligibility, this issue must be addressed in the context of an actual case or controversy. Whether a NPDES authority may impose permitting requirements on a discharger without an adequate finding of polluting activity is not yet ripe for judicial review. *Thomas v. Anchorage Equal Rights Comm'n*, 220 F.3d 1134, 1141 (9th Cir.2000) (“A concrete factual situation is necessary to delineate the boundaries of what conduct the government may or may not regulate.”).

2. Nondelegation Doctrine

[30] Industry Petitioners contend that EPA's interpretation of § 402(p) to allow the residual designation authority must be rejected because it would render the statute unconstitutional under the nondelegation doctrine. We deny petitioners' claim, both because it is not properly raised and because it rests on an interpretation explicitly overturned by the United States Supreme Court.

Petitioners base their contention on *American Trucking Ass'ns v. EPA*, 175 F.3d 1027, 1034 (D.C.Cir.1999),^{FN64} in which the D.C. Circuit remanded a regulation under the nondelegation doctrine because, although EPA had applied reasonable factors in establishing the air quality standards in question, the agency had articulated no “intelligible principle” to channel its application of these factors. *Id.* Petitioners argue that if § 402(p) authorizes a NPDES permitting authority to require Phase II permitting of any stormwater source deemed to be a “significant contributor” of pollutants to U.S. waters, then that grant of authority likewise constitutes an unconstitutional delegation of legislative authority because—as did the *American Trucking* delegation—it “leaves [EPA] free to pick any point” at which a regulatory burden will attach. *Id.* at 1037.

FN64. This case was reversed in relevant part by the Supreme Court in *Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457, 476, 121 S.Ct. 903, 149 L.Ed.2d 1 (2001).

However, in reversing *American Trucking*, the Supreme Court rejected the notion that an agency has the power to interpret a statute so as to either save it from being, or transform it into, an unconstitutional delegation. *877 *Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457, 473, 121 S.Ct. 903, 149 L.Ed.2d 1 (2001). Whether a statute delegates legislative power “is a question for the courts, and an agency's [interpretation] has no bearing upon the answer.” *Id.* Petitioner's argument to the contrary rests on the very reasoning in *American Trucking* that was overturned in *Whitman*. The relevant question is not whether EPA's interpretation is unconstitutional, but whether the statute itself is unconstitutional—a challenge Industry Petitioners do not raise.

But even if the challenge were properly raised, § 402(p) would, like the Clean Air Act standard-setting provision at issue in *Whitman*, survive constitutional review. The Supreme Court has upheld against nondelegation attacks many similar statutes establishing nonquantitative standards. *Am. Power & Light Co. v. SEC*, 329 U.S. 90, 104, 67 S.Ct. 133, 91 L.Ed. 103 (1946) (upholding statute giving SEC authority to modify corporate structures so that they are not “unduly or unnecessarily complicate[d]” and do not “unfairly or inequitably distribute voting power among security holders”); *Yakus v. United States*, 321 U.S. 414, 419-20, 423-27, 64 S.Ct. 660, 88 L.Ed. 834 (1944) (upholding statute giving agency power to set prices that “will be generally fair and equitable”). In *Yakus*, the Court held that a statutory command to “effectuate the purposes” of the overall statutory scheme withstood scrutiny. *Id.* Section 402(p)(6)'s directive “to protect water quality” summarizes the central purpose of the Clean Water Act, “to restore and maintain the chemical, physical, and biological integrity of the Nation's waters,”³³ U.S.C. § 1251(a). It establishes a determinate criterion of the kind the Supreme Court upheld in *Yakus* and *American Power & Light*.

3. Notice and Comment

[31] Industry Petitioners also contend that, to the extent it allows the designation of entire categories of sources, rather than individual sources, the residual designation authority violates the APA, 5 U.S.C. § 553(b)(3), because EPA did not provide public notice that it was considering such a rule. *Ober v. EPA*, 84 F.3d 304, 315 (9th Cir.1996) (invalidating EPA rule where it deviated from proposal); *Shell Oil Co. v. EPA*, 950 F.2d 741, 746-47 (D.C.Cir.1991). Petitioners contend that while the proposed rule would have allowed case-by-case designation where an authority “determines that the discharge contributes to a violation,”⁶³ Fed. Reg. at 1635 (proposing 40 C.F.R. § 122.26(a)(9)(i)(D)), the final rule authorizes case-by-case designation where “the discharge, or category of discharges within a geographic area, contributes to a violation,”⁴⁰ C.F.R. § 122.26(a)(9)(i)(D).

EPA notes that it had proposed to promulgate continuing designation authority in some form, and points to elements in the proposed rule that explicitly envision the categorical designation of sources at the

local/watershed level.^{FN65}

FN65. “[T]oday’s proposal would encourage [voluntary] control of stormwater discharges ... unless the discharge (or category of discharges) is individually or locally designated as described in the following section. The necessary data to support designation could be available on a local, regional, or watershed basis and would allow the NPDES permitting authority to designate a category of sources or individual sources on a case-by-case basis. If sufficient nationwide data [becomes] available in the future, EPA could at that time designate additional categories of industrial or commercial sources on a national basis. EPA requests comment on the three-pronged analysis used to assess the need to designate additional industrial or commercial sources and invites suggestions regarding watershed-based designation.” 63 Fed. Reg. at 1588.

*878 According to the “logical outgrowth” standard, a final regulation must be “in character with the original proposal and a logical outgrowth of the notice and comments.” *Hodge*, 107 F.3d at 712. EPA emphasized that it was considering continuing designations based on watershed data rather than designating these sources on a national basis, and invited comment regarding this proposal. 63 Fed. Reg. at 1536. This supports the necessary relationship between the proposed and final rule.

H. Regulatory Flexibility Act

The Industry Petitioners contend that the Phase II Rule will impose substantial compliance costs on their members and other small entities, but that EPA failed to conduct the analysis required by the Regulatory Flexibility Act (“RFA”), 5 U.S.C. §§ 601-11. They argue that EPA seeks to excuse its noncompliance by falsely certifying that the Rule does not have a significant impact on a substantial number of small entities. 64 Fed. Reg. at 68,800. We are not persuaded.

[32] The RFA requires a federal agency to prepare a regulatory flexibility analysis and an assessment of the economic impact of a proposed rule on small business entities, 5 U.S.C. § 604, unless the agency

certifies that the proposed rule will not have a “significant economic impact on a substantial number of small entities” and provides a factual basis for that certification, *id.* at § 605; *N. W. Mining Ass'n v. Babbitt*, 5 F.Supp.2d 9, 15-16 (D.D.C.1998).

EPA did certify that the Phase II Rule would not yield “significant impacts,” 64 Fed. Reg. at 68,800, but Petitioners contend this certification is erroneous because (1) EPA treats as “not significant” costs that are in fact significant, and (2) EPA failed to account for the entire universe of small entities affected (including small home construction contractors) and all significant costs to those entities. They urge that the failure to consider a significant segment of the affected small entity community requires invalidation of the Rule, citing *North Carolina Fisheries Ass'n v. Daley*, 27 F.Supp.2d 650, 659 (E.D.Va.1998) (certification failed to comply with RFA where agency ignored several categories of affected small entities), and *Northwest Mining*, 5 F.Supp.2d at 15 (RFA was violated where improper definition of small entity excluded analysis of affected entities).

EPA maintains that its certification was appropriate, and, moreover, that it has already voluntarily followed the additional RFA procedures that the Industry Petitioners now request. EPA argues that Petitioners have incorrectly specified the costs that the small entities they represent will bear, referring erroneously to EPA's total annual compliance costs estimates for all entities, rather than to costs estimated for small entities as defined under the RFA. EPA maintains that it did consider economic impacts on small home construction contractors who might be denied discharge permits, and that it evaluated the annual costs of Phase II compliance associated with any land disturbance between one and five acres. 64 Fed. Reg. at 68,800-01.

Respondent-intervenor NRDC contends that Petitioners' reliance on measures of the aggregate impact of the Rule on small entities to determine compliance with the threshold test under the RFA fails as a matter of law because aggregate measures are not consistent with the statutory language setting out that test. NRDC notes that the plain language of § 605(b) sets out a three-component test indicating that EPA need not perform a regulatory flexibility analysis if it finds that the proposed *879 rule will not have: (1) “a significant economic impact” on (2)

“a substantial number” of (3) “small entities.” 5 U.S.C. § 605(b). NRDC contends that EPA satisfied the statutory test, and that Petitioners' interpretation, which rewrites the test to omit the “substantial number” component, is erroneous.

[33] We believe NRDC correctly interprets the statute, *Marsh*, 490 U.S. at 378, 109 S.Ct. 1851, and that EPA reasonably certified that the Phase II Rule would not have a significant economic impact in compliance with the Regulatory Flexibility Act. We also conclude that, even if EPA had failed to properly comply with the procedural requirements of the RFA, its actual assessment of the Rule's economic impacts renders any defective compliance harmless error. In granting relief under RFA § 611, a court may order an agency “to take corrective action consistent with” the RFA and APA, including remand to the agency, 5 U.S.C. § 611(a)(4)(A), but EPA has already conducted the economic analyses Petitioners seek when it convened the “Small Business Advocacy Review Panel” before publishing notice of the proposed rule. 64 Fed. Reg. at 68,801. That Panel evaluated the Rule and considered the comments of small entities on a number of issues, consistent with the procedures described in RFA § 603. *Id.* Appendix 5 of EPA's preamble to the proposed rule explained provisions that had been designed to minimize impacts on small entities, based on advice and recommendations from the Panel. 63 Fed. Reg. 1615, 64 Fed. Reg. 68,811. Modifications for small entities included alternative compliance and reporting mechanisms responsive to the resources of small entities, simplified procedures, performance rather than design standards, and waivers.

Any hypothetical noncompliance would thus have been harmless, since the available remedy would simply require performance of the economic assessments that EPA actually made. Like the Notice and Comment process required in administrative rulemaking by the APA, the analyses required by RFA are essentially procedural hurdles; after considering the relevant impacts and alternatives, an administrative agency remains free to regulate as it sees fit. We affirm the Rule against this challenge.^{FN66}

FN66. Our consideration of the issue at all may be gratuitous, since petitioners failed to submit timely comment disputing the

adequacy of EPA's consideration of economic impacts on small businesses proposed at 63 Fed. Reg. at 1605-07.

United States v. L.A. Tucker Truck Lines, 344 U.S. 33, 37, 73 S.Ct. 67, 97 L.Ed. 54 (1952) (“[C]ourts should not topple over administrative decisions unless the administrative body not only has erred but has erred against objection made at the time appropriate under its practice.”).

III.

CONCLUSION

We conclude that the EPA's failure to require review of NOIs, which are the functional equivalents of permits under the Phase II General Permit option, and its failure to make NOIs available to the public or subject to public hearings contravene the express requirements of the Clean Water Act. We therefore remand these aspects of the Small MS4 General Permit option so that EPA may take appropriate action to comply with the Clean Water Act. We also remand so that EPA may consider in an appropriate proceeding the Environmental Petitioners' contention that § 402(p)(6) requires EPA to regulate forest roads. We affirm all other aspects of the Phase II Rule against the statutory, administrative, and constitutional challenges raised in this action.

***880** Petitions for Review GRANTED IN PART and DENIED IN PART.

TALLMAN, Circuit Judge, concurring in part and dissenting in part:

I concur in most of the majority's opinion, but I dissent from Section II.B, which remands the Phase II Rule because its system of general permits is “arbitrary and capricious.” I believe EPA's design of a system of general permits supported by notices of intent was a reasonable exercise of EPA's administrative discretion. We must give deference to EPA's interpretation of the laws it is charged with enforcing, so long as EPA's reading of those laws is permissible. Because EPA acted reasonably in designing a National Pollutant Discharge Elimination System (“NPDES”) based on general permits and supported by NOIs, I respectfully dissent from the court's decision to remand this portion of the Phase II Rule.

I

As the majority concedes, we evaluate EPA's interpretation of the Clean Water Act with deference. Majority Op. 13796. If Congress's intent is unclear as to whether a system of general permits supplemented by NOIs is allowed, we simply ask “whether EPA's interpretation is permissible.” *Ober v. Whitman*, 243 F.3d 1190, 1193 (9th Cir.2001).

II

As an initial matter, then, we must ask if Congress was clear in its intent concerning the propriety of a system of general permits augmented by NOIs.

Five legislative commands guide this inquiry. First, 33 U.S.C. § 1342(p)(6) charges EPA with creating a system to regulate stormwater discharges. Plainly, nothing in this section speaks to whether EPA may utilize a general permit approach in regulating stormwater discharge.

Second, 33 U.S.C. § 1311(a) makes it illegal to discharge pollutants “except as in compliance” with several sections of the Clean Water Act. Again, nothing in this section addresses whether EPA may make use of general permits reinforced by NOIs.

Third, 33 U.S.C. § 1342 in general (as opposed to the limited charge in section 1342(p)(6) discussed above) authorizes EPA to issue NPDES permits, provided that the permits satisfy several conditions. But nothing in section 1342 prohibits the use of a system of general permits.

Fourth, the Clean Water Act mandates that “a copy of each permit application and each permit issued under” the NPDES permitting program be made available to the public for inspection and photocopying. 33 U.S.C. § 1342(j). The Act does not elaborate on this naked requirement. There is no explanation of the manner in which NPDES permits and applications are to be made publicly available. Nor does the Act define what constitutes a “permit” that would trigger these requirements.

And fifth, the Clean Water Act authorizes the issuance of an NPDES “permit” “after opportunity for public hearing.” 33 U.S.C. § 1342(a)(1). The Act

does not provide a definition of “permit,” nor does it further detail what triggers the requirement of a public hearing.

In short, the Clean Water Act fails to address the propriety of a general permit system, or whether NOIs ought to be considered “permits.” Therefore, we should uphold EPA's creation of a system of general permits buttressed by NOIs so long as it is “permissible.” See *881 *Chevron, U.S.A., Inc. v. Natural Resources Defense Council*, 467 U.S. 837, 843-44, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984). Our duty to defer to EPA in such a situation is based on sound policy. Given the overwhelming challenge and complexity of the programs administered by federal agencies today, it is sensible to trust agencies with the design of those programs so long as the programs are reasonable interpretations of congressional mandates.

The central issues regarding EPA's general permit system are whether the Clean Water Act allows such a system and whether NOIs should be considered “permits.” The resolution of these issues requires a complicated weighing of policies (e.g., administrative streamlining vs. robust inquiry) that is precisely what agencies are designed to do and courts are without the resources or expertise to do. “[I]f the statute is silent or ambiguous with respect to the specific issue, the question for the court is whether the agency's answer is based on a permissible construction.” *Chevron*, 467 U.S. at 843, 104 S.Ct. 2778.

III

The Phase II Rule promulgates a system of general permits. EPA contemplated that these general permits will be issued on a watershed basis, with individual stormwater dischargers then filing NOIs to operate under general permits. The federal regulations implementing this system repeatedly emphasize that “[t]he use of general permits, instead of individual permits, reduces the administrative burden of permitting authorities, while also limiting the paperwork burden on regulated parties.” 64 Fed. Reg. 68,722, 68,737, 68,762 (Dec. 8, 1999).

The use of a general permit system for the administration of the NPDES system has been considered and approved before. In *NRDC v. Costle*, 568 F.2d 1369 (D.C.Cir.1977), the District of

Columbia Circuit considered a challenge to EPA's regulations under the Federal Water Pollution Control Act, which was the precursor to the Clean Water Act. In *Costle*, EPA sought approval of its design for the NPDES system. EPA had issued regulations exempting broad categories of point sources from the requirement that an NPDES permit be obtained before discharging into federal waters. Part of EPA's rationale in creating the exempted categories was that otherwise EPA would be overwhelmed by the administrative burden of issuing NPDES permits. *Id.* at 1377-79. The *Costle* court affirmed the lower court's rejection of these exemptions because the legislation in question plainly required that all point sources obtain some kind of NPDES permit. *Id.* But in rejecting EPA's regulations, the *Costle* court discussed the options available to EPA in promulgating an NPDES system that was considerate of the enormous burden such a system could impose on EPA. *Id.* at 1380-81. In particular, the court recommended “the use of area or general permits. *The Act allows such techniques.* Area-wide regulation is one well-established means of coping with administrative exigency.” *Id.* at 1381 (emphasis added).

Against this backdrop, EPA's creation of a general permit system was entirely permissible. And if the creation of a general permit system is permissible, then it does not matter whether NOIs are given a public airing.

The majority contends that the general permit system prevents EPA from fulfilling its duty to make sure that municipalities do not discharge pollutants in violation of the Clean Water Act. The majority reasons that by failing to require EPA review of NOIs, the Rule fails to ensure that a regulated MS4's stormwater pollution control program will satisfy the Clean Water Act requirement that the MS4 “reduce*882 discharges to the maximum extent practicable.” Majority Op. 855. But the majority's analysis ignores the effects of the general permit. By filing an NOI, a discharger obligates itself to comply with the limitations and controls imposed by the general permit under which it intends to operate. EPA mandates that all permits (including general permits) condition their issuance on satisfaction of pollution limitations imposed by the Clean Water Act. 40 C.F.R. § 122.44. In particular, EPA requires permits to satisfy the restrictions imposed by Clean Water

Act section 307(a). *Id.* at § 122.44(b)(1). Therefore, the *general permit* imposes the obligations with which the discharger must comply (including applicable Clean Water Act standards), and EPA's decision not to review every NOI is not a failure to insure compliance with the Clean Water Act.

The majority also objects to EPA's general permit system because it fails to allow for sufficient public participation in the NOIs. Majority Op. 856-858. The majority's position fails to give deference to EPA and imposes the majority's own wishes instead. EPA would have been justified in creating a system entirely reliant on general or area permits. Its imposition of NOIs is an indulgence to certain policy prerogatives, namely public involvement and the collection of additional information. But the power to create a general permit system necessarily implies the power to require subordinate steps for NOIs that do not quite reach the level of inquiry associated with actual permits.

IV

We function as an adjudicator of disputes, not as a policy-making body. Where an agency promulgates rules after a deliberative process, it is incumbent upon us to respect the agency's decisions or else risk trivializing the function of that agency. In this case, EPA made a permissible decision to create a general permit program supported by NOIs. Therefore, I respectfully dissent from Section II.B of the majority's opinion.

C.A.9 (Cal.),2003.
Environmental Defense Center, Inc. v. U.S. E.P.A.
344 F.3d 832, 57 ERC 1039, 33 Env'tl. L. Rep. 20,269, 03 Cal. Daily Op. Serv. 8398, 2003 Daily Journal D.A.R. 10,479

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ATTACHMENT

10



United States Court of Appeals, District of Columbia
Circuit.

NATURAL RESOURCES DEFENSE COUNCIL,
INC.[FN*]

FN* For convenience the court will refer to
this case hereafter as NRDC v. Costle
(Runoff Point Sources).

v.

Douglas M. COSTLE, Administrator, Environmental
Protection Agency, et al., National Forest Products
Association, Appellant.

NATURAL RESOURCES DEFENSE COUNCIL,
INC., etc.

v.

Douglas M. COSTLE, Administrator, Environmental
Protection Agency, et al., National Milk Producers
Federation, Appellant.

NATURAL RESOURCES DEFENSE COUNCIL,
INC., etc.

v.

Douglas M. COSTLE, Administrator, and
Environmental Protection Agency, et al., Appellants.

NATURAL RESOURCES DEFENSE COUNCIL,
INC.

v.

Douglas M. COSTLE, Administrator, Environmental
Protection Agency, Colorado River Water
Conservation District, Appellant.

Nos. 75-2056, 75-2066, 75-2067 and 75-2235.

Argued Dec. 3, 1976.

Decided Nov. 16, 1977.

The National Resources Defense Council, Inc. challenged authority of the Environmental Protection Agency Administrator to exempt categories of point sources from permit requirements of the Federal Water Pollution Control Act Amendments of 1972. The United States District Court for the District of Columbia, Thomas A. Flannery, J., 396 F.Supp. 1393, granted summary judgment to the NRDC and the Administrator and others appealed. The Court of Appeals, Leventhal, Circuit Judge, held that: (1) legislative history shows that National Pollution Discharge Elimination System permit is the only means by which discharger may escape total

prohibition of discharges from point sources found in FWPCA; (2) national effluent limitations need not be uniform as precondition for NPDES program to include pollution from agricultural, silvicultural, and storm runoff point sources, and while technological or administrative infeasibility of such limitations may warrant adjustments in permit program it does not authorize Administrator to exclude relevant point sources; (3) where numeric effluent limitations are infeasible, permit conditions may proscribe industry practices that aggravate problems of point source pollution as well as require monitoring and reporting of effluent level; and (4) a number of administrative devices, including general or area permits are available to aid EPA in practical administration of NPDES program, and FWPCA, however tight in some respects, leaves some leeway to EPA in interpretation of that statute and affords agency some means to consider matters of feasibility.

Affirmed in accordance with opinion.

MacKinnon, Circuit Judge, filed a concurring opinion.

***1370 **148 Syllabus by the Court**

The National Resources Defense Council, Inc. (NRDC) challenged the authority of the EPA Administrator to exempt categories of point sources from the permit requirements of s 402 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. s 1342 (Supp. V 1975). On appeal from a grant of summary judgment to NRDC, held:

1. The legislative history makes clear that Congress intended the National Pollution Discharge Elimination System (NPDES) permit to be the only means by which a discharger may escape the total prohibition of discharges from point sources found in FWPCA s 301(a), 33 U.S.C. s 1311(a) (Supp. V 1975).
2. It is not necessary that national effluent limitations be uniform as a precondition for the NPDES program to include pollution from agricultural, silvicultural, and storm water runoff point sources. The

technological or administrative infeasibility *1371 **149 of such limitations may warrant adjustments in the permit program, but it does not authorize the Administrator to exclude the relevant point source from the NPDES program.

3. Where numeric effluent limitations are infeasible, permit conditions may proscribe industry practices that aggravate the problems of point source pollution as well as require monitoring and reporting of effluent levels.

4. A number of administrative devices, including general or area permits, are available to aid EPA in the practical administration of the NPDES program. The FWPCA, however tight in some respects, leaves some leeway to EPA in the interpretation of that statute and, in that regard, affords the agency some means to consider matters of feasibility.

Appeals from the United States District Court for the District of Columbia (D.C. Civil 1629-73).

Irvin B. Nathan, Washington, D. C., with whom Burton J. Mallinger, Washington, D. C., was on the brief, for appellant in No. 75-2056.

Charles W. Bills, Washington, D. C., with whom James R. Murphy, Washington, D. C., was on the brief for appellant in No. 75-2066.

G. William Frick, Atty., Dept. of Justice, Kansas City, Mo., of the bar of the Supreme Court of Missouri, pro hac vice by special leave of court for appellants in No. 75-2067. Peter R. Taft, Asst. Atty. Gen., Robert V. Zener, Gen. Counsel, Environmental Protection Agency, Edmund B. Clark, Lloyd S. Guerci, Larry A. Boggs, Attys., Dept. of Justice and Pamela P. Quinn, Atty., Environmental Protection Agency, Washington, D. C., were on the brief for appellants in No. 75-2067.

Christopher D. Williams, Washington D. C., with whom Kenneth Balcomb and Robert L. McCarty, Washington, D. C., were on the brief for appellant in No. 75-2235.

J. G. Speth, Washington, D. C., for appellee.

Theodore O. Torve, Asst. Atty. Gen., State of Washington, Olympia, Wash., filed a brief on behalf of the State of Washington as amicus curiae urging reversal in No. 75-2056.

Richard E. Schwartz, Jefferson City, Mo., filed a brief on behalf of Iron and Steel Institute, as amicus curiae urging reversal in No. 75-2067.

John L. Hill, Atty. Gen., State of Texas, and David

M. Kendall, Jr., First Asst. Atty. Gen., State of Texas, Austin, Tex., filed a brief on behalf of State of Texas as amicus curiae urging reversal in No. 75-2067.

Before BAZELON, Chief Judge, and LEVENTHAL and MacKINNON, Circuit Judges.

Opinion for the Court filed by LEVENTHAL, Circuit Judge.

Concurring Opinion filed by MacKINNON, Circuit Judge.

LEVENTHAL, Circuit Judge:

In 1972 Congress passed the Federal Water Pollution Control Act Amendments (hereafter referred to as the "FWPCA" or the "Act" [FN1]). It was a dramatic response to accelerating environmental degradation of rivers, lakes and streams in this country. The Act's stated goal is to eliminate the discharge of pollutants into the Nation's waters by 1985. This goal is to be achieved through the enforcement of the strict timetables and technology-based effluent limitations established by the Act.

FN1.33 U.S.C. ss 1251-1376 (Supp. V 1975). Although characterized in the official title as "amendments", the 1972 FWPCA actually substitutes its provisions for those of the pre-1972 Federal Water Pollution Control Act as amended, id. ss 1151-1175 (1970).

The FWPCA sets up a permit program, the National Pollutant Discharge Elimination System (NPDES), as the primary means of enforcing the Act's effluent limitations.[FN2] At issue in this case is the authority*1372 **150 of the Administrator of the Environmental Protection Agency to make exemptions from this permit component of the FWPCA.

FN2. This case deals with s 402 of the FWPCA, 33 U.S.C. s 1342 (Supp. V 1975), which sets out the permitting authority of the EPA Administrator as well as that of the states under EPA-approved state permit programs. The Secretary of the Army also has a permitting authority in certain circumstances. Under s 404 of the FWPCA, 33 U.S.C. s 1344 (Supp. V 1975), he may issue permits for the discharge of dredged or fill material into navigable waters.

Section 402 of the FWPCA, 33 U.S.C. s 1342 (Supp. V 1975), provides that under certain circumstances the EPA Administrator "may . . . issue a permit for the discharge of any pollutant" notwithstanding the general proscription of pollutant discharges found in s 301 of the Act. 33 U.S.C. s 1311 (Supp. V 1975). The discharge of a pollutant is defined in the FWPCA as "any addition of any pollutant to navigable waters from any point source" or "any addition of any pollutant to the waters of the contiguous zone or the ocean from any point source other than a vessel or floating craft." 33 U.S.C. s 1362(12) (Supp. V 1975). In 1973 the EPA Administrator issued regulations that exempted certain categories of "point sources" of pollution from the permit requirements of s 402.[FN3] The Administrator's purported authority to make such exemptions turns on the proper interpretation of s 402.

FN3.40 C.F.R. s 125.4 (1975). See 38 Fed.Reg. 18000-04 (1973).

A "point source" is defined in s 502(14) as "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged." [FN4]

FN4.33 U.S.C. s 1362(14) (Supp. V 1975).

The 1973 regulations exempted discharges from a number of classes of point sources from the permit requirements of s 402, including all silvicultural point sources; all confined animal feeding operations below a certain size; all irrigation return flows from areas of less than 3,000 contiguous acres or 3,000 noncontiguous acres that use the same drainage system; all nonfeedlot, nonirrigation agricultural point sources; and separate storm sewers containing only storm runoff uncontaminated by any industrial or commercial activity.[FN5] The EPA's *1373 **151 rationale for these exemptions is that in order to conserve the Agency's enforcement resources for more significant point sources of pollution, it is necessary to exclude these smaller sources of pollutant discharges from the permit program.

FN5.40 C.F.R. s 125.4 (1975):

The following do not require an NPDES permit:

(f) Uncontrolled discharges composed entirely of storm runoff when these discharges are uncontaminated by any industrial or commercial activity, unless the particular storm runoff discharge has been identified by the Regional Administrator, the State water pollution control agency or an interstate agency as a significant contributor of pollution. (It is anticipated that significant contributors of pollution will be identified in connection with the development of plans pursuant to section 303(e) of the Act. This exclusion applies only to separate storm sewers. Discharges from combined sewers and bypass sewers are not excluded.)

(j) Discharges of pollutants from agricultural and silvicultural activities, including irrigation return flow and runoff from orchards, cultivated crops, pastures, rangelands, and forest lands, except that this exclusion shall not apply to the following:

(1) Discharges from animal confinement facilities, if such facility or facilities contain, or at any time during the previous 12 months contained, for a total of 30 days or more, any of the following types of animals at or in excess of the number listed for each type of animal:

- (i) 1,000 slaughter and feeder cattle;
- (ii) 700 mature dairy cattle (whether milkers or dry cows);
- (iii) 2,500 swine weighing over 55 pounds;
- (iv) 10,000 sheep;
- (v) 55,000 turkeys;
- (vi) If the animal confinement facility has continuous overflow watering, 100,000 laying hens and broilers;
- (vii) If the animal confinement facility has liquid manure handling systems, 30,000 laying hens and broilers;
- (viii) 5,000 ducks;

(2) Discharges from animal confinement facilities, if such facility or facilities contain, or at any time during the previous 12 months contained for a total of 30 days or more, a combination of animals such that the sum of the following numbers is 1,000 or greater: the number of slaughter and feeder cattle multiplied by 1.0, plus the number of mature

dairy cattle multiplied by 1.4, plus the number of swine weighing over 55 pounds multiplied by 0.4, plus the number of sheep multiplied by 0.1;

(3) Discharges from aquatic animal production facilities;

(4) Discharges of irrigation return flow (such as tailwater, tile drainage, surfaced ground water flow or bypass water), operated by public or private organizations or individuals, if: (1) There is a point source of discharge (e. g., a pipe, ditch, or other defined or discrete conveyance, whether natural or artificial) and; (2) the return flow is from land areas of more than 3,000 contiguous acres, or 3,000 non-contiguous acres which use the same drainage system; and

(5) Discharges from any agricultural or silvicultural activity which have been identified by the Regional Administrator or the Director of the State water pollution control agency or interstate agency as a significant contributor of pollution.

The National Resources Defense Council, Inc. (NRDC) sought a declaratory judgment that the regulations are unlawful under the FWPCA. Specifically, NRDC contended that the Administrator does not have authority to exempt any class of point source from the permit requirements of s 402. It argued that Congress in enacting ss 301, 402 of the FWPCA intended to prohibit the discharge of pollutants from all point sources unless a permit had been issued to the discharger under s 402 or unless the point source was explicitly exempted from the permit requirements by statute. The District Court granted NRDC's motion for summary judgment. It held that the FWPCA does not authorize the Administrator to exclude any class of point sources from the permit program. *NRDC v. Train*, 396 F.Supp. 1393 (D.D.C.1975). The EPA has appealed to this court. It is joined on appeal by a number of defendant-intervenors, National Forest Products Association (NFPA), National Milk Producers Federation (NMPF), and the Colorado River Conservation District.[FN6]

FN6. Briefs as amicus curiae were filed by the American Iron and Steel Institute, the State of Texas, and the State of Washington,

Department of Natural Resources.

This case thus presents principally a question of statutory interpretation. EPA also argues that even if Congress intended to include the pertinent categories in the permit program, the regulations exempting them should be upheld on a doctrine of administrative infeasibility, i. e., the regulations should be upheld as a deviation from the literal terms of the FWPCA that is necessary to permit the Agency to realize the principal objectives of the Act.

I. LEGISLATIVE HISTORY

The principal purpose of the FWPCA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." [FN7] The Act's ultimate objective, to eliminate the discharge of pollutants into navigable waters by 1985, is to be achieved by means of two intermediate steps. As of July 1, 1977, all point sources other than publicly owned treatment works were to have achieved effluent limitations that require application of the "best practicable control technology." [FN8] These same point sources must reduce their effluent discharges by July 1, 1983, to meet limitations determined by application of the "best available technology economically achievable" for each category of point source.[FN9]

FN7.33 U.S.C. s 1251(a) (Supp. V 1975).

FN8.33 U.S.C. s 1311(b)(1)(A) (Supp. V 1975).

FN9.Id.s 1311(b)(2)(A).

The technique for enforcing these effluent limitations is straightforward. Section 301(a) of the FWPCA provides:

Except as in compliance with this section and sections 302, 306, 307, 318, 402, and 404 of this Act, the discharge of any pollutant by any person shall be unlawful.[FN10]

FN10.Id.s 1311(a).

Appellants concede that if the regulations are valid, it must be because they are authorized*1374 **152 by

s 402; none of the other sections listed in s 301(a) afford grounds for relieving the exempted point sources from the prohibition of s 301. [FN11]

FN11. Section 302, 33 U.S.C. s 1312 (Supp. V 1975), permits the Administrator to set water quality related effluent limitations or control strategies where technology-based limitations are inadequate. Section 306, 33 U.S.C. s 1316 (Supp. V 1975), instructs the EPA Administrator to promulgate standards of performance for new sources of pollution constructed after those standards are proposed. Section 307, 33 U.S.C. s 1317 (Supp. V 1975), gives the EPA Administrator the authority to issue generally applicable effluent standards with respect to toxic substances and to require pretreatment of some pollutants before their introduction into treatment works. By virtue of s 318, 33 U.S.C. s 1328 (Supp. V 1975), the Administrator may “permit the discharge of a specific pollutant or pollutants under controlled conditions associated with an approved aquaculture project under Federal or State supervision.” Section 404, 33 U.S.C. s 1344 (Supp. V 1975), gives the Secretary of the Army authority to issue permits for the discharge of dredged or fill material into the navigable waters at specified disposal sites.

Section 402 provides in relevant part that the Administrator may, after opportunity for public hearing, issue a permit for the discharge of any pollutant, or combination of pollutants, notwithstanding section 301(a), upon condition that such discharge will meet either all applicable requirements under sections 301, 302, 306, 307, 308, and 403 of this Act, or prior to the taking of the necessary implementing actions relating to all such requirements, such conditions as the Administrator determines are necessary to carry out the provisions of this Act.

The NPDES permit program established by s 402 is central to the enforcement of the FWPCA. It translates general effluent limitations into the specific obligations of a discharger. As this court noted in *NRDC v. Train*, 166 U.S.App.D.C. 312, 315, 510 F.2d 692, 695 (1975), the Act “relies primarily on a

permit program for the achievement of effluent limitations . . . to attain its goals.” The comments in floor debates of Senator Muskie, the leading Congressional sponsor of the Act, makes this clear.[FN12]

FN12. “The Administrator of the Environmental Protection Agency is authorized to regulate discharge of pollutants through the use of an expanded permit program.” 117 Cong.Rec. 38800 (1971) (Senator Muskie) (emphasis added), reprinted in 2 Environmental Policy Div., Congressional Reference Serv., A Legislative History of the Water Pollution Control Act Amendments of 1972, at 1259 (Senate Public Works Comm. Print 1973) (hereinafter cited as Legislative History).

The appellants argue that s 402 not only gives the Administrator the discretion to grant or refuse a permit, but also gives him the authority to exempt classes of point sources from the permit requirements entirely. They argue that this interpretation is supported by the legislative history of s 402 and the fact that unavailability of this exemption power would place unmanageable administrative burdens on the EPA.

[1] Putting aside for the moment the appellants' administrative infeasibility argument, we agree with the District Court that the legislative history makes clear that Congress intended the NPDES permit to be the only means by which a discharger from a point source may escape the total prohibition of s 301(a). This intention is evident in both Committee Reports. In discussing s 301 the House Report stressed:

Any discharge of a pollutant without a permit issued by the Administrator under section 318, or by the Administrator or the State under section 402 or by the Secretary of the Army under section 404 is unlawful. Any discharge of a pollutant not in compliance with the conditions or limitations of such a permit is also unlawful.[FN13]

FN13. H.Rep.No.92-911, 92d Cong., 2d Sess. 100 (1972), reprinted in Legislative History at 787.

The Senate Report echoed this interpretation:

(Section 301) clearly establishes that the discharge of pollutants is unlawful. Unlike its predecessor program which permitted the discharge of certain amounts of pollutants under the conditions described above, this legislation would clearly establish that no one has the right ***1375 **153** to pollute that pollution continues because of technological limits, not because of any inherent rights to use the nation's waterways for the purpose of disposing of wastes.

The program proposed by this Section will be implemented through permits issued in Section 402. The Administrator will have the capability and the mandate to press technology and economics to achieve those levels of effluent reduction which he believes to be practicable in the first instance and attainable in the second.[FN14]

FN14. S.Rep.No.92-414, 92d Cong., 1st Sess. 42 (1971), reprinted in Legislative History at 1460; U.S.Code Cong. & Admin.News 1972, pp. 3668, 3709.

[2] The EPA argues that since s 402 provides that "the Administrator may . . . issue a permit for the discharge of any pollutant" (emphasis added), he is given the discretion to exempt point sources from the permit requirements altogether. This argument, as to what Congress meant by the word "may" in s 402, is insufficient to rebut the plain language of the statute and the committee reports. We say this with due awareness of the deference normally due "the construction of a new statute by its implementing agency." *NRDC v. Train*, 166 U.S.App.D.C. at 326, 510 F.2d at 706; see *Zuber v. Allen*, 396 U.S. 168, 192, 90 S.Ct. 314, 24 L.Ed.2d 345 (1969); *Udall v. Tallman*, 380 U.S. 1, 16, 85 S.Ct. 792, 13 L.Ed.2d 616 (1965). The use of the word "may" in s 402 means only that the Administrator has discretion either to issue a permit or to leave the discharger subject to the total proscription of s 301. This is the natural reading, and the one that retains the fundamental logic of the statute.

Under the EPA's interpretation the Administrator would have broad discretion to exempt large classes of point sources from any or all requirements of the FWPCA. This is a result that the legislators did not intend. Rather they stressed that the FWPCA was a tough law that relied on explicit mandates to a degree

uncommon in legislation of this type. A statement of Senator Jennings Randolph of West Virginia, Chairman of the Senate Committee responsible for the Act, is illustrative.

I stress very strongly that Congress has become very specific on the steps it wants taken with regard to environmental protection. We have written into law precise standards and definite guidelines on how the environment should be protected. We have done more than just provide broad directives for administrators to follow. . . .

In the past, too many of our environmental laws have contained vague generalities. What we are attempting to do now is provide laws that can be administered with certainty and precision. I think that is what the American people expect that we do.[FN15]

FN15.117 Cong.Rec. 38805 (1971), reprinted in Legislative History at 1272. See also the comments of Senator Montoya on the original Senate bill.

Your committee has placed before you a tough bill. This body and this Nation would not have it be otherwise. Our legislation contains an important principle of psychology: Men seldom draw the best from themselves unless pressed by circumstances and deadlines. This bill contains deadlines and it imposes rather tough standards on industry, municipalities, and all other sources of pollution. Only under such conditions are we likely to press the technological threshold of invention into new and imaginative developments that will allow us to meet the objectives stated in our bill.

117 Cong.Rec. 38808 (1971), reprinted in Legislative History at 1278.

There are innumerable references in the legislative history to the effect that the Act is founded on the "basic premise that a discharge of pollutants without a permit is unlawful and that discharges not in compliance with the limitations and conditions for a permit are unlawful."[FN16]Even when infeasibility arguments were squarely raised, ***1376 **154** the legislature declined to abandon the permit requirement.[FN17] We stand by our previous interpretation of the Act's scheme for the enforcement

of effluent limitations:

FN16.118 Cong.Rec. 10215 (1972) (Rep. Clausen), reprinted in Legislative History at 378. See, e. g., H.R.Rep.No.92-911 92d Cong., 2d Sess. 100 (1972), reprinted in Legislative History at 787; S.Rep.No.92-414; 92d Cong., 1st Sess. 42-43 (1971), reprinted in Legislative History at 1460-61; 118 Cong.Rec. 10661 (1972) (Rep. Podell), reprinted in Legislative History at 574.

FN17. The House rejected an amendment designed to avoid the problems of including irrigation return flows in the permit program. Congressman Teno Roncalio of Wyoming offered an amendment on the floor of the House that would have explicitly exempted irrigated agriculture from the NPDES permit program.

Mr. RONCALIO. . . .

I offer my amendment so that a serious omission to H.R. 11896 can be corrected before we end up with a law that would be virtually impossible to enforce. My amendment would specifically exempt irrigated agriculture from sections 301(a), 302 and 304 of the Federal Water Pollution Control Act.

I think my colleagues will agree that the type of salinity problems created by irrigation runoff are simply not as alarming as the more common pollutants discharged by industrial and municipal facilities. Substantial salinity concentrations have little effect on recreational use of water or its suitability for the propagation of fish.

My amendment is necessary, Mr. Chairman, because at the present time we could not enforce pollution control on irrigation systems. It is virtually impossible to trace pollutants to specific irrigation lands, making these pollutants a nonpoint source in most cases. Second, we do not have the technology to deal with irrigation runoff (as contrasted to industrial pollution) and if we begin making laws to control something that cannot be handled with our given technological knowledge, we will be doing many thousand farmers and ranchers a great disservice. In fact, we will be doing the

Federal Government a great disservice if we actually pass a Federal water pollution control bill that cannot be fully enforced.

118 Cong.Rec. 10764-65 (1972), reprinted in Legislative History at 651. The amendment was rejected.

After dates set forth in (s 301(b)), a person must obtain a permit and comply with its terms in order to discharge any pollutant. The conditions of the permit must assure that any discharge complies with the applicable requirements of numerous sections including the effluent limitations of section 301(b).

NRDC v. Train, 166 U.S.App.D.C. at 316, 510 F.2d at 696 (emphasis added; footnotes omitted).

We also note that all the Supreme Court decisions referring to s 402 view the permit as the only means by which a point source polluter can avoid the ban on discharges found in s 301. Strictly speaking these expressions may be dicta, for they do not touch directly on the interpretation of s 402. But they are at least a considered reading of what the Act appears to mean.

In Train v. Colorado Public Interest Research Group, Inc., 426 U.S. 1, 96 S.Ct. 1938, 48 L.Ed.2d 434 (1976), Justice Marshall characterized the enforcement scheme of the FWPCA as follows:

(E)ffluent limitations are enforced through a permit program. The discharge of "pollutants" into water is unlawful without a permit issued by the Administrator of the EPA or, if a State has developed a program that complies with the FWPCA, by the State. . . .

Id. at 7, 96 S.Ct. at 1941 (footnote omitted).

In EPA v. State Water Resources Control Board, 426 U.S. 200, 96 S.Ct. 2022, 48 L.Ed.2d 578 (1976), the issue was whether federal installations were subject to state NPDES programs. Justice White's majority opinion describes NPDES at 205, 96 S.Ct. at 2025 (footnote omitted):

Under NPDES, it is unlawful for any person to discharge a pollutant without obtaining a permit and complying with its terms. An NPDES permit serves to transform generally applicable effluent limitations

and other standards including those based on water quality into the obligations (including a timetable for compliance) of the individual discharger, and the Amendments provide for direct administrative and judicial enforcement of permits.

In *E. I. du Pont de Nemours v. Train*, 430 U.S. 112, 97 S.Ct. 965, 51 L.Ed.2d 204 (1977), the Court held that under FWPCA the EPA can set uniform effluent limitations through industry-wide regulations rather than develop them on an individual basis during the permit issuance process. But the Court, per Justice Stevens, clearly indicated*1377 **155 that those limitations were translated into obligations of the discharger through their inclusion in an NPDES permit. *Id.* at 119-20, 97 S.Ct. 965.

The wording of the statute, legislative history, and precedents are clear: the EPA Administrator does not have authority to exempt categories of point sources from the permit requirements of s 402. Courts may not manufacture for an agency a revisory power inconsistent with the clear intent of the relevant statute. In holding that the FPC does not have authority to exempt the rates of small producers from regulation under the Natural Gas Act, the Supreme Court observed:

It is not the Court's role . . . to overturn congressional assumptions embedded into the framework of regulation established by the Act. This is a proper task for the Legislature where the public interest may be considered from the multifaceted points of view of the representational process.

FPC v. Texaco, Inc., 417 U.S. 380, 400, 94 S.Ct. 2315, 2327, 41 L.Ed.2d 141 (1974).

II. ADMINISTRATIVE INFEASIBILITY

The appellants have stressed in briefs and at oral argument the extraordinary burden on the EPA that will be imposed by the above interpretation of the scope of the NPDES program. The spectre of millions of applications for permits is evoked both as part of appellants' legislative history argument that Congress could not have intended to impose such burdens on the EPA and as an invitation to this court to uphold the regulations as deviations from the literal terms of the FWPCA necessary to permit the agency to realize the general objectives of that act.

During oral argument we asked for supplemental briefs so that the appellants could expand on their infeasibility arguments. We consider EPA's infeasibility contentions in turn.

A. Uniform National Effluent Limitations

EPA argues that the regulatory scheme intended under Titles III and IV of the FWPCA requires, first, that the Administrator establish national effluent limitations [FN18] and, second, that these limitations be incorporated in the individual permits of dischargers. EPA argues that the establishment of such limitations is simply not possible with the type of point sources involved in the 1973 regulations, which essentially involve the discharge of runoff i. e., wastewaters generated by rainfall that drain over terrain into navigable waters, picking up pollutants along the way.

FN18. See FWPCA s 502(11), 33 U.S.C. s 1362(11) (Supp. V 1975):

The term "effluent limitation" means any restriction established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters, the waters of the contiguous zone, or the ocean, including schedules of compliance.

There is an initial question, to what extent point sources are involved in agricultural, silvicultural, and storm sewer runoff. The definition of point source in s 502(14), including the concept of a "discrete conveyance", suggests that there is room here for some exclusion by interpretation. We discuss this issue subsequently. Meanwhile, we assume that even taking into account what are clearly point sources, there is a problem of infeasibility which the EPA properly opens for discussion.

EPA contends that certain characteristics of runoff pollution make it difficult to promulgate effluent limitations for most of the point sources exempted by the 1973 regulations:

The major characteristic of the pollution problem which is generated by runoff . . . is that the owner of the discharge point . . . has no control over the

quantity of the flow or the nature and amounts of the pollutants picked up by the runoff. The amount of flow obviously is unpredictable because it results from the duration and intensity of the rainfall event, the topography, the type of ground cover and the saturation point of the land due to any previous *1378 **156 rainfall. Similar factors affect the types of pollutants which will be picked up by that runoff, including the type of farming practices employed, the rate and type of pesticide and fertilizer application, and the conservation practices employed . . .

An effluent limitation must be a precise number in order for it to be an effective regulatory tool; both the discharger and the regulatory agency need to have an identifiable standard upon which to determine whether the facility is in compliance. That was the principal of the passage of the 1972 Amendments.

Federal Appellants' Memorandum on "Impossibility" at 7-8 (footnote omitted). Implicit in EPA's contentions is the premise that there must be a uniform effluent limitation prior to issuing a permit. That is not our understanding of the law.

In *NRDC v. Train*, we described the interrelationship of the effluent limitations and the NPDES permit program, 166 U.S.App.D.C. at 327, 510 F.2d at 707 (footnotes omitted):

The Act relies on effluent limitations on individual point sources as the "basis of pollution prevention and elimination." . . . Section 301(b) contains a broad description of phase one and phase two effluent limitations, to be achieved by July 1, 1977 and July 1, 1983, respectively. The limitations established under section 301(b) are to be imposed upon individual point sources through permits issued under the National Pollutant Discharge Elimination System (NPDES) established by section 402. Those permits are to contain schedules which will assure phased compliance with the effluent limitations no later than the final dates set forth in section 301(b). Section 304(b) calls for the publication of regulations containing guidelines for effluent limitations for classes and categories of point sources. These guidelines are intended to assist in the establishment of section 301(b) limitations that will provide uniformity in the permit conditions imposed on similar sources within the same category by diverse state and federal permit authorities.

As noted in *NRDC v. Train*, the primary purpose of the effluent limitations and guidelines was to provide uniformity among the federal and state jurisdictions enforcing the NPDES program and prevent the "Tragedy of the Commons" [FN19] that might result if jurisdictions can compete for industry and development by providing more liberal limitations than their neighboring states. 166 U.S.App.D.C. at 329, 510 F.2d at 709. The effluent limitations were intended to create floors that had to be respected by state permit programs.

FN19. As one commentator has recently written:

The Tragedy of the Commons arises in noncentralized decisionmaking under conditions in which the rational but independent pursuit by each decisionmaker of its own self-interest leads to results that leave all decisionmakers worse off than they would have been had they been able to agree collectively on a different set of policies.

Stewart, *Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy*, 86 *Yale L.J.* 1196, 1211 (1977). The classic account of the Tragedy of the Commons can be found in Hardin, *The Tragedy of the Commons*, 162 *Science* 1243 (1968). Hardin makes the point in the context of sheep-grazing. Put simply, even over-simply, Hardin shows that if no one is authorized to set limits to preserve open pasture land as a whole, allowing sheep to graze on that land may lead to serious overgrazing, as each herdsman thinks only of his own advantage. The solution lies in some mandate, from above or by agreement, with sanctions to compel conformance.

But in *NRDC v. Train* it was also recognized that permits could be issued before national effluent limitations were promulgated and that permits issued subsequent to promulgation of uniform effluent limitations could be modified to take account of special characteristics of subcategories of point sources.

Prior to the promulgation of effluent limitations under section 301, the director of a state program is

instructed merely to impose such terms and conditions in each permit as he determines are necessary to carry out the provisions of the Act. Once *1379 **157 an effluent limitation is established, however, the state director and the regional EPA Administrator are required to apply the specified, uniform effluent limitations, modified only as necessary to take account of fundamentally different factors pertaining to particular point sources within a given class or category. Any variation in the uniform limitations adopted for specific dischargers must be approved by the Administrator.

166 U.S.App.D.C. at 330, 510 F.2d at 710 (footnotes omitted).

Another passage in *NRDC v. Train* touches on the infeasibility problem. We noted that “(t)he statutory framework is not so tightly drawn as to require guidelines for each and every class and category of point source regardless of the need for uniform guidelines or to mandate that all guidelines be published prior to December 31 (1974) regardless of their quality or the burden that task would place upon the agency.” *Id.* at 320-21, 510 F.2d at 710-11. In that case this court fully appreciated that technological and administrative constraints might prevent the Administrator from developing guidelines and corresponding uniform numeric effluent limitations for certain point sources anytime in the near future. The Administrator was deemed to have the burden of demonstrating that the failure to develop the guidelines on schedule was due to administrative or technological infeasibility. 166 U.S.App.D.C. at 333, 510 F.2d at 713. Yet the underlying teaching was that technological or administrative infeasibility was a reason for adjusting court mandates to the minimum extent necessary to realize the general objectives of the Act.[FN20] It is a number of steps again to suggest that these problems afford the Administrator the authority to exempt categories of point sources from the NPDES program entirely.

FN20. In *NRDC v. Train*, this court stated:
A federal equity court may exercise its discretion to give or withhold its mandate in furtherance of the public interest, including specifically the interest in effectuating the congressional objective incorporated in regulatory legislation. We think the court

may forebear the issuance of an order in those cases where it is convinced by the official involved that he has in good faith employed the utmost diligence in discharging his statutory responsibilities. The sound discretion of an equity court does not embrace enforcement through contempt of a party's duty to comply with an order that calls him “to do an impossibility.”

166 U.S.App.D.C. at 333, 510 F.2d at 713 (footnotes omitted). For reasons stated in this opinion, we conclude that to require the EPA Administrator to include silvicultural, agricultural, and storm sewer point sources in the NPDES program is not to require him “to do an impossibility.”

With time, experience, and technological development, more point sources in the categories that EPA has now classed as exempt may be amenable to national effluent limitations achieved through end-of-pipe technology or other means of pollution control. EPA has noted its own success with runoff from mining operations:

EPA has found that in the area of runoff from mining operations, there is sufficient predictability because of a longer history of regulation and the relatively confined nature of the operations that numerical limitations can be established. Thus, consistent with EPA's position stated earlier that it will expand the permit program where its capability of establishing effluent limitations allows, appropriate limitations have been created and the permit program expanded.

Federal Appellants' Memorandum on “Impossibility” at 8.

[3] In sum, we conclude that the existence of uniform national effluent limitations is not a necessary precondition for incorporating into the NPDES program pollution from agricultural, silvicultural, and storm water runoff point sources. The technological or administrative infeasibility of such limitations may result in adjustments in the permit programs, as will be seen, but it does not authorize the Administrator to exclude the relevant point source from the NPDES program.

B. Alternative Permit Conditions under s 402(a)

EPA contends that even if it is possible to issue permits without national effluent limitations, ***1380 **158** the special characteristics of point sources of runoff pollution make it infeasible to develop restrictions on a case-by-case basis. EPA's implicit premise is that whether limitations are promulgated on a class or individual source basis, it is still necessary to articulate any limitation in terms of a numerical effluent standard. That is not our understanding.

[4] Section 402 provides that a permit may be issued upon condition "that such discharge will meet either all applicable requirements under sections 301, 302, 306, 307, 308 and 403 of this Act, or prior to taking of necessary implementing actions relating to all such requirements, such conditions as the Administrator determines are necessary to carry out the provisions of this Act." 33 U.S.C. s 1342(a) (Supp. V 1975) (emphasis added). This provision gives EPA considerable flexibility in framing the permit to achieve a desired reduction in pollutant discharges. The permit may proscribe industry practices that aggravate the problem of point source pollution.[FN21]

FN21. That Congress did not regard numeric effluent limitations as the only permissible limitation on a discharger is supported by s 302(a) of the Act, 33 U.S.C. s 1312(a) (Supp. V 1975):

Whenever, in the judgment of the Administrator, discharges of pollutants from a point source or group of point sources, with the application of effluent limitations required under (s 301(b) of the Act), would interfere with the attainment or maintenance of that water quality in a specific portion of the navigable waters which shall assure protection of public water supplies, agricultural and industrial uses, and the protection and propagation of a balanced population of shellfish, fish and wildlife, and allow recreational activities in and on the water, effluent limitations (including alternative effluent control strategies) for such point source or sources shall be established which can reasonably be expected to contribute to the attainment or maintenance of such water quality.

The emphasis has been added.

EPA's counsel caricatures the matter by stating that recognition of any such authority would give EPA the power "to instruct each individual farmer on his farming practices." Federal Appellants Memorandum on "Impossibility" at 12. Any limitation on a polluter forces him to modify his conduct and operations. For example, an air polluter may have a choice of installing scrubbers, burning different fuels or reducing output. Indeed, the authority to prescribe limits consistent with the best practicable technology may be tantamount to prescribing that technology. Of course, when alternative techniques are available, Congress intended to give the discharger as much flexibility as possible in choosing his mode of compliance. See, e. g., H.Rep.No.92-911, 92d Cong., 2d Sess. 107, reprinted in Legislative History at 794. We only indicate here that when numerical effluent limitations are infeasible, EPA may issue permits with conditions designed to reduce the level of effluent discharges to acceptable levels. This may well mean opting for a gross reduction in pollutant discharge rather than the fine-tuning suggested by numerical limitations. But this ambitious statute is not hospitable to the concept that the appropriate response to a difficult pollution problem is not to try at all.

It may be appropriate in certain circumstances for the EPA to require a permittee simply to monitor and report effluent levels; EPA manifestly has this authority.[FN22] Such permit conditions might be desirable where the full extent of the pollution problem is not known.

FN22. FWPCA s 402(a)(3), (b)(2)(B), 33 U.S.C. s 1342(a)(3), (b)(2)(B) (Supp. V 1975). EPA concedes that it has this authority. Federal Appellants' Memorandum on "Impossibility" at 14.

C. General Permits

Finally, EPA argues that the number of permits involved in the absence of an exemption authority will simply overwhelm the Agency. Affidavits filed with the District Court indicate, for example, that the number of silviculture point sources may be over 300,000 and that there are approximately 100,000 separate storm sewer point sources.[FN23] We are and must be sensitive to ***1381 **159** EPA's

concerns of an intolerable permit load. But the District Court and the various parties have suggested devices to mitigate the burden to accommodate within a practical regulatory scheme Congress's clear mandate that all point sources have permits. All that is required is that EPA makes full use of its interpretational authority. The existence of a variety of options belies EPA's infeasibility arguments.

FN23. Affidavit of William H. McCredie, Director, Industrial Forestry, of the NFPA; Affidavit of Walter G. Gilbert, Chief of the Municipal Operations Branch, Municipal Waste Water Systems Div., EPA Office of Air and Water Programs.

[5] Section 402 does not explicitly describe the necessary scope of a NPDES permit. The most significant requirement is that the permit be in compliance with limitation sections of the Act described above. As a result NRDC and the District Court have suggested the use of area or general permits. The Act allows such techniques. Area-wide regulation is one well-established means of coping with administrative exigency. An instance is area pricing for natural gas producers, which the Supreme Court upheld in *Permian Basin Area Rate Cases*, 390 U.S. 747, 88 S.Ct. 1344, 20 L.Ed.2d 312 (1968).[FN24] A more dramatic example is the administrative search warrant, which may be issued on an area basis despite the normal Fourth Amendment requirement of probable cause for searching specific premises. *Camara v. Municipal Court*, 387 U.S. 523, 87 S.Ct. 1727, 18 L.Ed.2d 930 (1967).

FN24. In *Permian Basin* the Supreme Court observed:
The Commission has asserted, and the history of producer regulation has confirmed, that the ultimate achievement of the Commission's regulatory purposes may easily depend upon the contrivance of more expeditious administrative methods. The Commission believes that the elements of such methods may be found in area proceedings. "(C)onsiderations of feasibility and practicality are certainly germane" to the issues before us. . . . We cannot, in these circumstances, conclude that Congress has given authority inadequate to achieve with

reasonable effectiveness the purposes for which it has acted.

390 U.S. at 777, 88 S.Ct. at 1365.

In response to the District Court's order, EPA promulgated regulations that make use of the general permit device. 42 Fed.Reg. 6846-53 (Feb. 4, 1977). The general permit is addressed to a class of point source dischargers, subject to notice and opportunity for public hearing in the geographical area covered by the permit. Although we do not pass on the validity of the February, 1977, regulations, they serve to dilute an objection of wholesale infeasibility.[FN25]

FN25. It is also of some, albeit limited, significance that the House Committee on Government Operations found EPA's administrative problems with applying the permit program to animal feedlots "grossly exaggerated." It was of the opinion that the Administrator did not have authority to exempt point sources from the NPDES program. H.Rep.No.93-1012, 93d Cong., 2d Sess. 15-30 (1974).

Our approach is not fairly subject to the criticism that it elevates form over substance that the end result will look very much like EPA's categorical exemption. It is the function of the courts to require agencies to comply with legislative intent when that intent is clear, and to leave it to the legislature to make adjustments when the result is counterproductive.[FN26] At the same time, where intent on an issue is unclear,***1382** ****160** we are instructed to afford the administering agency the flexibility necessary to achieve the general objectives of the Act. *Weinberger v. Bentex Pharmaceuticals, Inc.*, 412 U.S. 645, 653, 93 S.Ct. 2448, 37 L.Ed.2d 235 (1973); *United States v. Southwestern Cable Co.*, 392 U.S. 157, 177-78, 88 S.Ct. 1994, 20 L.Ed.2d 1001 (1968); *Permian Basin Area Rate Cases*, 390 U.S. 747, 780, 88 S.Ct. 1344, 20 L.Ed.2d 312 (1968). These lines of authority conjoin in our approach. We insist, as the Act insists, that a permit is necessary; the Administrator has no authority to exempt point sources from the NPDES program. But we concede necessary flexibility in the shaping of the permits that is not inconsistent with the clear terms of the Act.

FN26. The Supreme Court recently

reiterated this instruction in *Union Electric Co. v. EPA*, 427 U.S. 246, 96 S.Ct. 2518, 49 L.Ed.2d 474 (1976). There the Court held that the EPA Administrator could not consider claims of technological or economic infeasibility when approving state implementation plans under the Clean Air Act Amendments of 1970, 42 U.S.C. ss 1857a-1857l (1970). Such claims were held only to be cognizable by the states in the plan design stage or by the Administrator when drawing up compliance orders. Justice Marshall, writing for the Court, emphasized that federal courts are not to ignore clear expressions of Congressional intent in order to accommodate claims of technological or economic infeasibility.

Allowing such claims to be raised by appealing the Administrator's approval of an implementation plan . . . would frustrate congressional intent. It would permit a proposed plan to be struck down as infeasible before it is given a chance to work, even though Congress clearly contemplated that some plans would be infeasible when proposed. And it would permit the Administrator or a federal court to reject a State's legislative choices in regulating air pollution, even though Congress plainly left with the States, so long as the national standards were met, the power to determine which sources would be burdened by regulation and to what extent. Technology forcing is a concept somewhat new to our national experience and it necessarily entails certain risks. But Congress considered those risks in passing the 1970 Amendments and decided that the dangers posed by uncontrolled air pollution made them worth taking. Petitioner's theory would render that considered legislative judgment a nullity, and that is a result we refuse to reach.

427 U.S. at 268-69, 96 S.Ct. at 2531 (footnote omitted). See also *Wilderness Society v. Morton*, 156 U.S.App.D.C. 121, 171, 479 F.2d 842, 892 (1973), cert. denied, 411 U.S. 917, 93 S.Ct. 1550, 36 L.Ed.2d 309 (quoting *United States v. City and County of San Francisco*, 310 U.S. 16, 31-32, 60 S.Ct. 749, 84 L.Ed. 1050 (1940): "We cannot accept the contention that

administrative rulings such as those relied on can thwart the plain purpose of a valid law.'")

There is also a very practical difference between a general permit and an exemption. An exemption tends to become indefinite: the problem drops out of sight, into a pool of inertia, unlikely to be recalled in the absence of crisis or a strong political protagonist. In contrast, the general or area permit approach forces the Agency to focus on the problems of specific regions and requires that the problems of the region be reconsidered at least every five years, the maximum duration of a permit.[FN27]

FN27.33 U.S.C. s 1342(a)(3), (b)(1)(B) (Supp. V 1975).

D. Other Interpretational Powers

[6] Many of the intervenor-appellants appear to argue that the District Court should be reversed because the categories exempted by EPA are nonpoint sources and are not, in fact, point sources.[FN28] We agree with the District Court "that the power to define point and nonpoint sources is vested in EPA and should be reviewed by the court only after opportunity for full agency review and examination." 396 F.Supp. at 1396. The only issue precisely confronted by all the parties and properly framed for our consideration is whether the Administrator has authority to exempt point sources from the NPDES program. We also think that we should, for similar reasons, not consider at this time the appropriate definition of "discharge of any pollutant" as used in s 402. The American Iron and Steel Institute as amicus curiae has pressed upon us the argument that the term "discharge" as used in s 402 was intended to encompass only "volitional flows" that add pollutants to navigable waters. Most forms of runoff, it is argued, do not involve volitional flows.

FN28. This appears to be the position of the Colorado River Water Conservation District and the NFPA with respect to silvicultural activities, and NMPF, less obviously, with respect to small dairy farms.

We would put in the same category EPA's contention that the exempt categories are best handled under the areawide waste treatment management planning process of s

208 of the FWPCA, 33 U.S.C. s 1288 (Supp. V 1975). By its terms that section is concerned with areawide waste treatment plans that identify and control "agriculturally and silviculturally related non-point sources of pollution." Id. s 1288(b)(2)(F).

[7] We assume that FWPCA, however tight in some respects, leaves some leeway to EPA in the interpretation of that statute, and in that regard affords the Agency some means to consider matters of feasibility. However, for reasons already noted, we do not consider these particular contentions as to interpretation on the merits.

III. CONCLUSION

[8] As the Supreme Court recently stated in a FWPCA case, "(t)he question . . . is**161 *1383 not what a court thinks is generally appropriate to the regulatory process, it is what Congress intended" *E. I. du Pont de Nemours & Co. v. Train*, 430 U.S. 112, 138, 97 S.Ct. 965, 980, 51 L.Ed.2d 204 (1977). We find a plain Congressional intent to require permits in any situation of pollution from point sources. We also discern an intent to give EPA flexibility in the structure of the permits, in the form of general or area permits. We are aware that Congress hoped that more of the NPDES permit program would be administered by the states at this point.[FN29] But it also made provision for continuing EPA administration. Imagination conjoined with determination will likely give EPA a capability for practicable administration. If not, the remedy lies with Congress.

FN29. See, e. g., 118 Cong.Rec. 10235 (1972) (Rep. Ichord) reprinted in *Legislative History* at 428.

So ordered.

MacKINNON, Circuit Judge, concurring:

I concur in the very sound and practical construction set forth in the foregoing opinion. Any person concerned with the actual application and enforcement of laws would necessarily be concerned by the application of the relevant legislation to all point sources in agriculture and particularly to irrigated agriculture. Concern would also lie in the congressional admission that present technology is

inadequate to enable our citizens to meet the standards and deadlines the Act imposes; in passing the law, Congress was relying on the future "invention (of) new and imaginative developments that will allow us to meet the objectives of our bill." [FN1] In gambling parlance, Congress in enacting the law was "betting on the come." It is relying on our citizens in the near future to develop the complex technology to meet all the law's standards and objectives on time. The difficulty with that approach is that the hopes of Congress in this respect, like that of any gambler, might not be realized. The agency in this case, however, has shown that it takes a realistic view of both the situation and the task of meeting the difficult requirements and objectives of the Act. I sincerely hope that the ability of the agency to issue section 402 permits including general area permits [FN2] will permit it to meet the present and future compliance problems posed by the Act in a practical way.

FN1. Comments of Senator Montoya, 117 Cong.Rec. 38808 (1971), quoted in court's opinion at 12, reprinted in *Legislative History* at 1278.

FN2. As an example, an area permit with appropriate conditions and modifications could issue for the agricultural point sources within the Grand River Irrigation District, or the watershed of the Roaring Fork River and tributaries, etc.

C.A.D.C., 1977.

Natural Resources Defense Council, Inc. v. Costle
568 F.2d 1369, 10 ERC 2025, 186 U.S.App.D.C.
147, 8 Env'tl. L. Rep. 20,028

END OF DOCUMENT

ATTACHMENT

11

 KeyCite Yellow Flag - Negative Treatment
Not Followed on State Law Grounds [Michigan Farm Bureau v. Dep't of Environmental Quality](#), Mich.App., March 29, 2011

399 F.3d 486

United States Court of Appeals,
Second Circuit.

WATERKEEPER ALLIANCE, INC., American Farm
Bureau Federation, [National Chicken Council](#),
National Pork Producers Council, American Littoral
Society, Sierra Club, Inc., Natural Resources
Defense Council, Inc., Petitioners/Intervenors,

v.

[UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY](#), Michael O.

Leavitt, Administrator, [United States](#)

[Environmental Protection Agency](#) Respondents.

Docket Nos. 03-4470 (L), 03-
4621(C), 03-4631(C), 03-4641(C), 03-
4849(C), 04-40199(C), 03-40229(C).

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Argued: Dec. 13, 2004.

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Decided: Feb. 28, 2005.

Synopsis

Background: Various environmental groups and farm groups brought multiple challenges to administrative rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) in order to regulate the emission of water pollutants by concentrated animal feeding operations (CAFO).

Holdings: The Court of Appeals, [Katzmann](#), Circuit Judge, held that:

[1] provision of rule allowing permitting authorities to issue permits without reviewing the terms of nutrient management plans violated statutory provisions of CWA;

[2] permitting scheme established by rule promulgated violated the CWA's public participation requirements;

[3] regulatory exemption for agricultural stormwater discharges did not violate the CWA;

[4] EPA acted reasonably in choosing as best available technology for beef and cattle CAFOs an option requiring that groundwater-related requirements be implemented, as necessary, on a case-by-case basis, rather than uniformly imposed;

[5] EPA acted reasonably in rejecting as best available technology for swine, poultry, and veal CAFOs an option requiring a zero discharge requirement that did not allow overflows from the production area under any circumstances;

[6] EPA's failure to impose best conventional pollutant control technology effluent limitation guidelines specifically designed to reduce pathogens in CAFO's violated the CWA; and

[7] new source performance standards for the production areas of swine, poultry, and veal CAFOs violated the CWA.

So ordered.

West Headnotes (16)

[1] [Administrative Law and Procedure](#)
 [Arbitrary, unreasonable or capricious action; illegality](#)

To determine whether an agency has acted in an arbitrary and capricious fashion, an appellate court must ask whether the agency has examined the relevant data and articulated a satisfactory explanation for its action including a rational connection between the facts found and the choice made.

[2 Cases that cite this headnote](#)

[2] [Administrative Law and Procedure](#)
 [Validity](#)

Normally, an appellate court must deem arbitrary and capricious an agency rule where the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect

of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.

[2 Cases that cite this headnote](#)

[3] Environmental Law

 [Discharge of pollutants](#)

Provision of administrative rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations allowing permitting authorities to issue permits without reviewing the terms of nutrient management plans violated statutory provisions of CWA requiring permitting authorities to assure compliance with all effluent limitations and standards for land applications of manure, litter, and process waste water, and was otherwise arbitrary and capricious under the Administrative Procedure Act (APA). Federal Water Pollution Control Act Amendments of 1972, § 101 et seq., as amended, [33 U.S.C.A. § 1251 et seq.](#); [40 C.F.R. § 122.23\(d\)\(2\)](#).

[4 Cases that cite this headnote](#)

[4] Environmental Law

 [Discharge of pollutants](#)

Provision of administrative rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations allowing permitting authorities to issue permits that did not include the terms of nutrient management plans violated CWA requirement that effluent limitations must be included in the permits, and was otherwise arbitrary and capricious. Federal Water Pollution Control Act Amendments of 1972, §§ 301(a, b), 402(a), as amended, [33 U.S.C.A. §§ 1311\(a, b\), 1342\(a\)](#).

[11 Cases that cite this headnote](#)

[5] Environmental Law

 [Discharge of pollutants](#)

Environmental Law

 [Notice and comment](#)

Permitting scheme established by administrative rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations violated the CWA's public participation requirements and was otherwise arbitrary and capricious under the Administrative Procedure Act; although the preamble to the rule indicated that the EPA expected that the permitting authority would make the information available to the public upon request, the rule provided no assurance that the EPA's expectations would be satisfied. [5 U.S.C.A. § 551 et seq.](#); Federal Water Pollution Control Act Amendments of 1972, §§ 101(e), 402(a, j), as amended, [33 U.S.C.A. §§ 1251\(e\), 1342\(a, j\)](#); [40 C.F.R. § 122.42\(e\)\(2\)\(ii\)](#).

[4 Cases that cite this headnote](#)

[6] Environmental Law

 [Discharge of pollutants](#)

Permitting scheme established by administrative rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations (CAFO), requiring that every CAFO owner or operator either apply for a permit, and comply with the effluent limitations contained in the permit, or affirmatively demonstrate that no permit was needed because there was no potential to discharge, exceeded statutory authority granted by the CWA to regulate and control the actual discharge of pollutants; the CWA gave the EPA the authority to regulate only actual discharges,

not potential discharges and not point sources themselves. Federal Water Pollution Control Act Amendments of 1972, §§ 301(e), 402, 502(12, 14), as amended, 33 U.S.C.A. §§ 1311(e), 1342; 1362(12, 14); 40 C.F.R. §§ 122.23(d), 122.23(f).

[24 Cases that cite this headnote](#)

[7] Environmental Law

🔑 Discharge of pollutants

Regulatory exemption for agricultural stormwater discharges contained in rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations did not violate the CWA. Federal Water Pollution Control Act Amendments of 1972, § 502, as amended, 33 U.S.C.A. § 1362; 40 C.F.R. § 122.23(e).

[1 Cases that cite this headnote](#)

[8] Environmental Law

🔑 Substances, Sources, and Activities Regulated

Any discharge from a land area under the control of a concentrated animal feeding operation, regardless of whether the discharge is collected at the land application area itself, is a “point source discharge” subject to regulation under rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations. Federal Water Pollution Control Act Amendments of 1972, § 101 et seq., as amended, 33 U.S.C.A. § 1251 et seq.; 40 C.F.R. § 122.23(e).

[12 Cases that cite this headnote](#)

[9] Environmental Law

🔑 Particular limitations and guidelines

In setting best available technology (BAT) standards for determining effluent

limitation guidelines (ELG), for purposes of rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations (CAFO), the EPA complied with statutory duties, notwithstanding that the rule did not explicitly identify the single, existing best-performing CAFO in each category or subcategory of the rule; the EPA extensively surveyed available technologies, narrowed the list of potential BAT candidates to seven options, and subsequently found, within the bounds of its discretion, that a specific option was the best candidate for BAT, because all the other options considered either did not perform better than that option, were not adequately supported in science, or were not economically achievable. Federal Water Pollution Control Act Amendments of 1972, § 101 et seq., as amended, 33 U.S.C.A. § 1251 et seq.

[5 Cases that cite this headnote](#)

[10] Environmental Law

🔑 Particular limitations and guidelines

Environmental Protection Agency (EPA) acted reasonably in choosing as best available technology for beef and cattle concentrated animal feeding operations (CAFOs) an option requiring that groundwater-related requirements be implemented, as necessary, on a case-by-case basis, rather than uniformly imposed, when promulgating rule under the Clean Water Act (CWA) to regulate the emission of water pollutants by CAFOs; studies showed that variability in topography, climate, distance to surface water, and geologic facts influenced whether and how pollutant discharges at a particular site entered surface water via groundwater, and EPA's final economic analysis showed a nearly six-fold increase in the number of beef, dairy, and heifer CAFOs projected to close were the option requiring uniform, rather than case-by-case implementation, adopted. Federal Water Pollution Control

Act Amendments of 1972, § 101 et seq., as amended, 33 U.S.C.A. § 1251 et seq.

[1 Cases that cite this headnote](#)

[11] Environmental Law

[Particular limitations and guidelines](#)

Environmental Protection Agency (EPA) acted reasonably in rejecting as best available technology for swine, poultry, and veal concentrated animal feeding operations an option requiring a zero discharge requirement that did not allow overflows from the production area under any circumstances when promulgating rule under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations (CAFO); after conducting extensive economic analysis, involving numerous economic tests and modeling, the EPA determined that such an option would render 17 percent of swine CAFOs and 11 percent of the CAFOs, on the whole, vulnerable to closure. Federal Water Pollution Control Act Amendments of 1972, § 304(b)(2)(B), as amended, 33 U.S.C.A. § 1314(b)(2)(B).

[3 Cases that cite this headnote](#)

[12] Environmental Law

[Scope of Inquiry on Review of Administrative Decision](#)

A reviewing court can neither second-guess Environmental Protection Agency's (EPA) analysis nor undertake its own economic study; rather, the court must uphold regulations if EPA has established in the record a reasonable basis for its decision.

[Cases that cite this headnote](#)

[13] Environmental Law

[Particular limitations and guidelines](#)

Environmental Protection Agency's (EPA) failure to impose best conventional pollutant control technology (BCT) effluent limitation guidelines (ELGs) specifically designed to

reduce pathogens in concentrated animal feeding operations, when promulgating rule under the Clean Water Act to regulate the emission of water pollutants by concentrated animal feeding operations violated the Clean Water Act. Federal Water Pollution Control Act Amendments of 1972, § 304(b)(2)(A), as amended, 33 U.S.C.A. § 1314(b)(2)(A).

[5 Cases that cite this headnote](#)

[14] Environmental Law

[Particular limitations and guidelines](#)

New source performance standards for the production areas of swine, poultry, and veal concentrated animal feeding operations (CAFOs) allowing the CAFOs to comply with total prohibition against production area discharges by designing, operating, and maintaining a facility to contain the runoff from a 100-year, 24-hour rainfall event violated the Clean Water Act; the EPA never modeled the potential overflows and pollutant loads from a system with a 100-year, 24-hour storm event, and while certain studies may have shown that the rule would have substantially prevented production area discharges, substantially preventing discharges was not the same as prohibiting them outright. Federal Water Pollution Control Act Amendments of 1972, § 306, as amended, 33 U.S.C.A. § 1316.

[2 Cases that cite this headnote](#)

[15] Environmental Law

[Notice and comment](#)

New source performance standards for the production areas of swine, poultry, and veal concentrated animal feeding operations violated the Clean Water Act's public participation requirements, given that the Environmental Protection Agency (EPA) introduced a change to the standard that was not subject to public comment. Federal Water Pollution Control Act Amendments of 1972, § 101(e), as amended, 33 U.S.C.A. § 1251(e).

[Cases that cite this headnote](#)

[16] Environmental Law

🔑 Particular limitations and guidelines

Environmental Law

🔑 Discharge of pollutants

Rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act to regulate the emission of water pollutants by concentrated animal feeding operations violated the Clean Water Act and was otherwise arbitrary and capricious under the Administrative Procedure Act (APA), to the extent that the EPA failed to justify the lack of water quality based effluent limitations (WQBELs) for concentrated animal feeding operations discharges other than agricultural stormwater discharges. [5 U.S.C.A. § 551 et seq.](#); Federal Water Pollution Control Act Amendments of 1972, § 302(a), as amended, [33 U.S.C.A. § 1312\(a\)](#); [40 C.F.R. § 122.23\(e\)](#).

[7 Cases that cite this headnote](#)

West Codenotes

Held Invalid

[40 C.F.R. § 122.23\(d\)](#), [\(d\)\(2\)](#), [\(f\)](#) [40 C.F.R. § 122.42\(e\)\(2\)](#)
[\(ii\)](#) [40 C.F.R. § 412.46](#)

Attorneys and Law Firms

***490** [Eric E. Huber](#), Sierra Club, Inc., Boulder, CO, for Sierra Club, Inc.; [Jeffrey Odefey](#), Waterkeeper Alliance, Inc., Tarrytown, NY, of counsel, for Waterkeeper Alliance, Inc.; [Melanie Shepherdson \(Nancy K. Stoner\)](#), on the brief), Natural Resources Defense Council, Inc., Washington, D.C., of counsel, for Natural Resources Defense Council, Inc.; [James M. Stuhltrager](#), Mid-Atlantic Environmental Law Center, Wilmington, DE, of counsel, for American Littoral Society; Petitioners/Intervenors.

[Richard E. Schwartz](#) ([Ellen B. Steen](#), and [Kirsten L. Nathanson](#), on the brief), Crowell & Moring, LLP, Washington, DC, of counsel, for National Pork Producers Council; [Timothy S. Bishop](#) ([Russell R. Eggert](#) and

[Michael A. Scodro](#), on the brief), Mayer, Brown, Rowe & Maw, LLP, Chicago, IL, of counsel, for American Farm Bureau Federation; [James T. Banks \(Scott H. Reisch\)](#), on the brief), Hogan & Hartson, LLP, Washington, DC, of counsel, for National Chicken Council; Petitioners/Intervenors.

[Jon M. Lipschultz & Brian H. Lynk](#) ([Martha C. Mann](#), on the brief) for [Kelly A. Johnson](#) and [John C. Cruden](#), U.S. Department of Justice, Washington, D.C., for United States Environmental Protection Agency and [Michael O. Leavitt](#), Administrator of the United States Environmental Protection Agency; Respondents.

[Albert Ettinger \(Ann Alexander\)](#), and [Shannon Fisk](#), on the brief), Environmental Law and Policy Center, Chicago, IL, for The Physicians for Social Responsibility, Hoosier Environmental Council, Ohio Environmental Council, and Prairie Rivers Network; Amici Curiae.

Before: [OAKES](#), [KATZMANN](#), and [WESLEY](#), Circuit Judges.

Opinion

[KATZMANN](#), Circuit Judge.

In this consolidated petition, we review various challenges to a regulation promulgated by the United States Environmental Protection Agency under the Clean Water Act in order to abate and control the emission of water pollutants from concentrated animal feeding operations. While we deny many of the challenges here brought, we find that several aspects of the regulation violate the express terms of the Clean Water Act or are otherwise arbitrary and capricious under the Administrative Procedure Act. Accordingly, we grant the petitions in part and deny the petitions in part.

BACKGROUND

A. Statutory Background

The Clean Water Act (the “Act”) is a cornerstone of the federal effort to protect the environment. “[D]esigned to ‘restore and maintain the chemical, physical, and biological integrity of the Nation’s waters,’ ” *No Spray Coalition, Inc. v. City of New York*, [351 F.3d 602, 604 \(2d Cir.2003\)](#) (quoting [33 U.S.C. § 1251\(a\)](#)), the Act is the principal legislative source of the EPA’s authority—

and responsibility—to abate and control water pollution. See 33 U.S.C. §§ 1311(a), 1342, 1362.

By way of very brief overview, the Act formally prohibits the “discharge of a pollutant”¹ by “any person”² from any “point source”³ to navigable waters except when authorized by a permit issued under the National Pollutant Discharge Elimination System (“NPDES”). See 33 U.S.C. §§ 1311(a), 1342. This means, as a practical matter, that the EPA primarily advances the Act’s objectives—including the ambitious goal that water pollution be not only reduced, but eliminated, see 33 U.S.C. § 1251(a)(1)—through the use of NPDES permits that, while authorizing some water pollution, place important restrictions on the quality and character of that licit pollution.

NPDES permits are issued either by the EPA, itself, or by the states in a federally approved permitting system. See 33 U.S.C. § 1342. Regardless of the issuer, every NPDES permit is statutorily required to set forth, at the very least, “effluent limitations,” that is, certain “restriction[s] ... on [the] quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters.” *S. Florida Water Mgmt. Dist. v. Miccosukee Tribe of Indians*, 541 U.S. 95, 124 S.Ct. 1537, 1541, 158 L.Ed.2d 264 (2004) (“Generally speaking, the NPDES requires dischargers to obtain permits that place limits on the type and quantity of pollutants that can be released into the Nation’s waters.”).

The specific effluent limitations contained in each individual NPDES permit are dictated by the terms of more general “effluent limitation guidelines” (“ELGs”), which are separately promulgated by the EPA. Cf. *EPA v. California, ex rel. State Water Res. Control Bd.*, 426 U.S. 200, 205, 96 S.Ct. 2022, 48 L.Ed.2d 578 (1976) (“An NPDES permit serves to transform generally applicable effluent limitations and other standards including those based on water quality into the obligations ... of the individual discharger.”). ELGs, and the effluent limitations established in accordance with them, are technology-based restrictions on water pollution. They are technology-based, because they are established in accordance with various technological standards that the Act statutorily provides and that, pursuant to the Act, vary depending upon the type of pollutant involved, the type of discharge involved, and whether the point source in question is new or already existing. We will

discuss these with greater detail below. For now, we note simply that the technology standards for already existing point sources include (1) the best available technology economically achievable, see 33 U.S.C. § 1311(b)(2)(A); (2) the best conventional pollutant control technology, see 33 U.S.C. § 1314(b)(2)(A); and (3) the best practicable *492 control technology currently available, see 33 U.S.C. § 1314(b)(1)(A). The technology standard for new point sources, which is commonly referred to as a new source performance standard, is based on the best available demonstrated control technology, see 33 U.S.C. § 1316.

We also note that where effluent limitations prove insufficient to attain or maintain certain water quality standards, the Act requires NPDES permits to include additional water quality based effluent limitations. See 33 U.S.C. §§ 1311(b)(1), 1312(a). Overall, we hope to make clear that the NPDES permit is critical to the successful implementation of the Act because—by setting forth technology-based effluent limitations and, in certain cases, additional water quality based effluent limitations—the NPDES permit “defines, and facilitates compliance with, and enforcement of, a preponderance of a discharger’s obligations under the [Act].” *California, ex rel. State Water Res. Control Bd.*, 426 U.S. at 205, 96 S.Ct. 2022.

B. Regulatory Background

In the consolidated petition before us, we are asked to review, *inter alia*, the permitting requirements and effluent limitation guidelines promulgated by the EPA in its attempt to regulate the emission of water pollutants from so-called concentrated animal feeding operations (“CAFOs”). Before reviewing these challenges, however, a few introductory words about CAFOs themselves are in order.

CAFOs are the largest of the nation’s 238,000 or so “animal feeding operations”—“agriculture enterprises where animals are kept and raised in confinement.” *National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations*, 68 Fed.Reg. 7176, 7179 (Feb. 12, 2003) (codified at 40 C.F.R. Parts 9, 122, 123 and 412) [hereinafter “Preamble to the Final Rule”].⁴ Such “agriculture enterprises” are not, however, of a kind the Founding Fathers likely would have envisioned populating America’s “yeoman

republic.” See generally, STANLEY ELKINS AND ERIC MCKITRICK, *Jefferson and the Yeoman Republic*, THE AGE OF FEDERALISM 195–208 (1972). On the contrary, CAFOs are large-scale industrial operations that raise extraordinary numbers of livestock.⁵ For example, a “Medium CAFO”⁶ raises as many as *493 9,999 sheep, 54,999 turkeys, or 124,999 chickens (other than laying hens).⁷ “Large CAFOs”⁸ raise even more staggering numbers of livestock—sometimes, raising literally millions of animals in one location.

Economically, these CAFOs generate billions of dollars of revenue every year.⁹ The EPA has focused on the industry because CAFOs also generate millions of tons of manure every year,¹⁰ and “when improperly managed, [this manure] can *494 pose substantial risks to the environment and public health.” Preamble to the Final Rule at 7179.

Animal waste includes a number of potentially harmful pollutants. According to the EPA, the pollutants associated with CAFO waste principally include: (1) nutrients such as nitrogen and phosphorus; (2) organic matter; (3) solids, including the manure itself and other elements mixed with it such as spilled feed, bedding and litter materials, hair, feathers and animal corpses; (4) pathogens (disease-causing organisms such as bacteria and viruses); (5) salts; (6) trace elements such as arsenic; (7) odorous/volatile compounds such as carbon dioxide, methane, hydrogen sulfide, and ammonia; (8) antibiotics; and (9) pesticides and hormones. See [National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations](#), 66 Fed.Reg. 2960, 2976–79 (proposed Jan. 12, 2001) [hereinafter “Proposed Rule”]; see also Preamble to the Final Rule at 7181.

These pollutants can infiltrate the surface waters in a variety of ways including spills and other dry-weather discharges, overflows from storage “lagoons,” and discharge to the air coupled with subsequent redeposition on the landscape. See Preamble to the Final Rule at 7181. Perhaps the most common way by which pollutants reach the surface waters is through improper “land application.” Land application, the predominant means by which CAFOs dispose of animal waste,¹¹ is a process by which manure, litter, and other process wastewaters

are spread onto fields controlled by CAFOs. As all parties here agree, when properly land-applied, manure, litter, and other process wastewaters can act as a fertilizer, because “land application of CAFO waste fosters the reuse of the nitrogen, phosphorus, and potassium in these wastes for crop growth.” EPA, STATE COMPENDIUM: PROGRAMS AND REGULATORY ACTIVITIES RELATED TO ANIMAL FEEDING OPERATIONS 13 (May 2002). However, when waste is excessively or improperly land-applied, the nutrients contained in the waste become pollutants that can and often do run off into adjacent waterways or leach into soil and ground water. See *id.*; Preamble to the Final Rule at 7180–81.

In light of these environmental threats, the EPA first promulgated regulations for CAFOs in 1974 and 1976—regulations that, very generally speaking, defined the types of animal feeding operations that qualify as CAFOs, set forth various NPDES permit requirements, and established effluent limitation guidelines for CAFOs. See 41 Fed.Reg. 11,458 (Mar. 18, 1976); 39 Fed.Reg. 5704 (Feb. 14, 1974). After having been sued, in 1989, for failing to publish a plan to revise existing effluent limitations for the industry pursuant to 33 U.S.C. § 1314(m),¹² the EPA, on January 12, 2001, proposed to “revise and update” the first set of CAFO regulations. See Proposed Rule at 2960. The EPA explained, in proposing its revisions, that the new rule aimed to address not only inadequate compliance with existing policy, but also the “changes that have occurred in the animal production industries.” Proposed *495 Rule at 2972. Specifically, the EPA pointed to the “continued trend toward fewer but larger operations, coupled with greater emphasis on more intensive production methods and specialization,” a trend that—along with “increased reports of large-scale discharges from these facilities” and “continued runoff”—had contributed to “the significant increase in nutrients and resulting impairment of many U.S. waterways.” *Id.*

The EPA received approximately 11,000 public comments on the proposed rule, see Preamble to the Final Rule at 7187, as well as an additional 450 or so comments following the publication, in November 2001 and July 2002, of Notices of Data Availability (documents that summarized new data and information presented to the EPA). See *id.* at 7187–88. Ultimately, on February 12, 2003, the EPA promulgated its Final CAFO Rule (“CAFO Rule” or “Rule”). See 40 C.F.R. §§ 9, 122, 123, 412; see also Preamble to the Final Rule at 7176.

The aspects of the Rule most relevant to the petitions before us are as follows:

(1) *The Duty to Apply for an NPDES Permit*

The Rule requires that all CAFO owners or operators must apply for an individual NPDES permit or submit a notice of intent for coverage under an NPDES general permit. See 40 C.F.R. § 122.23(d)(1). There is, however, an exception: Section 122.23(d)(2) provides, in effect, that an owner or operator of a Large CAFO need not seek coverage under an NPDES permit if the owner or operator secures a determination from the director of the relevant permitting authority that the Large CAFO has “no potential to discharge” manure, litter or process wastewater. See 40 C.F.R. § 122.23(d)(2); see also *id.* at § 122.23(f) (describing the process by which a Large CAFO may secure a determination that it has “no potential to discharge”).

(2) *NPDES Permit Requirements*

The Rule includes the requirement that each CAFO develop and implement a nutrient management plan. Such a nutrient management plan must, under the Rule:

- (i) Ensure adequate storage of manure, litter, and process wastewater, including procedures to ensure proper operation and maintenance of the storage facilities;
- (ii) Ensure proper management of mortalities (i.e. dead animals) to ensure that they are not disposed of in a liquid manure, storm water, or process wastewater storage or treatment system that is not specifically designed to treat animal mortalities;
- (iii) Ensure that clean water is diverted, as appropriate, from the production area;
- (iv) Prevent direct contact of confined animals with waters of the United States;
- (v) Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants;

(vi) Identify appropriate site specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants to waters of the United States;

(vii) Identify protocols for appropriate testing of manure, litter, process wastewater, and soil;

(viii) Establish protocols to land apply manure, litter or process wastewater in accordance with site specific nutrient *496 management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter or process wastewater; and

(ix) Identify specific records that will be maintained to document the implementation and management of the minimum elements described [above].

40 C.F.R. § 122.42(e)(1)(i)-(ix). Additionally, the effluent limitation guidelines for CAFOs (which we will describe in a moment) further require that each Large CAFO develop and implement a nutrient management plan that, *inter alia*, includes a waste “application rate” that “minimize[s] phosphorus and nitrogen transport from the field to surface waters.” 40 C.F.R. § 412.4(c)(2).

(3) *The Discharges Subject to NPDES Requirements*

The Rule provides, in § 122.23(e), that all land application discharges from a CAFO are subject to NPDES requirements, i.e., any discharge of manure, litter, or process wastewater that results from the land application of these materials by a CAFO is a discharge that is regulable and subject to NPDES permit requirements. 40 C.F.R. § 122.23(e). Where, however, CAFOs land-apply waste in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in that waste, any subsequent “precipitation-related” discharge is considered to be an “agricultural stormwater discharge” that is, under the Act, exempt from regulation. See *id.*; 33 U.S.C. § 1362(14).

(4) *Effluent Limitation Guidelines*

The Rule establishes effluent limitation guidelines (“ELGs”) that apply to land application discharges by Large CAFOs and to the “production areas”¹³ of Large CAFOs.¹⁴ Two general comments about these ELGs are in order. First, although the EPA usually

establishes quantitative or numerical ELGs, the EPA here promulgated “best management practices,” which are qualitative or non-numerical ELGs for Large CAFOs, but which, we note, are still technology-based because they are based on the technology standards prescribed by the Act. *See* 40 C.F.R. § 412.4; *see also* 40 C.F.R. § 122.44(k) (describing the circumstances in which the EPA may promulgate “best management practices” in the place of numerical ELGs). Second, because the EPA here decided to organize Large CAFOs into four subcategories (depending upon the types of animals present), the ELGs are also organized into four subcategories. *See* Preamble to the Final Rule at 7208. Additionally, we note that, with respect *497 to land application, best management practices include, most importantly, the requirement that Large CAFOs “develop and implement a nutrient management plan” that, *inter alia*, sets an application rate that minimizes the transport of phosphorus and nitrogen from the land application field to surface waters. 40 C.F.R. §§ 412.4(c)(1)-(2). The land application best management practices also provide for manure and soil sampling, inspection of land application equipment and various setback requirements. *See* 40 C.F.R. § 412.4(c)(3)-(5). With respect to the ELGs for production areas, best management practices include various requirements designed to minimize the possibility of overflows, such as mandatory inspections of relevant equipment and the installation of depth markers in surface and liquid impoundments (e.g., lagoons, ponds, and tanks). *See* 40 C.F.R. § 412.37; Preamble to the Final Rule at 7214–21.

DISCUSSION

Two sets of petitioners bring challenges to the CAFO Rule: the “Environmental Petitioners” (Waterkeeper Alliance, Inc., Sierra Club, Natural Resources Defense Council, Inc., and the American Littoral Society) and the “Farm Petitioners” (American Farm Bureau Federation, National Chicken Council, and the National Pork Producers Council).¹⁵ *Amici curiae*, who represent various environmental and public health interests, join the Environmental Petitioners in some of their challenges.

All the challenges we here consider—most of which are brought by the Environmental Petitioners—can be divided into three general categories: (1) challenges to the permitting scheme established by the CAFO Rule; (2) challenges to the types of discharges subject to regulation

under the CAFO Rule; and (3) challenges to the effluent limitation guidelines established by the CAFO Rule.¹⁶ We will address each category in turn.

To the extent we are asked to review whether some aspect of the CAFO Rule violates the Clean Water Act, our inquiry is governed by the standards set forth in *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984). *See also Public Citizen, Inc. v. Mineta*, 340 F.3d 39, 53 (2d Cir.2003). If Congress has “directly spoken to the precise question at issue” and “the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress.” *Chevron*, 467 U.S. at 842–43, 104 S.Ct. 2778 (footnote omitted). If, however, we determine that the statute is silent or ambiguous with respect to the specific question at issue, then we consider “whether the agency's answer is based on a permissible construction of the statute.” *Id.* at 843, 104 S.Ct. 2778.

*498 [1] [2] To the extent we are asked to review whether some aspect of the CAFO Rule violates the Administrative Procedure Act because it is “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law,” 5 U.S.C. § 706(2)(A), our inquiry is governed by the standard set forth in *Motor Vehicle Manufacturers' Association of the United States, Inc. v. State Farm Mutual Automobile Insurance Company*. *See* 463 U.S. 29, 103 S.Ct. 2856, 77 L.Ed.2d 443 (1983). *See also Public Citizen*, 340 F.3d at 53. To determine whether an agency has acted in an arbitrary and capricious fashion, we ask whether the agency has “examine[d] the relevant data and articulate[d] a satisfactory explanation for its action including a rational connection between the facts found and the choice made.” *State Farm*, 463 U.S. at 42, 103 S.Ct. 2856. Then, “[i]n reviewing that explanation, we must consider whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment.” *Id.* Normally, we must deem arbitrary and capricious an agency rule where “the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.” *Id.* at 43, 103 S.Ct. 2856 (internal quotations and citations omitted).

With this background in mind, we turn now to the various challenges.

A. Challenges to the CAFO Rule Permitting Scheme

1. Failure to Regulate

The Environmental Petitioners broadly indict the CAFO Rule as countenancing the creation of an “impermissible self-regulatory permitting regime.” More precisely, the Environmental Petitioners argue that the CAFO Rule is unlawful because: (1) it empowers NPDES authorities to issue permits to Large CAFOs in the absence of any meaningful review of the nutrient management plans those CAFOs have developed; and (2) it fails to require that the terms of the nutrient management plans be included in the NPDES permits. We agree with the Environmental Petitioners on both counts.

a. Failure to Require Permitting Authority Review

[3] The Clean Water Act demands regulation in fact, not only in principle. Under the Act, permits authorizing the discharge of pollutants may issue only where such permits *ensure* that every discharge of pollutants will comply with all applicable effluent limitations and standards. [Section 1342\(a\)\(1\) of Title 33](#) provides, for example, that when the EPA is, itself, issuing NPDES permits, the EPA may issue a permit for the discharge of any pollutant or combination of pollutants “upon condition that such discharge will meet ... all applicable requirements [including the effluent limitations statutorily required by [33 U.S.C. § 1311](#)].” The Act further provides that the EPA “shall prescribe conditions for such permits *to assure compliance with* [all applicable requirements, including effluent limitations].” [33 U.S.C. § 1342\(a\)\(2\)](#) (emphasis added). Similarly, [33 U.S.C. § 1342\(b\)](#) allows states to distribute NPDES permits only where, *inter alia*, the state permitting programs “*apply, and insure compliance with*, any applicable [effluent limitations and standards].” [33 U.S.C. § 1342\(b\)](#) (emphasis *499 added).¹⁷

By failing to provide for permitting authority review of the nutrient management plans, the CAFO Rule plainly violates these statutory commandments and is otherwise arbitrary and capricious under the Administrative Procedure Act. The requirement to develop and implement a nutrient management plan is, after all, one of the “best management practices” that constitute the

effluent limitation guidelines for land application by Large CAFOs. *See* [40 C.F.R. § 412.4\(c\)\(1\)](#). But not just *any* nutrient management plan suffices under the Rule. On the contrary, the effluent limitation guidelines expressly require that Large CAFOs develop and implement a nutrient management plan that:

incorporates the requirements of paragraphs (c)(2) through (c)(5) of this section based on a field-specific assessment of the potential for nitrogen and phosphorus transport from the field and that addresses the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals, while minimizing nitrogen and phosphorus movement to surface waters.

Id. Accordingly, in order to comply with the effluent limitations for land application of manure, litter, and process wastewater, Large CAFOs must, *inter alia*, develop and implement nutrient management plans that, pursuant to paragraph(c)(2), include “application rates” that “minimize phosphorus and nitrogen transport from the field to surface waters in compliance with the technical standards for nutrient management established by the Director.” *See* [40 C.F.R. § 412.4\(c\)\(2\)](#).

As presently constituted, the CAFO Rule does nothing to *ensure* that each Large CAFO has, in fact, developed a nutrient management plan that satisfies the above requirements. The CAFO Rule does nothing to ensure, in other words, that each Large CAFO will comply with all applicable effluent limitations and standards. This is because, most glaringly, the CAFO Rule fails to require that permitting authorities review the nutrient management plans developed by Large CAFOs before issuing a permit that authorizes land application discharges.

A recent decision of the Ninth Circuit supports the conclusion we here reach. In *Environmental Defense Center, Inc. v. EPA* (“EDC”), the Ninth Circuit considered a challenge to a “Phase II” EPA rule for municipal storm sewer systems. *See* [344 F.3d 832 \(9th Cir.2003\)](#), *cert. denied*, [Texas Cities Coalition on Stormwater v. EPA](#), [541 U.S. 1085](#), [124 S.Ct. 2811](#), [159 L.Ed.2d 246 \(2004\)](#). Among other things, the Phase II

Rule allowed small municipal storm sewer systems to seek permission to discharge pollutants by submitting an individualized set of best management practices designed by each municipal storm sewer system (“stormwater management plans”), either in the form of an individual permit application or in the form of a notice of intent to comply with a general permit. See *EDC*, 344 F.3d at 842. So long as a notice of intent included a stormwater management plan, the EPA deemed a municipal storm sewer system to be in compliance with the relevant standards of the Clean Water Act, including the standard that municipal stormwater pollution be reduced to the “maximum extent practicable.” See *id.* at 855; 33 U.S.C. § 1342(p)(3)(B)(iii); 40 C.F.R. § 123.35. The Phase II Rule did not require NPDES authorities to review the stormwater management plans themselves.

*500 The Ninth Circuit held, however, that the failure to require permitting authority review of the stormwater management plans violated the Clean Water Act.¹⁸ While the Ninth Circuit was quick to laud “[i]nvolving regulated parties in the development of individual stormwater pollution control programs,” it emphasized that “programs that are designed by regulated parties must, in every instance, be subject to meaningful review by an appropriate regulating entity to ensure that each such program reduces the discharge of pollutants to the maximum extent practicable [i.e., the relevant statutory standard].” *EDC*, 344 F.3d at 856. The Phase II Rule, by contrast, failed to require that the relevant permitting authorities review the stormwater management plans to “ensure that the measures that any given operator of a [small municipal storm sewer system] has decided to undertake will *in fact* reduce discharges to the maximum extent practicable.” *Id.* at 855 (emphasis in original). Accordingly, the Phase II Rule provided no safeguard against a municipal storm sewer system’s “misunderstanding or misrepresenting its own stormwater situation and proposing a set of minimum measures for itself that would reduce discharges by far less than the maximum extent practicable.” *Id.*

Like the Phase II Rule, the CAFO Rule does not require that NPDES permitting authorities review the nutrient management plans to ensure that the nutrient management plans designed by the Large CAFOs will *in fact* reduce land application discharges in a way that “achieve[s] realistic production goals, while minimizing nitrogen and phosphorus movement to surface waters.”

40 C.F.R. § 412.4(c)(1). Like the Phase II Rule, the CAFO Rule does not adequately prevent Large CAFOs “from misunderstanding or misrepresenting” their specific situation and adopting improper or inappropriate nutrient management plans, with improper or inappropriate waste application rates.¹⁹

The EPA offers two principal arguments in defense of the permitting scheme, neither *501 of which we find to be persuasive. First, the EPA argues that the nutrient management plan does not, itself, constitute an effluent limitation guideline but is, instead, “simply a planning tool” to help CAFOs comply with the effluent limitations. Accordingly, EPA contends that it is not statutorily compelled to require permitting authority review of the plans. We reject this argument. For one thing, we believe that the terms of the nutrient management plans are *themselves* effluent limitations, for reasons we state in Section A.1.b, *infra*. By failing to require permitting authority review of nutrient management plans, the CAFO Rule thus allows permits to issue that do not assure compliance with all applicable effluent limitations. Even assuming, *arguendo*, that EPA is correct and the nutrient management plan is not, itself, an effluent limitation, EPA’s argument still fails on its own terms. For while EPA denies that the nutrient management plan is itself an effluent limitation, even the EPA concedes, as it must, that the requirement to develop and implement a nutrient management plan *is* an effluent limitation; this requirement is, after all, one of the “best management practices” required by the CAFO Rule. See 40 C.F.R. § 412.4(c)(1). The CAFO Rule—by failing to provide for permitting authority review—still does not *ensure* that each Large CAFO has, in fact, developed and implemented a nutrient management plan that satisfies the requirements of 40 C.F.R. § 412(c)(1).

Second, the EPA argues that there is no *need* for permitting authority review because the Rule provides Large CAFOs with little room for discretion—and thus little room for error—in setting their waste application rates. This is true, the EPA argues, because the Rule requires states to develop “technical standards” based on certain “field-specific assessment[s]” and further requires Large CAFOs to adopt application rates that comply with those technical standards. See 40 C.F.R. § 412.4(c)(2); 40 C.F.R. § 412.4(c)(1). However, while state technical standards will reduce discretion on the part of the Large CAFOs, they will not eliminate it. State technical

standards are based on *field*-specific assessments. But Large CAFOs ultimately set application rates based on *site*-specific assessments of the relevant field conditions, as the EPA concedes in the Preamble to the Rule. *See* Preamble to the Final Rule at 7209 (“Today’s rule requires Large CAFOs to determine and implement *site-specific* nutrient application rates that are consistent with the technical standards for nutrient management established by the permitting authority.”) (emphasis added); *see also id.* at 7213 (“The nutrient management plan is the tool CAFOs must use to assess soil and other field conditions at their operation ... to determine the *site-specific* nitrogen or phosphorus-based rate at which manure, litter, and other process wastewaters are to be applied.”) (emphasis added).²⁰ *502 By not providing for permitting authority review of these application rates, the CAFO Rule fails to adequately prevent Large CAFOs from “misunderstanding or misrepresenting” the application rates they must adopt in order to comply with state technical standards. The CAFO Rule does not ensure that the Large CAFOs will, in fact, develop nutrient management plans—and waste application rates—that comply with all applicable effluent limitations and standards.

b. *Failure to Require that the Terms of the Nutrient Management Plans be Included in the NPDES Permits*

[4] The Clean Water Act unquestionably provides that all applicable effluent limitations must be included in each NPDES permit. *See* 33 U.S.C. §§ 1311(a), 1311(b), 1342(a); *see also Am. Paper Inst., Inc. v. EPA*, 996 F.2d 346, 349 (D.C.Cir.1993) (noting that the Clean Water Act “mandates that every permit contain [*inter alia*] effluent limitations that reflect the pollution reduction achievable by using technologically practicable controls”). What the parties here dispute is whether the terms of the nutrient management plans, themselves, constitute effluent limitations that must be included in the NPDES permits.

As we have already stated, rather than setting forth *numerical* effluent limitations for land application of manure, the CAFO Rule establishes *non-numerical* effluent limitations in the form of best management practices. *See* 40 C.F.R. § 412.4. Among these best management practices is the requirement that CAFOs “develop and implement a nutrient management plan” that, *inter alia*, sets application rates that minimize

phosphorus and nitrogen transport. *See* 40 C.F.R. § 412.4(c)(1). The EPA readily acknowledges that the requirement to *develop and implement* a nutrient management plan is a non-numerical effluent limitation, but argues that—under the wording of this requirement—the terms of the nutrient management plans themselves do not constitute the non-numerical effluent limitations. Accordingly, EPA argues that the terms of the nutrient management plans need not be included in the NPDES permits.

We believe that the EPA’s argument is foreclosed by the statutory definition of effluent limitation. The Clean Water Act defines effluent limitation to mean “any *restriction* established by a State or the Administrator on quantities, *rates*, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources ...” 33 U.S.C. § 1362(11) (emphasis added). There is no doubt that under the CAFO Rule, the only restrictions actually imposed on land application discharges are those restrictions imposed by the various terms of the nutrient management plan, including the waste application *rates* developed by the Large CAFOs pursuant to their nutrient management plans. Indeed, the requirement to develop a nutrient management plan constitutes a restriction on land application discharges only to the extent that the nutrient management plan actually imposes restrictions on land application discharges. To accept the EPA’s contrary argument—that *requiring* a nutrient management plan is itself a restriction on land application discharges—is to allow semantics to torture logic.

Because we believe that the terms of the nutrient management plans constitute effluent limitations, we hold that the CAFO Rule—by failing to require that the terms of the nutrient management plans be included in NPDES permits—violates the *503 Clean Water Act and is otherwise arbitrary and capricious in violation of the Administrative Procedure Act.

2. *Lack of Public Participation*

[5] The Environmental Petitioners also argue, and we here find, that the permitting scheme established by the CAFO Rule violates the Clean Water Act’s public participation requirements and is otherwise arbitrary and capricious under the Administrative Procedure Act.

Congress clearly intended to guarantee the public a meaningful role in the implementation of the Clean Water Act. The Act unequivocally and broadly declares, for example, that “[p]ublic participation in the development, revision, and enforcement of any regulation, standard, effluent limitation, plan, or program established by the Administrator or any State under this Act shall be provided for, encouraged, and assisted by the Administrator and the States.” 33 U.S.C. § 1251(e). Consistent with this demand, the Act further provides that there be an “opportunity for public hearing” before any NPDES permit issues, *see* 33 U.S.C. §§ 1342(a), 1342(b)(3); that a “copy of each permit application and each permit issued under this section [1342] shall be available to the public,” *see* 33 U.S.C. § 1342(j); and that “any citizen” may bring a civil suit for violations of the Act, *see* 33 U.S.C. § 1365(a).

The CAFO Rule deprives the public of the opportunity for the sort of regulatory participation that the Act guarantees because the Rule effectively shields the nutrient management plans from public scrutiny and comment. Admittedly, the Preamble to the Rule indicates that the “EPA expects that the permitting authority will make this information available to the public upon request,” *see* Preamble to the Final Rule at 7233 (emphasis added); however, the Rule provides no assurance that EPA's expectations will be satisfied. Not only does the CAFO Rule fail to require that the terms of the nutrient management plans be included in the NPDES permits, it also fails to provide the public with any other means of access to them. After all, the Rule provides only that a “copy of the CAFO's site-specific nutrient management plan must be maintained on site and made available to the Director [of the state permitting authority] upon request.” 40 C.F.R. § 122.42(e)(2)(ii). The Rule does not similarly require that copies of the nutrient management plans be made available to the public by the CAFOs.

This scheme violates the Act's public participation requirements in a number of respects. First and foremost, in light of our holding that the terms of the nutrient management plans constitute effluent limitations that should have been included in NPDES permits, the CAFO Rule deprives the public of its right to assist in the “development, revision, and enforcement of ... [an] effluent limitation.” 33 U.S.C. § 1251(e) (emphasis added). More specifically, the CAFO Rule prevents the public from calling for a hearing about—and then meaningfully

commenting on—NPDES permits before they issue. *See* 33 U.S.C. §§ 1342(a), 1342(b)(3). The CAFO Rule also impermissibly compromises the public's ability to bring citizen-suits, a “proven enforcement tool” that “Congress intended [to be used...] to both spur and supplement government enforcement actions.” Clean Water Act Amendments of 1985, Senate Environment and Public Works Comm., S.Rep. No. 50, 99th Cong., 1st Sess. 28 (1985). Under the CAFO Rule, as written, citizens would be limited to enforcing the mere requirement to develop a nutrient management plan, but would be without means to enforce the terms of the nutrient management plans because they *504 lack access to those terms. This is unacceptable.

And even assuming, *arguendo*, that the nutrient management plans did not themselves constitute effluent limitations, we would still hold that the CAFO Rule violates the Act's public participation requirements. Nutrient management plans are, even under the EPA's own theory of the CAFO Rule, a critical indispensable feature of the “plan, or program established by the Administrator or any State” in order to regulate Large CAFO land application discharges. 33 U.S.C. § 1251(e). The EPA itself has stated in the Preamble to the Rule that “the only way to ensure that non-permitted point source discharges of manure, litter, or process wastewaters from CAFOs do not occur is to require ... [land application] in accordance with site specific nutrient management practices.” Preamble to the Final Rule at 7198. Since nutrient management plans embody all the relevant “site specific nutrient management practices,” it is clear that, even according to the EPA, nutrient management plans are a *sine qua non* of the “regulation, standard, plan, or program” it established to regulate land application discharges. 33 U.S.C. § 1251(e).

Given that the CAFO Rule forestalls—rather than “provid[es] for, encourag[es], and assist[s]”—public participation in the development and enforcement of nutrient management plans, and given that nutrient management plans are an important “regulation, standard, effluent limitation, plan or program” established by the EPA to regulate land application discharges, the CAFO Rule violates the plain dictates of 33 U.S.C. § 1251(e).

3. The Duty to Apply

[6] The Farm Petitioners also challenge the permitting scheme established by the CAFO Rule. They contend that the EPA has exceeded its statutory jurisdiction by requiring all CAFOs to either apply for NPDES permits or otherwise demonstrate that they have no potential to discharge. We agree and grant their petition in this regard.

The Clean Water Act authorizes the EPA to regulate, through the NPDES permitting system, only the discharge of pollutants. The Act generally provides, for example, that “Except as in compliance [with all applicable effluent limitations and permit restrictions,] the *discharge of any pollutant* by any person shall be unlawful.” 33 U.S.C. § 1311(a) (emphasis added). Consistent with this prohibition, the Act authorizes the EPA to promulgate effluent limitations for—and issue permits incorporating those effluent limitations for—the discharge of pollutants. Section 1311 of Title 33 provides that “[e]ffluent limitations ... shall be applied to all point sources of *discharge of pollutants*,” see 33 U.S.C. § 1311(e). Section 1342 of the same Title then gives NPDES authorities the power to issue permits authorizing the *discharge of any pollutant or combination of pollutants*. See 33 U.S.C. § 1342(a)(1) (“the Administrator may, after opportunity for public hearing, issue a permit for *the discharge of any pollutant, or combination of pollutants*”) (emphasis added); see also 33 U.S.C. § 1342(b) (authorizing states to administer permit programs for “discharges into navigable waters”). In other words, unless there is a “discharge of any pollutant,” there is no violation of the Act, and point sources are, accordingly, neither statutorily obligated to comply with EPA regulations for point source discharges, nor are they statutorily obligated to seek or obtain an NPDES permit.

Congress left little room for doubt about the meaning of the term “discharge of any pollutant.” The Act expressly defines the term to mean “(A) any addition of any *505 pollutant to navigable waters from any point source, [or] (B) any addition of any pollutant to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft.” 33 U.S.C. § 1362(12). Thus, in the absence of an actual addition of any pollutant to navigable waters from any point, there is no point source discharge, no statutory violation, no statutory obligation of point sources to comply with EPA regulations for point source discharges, and no statutory obligation of point sources to seek or obtain an NPDES permit in the first instance.

The CAFO Rule violates this statutory scheme. It imposes obligations on all CAFOs regardless of whether or not they have, in fact, added any pollutants to the navigable waters, i.e. discharged any pollutants. After all, the Rule demands that every CAFO owner or operator either apply for a permit—and comply with the effluent limitations contained in the permit—or affirmatively demonstrate that no permit is needed because there is “no potential to discharge.” See 40 C.F.R. §§ 122.23(d) and (f). In the EPA’s view, such demands are appropriate because all CAFOs have the *potential* to discharge pollutants. See Preamble to the Final Rule at 7202 (“The ‘duty to apply’ provision is based on the presumption that every CAFO has a potential to discharge.”). While we appreciate the policy considerations underlying the EPA’s approach in the CAFO Rule, however, we are without authority to permit it because it contravenes the regulatory scheme enacted by Congress; the Clean Water Act gives the EPA jurisdiction to regulate and control only *actual* discharges—not potential discharges, and certainly not point sources themselves. See *Natural Resources Defense Council v. EPA*, 859 F.2d 156, 170 (D.C.Cir.1988) (noting that “the [Act] does not empower the agency to regulate point sources themselves; rather, EPA’s jurisdiction under the operative statute is limited to regulating the discharge of pollutants”). To the extent that policy considerations do warrant changing the statutory scheme, “such considerations address themselves to Congress, not to the courts.” *MCI Telecommunications Corp. v. AT & T, Co.*, 512 U.S. 218, 234, 114 S.Ct. 2223, 129 L.Ed.2d 182 (1994) (citation omitted).

EPA’s other arguments are also unavailing. The EPA principally attempts to derive support for its “duty to apply” provision from the statutory definition of point source. EPA argues that point source is defined to mean not only “any discernible, confined and discrete conveyance” from which pollutants “are” discharged, but also “any discernible, confined and discrete conveyance” from which pollutants “*may be*” discharged. 33 U.S.C. § 1362(14). The EPA cannot, however, point to any provision of the statute that gives operational effect to the “may be” language in the manner in which the EPA seeks to do so here. The EPA points, for example, to 33 U.S.C. § 1311(e). Yet that section provides not that effluent limitations shall be applied to all point sources, end of story, but that effluent limitations shall be applied “to all point sources *of discharge of*

pollutants in accordance with the provisions of this chapter.” 33 U.S.C. § 1311(e) (emphasis added). Thus, while point sources are statutorily defined to include potential dischargers, effluent limitations can, pursuant to 33 U.S.C. § 1311(e), be applied only to “point sources of discharge of pollutants,” i.e. those point sources that are *actually* discharging.²¹ *Id.*

The EPA also argues that the “duty to apply” provision is consistent with the Act’s goal of not just reducing, but eliminating *506 water pollution. It is true that the duty to apply provision is consistent with the broad goal of eliminating water pollution. However, the duty to apply flatly contravenes the statute’s text, which more specifically defines—and circumscribes—the powers that Congress conferred upon the EPA in order to effectuate the Clean Water Act’s goals. Principles of statutory construction forbid us from sanctioning EPA conduct that is plainly inconsistent with a statute’s specific text. *See Caminetti v. United States*, 242 U.S. 470, 485, 37 S.Ct. 192, 61 L.Ed. 442 (1917) (“It is elementary that the meaning of a statute must, in the first instance, be sought in the language in which the act is framed, and if that is plain ... the sole function of the courts is to enforce it according to its terms.”).

For all these reasons, we believe that the Clean Water Act, on its face, prevents the EPA from imposing, upon CAFOs, the obligation to seek an NPDES permit or otherwise demonstrate that they have no potential to discharge. *See Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 842–43, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984) (where Congress has “directly spoken to the precise question at issue” and “the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress.”) (footnote omitted).²²

B. Challenges to the Types of Discharges Regulated

1. Regulatory Exemption for “Agricultural Stormwater” Discharges

As stated in the background section, *supra*, the CAFO Rule generally provides *507 that discharges from a land application area under the control of a CAFO are subject to NPDES requirements. *See* 40 C.F.R. § 122.23(e). However, the Rule, like the Clean Water Act

itself, carves out an exception where the discharge in question is “an agricultural storm water discharge,” *id.*—a category of discharges that the Act exempts from regulation via the statutory definition of “point source.” *See* 33 U.S.C. § 1362(14). More specifically, the Rule classifies, as agricultural stormwater, any “precipitation-related discharge of manure, litter, or process wastewater from land areas under the control of a CAFO” where the “manure, litter or process wastewater has [otherwise] been applied in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization.” 40 C.F.R. § 122.23(e).

[7] The Environmental Petitioners contend that this approach violates the Clean Water Act and is otherwise arbitrary and capricious in violation of the Administrative Procedure Act because the Clean Water Act’s definition of “point source” requires regulation of *all* CAFO discharges, notwithstanding the fact that agricultural stormwater discharges are otherwise deemed exempt from regulation. We disagree.

The Act defines the term “point source” as follows:

“[P]oint source” means any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, *concentrated animal feeding operation*, or vessel or other floating craft, from which pollutants are or may be discharged. *This term does not include agricultural stormwater discharges and return flows from irrigated agriculture.*

33 U.S.C. § 1362(14) (emphasis added). Contrary to the views of the Environmental Petitioners, we find that this provision is self-evidently ambiguous as to whether CAFO discharges can ever constitute agricultural stormwater. Here, the Act expressly defines the term point source to *include* “concentrated animal feeding operations;” the Act expressly defines “point source” to *exclude* “agricultural stormwater;” and the Act makes absolutely no attempt to reconcile the two. Congress has not addressed the precise issue the Environmental Petitioners put before us, and, as a result, the operative question we must consider becomes, pursuant to *Chevron*, whether the CAFO Rule’s

exemption for “precipitation-related” land application discharges is grounded in a “permissible construction” of the Clean Water Act. *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 843, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984).

The EPA reads the Act's definition of “point source” as generally authorizing the regulation of CAFO discharges, but exempting such discharges from regulation to the extent that they constitute agricultural stormwater. We think this is a reasonable construction in light of the legislative purpose of the agricultural stormwater exemption and given precedent from this circuit. With respect to legislative purpose, we believe it reasonable to conclude that when Congress added the agricultural stormwater exemption to the Clean Water Act, it was affirming the impropriety of imposing, on “any person,” liability for agriculture-related discharges triggered not by negligence or malfeasance, but by the weather—even when those discharges came from what would otherwise be point sources. There is no authoritative legislative history to the contrary. The Environmental Petitioners, for example, cite legislative history from 1972 in support of their position; however, the agricultural stormwater *508 exemption was not added to the Clean Water Act until a full fifteen years later, when Congress passed the Water Quality Act of 1987. *See* Water Quality Act of 1987, Pub.L. No. 100-4 § 503, 101 Stat. 7 (1987). It would be improper for us to rely on statements from 1972 in order to resolve an ambiguity that was not created until 1987. In our view, prior legislative history is a hazardous basis for inferring the intent of a subsequent Congress, in the same way that “subsequent legislative history is a hazardous basis for inferring the intent of an earlier Congress.” *Pension Benefit Guaranty Corp. v. LTV Corp.*, 496 U.S. 633, 650, 110 S.Ct. 2668, 110 L.Ed.2d 579 (1990) (emphasis added) (citation omitted). And, in any event, none of the legislative history from 1972 comes close to casting doubt on the construction we permit here.²³

Precedent from this circuit also supports the construction that the EPA advances and we here permit. In *Concerned Area Residents for the Environment v. Southview Farm*, this Court considered the agricultural stormwater exemption and its statutory relationship to point source discharges, specifically CAFO discharges. 34 F.3d 114 (2d Cir.1994). The essence of the Court's holding was not, as Environmental Petitioners contend, that discharges from an area under the control of a CAFO can never qualify

for the agricultural stormwater exemption. Rather, the Court held that a discharge from an area under the control of a CAFO can be considered either a CAFO discharge that is subject to regulation or an agricultural stormwater discharge that is not subject to regulation. Whether or not a discharge is regulable turned, in the Court's view, on the primary cause of the discharge. That is why the Court wrote that a discharge could be regulated, and liability imposed, where “the run-off was primarily caused by the over-saturation of the fields rather than the rain and that sufficient quantities of manure were present so that the run-off could not be classified as ‘stormwater.’” *Id.* at 121.

We believe that the CAFO Rule comports both with Congress' intent in enacting the agricultural stormwater exemption and with our holding in *Southview Farm*. So far as Congress' intent is concerned, while the Rule holds CAFOs liable for most land application discharges, it prevents CAFOs from being held liable for “precipitation-related discharge[s]” where “manure, litter or process wastewater has [otherwise] been applied in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization.” 40 C.F.R. § 122.23(e). In other words, like the Clean Water Act itself, the CAFO Rule seeks to remove liability for agriculture-related discharges *509 primarily caused by nature, while maintaining liability for other discharges. So far as our holding in *Southview Farm* is concerned, discharges from land areas under the control of a CAFO can and should generally be regulated, but where a CAFO has taken steps to ensure appropriate agricultural utilization of the nutrients in manure, litter, and process wastewater, it should not be held accountable for any discharge that is primarily the result of “precipitation.”

We also find unpersuasive the only other significant complaint the Environmental Petitioners lodge against the CAFO Rule's agricultural stormwater exemption—namely that it is unreasonable, and hence improper, for the EPA to construe the term “agricultural” as encompassing any stormwater discharge from a land area under the control of a CAFO. The Environmental Petitioners contend that CAFOs must be viewed as industrial, not agricultural. We disagree. Dictionaries from the period in which the agricultural stormwater exemption was adopted define “agriculture” or “agricultural” in a way that can permissibly be construed to encompass CAFOs. For example, Webster's New World Dictionary defined the term “agriculture”

to include, *inter alia*, “work of cultivating the soil, producing crops, and raising livestock.” WEBSTER'S NEW WORLD DICTIONARY OF AMERICAN ENGLISH 26 (3rd College Ed.1988). The Oxford English Dictionary similarly defined agriculture to include, *inter alia*, “cultivating the soil,” “including the allied pursuits of gathering in the crops and rearing live stock.” I THE OXFORD ENGLISH DICTIONARY 267 (2d Ed.1989). Here, there is no question that CAFOs “rais[e]” or “rear” livestock and, because land-applied manure is used as fertilizer, “cultivat[e] the soil” as well. *Cf.* Preamble to the Final Rule at 7197 (“When manure or process wastewater is applied in accordance with practices designed to ensure appropriate agricultural utilization of nutrients, it ... fulfills an important agricultural purpose, namely the fertilization of crops ...”). As a result, we cannot say that the EPA has impermissibly treated CAFOs as agricultural in character.

Additionally, we note again that the CAFO Rule classifies precipitation-related discharges as agricultural stormwater only where CAFOs have otherwise applied “manure, litter or process wastewater ... in accordance with site specific nutrient management practices that ensure appropriate *agricultural* utilization.” 40 C.F.R. § 122.23(e) (emphasis added). Thus, even the CAFO Rule's application of the agricultural stormwater exemption is expressly tethered to agricultural endeavors.²⁴

Accordingly, for all these reasons, we reject the Environmental Petitioners' challenge to the CAFO Rule's exemption for agricultural stormwater discharges because we believe that the exemption is premised on a permissible construction of the Act.

*510 2. Regulation of “Uncollected” Discharges

[8] The Farm Petitioners contend that the CAFO Rule violates the Clean Water Act because it regulates “uncollected” discharges from land areas under the control of a CAFO; in effect, the Farm Petitioners claim that runoff from land application areas, unless “collected” or “channelized” at the land application area itself, does not constitute a point source discharge. We reject this claim because, in our view, regardless of whether or not runoff is collected at the land application area, itself, any discharge from a land area under the control of a CAFO is a point source discharge subject to regulation because it is a discharge from a *CAFO*.

To evaluate the Farm Petitioners' claim we turn, once again, to the statutory definition of point source. The term “point source” is defined to mean, in relevant part, “any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, *concentrated animal feeding operation*, or vessel or other floating craft, *from which pollutants are or may be discharged.*” 33 U.S.C. § 1362(14) (emphasis added). Given that the Act expressly defines “point source” to include concentrated animal feeding operations, the Farm Petitioners can prevail on their challenge only if we find that the Act prohibits classifying a land application discharge as a discharge “*from*” a CAFO. We believe, however, that the Act not only permits, but demands, that land application discharges be construed as discharges “*from*” a CAFO to the extent that they are not otherwise agricultural stormwater.

As this Court previously held in *Catskill Mountains Chapter of Trout Unlimited, Inc. v. City of New York*, the term point source refers to “the proximate source from which the pollutant is directly introduced to [a] destination water body.” *See* 273 F.3d 481, 493 (2d Cir.2001).²⁵ Here, CAFOs are unquestionably “the proximate source” of any discharge of pollutants from land application areas under their control to the surface waters (again, except where those discharges are agricultural stormwater). But for the application of manure by the CAFO to the land, there could never be a discharge of pollutants from the land to the surface waters. Thus, any land application discharge that is not agricultural stormwater is, definitionally, a discharge “*from*” a CAFO that can be regulated as a point source discharge.

Contrary to the contentions of the Farm Petitioners, whether the land application run-off has been “collected” or “channelized” at the land application area is irrelevant to the determination regarding whether such run-off constitutes a CAFO discharge. To be sure, the Act does generally contemplate that discharges be “channelized” in order to fall within the EPA's regulatory jurisdiction; that is why the term “point source” is defined as “discrete, discernible, conveyances.” However, a CAFO is, itself, a “channel” under the Act—it is, of course, expressly included in the list of examples of the types of “point sources” the EPA may regulate. Thus, *511 any discharge “*from*” a CAFO is already a point

source discharge. Requiring that manure, litter, or process wastewater be separately channelized at the land application site before any runoff could be considered a “point source discharge” would be, in effect, to impose a requirement not contemplated by the Act: that pollutants be channelized not once but twice before the EPA can regulate them.

Even assuming that the Act did not plainly require that land application discharges generally be regulated as point source discharges, we would find that the EPA has permissibly construed the statute in defining, as a “discharge from a CAFO,” the “discharge of manure, litter or process wastewater to waters of the United States from a CAFO as a result of the application of that manure, litter or process wastewater by the CAFO to land areas under its control.” 40 C.F.R. § 122.23(e). Land application areas are, after all, an integral and indeed indispensable part of CAFO operations. CAFOs depend on them to receive the volumes of manure their animals generate; as we noted in the background section above, “[s]everal estimates indicate that 90% of CAFO-generated waste is land applied.” EPA, STATE COMPENDIUM: PROGRAMS AND REGULATORY ACTIVITIES RELATED TO ANIMAL FEEDING OPERATIONS 13 (May 2002). Given this fact and given that, under the Rule, only discharges from land application areas “under [the] control” of a CAFO are subject to regulation, see 40 C.F.R. § 122.23(e), the EPA could quite reasonably conclude that runoff from a land application area is runoff from a CAFO.

Thus, we reject the challenge to the CAFO Rule's regulation of land application discharges, including “uncollected” discharges.

C. Challenges to the CAFO Rule Effluent Limitations

The Environmental Petitioners bring a host of challenges to: (1) the CAFO Rule's technology-based effluent limitation guidelines; and (2) the CAFO Rule's failure to promulgate additional water quality based effluent limitations.

Again, we note that the specific effluent limitations contained in each individual NPDES permit are dictated by the terms of more general “effluent limitation guidelines” (“ELGs”), which are separately promulgated by the EPA. Cf. *EPA v. California, ex rel. State Water Res. Control Bd.*, 426 U.S. 200, 205, 96 S.Ct. 2022, 48 L.Ed.2d

578 (1976) (“An NPDES permit serves to transform generally applicable effluent limitations and other standards including those based on water quality into the obligations ... of the individual discharger.”). ELGs, and the effluent limitations established in accordance with them, are technology-based restrictions on water pollution; they are technology-based because they are established in accordance with various technological standards that the Act statutorily provides and that, pursuant to the Act, vary depending upon the type of pollutant involved, the type of discharge involved, and whether the point source in question is new or already existing. See 33 U.S.C. § 1311. For existing facilities, the Act requires that ELGs be based on standards that include: (1) the best available technology economically achievable (“BAT”), see 33 U.S.C. § 1311(b)(2)(A); (2) the best conventional pollutant control technology (“BCT”), see 33 U.S.C. § 1314(b)(2)(A); and (3) the best practicable control technology currently available (“BPT”), see 33 U.S.C. § 1314(b)(1)(A). The technology standard for new point sources, which is commonly referred to as a new source performance standard, is based on the best available *512 demonstrated control technology. See 33 U.S.C. § 1316.

The EPA here established non-numerical ELGs for the production areas of CAFOs, and did so on a sub-category by sub-category basis. Of these, two are relevant: the subcategory for dairy cows and cattle (other than veal calves), grouped together under Part 412, Subpart C of EPA's regulations (“Subpart C CAFOs”), see 40 C.F.R. § 412.30–37, and the subcategory for swine, poultry and veal calves, grouped under Part 412, Subpart D, (“Subpart D CAFOs”), see 40 C.F.R. § 412.40–47. The EPA, which was required to set BAT, BPT and BCT standards for the production areas of Subpart C and Subpart D CAFOs, here determined that the identical “technologies” satisfy these standards, and accordingly promulgated ELGs based on the same technologies. Generally speaking, these ELGs, whether based on BAT, BCT or BPT standards: (1) set forth a prohibition on discharges from the production area of a CAFO (except insofar as the discharges are caused by “precipitation”); (2) require best management practices for the production area, including the installation of depth markers in manure lagoons and storage tanks, daily inspections of water lines, and weekly inspections of animal waste storage structures and of equipment used for channeling stormwater or runoff; (3) require additional best management practices

for land application areas; and (4) provide an opportunity for alternative performance standards based upon “site-specific alternative technologies that achieve a quantity of pollutants discharged from the production area equal to or less than the quantity of pollutants that would be discharged under the baseline.” See 40 CFR § 412.31(a)(2).

The Environmental Petitioners present several challenges to the technology-based ELGs promulgated by the EPA. Specifically, they challenge the BAT-based ELGs, the BCT-based ELGs for pathogens, and the new source performance standard adopted for Subpart D CAFOs. The Environmental Petitioners also challenge the EPA's decision not to impose additional water quality based effluent limitations. We address each set of challenges in turn.

1. Challenges to the BAT Standards

The Environmental Petitioners contend that the CAFO Rule's BAT-based ELGs—i.e. the ELGs reflecting the best available technology economically achievable (“BAT”), see 33 U.S.C. § 1311(b)(2)(A)—violate the Clean Water Act, or are otherwise arbitrary and capricious, in three respects. To wit, the Environmental Petitioners claim that: (a) in establishing the BAT standards, EPA failed to consider the best-performing technologies in the CAFO industry; (b) EPA improperly abandoned a more suitable option as BAT for beef and cattle CAFOs (Subpart C CAFOs); and (c) the EPA improperly rejected a more suitable option for swine, poultry and veal CAFOs (Subpart D CAFOs). We deny all these challenges.

a. Failure to Consider the Best Performing Technologies

[9] The Environmental Petitioners sweepingly contend that, in developing its BAT standards, the EPA failed to consider the single-best performing or optimally operating CAFO in each category or subcategory and then adopt BAT standards that reflect the respective performances of those CAFOs. We reject this summary challenge. The record reflects that EPA extensively surveyed available technologies, narrowed the list of potential BAT candidates to seven options, and subsequently found, within the bounds of its discretion, that “Option 2”—described below—was the best candidate for BAT, because *513 all the other options considered either did not perform better than “Option 2,” were not adequately supported in science, or were not economically achievable.

The EPA engaged, here, in extensive data collection. The EPA conducted more than 116 site visits to CAFOs in over 20 states. It obtained information regarding the operational characteristics, waste management systems, and financial situations of CAFOs from several agencies within the USDA such as the National Agricultural Statistics Service, the Animal and Plant Health Inspection Service, and the Economic Research Service. EPA also attended conferences, obtained research from the land grant university system, met with several trade associations, and conducted extensive literature reviews. It received and considered approximately 11,000 public comments on the proposed CAFO Rule, see Preamble to the Final Rule at 7178, as well as an additional 450 or so comments following the publication, in November 2001 and July 2002, of Notices of Data Availability (documents that summarized new data and information presented to the EPA). See *id.* at 7187–88. On the basis of this data collection, the EPA ultimately found that the BAT standards it adopted—which generally require improved operation and maintenance—would significantly reduce CAFO discharges as well or better than any other available, economically achievable technologies. And it generally justified this decision within the bounds of its discretion. See, e.g., *id.* at 7215 (“One recent study from Iowa State University suggested 76 percent of earthen manure structures lacked appropriate accompanying management and maintenance activities. Another study in North Carolina stated more than 90 percent of violations were attributed to operation and management deficiencies.”).

To be sure, the CAFO Rule does not *explicitly* identify the single, existing best-performing CAFO in each category or subcategory of the Rule. However, it is obvious that the CAFO Rule *substantively* establishes standards that make “reference to the best performer in any industrial category”—and nothing in the Act or the legislative history indicates that any more was required of the EPA. See 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, Committee Print Compiled for the Senate Committee on Public Works by the Library of Congress, Ser. No. 93–1, p. 170 (1973). We believe that in all BAT subcategories, the EPA has either adopted the technology employed by the best performers or declined to do so for permissible reasons. Indeed, the Environmental Petitioners cannot identify any specific performance standard that the EPA failed to consider or

rejected for impermissible reasons in adopting its BAT standards. Thus, the EPA has complied with its statutory duties in setting the BAT standards, and we consequently reject the Environmental Petitioners' challenge to them.

b. BAT for Beef and Cattle CAFOs ("Subpart C CAFOs")

The Environmental Petitioners also challenge the BAT standards on the narrower ground that the EPA improperly abandoned a more suitable option as BAT for beef and cattle (Subpart C) CAFOs. Specifically, the Environmental Petitioners contend that EPA should have selected what EPA had called "Option 3," rather than "Option 2" as BAT for Subpart C CAFOs.

By way of brief background, after reviewing an array of various pollution control technologies and best management practices, the EPA—as we previously stated *514 —narrowed the list of potential BAT candidates to seven options. Those seven options can be generally summarized as follows:

Option 1 would require controls on land application of manure, based on the ability of the soil to assimilate the nitrogen content of the manure, plus inspection and recordkeeping requirements for the production area;

Option 2 would require the same controls as Option 1, but would restrict the rate of manure application instead to a (generally lower) phosphorus-based application rate where necessary, depending on site-specific soil conditions;

Option 3 would require the same controls as Option 2, but would also require ground water monitoring and discharge controls, unless the CAFO could show that the groundwater beneath manure storage areas or stockpiles do not have a direct hydrologic connection to surface waters;

Option 4 would require the same controls as Option 3, but would also require sampling of surface waters adjacent to the production area and/or land under control of the CAFO to which manure is applied;

Option 5 would require—at least for Subpart D CAFOs—the same controls as Option 2, but would also establish a zero discharge requirement that does not allow overflows from the production area under any circumstances;

Option 6 would require the same controls as Option 2, but would also require that swine and dairy operations install and implement anaerobic digestion and gas recovery to treat manure; and

Option 7 would require the same controls as Option 2, but would also prohibit manure application to frozen, snow-covered, or saturated ground.

See EPA, PROPOSED RULE DEVELOPMENT DOCUMENT 10–14 to 10–21 (Jan.2001).

[10] The EPA initially proposed adopting Option 3 as BAT for Subpart C CAFOs, see Proposed Rule at 3061–62, but ultimately adopted Option 2. See Preamble to the Final Rule at 7215–16. That is to say, the EPA initially proposed that various groundwater-related requirements be uniformly imposed on CAFOs, but ultimately decided that groundwater-related requirements be implemented, as necessary, on a case-by-case basis. See *id.*; Proposed Rule at 3062.²⁶ The Environmental Petitioners claim that the rejection of Option 3's groundwater requirements is unsupported in the record. The EPA argues, in opposition, that it reasonably determined that Option 2 is better technology *515 than Option 3, and that Option 3 would impose prohibitive economic costs on the CAFO industry. We believe that the record adequately supports EPA's determinations and accordingly defer to the Agency's selection of Option 2.

The EPA principally claims that Option 2 is better technology than Option 3 because groundwater-related requirements are highly dependent on site-specific variables and that, accordingly, such requirements are more effectively evaluated and implemented on a case-by-case basis, rather than imposed uniformly. The record adequately supports this claim. Studies do show that variability in topography, climate, distance to surface water, and geologic factors influence whether and how pollutant discharges at a particular site enter surface water via groundwater. See EPA, PROPOSED RULE DEVELOPMENT DOCUMENT 12–12 (Jan.2001). For example, a study by Clapp and Hornberger demonstrates that variability in soil types significantly affects the rates at which water flows through them; indeed, Clapp and Hornberger "reported that water flowed through sand about 100 times faster than through clayey [sic] soils and about 10 times faster than through silty soils." *Id.* Given that there is sufficient record support for EPA's

determination that groundwater-related requirements are better imposed on a case-by-case basis, and given that Option 2 requires CAFOs to consider whether such requirements are needed, *see* Proposed Rule at 3062, we find that EPA has adequately justified its finding that Option 2 constitutes better technology than Option 3. *See Nat'l Wildlife Fed'n v. EPA*, 286 F.3d 554, 566 (D.C.Cir.2002) (upholding the EPA's determination to regulate "color discharges" from pulp and paper mill process on a case-by-case basis where such discharges were dependent on site-specific conditions).

The record also supports the EPA's decision to reject Option 3 as economically prohibitive and not likely to result in any significant reduction in groundwater pollution. *See Am. Petroleum Inst. v. EPA*, 787 F.2d 965, 972 (5th Cir.1986) ("EPA would disserve its mandate were it to tilt at windmills by imposing BAT limitations which removed de minimis amounts of polluting agents from our nation's waters, while imposing possibly disabling costs upon the regulated industry."). EPA's final economic analysis showed a nearly six-fold increase in the number of beef, dairy, and heifer CAFOs projected to close under Option 3, were that Option, rather than Option 2, adopted. This amounted to a potential facility closure rate under Option 3 of 29% for heifer CAFOs, 19% for beef, and 12% for the subcategory as a whole. *See* EPA, FINAL RULE ECONOMIC ANALYSIS 3–22 (Dec.2002). At the same time, the EPA found that while it was difficult to quantify on an industry-wide basis the pollutant reduction that would be associated with nationally-applicable ELGs for groundwater controls, its pollution reduction models showed a difference of less than 1% between the nitrogen load reduction achieved under Option 3 as opposed to Option 2. *See* EPA, PROPOSED RULE DEVELOPMENT DOCUMENT 12–15 (Jan.2001).

In light of all the above, we deny the Environmental Petitioners' challenge to the selection of Option 2 as BAT for Subpart C CAFOs.

c. BAT for Swine, Poultry and Veal CAFOs ("Subpart D CAFOs")

[11] Although the EPA initially proposed Option 5 as BAT for Subpart D CAFOs, *see* Proposed Rule at 3063–64, the EPA ultimately determined that the costs of Option 5 would not be economically achievable and, accordingly, adopted Option *516 2. *See* Preamble to the Final Rule

at 7218–19. The Environmental Petitioners here challenge the EPA's rejection of Option 5 on the grounds that: (1) the EPA gave undue consideration to cost; (2) the EPA's economic modeling is flawed; and (3) even assuming the reasonableness of the EPA's economic models, the Agency has, in other contexts, deemed "economically achievable" technologies that produced the same or worse economic costs. We reject all of these challenges and uphold the EPA's selection of Option 2 as BAT for Subpart D CAFOs.

As a preliminary matter, we note that Environmental Petitioners are correct that cost is only one of the factors that EPA is supposed to consider in establishing BAT standards. *See* 33 U.S.C. § 1314(b)(2)(B) (specifying that the EPA should consider "the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate"). However, the Clean Water Act "does not state what weight should be accorded to the relevant factors; rather, the Act gives EPA the discretion to make those determinations." *BP Exploration & Oil, Inc. v. EPA*, 66 F.3d 784, 802 (6th Cir.1995). And as this Court previously indicated in *Riverkeeper, Inc. v. EPA*, the Administrator is obligated to "inquire into the initial and annual costs of applying the technology and make an affirmative determination that those costs can be reasonably borne by the industry." 358 F.3d 174, 195 (2d Cir.2004). Thus, if the EPA determines, with adequate support in the record, that a given set of costs cannot reasonably be borne by a given industry, courts must defer to that determination.

We believe that the EPA has here determined, with adequate support in the record, that Subpart D CAFOs cannot reasonably bear the costs associated with Option 5, because the EPA—after conducting extensive economic analysis, involving numerous economic tests and modeling—determined that Option 5 would render 17% of swine CAFOs and 11% of Subpart D CAFOs, on the whole, vulnerable to closure. *See* EPA, FINAL RULE ECONOMIC ANALYSIS at 3–19 to 3–22 (Dec.2002).²⁷

[12] Environmental Petitioners challenge the probity of the EPA's economic modeling, because, in their view,

the EPA should have assumed that CAFOs could offset their compliance costs by obtaining state and federal funding (“cost-share assistance”) and by passing the costs on to consumers (“cost passthrough”). In evaluating this challenge, we wish to make clear, at the outset, that the EPA's determinations about costs, as well as the methodology that the EPA employs in making such determinations, are entitled to deference.²⁸ “While EPA must take seriously its statutory duty to consider cost, courts of review should be mindful of the many *517 problems inherent in an undertaking of this nature and uphold a reasonable effort made by the Agency.” *Nat'l Wildlife Fed'n v. EPA*, 286 F.3d 554, 563 (D.C.Cir.2002) (quoting *FMC Corp. v. Train*, 539 F.2d 973, 979 (4th Cir.1976)). A reviewing court can neither “second-guess EPA's analysis nor ‘undertake [its] own economic study’; rather, the court must ‘uphold the regulations if EPA has established in the record a reasonable basis for its decision.’ ” *Id.* at 565 (citation omitted); see also *Chem. Mfrs. Ass'n v. EPA*, 870 F.2d 177, 250 (5th Cir.1989) (“a ‘court's inquiry will be limited to whether the Agency considered the cost of technology, along with the other statutory factors, and whether its conclusion is reasonable’ ” (citation omitted)).

We believe that the EPA has reasonably justified its decision not to consider either cost-share assistance or cost passthrough in promulgating the final CAFO Rule. First, with respect to cost-share assistance, the EPA determined, within the bounds of its discretion, that there were too many uncertainties regarding the extent to which any such assistance would mitigate compliance costs and that, accordingly, it would be inappropriate to consider cost-share assistance as a reliable offset to compliance costs. In its proposed economic analysis, EPA determined, for example, that although the USDA's Environmental Quality Incentives Program (“EQIP”) could theoretically ease the economic strain that Option 5 might impose, the EQIP program should not be relied upon because it might not cover all new applications from CAFOs, might limit the eligibility of CAFOs through various requirements, and might delay distributing funds to CAFOs given various waiting lists and geographic priorities. See EPA, PROPOSED RULE ECONOMIC ANALYSIS 4–55 to 56 (Jan.2001). And while certain legislation passed by Congress in 2002 eliminated some restrictions on EQIP participation and substantially increased funding for EQIP, EPA still believed, at the time it conducted its final economic analysis, that the benefits of the EQIP program

were still too speculative to count on because it remained unclear what the actual funding levels would be, what limits might be placed on the types of waste management practices covered, and what share of dollars would be allocated to confinement facilities—as opposed to other agricultural operations—and to larger-sized operations. See EPA, FINAL RULE ECONOMIC ANALYSIS 2–66 to 2–68 (Dec.2002). We cannot say that the EPA unreasonably determined that federal allocations were too uncertain to rely upon.

Second, with respect to cost passthrough, we believe that EPA determined, within the bounds of its discretion, that the possibility of passing costs on to consumers was also too uncertain to rely upon. The EPA explained in its proposed rule economic analysis that farmers are at the bottom of a long food marketing chain, subject to imperfect market conditions characterized by “local oligopsony conditions, or ‘few buyers.’ ” See EPA, PROPOSED RULE ECONOMIC ANALYSIS 4–60 (Jan.2001), citing Rogers and Sexton, *Assessing the Importance of Oligopsony Power in Agricultural Markets*, 76 AMER. J. AGR. ECON. 1143–50, Dec. 1994. Given the limited bargaining power of those who raise and confine animals, see *id.* at 2–25 to 2–26, the EPA thus concluded that “[i]ndividual farmers generally have a limited ability to pass on increased costs associated with regulations” and that, as a result, it would be a mistake to rely on cost passthrough. See *id.* at 4–60. We cannot say that the EPA acted unreasonably in *518 making these determinations.²⁹

Having rejected the challenges to the soundness of the EPA's economic models, we move finally to Environmental Petitioners' claim that, even assuming the reasonableness of the EPA's economic modeling, the results do not support a finding that Option 5 was economically unachievable because the Agency has, in other contexts, deemed “economically achievable” technologies that produced the same or worse economic costs. We reject this claim as well. The EPA here estimated that Option 5 would expose up to 11% of Subpart D CAFOs to financial stress sufficient to create a risk of closure. See EPA, FINAL RULE ECONOMIC ANALYSIS at 3–22 (Dec.2002). While the EPA—and courts—have treated more substantial risks of closure as nonetheless supporting a finding of economic achievability, see, e.g., *Chem. Mfrs. Assoc. v. EPA*, 870 F.2d at 202 (upholding BAT where 14% of facilities

would be forced to close), it is also true that the EPA—and courts—have treated less substantial risks of closure as supporting a finding of economic unachievability. For example, the D.C. Circuit has upheld an EPA determination that a projected closure rate of less than 7% could support a finding of economic unachievability. See *Nat'l Wildlife Fed'n v. EPA*, 286 F.3d 554, 563 (D.C.Cir.2002). In the end, economic achievability is a determination the EPA must make on an industry-by-industry basis because each industry has its own special attributes and requires an individual assessment of appropriate financial criteria. And we must defer to such determinations unless they are unreasonable. See *id.*, 286 F.3d at 565.

Thus, we reject the Environmental Petitioners' claim that the EPA unlawfully selected Option 2, rather than Option 5, as BAT for Subpart D CAFOs.

2. Challenge to the BCT Standard for Pathogens

[13] The Environmental Petitioners next claim that the EPA's failure to adopt any requirements specifically designed to reduce pathogen discharges violates the Clean Water Act and is otherwise arbitrary and capricious in violation of the Administrative Procedure Act.³⁰ We agree with the Environmental Petitioners in part.

The EPA does not dispute that it is required, under the Clean Water Act, to promulgate BCT-based effluent guidelines for at least one pathogen, namely fecal coliform. See 33 U.S.C. § 1314(a)(4) (listing fecal coliform as a conventional pollutant subject to regulation); 33 U.S.C. § 1311(b)(2)(E) (requiring the promulgation of BCT standards for pollutants). That is to say, the EPA does not dispute that it is required to promulgate a technology standard for achieving pathogen reductions that reflects the *best* conventional *519 pollutant control technology. The EPA also does not here dispute that there is a more than *de minimis* presence of pathogens in the animal waste regulated by the CAFO Rule. In the Preamble to the CAFO Rule, for example, the EPA expressly acknowledges “the presence of pathogens in animal wastes and the potential risk they pose to human health and the environment.” Preamble to the Final Rule at 7217. See also EPA, RESPONSE TO COMMENTS ON THE NPDES PERMITTING REQUIREMENTS AND EFFLUENT LIMITATIONS GUIDELINES FOR CONCENTRATED ANIMAL

FEEDING OPERATIONS A-8 (Dec.2002) (“EPA recognizes the presence of pathogens in animal wastes and the potential risk they pose to human health and the environment”); Proposed Rule at 2977 (noting that livestock manure “contains countless microorganisms, including bacteria, viruses, protozoa, and parasites,” that “[m]ultiple species of pathogens may be transmitted directly from a host animal's manure to surface water” and that “[o]ver 150 pathogens found in livestock manure are associated with risks to humans”).

The EPA argues that, notwithstanding the above, its failure to impose any BCT-based ELGs specifically designed to achieve pathogen reductions is justified. Principally, the EPA argues that: (1) the pathogen controls it did evaluate, most of which appear to relate to the use or potential use of anaerobic digestion technology, would not necessarily lead to significant pathogen reduction, but would impose significant costs, see Preamble to the Final Rule at 7217; and (2) the ELGs otherwise adopted by the CAFO Rule may “incidentally” achieve some reductions of the pathogens in CAFO discharges. See Brief of Respondents United States Environmental Protection Agency, et al. at 196; see also Preamble to the Final Rule at 7217 (“Although the ELG requirements in this rule are not specifically designed to reduce the pathogens in animal wastes, today's rule may achieve some reductions of pathogens in CAFO discharges ...”).

In our view, however, the CAFO Rule violates the Clean Water Act because the EPA has not made an affirmative finding that the BCT-based ELGs adopted in the CAFO Rule do *in fact* represent the best conventional pollutant control technology for reducing pathogens. The EPA may well determine, within the bounds of its discretion, that the ELGs otherwise adopted by the CAFO do in fact represent the best conventional pollutant control technology for reducing pathogens. It may well be the case, to put it slightly differently, that the EPA determines, after considering all the relevant factors, that the ELGs otherwise adopted by the CAFO Rule will directly—not just incidentally—reduce pathogens and do so better than any other pollutant control technology. But we cannot, consistent with the Act, allow the EPA to avoid imposing any other pollutant control technology without an express finding in this regard. The Act requires that the EPA select the best pollutant control technology for reducing pathogens, and we must enforce that requirement.³¹

Accordingly, we grant the petition to the extent that Environmental Petitioners challenge the EPA's failure to impose ELGs specifically designed to reduce pathogens in CAFO discharges as a violation of the Clean Water Act.

***520** 3. *Challenge to the New Source Performance*

Standard for Swine, Poultry, and Veal

The Environmental Petitioners claim that the EPA's "new source performance standard" for the production areas of swine, poultry, and veal CAFOs is arbitrary and capricious and that—because the EPA introduced a change to the standard that was not subject to public comment—the new source performance standard for the production areas of swine, poultry, and veal CAFOs violates the Clean Water Act's public participation requirements. We agree with them in part.

The Clean Water Act requires the EPA to promulgate "New Source Performance Standards" ("NSPS") for new, as opposed to already existing, sources of pollution. *See* 33 U.S.C. § 1316. The Act provides that these standards must "reflect the greatest degree of effluent reduction which the Administrator determines to be achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants." 33 U.S.C. § 1316(a)(1). The Act further requires that the EPA "take into consideration the cost of achieving such effluent reduction, and any non-water quality, environmental impact and energy requirements." 33 U.S.C. § 1316(b)(1) (B). And we note that the EPA is given "considerable discretion to weigh and balance the various factors required by statute to set [NSPS]." *Riverkeeper, Inc. v. EPA*, 358 F.3d 174, 195 (2d Cir.2004) (citation omitted).

The EPA initially proposed that the NSPS for the production areas of swine, poultry and veal CAFOs include various groundwater-related requirements, *see* Proposed Rule at 3144, and also proposed that the NSPS for the production areas of swine, poultry, and veal CAFOs include a total prohibition on production area discharges. *See id.* ("There must be no discharge of process wastewater pollutants into U.S. waters, including any pollutants discharged to ground water which have a direct hydrological connection to surface waters."). In the Final Rule, however, the EPA changed course in several respects: (1) The NSPS did not include the groundwater-related requirements; (2) the NSPS still

barred all production area discharges, but provided that a CAFO could comply with this requirement by designing, constructing, operating and maintaining production areas that could "contain all manure, litter, and process wastewater including the runoff and the direct precipitation from a 100-year, 24-hour rainfall event;" and (3) the NSPS empowered permitting authorities to establish alternative performance standards that allow production area discharges, so long as such discharges were accompanied by "an equivalent or greater reduction in the quantity of pollutants released to other media" by the CAFO. *See* 40 C.F.R. § 412.46. The Environmental Petitioners here challenge all three aspects of the final NSPS.

We reject the challenge to the extent that it concerns the EPA's failure to include groundwater-related requirements as part of the NSPS. The EPA's decision not to include such requirements as part of the NSPS was predicated on the same findings underlying its decision not to include groundwater-related requirements as part of the BAT for "Subpart C CAFOs." And as we have already explained, we believe that these findings are supported in the record. *See* discussion *supra*.

[14] However, we agree with the Environmental Petitioners that there is not adequate support in the record for either: (1) *521 the EPA's decision to allow CAFOs to comply with the "total prohibition" requirement by designing, operating, and maintaining a facility to contain the runoff from a 100-year, 24-hour rainfall event; or (2) the EPA's decision to allow CAFOs to comply with the "total prohibition" requirement through alternative performance standards.

With respect to the former, the EPA claims that the "100-year, 24-hour rainfall event" design standard is functionally equivalent to or a logical outgrowth of a total prohibition standard. The EPA has not, however, adequately substantiated this claim. For example, the EPA never modeled the potential overflows and pollutant loads from a system with a 100-year, 24-hour storm event design capacity; so far as we can tell, the EPA modeled only the potential overflows and pollutant loads from a system with a 25-year, 24-hour storm event. And while certain studies may have shown that the production area BMPs adopted by the CAFO Rule would have substantially prevented the production area discharges documented in the record, we think it obvious that

substantially preventing discharges is not the same as prohibiting them outright.

With respect to the latter, the EPA has not justified in any way—let alone with adequate support in the record—its decision to allow a CAFO to comply with the total prohibition standard through an alternative standard permitting production area discharges so long as the CAFO's aggregate pollution is equivalent to or lower than what it would have been without the production area discharges.

[15] Additionally, because the EPA did not indicate, until the adoption of the final rule, that it was considering either the 100-year, 24-hour rainfall event option or the possibility of alternative performance standards, we find that the EPA's decision to adopt such provisions as part of the NSPS for swine, poultry, and veal violates the Clean Water Act's public participation requirements. See 33 U.S.C. § 1251(e) (“Public participation in the development, revision, and enforcement of any regulation, standard, effluent limitation, plan, or program established by the Administrator or any State under this Act shall be provided for, encouraged, and assisted by the Administrator and the States”).

4. Challenge to the EPA's Failure to Impose Water Quality Based Effluent Limitations

[16] We now consider the final challenge brought in this consolidated petition, namely, whether the CAFO Rule violates the Clean Water Act and is otherwise arbitrary and capricious under the Administrative Procedure Act because the Rule fails to promulgate water quality based effluent limitations (“WQBELs”) and also bars states from doing so. We agree with the Environmental Petitioners that it does, at least in part.

As stated above, the Clean Water Act not only requires that the EPA promulgate technology-based effluent limitations, but also provides that additional WQBELs “shall be established”—either by the EPA, see 33 U.S.C. § 1312(a), or by the states, see 33 U.S.C. § 1314(1)—where “discharges of pollutants from a point source or group of point sources ... would interfere with the attainment or maintenance of that water quality in a specific portion of the navigable waters which shall assure protection of public health, public water supplies, agricultural and industrial uses, and the protection and propagation of a balanced population of shellfish, fish and wildlife, and

allow recreational activities in and on the water.” 33 U.S.C. § 1312(a). The Act authorizes the imposition of such WQBELs because “[t]he limitations necessary *522 to achieve a given level of water quality in one reach of a waterway may require more control of effluents than that attainable through application of the best available technology.” 2 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, Committee Print Compiled for the Senate Committee on Public Works by the Library of Congress, Ser. No. 93-1, p. 1464 (1973).

The CAFO Rule does not, here, promulgate any WQBELs. This much is clear. And this does not present a problem to the extent that the Rule fails to promulgate—and bars the states from promulgating—WQBELs for any “agricultural stormwater discharge,” as that term is defined in 40 C.F.R. § 122.23(e).³² Agricultural stormwater discharges are, after all, statutorily exempt from any effluent limitations, including WQBELs, because they are not point source discharges. See 33 U.S.C. § 1362(14).

What is fully unclear is: (1) why the CAFO Rule exempts discharges other than agricultural stormwater discharges from WQBELs, and (2) whether the CAFO Rule bars the states from promulgating WQBELs for discharges other than agricultural stormwater discharges, and, if so, why. With regard to the former, the EPA has here indicated its intention not to promulgate any WQBELs whatsoever; the Preamble to the Final Rule states, after all, that the “EPA does not expect that water quality-based effluent limitations will be established for CAFO discharges resulting from the land application of manure, litter or process wastewater.” Preamble to the Final Rule at 7207. The EPA has, however, only justified its determination not to impose WQBELs, only insofar as agricultural stormwater discharges are concerned. See *id.* The EPA has not attempted, in any way, to explain its failure to promulgate WQBELs for CAFO discharges other than agricultural stormwater discharges as that term is defined in 40 C.F.R. § 122.23(e). The EPA sidesteps the issue completely on appeal, and the Preamble to the CAFO Rule similarly fails to explain, let alone justify, its decision. Since there is otherwise evidence in the record suggesting that the EPA's technology-based effluent limitation guidelines may not, on their own, “assure *523 protection of public health,” see, e.g., Memorandum from Laurel J. Staley, Chief, Treatment and Destruction

Branch, Land Remediation & Pollution Control Division, EPA, Re: Assessment of the Necessity for Controlling Potentially Infectious Microorganisms in Animal Wastes (Jan. 16, 2002), we find that the EPA's failure to justify the lack of WQBELs for CAFO discharges other than agricultural stormwater discharges violates 33 U.S.C. § 1312(a) and is arbitrary and capricious in violation of the Administrative Procedure Act.³³ Accordingly, on remand, we direct the EPA to explain whether or not, and why, WQBELs are needed to assure that CAFO discharges will not “interfere with the attainment or maintenance of that water quality in a specific portion of the navigable waters which shall assure protection of public health, public water supplies, agricultural and industrial uses, and the protection and propagation of a balanced population of shellfish, fish and wildlife, and allow recreational activities in and on the water.” 33 U.S.C. § 1312(a).

Additionally, we find that the Preamble to the Rule is ambiguous about whether states may promulgate WQBELs for discharges other than agricultural stormwater discharges as that term is defined in 40 C.F.R. § 122.23(e). On the one hand, the Preamble does, at one time, seem to suggest that states may promulgate WQBELs; it provides that “[a]lthough, as noted above, manure and process wastewater discharges from the land application area are not directly subject to water quality-based effluent limits, EPA encourages States to address water quality protection issues in their technical standards for determining appropriate land application practice.” Preamble to the Final Rule at 7198. On the other hand, the Preamble elsewhere says that where a CAFO has implemented site-specific practices designed to ensure appropriate agricultural utilization of nutrients, it is free from *any* further regulation. To wit, the Preamble states:

In explaining how the scope of CAFO point source discharges is limited by the agricultural storm water exemption, EPA intends that this limitation will provide a “floor” for CAFOs that will ensure that, where a CAFO is land applying manure, litter or process wastewater in accordance with site specific practices designed to ensure appropriate agricultural utilization of nutrients, *no further effluent*

limitations will be authorized, for example, to ensure compliance with water quality standards.

Id. (emphasis added). Given the ambiguity in the Preamble, and given the fact that at least one state has expressed concern that the Rule prevents the imposition of any state WQBELs, *see* Wisconsin Dep't of Natural Res. Comments on U.S. EPA's Proposed Rule Revisions for Concentrated Animal Feeding Operations at 1 (July 27, 2001), we believe it necessary for the EPA to explain more clearly, on remand, whether in fact states may promulgate WQBELs for discharges other than agricultural stormwater discharges as the term is defined in 40 C.F.R. § 122.23(e) and, if not, why.

Accordingly, we grant the Environmental Petitioners' challenge to the extent that they claim that the CAFO Rule is arbitrary and capricious under the Administrative Procedure Act because the EPA has *524 not sufficiently justified its decision not to promulgate WQBELs for discharges other than agricultural stormwater discharges, as that term is defined in 40 C.F.R. § 122.23(e). Additionally, we grant the Environmental Petitioners' petition to the extent that it seeks clarification of whether the CAFO Rule bars the states from promulgating WQBELs.³⁴

CONCLUSION

For the foregoing reasons, the petitions are granted in part and denied in part. We hereby vacate those provisions of the CAFO Rule that: (1) allow permitting authorities to issue permits without reviewing the terms of the nutrient management plans; (2) allow permitting authorities to issue permits that do not include the terms of the nutrient management plans and that do not provide for adequate public participation; and (3) require CAFOs to apply for NPDES permits or otherwise demonstrate that they have no potential to discharge. We also remand other aspects of the CAFO Rule to the EPA for further clarification and analysis. Specifically, we direct the EPA to: (1) definitively select a BCT standard for pathogen reduction; and (2) clarify—via a process that adequately involves the public—the statutory and evidentiary basis for allowing Subpart D CAFO's to comply with the new source performance standard by either: (a) designing, constructing, operating and maintaining production areas that could contain

all manure, litter and process wastewater including the runoff and the direct precipitation from a 100-year, 24-hour rainfall event; or (b) complying with alternative performance standards that allow production area discharges, so long as such discharges are accompanied by an equivalent or greater reduction in the quantity of pollutants released to other media. Additionally, we direct the EPA to clarify the statutory and evidentiary basis for failing to promulgate water quality based effluent limitations for discharges other than agricultural

stormwater discharges, as that term is defined in [40 C.F.R. § 122.23\(e\)](#), and also direct the EPA to clarify whether states may develop water quality based effluent limitations on their own. We uphold the CAFO Rule in all other respects.

All Citations

399 F.3d 486, 59 ERC 2089, 35 Env'tl. L. Rep. 20,049

Footnotes

- 1 The term “discharge of a pollutant” is defined to mean, *inter alia*, “any addition of any pollutant to navigable waters from any point source.” [33 U.S.C. § 1362\(12\)\(A\)](#).
- 2 The term “person” is defined to mean “an individual, corporation, partnership, association, State, municipality, commission, or political subdivision of a State, or any interstate body.” [33 U.S.C. § 1362\(5\)](#).
- 3 The term “point source” is defined to mean “any discernible, confined and discrete conveyance ... from which pollutants are or may be discharged.” [33 U.S.C. § 1362\(14\)](#). Notably, the Act includes “concentrated animal feeding operation” as an example of a point source. *Id.*
- 4 Under [40 C.F.R. 122.23\(b\)\(1\)](#), an animal feeding operation (“AFO”) is defined to mean:
 - a lot or facility (other than an aquatic animal production facility) where the following conditions are met:
 - (i) Animals (other than aquatic animals) have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period, and
 - (ii) Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.
- 5 The CAFO Rule defines a concentrated animal feeding operation as “an AFO [animal feeding operation] that is defined as a Large CAFO or as a Medium CAFO by the terms of this paragraph, or that is designated as a CAFO in accordance with paragraph (c) of this section.” [40 C.F.R. § 122.23\(b\)\(2\)](#). Paragraph (c) provides that an appropriate authority (either a state director, the EPA administrator or both) may designate an AFO as a CAFO upon a determination that the AFO is “a significant contributor of pollutants to waters of the United States.” [40 C.F.R. § 122.23\(c\)](#).
- 6 According to [40 C.F.R. § 122.23\(b\)\(6\)](#), the term Medium CAFO includes:
 - ... any AFO with the type and number of animals that fall within any of the ranges listed in paragraph (b)(6)(i) of this section and which has been defined or designated as a CAFO. An AFO is defined as a Medium CAFO if:
 - (i) The type and number of animals that it stables or confines falls within any of the following ranges:
 - (A) 200 to 699 mature dairy cows, whether milked or dry;
 - (B) 300 to 999 veal calves;
 - (C) 300 to 999 cattle other than mature dairy cows or veal calves. Cattle includes but is not limited to heifers, steers, bulls and cow/calf pairs;
 - (D) 750 to 2,499 swine each weighing 55 pounds or more;
 - (E) 3,000 to 9,999 swine each weighing less than 55 pounds;
 - (F) 150 to 499 horses;
 - (G) 3,000 to 9,999 sheep or lambs;
 - (H) 16,500 to 54,999 turkeys;
 - (I) 9,000 to 29,999 laying hens or broilers, if the AFO uses a liquid manure handling system;
 - (J) 37,500 to 124,999 chickens (other than laying hens), if the AFO uses other than a liquid manure handling system;
 - (K) 25,000 to 81,999 laying hens, if the AFO uses other than a liquid manure handling system;
 - (L) 10,000 to 29,999 ducks (if the AFO uses other than a liquid manure handling system); or
 - (M) 1,500 to 4,999 ducks (if the AFO uses a liquid manure handling system); and
 - (ii) Either one of the following conditions are met:
 - (A) Pollutants are discharged into waters of the United States through a man-made ditch, flushing system, or other similar man-made device; or

(B) Pollutants are discharged directly into waters of the United States which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.

7 However, the animal feeding operation raising the chickens must use something “other than a liquid manure handling system.” See 40 C.F.R. 122.23(b)(6)(J).

8 40 C.F.R. § 122.23(b)(3) classifies an animal feeding operation as a Large CAFO if it:

... stables or confines as many as or more than the number of animals specified in any of the following categories:

(i) 700 mature dairy cows, whether milked or dry;

(ii) 1,000 veal calves;

(iii) 1,000 cattle other than mature dairy cows or veal calves. Cattle includes but is not limited to heifers, steers, bulls and cow/calf pairs.

(iv) 2,500 swine each weighing 55 pounds or more;

(v) 10,000 swine each weighing less than 55 pounds;

(vi) 500 horses;

(vii) 10,000 sheep or lambs;

(viii) 55,000 turkeys;

(ix) 30,000 laying hens or broilers, if the AFO uses a liquid manure handling system;

(x) 125,000 chickens (other than laying hens), if the AFO uses other than a liquid manure handling system

(xi) 82,000 laying hens, if the AFO uses other than a liquid manure handling system;

(xii) 30,000 ducks (if the AFO uses other than a liquid manure handling system); or

(xiii) 5,000 ducks (if the AFO uses a liquid manure handling system).

9 See, e.g., EPA, DEVELOPMENT DOCUMENT FOR THE FINAL REVISIONS TO THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM REGULATION AND THE EFFLUENT GUIDELINES FOR THE CONCENTRATED ANIMAL FEEDING OPERATIONS , 4–35 (Dec.2002) (noting that “[b]y 1997, the value of poultry production exceeded \$21.6 billion, and much of the poultry output was generated by corporate producers on large facilities producing more than 100,000 birds.” (citations omitted)).

10 The USDA estimates that operations that confine livestock and poultry generate about 500 million tons of animal manure each year—over three times more raw waste than humans generate in the United States, according to the EPA. Preamble to the Final Rule at 7180.

11 “Several estimates indicate that 90% of CAFO-generated waste is land applied.” EPA, STATE COMPENDIUM: PROGRAMS AND REGULATORY ACTIVITIES RELATED TO ANIMAL FEEDING OPERATIONS 13 (May 2002).

12 That suit, brought by the NRDC and Public Citizen, was resolved by a consent decree in which the EPA agreed to propose new effluent limitation guidelines for the swine, poultry, beef and dairy subcategories of CAFOs. See Consent Decree, as amended, *NRDC v. Reilly, modified sub. nom., NRDC v. Whitman*, No. 89–2980 (D.D.C.1/31/1992).

13 40 C.F.R. § 122.23(b)(8) defines production area as:

that part of an AFO that includes the animal confinement area, the manure storage area, the raw materials storage area, and the waste containment areas. The animal confinement area includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milkrooms, milking centers, cowyards, barnyards, medication pens, walkers, animal walkways, and stables. The manure storage area includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles. The raw materials storage area includes but is not limited to feed silos, silage bunkers, and bedding materials. The waste containment area includes but is not limited to settling basins, and areas within berms and diversions which separate uncontaminated storm water. Also included in the definition of production area is any egg washing or egg processing facility, and any area used in the storage, handling, treatment, or disposal of mortalities [dead animals].

14 The ELGs promulgated by the CAFO Rule apply only to *Large* CAFOs. See Preamble to the Final Rule at 7208.

15 We refer to both sets of petitioners as they refer to themselves.

16 The Farm Petitioners also challenge the CAFO Rule for impermissibly assuming jurisdiction over all “surface waters,” when the Clean Water Act confers upon the EPA the authority to regulate only “navigable waters,” a term defined by the Act to mean “waters of the United States, including the territorial seas.” 33 U.S.C. § 1362(7). The EPA has clarified, however, that the CAFO Rule employs the term “surface waters” only in an effort to distinguish surface water from groundwater and that the Agency fully recognizes that its regulatory authority encompasses only the “waters of the United States, including the territorial seas.” Given these clarifications, we deny the Farm Petitioners’ challenge as moot.

- 17 We note that the EPA has authorized 45 States and the Virgin Islands to administer the NPDES program. See Preamble to the Final Rule at 7185.
- 18 Admittedly, the Ninth Circuit predicated its holding on a violation of a statutory provision different from the provisions at issue in this case. To wit, the Ninth Circuit held that the Phase II Rule violated [33 U.S.C. § 1342\(p\)\(3\)\(B\)\(iii\)](#), a provision that specifically pertains to municipal storm sewer discharges and that allows permits for such discharges to issue only where the permits “require controls to reduce the discharge of pollutants to the maximum extent practicable.” [33 U.S.C. § 1342\(p\)\(3\)\(B\)\(iii\)](#). See [EDC, 344 F.3d at 855–56](#). This is, however, a distinction without a difference. The demand that permits authorizing municipal storm sewer discharges must “require controls” is, in sum and substance, identical to the demand that permits authorizing discharges from *other* point sources must “assure compliance with” applicable effluent limitations. Both provisions require regulation of discharges *in fact*.
- 19 There may well be reason to fear that Large CAFOs may misunderstand their specific situation and prepare inadequate nutrient management plans as a result. Even the EPA has acknowledged that crafting proper waste application rates is a complicated task—that is why the EPA expressly recommended, but notably did not require, that waste application rates be prepared by those who are “competent in or have an understanding of a number of technical areas, including soil science and soil fertility, nutrient application and management, crop production, soil and manure testing and results interpretation, fertilizer materials and their characteristics, BMPs [best management practices] for the management of nutrients and water, and applicable laws and regulations.” Preamble to the Final Rule at 7213. Tellingly, the EPA also specifically recognized, in the Preamble to the CAFO Rule, that “USDA, and other organizations such as the American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, and a number of land grant universities, recommend that nutrient management plans be prepared by trained and certified specialists.” *Id.*
- 20 On its face, the Rule requires CAFOs—like state permitting authorities—to develop nutrient management plans based on “field-specific assessments.” [40 C.F.R. § 412.4\(c\)\(1\)](#). However, it is clear that each CAFO must make such “field-specific assessments” on a site-by-site basis; that is, each CAFO must determine what the relevant field conditions are at its site in order to determine its site-specific waste application rate. See Preamble to the Final Rule at 7209 (“Today’s rule requires Large CAFOs to determine and implement *site-specific* nutrient application rates that are consistent with the technical standards for nutrient management established by the permitting authority.”) (emphasis added); see *also id.* at 7213 (“The nutrient management plan is the tool CAFOs must use to assess soil and other field conditions at their operation ... to determine the *site-specific* nitrogen or phosphorus-based rate at which manure, litter, and other process wastewaters are to be applied.”) (emphasis added).
- 21 We also point out that our reading of [33 U.S.C. § 1311\(e\)](#) does not render superfluous the “may be” language included in the statutory definition of point source. In our view, the “may be” language can be read to clarify the reach of the EPA’s power to seek injunctive relief. See [33 U.S.C. § 1319\(b\)](#); see generally [Weinberger v. Romero-Barcelo, 456 U.S. 305, 102 S.Ct. 1798, 72 L.Ed.2d 91 \(1982\)](#).
- 22 Because we find that the EPA lacks statutory authorization to require potential dischargers to apply for NPDES permits, we need not consider whether the record here supports the EPA’s determination that Large CAFOs may reasonably be presumed to be such potential dischargers. We hasten to note, however, that if Congress were to amend the Clean Water Act to permit the imposition of a duty-to-apply, we believe the EPA would have ample reason to consider imposing this duty upon Large CAFOs. In our view, the EPA has marshaled evidence suggesting that such a prophylactic measure may be necessary to effectively regulate water pollution from Large CAFOs, given that Large CAFOs are important contributors to water pollution and that they have, historically at least, improperly tried to circumvent the permitting process. See, e.g., Proposed Rule at 2976–77 (noting that, according to the 1998 National Water Quality Inventory, the agricultural sector was the leading contributor to identified water quality impairments in the nation’s rivers and lakes); *id.* at 3008 (“since the inception of the NPDES permitting program in the 1970s, a relatively small number of larger CAFOs has actually sought permits”); see *also* Preamble to the Final Rule at 7180 (describing a rise in the excess manure nutrients produced by animal feeding operations); *id.* at 7181 (detailing the ecological and human health impacts caused by CAFO manure and wastewater), *id.* at 7237 (noting the pollutants present in manure and other CAFO wastes and describing how they contribute to the impairment of water quality).

We also note that the EPA has not argued that the administrative record supports a regulatory presumption to the effect that Large CAFOs *actually* discharge. As such, we do not now consider whether, under the Clean Water Act as it currently exists, the EPA might properly presume that Large CAFOs—or some subset thereof—actually discharge. See generally [NLRB v. Curtin Matheson Scientific, Inc., 494 U.S. 775, 110 S.Ct. 1542, 108 L.Ed.2d 801 \(1990\)](#); [National Mining Ass’n v. Babbitt, 172 F.3d 906 \(D.C.Cir.1999\)](#).

- 23 For example, the Environmental Petitioners substantially rely on a statement from Senator Robert Dole acknowledging the environmental threat posed by “[p]recipitation runoff” from areas storing animal and poultry waste. 2 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, Committee Print Compiled for the Senate Committee on Public Works by the Library of Congress, Ser. No. 93–1, p. 1295 (1973). Senator Dole did not at all suggest that the Act aimed, in fact, to regulate precipitation runoff. His statement about precipitation runoff was merely part of a larger discussion about the general environmental threat posed by animal and poultry waste. To wit, he stated that: “In these modern facilities, the use of bedding and litter has been greatly reduced; consequently, the manure which is produced remains essentially in the liquid state and is much more difficult to handle without odor and pollution problems. Precipitation runoff from these areas picks up high concentrates of pollutants, which reduce oxygen levels in receiving streams and lakes and accelerate the eutrophication process.” *Id.*
- 24 We note, moreover, that while the EPA had previously classified CAFO discharges as industrial, rather than agricultural, the Agency has here adequately justified that change on the ground that “[w]hen manure or process wastewater is applied in accordance with practices designed to ensure appropriate agricultural utilization of nutrients, it... fulfills an important agricultural purpose, namely the fertilization of crops...” Preamble to the Final Rule at 7197. *Cf. Motor Vehicle Manufacturers Association of the United States, Inc. v. State Farm Mutual Automobile Insurance Company*, 463 U.S. 29, 42, 103 S.Ct. 2856, 77 L.Ed.2d 443 (1983) (where an agency has changed course it is “obligated to supply a reasoned analysis for the change.”). Because the EPA also put the public on notice of the substantive change, see Proposed Rule at 3029–32, it has complied with all applicable procedural requirements.
- 25 We note that, in this respect, *Catskill Mountains* is in complete accord with *Southview Farm*. Implicit in *Southview Farm* is the idea that when a discharge from a land application area under the control of a CAFO is primarily caused by rain, such a discharge is not subject to regulation because the rain—not the CAFO—is the proximate source of the discharge; but when “run-off [is] primarily caused by the over-saturation of the fields rather than the rain and [there are] sufficient quantities of manure ... present,” *Southview Farm*, 34 F.3d at 121, such a discharge is subject to regulation because the CAFO—not the rain—is the proximate source of the discharge.
- 26 As the EPA explained in the Preamble to the Proposed Rule and reaffirmed in its brief in this consolidated petition, even under Option 2, permit writers [are] required to consider whether a facility is located in an area where its hydrogeology makes it likely that the ground water underlying the facility is hydrologically connected to surface water and whether a discharge to surface water from the facility through such hydrologically connected ground water may cause or contribute to a violation of State water quality standards. In cases where such a determination was made by the permit writer, he or she would impose appropriate conditions to prevent discharge via a hydrologic connection [and that these conditions] would be included in the permit.
- Proposed Rule at 3062. It is thus clear that when the EPA stated, in the Preamble to the Final Rule, that “requirements limiting the discharge of pollutants to surface water via groundwater ... are beyond the scope of today's ELGs,” Preamble to the Final Rule at 7216, the EPA meant only that uniform national requirements are beyond the scope of today's ELGs. The EPA did not, in other words, mean to suggest that NPDES authorities lacked the power to impose groundwater-related requirements on a case-by-case basis, where necessary.
- 27 Because the Clean Water Act “imposes no obligation on EPA to subdivide industries so that each point-source category contains identical producers,” *BASF Wyandotte Corp. v. Costle*, 598 F.2d 637, 655 (1st Cir.1979), we reject the Environmental Petitioners' claim that EPA should segregate poultry CAFOs out of Subpart D and separately consider the costs of imposing Option 5 on them.
- 28 We agree with the Environmental Petitioners that the EPA's economic determinations are not—as the EPA puts it—entitled to “heightened deference.” Deference, not “heightened” deference, is due.
- 29 We also uphold, as reasonable, EPA's decision not to rely on “long-run market adjustments,” given that these, too, are inherently uncertain and difficult to predict and that, in any event, adjustments for the long-run might “mask severe financial effects at regulated CAFOs in the short-run.” See EPA, FINAL RULE ECONOMIC ANALYSIS 2–64 (Dec.2002).
- 30 We find that, contrary to the EPA's argument, the Environmental Petitioners are not barred from bringing this claim, because one comment expressly addressed the inadequacy of the Agency's pathogen reduction measures, see Excerpt Number CAFO201424–27 in EPA, RESPONSE TO COMMENTS ON THE NPDES PERMITTING REQUIREMENTS AND EFFLUENT LIMITATIONS GUIDELINES FOR CONCENTRATED ANIMAL FEEDING OPERATIONS at 9–81 (Dec.2002) and because, in any event, the Agency clearly considered its statutory obligation to impose pathogen reduction measures in the course of promulgating the CAFO Rule. See *Nat'l Resources Def. Council, Inc. v. EPA*, 824 F.2d 1146, 1151 (D.C.Cir.1987).

- 31 Because the EPA never made an affirmative finding that the other ELGs adopted by the CAFO Rule constitute the *best* conventional pollutant control technology, we need not address whether EPA reasonably rejected other pathogen controls. The rejection of those controls is not properly before this Court.
- 32 The Environmental Petitioners argue that the Preamble to the Final Rule can be construed to give the term “agricultural stormwater discharge” a broader definition than the one provided in 40 C.F.R. § 122.23(e). Because the Preamble at one point states that where a CAFO has developed site specific practices to ensure appropriate agricultural utilization of nutrients, “[a]ny remaining discharge ... would be covered by the agricultural storm water exemption,” the Environmental Petitioners claim that the agricultural stormwater exemption might be read to include even “dry weather discharges,” i.e., discharges not caused by rain. Preamble to the Final Rule at 7198. We disagree. First and most importantly, the CAFO Rule itself provides that only a “precipitation-related discharge” can be classified as agricultural stormwater. 40 C.F.R. § 122.23(e). Dry-weather discharges are, by definition, not precipitation-related. Second, the Preamble expressly states—in the paragraph preceding the statement that the Environmental Petitioners construe as suggesting a broader definition of agricultural stormwater—that “any dry weather discharge of manure or process wastewater resulting from its application to land area [sic] under the control of a CAFO would not be considered an agricultural storm water discharge and would thus be subject to Clean Water Act requirements.” Preamble to the Final Rule at 7198. Thus, the agricultural stormwater exemption encompasses only those discharges that the CAFO Rule defines as agricultural stormwater, that is, a “precipitation-related discharge of manure, litter, or process wastewater from land areas under the control of a CAFO” where the “manure, litter or process wastewater has [otherwise] been applied in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization.” 40 C.F.R. § 122.23(e).
- 33 To be clear, we are not asked to consider—and we accordingly do not consider—whether EPA is statutorily required, in the first instance, to investigate the propriety of imposing WQBELs. Here, we hold only that where the EPA has made a determination, one way or the other, about the propriety of imposing WQBELs, that determination must be reasonable and supported in the record, i.e., not arbitrary and capricious.
- 34 The Environmental Petitioners moved to clarify and/or supplement the administrative record on appeal to include certain documents exchanged between the EPA and the Office of Management and Budget. They so moved because, in their view, the EPA–OMB documents supported their challenges to (a) the EPA's failure to promulgate WQBELs and (b) the CAFO Rule's new source performance standard for swine, poultry, and veal. Because we have granted both these challenges without even considering the EPA–OMB documents, we deny the Environmental Petitioners' motion as moot.

ATTACHMENT

12



KeyCite Yellow Flag - Negative Treatment

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43 Cal.3d 46

Supreme Court of California,
In Bank.COUNTY OF LOS ANGELES
et al., Plaintiffs and Appellants,

v.

The STATE of California et al.,
Defendants and Respondents.

CITY OF SONOMA et al., Plaintiffs and Appellants,

v.

The STATE of California et al.,
Defendants and Respondents.

L.A. No. 32106.

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Jan. 2, 1987.

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Rehearing Denied Feb. 26, 1987.

After State mandated increases in certain workers' compensation benefits, cities and counties, as self-insured employers, brought action against State for reimbursement of required increases. The Superior Court, Los Angeles County, Leon Savitch and John L. Cole, JJ., denied relief, and cities and counties appealed. The Court of Appeal, Eagleson, J., [215 Cal.Rptr. 139](#), affirmed in part, reversed in part, and remanded. The Supreme Court granted review, superseding the opinion of the Court of Appeal. The Supreme Court, Grodin, J., held that constitutional provision, requiring State to reimburse local governments for increased costs whenever legislature mandated new program or higher level of service, was not applicable to increases in workers' compensation benefits, where public and private employers were equally affected.

Court of Appeal reversed.

Mosk, J., concurred and filed opinion.

West Headnotes (1)

[1] [States](#)**Disbursements in General**

Constitutional provision requiring State to reimburse local governments for costs of new programs or higher levels of service mandated by legislature was not applicable to costs incurred by local governments in complying with legislatively mandated increases in workers' compensation benefits where increases were applicable to both public and private employers; disapproving *City of Sacramento v. State of California*, 156 Cal.App.3d 182, 203 Cal.Rptr. 258 (3 Dist.). West's Ann.Cal. Const. Art. 13B, § 6; West's Ann.Cal.Labor Code §§ 4453, 4453.1, 4460, 4553, 4702.

[45 Cases that cite this headnote](#)**Attorneys and Law Firms**

***49 **203 ***38** De Witt W. Clinton, Co. Counsel, Paula A. Snyder, Sr. Deputy Co. Counsel, Edward G. Pozorski, Deputy Co. Counsel, John W. Witt, City Atty., Kenneth K.Y. So, Deputy City Atty., William D. Ross, Diana P. Scott, Ross & Scott and Rogers & Wells, Los Angeles, for plaintiffs and appellants.

James K. Hahn, City Atty. (Los Angeles), Thomas C. Bonventura and Richard Dawson, Asst. City Attys., and Patricia V. Tubert, Deputy City Atty., as amici curiae on behalf of plaintiffs and appellants.

John K. Van de Kamp, Atty. Gen., N. Eugene Hill, Asst. Atty. Gen., Henry G. Ullerich and Martin H. Milas, Deputy Attys. Gen., for defendants and respondents.

Laurence Gold, Washington, D.C., Fred H. Altshuler, Marsha S. Berzon, Gay C. Danforth, Altshuler & Berzon, Charles P. Scully II, Donald C. Carroll, Peter Weiner, Heller, Ehrman, White & McAuliffe, San Francisco, Donald C. Green, Sacramento, Terrence S. Terauchi, Manatt, Phelps, Rothenberg & Tunney and Clare Bronowski, Los Angeles, as amici curiae on behalf of defendants and respondents.

Opinion

GRODIN, Justice.

We are asked in this proceeding to determine whether legislation enacted in 1980 and 1982 increasing certain workers' compensation benefit payments is subject to the command of article XIII B of the California Constitution that local government costs mandated by the state must be funded by the state. The County of Los Angeles and the City of Sonoma sought review by this court of a decision of the Court of Appeal which held that state-mandated increases ***39 in workers' compensation benefits that do not exceed the rise in the cost of living are not costs which must be borne by the state under article XIII B, an initiative constitutional provision, and legislative implementing statutes.

Although we agree that the State Board of Control properly denied plaintiffs' claims, our conclusion rests on grounds other than those relied upon by the Court of Appeal, and requires that its judgment be reversed. We conclude that when the voters adopted [article XIII B, section 6](#), their intent was not to require the state to provide subvention whenever a newly enacted statute resulted incidentally in some cost to local agencies. Rather, the drafters and the electorate had in mind subvention for the expense or *50 increased cost of programs administered locally and for expenses occasioned by laws that impose unique requirements on local governments and do not apply generally to all state residents or entities. In using the word "programs" they had in mind the commonly understood meaning of the term, programs which carry out the governmental function of providing services to the public. Reimbursement for the cost or increased cost of providing workers' compensation benefits to employees of local agencies is not, therefore, required by [section 6](#).

We recognize also the potential conflict between [article XIII B](#) and the grant of plenary power over workers' compensation bestowed upon the Legislature by section 4 of article XIV, but in accord with established rules of construction our construction of [article XIII B, section 6](#), harmonizes these constitutional provisions.

I

On November 6, 1979, the voters approved an initiative measure which added article XIII B to the California Constitution. That article imposed spending limits on the state and local governments and provided in [section](#)

[6](#) (hereafter [section 6](#)): "Whenever the Legislature or any state agency mandates a new program or higher level of **204 service on any local government, the state shall provide a subvention of funds to reimburse such local government for the costs of such program or increased level of service, except that the Legislature may, but need not, provide such subvention of funds for the following mandates: [¶] (a) Legislative mandates requested by the local agency affected; [¶] (b) Legislation defining a new crime or changing an existing definition of a crime; or [¶] (c) Legislative mandates enacted prior to January 1, 1975, or executive orders or regulations initially implementing legislation enacted prior to January 1, 1975." No definition of the phrase "higher level of service" was included in article XIII B, and the ballot materials did not explain its meaning.¹

The genesis of this action was the enactment in 1980 and 1982, after article XIII B had been adopted, of laws increasing the amounts which employers, *51 including local governments, must pay in workers' compensation benefits to injured employees and families of deceased employees.

The first of these statutes, Assembly Bill No. 2750 (Stats.1980, ch. 1042, p. 3328), amended several sections of the Labor Code related to workers' compensation. The amendments of [Labor Code sections 4453, 4453.1 and 4460](#) increased the maximum weekly wage upon which temporary and permanent disability indemnity is computed from \$231 per week to \$262.50 per week. The amendment of [section 4702 of the Labor Code](#) increased certain death benefits from \$55,000 to \$75,000. No appropriation ***40 for increased state-mandated costs was made in this legislation.²

Test claims seeking reimbursement for the increased expenditure mandated by these changes were filed with the State Board of Control in 1981 by the County of San Bernardino and the City of Los Angeles. The board rejected the claims, after hearing, stating that the increased maximum workers' compensation benefit levels did not change the terms or conditions under which benefits were to be awarded, and therefore did not, by increasing the dollar amount of the benefits, create an increased level of service. The first of these consolidated actions was then filed by the County of Los Angeles, the County of San Bernardino, and the City of San Diego, seeking a writ of mandate to compel the board to approve the

reimbursement claims for costs incurred in providing an increased level of service mandated by the state pursuant to [Revenue and Taxation Code section 2207](#).³ They also sought a declaration that because the State of California and the board were obliged by article XIII B to reimburse them, they were not obligated to ****205** pay the increased benefits until the state provided reimbursement.

The superior court denied relief in that action. The court recognized that although increased benefits reflecting cost of living raises were not expressly ***52** excepted from the requirement of state reimbursement in [section 6](#) the intent of article XIII B to limit governmental expenditures to the prior year's level allowed local governments to make adjustment for changes in the cost of living, by increasing their own appropriations. Because the Assembly Bill No. 2750 changes did not exceed cost of living changes, they did not, in the view of the trial court, create an "increased level of service" in the existing workers' compensation program.

The second piece of legislation (Assem. Bill No. 684), enacted in 1982 (Stats. 1982, ch. 922, p. 3363), again changed the benefit levels for workers' compensation by increasing the maximum weekly wage upon which benefits were to be computed, and made other changes among which were: The bill increased minimum weekly earnings for temporary and permanent total disability from \$73.50 to \$168, and the maximum from \$262.50 to \$336. For permanent partial disability the weekly wage was raised from a minimum of \$45 to \$105, and from a maximum of \$105 to \$210, in each case for injuries occurring on or after January 1, 1984. ([Lab.Code, § 4453](#).) A \$10,000 limit on additional compensation for injuries resulting from serious and willful employer misconduct was removed ([Lab.Code, § 4553](#)), and the maximum death benefit was raised from \$75,000 to \$85,000 for deaths in 1983, and to \$95,000 for deaths on or after January 1, 1984. ([Lab.Code, § 4702](#).)

Again the statute included no appropriation and this time the statute expressly acknowledged that the omission was made "[n]otwithstanding [section 6 of Article XIII B of the California Constitution](#) and *****41** [section 2231 ... of the Revenue and Taxation Code](#)." (Stats.1982, ch. 922, § 17, p. 3372.)⁴

Once again test claims were presented to the State Board of Control, this time by the City of Sonoma, the County

of Los Angeles, and the City of San Diego. Again the claims were denied on grounds that the statute made no change in the terms and conditions under which workers' compensation benefits were to be awarded, and the increased costs incurred as a result of higher benefit levels did not create an increased level of service as defined in [Revenue and Taxation Code section 2207, subdivision \(a\)](#).

The three claimants then filed the second action asking that the board be compelled by writ of mandate to approve the claims and the state to pay them, and that chapter 922 be declared unconstitutional because it was not adopted in conformity with requirements of the Revenue and Taxation Code or ***53** [section 6](#). The trial court granted partial relief and ordered the board to set aside its ruling. The court held that the board's decision was not supported by substantial evidence and legally adequate findings on the presence of a state-mandated cost. The basis for this ruling was the failure of the board to make adequate findings on the possible impact of changes in the burden of proof in some workers' compensation proceedings ([Lab.Code § 3202.5](#)); a limitation on an injured worker's right to sue his employer under the "dual capacity" exception to the exclusive remedy doctrine ([Lab.Code §§ 3601–3602](#)); and changes in death and disability benefits and in liability in serious and wilful misconduct cases. ([Lab.Code, § 4551](#).)

The court also held: "[T]he changes made by chapter 922, Statutes of 1982 may be excluded from state mandated costs if that change effects a cost of living increase which does not impose a higher or increased level of service on an existing program." The City of Sonoma, the County of Los Angeles, and the City of San Diego ****206** appeal from this latter portion of the judgment only.

II

The Court of Appeal consolidated the appeals. The court identified the dispositive issue as whether legislatively mandated increases in workers' compensation benefits constitute a "higher level of service" within the meaning of [section 6](#), or are an "increased level of service"⁵ described in subdivision (a) of [Revenue and Taxation Code section 2207](#). The parties did not question the proposition that higher benefit payments might constitute a higher level of "service." The dispute centered on whether higher

benefit payments which do not exceed increases in the cost of living constitute a higher level of service. Appellants maintained that the reimbursement requirement of [section 6](#) is absolute and permits no implied or judicially created exception for increased costs that do not exceed the inflation rate. The Court of Appeal addressed the problem as one of defining “increased level of service.”

The court rejected appellants' argument that a definition of “increased level of service” that once had been included in [section 2231](#), subdivision, (e) of the Revenue and Taxation Code should be applied. That definition brought any law that imposed “additional costs” within the scope of “increased level of service.” The court concluded that the repeal of [section 2231](#) in 1975 (Stats.1975, ch. 486, § 7, pp. 999–1000) and the failure of the Legislature by statute or the electorate in [article XIII B](#) to readopt the [*54](#) definition must be treated as reflecting an intent to change the law. (*Eu v. Chacon* (1976) 16 Cal.3d 465, 470, 128 Cal.Rptr. 1, 546 P.2d 289.)⁶ On that basis the court [***42](#) concluded that increased costs were no longer tantamount to an increased level of service.

The court nonetheless assumed that an increase in costs mandated by the Legislature did constitute an increased level of service if the increase exceeds that in the cost of living. The judgment in the second, or “Sonoma” case was affirmed. The judgment in the first, or “Los Angeles” case, however, was reversed and the matter “remanded” to the board for more adequate findings, with directions.⁷

III

The Court of Appeal did not articulate the basis for its conclusion that costs in excess of the increased cost of living do constitute a reimbursable increased level of service within the meaning of [section 6](#). Our task in ascertaining the meaning of the phrase is aided somewhat by one explanatory reference to this part of [section 6](#) in the ballot materials.

A statutory requirement of state reimbursement was in effect when [section 6](#) [**207](#) was adopted. That provision used the same “increased level of service” phraseology but it also failed to include a definition of “increased level of service,” providing only: ‘Costs mandated by the state’ means any increased costs which a local agency is required to incur as a result of the following: [¶] (a) Any law ...

which mandates a new program or an increased level of service of an existing program.” ([Rev. & Tax. Code, 2207.](#)) As noted, however, the definition of that term which had been [*55](#) included in Revenue and Taxation Code section 2164.3 as part of the Property Tax Relief Act of 1972 (Stats.1972, ch. 1406, § 14.7, p. 2961), had been repealed in 1975 when [Revenue and Taxation Code section 2231](#), which had replaced section 2164.3 in 1973, was repealed and a new [section 2231](#) enacted. (Stats.1975, ch. 486, §§ 6 & 7, p. 999.)⁸ Prior to repeal, Revenue and Taxation Code section 2164.3, and later [section 2231](#), after providing in subdivision (a) for state reimbursement, explained in subdivision (e) that “ ‘Increased level of service’ means any requirement mandated by state law or executive regulation ... which makes necessary expanded or additional costs to a county, city and county, city, or special district.” (Stats.1972, ch. 1406, § 14.7, p. 2963.)

[***43](#) Appellants contend that despite its repeal, the definition is still valid, relying on the fact that the Legislature, in enacting [section 2207](#), explained that the provision was “declaratory of existing law.” (Stats.1975, ch. 486, § 18.6, p. 1006.) We concur with the Court of Appeal in rejecting this argument. “[I]t is ordinarily to be presumed that the Legislature by deleting an express provision of a statute intended a substantial change in the law.” (*Lake Forest Community Assn. v. County of Orange* (1978) 86 Cal.App.3d 394, 402, 150 Cal.Rptr. 286; see also *Eu v. Chacon*, *supra*, 16 Cal.3d 465, 470, 128 Cal.Rptr. 1, 546 P.2d 289.) Here, the revision was not minor: a whole subdivision was deleted. As the Court of Appeal noted, “A change must have been intended; otherwise deletion of the preexisting definition makes no sense.”

Acceptance of appellants' argument leads to an unreasonable interpretation of [section 2207](#). If the Legislature had intended to continue to equate “increased level of service” with “additional costs,” then the provision would be circular: “costs mandated by the state” are defined as “increased costs” due to an “increased level of service,” which, in turn, would be defined as “additional costs.” We decline to accept such an interpretation. Under the repealed provision, “additional costs” may have been deemed tantamount to an “increased level of service,” but not under the post–1975 statutory scheme. Since that definition has been repealed, an act of which the drafters of section 6 and the electorate are presumed to have been [*56](#) aware, we may not conclude that an intent existed to incorporate the repealed definition into section 6.

In construing the meaning of the constitutional provision, our inquiry is not focussed on what the Legislature intended in adopting the former statutory reimbursement scheme, but rather on what the voters meant when they adopted [article XIII B](#) in 1979. To determine this intent, we must look to the language of the provision itself. (*ITT World Communications, Inc. v. City and County of San Francisco* (1985) 37 Cal.3d 859, 866, 210 Cal.Rptr. 226, 693 P.2d 811.) In [section 6](#), the electorate commands ****208** that the state reimburse local agencies for the cost of any “new program or higher level of service.” Because workers' compensation is not a new program, the parties have focussed on whether providing higher benefit payments constitutes provision of a higher level of service. As we have observed, however, the former statutory definition of that term has been incorporated into neither [section 6](#) nor the current statutory reimbursement scheme.

Looking at the language of [section 6](#) then, it seems clear that by itself the term “higher level of service” is meaningless. It must be read in conjunction with the predecessor phrase “new program” to give it meaning. Thus read, it is apparent that the subvention requirement for increased or higher level of service is directed to state mandated increases in the services provided by local agencies in existing “programs.” But the term “program” itself is not defined in [article XIII B](#). What programs then did the electorate have in mind when [section 6](#) was adopted? We conclude that the drafters and the electorate had in mind the commonly understood meanings of the term—programs that carry out the governmental function of providing services to the public, or laws which, to implement a state policy, impose unique requirements on local governments and do not apply generally to all residents and entities in the state.

The concern which prompted the inclusion of [section 6](#) in [article XIII B](#) was the perceived attempt by the state to enact legislation or adopt administrative orders creating programs to be administered by local agencies, thereby transferring to those agencies the fiscal responsibility for providing services which the state believed should be extended to the public. In their ballot arguments, the proponents of [article XIII B](#) explained [section 6](#) to the voters: “Additionally, this measure: (1) Will not allow the state government to *force programs* on local governments without the state paying for them.” (Ballot Pamp., Proposed Amend. to Cal. Const. with arguments

*****44** to voters, Spec. Statewide Elec. (Nov. 6, 1979) p. 18. Ital. added.) In this context the phrase “to force programs on local governments” confirms that the intent underlying [section 6](#) was to require reimbursement to local agencies for the costs involved in carrying out functions peculiar to government, not ***57** for expenses incurred by local agencies as an incidental impact of laws that apply generally to all state residents and entities. Laws of general application are not passed by the Legislature to “force” programs on localities.

The language of [section 6](#) is far too vague to support an inference that it was intended that each time the Legislature passes a law of general application it must discern the likely effect on local governments and provide an appropriation to pay for any incidental increase in local costs. We believe that if the electorate had intended such a far-reaching construction of [section 6](#), the language would have explicitly indicated that the word “program” was being used in such a unique fashion. (Cf. *Fuentes v. Workers' Comp. Appeals Bd.* (1976) 16 Cal.3d 1, 7, 128 Cal.Rptr. 673, 547 P.2d 449; *Big Sur Properties v. Mott* (1976) 62 Cal.App.3d 99, 105, 132 Cal.Rptr. 835.) Nothing in the history of [article XIII B](#) that we have discovered, or that has been called to our attention by the parties, suggests that the electorate had in mind either this construction or the additional indirect, but substantial impact it would have on the legislative process.

Were [section 6](#) construed to require state subvention for the incidental cost to local governments of general laws, the result would be far-reaching indeed. Although such laws may be passed by simple majority vote of each house of the Legislature (art. IV, § 8, subd. (b)), the revenue measures necessary to make them effective may not. A bill which will impose costs subject to subvention of local agencies must be accompanied by a revenue measure providing the subvention required by [article XIII B](#). (*Rev & Tax. Code*, § 2255, subd. (c).) Revenue bills must be passed by two-thirds vote of each house of the Legislature. (art. IV, § 12, subd. (d).) Thus, were we to construe [section 6](#) as ****209** applicable to general legislation whenever it might have an incidental effect on local agency costs, such legislation could become effective only if passed by a supermajority vote.⁹ Certainly no such intent is reflected in the language or history of [article XIII B](#) or [section 6](#).

We conclude therefore that [section 6](#) has no application to, and the state need not provide subvention for, the

costs incurred by local agencies in providing to their employees the same increase in workers' compensation *58 benefits that employees of private individuals or organizations receive.¹⁰ Workers' compensation is not a program administered by local agencies to provide service to the public. Although local agencies must provide benefits to their employees either through insurance or direct payment, they are indistinguishable in this respect from private employers. In no sense can employers, public or private, be considered to be administrators of a program of workers' compensation or to be providing services incidental to administration of the program. Workers' compensation is administered by the state through the Division of Industrial Accidents and the Workers' Compensation Appeals Board. (See ***45 [Lab.Code, § 3201](#) et seq.) Therefore, although the state requires that employers provide workers' compensation for nonexempt categories of employees, increases in the cost of providing this employee benefit are not subject to reimbursement as state-mandated programs or higher levels of service within the meaning of [section 6](#).

IV

Our construction of [section 6](#) is further supported by the fact that it comports with controlling principles of construction which “require that in the absence of irreconcilable conflict among their various parts, [constitutional provisions] must be harmonized and construed to give effect to all parts. (*Clean Air Constituency v. California State Air Resources Bd.* (1974) 11 Cal.3d 801, 813–814 [114 Cal.Rptr. 577, 523 P.2d 617]; *Serrano v. Priest* (1971) 5 Cal.3d 584, 596 [96 Cal.Rptr. 601, 487 P.2d 1241]; *Select Base Materials v. Board of Equal.* (1959) 51 Cal.2d 640, 645 [335 P.2d 672].)” (*Legislature v. Deukmejian* (1983) 34 Cal.3d 658, 676, 194 Cal.Rptr. 781, 669 P.2d 17.)

Our concern over potential conflict arises because article XIV, section 4,¹¹ gives the **210 Legislature “plenary power, unlimited by any provision of *59 this Constitution” over workers' compensation. Although seemingly unrelated to Workers' compensation, [section 6](#), as we have shown, would have an indirect, but substantial impact on the ability of the Legislature to make future changes in the existing workers' compensation scheme. Any changes in the system which would increase benefit levels, provide new services, or extend current service

might also increase local agencies' costs. Therefore, even though workers' compensation is a program which is intended ***46 to provide benefits to all injured or deceased employees and their families, because the change might have some incidental impact on local government costs, the change could be made only if it commanded a supermajority vote of two-thirds of the members of each house of the Legislature. The potential conflict between [section 6](#) and the plenary power over workers' compensation granted to the Legislature by article XIV, section 4 is apparent.

The County of Los Angeles, while recognizing the impact of [section 6](#) on the Legislature's power over workers' compensation, argues that the “plenary power” granted by article XIV, section 4, is power over the substance of workers' compensation legislation, and that this power would be unaffected by [article XIII B](#) if the latter is construed to compel reimbursement. The subvention requirement, it is argued, is analogous to other procedural *60 limitations on the Legislature, such as the “single subject rule” (art. IV, § 9), as to which article XIV, section 4, has no application. We do not agree. A constitutional requirement that legislation either exclude employees of local governmental agencies or be adopted by a supermajority vote would do more than simply establish a format or procedure by which legislation is to be enacted. It would place workers' compensation legislation in a special classification of substantive legislation and thereby curtail the power of a majority to enact substantive changes by any procedural means. If [section 6](#) were applicable, therefore, [article XIII B](#) would restrict the power of the Legislature over workers' compensation.

The City of Sonoma concedes that so construed [article XIII B](#) would restrict the plenary power of the Legislature, and reasons that the provision therefore either effected a pro tanto repeal of article XIV, section 4, or must be accepted as a limitation on the power of the Legislature. We need not accept that conclusion, however, because our construction of [section 6](#) permits the constitutional provisions to be reconciled.

Construing a recently enacted constitutional provision such as [section 6](#) to avoid conflict with, and thus pro tanto repeal of, an earlier provision is also consistent with **211 and reflects the principle applied by this court in *Hustedt v. Workers' Comp. Appeals Bd.* (1981) 30 Cal.3d 329, 178 Cal.Rptr. 801, 636 P.2d 1139. There, by

coincidence, article XIV, section 4, was the later provision. A statute, enacted pursuant to the plenary power of the Legislature over workers' compensation, gave the Workers' Compensation Appeals Board authority to discipline attorneys who appeared before it. If construed to include a transfer of the authority to discipline attorneys from the Supreme Court to the Legislature, or to delegate that power to the board, article XIV, section 4, would have conflicted with the constitutional power of this court over attorney discipline and might have violated the separation of powers doctrine. (Art. III, § 3.) The court was thus called upon to determine whether the adoption of article XIV, section 4, granting the Legislature plenary power over Workers' compensation effected a pro tanto repeal of the preexisting, exclusive jurisdiction of the Supreme Court over attorneys.

We concluded that there had been no pro tanto repeal because article XIV, section 4, did not give the Legislature the authority to enact the statute. Article XIV section 4, did not expressly give the Legislature power over attorney discipline, and that power was not integral to or necessary to the establishment of a complete system of workers' compensation. In those circumstances the presumption against implied repeal controlled. "It is well established that the adoption of article XIV, section 4 'effected a repeal pro tanto' of any state constitutional provisions which conflicted with that *61 amendment. (*Subsequent Etc. Fund. v. Ind. Acc. Com.* (1952) 39 Cal.2d 83, 88 [244 P.2d 889]; *Western Indemnity Co. v. Pillsbury* (1915) 170 Cal. 686, 695 [151 P. 398].) A pro tanto repeal of conflicting state constitutional provisions removes 'insofar as necessary' any restrictions which would prohibit the realization ***47 of the objectives of the new article. (*Methodist Hosp. of Sacramento v. Saylor* (1971) 5 Cal.3d 685, 691–692 [97 Cal.Rptr. 1, 488 P.2d 161]; cf. *City and County of San Francisco v. Workers' Comp. Appeals Bd.* (1978) 22 Cal.3d 103, 15–17 [148 Cal.Rptr. 626, 583 P.2d 151].) Thus the question becomes whether the board must have the power to discipline attorneys if the objectives of article XIV, section 4 are to be effectuated. In other words, does the achievement of those objectives compel the modification of a power—the disciplining of attorneys—that otherwise rests exclusively with this court?" (*Hustedt v. Workers' Comp. Appeals Bd.*, *supra*, 30 Cal.3d 329, 343, 178 Cal.Rptr. 801, 636 P.2d 1139.) We concluded that the ability to discipline attorneys appearing before it was not necessary to the expeditious resolution of workers' claims or the efficient

administration of the agency. Thus, the absence of disciplinary power over attorneys would not preclude the board from achieving the objectives of article XIV, section 4, and no pro tanto repeal need be found.

A similar analysis leads to the conclusion here that no pro tanto repeal of article XIV, section 4, was intended or made necessary here by the adoption of section 6. The goals of article XIII B, of which section 6 is a part, were to protect residents from excessive taxation and government spending. (*Huntington Park Redevelopment Agency v. Martin* (1985) 38 Cal.3d 100, 109–10, 211 Cal.Rptr. 133, 695 P.2d 220.) Section 6 had the additional purpose of precluding a shift of financial responsibility for carrying out governmental functions from the state to local agencies which had had their taxing powers restricted by the enactment of article XIII A in the preceding year and were ill equipped to take responsibility for any new programs. Neither of these goals is frustrated by requiring local agencies to provide the same protections to their employees as do private employers. Bearing the costs of salaries, unemployment insurance, and workers' compensation coverage—costs which all employers must bear—neither threatens excessive taxation or governmental spending, nor shifts from the state to a local agency the expense of providing governmental services.

**212 Therefore, since the objectives of article XIII B and section 6 can be achieved in the absence of state subvention for the expense of increases in workers' compensation benefit levels for local agency employees, section 6 did not effect a pro tanto repeal of the Legislature's otherwise plenary power over workers' compensation, a power that does not contemplate that the Legislature rather than the employer must fund the cost or increases in *62 benefits paid to employees of local agencies, or that statute affecting those benefits paid to employees of local agencies, or that a statute affecting those benefits must garner a supermajority vote.

Because we conclude that section 6 has no application to legislation that is applicable to employees generally, whether public or private, and affects local agencies only incidentally as employers, we need not reach the question that was the focus of the decision of the Court of Appeal—whether the state must reimburse localities for state-mandated cost increases which merely reflect adjustments for cost-of-living in existing programs.

V

It follows from our conclusions above, that in each of these cases the plaintiffs' reimbursement claims were properly denied by the State Board of Control. Their petitions for writs of mandate seeking to compel the board to approve the claims lacked merit and should have been denied by the superior court without the necessity of further proceedings before the board.

In B001713, the Los Angeles case, the Court of Appeal reversed the judgment of the superior court denying the petition. In the B003561, the Sonoma case, the superior court granted partial relief, ordering further proceedings before the board, and the Court of Appeal affirmed that judgment.

The judgment of the Court of Appeal is reversed. Each side shall bear its own costs.

*****48** BIRD, C.J., and BROUSSARD, REYNOSO, LUCAS and PANELLI, JJ., concur.

MOSK, Justice, concurring.

I concur in the result reached by the majority, but I prefer the rationale of the Court of Appeal, i.e., that neither [article XIII B, section 6, of the Constitution](#) nor [Revenue and Taxation Code sections 2207 and 2231](#) require state subvention for increased workers' compensation benefits provided by chapter 1042, Statutes of 1980, and chapter 922, Statutes of 1982, but only if the increases do not exceed applicable cost-of-living adjustments because such payments do not result in an increased level of service.

Under the majority theory, the state can order unlimited financial burdens on local units of government without providing the funds to meet those burdens. This may have serious implications in the future, and does violence to the requirement of [section 2231, subdivision \(a\)](#), that the state reimburse local government for "all costs mandated by the state."

In this instance it is clear from legislative history that the Legislature did not intend to mandate additional burdens, but merely to provide a cost-of-living *63 adjustment. I agree with the Court of Appeal that this was permissible.

All Citations

43 Cal.3d 46, 729 P.2d 202, 233 Cal.Rptr. 38

Footnotes

1 The analysis by the Legislative Analyst advised that the state would be required to "reimburse local governments for the cost of complying with 'state mandates.' 'State mandates' are requirements imposed on local governments by legislation or executive orders." Elsewhere the analysis repeats: "[T]he initiative would establish a requirement that the state provide funds to reimburse local agencies for the cost of complying with state mandates...."

The one ballot argument which made reference to [section 6](#), referred only to the "new program" provision, stating, "Additionally, this measure [¶] (1) will not allow the state government to force programs on local governments without the state paying for them."

2 The bill was approved by the Governor and filed with the Secretary of State on September 22, 1980. Prior to this, the Assembly gave unanimous consent to a request by the bill's author that his letter to the Speaker stating the intent of the Legislation be printed in the Assembly Journal. The letter stated: (1) that the Assembly Ways and Means Committee had recommended approval without appropriation on grounds that the increases were a result of changes in the cost of living that were not reimbursable under either [Revenue and Taxation Code section 2231](#), or article XIII B; (2) the Senate Finance Committee had rejected a motion to add an appropriation and had approved a motion to concur in amendments of the Conference Committee deleting any appropriation.

Legislative history confirms only that the final version of Assembly Bill 2750, as amended in the Assembly on April 16, 1986, contained no appropriation. As introduced on March 4, 1980, with a higher minimum salary of \$510 on which to base benefits, an unspecified appropriation was included.

3 The superior court consolidated another action by the County of Butte, Novato Fire Protection District, and the Galt Unified School District with that action. Neither those plaintiffs nor the County of San Bernardino are parties to the appeal.

- 4 The same section “recognized,” however, that a local agency “may pursue any remedies to obtain reimbursement available to it” under the statutes governing reimbursement for state-mandated costs in chapter 3 of the Revenue and Taxation Code, commencing with section 2201.
- 5 The court concluded that there was no legal or semantic difference in the meaning of the terms and considered the intent or purpose of the two provisions to be identical.
- 6 The Court of Appeal also considered the expression of legislative intent reflected in the letter by the author of Assembly Bill No. 2750 (see fn. 2, *ante*). While consideration of that expression of intent may have been proper in construing Assembly Bill No. 2750, we question its relevance to the proper construction of either [section 6](#), adopted by the electorate in the prior year, or of [Revenue and Taxation Code section 2207, subdivision \(a\)](#) enacted in 1975. (Cf. [California Employment Stabilization Com. v. Payne \(1947\) 31 Cal.2d 210, 213–214, 187 P.2d 702.](#)) There is no assurance that the Assembly understood that its approval of printing a statement of intent as to the later bill was also to be read as a statement of intent regarding the earlier statute, and it was not relevant to the intent of the electorate in adopting [section 6](#).
- The Court of Appeal also recognized that the history of Assembly Bill No. 2750 and Statutes 1982, chapter 922, which demonstrated the clear intent of the Legislature to omit any appropriation for reimbursement of local government expenditures to pay the higher benefits precluded reliance on reimbursement provisions included in benefit-increase bills passed in earlier years. (See e.g., Stats.1973, chs. 1021 and 1023.)
- 7 We infer that the intent of the Court of Appeal was to reverse the order denying the petition for writ of mandate and to order the superior court to grant the petition and remand the matter to the board with directions to set aside its order and reconsider the claim after making the additional findings. (See [Code Civ.Proc. § 1094.5](#), subd. (f).)
- 8 Pursuant to the 1972 and successor 1973 property tax relief statutes the Legislature had included appropriations in measures which, in the opinion of the Legislature, mandated new programs or increased levels of service in existing programs, (see, e.g., Stats.1973, ch. 1021, § 4, p. 2026; ch. 1022, § 2, p. 2027; Stats 1976, ch. 1017, § 9, p. 4597) and reimbursement claims filed with the State Board of Control pursuant to [Revenue and Taxation Code sections 2218–2218.54](#) had been honored. When the Legislature fails to include such appropriations there is no judicially enforceable remedy for the statutory violation notwithstanding the command of [Revenue and Taxation Code section 2231, subdivision \(a\)](#) that “[t]he state shall reimburse each local agency for all ‘costs mandated by the state,’ as defined in [Section 2207](#)” and the additional command of subdivision (b) that any statute imposing such costs “provide an appropriation therefor.” ([County of Orange v. Flourney \(1974\) 42 Cal.App.3d 908, 913, 117 Cal.Rptr. 224.](#))
- 9 Whether a constitutional provision which requires a supermajority vote to enact substantive legislation, as opposed to funding the program, may be validly enacted as a Constitutional amendment rather than through revision of the Constitution is an open question. (See [Amador Valley Joint Union High Sch. Dist. v. State Bd. of Equalization \(1978\) 22 Cal.3d 208, 228, 149 Cal.Rptr. 239, 583 P.2d 1281.](#))
- 10 The Court of Appeal reached a different conclusion in [City of Sacramento v. State of California \(1984\) 156 Cal.App.3d 182, 203 Cal.Rptr. 258](#), with respect to a newly enacted law requiring that all public employees be covered by unemployment insurance. Approaching the question as whether the expense was a “state mandated cost,” rather than as whether the provision of an employee benefit was a “program or service” within the meaning of the Constitution, the court concluded that reimbursement was required. To the extent that this decision is inconsistent with our conclusion here, it is disapproved.
- 11 Section 4: “The Legislature is hereby *expressly vested with plenary power, unlimited by any provision of this Constitution*, to create, and enforce a complete system of workers' compensation, by appropriate legislation, and in that behalf to create and enforce a liability on the part of any or all persons to compensate any or all of their workers for injury or disability, and their dependents for death incurred or sustained by the said workers in the course of their employment, irrespective of the fault of any party. A complete system of workers' compensation includes adequate provisions for the comfort, health and safety and general welfare of any and all workers and those dependent upon them for support to the extent of relieving from the consequences of any injury or death incurred or sustained by workers in the course of their employment, irrespective of the fault of any party; also full provision for securing safety in places of employment; full provision for such medical, surgical, hospital and other remedial treatment as is requisite to cure and relieve from the effects of such injury; full provision for adequate insurance coverage against liability to pay or furnish compensation; full provision for regulating such insurance coverage in all its aspects, including the establishment and management of a State compensation insurance fund; full provision for otherwise securing the payment of compensation; and full provision for vesting power, authority and jurisdiction in an administrative body with all the requisite governmental functions to determine any dispute or matter arising under such legislation, to the end that the administration of such legislation shall accomplish substantial justice in all cases expeditiously, inexpensively, and without encumbrance of any character; all

of which matters are expressly declared to be the social public policy of this State, binding upon all departments of the State government.

“The Legislature is vested with plenary powers, to provide for the settlement of any disputes arising under such legislation by arbitration, or by an industrial accident commission, by the courts, or by either, any, or all of these agencies, either separately or in combination, and may fix and control the method and manner of trial of any such dispute, the rules of evidence and the manner of review of decisions rendered by the tribunal or tribunals designated by it; provided that all decisions of any such tribunal shall be subject to review by the appellate courts of this State. The Legislature may combine in one statute all the provisions for a complete system of workers' compensation, as herein defined.

“The Legislature shall have power to provide for the payment of an award to the state in the case of the death, arising out of and in the course of the employment, of an employee without dependents, and such awards may be used for the payment of extra compensation for subsequent injuries beyond the liability of a single employer for awards to employees of the employer.

“Nothing contained herein shall be taken or construed to impair or render ineffectual in any measure the creation and existence of the industrial accident commission of this State or the State compensation insurance fund, the creation and existence of which, with all the functions vested in them, are hereby ratified and confirmed.” (Emphasis added.)

ATTACHMENT

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H

Court of Appeal, Third District, California.
Kathleen CONNELL, as Controller, etc., et al.,
Petitioners,

v.

SUPERIOR COURT of Sacramento County,
Respondent;
SANTA MARGARITA WATER DISTRICT et al.,
Real Parties in Interest.
No. C024295.

Nov. 20, 1997.

Review Denied Feb. 25, 1998.

Local water districts filed petitions for writ of mandate to enforce state Board of Control decision which found state regulation amendment increasing level of purity required for use of reclaimed wastewater in irrigation to constitute reimbursable state mandate. The Superior Court, Sacramento County, James Timothy Ford, J., granted petitions. State Controller and State Treasurer appealed. The Court of Appeal, Sims, J., held that: (1) although judgment was interlocutory, Court would exercise its discretion to treat appeal as writ petition in interest of justice and judicial economy; (2) even assuming elements of administrative collateral estoppel had been met, public-interest exception applied to allow review of question of law of whether recycled wastewater regulation constituted reimbursable state mandate; (3) water district statute on its face authorized local water districts to levy fees sufficient to pay costs of regulation amendment, which thus precluded entitlement of local water districts to reimbursement; and (4) statute precluding reimbursement was triggered by districts' power or right to levy fees sufficient to cover costs of state-mandated program regardless of their practical ability to do so.

Peremptory writ of mandate issued.

****232 *385** Daniel E. Lungren, Attorney General, Floyd D. Shimomura, Senior Assistant Attorney General, Linda A. Cabatic and Susan R. Oie, Deputy Attorneys General, for Petitioners.

No appearance for Respondent.

James A. Curtis, Nevada City, for Real Parties in Interest.

SIMS, Associate Justice.

This case involves a dispute as to whether a statewide regulatory amendment, increasing the level of purity required when reclaimed wastewater is used for certain types of irrigation, constitutes a state-mandated program for which water districts are entitled to reimbursement from the state. (Cal. Const., art. XIII B, § 6 [hereafter, ****233**section 6]; [FN1] Gov.Code, § 17500 et seq.; former Rev. & Tax.Code, § 2201 et seq.) The State Controller and State Treasurer appeal from a trial court judgment granting ***386** petitions for writ of mandate brought by Santa Margarita Water District (SMWD), Marin Municipal Water District, Irvine Ranch Water District and Santa Clara Valley Water District (the Districts), seeking to enforce a state Board of Control (the Board) decision which found the regulatory amendment constituted a reimbursable state mandate. [FN2] Appellants contend the trial court erred because (1) the amendment did not constitute a new program or higher level of service in an existing program; (2) the Districts' claim was abolished when the statutory basis for their claim-- former Revenue and Taxation Code section 2207--was repealed before their rights were reduced to final judgment, and (3) the Districts' authority to levy fees to pay for the increased costs defeats their claim of a reimbursable mandate. Appellants also challenge the trial court's determination that they were collaterally estopped from challenging the Board of Control's decision (finding a reimbursable state mandate) by their failure timely to seek judicial review of the administrative decision. We shall conclude the Districts' authority to levy fees defeats their claim of a reimbursable mandate, and appellants are not collaterally estopped from raising this matter. We therefore need not address the other contentions. Treating this appeal from a nonappealable judgment as an extraordinary writ petition, we shall direct the trial court to vacate its judgment and enter a new judgment denying the Districts' petitions.

FN1. Section 6 provides: "Whenever the Legislature or any state agency mandates a new program or higher level of service on any local government, the State shall provide a subvention of funds to reimburse such local government for the costs of such program or increased level of service, except that the Legislature may, but need not, provide such subvention of funds for the following mandates: [¶] (a) Legislative mandates requested by the local agency affected; [¶] (b) Legislation defining a new crime or changing an existing definition of a crime; or [¶] (c) Legislative mandates enacted prior to January 1, 1975, or executive orders or regulations initially implementing legislation enacted prior to January 1, 1975."

FN2. The trial court first held proceedings in the matter of the petition filed by Santa Margarita Water District. The other three water districts had filed petitions, which were consolidated and awaiting hearing. The parties to the consolidated case filed a stipulation indicating they did not wish to relitigate the entitlement issues already decided by Judge Ford in the Santa Margarita Water District case, and they stipulated to assignment of their cases to Judge Ford pursuant to California Rules of Court, rule 213 (assignment to one judge for all or limited purposes), for determination of amounts as to each district. The judgment expressly covers the petitions of all four districts.

FACTUAL AND PROCEDURAL BACKGROUND

In 1975, the State Department of Health Services (DHS) adopted regulations (Cal.Code Regs., tit. 22, §§ 60301-60357) implementing Water Code section 13521, which provides: "The State Department of Health Services shall establish uniform statewide recycling criteria for each varying type of use of recycled water where the use involves the protection of public health." Section 60313 [FN3] of the California Code of Regulations prescribed the level of purity required for reclaimed water to be used for landscape irrigation.

FN3. California Code of Regulations section 60313, initially provided: "Landscape Irrigation. Reclaimed water used for the irrigation of golf courses, cemeteries, lawns, parks, playgrounds, freeway landscapes, and landscapes in other areas where the public has access shall be at all times an adequately disinfected, oxidized wastewater. The wastewater shall be considered adequately disinfected if at some location in the treatment process the median number of coliform organisms does not exceed 23 per 100 milliliters, as determined from the bacteriological results of the last 7 days for which analyses have been completed." (Former section 60313 of Cal.Code Regs., tit. 22, Register 75. No. 14, Apr. 5, 1975.)

***387** In May 1976, SMWD adopted a plan to develop a wastewater reclamation system. In August 1976, SMWD filed an application with the responsible regional water quality control board (Water Control Board) for a permit to discharge wastewater from the proposed reclamation system. SMWD also planned to provide reclaimed water for irrigation, potentially to 2,173 acres of land.

****234** In February 1977, the Water Control Board issued SMWD a permit for operation of a reclamation system--the Oso Creek facility. The permit required SMWD to comply with all applicable wastewater reclamation regulations then in effect.

In late 1977, SMWD learned DHS might be considering modifications to the Title 22 regulations.

In August 1978, SMWD completed construction of the Oso Creek facility, at a cost of \$17 million.

In September 1978, DHS amended the regulations. The amendment to California Code of Regulations section 60313 [FN4] increased the level of purity required before reclaimed wastewater could be used for the irrigation of parks, playgrounds and school yards. It is this amendment which allegedly constituted a state-mandated cost. SMWD modified its facility to comply with the amended regulations, completing the modifications in 1983.

FN4. Section 60313 of California Code of

Regulations, title 22, as amended, provides: "(a) Reclaimed water used for the irrigation of golf courses, cemeteries, freeway landscapes, and landscapes in other areas where the public has similar access or exposure shall be at all times an adequately disinfected, oxidized wastewater. The wastewater shall be considered adequately disinfected if the median number of coliform organisms in the effluent does not exceed 23 per 100 milliliters, as determined from the bacteriological results of the last 7 days for which analyses have been completed, and the number of coliform organisms does not exceed 240 per 100 milliliters in any two consecutive samples.

"(b) Reclaimed water used for the irrigation of parks, playgrounds, schoolyards, and other areas where the public has similar access or exposure shall be at all times an adequately disinfected, oxidized, coagulated, clarified, filtered wastewater or a wastewater treated by a sequence of unit processes that will assure an equivalent degree of treatment and reliability. The wastewater shall be considered adequately disinfected if the median number of coliform organisms in the effluent does not exceed 2.2 per 100 milliliters, as determined from the bacteriological results of the last 7 days for which analyses have been completed, and the number of coliform organisms does not exceed 23 per 100 milliliters in any sample."

388** On October 1, 1982, SMWD filed a "test claim" [FN5] with the Board, alleging the regulatory amendment relating to the use of reclaimed wastewater constituted a new program or higher level of service. The test claim was made pursuant to former Revenue and Taxation Code section 2231, [FN6] which required reimbursement to local agencies for costs mandated by the state (see now Gov.Code, § 17561 [FN7]), and former Revenue and Taxation Code section 2207, subdivisions (a) and (b) [FN8] defining "costs mandated by the *235** state." (See now Gov.Code, § 17514. [FN9]) The test claim also cited section 6 (fn. 1, ante).

FN5. At the time in question, "test claim" meant "the first claim filed with the State Board of Control alleging that a particular

statute or executive order imposes a mandated cost on such local agency or school district." (Former Rev. & Tax.Code, § 2218, Stats.1980, ch. 1256, § 7, p. 4249.) "Estimated claims" and "reimbursement claims" were used to make specific demand against an appropriation made for the purpose of paying such claims. (*Ibid.*)

A similar structure, distinguishing between "test claims" and various "reimbursement claims" or "entitlement claims" continues presently in Government Code sections 17521-17522.

At the time in question, the statutory procedure provided that if the Board found a mandate, it did not determine the amount to be reimbursed to the test claimant; rather, the Board then adopted a statewide cost estimate which was reported to the Legislature. (Stats.1980, ch. 1256; Stats.1982, ch. 734.) It was the State Controller who determined specific amounts to be reimbursed, after the Legislature appropriated funds for that purpose. (*Ibid.*)

FN6. Former Revenue and Taxation Code section 2231 provided in part: "(a) The state shall reimburse each local agency for all 'costs mandated by the state,' as defined in Section 2207...." (Stats.1982, ch. 1586, § 3, p. 6264.)

FN7. Government Code section 17561 provides in part: "(a) The state shall reimburse each local agency and school district for all 'costs mandated by the state,' as defined in Section 17514...."

FN8. Former Revenue and Taxation Code section 2207 provided in part: "'Costs mandated by the state' means any increased costs which a local agency is required to incur as a result of the following: [¶] (a) Any law enacted after January 1, 1973, which mandates a new program or an increased level of service of an existing program; [¶] (b) Any executive order issued after January 1, 1973, which mandates a new program...." (Stats.1980, ch. 1256, § 4, pp. 4247-4248.)

The test claim did *not* invoke other subdivisions of section 2207, concerning

"(c) Any executive order issued after January 1, 1973, which (i) implements or interprets a state statute and (ii), by such implementation or interpretation, increases program levels above the levels required prior to January 1, 1973. [¶] ... [¶] (h) Any statute enacted after January 1, 1973, or executive order issued after January 1, 1973, which adds new requirements to an existing optional program or service and thereby increases the cost of such program or service if the local agencies have no reasonable alternatives other than to continue the optional program." (Stats.1980, ch. 1256, § 4, pp. 4247-4248.) Since these subdivisions were not invoked, we have no need to consider them.

FN9. Government Code section 17514 provides: " 'Costs mandated by the state' means any increased costs which a local agency or school district is required to incur after July 1, 1980, as a result of any statute enacted on or after January 1, 1975, or any executive order implementing any statute enacted on or after January 1, 1975, which mandates a new program or higher level of service of an existing program within the meaning of Section 6...."

***389** On July 28, 1983, the Board determined the amended regulations imposed state mandated costs. In so doing, the Board rejected the position of state agencies seeking denial of the claim on the ground that local agencies are not mandated to use reclaimed water and because, if local agencies do choose to use it, they can recover the cost in charges made to purchasers of the water.

On January 19, 1984, the Board adopted "Parameters and Guidelines" establishing criteria for payment of claims to water districts pursuant to this mandate. (Former Rev. & Tax.Code, § 2253.2, Stats.1982, ch. 734, § 10; Gov.Code, § 17557.)

On May 31, 1984, the Board amended its Parameters and Guidelines to provide for reimbursement of SMWD's cost of preparing and presenting the test claim.

In June 1984, the Board, pursuant to former Revenue

and Taxation Code section 2255, [FN10] submitted to the Legislature a statewide cost estimate of \$14 million for this mandate. The Legislature did not appropriate any funds for the mandate in 1984.

FN10. Former Revenue and Taxation Code section 2255 provided: "At least twice each calendar year the Board of Control shall report to the Legislature on the number of mandates it has found and the estimated statewide costs of such mandates. Such report shall identify the statewide costs estimated for each such mandate and the reasons for recommending reimbursement.... Immediately on receipt of such report a local governmental claims bill shall be introduced in the Legislature. The local government claims bill, at the time of its introduction, shall provide for an appropriation sufficient to pay the estimated costs of such mandates, pursuant to the provisions of this article." (Stats.1980, ch. 1256, § 20, p. 4255.)

The current provision is contained in Government Code section 17600, which provides: "At least twice each calendar year the commission shall report to the Legislature on the number of mandates it has found pursuant to Article 1 (commencing with Section 17550) and the estimated statewide costs of these mandates. This report shall identify the statewide costs estimated for each mandate and the reasons for recommending reimbursement."

In 1985, the Legislature included an appropriation of almost \$14 million for this state-mandated cost in the budget, but the Governor vetoed the appropriation.

In 1986, a bill including \$945,000 for the subject mandate was introduced, but the bill was not enacted.

On January 27, 1987, SMWD filed in the trial court a petition for writ of mandate pursuant to Code of Civil Procedure section 1085. The petition sought an order directing (1) the State Controller to issue a warrant "to pay the State's obligation to SMWD for its 'costs mandated by the state' " and (2) the State Treasurer to pay the Controller's warrant.

***390** At a hearing, the trial court upheld the Board's decision that the amended regulations required a higher level of service and held the doctrines of waiver and collateral estoppel applied to that decision, such that the state, by failing to challenge the Board's decision within the three-year statute of limitations, was barred from challenging it now. However, the trial court did allow the state to argue that the amended regulations did not come within the definition of "program," as that word had recently been defined in *County of Los Angeles v. State of California* (1987) 43 Cal.3d 46, 56, 233 Cal.Rptr. 38, 729 P.2d 202.

The trial court recognized that, since there was no appropriation for this mandate in the state budget, the court could not grant the relief sought by SMWD (an order directing the Controller to issue a warrant and the Treasurer to pay it) unless the court found ****236** the existence of funds reasonably available in the state budget which could be tapped for this purpose. The trial court stated it was not prepared to find the existence of funds reasonably available without a full evidentiary hearing. Rather than use the Board's statewide estimate, the court believed it needed to know the amount to which each water district would be entitled before it could determine whether there were funds reasonably available in the budget. The trial court ruled the exact amount of money to be reimbursed to the Districts had never been determined and referred the matter to a referee to make that determination.

In February 1989, a court-appointed referee began evidentiary hearings to determine the amount of reimbursement for each water district.

In 1989, the Legislature repealed former Revenue and Taxation Code section 2207 (fn. 8, *ante*), defining "costs mandated by the state." (Stats.1989, ch. 589, § 7.)

On July 29, 1994, appellants filed in the trial court a motion for judgment on the pleadings/motion to dismiss, arguing repeal of former Revenue and Taxation Code section 2207 destroyed any right to reimbursement and divested the court of jurisdiction to proceed. The motion also revisited the issue presented to and rejected by the Board, that the water districts' authority to levy fees defeated a finding that the costs were reimbursable.

In February 1995, the trial court issued its ruling denying appellants' motion for judgment on the pleadings and for dismissal. The court in its minute order determined repeal of former Revenue and Taxation Code section 2207 in 1989 had not destroyed the Districts' right to reimbursement pursuant to the Board's decision, because the Board's decision was reduced to "final judgment" before the statutory repeal. The court said the Board's ***391** decision on July 28, 1983, became final in July 1986, when the applicable three-year statute of limitations for seeking judicial review lapsed. The Board's decision therefore conclusively established the Districts' right to reimbursement, and appellants were collaterally estopped from challenging the Board's decision. The court further said no discernible injustice or public interest precluded this application of collateral estoppel; rather, justice would be furthered by allowing the Districts to enforce their right to reimbursement as established by the Board.

The trial court further said the statutory authority of the Districts to levy service charges and assessments (Former Rev. & Tax.Code, § 2253.2, subd. (b)(4), [FN11] Stats.1982, ch. 734, § 10, p. 2916; Gov.Code, § 17556 [FN12]) did not bar reimbursement for state-mandated costs. "When the Board determined that the 1978 amendment of the regulations establishing reclamation criteria imposed reimbursable state-mandated costs, it rejected the argument of the State Departments of Health Services and Finance that the costs were not reimbursable pursuant to former Revenue and Taxation Code section 2253(b)(4) and implicitly determined, in accordance with the presentation of [Santa Margarita Water District] that [the Districts] did not have sufficient authority to levy service charges and assessments to pay for the increased level of service mandated by the 1978 regulatory amendment. This implicit determination, resolving a mixture of legal and factual issues, became final and binding on respondents under the doctrine of collateral estoppel when they failed to seek judicial review of the Board's decision within the three-year limitations period."

FN11. At the time SMWD filed its test claim, former Revenue and Taxation Code section 2253.2 provided in part: "(b) The Board of Control shall not find a

(Cite as: 59 Cal.App.4th 382, 69 Cal.Rptr.2d 231)

reimbursable mandate ... in any claim submitted by a local agency ... if, after a hearing, the board finds that: ... [¶] (4) The local agency ... has the authority to levy service charges, fees or assessments sufficient to pay for the mandated program or level of service." (Stats.1982, ch. 734, § 10, p. 2916.)

FN12. Government Code section 17556 provides in part: "The [Commission on State Mandates (formerly the Board of Control)] shall not find costs mandated by the state, as defined in Section 17514, in any claim submitted by a local agency or school district if, after a hearing, the commission finds that: ... [¶] (d) The local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the mandated program or increased level of service."

****237** At a further hearing concerning the amount owed to each water district, the trial court stated it had erred in referring the matter to a referee and should have rendered a judgment directing the Controller to determine the amounts owed.

On June 3, 1996, the trial court entered a judgment stating (1) the Board's decision was final at the time the petitions were filed in the trial court; (2) ***392** the state mandate is a program for which reimbursement is due under *County of Los Angeles v. State of California, supra*, 43 Cal.3d 46, 233 Cal.Rptr. 38, 729 P.2d 202; (3) the court having concluded it was inappropriate for the court to determine amounts of reimbursement, the Controller was directed to make that determination. The court directed issuance of a writ commanding the Controller to determine the amounts due to the Districts.

Appellants appeal from the judgment.

The Districts filed a cross-appeal, but we dismissed the cross-appeal pursuant to stipulation of the parties.

DISCUSSION

I. *Appealability*

[1] Because the petition sought an order directing the

Controller to issue a warrant and the Treasurer to pay a warrant but the judgment merely ordered the Controller to determine amounts without disposing of those matters, and because the record reflected the trial court's recognition that it could not order issuance or payment of warrants unless it determined appropriated funds for such expenditures were reasonably available in the state budget [FN13] (*Carmel Valley Fire Protection Dist. v. State of California* (1987) 190 Cal.App.3d 521, 538-541, 234 Cal.Rptr. 795)--a determination requiring an evidentiary hearing which was not held--we requested supplemental briefing on the question whether the judgment was a final appealable judgment, as opposed to an interlocutory judgment.

FN13. The petition for writ of mandate alleged there was a continuously appropriated State Mandates Claims Fund upon which the Legislature had placed restrictions which on their face made the fund inapplicable to the mandate at issue in this case. The petition further alleged these restrictions were unconstitutional, such that upon a judicial declaration of their unconstitutionality, there would exist funds reasonably available to pay SMWD. The trial court made no ruling on these matters. In this appeal, we need not and do not decide the propriety of the remedy sought by the Districts.

An appealable judgment or order is a jurisdictional prerequisite to an appeal. (Code Civ. Proc., § 904.1; 9 Witkin, Cal. Procedure (4th ed. 1997) Appeal, §§ 13-14, pp. 72-73.)

[2] An interlocutory judgment is not appealable; generally, a judgment is interlocutory if anything further in the nature of judicial action on the part of the trial court is essential to a final determination of the rights of the parties. (*Lyon v. Goss* (1942) 19 Cal.2d 659, 669-670, 123 P.2d 11.)

In their supplemental briefs, both sides maintain the judgment is a final appealable judgment but for different reasons. Both sides are wrong.

***393** Appellants assert the judgment is final because nothing further remains to be done by the trial court. According to appellants, the Controller, after

determining what amounts are due, is supposed to submit that amount to the Legislature to appropriate the funds (though the judgment contains no such direction). Appellants assert that, if the Legislature does not appropriate the funds, the Districts' remedy would be to file a new action in the Superior Court to enforce the court's prior order, and to compel payment out of funds already appropriated and reasonably available for the expenditures. Appellants assert it is thus premature to consider whether appropriated funds are reasonably available to pay any reimbursement due.

The Districts' supplemental brief, while agreeing the judgment is a final appealable judgment, disputes appellants' view of what happens after the Controller determines the amounts. The Districts maintain the trial court intended for appellants to pay the amounts determined by the Controller, despite the judgment's failure so to state. The Districts claim the unresolved factual question of the existence of available appropriated ****238** funds in the budget is merely "an administrative detail" which need not be addressed by the court except in a proceeding to enforce the judgment in the event appellants refuse to pay.

Both sides are wrong. Nothing in the judgment requires the Controller to submit an appropriations bill to the Legislature, and appellants cite no authority that would require such a procedure--which would duplicate steps previously undertaken in this case without success. Nor does anything in the judgment call for issuance or payment of warrants. *Carmel Valley, supra*, 190 Cal.App.3d 521, 234 Cal.Rptr. 795--a case discussed in the trial court and on appeal--recognized that a court violates the separation of powers doctrine if it purports to compel the Legislature to appropriate funds, but no such violation occurs if the court orders payment from an existing appropriation. (*Id.* at pp. 538-539, 234 Cal.Rptr. 795.) Thus, the Districts' view of this matter as an administrative detail for a later postjudgment enforcement proceeding is unsupported.

We recognize this litigation arises from a "test claim," which merely determines whether a state-mandated cost exists. (See fn. 5, *ante.*) Perhaps no issue of payment should arise at all at the test claim stage, though neither side so argues.

In any event, the judgment plainly leaves matters undecided.

We conclude the judgment is interlocutory and therefore not appealable.

[3] Nevertheless, on our own motion, we shall exercise our discretion to treat the appeal as a writ petition and shall grant review on that basis. ***394**(*Morehart v. County of Santa Barbara* (1994) 7 Cal.4th 725, 743-744, 29 Cal.Rptr.2d 804, 872 P.2d 143 [treating appeal as writ petition is authorized means for obtaining review of interlocutory judgments].) We shall exercise our discretion to treat the appeal as a writ petition in the interest of justice and judicial economy, because the merits of the dispositive issues have been fully briefed, both sides urge review, and the judgment compels the Controller to engage in complex factfinding determinations which may be moot if the trial court erred on the merits of the mandate issues. Given the difficulties in discerning how the former statutory process of test claims was supposed to work in practice, we believe the interests of justice and judicial economy are best served by reviewing the judgment rather than dismissing the appeal.

We stress, however, that our review is limited to contentions raised in the briefs--which do not raise issues of the propriety of the remedy sought by the Districts. We express no view on whether the remedy sought by the Districts was an available or appropriate remedy.

II. Standard of Review

[4][5] In reviewing the trial court's ruling on a writ of mandate, the appellate court is ordinarily confined to an inquiry as to whether the findings and judgment of the trial court are supported by substantial evidence. (*Evans v. Unemployment Ins. Appeals Bd.* (1985) 39 Cal.3d 398, 407, 216 Cal.Rptr. 782, 703 P.2d 122.) However, where the facts are undisputed and the issues present questions of law, the appellate court is not bound by the trial court's decision but may make its own determination. (*Ibid.*)

III. Collateral Estoppel

We first address the trial court's determination that appellants were collaterally estopped from challenging the Board's determination of state-mandated cost (except for the ability to address the effect of a new Supreme Court case defining "program"). The trial court stated the Board's decision became final for collateral estoppel purposes in July 1986, when the statute of limitations for judicial review expired.

Appellants contend the trial court erred in applying collateral estoppel, because there was no "final judgment" for collateral estoppel purposes, since the amount of reimbursement had yet to be determined.

We conclude it is not necessary to decide the parties' dispute as to whether the requirements of administrative collateral estoppel are met, because even assuming the elements are met, the doctrine of collateral ****239** estoppel should be disregarded pursuant to the public interest exception.

***395** Thus, our Supreme Court declined to apply collateral estoppel in a state-mandated costs case in *City of Sacramento v. State of California* [*Sacramento II*] (1990) 50 Cal.3d 51, 64-65, 266 Cal.Rptr. 139, 785 P.2d 522. There, a city and a county filed claims with the Board seeking subvention of costs imposed by a statute (Stats.1978, ch. 2, p. 6 et seq. referred to in *Sacramento II* as "chapter 2/78") which extended mandatory coverage under the state unemployment insurance law to include state and local governments. The Board found there was no state-mandated program and denied the claims. On mandamus, the trial court overruled the Board and found the costs reimbursable. We affirmed the trial court in a published opinion. (*City of Sacramento v. State of California* [*Sacramento I*] (1984) 156 Cal.App.3d 182, 203 Cal.Rptr. 258.) On remand, the Board determined the amounts due on the claims, but the Legislature refused to appropriate the necessary funds. The city filed a class action seeking among other things payment of the state-mandated costs. The trial court granted summary judgment for the state on the grounds the statute did not impose state-mandated costs. The Supreme Court upheld the trial court's decision.

The Supreme Court in *Sacramento II* rejected the local agencies' argument that the state was

collaterally estopped from relitigating the issue whether a state-mandated cost existed, because *Sacramento I* "finally" decided the matter. (*Sacramento II, supra*, 50 Cal.3d at p. 64, 266 Cal.Rptr. 139, 785 P.2d 522.) The Supreme Court said: "Generally, collateral estoppel bars the party to a prior action, or one in privity with him, from relitigating issues finally decided against him in the earlier action. [Citation.] '... But when the issue is a question of law rather than of fact, the prior determination is not conclusive either if injustice would result or if the public interest requires that relitigation not be foreclosed....' [Citation.]

"Even if the formal prerequisites for collateral estoppel are present here, the public-interest exception governs. Whether chapter 2/78 costs are reimbursable under article XIII B and parallel statutes constitutes a pure question of law. The *state* was the losing party in *Sacramento I*, and also the only entity legally affected by that decision. Thus, strict application of collateral estoppel would foreclose any reexamination of the holding of that case. The state would remain bound, and no other person would have occasion to challenge the precedent.

"Yet the consequences of any error transcend those which would apply to mere private parties. If the result of *Sacramento I* is wrong but unimpeachable, taxpayers statewide will suffer unjustly the consequences of the state's continuing obligation to fund the chapter 2/78 costs of local agencies...." (*Sacramento II, supra*, 50 Cal.3d at p. 64, 266 Cal.Rptr. 139, 785 P.2d 522, original italics.)

***396** The Supreme Court also rejected the argument that res judicata applied. "Of course, res judicata and the rule of final judgments bar us from disturbing individual claims or causes of action, on behalf of specific agencies, which have been finally adjudicated and are no longer subject to review. [Citations.] However, the issues presented in the current action are not limited to the validity of any such finally adjudicated individual claims. Rather, they encompass the question of defendants' subvention obligations *in general* under chapter 2/78." (*Sacramento II, supra*, 50 Cal.3d at p. 65, 266 Cal.Rptr. 139, 785 P.2d 522, original italics.)

[6] If this court's opinion finding a reimbursable mandate in *Sacramento I* did not constitute a final

adjudication precluding further consideration of the matter, a fortiori the Board's decision in the instant case does not constitute a final adjudication precluding further consideration. Thus, here, as in *Sacramento II*, the issues presented are not limited to the validity of any finally adjudicated individual claim, but encompass the question of subvention obligations in general under the regulatory amendment of wastewater purification standards. If the Board's decision is wrong but unimpeachable, taxpayers statewide would suffer unjustly the consequences of a continuing obligation to fund the costs of local water districts. We reject the Districts' argument that no public interest **240 exists in this case because only a few local entities are involved.

The Districts suggest application of the public interest exception to collateral estoppel would nullify the legislative intent to avoid multiple proceedings by creating a comprehensive and exclusive procedure for handling state mandated costs issues in the administrative forum. (E.g., Gov.Code, § 17500. [FN14]) However, we are bound by Supreme Court authority applying the public interest exception in a state-mandated costs case. *397(*Auto Equity Sales, Inc. v. Superior Court* (1962) 57 Cal.2d 450, 20 Cal.Rptr. 321, 369 P.2d 937.) Moreover, contrary to the Districts' implication, the administrative decision is not the final word; the statutory scheme authorizes judicial review of the administrative decision. (Gov.Code, § 17559; former Rev. & Tax.Code, § 2253.5, Stats.1977, ch. 1135, § 12, p. 3650.) Additionally, the instant judicial proceeding was initiated by the Districts, not by appellants. Thus, in this case application of the public interest exception to collateral estoppel is not creating multiple proceedings.

FN14. Government Code section 17500 provides in part: "The Legislature finds and declares that the existing system for reimbursing local agencies ... for the costs of state-mandated local programs has not provided for the effective determination of the state's responsibilities under Section 6.... The Legislature finds and declares that the failure of the existing process to adequately and consistently resolve the complex legal questions involved in the determination of state-mandated costs has led to an increasing reliance by local agencies and school

districts on the judiciary and, therefore, in order to relieve unnecessary congestion of the judicial system, it is necessary to create a mechanism which is capable of rendering sound quasi-judicial decisions and providing an effective means of resolving disputes over the existence of state-mandated local programs. [¶] It is the intent of the Legislature in enacting this part to provide for the implementation of Section 6 ... and to consolidate the procedures for reimbursement of statutes specified in the Revenue and Taxation Code with those identified in the Constitution. Further, the Legislature intends that the Commission on State Mandates, as a quasi-judicial body, will act in a deliberative manner in accordance with the requirements of Section 6...."

In light of the Supreme Court's decision in *Sacramento II*, we disregard earlier authority of an intermediate appellate court which applied administrative collateral estoppel to a question of law in a state-mandated costs case without express discussion of the public interest exception. (*Carmel Valley, supra*, 190 Cal.App.3d at p. 536, 234 Cal.Rptr. 795.)

We conclude that, insofar as appellants' contentions present questions of law, the public interest exception to administrative collateral estoppel governs, and we shall therefore address the legal arguments raised in appellants' brief.

IV. *Authority To Levy Fees*

Appellants contend that, even if the regulatory amendment is a new program for state mandated costs purposes, the water districts' authority to levy fees defeats a determination that the costs are reimbursable. We agree.

At the time SMWD filed its test claim, former Revenue and Taxation Code section 2253.2 provided in part:

"(b) The Board of Control shall not find a reimbursable mandate, pursuant to either Section 2250 of this code or to Section 905.2 of the Government Code, in any claim submitted by a local

agency or school district, pursuant to subdivision (a) of Section 2218, if, after a hearing, the board finds that:

"....

"(4) The local agency or school district has the authority to levy service charges, fees or assessments sufficient to pay for the mandated program or level of service." [FN15] (Stats.1982, ch. 734, § 10, p. 2917; Stats.1980, ch. 1256, § 15, pp. 4253-4254.)

FN15. This case presents no issue concerning any distinction between "service charges, fees or assessment," as used in the statute. The parties on appeal frame the issue in terms of the authority to levy "fees." We adopt their usage for the sake of simplicity.

*398 The same provision is currently contained in Government Code section 17556. [FN16]

FN16. Government Code section 17556 provides in part: "The commission [formerly the Board] shall not find costs mandated by the state, as defined in Section 17514, in any claim submitted by a local agency or school district, if, after a hearing, the commission finds that: ... [¶] (d) The local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the mandated program or increased level of service...."

**241 The facial constitutionality of this provision was upheld in *County of Fresno v. State of California* (1991) 53 Cal.3d 482, 280 Cal.Rptr. 92, 808 P.2d 235. The *Fresno* court rejected an argument that the statute was facially unconstitutional as conflicting with section 6 (fn. 1, *ante*), which contains no exclusion of reimbursement where the local agency has authority to levy fees. Section 6 requires subvention only when the costs in question can be recovered solely from tax revenues. (*Id.* at p. 487, 280 Cal.Rptr. 92, 808 P.2d 235.) Government Code section 17556, subdivision (d), "effectively construes the term 'costs' in the constitutional provision as excluding expenses that are recoverable from sources other than taxes. Such a construction is altogether sound." (*County of Fresno v. State of California, supra*, 53 Cal.3d at p. 487, 280 Cal.Rptr. 92, 808

P.2d 235.)

Here, appellants contend that, at all pertinent times, the water districts have had *authority* to levy fees to cover the costs at issue in this case. They cite provisions such as Water Code section 35470, which provides: "Any district formed on or after July 30, 1917, may, in lieu in whole or in part of raising money for district purposes by assessment, make water available to the holders of title to land or the occupants thereon, and may fix and collect charges therefor. The charges may include standby charges to holders of title to land to which water may be made available, whether the water is actually used or not. The charges may vary in different months and in different localities of the district to correspond to the cost and value of the service, and the district may use so much of the proceeds of the charges as may be necessary to defray the ordinary operation or maintenance expenses of the district and for any other lawful district purpose."

[7] We agree this statute on its face authorizes the Districts to levy fees sufficient to pay the costs involved with the regulatory amendment. We thus shall conclude the Board erred in finding a right to reimbursement despite this authority to levy fees, and we shall conclude appellants are not collaterally estopped from pressing this point.

The Districts do not dispute they have authority to levy fees for the costs involved in this case. Instead they argue the real issue is whether they had *399 "sufficient" authority. They claim this issue was a mixed question of law and fact, and appellants should be collaterally estopped from raising it. [FN17]

FN17. The Districts assert appellants are relying on evidence that was not before the Board. However, they do not explain what they mean or give us any reference to appellants' brief. We therefore disregard the assertion.

We agree with appellants that the public interest exception to collateral estoppel should be applied here, because the issue presents a pure question of law. The Districts tried to make it a factual issue, but we shall explain why the facts presented by the District were immaterial.

Thus, in proceedings before the Board (where Water Code section 35470 was cited to the Board by state agencies), SMWD did not argue it lacked "authority" to levy fees for this purpose. Instead, SMWD argued and presented evidence that it would not be economically desirable to do so. SMWD submitted declarations stating that rates necessary to cover the increased costs would render the reclaimed water unmarketable and would encourage users to switch to potable water. SMWD maintained that imposition of higher fees on users would contravene the legislative policy expressed in Water Code section 13512, which directs the state to undertake all possible steps to encourage development of wastewater reclamation facilities.

The Board made no express finding concerning this issue. The record contains only the Board minutes, which reflect a motion was made "To find a mandate and continue the issue regarding the claimant's ability to levy a service charge, to the parameters and guidelines process." There was no second to the motion. A motion was then made to find the regulatory amendment contained a reimbursable mandate. The motion carried. The minutes then state: "Discussion: Chairperson Yost disagreed with the motion as she felt the claimant could recover their costs by levying a service charge...." The Board's Parameters and Guidelines stated in part: ****242** "If service charges or assessments were levied to defray the cost of the new criteria, the claim must be reduced by the amount received from such charges or assessment."

In proceedings before the trial court, SMWD admitted the district had the authority to levy fees but argued existence of authority was not enough, and the real question was whether it was economically feasible to levy fees sufficient to pay the mandated costs. Thus, SMWD's counsel stated at the hearing in the trial court: "The state keeps focusing on the question of whether the authority to issue, to assess fees and charges exists, and we have never contested that it didn't.

"But the statute which says that the Board cannot find the existence of a mandate if there's authority to assess fees and charges, and then the critical ***400** phrase, 'sufficient to pay for the mandated costs,' that's the condition with [sic] which they cannot satisfy.

"We proved that, the Board of Control hearing, through economic evidence. We proved it through testimony that the market was absolutely inelastic in terms of reclaimed water and potable water, that if you raise the price of reclaimed water over the potable water, that people would then buy the potable water, and that's all in the record.

"And so we showed that even though we have the authority, it was not sufficient to pay...."

We note the record also reflects comments by SMWD's counsel to the trial court, that its customers were paying the increased costs as an "advance" against the state's obligation. The court pointed out users' payment of increased costs disproved the economic evidence SMWD had presented to the Board, that it could not raise its prices without losing its customers. The record also contains indications that the Districts funded the increased costs by diverting money from other sources. As will appear, we need not address this evidence, because it is not relevant to the question of authority to levy fees sufficient to fund the increased costs imposed by the regulatory amendment, which is a question of law in this case.

The trial court's minute order stated the districts' authority to levy fees did not bar reimbursement for state-mandated costs, because the Board "implicitly determined" the districts did not have "sufficient" authority to levy fees to pay for the increased service mandated by the 1978 regulatory amendment, and this "implicit determination, resolving a mixture of legal and factual issues, became final and binding on [appellants] under the doctrine of collateral estoppel when they failed to seek judicial review of the Board's decision within the three-year limitations period."

On appeal, appellants argue the sole inquiry is whether the local agency has "authority" to levy fees sufficient to pay the costs, and it does not matter whether the local agency, for economic reasons, finds it undesirable to exercise that authority. Appellants argue this presents a question of law, such that the public interest exception to collateral estoppel would apply (assuming the requirements of collateral estoppel are otherwise met).

[8][9] We agree with appellants. In construing statutes, our primary task is to determine the lawmakers' intent. (*Brown v. Kelly Broadcasting Co.* (1989) 48 Cal.3d 711, 724, 257 Cal.Rptr. 708, 771 P.2d 406.) To determine intent, we look first to the words themselves. (*Ibid.*) "If the language is clear *401 and unambiguous there is no need for construction, nor is it necessary to resort to indicia of the intent of the Legislature...." (*Lungren v. Deukmejian* (1988) 45 Cal.3d 727, 735, 248 Cal.Rptr. 115, 755 P.2d 299.)

[10] Here, the statute is clear and unambiguous. On its face the statute precludes reimbursement where the local agency has "authority" to levy fees sufficient to pay for the mandated program or level of service. The legal meaning of "authority" includes the "Right to exercise powers; ..." (Black's Law Dictionary (6th ed.1990) p. 133.) The lay meaning of "authority" includes "the power or right to give commands [or] take action...." (Webster's New World Dictionary (3d college ed.1988) p. 92.) Thus, when we commonly ask whether a police officer has the "authority" to arrest a suspect, we want to know whether the officer has the legal **243 sanction to effect the arrest, not whether the arrest can be effected as a practical matter.

Thus, the plain language of the statute precludes reimbursement where the local agency has the authority, i.e., the right or the power, to levy fees sufficient to cover the costs of the state-mandated program.

The Districts in effect ask us to construe "authority," as used in the statute, as a practical ability in light of surrounding economic circumstances. However, this construction cannot be reconciled with the plain language of the statute and would create a vague standard not capable of reasonable adjudication. Had the Legislature wanted to adopt the position advanced by the Districts, it would have used "reasonable ability" in the statute rather than "authority."

The question is whether the Districts have authority, i.e., the right or power, to levy fees sufficient to cover the costs. The Districts clearly have authority to levy fees sufficient to cover the costs at issue in this case. Water Code section 35470 authorizes the levy of fees to "correspond to the cost and value of the

service," and the fees may be used "to defray the ordinary operation or maintenance expenses of the district and for any other lawful district purpose." The Districts do not demonstrate that anything in Water Code section 35470 limits the authority of the Districts to levy fees "sufficient" to cover their costs.

Thus, the economic evidence presented by SMWD to the Board was irrelevant and injected improper factual questions into the inquiry.

On appeal, the Districts briefly argue economic undesirability of levying fees constitutes a lack of authority to levy fees sufficient to cover costs. They claim the evidence before the Board showed SMWD "could not" *402 increase its fees because it was already charging as much for reclaimed as it was for potable water. However, the cited portion of the record does not show SMWD "could not" increase its fees but only that an increase would render reclaimed water unmarketable and encourage users to switch to potable water. The Districts cite no authority supporting their construction of former Revenue and Taxation Code section 2253.2 (now Gov.Code, § 17556) that *authority* to levy fees sufficient to cover costs turns on economic feasibility. We have seen the plain language of the statute defeats the Districts' position.

Since the issue in this case presented a question of law, we conclude the public interest exception to collateral estoppel applies. (*Sacramento II, supra*, 50 Cal.3d at p. 64, 266 Cal.Rptr. 139, 785 P.2d 522.)

The Districts argue application of the public interest exception in this case raises policy concerns about the finality of administrative decisions on state-mandated costs, because if collateral estoppel does not apply in this case, it will never apply. However, we merely hold, in accordance with Supreme Court pronouncement, that the public interest exception to collateral estoppel applies under the circumstances of this case to this state-mandated cost issue which presents solely a question of law.

The Districts argue any fees levied by the districts "cannot exceed the cost to the local agency to provide such service," because such excessive fees would constitute a special tax. However, the districts fail to explain how this is an issue. No one is suggesting the districts levy fees that exceed their costs.

The Districts cite evidence presented to the referee in the aborted hearing to determine amounts owed to each District, that SMWD's Director of Finance testified SMWD has other sources of revenue from other services it provides (such as sewer service), maintains separate accounts, and borrowed funds internally from other accounts to cover costs incurred as a result of the subject mandate. The Districts assert this testimony reflects that SMWD "recognized the legal limitations on its authority to impose fees for the services that it provides." However, nothing in this evidence demonstrates any legal limitations on the authority to levy the necessary fees.

The Districts say appellants appear to believe the Districts should require users of other services to subsidize the Districts' cost of reclaiming and selling wastewater, through excessive user fees. However, we do not read appellants' brief as presenting ****244** any such argument and in any event do not base our decision on that ground.

***403** In a footnote, the districts make the passing comment: "In light of the adoption of Proposition 218, which added Articles XIII C and XIII D to the California Constitution this past November [1996], the authority of local agencies to recover costs for many services will be impacted by the requirement to secure the approval by majority vote of the property owners voting, to levy or to increase property related fees. See Section 6, Article XIII D." The districts do not contend that the services at issue in this appeal are among the "many services" impacted by Proposition 218. We therefore have no need to consider what effect, if any, Proposition 218 might have on the issues in this case.

We conclude the districts were not entitled to reimbursement of state-mandated costs, because they had authority to levy fees sufficient to pay for the level of service mandated by the 1978 regulatory amendment. Appellants were not collaterally estopped from raising this issue in the trial court. We thus conclude the Districts' mandamus petitions should have been denied. We therefore need not address appellants' contentions that (1) the regulatory amendment did not constitute a new program or higher level of service, or (2) any right to reimbursement was abolished upon repeal of former Revenue and Taxation Code section 2207.

DISPOSITION

Let a peremptory writ of mandate issue, directing the trial court to vacate its judgment and enter a new judgment denying the Districts' petitions for writ of mandate. Appellants shall recover their costs on appeal.

PUGLIA, P.J., and NICHOLSON, J., concur.

•SANTA MARGARITA WATER DISTRICT; Irvine Ranch Water District; Marin Municipal Water District; Santa Clara Valley Water District, Respondents and Cross-Appellants, v. STATE CONTROLLER, et al, Appellants and Cross-Respondents., 1997 WL 33560339 (Appellate Brief) (Cal.App. 3 Dist. January 10, 1997), Appellants' Opening Brief

•SANTA MARGARITA WATER DISTRICT; Irvine Ranch Water District; Marin Municipal Water District; Santa Clara Valley Water District, Respondents and Cross-Appellants, v. STATE CONTROLLER, et al., Appellants and Cross-Respondents., 1997 WL 33560175 (Appellate Brief) (Cal.App. 3 Dist. April 14, 1997), Respondents' Brief

•SANTA MARGARITA WATER DISTRICT; Irvine Ranch Water District; Marin Municipal Water District; Santa Clara Valley Water District, Respondents, v. STATE CONTROLLER, et al., Appellants., 1997 WL 33559969 (Appellate Brief) (Cal.App. 3 Dist. June 4, 1997), Appellants' Reply Brief

59 Cal.App.4th 382, 69 Cal.Rptr.2d 231, 97 Cal. Daily Op. Serv. 8821, 97 Daily Journal D.A.R. 14,255

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ATTACHMENT

14

188 Cal.App.4th 794

Court of Appeal, Third District, California.

CLOVIS UNIFIED SCHOOL DISTRICT

et al., Plaintiffs and Appellants,

v.

John CHIANG, as State Controller,

etc., Defendant and Appellant.

No. Co61696.

Sept. 21, 2010.

As Modified on Denial of Rehearing Oct. 14, 2010.

Synopsis

Background: School districts and community college districts brought action against State Controller's Office for declaratory and writ relief challenging auditing rules used in reducing state-mandated reimbursement claims for employee salary and benefit costs. The Superior Court, Sacramento County, No. 06CS00748 and 07CS00263, [Lloyd G. Connelly, J.](#), invalidated the Contemporaneous Source Document Rule (CSDR) as applied to Intradistrict Attendance Program and Collective Bargaining Program, granted no relief as to CSDR as applied to the School District of Choice Program (SDC) and the Emergency Procedures, Earthquake Procedures and Disasters Program (EPEPD), and upheld the Health Fee Rule. Plaintiffs appealed.

Holdings: The Court of Appeal, [Butz, J.](#), held that:

[1] CSDR implemented, interpreted, or made specific the regulatory Parameters and Guidelines (P&Gs) applied to state-mandated reimbursement claims;

[2] declaratory and traditional mandate relief was appropriate form of relief for use of CSDR as underground regulation; and

[3] amount of optional student fee was deducted from amount reimbursed to community college districts for state-mandated costs.

Reversed in part with directions and affirmed in part.

West Headnotes (14)

[1] Declaratory Judgment

🔑 [Limitations and laches](#)

Mandamus

🔑 [Time to Sue, Limitations, and Laches](#)

States

🔑 [State expenses and charges and statutory liabilities](#)

School districts' and community college districts' action against State Controller's Office, for declaratory and writ relief challenging audits that reduced state-mandated reimbursement claims for employee salary and benefit costs based on an auditing rule which was an invalid underground regulation in violation of the state Administrative Procedure Act (APA), was subject to the three-year statute of limitations for lawsuits based on statutory liability, since state-mandated reimbursement was a statutory liability. [West's Ann.Cal.C.C.P. § 338\(a\)](#); [West's Ann.Cal.Gov.Code §§ 11340 et seq., 17500 et seq.](#)

[1 Cases that cite this headnote](#)

[2] Administrative Law and Procedure

🔑 [Nature and Scope](#)

An Administrative Procedure Act (APA) regulation has two principal characteristics: it must apply generally; and it must implement, interpret, or make specific the law enforced or administered by the agency, or govern the agency's procedure. [West's Ann.Cal.Gov.Code § 11342.600](#).

[1 Cases that cite this headnote](#)

[3] Administrative Law and Procedure

🔑 [Nature and Scope](#)

For a regulation to “apply generally,” as required to be subject to the Administrative Procedure Act (APA), the rule need not apply universally; a rule applies generally so long

as it declares how a certain class of cases will be decided. [West's Ann.Cal.Gov.Code § 11342.600](#).

[Cases that cite this headnote](#)

[4] States

[🔑 Administration of finances in general](#)

State Controller's Office's Contemporaneous Source Document Rule (CSDR) applied generally, as required to be a regulation subject to the Administrative Procedure Act (APA), where the CSDR was applied generally to the auditing of reimbursement claims, and the Controller's auditors had no discretion to judge on a case-by-case basis whether to apply the CSDR. [West's Ann.Cal.Gov.Code § 11342.600](#).

[Cases that cite this headnote](#)

[5] States

[🔑 State expenses and charges and statutory liabilities](#)

State Controller's Office's Contemporaneous Source Document Rule (CSDR) implemented, interpreted, or made specific the regulatory Parameters and Guidelines (P&Gs) applied to state-mandated reimbursement claims for the School District of Choice (SDC) Program in effect before May 27, 2004, and thus was a regulation subject to the Administrative Procedure Act (APA), since there were substantive differences between the CSDR and the P&Gs then in effect; the CSDR barred the use of employee time declarations and certifications as source documents or equivalents even though the P&Gs had nothing to say on that subject, and the CSDR did not countenance the use of documented estimates even though such estimates were allowable under the P&Gs. [West's Ann.Cal.Gov.Code §§ 11342.600, 17557, 17558.5\(a\)](#); [West's Ann.Cal.Educ.Code § 48209.9](#) (Repealed).

[Cases that cite this headnote](#)

[6] States

[🔑 State expenses and charges and statutory liabilities](#)

State Controller's Office's Contemporaneous Source Document Rule (CSDR) implemented, interpreted, or made specific the regulatory Parameters and Guidelines (P&Gs) applied to state-mandated reimbursement claims for the Emergency Procedures, Earthquake Procedures and Disasters Program (EPEPD), and thus was a regulation subject to the Administrative Procedure Act (APA), since there were substantive differences between the CSDR and the P&Gs then in effect; unlike the P&Gs, the CSDR barred the use of employee time declarations and certifications as source documents, and the CSDR did not countenance the use of documented estimates. [West's Ann.Cal.Gov.Code §§ 11342.600, 17557, 17558.5\(a\)](#); [West's Ann.Cal.Educ.Code §§ 35925–35927, 40041.5, 40042](#) (Repealed).

[Cases that cite this headnote](#)

[7] States

[🔑 State expenses and charges and statutory liabilities](#)

State Controller's Office's Contemporaneous Source Document Rule (CSDR) implemented, interpreted, or made specific the regulatory Parameters and Guidelines (P&Gs) applied to state-mandated reimbursement claims for the Intradistrict Attendance Program, and thus was a regulation subject to the Administrative Procedure Act (APA), since there were substantive differences between the CSDR and the P&Gs then in effect; unlike the P&Gs, the CSDR barred the use of time studies or employee time declarations and certifications as source documents. [West's Ann.Cal.Gov.Code §§ 11342.600, 17557, 17558.5\(a\)](#); [West's Ann.Cal.Educ.Code § 35160.5](#).

[Cases that cite this headnote](#)

[8] States

🔑 [State expenses and charges and statutory liabilities](#)

State Controller's Office's Contemporaneous Source Document Rule (CSDR) implemented, interpreted, or made specific the regulatory Parameters and Guidelines (P&Gs) applied to state-mandated reimbursement claims for the school district Collective Bargaining Program, and thus was a regulation subject to the Administrative Procedure Act (APA), since there were substantive differences between the CSDR and the P&Gs then in effect; unlike the P&Gs, the CSDR required source documents. [West's Ann.Cal.Gov.Code §§ 3540 et seq., 11342.600, 17557, 17558.5\(a\)](#).

[1 Cases that cite this headnote](#)

[9] **Declaratory Judgment**

🔑 [State officers and boards](#)

Declaratory Judgment

🔑 [Education](#)

Mandamus

🔑 [Establishment, maintenance, and management of schools](#)

Declaratory and accompanying traditional mandate relief was an appropriate form of relief, for school districts' challenge to State Controller's Office's policy of using an underground regulation to conduct audits in violation of the Administrative Procedure Act (APA), even though the underground regulation was later incorporated into valid regulations, where the dispute related to audit determinations under the invalid regulation which did not become final prior to the applicable statute of limitations, and there was no adequate administrative remedy because the Commission on State Mandates consistently refused to rule on underground regulation claims. [West's Ann.Cal.Gov.Code § 11350](#).

[2 Cases that cite this headnote](#)

[10] **Evidence**

🔑 [Administrative rules and regulations](#)

In appeal from trial court's partial grant of declaratory and writ relief against underground regulations used by State Controller's Office in reducing state-mandated reimbursement claims for employee salary and benefit costs, Court of Appeal would not take judicial notice of a subsequent amendment of the regulatory Parameters and Guidelines (P&Gs) applied to the reimbursement claims, which brought the underground regulations into compliance with the Administrative Procedure Act (APA) after the time period at issue in the lawsuit. [West's Ann.Cal.Gov.Code §§ 11340 et seq., 17500 et seq.](#)

[Cases that cite this headnote](#)

[11] **Evidence**

🔑 [Official proceedings and acts](#)

In appeal from trial court's partial grant of declaratory and writ relief against underground regulations used by State Controller's Office in reducing school districts' and community college districts' state-mandated reimbursement claims for employee salary and benefit costs, Court of Appeal would not take judicial notice of the Commission on State Mandates Incorrect Reduction Claim caseload summary or the Controller's list of final audit reports for California school districts and community college districts. [West's Ann.Cal.Gov.Code § 17558.7\(a\)](#).

[1 Cases that cite this headnote](#)

[12] **States**

🔑 [State expenses and charges and statutory liabilities](#)

Under the statutes requiring reimbursement to local government for state-mandated costs, the amount of an optional student health fee was deducted from the amount reimbursed to community college districts for the state-mandated cost of the Health Fee Elimination Program, even when districts chose not to charge their students those fees. [West's](#)

[Ann.Cal.Gov.Code §§ 17514, 17556\(d\)](#); [West's Ann.Cal.Educ.Code § 76355\(a\)\(1\)](#); § 72246 (Repealed).

See Cal. Jur. 3d, State of California, § 104; 9 Witkin, Summary of Cal. Law (10th ed. 2005) Taxation, § 121.

[Cases that cite this headnote](#)

[13] States

 [State expenses and charges and statutory liabilities](#)

To the extent a local agency or school district has the authority to charge for a state-mandated program or increased level of service, that charge cannot be recovered as a state-mandated cost. [West's Ann.Cal. Const. Art. 13B, § 6](#); [West's Ann.Cal.Gov.Code §§ 17514, 17556\(d\)](#).

[Cases that cite this headnote](#)

[14] States

 [State expenses and charges and statutory liabilities](#)

State Controller's Office had the authority to rely on the Government Code, rather than only on the Parameters and Guidelines (P&Gs) adopted by the Commission on State Mandates, to uphold an audit rule excluding the amount of optional fees from the amount recoverable as state-mandated costs. [West's Ann.Cal.Gov.Code §§ 17514, 17556\(d\)](#).

[Cases that cite this headnote](#)

Attorneys and Law Firms

****36** [Lozano Smith, Gregory A. Wedner and Sloan R. Simmons](#), Sacramento, for Plaintiffs and Appellants.

[Richard L. Hamilton](#) for California School Boards Association and Its Education Legal Alliance, as Amicus Curiae on behalf of Plaintiffs and Appellants Clovis Unified School District, Fremont Unified School District, Newport–Mesa Unified School District, Norwalk–La

Mirada Unified School District, Riverside Unified School District, San Juan Unified School District and Sweetwater Union High School District.

Edmund G. Brown, Jr., Attorney General, [Jonathan K. Renner](#), Assistant Attorney General, [Douglas J. Woods](#) and [Kathleen A. Lynch](#), Deputy Attorneys General, for Defendant and Appellant.

Opinion

BUTZ, J.

***797** This declaratory relief and writ of mandate action concerns the validity of two auditing rules used by defendant State Controller's Office (Controller). The Controller used these rules in reducing state-mandated reimbursement claims for employee salary and benefit costs submitted from plaintiff school districts and community college districts (hereafter plaintiffs).

Contemporaneous Source Document Rule (CSDR)

The first auditing rule is referred to by plaintiffs as the Contemporaneous Source Document Rule (CSDR). The Controller used this rule to reduce reimbursement claims for the following four state-mandated school district programs during the challenged period straddling fiscal years 1998 to 2003: (1) the School District of Choice Program (SDC); (2) the Emergency Procedures, Earthquake Procedures and Disasters Program (EPEPD); (3) the ***798** Intradistrict Attendance Program; and (4) the Collective Bargaining Program. We conclude this rule was an invalid underground regulation under the state Administrative Procedure Act (APA) during this period. ([Gov.Code, § 11340 et seq.](#))¹ Consequently, we overturn the Controller's audits for these four programs during this period to the extent they were based on this rule.

Health Fee Elimination Program: Health Fee Rule

The second auditing rule is the Health Fee Rule, which the Controller used to reduce reimbursement claims for state-****37** mandated health services provided by the plaintiff community college districts pursuant to the Health Fee Elimination Program. We uphold the validity of this rule.

The trial court: (1) invalidated the CSDR as applied to the Intradistrict Attendance and Collective Bargaining Programs (from which the Controller appeals); (2) hinted at the CSDR's invalidity as applied to the

SDC and EPEPD Programs but did not grant relief thereon, apparently deeming the administrative remedy sufficient (from which the school districts appeal); and (3) upheld the validity of the Health Fee Rule (from which the community college districts appeal). We shall affirm the judgment regarding the Intradistrict Attendance Program, the Collective Bargaining Program, and the Health Fee Rule, but reverse the judgment, with directions, regarding the SDC and EPEPD Programs.

Because the issues raised in this appeal are almost entirely legal ones subject to our independent review (see *Grier v. Kizer* (1990) 219 Cal.App.3d 422, 434, 268 Cal.Rptr. 244, disapproved on a different ground in *Tidewater Marine Western, Inc. v. Bradshaw* (1996) 14 Cal.4th 557, 577, 59 Cal.Rptr.2d 186, 927 P.2d 296 (*Tidewater*) [whether an auditing rule is an APA regulation is a question of law]), it is unnecessary to set forth a factual background at this stage. Instead, we will proceed straight to our discussion. First, we will briefly summarize the process of state-mandated reimbursement and the concept of underground regulation. Then we will turn our attention to the programs and remedies at issue, weaving in the pertinent facts as we go.

DISCUSSION

I. State-mandated Reimbursement Process

In 1979, California's voters adopted [article XIII B, section 6 of the state Constitution](#), which specifies that if the state imposes any “new program *799 or higher level of service” on any local government (including a school district), the state must reimburse the locality for the costs of the program or increased level of service.

In 1984, the Legislature enacted statutes to govern the state mandate process. (§ 17500 et seq.) Under these statutes, the Commission on State Mandates (the Commission) determines, pursuant to a “test claim” process, whether a state program constitutes a reimbursable state mandate. (§§ 17551, subd. (c), 17553.)

Once the Commission determines that a state mandate exists, it adopts regulatory “[P]arameters and [G]uidelines” (P & G's) to govern the state-mandated reimbursement. (§ 17557.) The Controller, in turn, then issues nonregulatory “[C]laiming [I]nstructions” for

each Commission-determined mandate; these instructions must derive from the Commission's test claim decision and its adopted P & G's. (§ 17558.) Claiming Instructions may be specific to a particular mandated program, or general to all such programs.

The Controller may audit a reimbursement claim filed by a local agency or school district within three years of the claim's filing or last amendment. (§ 17558.5, subd. (a).)

If the Controller reduces a specific reimbursement claim via an audit, the claimant may file an “[I]ncorrect [R]eduction [C]laim” with the Commission. (§ 17558.7, subd. (a).)

II. The Concept of Invalid Underground Regulation

[1] In their petitions for writ of mandate and complaints for declaratory relief, the school districts (comprising Clovis, **38 Fremont, Newport–Mesa, Norwalk–La Mirada, Riverside, Sweetwater, and San Juan; hereafter collectively, School Districts) allege that the CSDR constitutes an invalid, unenforceable underground regulation under the APA as applied by the Controller in auditing salary and benefit costs in reimbursement claims for the SDC, EPEPD, Intradistrict Attendance, and Collective Bargaining Programs during the applicable periods roughly encompassing the fiscal years 1998 to 2003.²

*800 In their petition for writ of mandate and complaint for declaratory relief (actually appended to the School Districts' petition and complaint), the community college districts (comprising San Mateo, Santa Monica, State Center, and El Camino; hereafter collectively, College Districts) allege that the Health Fee Rule constitutes an invalid, unenforceable underground regulation under the APA as applied by the Controller in auditing reimbursement claims for the Health Fee Elimination Program or, alternatively, that the Controller's auditing actions in this respect were beyond its lawful authority.

The basic legal principles that apply to these allegations are as follows:

“ ‘If a rule constitutes a “regulation” within the meaning of the APA (other than an “emergency regulation” ...) it may not be adopted, amended, or

repealed except in conformity with “basic minimum procedural requirements” ’ ’ which include public notice, opportunity for comment, agency response to comment, and review by the state Office of Administrative Law. (*Morning Star Co. v. State Bd. of Equalization* (2006) 38 Cal.4th 324, 333, 42 Cal.Rptr.3d 47, 132 P.3d 249 (*Morning Star*).) “These requirements promote the APA’s goals of bureaucratic responsiveness and public engagement in agency rulemaking.” (*Ibid.*)

Any regulation “ ‘that substantially fails to comply with these requirements may be judicially declared invalid’ ” and is deemed unenforceable. (*Morning Star, supra*, 38 Cal.4th at p. 333, 42 Cal.Rptr.3d 47, 132 P.3d 249; § 11350, subd. (a).)

[2] A “regulation” under the APA “means every rule, regulation, order, or standard of general application or the amendment, supplement, or revision of any rule, regulation, order, or standard adopted by any state agency to implement, interpret, or make specific the law enforced or administered by it, or to govern its procedure.” (§ 11342.600.) As we will later explain more fully, an APA regulation has two principal characteristics: It must apply generally; and it must implement, interpret, or make specific the law enforced or administered by the agency, or govern the agency’s procedure. (*Morning Star, supra*, 38 Cal.4th at pp. 333–334, 42 Cal.Rptr.3d 47, 132 P.3d 249; *Tidewater, ***39 supra*, 14 Cal.4th at p. 571, 59 Cal.Rptr.2d 186, 927 P.2d 296.)

***801 III. The CSDR as Applied to the SDC, EPEPD, Intradistrict Attendance, and Collective Bargaining Programs**

We will start with the SDC Program. We do so because, of these four programs, the Commission’s APA-valid, pre-May 27, 2004 P & G’s for the SDC Program most closely resemble the Controller’s CSDR.³ If we conclude, nevertheless, that the CSDR is an underground regulation that violates the APA in this context, we will have to conclude similarly for these three other programs. It is undisputed that the Controller’s CSDR was not enacted in compliance with APA procedure.

As we shall explain, we conclude that the CSDR, as applied to the (pre-May 27, 2004) SDC Program, is an underground, unenforceable regulation under the APA.

Accordingly, the CSDR is invalid as applied to the School Districts’ SDC Programs for the applicable periods roughly encompassing the fiscal years 1998 to 2003 (see fn. 2, *ante*), and invalid in parallel fashion to the three other programs as well.

The Commission determined, in the mid–1990’s, that the SDC Program imposed a reimbursable state-mandated program on school districts by establishing the right of parents/guardians of students, who were prohibited from transferring to another school district, to appeal to the county board of education. (See former *Ed.Code*, § 48209.9, inoperative July 1, 2003.)

From August 24, 1995, until May 27, 2004, the Commission’s P & G’s for the SDC Program set forth the following two requirements for school districts seeking SDC state-mandated reimbursement for employee salary and benefit costs: (1) “Identify the employee(s) and their job classification, describe the mandated functions performed and specify the actual number of hours devoted to each function, the productive hourly rate and the related benefits. The average number of hours devoted to each function may be claimed if supported by a documented time study”; and (2) “For auditing purposes, all costs claimed must be traceable to source documents (e.g., employee time records, invoices, receipts, purchase orders, contracts, etc.) and/or worksheets that show evidence of and the validity of such claimed costs.”

The Commission’s SDC Program P & G’s divide the subject of reimbursable costs into three categories: employee salaries and benefits; materials and supplies; and contracted services. The examples set forth in these P & G’s for *802 “source documents” align with these three categories: “employee time records” for employee salaries and benefits; “invoices,” “receipts” and “purchase orders” for materials and supplies; and “contracts” for contracted services. At issue in this appeal for the SDC, EPEPD, Intradistrict Attendance, and Collective Bargaining Programs are just the cost category of employee salaries and benefits.

From the initial issuance of the Commission’s SDC Program P & G’s in 1995 until May 27, 2004, the Controller’s SDC-specific Claiming Instructions substantively aligned with the SDC Program P & G’s.

However, in September 2003, the Controller revised its general Claiming Instructions (that apply to state-mandated reimbursement claims in general) to set ****40** forth, for the first time, what has become known as the CSDR. The CSDR states:

“To be eligible for mandated cost reimbursement for any fiscal year, only actual costs may be claimed. Actual costs are those costs actually incurred to implement the mandated activities. Actual costs must be traceable and supported by source documents that show the validity of such costs, when they were incurred, and their relationship to the reimbursable activities. A source document is a document created at or near the same time the actual cost was incurred for the event or activity in question. Source documents may include, but are not limited to, employee time records or time logs, sign-in sheets, invoices, and receipts.

“Evidence corroborating the source documents may include, but is not limited to, worksheets, cost allocation reports (system generated), purchase orders, contracts, agendas, training packets, and declarations. Declarations must include a certification or declaration stating, ‘I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct based upon personal knowledge.’ Evidence corroborating the source documents may include data relevant to the reimbursable activities otherwise in compliance with local, state, and federal government requirements. However, corroborating documents cannot be substituted for source documents.”

Substantial evidence showed that prior to the use of the CSDR in Controller audits, school districts obtained SDC state-mandated reimbursement for employee salary and benefit costs based on (1) declarations and certifications from the employees that set forth, after the fact, the time they had spent on SDC-mandated tasks; or (2) an annual accounting of time determined by the number of mandated activities and the average time for each activity. After the Controller began using the CSDR in its auditing of SDC reimbursement claims, the Controller deemed these declarations, certifications, and accounting methods insufficient, and reduced the ***803** reimbursement claims accordingly. (Substantial evidence also showed that the Controller, in 2000, began applying a CSDR requirement in field audits of SDC reimbursement claims, before the CSDR was expressed in the Controller's general

Claiming Instructions in September 2003 or adopted in the Commission's SDC Program P & G's on May 27, 2004.)

The question is whether the Controller's CSDR constituted an underground, unenforceable regulation that the Controller used in auditing the School Districts' SDC Program for the fiscal years 1998 to 2003, because the CSDR constituted a state agency regulation that was not adopted in conformance with the APA prior to its valid adoption in the Commission's SDC Program P & G's on May 27, 2004. We answer this question “yes.”

[3] “ ‘A regulation subject to the APA ... has two principal identifying characteristics. [Citation.] First, the agency must intend its rule to apply generally, rather than in a specific case. The rule need not, however, apply universally; a rule applies generally so long as it declares how a certain class of cases will be decided. [Citation.] Second, the rule must “implement, interpret, or make specific the law enforced or administered by [the agency], or ... govern [the agency's] procedure.” ’ ” (*Morning Star*, *supra*, 38 Cal.4th at pp. 333–334, 42 Cal.Rptr.3d 47, 132 P.3d 249, quoting *Tidewater*, *supra*, 14 Cal.4th at p. 571, 59 Cal.Rptr.2d 186, 927 P.2d 296, italics added.)

[4] As to the first criterion—whether the rule is intended to apply generally—substantial evidence supports the trial ****41** court's finding that the CSDR was “applie[d] generally to the auditing of reimbursement claims ...; the Controller's auditors ha[d] no discretion to judge on a case[-]by[-]case basis whether to apply the rule.” (The trial court made this finding in the context of ruling on the Intradistrict Attendance and Collective Bargaining Programs, but this finding is a general one that applies equally to the SDC Program. The trial court did not apply this general finding to the SDC Program only because the court reasoned that the CSDR was not an APA-violative underground regulation in the SDC context, as the Commission later adopted the CSDR into its SDC Program P & G's (see fn. 3, *ante*). As we shall explain later, we reject this reasoning involving subsequent adoption.)

[5] The CSDR also meets the second criterion of being a regulation: It implements, interprets, or makes specific the law enforced or administered by the Controller. The Controller argues, to the contrary, that the CSDR “merely restates” the source document requirement found in the pre-May 27, 2004 Commission P & G's for the SDC Program, and that “source documents” are, by their

sourceful nature, contemporaneous. As we explain, we reject this argument.

Admittedly, the pre-May 27, 2004 SDC Program P & G's stated that, "[f]or auditing purposes, all costs claimed must be traceable to source documents *804 (e.g., employee time records, invoices, receipts, purchase orders, contracts, etc.) and/or worksheets that show evidence of and the validity of such claimed costs." However, the Controller's CSDR, in contrast to these P & G's, did not equate "source documents" with "worksheets," but relegated "worksheets" to the second-class status of "corroborating documents" that can only serve as evidence that corroborates "source documents." This is no small matter either. This is because, prior to the Controller using the CSDR to audit reimbursement claims, the School Districts, in making these claims, had used employee declarations and certifications and average time accountings to document the employee time spent on SDC-mandated activities; and such methods can be deemed akin to worksheets.

More significantly, the CSDR expressly states that employee declarations and certifications are only corroborating documents, *not* source documents; the pre-May 27, 2004 SDC Program P & G's had nothing to say on this subject. In effect, then, the CSDR bars the use of employee time declarations and certifications as source documents or source document-equivalent worksheets, in contrast to the pre-May 27, 2004 P & G's.

Along similar lines, the pre-May 27, 2004 SDC Program P & G's also stated that the "average number of [employee] hours devoted to each [mandated] function may be claimed if supported by a documented time study"; the record showed that such a time study is a documented estimate. The CSDR, which recognizes only actual costs traceable and supported by contemporaneous source documents, does not countenance such estimation.

Nor may the Controller point to the examples of the source documents listed in the pre-May 27, 2004 SDC Program P & G's and argue they show the contemporaneous nature of source documents: "employee time records, invoices, receipts, purchase orders, contracts, etc." First, this argument ignores the source document-equivalent of "worksheets" set forth in these P & G's, as discussed above. And, second, while the CSDR lists "employee time records," "invoices," and

"receipts" as source documents, it specifies that "purchase orders," "contracts" (and "worksheets") **42 are only corroborating documents, not source documents.

Finally, the School Districts that had used employee declarations and certifications and average time accountings to document time for reimbursement claims also note that it is *now* physically impossible to comply with the CSDR's requirement of contemporaneousness that "[a] source document is a *805 document *created at or near the same time the actual cost was incurred* for the event or activity in question."⁴ (Italics added.)

Given these substantive differences between the Commission's pre-May 27, 2004 SDC Program P & G's and the Controller's CSDR, we conclude that the CSDR implemented, interpreted or made specific the following laws enforced or administered by the Controller: the Commission's pre-May 27, 2004 P & G's for the SDC Program (§ 17558) [the Commission submits regulatory P & G's to the Controller, who in turn issues nonregulatory Claiming Instructions based thereon]; and the Controller's statutory authority to audit state-mandated reimbursement claims (§ 17561, subd. (d) (2)).

Consequently, the CSDR meets the two criteria for being an APA regulation. And because the CSDR, as applied to the SDC Program, was not adopted as a regulation in compliance with the APA rule-making procedures until its May 27, 2004 incorporation into the SDC Program P & G's, this CSDR is an underground and unenforceable regulation as applied to the audits of the School Districts' SDC Programs for the applicable periods roughly encompassing the fiscal years 1998 to 2003. (See fn. 2, *ante*.) These audits are invalidated to the extent they used this CSDR.

[6] [7] [8] As we noted at the outset of this part of the opinion, if we were to conclude (as we now have done) that the CSDR is an underground regulation that violates the APA in the SDC Program context presented here, we would have to conclude similarly for the EPEPD, Intradistrict Attendance, and Collective Bargaining Programs too. This is because the Commission's P & G's for these latter three programs less resembled the Controller's CSDR than did the Commission's pre-May 27, 2004 P & G's for the SDC Program. We now turn to the EPEPD, Intradistrict

Attendance, and Collective Bargaining Programs, which we will describe briefly in order.

The EPEPD Program was found to be a reimbursable state-mandated program in 1987. This program requires school districts to establish earthquake procedures for each of its school buildings, and to allow use of its buildings, grounds and equipment for mass care and welfare shelters during public disasters or emergencies. (Former Ed.Code, §§ 35925–35927, [40041.5](#), [40042](#).)

806** From 1991 until June 2, 2003, the Commission's P & G's for the EPEPD Program required school districts seeking state-mandated reimbursement for employee salary and benefit costs: (1) to “provide a listing of each employee ... and the number of hours devoted to their [mandated] function”; and (2) “[f]or auditing purposes, all costs claimed may be *43** traceable to source documents and/or worksheets that show evidence of the validity of such costs.” The Controller's EPEPD-specific Claiming Instructions, since 1996, have stated that “Source documents required to be maintained by the [reimbursement] claimant may include, but are not limited to, employee time cards and/or cost allocation reports.” (The Commission, in like fashion to what it did with the SDC Program, incorporated the CSDR into its P & G's for the EPEPD Program, effective June 2, 2003.)

These pre-June 2, 2003 P & G's for the EPEPD Program parallel the pre-May 27, 2004 P & G's for the SDC Program, but even less resemble the Controller's CSDR than did those SDC Program P & G's. For the reasons set forth above involving the SDC Program, then, we conclude that the Controller's CSDR is an underground, unenforceable regulation as applied to the audits of the School Districts' EPEPD Programs for the applicable periods roughly encompassing the fiscal years 1998 to 2003. (See fn. 2, *ante*.) These audits are invalidated to the extent they used this CSDR.

The Intradistrict Attendance Program, in 1995, was found to be a reimbursable state-mandated program. This program establishes a policy of open enrollment within a school district for district residents. (Former [Ed.Code](#), § [35160.5](#).)

Since 1995, the Commission's P & G's for the Intradistrict Attendance Program have required school districts seeking state-mandated reimbursement for employee

salary and benefit costs (1) to “[i]dentify the employee(s) and their job classification ... and specify the actual number of hours devoted to each [mandated] function.... The average number of hours devoted to each function may be claimed if supported by a documented time study”; and (2) “[f]or auditing purposes, all costs claimed must be traceable to source documents and/or worksheets that show evidence of the validity of such costs.” For the 1998 to 2003 period of fiscal years at issue, the Controller's Intradistrict Attendance Program-specific Claiming Instructions substantively mirrored P & G's for (1) above (except for the “average number of hours” provision), and stated as to source documents: “Source documents required to be maintained by the claimant may include, but are not limited to, employee time records that show the employee's actual time spent on this mandate.” (In early 2010, the Commission incorporated the Controller's CSDR into the Intradistrict Attendance Program P & G's; see fn. 5, *post*.)

***807** Applying the same reasoning we have applied above with respect to the SDC and the EPEPD Programs, we conclude that the Controller's CSDR is an underground, unenforceable regulation as applied to the audits of the School Districts' Intradistrict Attendance Programs for the applicable periods roughly encompassing the fiscal years 1998 to 2003. (See fn. 2, *ante*.) These audits are invalidated to the extent they used this CSDR.

That leaves the Collective Bargaining Program, which was found to be a reimbursable state-mandated program in 1978 (by the Commission's predecessor, the State Board of Control). This program requires school district employers to collectively bargain with represented employees, and to publicly disclose the major provisions of their agreements prior to final adoption. (§ [3540 et seq.](#))

If the Commission's pre-May 27, 2004 P & G's for the SDC Program most closely resemble the Controller's CSDR, the P & G's for the Collective Bargaining Program bear the least resemblance. As pertinent, the Collective Bargaining Program P & G's require school districts seeking reimbursement ****44** for employee salary and benefit costs to simply “[s]upply workload data requested ... to support the level of costs claimed” and “[s]how the classification of the employees involved, amount of time spent, and their hourly rate”; nothing is said about “source documents.”

The Controller's Collective Bargaining Program-specific Claiming Instructions substantively mirror those of the Intradistrict Attendance Program, stating that source documents include employee time records that show the employee's actual time spent on the mandated function. (And as with the Intradistrict Attendance Program, the Commission, in early 2010, incorporated the Controller's CSDR into the Collective Bargaining Program P & G's; see fn. 5, *post*.)

Consequently, employing the same reasoning we have employed above, we conclude that the Controller's CSDR is an underground, unenforceable regulation as applied to the audits of the School Districts' Collective Bargaining Programs for the applicable periods roughly encompassing the fiscal years 1998 to 2003. (See fn. 2, *ante*.) These audits are invalidated to the extent they used this CSDR.

IV. Declaratory and Related Writ of Mandate Relief

The trial court declared that the Controller's CSDR, as applied to the audits of the Intradistrict Attendance and Collective Bargaining Programs for the 1998 to 2003 period of fiscal years, was an invalid and void underground regulation under the APA. Correspondingly, the trial court issued a peremptory writ of mandate (traditional mandamus) invalidating these CSDR-based audits to the extent they were not final audit determinations for more than *808 three years before the School Districts filed their respective lawsuits on May 23, 2006 (Clovis et al.) and March 2, 2007 (San Juan). This three-year period is the applicable three-year statute of limitations under [Code of Civil Procedure section 338, subdivision \(a\)](#), for enforcing a statutory liability like state-mandated reimbursement. We are affirming this part of the trial court's judgment.

However, the trial court refused to provide, in parallel fashion, declaratory and writ of mandate relief for the CSDR-based audits involving the SDC and EPEPD Programs. The School Districts contend the trial court erred in this respect. We agree.

In refusing to provide this relief, the trial court reasoned that, since the Commission had incorporated the Controller's CSDR into the Commission's regulatory P & G's for the SDC and EPEPD Programs, there was no

longer an actual and ongoing controversy upon which to grant declaratory and related mandate relief concerning the CSDR's invalidity as an underground regulation in this context; and the Commission could administratively determine, pursuant to the Incorrect Reduction Claim process, the past audits that had used the CSDR before its incorporation into the SDC and EPEPD Programs' P & G's. This is where we part company with the trial court.

Our departure is based on [section 11350](#) of the APA and the legal principles set forth in [Californians for Native Salmon etc. Assn. v. Department of Forestry](#) (1990) 221 Cal.App.3d 1419, 271 Cal.Rptr. 270 (*Native Salmon*) and its progeny.

[Section 11350](#) of the APA specifies that “[a]ny interested person may obtain a judicial declaration as to the validity of any regulation ... by bringing an action for declaratory relief....” (§ 11350, subd. (a).)

In *Native Salmon*, the plaintiffs sought declaratory relief against the state forestry department, alleging that it was department policy, with respect to timber harvest plans: (1) to delay responses to public comments, and (2) to not evaluate the cumulative **45 impact of logging activities in the plans. The *Native Salmon* court concluded that declaratory relief was appropriate in this context, stating: “[Plaintiffs] ... challenge not a specific [administrative] order or decision [which is generally subject to review only pursuant to a writ of *administrative* mandate, rather than traditional mandate], or even a series thereof, but an overarching, quasi-legislative policy set by an administrative agency. Such a policy is subject to review in an action for declaratory relief.... [¶] ... [R]eview of specific, discretionary administrative decisions [must not be confused] with review of a generalized agency policy. Declaratory relief directed to *policies* of administrative agencies is not an unwarranted control of discretionary, specific agency decisions.” (*Native Salmon*, *809 *supra*, 221 Cal.App.3d at p. 1429, 271 Cal.Rptr. 270, citations omitted; accord, *Venice Town Council, Inc. v. City of Los Angeles* (1996) 47 Cal.App.4th 1547, 1566, 55 Cal.Rptr.2d 465; see also *Simi Valley Adventist Hospital v. Bontá* (2000) 81 Cal.App.4th 346, 354–355, 96 Cal.Rptr.2d 633.)

[9] [10] [11] Similarly, here, the School Districts have challenged “an overarching, quasi-legislative policy set by an administrative agency” (*Native Salmon*, *supra*, 221 Cal.App.3d at p. 1429, 271 Cal.Rptr. 270) rather

than a specific, discretionary administrative decision: i.e., the Controller's policy of using the (underground) CSDR to conduct audits in the SDC and EPEPD Programs for the period straddling the fiscal years 1998 to 2003. Declaratory and accompanying traditional mandate relief is appropriate in this context; this is an ongoing controversy limited by the three-year statute of limitations noted above.⁵

And there is no adequate administrative remedy. The trial court made a finding—supported by substantial evidence—that the Commission “consistently refuses to rule on underground regulation claims on the basis of an opinion that it lacks jurisdiction to decide such claims.” (The trial court made this finding in discussing the Intradistrict Attendance and Collective Bargaining Programs, but the finding applies equally to the SDC and EPEPD Programs.)

We conclude that declaratory and accompanying traditional mandate relief applies not only to the Intradistrict Attendance and Collective Bargaining Programs, but also to the SDC and EPEPD Programs for the fiscal years at issue.⁶

*810 V. Health Fee Elimination Program

[12] In 1986, and again in 1989 (after statutory amendment), the Commission determined ****46** that the Health Fee Elimination Program imposed a reimbursable state-mandated cost on those community college districts that provide health services, by requiring those districts to maintain in the future the level of service they had provided in the 1986–1987 fiscal year (termed, the “maintenance of effort” requirement); this “maintenance of effort” had to take place even if the districts, as they were and are permitted to do under the relevant statute, eliminated their nominal statutory student health fee (\$7.50 per semester maximum (former [Ed.Code, § 72246](#), Stats.1984, 2d Ex.Sess., ch. 1, p. 6642)); \$10 per semester maximum (current [Ed.Code, § 76355](#), subd. (a)(1)).⁷

The College Districts contend that the Controller's Claiming Instruction for the Health Fee Elimination Program is an underground regulation under the APA and beyond the Controller's authority. Specifically, the College Districts argue that the Controller's Health

Fee Rule misapplies the Commission's Health Fee Elimination Program P & G's by automatically reducing reimbursement claims by the amount that districts are statutorily authorized to charge students for health fees, even when a district chooses not to charge its students those fees.

Since 1989, the Commission's Health Fee Elimination Program P & G's have stated in pertinent part:

“Any offsetting savings the claimant experiences as a direct result of this statute [i.e., the health fee statutes—formerly [Ed.Code, § 72246](#); now [Ed.Code, § 76355](#)] must be deducted from the [reimbursement] costs claimed. In addition, reimbursement for this mandate received from any source, e.g., federal, state, etc., shall be identified and deducted from this claim. This shall include the amount of \$7.50 per full-time student per semester, \$5.00 per full-time student for summer school, or \$5.00 per full-time student per quarter, as authorized by [Education Code section 72246](#), subdivision] (a). This shall also include payments (fees) received from individuals other than students who are not covered by [Education Code Section 72246](#) for health services.”

***811** The Controller's Health Fee Rule (i.e., its Health Fee Elimination Program-specific Claiming Instruction) states in pertinent part:

“Eligible claimants will be reimbursed for health service costs at the level of service provided in the 1986/87 fiscal year. The reimbursement will be reduced by the amount of student health fees authorized per the [Education Code \[section\] 76355](#).”

The College Districts maintain that the Controller's Health Fee Rule constitutes an invalid, underground regulation—i.e., one not adopted pursuant to the APA—because it meets the two-part test of a “regulation”: (1) the Controller generally applies it; and (2) the rule implements, interprets or makes specific the Commission's Health Fee Elimination Program P & G's. ****47** (*Morning Star, supra*, 38 Cal.4th at pp. 333–334, 42 Cal.Rptr.3d 47, 132 P.3d 249.)

There is no quibble with part (1)—general application. The real issue is with part (2) of the test—defining a “regulation” as implementing, interpreting, or making specific the Health Fee Elimination Program P & G's.

The College Districts argue that those P & G's require that the mandate claimant have actually "experience[d]" or "received" an amount of health service money for that amount to be deducted from the reimbursement claim. That is, if a college district does not charge its students a health service fee, as the district is statutorily permitted to do, then the district has not "experienced" or "received" that fee, and that amount cannot be deducted. The College Districts note that the Health Fee Rule, by contrast, states flatly that "reimbursement will be reduced by the amount of student health fees authorized per the [Education Code \[section\] 76355](#)."

The College Districts' argument carries some weight, especially when viewed solely within the prism of comparing the Health Fee Elimination Program P & G's to the Health Fee Rule semantically. But the argument falters when exposed to the broader context of the nature of state-mandated costs and common sense.

As for the nature of state-mandated costs, [section 17514](#) defines "costs mandated by the state" to mean "any *increased costs* which a local agency or school district is *required to incur* after July 1, 1980, as a result of any statute enacted on or after January 1, 1975, or any executive order implementing any statute enacted on or after January 1, 1975, which mandates a new program or higher level of service of an existing program within the meaning of [Section 6 of Article XIII B of the California Constitution](#)." (Italics added.) And [section 17556](#) reflects this definition by stating that costs are not deemed mandated by the state to the extent the "local agency or school district *has the authority* to levy service charges, fees, or assessments sufficient to pay for the mandated program or increased level of service." (§ [17556, subd. \(d\)](#), italics added.)

[13] *812 The College Districts point out, though, in a series of overlapping arguments, that [sections 17514](#) and [17556](#) govern the *Commission's* determination of whether a program is a state-mandated program, not the *Controller's* determination as to audit reductions; and the Commission has already found the Health Fee Elimination Program to be a state-mandated program. This observation, however, does not diminish the basic principle underlying the state mandate process that [sections 17514](#) and [17566, subdivision \(d\)](#) embody: To the extent a local agency or school district "has the authority" to charge for the mandated program or increased level

of service, that charge cannot be recovered as a state-mandated cost.⁸ (See [Connell v. Superior Court \(1997\) 59 Cal.App.4th 382, 401, 69 Cal.Rptr.2d 231](#) ["the plain language of [[section 17556, subdivision \(d\)](#)] precludes reimbursement where the local agency has the authority, i.e., the right or the power, to levy fees sufficient to cover the costs of the state-mandated program"]; see [Connell, at pp. 397–398, 69 Cal.Rptr.2d 231](#).)

And this basic principle flows from common sense as well. As the Controller succinctly **48 puts it, "Claimants can choose not to require these fees, but not at the state's expense."

[14] The College Districts also argue that the Controller lacks the authority to rely on these Government Code sections to uphold its Health Fee Rule. The argument is that, since the Health Fee Rule is a claiming instruction, its validity must be determined *solely* through the Commission's P & G's. To accept this argument, though, we would have to ignore, and so would the Controller, the fundamental legal principles underlying state-mandated costs. We conclude the Health Fee Rule is valid.

DISPOSITION

We direct the trial court to issue a peremptory writ of mandate that invalidates the Controller's audits of the School Districts' SDC and EPEPD Program reimbursement claims for the applicable periods identified in footnote 2, *ante*, encompassing the fiscal years 1998 to 2003, to the extent those audits were based on the CSDR and did not become final audit determinations prior to the applicable three-year statute of limitations. If it chooses to do so, the Controller may re-audit the relevant reimbursement claims based on the documentation requirements of the P & G's and claiming *813 instructions when the mandate costs were incurred (i.e., not using the CSDR). In all other respects, the judgment is affirmed.

The parties shall each bear their own costs on appeal. ([Cal. Rules of Court, rule 8.278\(a\)\(3\)](#).)

We concur: [SCOTLAND, P.J.](#), and [NICHOLSON, J.](#)

All Citations

188 Cal.App.4th 794, 116 Cal.Rptr.3d 33, 260 Ed. Law Rep. 877, 10 Cal. Daily Op. Serv. 12,281, 2010 Daily Journal D.A.R. 14,831

Footnotes

- 1 Undesignated statutory references are to the Government Code.
- 2 Because of the large number of school districts and program audits involved, as well as the slightly varying fiscal years at issue corresponding to these districts and program audits, we will use the general phrasing “applicable periods roughly encompassing the fiscal years 1998 to 2003” to describe the audits at issue. The parties are well aware of the particular audits being challenged for this period. Regardless, the School Districts must meet the applicable three-year statute of limitations that governs lawsuits based on statutory liability (like state-mandated reimbursement) for any audits of the four programs that have been determined on the basis of the invalidated CSDR. (*Code Civ. Proc.*, § 338; *Union of American Physicians & Dentists v. Kizer* (1990) 223 Cal.App.3d 490, 504, fn. 5, 272 Cal.Rptr. 886.) San Juan School District filed its petition and complaint on March 2, 2007. The rest of the School Districts, together, filed their petition and complaint on May 23, 2006. The trial court consolidated these two petitions and complaints on March 27, 2007.

The School Districts made challenges to other programs as well, but these challenges are not at issue on appeal.
- 3 On May 27, 2004, the Commission validly amended its SDC Program P & G's to adopt this CSDR language.
- 4 As a related aside, it is interesting to note that the Controller's SDC-specific Claiming Instructions that were in place during the pre-2004 P & G's stated that, “[f]or audit purposes, all supporting documents must be retained [by claimant] [only] for a period of two years after the end of the calendar year in which the reimbursement claim was filed or last amended, whichever is later”; but the Controller had three years in which to conduct a reimbursement audit “after the date that the actual reimbursement claim is filed or last amended, whichever is later.” (§ 17558.5, subd. (a).)
- 5 The Controller had requested that, at a minimum, we stay this appeal in light of the Commission's pending decision to incorporate the Controller's CSDR into the Commission's P & G's for the Intradistrict Attendance and Collective Bargaining Programs, as the Commission has done for the SDC and EPEPD Programs. In a subsequent request for judicial notice, the Controller has now noted that the Commission, on January 29, 2010, amended its P & G's for the Intradistrict Attendance and Collective Bargaining Programs to adopt the CSDR for each program. We deny this request for judicial notice. This is because the central issue in the present appeal concerns the Controller's policy of using the CSDR *during the 1998 to 2003 fiscal years*, when the CSDR was an underground regulation. This issue is not resolved by the Commission's *subsequent* incorporation of the CSDR into its Intradistrict Attendance and Collective Bargaining Programs' P & G's.

Also, we deny the School Districts' request for judicial notice of the Commission's Incorrect Reduction Claim caseload summary and the Controller's list of final audit reports for California school districts and community college districts.
- 6 In light of our resolution, we need not consider the School Districts' alternative claim that the Controller's CSDR constitutes an unlawful retroactive rule, or the School Districts' additional claim that regardless whether an actual controversy exists for purposes of declaratory relief, the requested writ relief is not moot.
- 7 As *Education Code section 76355, subdivision (a)(1)* states: “The governing board of a district maintaining a community college may require community college students to pay a fee in the total amount of not more than ten dollars (\$10) for each semester, seven dollars (\$7) for summer school, seven dollars (\$7) for each intersession of at least four weeks, or seven dollars (\$7) for each quarter for health supervision and services, including direct or indirect medical and hospitalization services, or the operation of a student health center or centers, or both.” (An inflationary adjustment is provided for in *subdivision (a)(2) of § 76355*.)
- 8 In light of *sections 17514 and 17556, subdivision (d)*, the Commission found the Health Fee Elimination Program to be a reimbursable state-mandated program to the extent the cost to community college districts of maintaining their level of health services at the 1986–1987 level, as required by the Health Fee Elimination Program mandate, is not covered by the nominal health fee authorized by *section 76355, subdivision (a)(1)* (\$10 maximum per semester per student).

ATTACHMENT

15

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

ORDER: WQ 99 - 05

Own Motion Review of the Petition of
Environmental Health Coalition
to Review Waste Discharge Requirements Order No. 96-03,
NPDES Permit No. CAS0108740
for Storm Water and Urban Runoff from the
Orange County Flood Control District
and the
Incorporated Cities of Orange County
Within the San Diego Region,
Issued by the
California Regional Water Quality Control Board,
San Diego Region.

SWRCB/OCC File A-1041

BY THE BOARD:

In Order WQ 98-01, the State Water Resources Control Board (State Water Board) ordered that certain receiving water limitation language be included in future municipal storm water permits. Following inclusion of that language in permits issued by the San Francisco Bay and San Diego Regional Water Quality Control Boards (Regional Water Boards) for Vallejo and Riverside respectively, the United States Environmental Protection Agency (EPA) objected to the permits. The EPA objection was based on the receiving water limitation language. The EPA has now issued those permits itself and has included receiving water limitation language it deems appropriate.

In light of EPA's objection to the receiving water limitation language in Order WQ 98-01 and its adoption of alternative language, the State Water Board is revising its instructions regarding receiving water limitation language for municipal storm water permits. It is hereby ordered that Order WQ 98-01 will be amended to remove the receiving water limitation language contained therein and to substitute the EPA language. Based on the reasons stated here, and as a precedent decision,¹ the following receiving water limitation language shall be included in future municipal storm water permits.²

RECEIVING WATER LIMITATIONS

The permittees shall comply with Discharge Prohibitions []³ and Receiving Water Limitations [] through timely implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the SWMP and other requirements of this permit including any modifications. The SWMP shall be designed to achieve compliance with Receiving Water Limitations []. If exceedance(s) of water quality objectives or water quality standards (collectively, WQS) persist notwithstanding implementation of the SWMP and other requirements of this permit, the permittees shall assure compliance with Discharge Prohibitions [] and Receiving Water Limitations [] by complying with the following procedure:

¹ In SWRCB Order WR 96-1, the State Water Board determined that water quality orders are precedent decisions. (See Gov. Code §11425.60.)

² This language may be revised as necessary to ensure that terminology conforms with the rest of the permit.

³ Insert appropriate numbers for prohibitions and limitations that implement water quality objectives and water quality standards.

- a. Upon a determination by either the permittees or the Regional Water Board that discharges are causing or contributing to an exceedance of an applicable WQS, the permittees shall promptly notify and thereafter submit a report to the Regional Water Board that describes BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of WQSS. The report may be incorporated in the annual update to the SWMP unless the Regional Water Board directs an earlier submittal. The report shall include an implementation schedule. The Regional Water Board may require modifications to the report.
- b. Submit any modifications to the report required by the Regional Water Board within 30 days of notification.
- c. Within 30 days following approval of the report described above by the Regional Water Board, the permittees shall revise the SWMP and monitoring program to incorporate the approved modified BMPs that have been and will be implemented, implementation schedule, and any additional monitoring required.
- d. Implement the revised SWMP and monitoring program in accordance with the approved schedule.

So long as the permittees have complied with the procedures set forth above and are implementing the revised SWMP, the permittees do not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the Regional Water Board to develop additional BMPs.

///

///

ORDER

IT IS ORDERED that Order WQ 98-01 is revised as discussed above.

CERTIFICATION

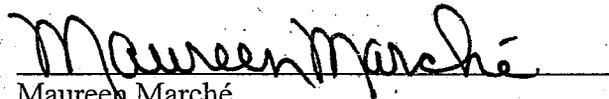
The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on June 17, 1999.

AYE: James M. Stubchaer
Mary Jane Forster
John W. Brown
Arthur G. Baggett, Jr.

NO: None

ABSENT: None

ABSTAIN: None



Maureen Marché
Administrative Assistant to the Board

ATTACHMENT

16

See: California Regional Water Quality Control Board, *Water Quality Control Plan for the San Diego Region (Basin Plan)* at

http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/

ATTACHMENT

17

WATER QUALITY CONTROL PLAN

OCEAN WATERS OF CALIFORNIA



2015

STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY



State of California

Edmund G. Brown Jr. Governor

California Environmental Protection Agency

Matthew Rodriguez, Secretary

State Water Resources Control Board

*1001 I Street
Sacramento, CA 95814
(916) 341-5250
Homepage: <http://www.waterboards.ca.gov>*

*Felicia Marcus, Chair
Frances Spivy-Weber, Vice Chair
Tam M. Doduc, Member
Steven Moore, Member
Dorene D' Adamo, Member*

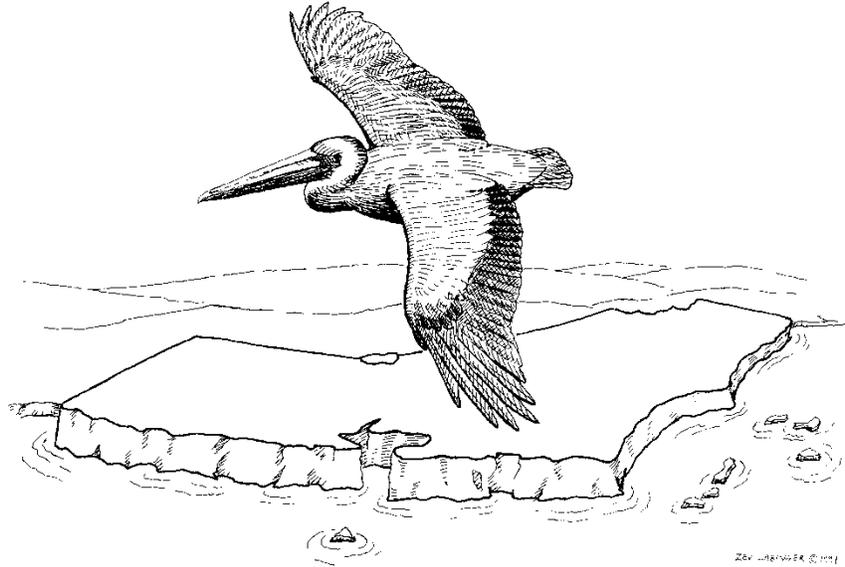
Tom Howard, Executive Director

*Jonathan Bishop, Chief Deputy Director
Caren Trgovcich, Chief Deputy Director*

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State of California
STATE WATER RESOURCES CONTROL BOARD



2015

CALIFORNIA OCEAN PLAN

WATER QUALITY CONTROL PLAN

OCEAN WATERS OF CALIFORNIA

Amendments to the Water Quality Control Plan for the Ocean Waters of California

Name	Date Adopted	Resolution Number	Effective Date
1. Amendment to the statewide for the Ocean Plan of California addressing desalination facility intakes, brine discharges, and to incorporate other non-substantive changes	5/06/2015	2015-0033	1/28/2016
2. Amendment to the Water Quality Control Plan for Ocean Waters of California to control trash and part 1 trash provisions of the Water Quality Control Plan for inland surface waters, enclosed bays, and estuaries in California	4/7/2015	2015-0019	1/12/2016
3. Adoption of the California Ocean Plan Amendments regarding model monitoring, vessel discharges, and non-substantive changes	10/16/2012	2012-0057	7/01/2013
4. Adopting the California Ocean Plan Amendment implementing State Water Board resolutions 2010-0057 and 2011-013 regarding State Water Quality Protection Areas and Marine Protected Areas	10/16/2012	2012-0056	7/01/2013
5. Adoption of Proposed Amendments to the California Ocean Plan regarding total recoverable metals, compliance schedules, toxicity definitions, and the list of exceptions	9/15/2009	2009-0072	3/10/2010
6. Amendment to the California Ocean Plan: (1) Reasonable Potential, Determining When California Ocean Plan Water Quality-Based Effluent Limitations are Required, and (2) Minor Changes to the Areas of Special Biological Significance, and Exception Provisions	4/21/2005	2005-0035	10/12/2005
7. Amendment to California Ocean Plan Water Contact Bacterial Standards	1/20/2005	2005-0013	10/12/2005
8. Adoption of the Proposed Amendments to the California Ocean Plan regarding Table A, chemical water quality objectives, provisions of compliance, special protection for water quality and designated uses, and administrative changes	11/16/2000	2000-108	12/03/2001
9. Adoption of an Amendment to the Water Quality Control Plan for Ocean Waters of California regarding revisions to the list of critical life stage protocols used in testing the toxicity of waste discharges	3/20/1997	97-026	7/23/1997
10. Approval of Amendment to the Water Quality Control Plan for Ocean Waters of California regarding new water quality objectives in Table B	3/22/1990	90-027	3/22/1990

11. Water Quality Control Plan for Ocean Waters of California, California Ocean Plan	9/22/1988	88-111	9/22/1988
12. Water Quality Control Plan for Ocean Waters of California	11/17/1983	83-087	11/17/1983
13. Water Quality Control Plan for Ocean Waters of California	1/19/1978	78-002	1/19/1978
14. Water Quality Control Plan for Ocean Waters of California	7/06/1972	72-045	7/06/1972

CALIFORNIA OCEAN PLAN

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CALIFORNIA OCEAN PLAN
WATER QUALITY CONTROL PLAN FOR
OCEAN WATERS OF CALIFORNIA

INTRODUCTION

A. Purpose and Authority

1. In furtherance of legislative policy set forth in section 13000 of Division 7 of the California Water Code (CWC) (Stats. 1969, Chap. 482) pursuant to the authority contained in section 13170 and 13170.2 (Stats. 1971, Chap. 1288) the State Water Resources Control Board (State Water Board) hereby finds and declares that protection of the quality of the ocean* waters for use and enjoyment by the people of the State requires control of the discharge of waste* to ocean* waters and control of intake seawater* in accordance with the provisions contained herein. The Board finds further that this plan shall be reviewed at least every three years to guarantee that the current standards are adequate and are not allowing degradation* to marine species or posing a threat to public health.

B. Principles

1. Harmony Among Water Quality Control Plans and Policies.
 - a. In the adoption and amendment of water quality control plans, it is the intent of this Board that each plan will provide for the attainment and maintenance of the water quality standards of downstream waters.*
 - b. To the extent there is a conflict between a provision of this plan and a provision of another statewide plan or policy, or a regional water quality control plan (basin plan), the more stringent provision shall apply except where pursuant to Chap. III.J of this Plan, the State Water Board has approved an exception to the Plan requirements, and except in chapter III.M, in which the provisions of this plan shall govern.

C. Applicability

1. This plan is applicable, in its entirety, to point source discharges to the ocean.* Nonpoint sources of waste* discharges to the ocean* are subject to Chapter I Beneficial Uses, Chapter II - WATER QUALITY OBJECTIVES (wherein compliance with water quality objectives shall, in all cases, be determined by direct measurements in the receiving waters*) and Chapter III - PROGRAM OF IMPLEMENTATION Parts A.2, D, E, and I.
2. This plan is not applicable to discharges to enclosed* bays and estuaries* or inland waters or the control of dredged material.*

* See Appendix I for definition of terms.

3. Provisions regulating the thermal aspects of waste* discharged to the ocean* are set forth in the Water Quality Control Plan for the Control of Temperature in the Coastal and Interstate Waters and Enclosed* Bays and Estuaries* of California.
4. Provisions regulating the intake of seawater* for desalination facilities* are established pursuant to the authority contained in section 13142.5 subdivision (b) of the California Water Code (Stats. 1976, Chap. 1330).
5. Within this Plan, references to the State Board or State Water Board shall mean the State Water Resources Control Board. References to a Regional Board or Regional Water Board shall mean a California Regional Water Quality Control Board. References to the Environmental Protection Agency, USEPA, or EPA shall mean the federal Environmental Protection Agency.

* See Appendix I for definition of terms.

I. BENEFICIAL USES

- A. The beneficial uses of the ocean* waters of the State that shall be protected include industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture*; preservation and enhancement of designated Areas* of Special Biological Significance (ASBS); rare and endangered species; marine habitat; fish migration; fish spawning and shellfish* harvesting.

* See Appendix I for definition of terms.

II. WATER QUALITY OBJECTIVES

A. General Provisions

1. This chapter sets forth limits or levels of water quality characteristics for ocean* waters to ensure the reasonable protection of beneficial uses and the prevention of nuisance. The discharge of waste* shall not cause violation of these objectives.
2. The Water Quality Objectives and Effluent Limitations are defined by a statistical distribution when appropriate. This method recognizes the normally occurring variations in treatment efficiency and sampling and analytical techniques and does not condone poor operating practices.
3. Compliance with the water quality objectives of this chapter shall be determined from samples collected at stations representative of the area within the waste* field where initial* dilution is completed.

B. Bacterial Characteristics

1. Water-Contact Standards

Both the State Water Board and the California Department of Public Health (CDPH) have established standards to protect water contact recreation in coastal waters from bacterial contamination. Subsection a of this section contains bacterial objectives adopted by the State Water Board for ocean* waters used for water contact recreation. Subsection b describes the bacteriological standards adopted by CDPH for coastal waters adjacent to public beaches and public water contact sports areas in ocean waters.

a. State Water Board Water-Contact Standards

- (1) Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Regional Board (i.e., waters designated as REC-1), but including all kelp beds,* the following bacterial objectives shall be maintained throughout the water column:

30-day Geometric Mean – The following standards are based on the geometric mean of the five most recent samples from each site:

- i. Total coliform density shall not exceed 1,000 per 100 mL;
- ii. Fecal coliform density shall not exceed 200 per 100 mL; and
- iii. Enterococcus density shall not exceed 35 per 100 mL.

Single Sample Maximum:

- i. Total coliform density shall not exceed 10,000 per 100 mL;
- ii. Fecal coliform density shall not exceed 400 per 100 mL;
- iii. Enterococcus density shall not exceed 104 per 100 mL; and

* See Appendix I for definition of terms.

iv. Total coliform density shall not exceed 1,000 per 100 mL when the fecal coliform/total coliform ratio exceeds 0.1.

(2) The “Initial Dilution* Zone” of wastewater outfalls shall be excluded from designation as kelp beds* for purposes of bacterial standards, and Regional Boards should recommend extension of such exclusion zone where warranted to the State Water Board (for consideration under chapter III. J). Adventitious assemblages of kelp on waste discharge structures (e.g., outfall pipes and multipoint diffusers*) do not constitute kelp beds* for purposes of bacterial standards.

b. CDPH Standards

CDPH has established minimum protective bacteriological standards for coastal waters adjacent to public beaches and for public water-contact sports areas in ocean* waters. These standards are found in the California Code of Regulations, title 17, section 7958, and they are identical to the objectives contained in subsection a. above. When a public beach or public water-contact sports area fails to meet these standards, CDPH or the local public health officer may post with warning signs or otherwise restrict use of the public beach or public water-contact sports area until the standards are met. The CDPH regulations impose more frequent monitoring and more stringent posting and closure requirements on certain high-use public beaches that are located adjacent to a storm drain that flows in the summer.

For beaches not covered under AB 411 regulations, CDPH imposes the same standards as contained in Title 17 and requires weekly sampling but allows the county health officer more discretion in making posting and closure decisions.

2. Shellfish* Harvesting Standards

a. At all areas where shellfish* may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:

(1) The median total coliform density shall not exceed 70 per 100 mL, and not more than 10 percent of the samples shall exceed 230 per 100 mL.

C. Physical Characteristics

1. Floating particulates and grease and oil shall not be visible.
2. The discharge of waste* shall not cause aesthetically undesirable discoloration of the ocean* surface.
3. Natural light* shall not be significantly* reduced at any point outside the initial* dilution zone as the result of the discharge of waste.*
4. The rate of deposition of inert solids and the characteristics of inert solids in ocean* sediments shall not be changed such that benthic communities are degraded.*

* See Appendix I for definition of terms.

5. Trash* shall not be present in ocean waters, along shorelines or adjacent areas in amounts that adversely affect beneficial uses or cause nuisance.

D. Chemical Characteristics

1. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste* materials.*
2. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.
3. The dissolved sulfide concentration of waters in and near sediments shall not be significantly* increased above that present under natural conditions.
4. The concentration of substances set forth in chapter II, Table 1, in marine sediments shall not be increased to levels which would degrade* indigenous biota.
5. The concentration of organic materials* in marine sediments shall not be increased to levels that would degrade* marine life.
6. Nutrient materials* shall not cause objectionable aquatic growths or degrade* indigenous biota.
7. Numerical Water Quality Objectives
 - a. Table 1 water quality objectives apply to all discharges within the jurisdiction of this Plan. Unless otherwise specified, all metal concentrations are expressed as total recoverable concentrations.
 - b. Table 1 Water Quality Objectives

* See Appendix I for definition of terms.

**TABLE 1 (formerly TABLE B)
WATER QUALITY OBJECTIVES**

	Units of Measurement	Limiting Concentrations		
		6-Month Median	Daily Maximum	Instantaneous Maximum
OBJECTIVES FOR PROTECTION OF MARINE AQUATIC LIFE				
Arsenic	µg/L	8.	32.	80.
Cadmium	µg/L	1.	4.	10.
Chromium (Hexavalent) (see below, a)	µg/L	2.	8.	20.
Copper	µg/L	3.	12.	30.
Lead	µg/L	2.	8.	20.
Mercury	µg/L	0.04	0.16	0.4
Nickel	µg/L	5.	20.	50.
Selenium	µg/L	15.	60.	150.
Silver	µg/L	0.7	2.8	7.
Zinc	µg/L	20.	80.	200.
Cyanide (see below, b)	µg/L	1.	4.	10.
Total Chlorine Residual (For intermittent chlorine sources see below, c)	µg/L	2.	8.	60.
Ammonia (expressed as nitrogen)	µg/L	600.	2400.	6000.
Acute* Toxicity	TUa	N/A	0.3	N/A
Chronic* Toxicity	TUc	N/A	1.	N/A
Phenolic Compounds (non-chlorinated)	µg/L	30.	120.	300.
Chlorinated Phenolics	µg/L	1.	4.	10.
Endosulfan*	µg/L	0.009	0.018	0.027
Endrin	µg/L	0.002	0.004	0.006
HCH*	µg/L	0.004	0.008	0.012
Radioactivity	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, section 30253 of the California Code of Regulations. Reference to section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.			

* See Appendix I for definition of terms.

TABLE 1 (formerly TABLE B) Continued

<u>Chemical</u>	<u>30-day Average (µg/L)</u>	
	<u>Decimal Notation</u>	<u>Scientific Notation</u>
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – NONCARCINOGENS		
acrolein	220.	2.2 x 10 ²
antimony	1,200.	1.2 x 10 ³
bis(2-chloroethoxy) methane	4.4	4.4 x 10 ⁰
bis(2-chloroisopropyl) ether	1,200.	1.2 x 10 ³
chlorobenzene	570.	5.7 x 10 ²
chromium (III)	190,000.	1.9 x 10 ⁵
di-n-butyl phthalate	3,500.	3.5 x 10 ³
dichlorobenzenes*	5,100.	5.1 x 10 ³
diethyl phthalate	33,000.	3.3 x 10 ⁴
dimethyl phthalate	820,000.	8.2 x 10 ⁵
4,6-dinitro-2-methylphenol	220.	2.2 x 10 ²
2,4-dinitrophenol	4.0	4.0 x 10 ⁰
ethylbenzene	4,100.	4.1 x 10 ³
fluoranthene	15.	1.5 x 10 ¹
hexachlorocyclopentadiene	58.	5.8 x 10 ¹
nitrobenzene	4.9	4.9 x 10 ⁰
thallium	2.	2. x 10 ⁰
toluene	85,000.	8.5 x 10 ⁴
tributyltin	0.0014	1.4 x 10 ⁻³
1,1,1-trichloroethane	540,000.	5.4 x 10 ⁵
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS		
acrylonitrile	0.10	1.0 x 10 ⁻¹
aldrin	0.000022	2.2 x 10 ⁻⁵
benzene	5.9	5.9 x 10 ⁰
benzidine	0.000069	6.9 x 10 ⁻⁵
beryllium	0.033	3.3 x 10 ⁻²
bis(2-chloroethyl) ether	0.045	4.5 x 10 ⁻²
bis(2-ethylhexyl) phthalate	3.5	3.5 x 10 ⁰
carbon tetrachloride	0.90	9.0 x 10 ⁻¹
chlordane*	0.000023	2.3 x 10 ⁻⁵
chlorodibromomethane	8.6	8.6 x 10 ⁰

* See Appendix I for definition of terms.

TABLE 1 (formerly TABLE B) Continued

<u>Chemical</u>	<u>30-day Average (µg/L)</u>	
	<u>Decimal Notation</u>	<u>Scientific Notation</u>
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS		
chloroform	130.	1.3 x 10 ²
DDT*	0.00017	1.7 x 10 ⁻⁴
1,4-dichlorobenzene	18.	1.8 x 10 ¹
3,3'-dichlorobenzidine	0.0081	8.1 x 10 ⁻³
1,2-dichloroethane	28.	2.8 x 10 ¹
1,1-dichloroethylene	0.9	9 x 10 ⁻¹
dichlorobromomethane	6.2	6.2 x 10 ⁰
dichloromethane	450.	4.5 x 10 ²
1,3-dichloropropene	8.9	8.9 x 10 ⁰
dieldrin	0.00004	4.0 x 10 ⁻⁵
2,4-dinitrotoluene	2.6	2.6 x 10 ⁰
1,2-diphenylhydrazine	0.16	1.6 x 10 ⁻¹
halomethanes*	130.	1.3 x 10 ²
heptachlor	0.00005	5 x 10 ⁻⁵
heptachlor epoxide	0.00002	2 x 10 ⁻⁵
hexachlorobenzene	0.00021	2.1 x 10 ⁻⁴
hexachlorobutadiene	14.	1.4 x 10 ¹
hexachloroethane	2.5	2.5 x 10 ⁰
isophorone	730.	7.3 x 10 ²
N-nitrosodimethylamine	7.3	7.3 x 10 ⁰
N-nitrosodi-N-propylamine	0.38	3.8 x 10 ⁻¹
N-nitrosodiphenylamine	2.5	2.5 x 10 ⁰
PAHs*	0.0088	8.8 x 10 ⁻³
PCBs*	0.000019	1.9 x 10 ⁻⁵
TCDD equivalents*	0.0000000039	3.9 x 10 ⁻⁹
1,1,2,2-tetrachloroethane	2.3	2.3 x 10 ⁰
tetrachloroethylene	2.0	2.0 x 10 ⁰
toxaphene	0.00021	2.1 x 10 ⁻⁴
trichloroethylene	27.	2.7 x 10 ¹
1,1,2-trichloroethane	9.4	9.4 x 10 ⁰
2,4,6-trichlorophenol	0.29	2.9 x 10 ⁻¹
vinyl chloride	36.	3.6 x 10 ¹

* See Appendix I for definition of terms.

Table 1 Notes:

- a) Dischargers may at their option meet this objective as a total chromium objective.
- b) If a discharger can demonstrate to the satisfaction of the Regional Water Board (subject to EPA approval) that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, effluent limitations for cyanide may be met by the combined measurement of free cyanide, simple alkali metal cyanides, and weakly complexed organometallic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by the approved method in 40 CFR PART 136, as revised May 14, 1999.
- c) Water quality objectives for total chlorine residual applying to intermittent discharges not exceeding two hours, shall be determined through the use of the following equation:

$$\log y = -0.43 (\log x) + 1.8$$

where: y = the water quality objective (in µg/L) to apply when chlorine is being discharged;
x = the duration of uninterrupted chlorine discharge in minutes.

E. Biological Characteristics

- 1. Marine communities, including vertebrate, invertebrate, algae, and plant species, shall not be degraded.*
- 2. The natural taste, odor, and color of fish, shellfish,* or other marine resources used for human consumption shall not be altered.
- 3. The concentration of organic materials* in fish, shellfish* or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

F. Radioactivity

- 1. Discharge of radioactive waste* shall not degrade* marine life.

* See Appendix I for definition of terms.

III. PROGRAM OF IMPLEMENTATION

A. General Provisions

1. Effective Date

- a. The *Water Quality Control Plan, Ocean Waters of California, California Ocean Plan* was adopted and has been effective since 1972. There have been multiple amendments of the Ocean Plan since its adoption.

2. General Requirements For Management Of Waste Discharge To The Ocean*

- a. Waste* management systems that discharge to the ocean* must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.
- b. Waste* discharged to the ocean* must be essentially free of:
 - (1) Material* that is floatable or will become floatable upon discharge.
 - (2) Settleable material* or substances that may form sediments which will degrade* benthic communities or other aquatic life.
 - (3) Substances which will accumulate to toxic levels in marine waters, sediments or biota.
 - (4) Substances that significantly* decrease the natural light* to benthic communities and other marine life.
 - (5) Materials* that result in aesthetically undesirable discoloration of the ocean* surface.
- c. Waste* effluents shall be discharged in a manner which provides sufficient initial* dilution to minimize the concentrations of substances not removed in the treatment.
- d. Location of waste* discharges must be determined after a detailed assessment of the oceanographic characteristics and current patterns to assure that:
 - (1) Pathogenic organisms and viruses are not present in areas where shellfish* are harvested for human consumption or in areas used for swimming or other body-contact sports.
 - (2) Natural water quality conditions are not altered in areas designated as being of special biological significance or areas that existing marine laboratories use as a source of seawater.*
 - (3) Maximum protection is provided to the marine environment.

* See Appendix I for definition of terms.

e. Waste* that contains pathogenic organisms or viruses should be discharged a sufficient distance from shellfishing* and water-contact sports areas to maintain applicable bacterial standards without disinfection. Where conditions are such that an adequate distance cannot be attained, reliable disinfection in conjunction with a reasonable separation of the discharge point from the area of use must be provided. Disinfection procedures that do not increase effluent toxicity and that constitute the least environmental and human hazard should be used.

3. Areas of Special Biological Significance*

a. ASBS* shall be designated by the State Water Board following the procedures provided in Appendix IV. A list of ASBS* is available in Appendix V.

4. Combined Sewer Overflow: Notwithstanding any other provisions in this plan, discharges from the City of San Francisco’s combined sewer system are subject to the US EPA’s Combined Sewer Overflow Policy.

B. Table 2 Effluent Limitations

**TABLE 2 (formerly TABLE A)
EFFLUENT LIMITATIONS**

		Limiting Concentrations		
	Unit of <u>Measurement</u>	<u>Monthly</u> (30-day Average)	<u>Weekly</u> (7-day Average)	<u>Maximum</u> <u>at any time</u>
Grease and Oil	mg/L	25.	40.	75.
Suspended Solids			See below +	
Settleable Solids	mL/L	1.0	1.5	3.0
Turbidity	NTU	75.	100.	225.
pH	Units		Within limit of 6.0 to 9.0 at all times	

Table 2 Notes:

+ Suspended Solids: Dischargers shall, as a 30-day average, remove 75% of suspended solids from the influent stream before discharging wastewaters to the ocean,* except that the effluent limitation to be met shall not be lower than 60 mg/l. Regional Boards may recommend that the State Water Board (chapter III section J), with the concurrence of the Environmental Protection Agency, adjust the lower effluent concentration limit (the 60 mg/l above) to suit the environmental and effluent characteristics of the discharge. As a further consideration in making such recommendation for adjustment, Regional Water Boards should evaluate effects on existing and potential water* reclamation projects.

If the lower effluent concentration limit is adjusted, the discharger shall remove 75% of suspended solids from the influent stream at any time the influent concentration exceeds four times such adjusted effluent limit.

1. Table 2 effluent limitations apply only to publicly owned treatment works and industrial discharges for which Effluent Limitations Guidelines have not been established pursuant to sections 301, 302, 304, or 306 of the Federal Clean Water Act.

* See Appendix I for definition of terms.

2. Table 2 effluent limitations shall apply to a discharger's total effluent, of whatever origin (i.e., gross, not net, discharge), except where otherwise specified in this Plan.
3. The State Water Board is authorized to administer and enforce effluent limitations established pursuant to the Federal Clean Water Act. Effluent limitations established under sections 301, 302, 306, 307, 316, 403, and 405 of the aforementioned Federal Act and administrative procedures pertaining thereto are included in this plan by reference. Compliance with Table 2 effluent limitations, or Environmental Protection Agency Effluent Limitations Guidelines for industrial discharges, based on Best Practicable Control Technology, shall be the minimum level* of treatment acceptable under this plan, and shall define reasonable treatment and waste* control technology.
4. Compliance with Table 2 effluent limitations for brine discharges from desalination facilities that commingle brine and wastewater prior to discharge to the ocean may be measured after the brine has been commingled with wastewater, provided that the permittee for the commingled discharge accepts responsibly for any exceedances of the Table 2 effluent limitations.

C. Implementation Provisions for Table 1

1. Effluent concentrations calculated from Table 1 water quality objectives shall apply to a discharger's total effluent, of whatever origin (i.e., gross, not net, discharge), except where otherwise specified in this Plan.
2. If the Regional Water Board determines, using the procedures in Appendix VI, that a pollutant is discharged into ocean* waters at levels which will cause, have the reasonable potential to cause, or contribute to an excursion above a Table 1 water quality objective, the Regional Water Board shall incorporate a water quality-based effluent limitation in the Waste Discharge Requirement for the discharge of that pollutant.
3. Effluent limitations shall be imposed in a manner prescribed by the State Water Board such that the concentrations set forth below as water quality objectives shall not be exceeded in the receiving water* upon completion of initial* dilution, except that objectives indicated for radioactivity shall apply directly to the undiluted waste* effluent.
4. Calculation of Effluent Limitations
 - a. Effluent limitations for water quality objectives listed in Table 1, with the exception of acute toxicity and radioactivity, shall be determined through the use of the following equation:

Equation 1: $C_e = C_o + D_m (C_o - C_s)$

where:

C_e = the effluent concentration limit, $\mu\text{g/L}$

C_o = the concentration (water quality objective) to be met at the completion of initial* dilution, $\mu\text{g/L}$

C_s = background seawater* concentration (see Table 3 below, with all metals expressed as total recoverable concentrations), $\mu\text{g/L}$

D_m = minimum probable initial* dilution expressed as parts seawater* per part wastewater.

* See Appendix I for definition of terms.

Waste Constituent	Cs (µg/L)
Arsenic	3.
Copper	2.
Mercury	0.0005
Silver	0.16
Zinc	8.

For all other Table 1 parameters, Cs = 0.

b. Determining a Mixing Zone for the Acute Toxicity* Objective

The mixing zone for the acute toxicity* objective shall be ten percent (10%) of the distance from the edge of the outfall structure to the edge of the chronic mixing zone (zone of initial dilution*). There is no vertical limitation on this zone. The effluent limitation for the acute toxicity* objective listed in Table 1 shall be determined through the use of the following equation:

Equation 2: $C_e = C_a + (0.1) D_m (C_a)$

where:

C_a = the concentration (water quality objective) to be met at the edge of the acute mixing zone.

D_m = minimum probable initial* dilution expressed as parts seawater* per part wastewater (This equation applies only when $D_m > 24$).

c. Toxicity Testing Requirements based on the Minimum Initial* Dilution Factor for Ocean Waste* Discharges

- (1) Dischargers shall conduct acute toxicity* testing if the minimum initial* dilution of the effluent is greater than 1,000:1 at the edge of the mixing zone.
- (2) Dischargers shall conduct either acute or chronic toxicity* testing if the minimum initial* dilution ranges from 350:1 to 1,000:1 depending on the specific discharge conditions. The Regional Water Board shall make this determination.
- (3) Dischargers shall conduct chronic toxicity* testing for ocean waste* discharges with minimum initial* dilution factors ranging from 100:1 to 350:1. The Regional Water Board may require that acute toxicity* testing be conducted in addition to chronic as necessary for the protection of beneficial uses of ocean* waters.
- (4) Dischargers shall conduct chronic toxicity* testing if the minimum initial* dilution of the effluent falls below 100:1 at the edge of the mixing zone.

* See Appendix I for definition of terms.

- d. For the purpose of this Plan, minimum initial* dilution is the lowest average initial* dilution within any single month of the year. Dilution estimates shall be based on observed waste* flow characteristics, observed receiving water* density structure, and the assumption that no currents, of sufficient strength to influence the initial* dilution process, flow across the discharge structure.
- e. The Executive Director of the State Water Board shall identify standard dilution models for use in determining Dm, and shall assist the Regional Board in evaluating Dm for specific waste* discharges. Dischargers may propose alternative methods of calculating Dm, and the Regional Board may accept such methods upon verification of its accuracy and applicability.
- f. The six-month median shall apply as a moving median of daily values for any 180-day period in which daily values represent flow weighted average concentrations within a 24-hour period. For intermittent discharges, the daily value shall be considered to equal zero for days on which no discharge occurred.
- g. The daily maximum shall apply to flow weighted 24 hour composite samples.
- h. The instantaneous maximum shall apply to grab sample determinations.
- i. If only one sample is collected during the time period associated with the water quality objective (e.g., 30-day average or 6-month median), the single measurement shall be used to determine compliance with the effluent limitation for the entire time period.
- j. Discharge requirements shall also specify effluent limitations in terms of mass emission rate limits utilizing the general formula:

$$\text{Equation 3: lbs/day} = 0.00834 \times C_e \times Q$$

where:

C_e = the effluent concentration limit, $\mu\text{g/L}$

Q = flow rate, million gallons per day (MGD)

- k. The six-month median limit on daily mass emissions shall be determined using the six-month median effluent concentration as C_e and the observed flow rate Q in millions of gallons per day. The daily maximum mass emission shall be determined using the daily maximum effluent concentration limit as C_e and the observed flow rate Q in millions of gallons per day.
 - l. Any significant* change in waste* flow shall be cause for reevaluating effluent limitations.
5. Minimum* Levels

For each numeric effluent limitation, the Regional Board must select one or more Minimum* Levels (and their associated analytical methods) for inclusion in the permit. The "reported" Minimum* Level is the Minimum* Level (and its associated analytical

* See Appendix I for definition of terms.

method) chosen by the discharger for reporting and compliance determination from the Minimum* Levels included in their permit.

a. Selection of Minimum* Levels from Appendix II

The Regional Water Board must select all Minimum* Levels from Appendix II that are below the effluent limitation. If the effluent limitation is lower than all the Minimum* Levels in Appendix II, the Regional Board must select the lowest Minimum* Level from Appendix II.

b. Deviations from Minimum* Levels in Appendix II

The Regional Board, in consultation with the State Water Board's Quality Assurance Program, must establish a Minimum* Level to be included in the permit in any of the following situations:

1. A pollutant is not listed in Appendix II.
2. The discharger agrees to use a test method that is more sensitive than those described in 40 CFR 136 (revised May 14, 1999).
3. The discharger agrees to use a Minimum* Level lower than those listed in Appendix II.
4. The discharger demonstrates that their calibration standard matrix is sufficiently different from that used to establish the Minimum* Level in Appendix II and proposes an appropriate Minimum* Level for their matrix.
5. A discharger uses an analytical method having a quantification practice that is not consistent with the definition of Minimum* Level (e.g., US EPA methods 1613, 1624, 1625).

6. Use of Minimum* Levels

- a. Minimum* Levels in Appendix II represent the lowest quantifiable concentration in a sample based on the proper application of method-specific analytical procedures and the absence of matrix interferences. Minimum* Levels also represent the lowest standard concentration in the calibration curve for a specific analytical technique after the application of appropriate method-specific factors.

Common analytical practices may require different treatment of the sample relative to the calibration standard. Some examples are given below:

<u>Substance or Grouping</u>	<u>Method-Specific Treatment</u>	<u>Most Common Factor</u>
Volatile Organics	No differential treatment	1
Semi-Volatile Organics	Samples concentrated by extraction	1000
Metals	Samples diluted or concentrated	½, 2, and 4
Pesticides	Samples concentrated by extraction	100

- b. Other factors may be applied to the Minimum* Level depending on the specific sample preparation steps employed. For example, the treatment typically applied when there are matrix effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied during the

* See Appendix I for definition of terms.

computation of the reporting limit. Application of such factors will alter the reported Minimum* Level.

- c. Dischargers are to instruct their laboratories to establish calibration standards so that the Minimum* Level (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve. In accordance with section 4b, above, the discharger's laboratory may employ a calibration standard lower than the Minimum* Level in Appendix II.

7. Sample Reporting Protocols

- a. Dischargers must report with each sample result the reported Minimum* Level (selected in accordance with section 4, above) and the laboratory's current MDL.*
- b. Dischargers must also report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:
 - (1) Sample results greater than or equal to the reported Minimum* Level must be reported "as measured" by the laboratory (i.e., the measured chemical concentration in the sample).
 - (2) Sample results less than the reported Minimum* Level, but greater than or equal to the laboratory's MDL,* must be reported as "Detected, but Not Quantified", or DNQ. The laboratory must write the estimated chemical concentration of the sample next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc.").
 - (3) Sample results less than the laboratory's MDL* must be reported as "Not Detected", or ND.

8. Compliance Determination

Sufficient sampling and analysis shall be required to determine compliance with the effluent limitation.

a. Compliance with Single-Constituent Effluent Limitations

Dischargers are out of compliance with the effluent limitation if the concentration of the pollutant (see section 7c, below) in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum* Level.

b. Compliance with Effluent Limitations expressed as a Sum of Several Constituents

Dischargers are out of compliance with an effluent limitation which applies to the sum of a group of chemicals (e.g., PCBs*) if the sum of the individual pollutant concentrations is greater than the effluent limitation. Individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as ND or DNQ.

* See Appendix I for definition of terms.

c. Multiple Sample Data Reduction

The concentration of the pollutant in the effluent may be estimated from the result of a single sample analysis or by a measure of central tendency (arithmetic mean, geometric mean, median, etc.) of multiple sample analyses when all sample results are quantifiable (i.e., greater than or equal to the reported Minimum* Level). When one or more sample results are reported as ND or DNQ, the central tendency concentration of the pollutant shall be the median (middle) value of the multiple samples. If, in an even number of samples, one or both of the middle values is ND or DNQ, the median will be the lower of the two middle values.

d. Powerplants and Heat Exchange Dischargers

Due to the large total volume of powerplant and other heat exchange discharges, special procedures must be applied for determining compliance with Table 1 objectives on a routine basis. Effluent concentration values (C_e) shall be determined through the use of equation 1 considering the minimal probable initial* dilution of the combined effluent (in-plant waste* streams plus cooling water flow). These concentration values shall then be converted to mass emission limitations as indicated in equation 3. The mass emission limits will then serve as requirements applied to all in-plant waste* streams taken together which discharge into the cooling water flow, except that limits for total chlorine residual, acute (if applicable per section (3)(c)) and chronic* toxicity* and instantaneous maximum concentrations in Table 1 shall apply to, and be measured in, the combined final effluent, as adjusted for dilution with ocean water. The Table 1 objective for radioactivity shall apply to the undiluted combined final effluent.

9. Pollutant Minimization Program

a. Pollutant Minimization Program Goal

The goal of the Pollutant Minimization Program is to reduce all potential sources of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures, in order to maintain the effluent concentration at or below the effluent limitation.

Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The completion and implementation of a Pollution Prevention Plan, required in accordance with CA Water Code section 13263.3 (d) will fulfill the Pollution Minimization Program requirements in this section.

b. Determining the need for a Pollutant Minimization Program

1. The discharger must develop and conduct a Pollutant Minimization Program if all of the following conditions are true:
 - (a) The calculated effluent limitation is less than the reported Minimum Level*
 - (b) The concentration of the pollutant is reported as DNQ

* See Appendix I for definition of terms.

- (c) There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation.
- 2. Alternatively, the discharger must develop and conduct a Pollutant Minimization Program if all of the following conditions are true:
 - (a) The calculated effluent limitation is less than the Method Detection Limit.*
 - (b) The concentration of the pollutant is reported as ND.
 - (c) There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation.
- c. Regional Water Boards may include special provisions in the discharge requirements to require the gathering of evidence to determine whether the pollutant is present in the effluent at levels above the calculated effluent limitation. Examples of evidence may include:
 - 1. health advisories for fish consumption,
 - 2. presence of whole effluent toxicity,
 - 3. results of benthic or aquatic organism tissue sampling,
 - 4. sample results from analytical methods more sensitive than methods included in the permit (in accordance with section 4b, above).
 - 5. the concentration of the pollutant is reported as DNQ and the effluent limitation is less than the MDL*

d. Elements of a Pollutant Minimization Program

The Regional Board may consider cost-effectiveness when establishing the requirements of a Pollutant Minimization Program. The program shall include actions and submittals acceptable to the Regional Board including, but not limited to, the following:

- 1. An annual review and semi-annual monitoring of potential sources of the reportable pollutant, which may include fish tissue monitoring and other bio-uptake sampling;
- 2. Quarterly monitoring for the reportable pollutant in the influent to the wastewater treatment system;
- 3. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable pollutant in the effluent at or below the calculated effluent limitation;
- 4. Implementation of appropriate cost-effective control measures for the pollutant, consistent with the control strategy; and,
- 5. An annual status report that shall be sent to the Regional Board including:
 - (a) All Pollutant Minimization Program monitoring results for the previous year;
 - (b) A list of potential sources of the reportable pollutant;
 - (c) A summary of all action taken in accordance with the control strategy; and,

* See Appendix I for definition of terms.

(d) A description of actions to be taken in the following year.

10. Toxicity Reduction Requirements

- a. If a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table 1, a toxicity reduction evaluation (TRE) is required. The TRE shall include all reasonable steps to identify the source of toxicity. Once the source(s) of toxicity is identified, the discharger shall take all reasonable steps necessary to reduce toxicity to the required level.
- b. The following shall be incorporated into waste* discharge requirements: (1) a requirement to conduct a TRE if the discharge consistently exceeds its toxicity effluent limitation, and (2) a provision requiring a discharger to take all reasonable steps to reduce toxicity once the source of toxicity is identified.

D. Implementation Provisions for Bacterial Characteristics

1. Water-Contact Monitoring

- a. Weekly samples shall be collected from each site. The geometric mean shall be calculated using the five most recent sample results.
- b. If a single sample exceeds any of the single sample maximum (SSM) standards, repeat sampling at that location shall be conducted to determine the extent and persistence of the exceedance. Repeat sampling shall be conducted within 24 hours of receiving analytical results and continued until the sample result is less than the SSM standard or until a sanitary survey is conducted to determine the source of the high bacterial densities.
 - i) Total coliform density will not exceed 10,000 per 100 mL; or
 - ii) Fecal coliform density will not exceed 400 per 100 mL; or
 - iii) Total coliform density will not exceed 1,000 per 100 mL when the ratio of fecal/total coliform exceeds 0.1;
 - iv) enterococcus density will not exceed 104 per 100 mL.

When repeat sampling is required because of an exceedance of any one single sample density, values from all samples collected during that 30-day period will be used to calculate the geometric mean.

- c. It is state policy that the geometric mean bacterial objectives are strongly preferred for use in water body assessment decisions, for example, in developing the Clean Water Act section 303(d) list of impaired waters, because the geometric mean objectives are a more reliable measure of long-term water body conditions. In making assessment decisions on bacterial quality, single sample maximum data must be considered together with any available geometric mean data. The use of only single sample maximum bacterial data is generally inappropriate unless there is a limited data set, the water is subject to short-term spikes in bacterial concentrations, or other circumstances justify the use of only single sample maximum data.

* See Appendix I for definition of terms.

- d. For monitoring stations outside of the defined water-contact recreation zone (REC-1), samples will be analyzed for total coliform only.

E. Implementation Provisions for Marine Managed Areas*

1. Section E addresses the following Marine Managed Areas*:

(a) State Water Quality Protection Areas (SWQPAs)* consisting of:

- (1) SWQPA – Areas of Special Biological Significance (ASBS)* designated by the State Water Board that require special protections as defined under section 4 below.
- (2) SWQPA – General Protection (GP) designated by the State Water Board to protect water quality within Marine Protected Areas (MPAs) that require protection under the provisions described under section 5 below.

(b) Marine Protected Areas as defined in the California Public Resources Code as State Marine Reserves, State Marine Parks and State Marine Conservation Areas, established by the Fish and Game Commission, or the Parks and Recreation Commission.

2. The designation of State Marine Parks and State Marine Conservation Areas may not serve as the sole basis for new or modified limitations, substantive conditions, or prohibitions upon existing municipal point source wastewater discharge outfalls. This provision does not apply to State Marine Reserves.

3. The State Water Board may designate SWQPAs* to prevent the undesirable alteration of natural water quality within MPAs. These designations may include either SWQPA-ASBS or SWQPA-GP or in combination. In considering the designation of SWQPAs over MPAs, the State Water Board will consult with the affected Regional Water Quality Control Board, the Department of Fish and Game and the Department of Parks and Recreation, in accordance with the requirements of Appendix IV.

4. Implementation Provisions For SWQPA-ASBS*

- (a) Waste* shall not be discharged to areas designated as being of special biological significance. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas.
- (b) Regional Water Boards may approve waste* discharge requirements or recommend certification for limited-term (i.e. weeks or months) activities in ASBS.* Limited-term activities include, but are not limited to, activities such as maintenance/repair of existing boat facilities, restoration of sea walls, repair of existing storm water pipes, and replacement/repair of existing bridges. Limited-term activities may result in temporary and short-term changes in existing water quality. Water quality degradation shall be limited to the shortest possible time. The activities must not permanently degrade* water quality or result in water quality

* See Appendix I for definition of terms.

lower than that necessary to protect existing uses, and all practical means of minimizing such degradation shall be implemented.

5. Implementation Provisions for SWQPAs-GP*

(a) Implementation provisions for existing point source wastewater discharges (NPDES)

- (1) An SWQPA-GP shall not be designated over existing permitted point source wastewater outfalls or encroach upon the zone of initial dilution* associated with an existing discharge. This requirement does not apply to discharges less than one million gallons per day.
- (2) Designation of an SWQPA-GP shall not include conditions to move existing point source wastewater outfalls.
- (3) Where a new SWQPA-GP is established in the vicinity of existing municipal wastewater outfalls, there shall be no new or modified limiting condition or prohibitions for the SWQPA-GP relative to those wastewater outfalls.
- (4) Regulatory requirements for discharges from existing treated municipal wastewater outfalls shall be derived from the Chapter II – Water Quality Objectives and Chapter III – Program of Implementation.

(b) Implementation provisions for existing seawater* intakes

- (1) Existing permitted seawater* intakes other than those serving desalination facilities* must be controlled to minimize entrainment and impingement by using best technology available. Existing permitted seawater* intakes with a capacity less than one million gallons per day are excluded from this requirement.
- (2) Existing permitted seawater* intakes serving desalination facilities are governed by the provisions set forth in chapter III.M of this Plan.

(c) Implementation provisions for permitted separate storm sewer system (MS4) discharges and nonpoint source discharges.

- (1) Existing waste* discharges are allowed, but shall not cause an undesirable alteration in natural water quality. For purposes of SWQPA-GP, an undesirable alteration in natural water quality means that for intermittent (e.g. wet weather) discharges, Table 1 instantaneous maximum concentrations for chemical constituents, and daily maximum concentrations for chronic toxicity,* must not be exceeded in the receiving water.*
- (2) An NPDES permitting authority* may authorize NPDES-permitted non-storm water discharges* to an MS4 with a direct discharge to an SWQPA-GP only to the extent the NPDES permitting authority* finds that the discharge does not cause an undesirable alteration in natural water quality in an SWQPA-GP.
- (3) Non-storm water (dry weather) flows are effectively prohibited as required by the applicable permit. Where capacity and infrastructure exists, all dry weather flows

* See Appendix I for definition of terms.

shall be diverted to municipal sanitary sewer systems. The permitting authority* may allow discharges essential for emergency response purposes, structural stability, and slope stability, which may include but are not limited the following:

- a. Discharges associated with emergency fire-fighting operations.
- b. Foundation and footing drains
- c. Water from crawl space or basement pumps.
- d. Hillside dewatering.

(4) The following naturally occurring discharges are allowed:

- a. Naturally occurring groundwater seepage via a storm drain
- b. Non-anthropogenic flows from a naturally occurring stream via a culvert or storm drain, as long as there are no contributions of anthropogenic runoff.

(5) Existing storm water discharges into an SWQPA-GP shall be characterized and assessed to determine what effect if any these inputs are having on natural water quality in the State Water Quality Protection Area. Such assessments shall include an evaluation of cumulative impacts as well as impacts stemming from individual discharges. Information to be considered shall include:

- a. Water quality;
- b. Flow;
- c. Watershed pollutant sources; and
- d. Intertidal and/ or subtidal biological surveys.

Within each SWQPA-GP the assessment shall be used to rank these existing discharges into low, medium and high threat impact categories. Cumulative impacts will be ranked similarly as well.

(6) An initial analysis shall be performed for pre- and post-storm receiving water* quality of Table 1 constituents and chronic toxicity.* If post-storm receiving water* quality has larger concentrations of constituents relative to pre-storm, and Table 1 instantaneous maximum concentrations for chemical constituents, and daily maximum concentrations for chronic toxicity,* are exceeded, then receiving water* shall be re-analyzed along with storm runoff (end of pipe) for the constituents that are exceeded.

(7) If undesirable alterations of natural water quality and/or biological communities are identified, control strategies/measures shall be implemented for those dischargers characterized as a high threat or those contributing to higher threat cumulative impacts first.

(8) If those strategies fail, additional control strategies/measures will be implemented for dischargers characterized as medium impact dischargers. If these strategies do not result in improvement of water quality, those discharges classified as low threat shall also implement control strategies/measures.

(d) Implementation Provisions for New Discharges

* See Appendix I for definition of terms.

- (1) Point Source Wastewater Outfalls
No new point source wastewater outfalls shall be established within an SWQPA-GP.
- (2) Seawater* intakes
No new surface water seawater* intakes shall be established within an SWQPA-GP. This does not apply to subsurface* intakes where studies are prepared showing there is no predictable entrainment, impingement, or construction-related marine life mortality.
- (3) All Other New Discharges
There shall be no increase in nonpoint sources or permitted storm drains directly into an SWQPA-GP.

6. Impaired Tributaries to MPAs, SWQPA-ASBS and SWQPA-GP

All water bodies draining to, or that are designated as, MPAs and SWQPAs that appear on the State's CWA section 303(d) list shall be given a high priority to have a TMDL developed and implemented.

F. Revision of Waste* Discharge Requirements

1. The Regional Water Boards may establish more restrictive water quality objectives and effluent limitations than those set forth in this Plan as necessary for the protection of beneficial uses of ocean* waters.
2. Regional Water Boards may impose alternative less restrictive provisions than those contained within Table 1 of the Plan, provided an applicant can demonstrate that:
 - a. Reasonable control technologies (including source control, material* substitution, treatment and dispersion) will not provide for complete compliance; or
 - b. Any less stringent provisions would encourage water* reclamation;
3. Provided further that:
 - a. Any alternative water quality objectives shall be below the conservative estimate of chronic toxicity,* as given in Table 4 (with all metal concentrations expressed as total recoverable concentrations), and such alternative will provide for adequate protection of the marine environment;
 - b. A receiving water* quality toxicity objective of 1 TUc is not exceeded; and
 - c. The State Water Board grants an exception (chapter III.J) to the Table 1 limits as established in the Regional Board findings and alternative limits.

G. Compliance Schedules in National Pollutant Discharge Elimination System (NPDES) Permits

1. Compliance schedules in NPDES permits are authorized in accordance with the provisions of the State Water Board's Policy for Compliance Schedules in [NPDES] Permits (2008).

* See Appendix I for definition of terms.

**TABLE 4 (formerly TABLE D)
CONSERVATIVE ESTIMATES OF CHRONIC* TOXICITY**

Constituent	Estimate of Chronic* Toxicity (µg/L)
Arsenic	19.
Cadmium	8.
Hexavalent Chromium	18.
Copper	5.
Lead	22.
Mercury	0.4
Nickel	48.
Silver	3.
Zinc	51.
Cyanide	10.
Total Chlorine Residual	10.0
Ammonia	4000.0
Phenolic Compounds (non-chlorinated)	a) (see below)
Chlorinated Phenolics	a)
Chlorinated Pesticides and PCBs*	b)

Table 4 Notes:

- a) There are insufficient data for phenolics to estimate chronic* toxicity levels. Requests for modification of water quality objectives for these waste* constituents must be supported by chronic* toxicity data for representative sensitive species. In such cases, applicants seeking modification of water quality objectives should consult the Regional Water Quality Control Board to determine the species and test conditions necessary to evaluate chronic effects.
- b) Limitations on chlorinated pesticides and PCBs* shall not be modified so that the total of these compounds is increased above the objectives in Table 1.

H. Monitoring Program

1. The Regional Water Boards shall require dischargers to conduct self-monitoring programs and submit reports necessary to determine compliance with the waste* discharge requirements, and may require dischargers to contract with agencies or persons acceptable to the Regional Water Board to provide monitoring reports. Monitoring provisions contained in waste* discharge requirements shall be in accordance with the Monitoring Procedures provided in Appendices III and VI.
2. The Regional Water Board may require monitoring of bioaccumulation of toxicants in the discharge zone. Organisms and techniques for such monitoring shall be chosen by the Regional Water Board on the basis of demonstrated value in waste* discharge monitoring.

* See Appendix I for definition of terms.

I. Discharge Prohibitions

1. Hazardous Substances

- a. The discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste* into the ocean* is prohibited.

2. Areas Designated for Special Water Quality Protection

- a. Waste* shall not be discharged to designated Areas* of Special Biological Significance except as provided in chapter III.E Implementation Provisions for Marine Managed Areas.*

3. Sludge

- a. Pipeline discharge of sludge to the ocean* is prohibited by federal law; the discharge of municipal and industrial waste* sludge directly to the ocean,* or into a waste* stream that discharges to the ocean,* is prohibited by this Plan. The discharge of sludge digester supernatant directly to the ocean,* or to a waste* stream that discharges to the ocean* without further treatment, is prohibited.
- b. It is the policy of the State Water Board that the treatment, use and disposal of sewage sludge shall be carried out in the manner found to have the least adverse impact on the total natural and human environment. Therefore, if federal law is amended to permit such discharge, which could affect California waters, the State Water Board may consider requests for exceptions to this section under Chapter III. J of this Plan, provided further that an Environmental Impact Report on the proposed project shows clearly that any available alternative disposal method will have a greater adverse environmental impact than the proposed project.

4. By-Passing

- a. The by-passing of untreated wastes* containing concentrations of pollutants in excess of those of Table 2 or Table 1 to the ocean* is prohibited.

5. Vessels

- a. Discharges of hazardous waste (as defined in California Health and Safety Code § 25117 et seq. [but not including sewage]), oily bilge water,* medical waste (as defined in § 117600 et seq. of the California Health and Safety Code) dry-cleaning waste, and film-processing waste from large passenger vessels* and oceangoing vessels* are prohibited.
- b. Discharges of graywater* and sewage* from large passenger vessels* are prohibited.
- c. Discharges of sewage and sewage sludge from vessels are prohibited in No Discharge Zones* promulgated by U.S. EPA.

* See Appendix I for definition of terms.

6. Trash*

The discharge of Trash* to surface waters of the State or the deposition of Trash* where it may be discharged into surface waters of the State is prohibited. Compliance with this prohibition of discharge shall be achieved as follows:

- a. Dischargers with NPDES permits that contain specific requirements for the control of Trash* that are consistent with these Trash Provisions* shall be determined to be in compliance with this prohibition if the dischargers are in full compliance with such requirements.
- b. Dischargers with non-NPDES waste discharge requirements (WDRs) or waivers of WDRs that contain specific requirements for the control of Trash* shall be determined to be in compliance with this prohibition if the dischargers are in full compliance with such requirements.
- c. Dischargers with NPDES permits, WDRs, or waivers of WDRs that do not contain specific requirements for the control of Trash* are exempt from these Trash Provisions*.
- d. Dischargers without NPDES permits, WDRs, or waivers of WDRs must comply with this prohibition of discharge.
- e. Chapter III.I.6.b and Chapter III.L.3 notwithstanding, this prohibition of discharge applies to the discharge of preproduction plastic* by manufacturers of preproduction plastics*, transporters of preproduction plastics*, and manufacturers that use preproduction plastics* in the manufacture of other products to surface waters of the State, or the deposition of preproduction plastic* where it may be discharged into surface waters of the State, unless the discharger is subject to a NPDES permit for discharges of storm water* associated with industrial activity.

J. State Board Exceptions to Plan Requirements

1. The State Water Board may, in compliance with the California Environmental Quality Act, subsequent to a public hearing, and with the concurrence of the Environmental Protection Agency, grant exceptions where the Board determines:
 - a. The exception will not compromise protection of ocean* waters for beneficial uses, and,
 - b. The public interest will be served.
2. All exceptions issued by the State Water Board and in effect at the time of the Triennial Review will be reviewed at that time. If there is sufficient cause to re-open or revoke any exception, the State Water Board may direct staff to prepare a report and to schedule a public hearing. If after the public hearing the State Water Board decides to re-open, revoke, or re-issue a particular exception, it may do so at that time.

* See Appendix I for definition of terms.

K. Implementation Provisions for Vessel Discharges

1. Vessel discharges must comply with State Lands Commission (SLC) requirements for ballast water discharges and hull fouling to control and prevent the introduction of non-indigenous species, found in the Public Resources Code sections 71200 et seq. and title 2, California Code of Regulations, section 22700 et. seq.
2. Discharges incidental to the normal operation large passenger vessels* and ocean-going vessels must be covered and comply with an individual or general NPDES permit.
3. Vessel discharges must not result in violations of water quality objectives in this plan.
4. Vessels subject to the federal NPDES Vessel General Permit (VGP) which are not large passenger vessels* must follow the best management practices for graywater* as required in the VGP, including the use of only those cleaning agents (e.g., soaps and detergents) that are phosphate-free, non-toxic, and non-bioaccumulative.

L. Implementation Provisions for Trash* [(Section L only) effective January 12, 2016]

1. Applicability

- a. These Trash Provisions* shall be implemented through a prohibition of discharge (Chapter III.I.6) and through NPDES permits issued pursuant to section 402(p) of the Federal Clean Water Act, waste discharge requirements (WDRs), or waivers of WDRs (as set forth in Chapter III.L.2 and Chapter III.L.3 below).
- b. These Trash Provisions* apply to all surface waters of the State, with the exception of those waters within the jurisdiction of the Los Angeles Regional Water Quality Control Board (Los Angeles Water Board) for which trash Total Maximum Daily Loads (TMDLs) are in effect prior to the effective date of these Trash Provisions*¹; provided, however, that:
 - (1) Upon the effective date of these Trash Provisions*, the Los Angeles Water Board shall cease its full capture system* certification process and provide that any new full capture systems* shall be certified by the State Water Board in accordance with these Trash Provisions*.
 - (2) Within one year of the effective date of these Trash Provisions*, the Los Angeles Water Board shall convene a public meeting to reconsider the scope of its trash TMDLs, with the exception of those for the Los Angeles River and Ballona Creek watersheds, to particularly consider an approach

¹ In the Los Angeles Region, there are fifteen (15) trash TMDLs for the following watersheds and water bodies: Los Angeles River Watershed, Ballona Creek, Malibu Creek Watershed, Santa Monica Bay Nearshore and Offshore, San Gabriel River East Fork, Revolon Slough and Beardsley Wash, Ventura River Estuary, Machado Lake, Lake Elizabeth, Lake Hughes, Munz Lake, Peck Road Park Lake, Echo Park Lake, Lincoln Park Lake and Legg Lake. Three of these were established by the U.S. EPA: Peck Road Park Lake, Echo Park Lake and Lincoln Park Lake.

* See Appendix I for definition of terms.

that would focus MS4* permittees' trash-control efforts on high-trash generation areas within their jurisdictions.

2. Dischargers Permitted Pursuant to Federal Clean Water Act Section 402(p)

Permitting authorities* shall include the following requirements in NPDES permits issued pursuant to Federal Clean Water Act section 402(p):

- a. MS4* permittees with regulatory authority over priority land uses* shall be required to comply with the prohibition of discharge in Chapter III.I.6.a herein by either of the following measures:
 - (1) Track 1: Install, operate, and maintain full capture systems* for all storm drains that captures runoff from the priority land uses* in their jurisdictions; or
 - (2) Track 2: Install, operate, and maintain any combination of full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* within either the jurisdiction of the MS4* permittee or within the jurisdiction of the MS4* permittee and contiguous MS4* permittees. The MS4* permittee may determine the locations or land uses within its jurisdiction to implement any combination of controls. The MS4* permittee shall demonstrate that such combination achieves full capture system equivalency*. The MS4* permittee may determine which controls to implement to achieve compliance with full capture system equivalency*. It is, however, the State Water Board's expectation that the MS4* permittee will elect to install full capture systems* where such installation is not cost-prohibitive.
- b. The California Department of Transportation (Department) shall be required to comply with the prohibition of discharge in Chapter III.I.6.a herein in all significant trash generating areas* by installing, operating, and maintaining any combination of full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* for all storm drains that captures runoff from significant trash generating areas*. The Department shall demonstrate that such combination achieves full capture system equivalency*. In furtherance of this provision, the Department and MS4* permittees that are subject to the provisions of Chapter III.L.2.a herein shall coordinate their efforts to install, operate, and maintain full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* in significant trash generating areas* and/or priority land uses*.
- c. Dischargers that are subject to NPDES permits for discharges of storm water* associated with industrial activity (including construction activity) shall be required to comply with the prohibition of discharge in Chapter III.I.6.a herein by eliminating Trash* from all storm water* and authorized non-storm water* discharges consistent with an outright prohibition of the discharge of Trash* contained within the applicable NPDES permit regulating the industrial or construction facility. If the discharger can satisfactorily demonstrate to the permitting authority* its inability to comply with the outright prohibition of the

* See Appendix I for definition of terms.

discharge of Trash* contained within the applicable NPDES permit, then the permitting authority* may require the discharger to either:

- (1) Install, operate, and maintain full capture systems* for all storm drains that captures runoff from the facility or site regulated by the NPDES permit; or,
- (2) Install, operate, and maintain any combination of full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* for the facility or site regulated by the NPDES permit. The discharger shall demonstrate that such combination achieves full capture system equivalency*.

Termination of permit coverage for industrial and construction storm water* dischargers shall be conditioned upon the proper operation and maintenance of all controls (e.g., full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls*) used at their facility(ies).

- d. A permitting authority* may determine that specific land uses or locations (e.g., parks, stadia, schools, campuses, or roads leading to landfills) generate substantial amounts of Trash*. In the event that the permitting authority* makes that determination, the permitting authority* may require the MS4* to comply with Chapter III.L.2.a.1 or Chapter III.L.2.a.2, as determined by the permitting authority*, with respect to such land uses or locations.

3. Other Dischargers

A permitting authority* may require dischargers, described in Chapter III.I.6.c or Chapter III.I.6.d, that are not subject to Chapter III.L.2 herein, to implement any appropriate Trash* controls in areas or facilities that may generate Trash*. Such areas or facilities may include (but are not limited to) high usage campgrounds, picnic areas, beach recreation areas, parks not subject to an MS4* permit, or marinas.

4. Time Schedule

The permitting authority* shall modify, re-issue, or newly adopt NPDES permits issued pursuant to section 402(p) of the Federal Clean Water Act that are subject to the provisions of Chapter III.L.2 herein to include requirements consistent with these Trash Provisions*. The permitting authorities* shall abide by the following time schedules:

- a. NPDES Permits Regulating MS4* Permittees that have Regulatory Authority over Priority Land Uses*.²

² The time schedule requirement in Chapter III.L.4.a.1 requiring MS4* permittees to elect Chapter III.L.2.a.1 (Track 1) or Chapter III.L.2.a.2 (Track 2) does not apply to MS4* permittees subject to the Municipal Regional Stormwater NPDES Permit (MRP) issued by the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay Water Board) or the East Contra Costa Municipal Storm Water Permit issued by the Central Valley Regional Water Quality Control Board (Central Valley Water Board) because those permits already require control requirements substantially equivalent to Track 2. The time schedule requirement in Chapter III.L.4.a.1 requiring MS4* permittees to submit an implementation plan

* See Appendix I for definition of terms.

- (1) Within eighteen (18) months of the effective date of these Trash Provisions*, for each permittee, each permitting authority* shall either:
 - A. Modify, re-issue, or adopt the applicable MS4* permit to add requirements to implement these Trash Provisions*. The implementing permit shall require written notice from each MS4* permittee stating whether it has elected to comply under Chapter III.L.2.a.1 (Track 1) or Chapter III.L.2.a.2 (Track 2) and such notice shall be submitted to the permitting authority* no later than three (3) months from the effective date of the implementing permit, or for MS4s* designated after the effective date of these Trash Provisions*, three (3) months from the effective date of that designation. The implementing permit shall also require that within eighteen (18) months of the effective date of the implementing permit or new designation, MS4* permittees that have elected to comply with Track 2 shall submit an implementation plan to the permitting authority*. The implementation plan shall describe: (i) the combination of controls selected by the MS4* permittee and the rationale for the selection, (ii) how the combination of controls is designed to achieve full capture system equivalency*, and (iii) how full capture system equivalency* will be demonstrated. The implementation plan is subject to approval by the permitting authority*.
 - B. Issue an order pursuant to Water Code section 13267 or 13383 requiring the MS4* permittee to submit, within three (3) months from receipt of the order, written notice to the permitting authority* stating whether such MS4* permittee will comply with the prohibition of discharge under Chapter III.L.2.a.1 (Track 1) or Chapter III.L.2.a.2 (Track 2). For MS4s* designated after the effective date of these Trash Provisions*, the order pursuant to Water Code section 13267 or 13383 shall be issued at the time of designation. Within eighteen (18) months of the receipt of the Water Code section 13267 or 13383 order, MS4* permittees that have elected to comply with Track 2 shall submit an implementation plan to the permitting authority* that describes: (i) the combination of controls selected by the MS4* permittee and the rationale for the selection, (ii) how the combination of controls is designed to achieve full capture system equivalency*, and (iii) how full capture system equivalency* will be demonstrated. The implementation plan is subject to approval by the permitting authority*.
- (2) For MS4* permittees that elect to comply with Chapter III.L.2.a.1 (Track1), the implementing permit shall state that full compliance shall occur within

does not apply to the above permittees if the pertinent permitting authority* determines that such permittee has already submitted an implementation plan prior to the effective date of the Trash Provisions* that is equivalent to the implementation plan required by Chapter III.L.4.a.1. In the aforementioned permits, the pertinent permitting authority* may establish an earlier full compliance deadline than that specified in Chapter III.L.4.a.3.

* See Appendix I for definition of terms.

ten (10) years of the effective date of the first implementing permit except as specified in Chapter III.L.4.a.5. The permit shall also require these permittees to demonstrate achievement of interim milestones such as average load reductions of ten percent (10%) per year or other progress to full implementation. In no case may the final compliance date be later than fifteen (15) years from the effective date of these Trash Provisions*.

- (3) For MS4* permittees that elect to comply with Chapter III.L.2.a.2 (Track 2), the implementing permit shall state that full compliance shall occur within ten (10) years of the effective date of the first implementing permit except as specified in Chapter III.L.4.a.5. The permit shall also require these permittees to demonstrate achievement of interim milestones such as average load reductions of ten percent (10%) per year or other progress to full implementation. In no case may the final compliance date be later than fifteen (15) years from the effective date of these Trash Provisions*.
- (4) The implementing permit shall state that for MS4* permittees designated after the effective date of the implementing permit, full compliance shall occur within ten (10) years of the effective date of the designation. The permit shall also require such designations to demonstrate achievement of interim milestones such as average load reductions of ten percent (10%) per year or other progress to full implementation.
- (5) Where a permitting authority* makes a determination pursuant to Chapter III.L.2.d that a specific land use generates a substantial amount of Trash*, that permitting authority* has discretion to determine the time schedule for full compliance. In no case may the final compliance date be later than ten (10) years from the determination.

b. NPDES Permits Regulating the Department.

- (1) Within eighteen (18) months of the effective date of these Trash Provisions*, the State Water Board shall issue an order pursuant to Water Code section 13267 or 13383 requiring the Department to submit an implementation plan to the Executive Director of the State Water Board that: (i) describes the specific locations of its significant trash generating areas*, (ii) the combination of controls selected by the Department and the rationale for the selections, and (iii) how it will demonstrate full capture system equivalency*.
- (2) The Department must demonstrate full compliance with Chapter III.L.2.b herein within ten (10) years of the effective date of the first implementing NPDES permit, along with achievements of interim milestones such as average load reductions of ten percent (10%) per year. In no case may the final compliance date be later than fifteen (15) years from the effective date of these Trash Provisions*.

c. NPDES Permits Regulating the Discharges of Storm Water* Associated with Industrial Activity (Including Construction Activity). Dischargers that are subject

* See Appendix I for definition of terms.

to the provisions of Chapter III.L.2.c herein must demonstrate full compliance in accordance with the deadlines contained in the first implementing NPDES permits. Such deadlines may not exceed the terms of the first implementing permits.

5. Monitoring and Reporting

The permitting authority* must include monitoring and reporting requirements in its implementing permits. The following monitoring and reporting provisions are the minimum requirements that must be included within the implementing permits:

- a. MS4* permittees that elect to comply with Chapter III.L.2.a.1 (Track 1) shall provide a report to the applicable permitting authority* demonstrating installation, operation, maintenance, and the Geographic Information System- (GIS-) mapped location and drainage area served by its full capture systems* on an annual basis.
- b. MS4* permittees that elect to comply with Chapter III.L.2.b.2 (Track 2) shall develop and implement monitoring plans that demonstrate the effectiveness of the full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* and compliance with full capture system equivalency*. Monitoring reports shall be provided to the applicable permitting authority* on an annual basis, and shall include GIS-mapped locations and drainage area served for each of the full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* installed or utilized by the MS4* permittee. In developing the monitoring reports the MS4* permittee should consider the following questions:
 - (1) What type of and how many treatment controls*, institutional controls*, and/or multi-benefit projects* have been used and in what locations?
 - (2) How many full capture systems* have been installed (if any), in what locations have they been installed, and what is the individual and cumulative area served by them?
 - (3) What is the effectiveness of the total combination of treatment controls*, institutional controls*, and multi-benefit projects* employed by the MS4* permittee?
 - (4) Has the amount of Trash* discharged from the MS4* decreased from the previous year? If so, by how much? If not, explain why.
 - (5) Has the amount of Trash* in the MS4's* receiving water(s) decreased from the previous year? If so, by how much? If not, explain why.
- c. The Department, as subject to the provisions of Chapter III.L.2.b, shall develop and implement monitoring plans that demonstrate the effectiveness of the controls and compliance with full capture system equivalency*. Monitoring reports shall be provided to the State Water Board on an annual basis, and shall include GIS-mapped locations and drainage area served for each of the full

* See Appendix I for definition of terms.

capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* installed or utilized by the Department. In developing the monitoring report, the Department should consider the following questions:

- (1) What type of and how many treatment controls* institutional controls*, and/or multi-benefit projects* have been used and in what locations?
- (2) How many full capture systems* have been installed (if any), in what locations have they been installed, and what is the individual and cumulative area served by them?
- (3) What is the effectiveness of the total combination of treatment controls*, institutional controls*, and multi-benefit projects* employed by the Department?
- (4) Has the amount of Trash* discharged from the Department's MS4* decreased from the previous year? If so, by how much? If not, explain why.
- (5) Has the amount of Trash* in the receiving waters decreased from the previous year? If so, by how much? If not, explain why.

- d. Dischargers that are subject to the provisions of Chapter III.L.2.c herein shall be required to report the measures used to comply with Chapter III.L.2.c.

M. Implementation Provisions for Desalination Facilities*

1. Applicability and General Provisions

- a. Chapter III.M applies to desalination facilities* using seawater.* Chapter III.M.2 does not apply to desalination facilities* operated by a federal agency. Chapter III.M.2, M.3, and M.4 do not apply to portable desalination facilities* that withdraw less than 0.10 million gallons per day (MGD) of seawater* and are operated by a governmental agency. These standards do not alter or limit in any way the authority of any public agency to implement its statutory obligations. The Executive Director of the State Water Board may temporarily waive the application of chapter III.M to desalination facilities* that are operating to serve as a critical short-term water supply during a state of emergency as declared by the Governor.

b. Definitions of New, Expanded, and Existing Facilities:

- (1) For purposes of chapter III.M, "existing facilities" means desalination facilities* that have been issued an NPDES permit and all building permits and other governmental approvals necessary to commence construction for which the owner or operator has relied in good faith on those previously-issued permits and approvals and commenced construction of the facility beyond site grading prior to January 28, 2016.

* See Appendix I for definition of terms.

(2) For purposes of chapter III.M, “expanded facilities” means existing facilities for which, after January 28, 2016, the owner or operator does either of the following in a manner that could increase intake or mortality of all forms of marine life * beyond that which was originally approved in any NPDES permit or Water Code section 13142.5, subdivision (b) (hereafter Water Code section 13142.5(b)) determination: 1) increases the amount of seawater* used either exclusively by the facility or used by the facility in conjunction with other facilities or uses, or 2) changes the design or operation of the facility. To the extent that the desalination facility* is co-located with another facility that withdraws water for a different purpose and that other facility reduces the volume of water withdrawn to a level less than the desalination facility’s* volume of water withdrawn, the desalination facility* is considered to be an expanded facility.

(3) For purposes of chapter III.M, “new facilities” means desalination facilities* that are not existing facilities or expanded facilities.

- c. Chapter III.M.2 (Water Code §13142.5(b) Determinations for New and Expanded Facilities: Site, Design, Technology, and Mitigation Measures) applies to new and expanded desalination facilities* withdrawing seawater.*
- d. Chapter III.M.3 (Receiving Water Limitation for Salinity*) applies to all desalination facilities* that discharge into ocean waters* and wastewater facilities that receive brine* from seawater* desalination facilities* and discharge into ocean waters.*
- e. Chapter III.M.4 (Monitoring and Reporting Programs) applies to all desalination facilities* that discharge into ocean waters.* Chapter III.M.4 shall not apply to a wastewater facility that receives brine* from a seawater* desalination facility* and discharges a positively buoyant commingled effluent through an existing wastewater outfall that is covered under an existing NPDES permit, as long as the owner or operator monitors for compliance with the receiving water limitation set forth in chapter III.M.3. For the purposes of chapter III.M.4, a positively buoyant commingled effluent shall mean that the commingled plume rises when it enters the receiving water body due to salinity* levels in the commingled discharge being lower than the natural background salinity.*
- f. References to the regional water board include the regional water board acting under delegated authority. For provisions that require consultation between regional water board and State Water Board staff, the regional water board shall notify and consult with the State Water Board staff prior to making a final determination on the item requiring consultation.
- g. All desalination facilities must comply with all other applicable sections of the Ocean Plan.

2. Water Code section 13142.5(b) Determinations for New and Expanded Facilities: Site, Design, Technology, and Mitigation Measures Feasibility Considerations

* See Appendix I for definition of terms.

a. General Considerations

- (1) The owner or operator shall submit a request for a Water Code section 13142.5(b) determination to the appropriate regional water board as early as practicable. This request shall include sufficient information for the regional water board to conduct the analyses described below. The regional water board in consultation with the State Water Board staff may require an owner or operator to provide additional studies or information if needed, including any information necessary to identify and assess other potential sources of mortality to all forms of marine life. All studies and models are subject to the approval of the regional water board in consultation with State Water Board staff. The regional water board may require an owner or operator to hire a neutral third party entity to review studies and models and make recommendations to the regional water board.
- (2) The regional water board shall conduct a Water Code section 13142.5(b) analysis of all new and expanded desalination facilities.* A Water Code section 13142.5(b) analysis may include future expansions at the facility. The regional water board shall first analyze separately as independent considerations a range of feasible* alternatives for the best available site, the best available design, the best available technology, and the best available mitigation measures to minimize intake and mortality of all forms of marine life.* Then, the regional water board shall consider all four factors collectively and determine the best combination of feasible* alternatives to minimize intake and mortality of all forms of marine life.* The best combination of alternatives may not always include the best alternative under each individual factor because some alternatives may be mutually exclusive, redundant, or not feasible* in combination.
- (3) The regional water board's Water Code section 13142.5(b) analysis for expanded facilities may be limited to those expansions or other changes that result in the increased intake or mortality of all forms of marine life,* unless the regional water board determines that additional measures that minimize intake and mortality of all forms of marine life* are feasible* for the existing portions of the facility.
- (4) In conducting the Water Code section 13142.5(b) determination, the regional water boards shall consult with other state agencies involved in the permitting of that facility, including, but not limited to: California Coastal Commission, California State Lands Commission, and California Department of Fish and Wildlife. The regional water board shall consider project-specific decisions made by other state agencies; however, the regional water board is not limited to project-specific requirements set forth by other agencies and may include additional requirements in a Water Code section 13142.5(b) determination.

* See Appendix I for definition of terms.

- (5) A regional water board may expressly condition a Water Code section 13142.5(b) determination based on the expectation of the occurrence of a future event. Such future events may include, but are not limited to, the permanent shutdown of a co-located power plant with intake structures shared with the desalination facility,* or a reduction in the volume of wastewater available for the dilution of brine.* The regional water board must make a new Water Code section 13142.5(b) determination if the foreseeable future event occurs.
- (a) The owner or operator shall provide notice to the regional water board as soon as it becomes aware that the expected future event will occur, and shall submit a new request for a Water Code section 13142.5(b) determination to the regional water board at least one year prior to the event occurring. If the owner or operator does not become aware that the event will occur at least one year prior to the event occurring, the owner or operator shall submit the request as soon as possible.
 - (b) The regional water board may allow up to five years from the date of the event for the owner or operator to make modifications to the facility required by a new Water Code section 13142.5(b) determination, provided that the regional water board finds that 1) any water supply interruption resulting from the facility modifications requires additional time for water users to obtain a temporary replacement supply, or 2) such a compliance period is otherwise in the public interest and reasonably required for modification of the facility to comply with the determination.
 - (c) If the regional water board makes a Water Code section 13142.5(b) determination for a desalination facility* that will be co-located with a power plant, the regional water board shall condition its determination on the power plant remaining in compliance with the Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling.
- b. Site is the general onshore and offshore location of a new or expanded facility. There may be multiple potential facility design configurations within any given site. The regional water board shall require that the owner or operator evaluate a reasonable range of nearby sites, including sites that would likely support subsurface intakes. For each potential site, in order to determine whether a proposed facility site is the best available site feasible* to minimize intake and mortality of all forms of marine life,* the regional water board shall require the owner or operator to:
- (1) Consider whether subsurface intakes* are feasible.*
 - (2) Consider whether the identified need for desalinated* water is consistent with an applicable adopted urban water management plan

* See Appendix I for definition of terms.

prepared in accordance with Water Code section 10631, or if no urban water management plan is available, other water planning documents such as a county general plan or integrated regional water management plan.

- (3) Analyze the feasibility of placing intake, discharge, and other facility infrastructure in a location that avoid impacts to sensitive habitats* and sensitive species.
 - (4) Analyze the direct and indirect effects on all forms of marine life* resulting from facility construction and operation, individually and in combination with potential anthropogenic effects on all forms of marine life* resulting from other past, present, and reasonably foreseeable future activities within the area affected by the facility.
 - (5) Analyze oceanographic geologic, hydrogeologic, and seafloor topographic conditions at the site, so that the siting of a facility, including the intakes and discharges, minimizes the intake and mortality of all forms of marine life.*
 - (6) Analyze the presence of existing discharge infrastructure, and the availability of wastewater to dilute the facility's brine* discharge.
 - (7) Ensure that the intake and discharge structures are not located within a MPA or SWQPA* with the exception of intake structures that do not have marine life mortality associated with the construction, operation, and maintenance of the intake structures (e.g. slant wells). Discharges shall be sited at a sufficient distance from a MPA or SWQPA* so that the salinity* within the boundaries of a MPA or SWQPA* does not exceed natural background salinity.* To the extent feasible,* surface intakes shall be sited so as to maximize the distance from a MPA or SWQPA.*
- c. Design is the size, layout, form, and function of a facility, including the intake capacity and the configuration and type of infrastructure, including intake and outfall structures. The regional water board shall require that the owner or operator perform the following in determining whether a proposed facility design is the best available design feasible* to minimize intake and mortality of all forms of marine life:*
- (1) For each potential site, analyze the potential design configurations of the intake, discharge, and other facility infrastructure to avoid impacts to sensitive habitats* and sensitive species.
 - (2) If the regional water board determines that subsurface intakes* are not feasible* and surface water intakes are proposed instead, analyze potential designs for those intakes in order to minimize the intake and mortality of all forms of marine life.*

* See Appendix I for definition of terms.

- (3) Design the outfall so that the brine mixing zone* does not encompass or otherwise adversely affect existing sensitive habitat.*
 - (4) Design the outfall so that discharges do not result in dense, negatively-buoyant plumes that result in adverse effects due to elevated salinity* or hypoxic conditions occurring outside the brine mixing zone.* An owner or operator must demonstrate that the outfall meets this requirement through plume modeling and/or field studies. Modeling and field studies shall be approved by the regional water board in consultation with State Water Board staff.
 - (5) Design outfall structures to minimize the suspension of benthic sediments.
- d. Technology is the type of equipment, materials,* and methods that are used to construct and operate the design components of the desalination facility.* The regional water board shall apply the following considerations in determining whether a proposed technology is the best available technology feasible* to minimize intake and mortality of all forms of marine life:*
- (1) Considerations for Intake Technology:
 - (a) Subject to chapter M.2.a.(2), the regional water board in consultation with State Water Board staff shall require subsurface intakes* unless it determines that subsurface intakes* are not feasible* based upon a comparative analysis of the factors listed below for surface and subsurface intakes.* A design capacity in excess of the need for desalinated* water as identified in chapter III.M.2.b.(2) shall not be used by itself to declare subsurface intakes* as not feasible.*
 - i. The regional water board shall consider the following factors in determining feasibility of subsurface intakes:* geotechnical data, hydrogeology, benthic topography, oceanographic conditions, presence of sensitive habitats,* presence of sensitive species, energy use for the entire facility; design constraints (engineering, constructability), and project life cycle cost. Project life cycle cost shall be determined by evaluating the total cost of planning, design, land acquisition, construction, operations, maintenance, mitigation, equipment replacement and disposal over the lifetime of the facility, in addition to the cost of decommissioning the facility. Subsurface intakes* shall not be determined to be economically infeasible solely because subsurface intakes* may be more expensive than surface intakes. Subsurface intakes* may be determined to be economically infeasible if the additional costs or lost profitability associated with subsurface intakes,* as compared to surface intakes, would render the desalination facility* not economically viable. In

* See Appendix I for definition of terms.

addition, the regional water board may evaluate other site- and facility-specific factors.

- ii. If the regional water board determines that subsurface intakes* are not feasible* for the proposed intake design capacity, it shall determine whether subsurface intakes* are feasible* for a reasonable range of alternative intake design capacities. The regional water board may find that a combination of subsurface* and surface intakes is the best feasible* alternative to minimize intake and mortality of marine life and meet the identified need for desalinated water as described in chapter III.M.2.b.(2).
- (b) Installation and maintenance of a subsurface intake* shall avoid, to the maximum extent feasible,* the disturbance of sensitive habitats* and sensitive species.
- (c) If subsurface intakes* are not feasible,* the regional water board may approve a surface water intake, subject to the following conditions:
- i. The regional water board shall require that surface water intakes be screened. Screens must be functional while the facility is withdrawing seawater.*
 - ii. In order to reduce entrainment, all surface water intakes must be screened with a 1.0 mm (0.04 in) or smaller slot size screen when the desalination facility* is withdrawing seawater.*
 - iii. An owner or operator may use an alternative method of preventing entrainment so long as the alternative method results in intake and mortality of eggs, larvae, and juvenile organisms that is less than or equivalent to a 1.0 mm (0.04 in) slot size screen. The owner or operator must demonstrate the effectiveness of the alternative method to the regional water board. The owner or operator must conduct a study to demonstrate the effectiveness of the alternative method, and use an Empirical Transport Model* (ETM)/ Area of Production Forgone* (APF) approach* to estimate entrainment. The study period shall be at least 12 consecutive months. Sampling for environmental studies shall be designed to account for variation in oceanographic or hydrologic conditions and larval abundance and diversity such that abundance estimates are reasonably accurate. Samples must be collected using a mesh size no larger than 335 microns and individuals collected shall be identified to the lowest taxonomical level practicable. The ETM/APF analysis* shall evaluate entrainment for a broad range of species, species morphologies, and sizes under the environmental and operational conditions that are representative of the entrained species and the conditions at

* See Appendix I for definition of terms.

the full-scale desalination facility.* At their discretion, the regional water boards may permit the use of existing entrainment data to meet this requirement.

- iv. In order to minimize impingement, through-screen velocity at the surface water intake shall not exceed 0.15 meters per second (0.5 feet per second).

(2) Considerations for Brine* Discharge Technology:

- (a) The preferred technology for minimizing intake and mortality of all forms of marine life* resulting from brine* discharge is to commingle brine* with wastewater (e.g., agricultural, municipal, industrial, power plant cooling water, etc.) that would otherwise be discharged to the ocean. The wastewater must provide adequate dilution to ensure salinity* of the commingled discharge meets the receiving water limitation for salinity* in chapter III.M.3. Nothing in this section shall preclude future recycling of the wastewater.
- (b) Multiport diffusers* are the next best method for disposing of brine* when the brine* cannot be diluted by wastewater and when there are no live organisms in the discharge. Multiport diffusers* shall be engineered to maximize dilution, minimize the size of the brine mixing zone,* minimize the suspension of benthic sediments, and minimize mortality of all forms of marine life.*
- (c) Brine* discharge technologies other than wastewater dilution and multiport diffusers,* may be used if an owner or operator can demonstrate to the regional water board that the technology provides a comparable level of intake and mortality of all forms of marine life* as wastewater dilution if wastewater is available, or multiport diffusers* if wastewater is unavailable. The owner or operator must evaluate all of the individual and cumulative effects of the proposed alternative discharge method on the intake and mortality of all forms of marine life,* including (where applicable); intake-related entrainment, osmotic stress, turbulence that occurs during water conveyance and mixing, and shearing stress at the point of discharge. When determining the intake and mortality associated with a brine* discharge technology or combination of technologies, the regional water board shall require the owner or operator to use empirical studies or modeling to:
 - i. Estimate intake entrainment impacts using an ETM/APF approach.*
 - ii. Estimate degradation of all forms of marine life* from elevated salinity* within the brine mixing zone,* including osmotic stresses, the size of impacted area, and the duration that all forms of marine life* are exposed to the

* See Appendix I for definition of terms.

toxic conditions. Considerations shall be given to the most sensitive species, and community structure and function.

- iii. Estimate the intake and mortality of all forms of marine life* that occurs as a result of water conveyance, in-plant turbulence or mixing, and waste* discharge.
- iv. Within 18 months of beginning operation, submit to the regional water board an empirical study that evaluates intake and mortality of all forms of marine life* associated with the alternative brine* discharge technology. The study must evaluate impacts caused by any augmented intake volume, intake and pump technology, water conveyance, waste brine* mixing, and effluent discharge. Unless demonstrated otherwise, organisms entrained by the alternative brine* discharge technology are assumed to have a mortality rate of 100 percent. The study period shall be at least 12 consecutive months. If the regional water board requires a study period longer than 12 months, the final report must be submitted to the regional water board within 6 months of the completion of the empirical study.
- v. If the empirical study shows that the alternative brine* discharge technology results in more intake and mortality of all forms of marine life* than a facility using wastewater dilution or multiport diffusers,* then the facility must either: (1) cease using the alternative brine* discharge technology and install and use wastewater dilution or multiport diffusers* to discharge brine* waste, or (2) re-design the alternative brine* discharge technology system to minimize intake and mortality of all forms of marine life* to a level that is comparable with wastewater dilution if wastewater is available, or multiport diffusers* if wastewater is unavailable,* subject to regional water board approval.

(d) Flow augmentation* as an alternative brine* discharge technology is prohibited with the following exceptions:

- i. At facilities that use subsurface intakes* to supply augmented flow water for dilution. Facilities that use subsurface intakes* to supply augmented flow water for dilution are exempt from the requirements of chapter III.M.2.d.(2)(c) if the facility meets the receiving water limitation for salinity* in chapter III.M.3.
- ii. At a facility that has received a conditional Water Code section 13142.5(b) determination and is over 80 percent constructed by January 28, 2016. If the owner or operator of the facility proposes to use flow augmentation* as an

* See Appendix I for definition of terms.

alternative brine* discharge technology, the facility must: use low turbulence intakes (e.g., screw centrifugal pumps or axial flow pumps) and conveyance pipes; convey and mix dilution water in a manner that limits thermal stress, osmotic stress, turbulent shear stress, and other factors that could cause intake and mortality of all forms of marine life*; comply with chapter III.M.2.d.(1); and not discharge through multipoint diffusers.*

- e. Mitigation for the purposes of this section is the replacement of all forms of marine life* or habitat that is lost due to the construction and operation of a desalination facility* after minimizing intake and mortality of all forms of marine life* through best available site, design, and technology. The regional water board shall ensure an owner or operator fully mitigates for the operational lifetime of the facility and uses the best available mitigation measures feasible* to minimize intake and mortality of all forms of marine life.* The owner or operator may choose whether to satisfy a facility's mitigation measures pursuant to chapter III.M.2.e.(3) or, if available, M.2.e.(4), or a combination of the two.

- (1) *Marine Life Mortality Report.* The owner or operator of a facility shall submit a report to the regional water board estimating the marine life mortality resulting from construction and operation of the facility after implementation of the facility's required site, design, and technology measures.

- (a) For operational mortality related to intakes, the report shall include a detailed entrainment study. The entrainment study period shall be at least 12 consecutive months and sampling shall be designed to account for variation in oceanographic or hydrologic conditions and larval abundance and diversity such that abundance estimates are reasonably accurate. At their discretion, the regional water boards may permit the use of existing entrainment data from the facility to meet this requirement. Samples must be collected using a mesh size no larger than 335 microns and individuals collected shall be identified to the lowest taxonomical level practicable. The ETM/APF analysis* shall be representative of the entrained species collected using the 335 micron net. The APF* shall be calculated using a one-sided, upper 95 percent confidence bound for the 95th percentile of the APF distribution. An owner or operator with subsurface intakes* is not required to do an ETM/APF analysis* for their intakes and is not required to mitigate for intake-related operational mortality. The regional water board may apply a one percent reduction to the APF* acreage calculated in the Marine Life Mortality Report to account for the reduction in entrainment of all forms of marine life* when using a 1.0 mm slot size screen.

* See Appendix I for definition of terms.

- (b) For operational mortality related to discharges, the report shall estimate the area in which salinity* exceeds 2.0 parts per thousand above natural background salinity* or a facility-specific alternative receiving water limitation (see chapter III.M.3). The area in excess of the receiving water limitation for salinity* shall be determined by modeling and confirmed with monitoring. The report shall use any acceptable approach approved by the regional water board for evaluating mortality that occurs due to shearing stress resulting from the facility's discharge, including any incremental increase in mortality resulting from a commingled discharge.
 - (c) For construction-related mortality, the report shall use any acceptable approach approved by the regional water board for evaluating the mortality that occurs within the area disturbed by the facility's construction. The regional water board may determine that the construction-related disturbance does not require mitigation because the disturbance is temporary and the habitat is naturally restored.
 - (d) Upon approval of the report by the regional water board in consultation with State Water Board staff, the calculated marine life mortality shall form the basis for the mitigation provided pursuant to this section.
- (2) The owner or operator shall mitigate for the mortality of all forms of marine life* determined in the report above by choosing to either complete a mitigation project as described in chapter III.M.2.e.(3) or, if an appropriate fee-based mitigation program is available, provide funding for the program as described in chapter III.M.2.e.(4). The mitigation project or the use of a fee-based mitigation program and the amount of the fee that the owner or operator must pay is subject to regional water board approval.
- (3) *Mitigation Option 1: Complete a Mitigation Project.* The mitigation project must satisfy the following provisions:
- (a) The owner or operator shall submit a Mitigation Plan. Mitigation Plans shall include: project objectives, site selection, site protection instrument (the legal arrangement or instrument that will be used to ensure the long-term protection of the compensatory mitigation project site), baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards and success criteria, monitoring requirements, and financial assurances.
 - (b) The mitigation project must meet the following requirements:
 - i. Mitigation shall be accomplished through expansion, restoration or creation of one or more of the following:

* See Appendix I for definition of terms.

kelp beds,* estuaries,* coastal wetlands, natural reefs, MPAs, or other projects approved by the regional water board that will mitigate for intake and mortality of all forms of marine life* associated with the facility.

- ii. The owner or operator shall demonstrate that the project fully mitigates for intake-related marine life mortality by including expansion, restoration, or creation of habitat based on the APF* acreage calculated in the Marine Life Mortality Report above. The owner or operator using surface water intakes shall do modeling to evaluate the areal extent of the mitigation project's production area to confirm that it overlaps the facility's source water body.* Impacts on the mitigation project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project.
- iii. The owner or operator shall demonstrate that the project also fully mitigates for the discharge-related marine life mortality projected in the Marine Life Mortality Report above.
- iv. The owner or operator shall demonstrate that the project also fully mitigates for the construction-related marine life mortality identified in the Marine Life Mortality Report above.
- v. The regional water board may permit out-of-kind mitigation* for mitigation of open water or soft-bottom species. In-kind mitigation* shall be done for all other species whenever feasible.*
- vi. For out-of-kind mitigation,* an owner or operator shall evaluate the biological productivity of the impacted open water or soft-bottom habitat calculated in the Marine Life Mortality Report and the proposed mitigation habitat. If the mitigation habitat is a more biologically productive habitat (e.g. wetlands, estuaries,* rocky reefs, kelp beds,* eelgrass beds,* surfgrass beds*), the regional water boards may apply a mitigation ratio based on the relative biological productivity of the impacted open water or soft-bottom habitat and the mitigation habitat. The mitigation ratio shall not be less than one acre of mitigation habitat for every ten acres of impacted open water or soft-bottom habitat.
- vii. For in-kind mitigation,* the mitigation ratio shall not be less than one acre of mitigation habitat for every one acre of impacted habitat.

* See Appendix I for definition of terms.

- viii. For both in-kind* and out-of-kind mitigation,* the regional water boards may increase the required mitigation ratio for any species and impacted natural habitat calculated in the Marine Life Mortality Report when appropriate to account for imprecisions associated with mitigation including, but not limited to, the likelihood of success, temporal delays in productivity, and the difficulty of restoring or establishing the desired productivity functions.
 - ix. The rationale for the mitigation ratios must be documented in the administrative record for the permit action.
- (c) The Mitigation Plan is subject to approval by the regional water board in consultation with State Water Board staff and with other agencies having authority to condition approval of the project and require mitigation.
- (4) *Mitigation Option 2: Fee-based Mitigation Program.* If the regional water board determines that an appropriate fee-based mitigation program has been established by a public agency, and that payment of a fee to the mitigation program will result in the creation and ongoing implementation of a mitigation project that meets the requirements of chapter M.2.e.(3), the owner or operator may pay a fee to the mitigation program in lieu of completing a mitigation project.
- (a) The agency that manages the fee-based mitigation program must have legal and budgetary authority to accept and spend mitigation funds, a history of successful mitigation projects documented by having set and met performance standards for past projects, and stable financial backing in order to manage mitigation sites for the operational life of the facility.
 - (b) The amount of the fee shall be based on the cost of the mitigation project, or if the project is designed to mitigate cumulative impacts from multiple desalination facilities or other development projects, the amount of the fee shall be based on the desalination facility's* fair share of the cost of the mitigation project.
 - (c) The manager of the fee-based mitigation program must consult with the California Department of Fish and Wildlife, Ocean Protection Council, Coastal Commission, State Lands Commission, and State and regional water boards to develop mitigation projects that will best compensate for intake and mortality of all forms of marine life* caused by the desalination facility.* Mitigation projects that increase or enhance the viability and sustainability of all forms of marine life* in Marine Protected Areas are preferred, if feasible.*

* See Appendix I for definition of terms.

- (5) California Department of Fish and Wildlife, the regional water board, and State Water Board may perform audits or site inspections of any mitigation project.
- (6) An owner or operator, or a manager of a fee-based mitigation program, must submit a mitigation project performance report to the regional water board 180 days prior to the expiration date of their NPDES permit.
- (7) For conditionally permitted facilities or expanded facilities, the regional water boards may:
 - (a) Account for previously-approved mitigation projects associated with a facility when making a new Water Code section 13142.5(b) determination.
 - (b) Require additional mitigation when making a new Water Code section 13142.5(b) determination for any additional mortality of all forms of marine life resulting from the occurrence of the conditional event or the expansion of the facility. The additional mitigation must be to compensate for any additional construction, discharge, or other increases in intake or impacts or an increase in intake and mortality of all forms of marine life.*

3. Receiving Water Limitation for Salinity*

- a. Chapter III.M.3 is applicable to all desalination facilities discharging brine* into ocean waters,* including facilities that commingle brine* and wastewater.
- b. The receiving water limitation for salinity* shall be established as described below:
 - (1) Discharges shall not exceed a daily maximum of 2.0 parts per thousand (ppt) above natural background salinity* measured no further than 100 meters (328 ft) horizontally from each discharge point. There is no vertical limit to this zone.
 - (2) In determining an effluent limit necessary to meet this receiving water limitation, permit writers shall use the formula in chapter III.C.4 that has been modified for brine* discharges as follows:

Equation 1: $C_e = C_o + D_m(2.0 \text{ ppt})$
 $C_e = (2.0 \text{ ppt} + C_s) + D_m(2.0 \text{ ppt})$

Where:

C_e = the effluent concentration limit, ppt
 C_o = the salinity* concentration to be met at the completion of initial* dilution= 2.0 ppt + C_s
 C_s = the natural background salinity,* ppt
 D_m = minimum probable initial dilution* expressed as parts

* See Appendix I for definition of terms.

seawater* per part brine* discharge

- (a) The fixed distance referenced in the initial dilution* definition shall be no more than 100 meters (328 feet).
 - (b) In addition, the owner or operator shall develop a dilution factor (Dm) based on the distance of 100 meters (328 feet) or initial dilution,* whichever is smaller. The dilution factor (Dm) shall be developed within the brine mixing zone* using applicable water quality models that have been approved by the regional water boards in consultation with State Water Board staff.
 - (c) The value 2.0 ppt in Equation 1 is the maximum incremental increase above natural background salinity* (Cs) allowed at the edge of the brine mixing zone.* A regional water board may substitute an alternative numeric value for 2.0 ppt in Equation 1 based upon the results of a facility-specific alternative salinity* receiving water limitation study, as described in chapter III.M.3.c below.
- c. An owner or operator may submit a proposal to the regional water board for approval of an alternative (other than 2 ppt) salinity* receiving water limitation to be met no further than 100 meters horizontally from the discharge. There is no vertical limit to this zone.
- (1) To determine whether a proposed facility-specific alternative receiving water limitation is adequately protective of beneficial uses, an owner or operator shall:
 - (a) Establish baseline biological conditions at the discharge location and at reference locations over a 12-month period prior to commencing brine* discharge. The biologic surveys must characterize the ecologic composition of habitat and marine life using measures established by the regional water board. At their discretion, the regional water boards may permit the use of existing data to meet this requirement.
 - (b) Conduct at least the following chronic toxicity* Whole Effluent Toxicity (WET) tests: germination and growth for giant kelp (*Macrocystis pyrifera*); development for red abalone (*Haliotis refescens*); development and fertilization for purple urchin (*Strongylocentrotus purpuratus*); development and fertilization for sand dollar (*Dendraster excentricus*); larval growth rate for topsmelt (*Atheriniops affinis*). WET tests shall be performed by an Environmental Laboratory Accreditation Program (ELAP) certified laboratory.

* See Appendix I for definition of terms.

- (c) The regional water board in consultation with State Water Board staff may require an owner or operator to do additional toxicity studies if needed.
 - (2) The regional water board in consultation with the State Water Board staff may require an owner or operator to provide additional studies or information in order to approve a facility-specific alternative receiving water limitation for salinity.*
 - (3) The facility-specific alternative receiving water limitation shall be based on the lowest observed effect concentration (LOEC)* for the most sensitive species and toxicity endpoint as determined in the chronic toxicity* studies. The regional water board in consultation with State Water Board staff has discretion to approve the proposed facility-specific alternative receiving water limitation for salinity.*
 - (4) The regional water board shall review a facility's monitoring data, the studies as required in chapter III.M.4 below, or any other information that the regional water board deems to be relevant to periodically assess whether the facility-specific alternative receiving water limitation for salinity* is adequately protective of beneficial uses. The regional water board may eliminate or revise a facility-specific alternative receiving water limitation for salinity* based on its assessment of the data.
- d. The owner or operator of a facility that has received a conditional Water Code section 13142.5(b) determination and is over 80 percent constructed by January 28, 2016 that proposes flow augmentation* using a surface water intake may submit a proposal to the regional water board in consultation with the State Water Board staff for approval of an alternative brine mixing zone* not to exceed 200 meters laterally from the discharge point and throughout the water column. The owner or operator of such a facility must demonstrate, in accordance with chapter III.M.2.d.(2)(c), that the combination of the alternative brine mixing zone* and flow augmentation* using a surface water intake provide a comparable level of intake and mortality of all forms of marine life* as the combination of the standard brine mixing zone* and wastewater dilution if wastewater is available, or multiport diffusers* if wastewater is unavailable. In addition to the analysis of the effects required by chapter III.M.2.d.(2)(c), the owner or operator must also evaluate the individual and cumulative effects of the alternative brine mixing zone* on the intake and mortality of all forms of marine life.* In no case may the discharge result in hypoxic conditions outside of the alternative brine mixing zone.* If an alternative brine mixing zone* is approved, the alternative distance and the areal extent of the alternative brine mixing zone* shall be used in lieu of the standard brine mixing zone* for all purposes, including establishing an effluent limitation and a receiving water limitation for salinity, in chapter III.M.
- e. Existing facilities that do not meet the receiving water limitation at the edge of the brine mixing zone* and throughout the water column by January 28, 2016 must either: 1) establish a facility-specific alternative receiving water limitation

* See Appendix I for definition of terms.

for salinity* as described in chapter III.M.3.c; or, 2) upgrade the facility's brine* discharge method in order to meet the receiving water limitation in chapter III.M.3.b in accordance with the State Water Board's Compliance Schedule Policy, as set forth in chapter III.M.3.f below. An owner or operator that chooses to upgrade the facility's method of brine* discharge:

- (1) Must demonstrate to the regional water board that the brine* discharge does not negatively impact sensitive habitats,* sensitive species, MPAs, or SWQPAs.*
- (2) Is subject to the Considerations for Brine* Discharge Technology described in chapter III.M.2.d.(2).

- f. The regional water board may grant compliance schedules for the requirements for brine* waste discharges for desalination facilities.* All compliance schedules shall be in accordance with the State Water Board's Compliance Schedule Policy, except that the salinity* receiving water limitation set forth in chapters III.M.3.b and III.M.3.c shall be considered to be a "new water quality objective" as used in the Compliance Schedule Policy.
- g. The regional water board in consultation with the State Water Board staff may require an owner or operator to provide additional studies or information if needed. All studies and models are subject to the approval of the regional water board in consultation with State Water Board staff. The regional water board may require an owner or operator to hire a neutral third party entity to review studies and models and make recommendations to the regional water board.

4. Monitoring and Reporting Programs

- a. The owner or operator of a desalination facility* must submit a Monitoring and Reporting Plan to the regional water board for approval. The Monitoring and Reporting Plan shall include monitoring of effluent and receiving water characteristics and impacts to all forms of marine life.* The Monitoring and Reporting Plan shall, at a minimum, include monitoring for benthic community health, aquatic life toxicity, hypoxia, and receiving water characteristics consistent with Appendix III of this Plan and for compliance with the receiving water limitation in chapter III.M.3. Receiving water monitoring for salinity* shall be conducted at times when the monitoring locations are most likely affected by the discharge. For new or expanded facilities the following additional requirements apply:
 - (1) An owner or operator must perform facility-specific monitoring to demonstrate compliance with the receiving water limitation for salinity,* and evaluate the potential effects of the discharge within the water column, bottom sediments, and the benthic communities. Facility-specific monitoring is required until the regional water board determines that a regional monitoring program is adequate to ensure compliance with the receiving water limitation. The monitoring and

* See Appendix I for definition of terms.

reporting plan shall be reviewed, and revised if necessary, upon NPDES permit renewal.

- (2) Baseline biological conditions shall be established at the discharge location and at a reference location prior to commencement of construction. The owner or operator is required to conduct biological surveys (e.g., Before-After Control-Impact study), that will evaluate the differences between biological communities at a reference site and at the discharge location before and after the discharge commences. The regional water board will use the data and results from the surveys and any other applicable data for evaluating and renewing the requirements set forth in a facility's NPDES permit.

* See Appendix I for definition of terms.

**APPENDIX I
DEFINITION OF TERMS**

ACUTE TOXICITY

a. Acute Toxicity (TUa)

Expressed in Toxic Units Acute (TUa)

$$TUa = \frac{100}{96\text{-hr LC } 50\%}$$

b. Lethal Concentration 50% (LC 50)

LC 50 (percent waste giving 50% survival of test organisms) shall be determined by static or continuous flow bioassay techniques using standard marine test species as specified in Appendix III. If specific identifiable substances in wastewater can be demonstrated by the discharger as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the LC 50 may be determined after the test samples are adjusted to remove the influence of those substances.

When it is not possible to measure the 96-hour LC 50 due to greater than 50 percent survival of the test species in 100 percent waste, the toxicity concentration shall be calculated by the expression:

$$TUa = \frac{\log (100 - S)}{1.7}$$

where:

S = percentage survival in 100% waste. If S > 99, TUa shall be reported as zero.

ALL FORMS OF MARINE LIFE includes all life stages of all marine species.

AREA PRODUCTION FOREGONE (APF), also known as habitat production foregone, is an estimate of the area that is required to produce (replace) the same amount of larvae or propagules* that are removed via entrainment at a desalination facilities* intakes. APF is calculated by multiplying the proportional mortality* by the source water body,* which are both determined using an empirical transport model.*

AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE (ASBS) are those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that maintenance of natural water quality is assured. All Areas of Special Biological Significance are also classified as a subset of STATE WATER QUALITY PROTECTION AREAS.* ASBS are also referred to as State Water Quality Protection Areas* – Areas of Special Biological Significance (SWQPA-ASBS).

BRINE is the byproduct of desalinated* water having a salinity* concentration greater than a desalination facility's* intake source water.

* See Appendix I for definition of terms.

BRINE MIXING ZONE is the area where salinity* may exceed 2.0 parts per thousand above natural background salinity,* or the concentration of salinity* approved as part of an alternative receiving water limitation. The standard brine mixing zone shall not exceed 100 meters (328 feet) laterally from the points of discharge and throughout the water column. An alternative brine mixing zone, if approved as described in chapter III.M.3.d, shall not exceed 200 meters (656 feet) laterally from the points of discharge and throughout the water column. The brine mixing zone is an allocated impact zone where there may be toxic effects on marine life due to elevated salinity.

CHLORDANE shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

CHRONIC TOXICITY: This parameter shall be used to measure the acceptability of waters for supporting a healthy marine biota until improved methods are developed to evaluate biological response.

a. Chronic Toxicity (TUc)

Expressed as Toxic Units Chronic (TUc)

$$TUc = \frac{100}{NOEL}$$

b. No Observed Effect Level (NOEL)

The NOEL is expressed as the maximum percent effluent or receiving water* that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test listed in Appendix III, Table III-1.

DDT shall mean the sum of 4,4'DDT, 2,4'DDT, 4,4'DDE, 2,4'DDE, 4,4'DDD, and 2,4'DDD.

DEGRADE: Degradation shall be determined by comparison of the waste field and reference site(s) for characteristic species diversity, population density, contamination, growth anomalies, debility, or supplanting of normal species by undesirable plant and animal species. Degradation occurs if there are significant* differences in any of three major biotic groups, namely, demersal fish, benthic invertebrates, or attached algae. Other groups may be evaluated where benthic species are not affected, or are not the only ones affected.

DESALINATION FACILITY is an industrial facility that processes water to remove salts and other components from the source water to produce water that is less saline than the source water.

DICHLOROBENZENES shall mean the sum of 1,2- and 1,3-dichlorobenzene.

DOWNSTREAM OCEAN WATERS shall mean waters downstream with respect to ocean currents.

DREDGED MATERIAL: Any material* excavated or dredged from the navigable waters of the United States, including material* otherwise referred to as "spoil".

EELGRASS BEDS are aggregations of the aquatic plant species of the genus *Zostera*.

* See Appendix I for definition of terms.

EMPIRICAL TRANSPORT MODEL (ETM) is a methodology for determining the spatial area known as the source water body* that contains the source water population, which are the organisms that are at risk of entrainment as determined by factors that may include but are not limited to biological, hydrodynamic, and oceanographic data. ETM can also be used to estimate proportional mortality,* P_m .

ENCLOSED BAYS are indentations along the coast which enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. This definition includes but is not limited to: Humboldt Bay, Bodega Harbor, Tomales Bay, Drakes Estero, San Francisco Bay, Morro Bay, Los Angeles Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay.

ENDOSULFAN shall mean the sum of endosulfan-alpha and -beta and endosulfan sulfate.

ESTUARIES AND COASTAL LAGOONS are waters at the mouths of streams that serve as mixing zones for fresh and ocean* waters during a major portion of the year. Mouths of streams that are temporarily separated from the ocean by sandbars shall be considered as estuaries. Estuarine waters will generally be considered to extend from a bay or the open ocean to the upstream limit of tidal action but may be considered to extend seaward if significant* mixing of fresh and salt water occurs in the open coastal waters. The waters described by this definition include but are not limited to the Sacramento-San Joaquin Delta as defined by section 12220 of the California Water Code, Suisun Bay, Carquinez Strait downstream to Carquinez Bridge, and appropriate areas of the Smith, Klamath, Mad, Eel, Noyo, and Russian Rivers.

ETM/APF APPROACH or ANALYSIS. For guidance on how to perform an ETM/APF analysis please see Appendix E of the Staff Report for Amendment to the Water Quality Control Plan For Ocean Waters of California Addressing Desalination Facility Intakes, Brine Discharges, And The Incorporation Of Other Non-substantive Changes.

FEASIBLE for the purposes of chapter III.M, shall mean capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

FLOW AUGMENTATION is a type of in-plant dilution and occurs when a desalination facility* withdraws additional source water for the specific purpose of diluting brine* prior to discharge.

FULL CAPTURE SYSTEM is a treatment control*, or series of treatment controls*, including but not limited to, a multi-benefit project* or a low-impact development control* that traps all particles that are 5 mm or greater, and has a design treatment capacity that is either: a) of not less than the peak flow rate, Q , resulting from a one-year, one-hour, storm in the subdrainage area, or b) appropriately sized to, and designed to carry at least the same flows as, the corresponding storm drain.

[Rational equation is used to compute the peak flow rate: $Q = C \cdot I \cdot A$, where Q = design flow rate (cubic feet per second, cfs); C = runoff coefficient (dimensionless); I = design rainfall

* See Appendix I for definition of terms.

intensity (inches per hour, as determined per the rainfall isohyetal map specific to each region, and A = subdrainage area (acres).]

Prior to installation, full capture systems* must be certified by the Executive Director, or designee, of the State Water Board. Uncertified full capture systems* will not satisfy the requirements of these Trash Provisions*. To request certification, a permittee shall submit a certification request letter that includes all relevant supporting documentation to the State Water Board's Executive Director. The Executive Director, or designee, shall issue a written determination approving or denying the certification of the proposed full capture system* or conditions of approval, including a schedule to review and reconsider the certification. Full capture systems* certified by the Los Angeles Regional Water Board prior to the effective date of these Trash Provisions* and full capture systems* listed in Appendix I of the Bay Area-wide Trash Capture Demonstration Project, Final Project Report (May 8, 2014) will satisfy the requirements of these Trash Provisions*, unless the Executive Director, or designee, of the State Water Board determines otherwise.

FULL CAPTURE SYSTEM EQUIVALENCY is the Trash* load that would be reduced if full capture systems* were installed, operated, and maintained for all storm drains that capture runoff from the relevant areas of land (priority land uses*, significant trash generating areas*, facilities or sites regulated by NPDES permits for discharges of storm water* associated with industrial activity, or specific land uses or areas that generate substantial amounts of Trash*, as applicable). The full capture system equivalency* is a Trash* load reduction target that the permittee quantifies by using an approach, and technically acceptable and defensible assumptions and methods for applying the approach, subject to the approval of permitting authority*. Examples of such approaches include, but are not limited to, the following:

- (1) Trash Capture Rate Approach. Directly measure or otherwise determine the amount of Trash* captured by full capture systems* for representative samples of all similar types of land uses, facilities, or areas within the relevant areas of land over time to identify specific trash capture rates. Apply each specific Trash* capture rate across all similar types of land uses, facilities, or areas to determine full capture system equivalency*. Trash* capture rates may be determined either through a pilot study or literature review. Full capture systems* selected to evaluate Trash* capture rates may cover entire types of land uses, facilities, or areas, or a representative subset of types of land uses, facilities, or areas. With this approach, full capture system equivalency* is the sum of the products of each type of land use, facility, or area multiplied by Trash* capture rates for that type of land use, facility, or area.
- (2) Reference Approach. Determine the amount of Trash* in a reference receiving water in a reference watershed where full capture systems* have been installed for all storm drains that capture runoff from all relevant areas of land. The reference watershed must be comprised of similar types and extent of sources of trash* and land uses (including priority land uses* and all other land uses), facilities, or areas as the permittee's watershed. With this approach, full capture system equivalency* would be demonstrated when the amount of Trash* in the receiving water is equivalent to the amount of Trash* in the reference receiving water.

* See Appendix I for definition of terms.

GRAYWATER is drainage from galley, dishwasher, shower, laundry, bath, and lavatory wash basin sinks, and water fountains, but does not include drainage from toilets, urinals, hospitals, or cargo spaces.

HALOMETHANES shall mean the sum of bromoform, bromomethane (methyl bromide) and chloromethane (methyl chloride).

HCH shall mean the sum of the alpha, beta, gamma (lindane) and delta isomers of hexachlorocyclohexane.

INDICATOR BACTERIA includes total coliform bacteria, fecal coliform bacteria (or *E. coli*), and/or Enterococcus bacteria.

IN-KIND MITIGATION is when the habitat or species lost is the same as what is replaced through mitigation.

INSTITUTIONAL CONTROLS are non-structural best management practices (i.e., no structures are involved) that may include, but not be limited to, street sweeping, sidewalk Trash* bins, collection of the Trash*, anti-litter educational and outreach programs, producer take-back for packaging, and ordinances.

INITIAL DILUTION is the process which results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and nonbuoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum induced velocity of the discharge ceases to produce significant* mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the Regional Board, whichever results in the lower estimate for initial dilution.

KELP BEDS, are aggregations of marine algae of the order Laminariales, including species in the genera *Macrocystis*, *Nereocystis*, and *Pelagophycus*. Kelp beds include the total foliage canopy throughout the water column.

LARGE PASSENGER VESSELS are vessels of 300 gross registered tons or greater engaged in carrying passengers for hire. The following vessels are not large passenger vessels:

- (1) Vessels without berths or overnight accommodations for passengers;
- (2) Noncommercial vessels, warships, vessels operated by nonprofit entities as determined by the Internal Revenue Service, and vessels operated by the state, the United States, or a foreign government;
- (3) Oceangoing vessels,* as defined below (e.g. those used to transport cargo).

* See Appendix I for definition of terms.

LOW-IMPACT DEVELOPMENT CONTROLS are treatment controls* that employ natural and constructed features that reduce the rate of storm water* runoff, filter out pollutants, facilitate storm water* storage onsite, infiltrate storm water* into the ground to replenish groundwater supplies, or improve the quality of receiving groundwater and surface water. (See Water Code § 10564.)

LOEC is the lowest observed effect concentration or the lowest concentration of effluent that causes observable adverse effects in exposed test organisms.

MARICULTURE is the culture of algae, plants, and animals in marine waters independent of any pollution source.

MARINE MANAGED AREAS are named, discrete geographic marine or estuarine areas along the California coast designated by law or administrative action, and intended to protect, conserve, or otherwise manage a variety of resources and their uses. According to the California Public Resources Code (§§ 36600 et seq.) there are six classifications of marine managed areas, including State Marine Reserves, State Marine Parks and State Marine Conservation Areas, State Marine Cultural Preservation Areas, State Marine Recreational Management Areas, and State Water Quality Protection Areas.*

MARKET SQUID NURSURIES are comprised of numerous egg capsules, each containing approximately 200 developing embryos, attached in clusters or mops to sandy substrate with moderate water flow. Market squid (*Doryteuthis opalescens*) nurseries occur at a wide range of depths; however, mop densities are greatest in shallow, nearshore waters between ten and 100 meters (328 feet) deep.

MATERIAL: (a) In common usage: (1) the substance or substances of which a thing is made or composed (2) substantial; (b) For purposes of this Ocean Plan relating to waste disposal, dredging and the disposal of dredged material* and fill, MATERIAL means matter of any kind or description which is subject to regulation as waste, or any material dredged from the navigable waters of the United States. See also, DREDGED MATERIAL.* For the purposes of chapter III.M.2.d, materials relates to the common usage in (a).

METHOD DETECTION LIMIT (MDL) is the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero, as defined in 40 CFR PART 136 Appendix B.

MINIMUM LEVEL (ML) is the concentrations at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes and processing steps have been followed.

MULTI-BENEFIT PROJECT is a treatment control* project designed to achieve any of the benefits set forth in section 10562, subdivision (d) of the Water Code. Examples include projects designed to: infiltrate, recharge or store storm water* for beneficial reuse; develop or enhance habitat and open space through storm water* and non-storm water management; and/or reduce storm water* and non-storm water runoff volume.

* See Appendix I for definition of terms.

MULTIPOINT DIFFUSERS are linear structures consisting of spaced ports or nozzles that are installed on submerged marine outfalls. For the purposes of chapter III.M, multipoint diffusers discharge brine* waste into an ambient receiving water body and enable rapid mixing, dispersal, and dilution of brine* within a relatively small area.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) has the same meaning set forth in 40 Code of Federal Regulations section 122.26(b)(8).

NATURAL BACKGROUND SALINITY is the salinity* at a location that results from naturally occurring processes and is without apparent human influence. For purposes of determining natural background salinity, the regional water board may approve the use of:

- (1) the mean monthly natural background salinity. Mean monthly natural background salinity shall be determined by averaging 20 years of historical salinity* data in the proximity of the proposed discharge location and at the depth of the proposed discharge, when feasible.* For historical data not recorded in parts per thousand, the regional water boards may accept converted data at their discretion. When historical data are not available, natural background salinity shall be determined by measuring salinity* at depth of proposed discharge for three years, on a weekly basis prior to a desalination facility* discharging brine,* and the mean monthly natural salinity* shall be used to determine natural background salinity; or
- (2) the actual salinity at a reference location, or reference locations, that is representative of natural background salinity at the discharge location. The reference locations shall be without apparent human influence, including wastewater outfalls and brine discharges.

Either method to establish natural background salinity may be used for the purpose of determining compliance with the receiving water limitation or an effluent limitation for salinity. If a reference location(s) is used for compliance monitoring, the permit should specify that historical data shall be used if reference location data becomes unavailable. An owner or operator shall submit to the regional water board all necessary information to establish natural background salinity.

NATURAL LIGHT: Reduction of natural light may be determined by the Regional Board by measurement of light transmissivity or total irradiance, or both, according to the monitoring needs of the Regional Board.

NO DISCHARGE ZONE (NDZ) is an area in which both treated and untreated sewage discharges from vessels are prohibited. Within NDZ boundaries, vessel operators are required to retain their sewage discharges onboard for disposal at sea (beyond three miles from shore) or onshore at a pump-out facility.

NON-STORM WATER DISCHARGE is any runoff that is not the result of a precipitation event. This is often referred to as “dry weather flow.”

OCEAN WATERS are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays,* estuaries, and coastal lagoons.* If a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters.

* See Appendix I for definition of terms.

OCEANGOING VESSELS (i.e., oceangoing ships) means commercial vessels of 300 gross registered tons or more calling on California ports or places, excluding active military vessels.

OILY BILGE WATER includes bilge water that contains used lubrication oils, oil sludge and slops, fuel and oil sludge, used oil, used fuel and fuel filters, and oily waste.

OUT-OF-KIND MITIGATION is when the habitat or species lost is different than what is replaced through mitigation.

PAHs (polynuclear aromatic hydrocarbons) shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorene, indeno[1,2,3-cd]pyrene, phenanthrene and pyrene.

PCBs (polychlorinated biphenyls) shall mean the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254 and Aroclor-1260.

PERMITTING AUTHORITY means the State Water Board or Regional Water Board, whichever issues the permit.

PREPRODUCTION PLASTIC has the same meaning set forth in section 13367(a) of the Water Code.

PRIORITY LAND USES are those developed sites, facilities, or land uses (i.e., not simply zoned land uses) within the MS4* permittee's jurisdiction from which discharges of Trash* are regulated by this Ocean Plan as follows:

- (1) **High-density residential:** all land uses with at least ten (10) developed dwelling units/acre.
- (2) **Industrial:** land uses where the primary activities on the developed parcels involve product manufacture, storage, or distribution (e.g., manufacturing businesses, warehouses, equipment storage lots, junkyards, wholesale businesses, distribution centers, or building material sales yards).
- (3) **Commercial:** land uses where the primary activities on the developed parcels involve the sale or transfer of goods or services to consumers (e.g., business or professional buildings, shops, restaurants, theaters, vehicle repair shops, etc.)
- (4) **Mixed urban:** land uses where high-density residential, industrial, and/or commercial land uses predominate collectively (i.e., are intermixed).
- (5) **Public transportation stations:** facilities or sites where public transit agencies' vehicles load or unload passengers or goods (e.g., bus stations and stops).

Equivalent alternate land uses: An MS4* permittee with regulatory authority over priority land uses* may issue a request to the applicable permitting authority* that the MS4* permittee be allowed to substitute one or more land uses identified above with alternates land use within the MS4* permittee's jurisdiction that generates rates of Trash* that are equivalent to or greater than the priority land use(s)* being substituted. The land use area

* See Appendix I for definition of terms.

requested to substitute for a priority land use* need not be an acre-for-acre substitution but may involve one or more priority land uses*, or a fraction of a priority land use*, or both, provided the total trash* generated in the equivalent alternative land use is equivalent to or greater than the total Trash* generated from the priority land use(s)* for which substitution is requested. Comparative Trash* generation rates shall be established through the reporting of quantification measures such as street sweeping and catch basin cleanup records; mapping; visual trash presence surveys, such as the “Keep America Beautiful Visible Litter Survey”; or other information as required by the permitting authority*.

PROPAGULES are structures that are capable of propagating an organism to the next stage in its life cycle via dispersal. Dispersal is the movement of individuals from their birth site to their reproductive grounds.

PROPORTIONAL MORTALITY, P_m , is percentage of larval organisms or propagules* in the source water body* that is expected to be entrained at a desalination facility's* intake. It is assumed that all entrained larvae or propagules* die as a result of entrainment.

RECEIVING WATER, for permitted storm water discharges and nonpoint sources, should be measured at the point of discharge(s), in the surf zone immediately where runoff from an outfall meets the ocean water (a.k.a., at point zero).

SALINITY is a measure of the dissolved salts in a volume of water. For the purposes of this Plan, salinity shall be measured using a standard method approved by the regional water board (e.g. Standard Method 2520 B, EPA Method 120.1, EPA Method 160.1) and reported in parts per thousand (ppt). For historical salinity data not recorded in parts per thousand, the regional water boards may accept converted data at their discretion.

SEAWATER is salt water that is in or from the ocean. For the purposes chapter III.M, seawater includes tidally influenced waters in coastal estuaries and coastal lagoons* and underground salt water beneath the seafloor, beach, or other contiguous land with hydrologic connectivity to the ocean.

SENSITIVE HABITATS, for the purposes of this Plan, are kelp beds,* rocky substrate, surfgrass beds,* eelgrass beds,* oyster beds, spawning grounds for state or federally managed species, market squid nurseries,* or other habitats in need of special protection as determined by the Water Boards.

SHELLFISH are organisms identified by the California Department of Public Health as shellfish for public health purposes (i.e., mussels, clams and oysters).

SIGNIFICANT difference is defined as a statistically significant difference in the means of two distributions of sampling results at the 95 percent confidence level.

SIGNIFICANT TRASH GENERATING AREAS means all locations or facilities within the Department's jurisdiction where Trash* accumulates in substantial amounts, such as:

- (1) Highway on- and off-ramps in high density residential, commercial, and industrial land uses (as such land uses are defined under priority land uses* herein).
- (2) Rest areas and park-and-rides.

* See Appendix I for definition of terms.

- (3) State highways in commercial and industrial land uses (as such land uses are defined under priority land uses* herein).
- (4) Mainline highway segments to be identified by the Department through pilot studies and/or surveys.

SOURCE WATER BODY is the spatial area that contains the organisms that are at risk of entrainment at a desalination facility* as determined by factors that may include, but are not limited to, biological, hydrodynamic, and oceanographic data.

STATE WATER QUALITY PROTECTION AREAS (SWQPAs) are nonterrestrial marine or estuarine areas designated to protect marine species or biological communities from an undesirable alteration in natural water quality. All Areas of Special Biological Significance (ASBS)* that were previously designated by the State Water Board in Resolutions 74-28, 74-32, and 75-61 are now also classified as a subset of State Water Quality Protection Areas and require special protections afforded by this Plan.

STATE WATER QUALITY PROTECTION AREAS – GENERAL PROTECTION (SWQPA-GP) designated by the State Water Board to protect marine species and biological communities from an undesirable alteration in natural water quality within State Marine Parks and State Marine Conservation Areas.

STORM WATER has the same meaning set forth in 40 Code of Federal Regulations section 122.26(b)(13) (Nov. 16, 1990).

SUBSURFACE INTAKE, for the purposes of chapter III.M, is an intake withdrawing seawater* from the area beneath the ocean floor or beneath the surface of the earth inland from the ocean.

SURFGRASS BEDS are aggregations of marine flowering plants of the genus *Phyllospadix*.

TCDD EQUIVALENTS shall mean the sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity factors, as shown in the table below.

* See Appendix I for definition of terms.

Isomer Group	Toxicity Equivalence Factor
	1.0
2,3,7,8-tetra CDD	
2,3,7,8-penta CDD	0.5
2,3,7,8-hexa CDDs	0.1
2,3,7,8-hepta CDD	0.01
octa CDD	0.001
2,3,7,8 tetra CDF	0.1
1,2,3,7,8 penta CDF	0.05
2,3,4,7,8 penta CDF	0.5
2,3,7,8 hexa CDFs	0.1
2,3,7,8 hepta CDFs	0.01
octa CDF	0.001

TRASH means all improperly discarded solid material from any production, manufacturing, or processing operation including, but not limited to, products, product packaging, or containers constructed of plastic, steel, aluminum, glass, paper, or other synthetic or natural materials.

TRASH PROVISIONS are the water quality objective for Trash*, as well as the prohibition of discharge set forth in Chapter III.I and implementation requirements set forth in Chapter III.L herein.

TREATMENT CONTROLS are structural best management practices to either (a) remove pollutants and/or solids from storm water* runoff, wastewater, or effluent, or (b) capture, infiltrate or reuse storm water* runoff, wastewater, or effluent. Treatment controls include full capture systems* and low-impact development controls*.

WASTE: As used in this Plan, waste includes a discharger's total discharge, of whatever origin, i.e., gross, not net, discharge.

WATER RECLAMATION: The treatment of wastewater to render it suitable for reuse, the transportation of treated wastewater to the place of use, and the actual use of treated wastewater for a direct beneficial use or controlled use that would not otherwise occur.

* See Appendix I for definition of terms.

APPENDIX II MINIMUM* LEVELS

The Minimum* Levels identified in this appendix represent the lowest concentration of a pollutant that can be quantitatively measured in a sample given the current state of performance in analytical chemistry methods in California. These Minimum* Levels were derived from data provided by state-certified analytical laboratories in 1997 and 1998 for pollutants regulated by the California Ocean Plan and shall be used until new values are adopted by the State Water Board. There are four major chemical groupings: volatile chemicals, semi-volatile chemicals, inorganics, pesticides & PCBs.* “No Data” is indicated by “--”.

**TABLE II-1
MINIMUM* LEVELS – VOLATILE CHEMICALS**

Volatile Chemicals	CAS Number	Minimum* Level (µg/L)	
		GC Method ^a	GCMS Method ^b
Acrolein	107028	2.	5
Acrylonitrile	107131	2.	2
Benzene	71432	0.5	2
Bromoform	75252	0.5	2
Carbon Tetrachloride	56235	0.5	2
Chlorobenzene	108907	0.5	2
Chlorodibromomethane	124481	0.5	2
Chloroform	67663	0.5	2
1,2-Dichlorobenzene (volatile)	95501	0.5	2
1,3-Dichlorobenzene (volatile)	541731	0.5	2
1,4-Dichlorobenzene (volatile)	106467	0.5	2
Dichlorobromomethane	75274	0.5	2
1,1-Dichloroethane	75343	0.5	1
1,2-Dichloroethane	107062	0.5	2
1,1-Dichloroethylene	75354	0.5	2
Dichloromethane	75092	0.5	2
1,3-Dichloropropene (volatile)	542756	0.5	2
Ethyl benzene	100414	0.5	2
Methyl Bromide	74839	1.	2
Methyl Chloride	74873	0.5	2
1,1,2,2-Tetrachloroethane	79345	0.5	2
Tetrachloroethylene	127184	0.5	2
Toluene	108883	0.5	2
1,1,1-Trichloroethane	71556	0.5	2
1,1,2-Trichloroethane	79005	0.5	2
Trichloroethylene	79016	0.5	2
Vinyl Chloride	75014	0.5	2

Table II-1 Notes

- a) GC Method = Gas Chromatography
- b) GCMS Method = Gas Chromatography / Mass Spectrometry
- * To determine the lowest standard concentration in an instrument calibration curve for these techniques, use the given ML (see chapter III, “Use of Minimum* Levels”).

* See Appendix I for definition of terms.

TABLE II-2
MINIMUM* LEVELS – SEMI VOLATILE CHEMICALS
 Minimum* Level (µg/L)

Semi-Volatile Chemicals	CAS Number	Minimum* Level (µg/L)			
		GC Method ^{a,*}	GCMS Method ^{b,*}	HPLC Method ^{c,*}	COLOR Method ^d
Acenaphthylene	208968	--	10	0.2	--
Anthracene	120127	--	10	2	--
Benzidine	92875	--	5	--	--
Benzo(a)anthracene	56553	--	10	2	--
Benzo(a)pyrene	50328	--	10	2	--
Benzo(b)fluoranthene	205992	--	10	10	--
Benzo(g,h,i)perylene	191242	--	5	0.1	--
Benzo(k)floranthene	207089	--	10	2	--
Bis 2-(1-Chloroethoxy) methane	111911	--	5	--	--
Bis(2-Chloroethyl)ether	111444	10	1	--	--
Bis(2-Chloroisopropyl)ether	39638329	10	2	--	--
Bis(2-Ethylhexyl) phthalate	117817	10	5	--	--
2-Chlorophenol	95578	2	5	--	--
Chrysene	218019	--	10	5	--
Di-n-butyl phthalate	84742	--	10	--	--
Dibenzo(a,h)anthracene	53703	--	10	0.1	--
1,2-Dichlorobenzene (semivolatile)	95504	2	2	--	--
1,3-Dichlorobenzene (semivolatile)	541731	2	1	--	--
1,4-Dichlorobenzene (semivolatile)	106467	2	1	--	--
3,3-Dichlorobenzidine	91941	--	5	--	--
2,4-Dichlorophenol	120832	1	5	--	--
1,3-Dichloropropene	542756	--	5	--	--
Diethyl phthalate	84662	10	2	--	--
Dimethyl phthalate	131113	10	2	--	--
2,4-Dimethylphenol	105679	1	2	--	--
2,4-Dinitrophenol	51285	5	5	--	--
2,4-Dinitrotoluene	121142	10	5	--	--
1,2-Diphenylhydrazine	122667	--	1	--	--
Fluoranthene	206440	10	1	0.05	--
Fluorene	86737	--	10	0.1	--
Hexachlorobenzene	118741	5	1	--	--
Hexachlorobutadiene	87683	5	1	--	--
Hexachlorocyclopentadiene	77474	5	5	--	--

Table II-2 continued on next page...

* See Appendix I for definition of terms.

Table II-2 (Continued)
Minimum* Levels – Semi Volatile Chemicals

Semi-Volatile Chemicals	CAS Number	Minimum* Level (µg/L)			
		GC Method ^{a,*}	GCMS Method ^{b,*}	HPLC Method ^{c,*}	COLOR Method ^d
Hexachloroethane	67721	5	1	--	--
Indeno(1,2,3-cd)pyrene	193395	--	10	0.05	--
Isophorone	78591	10	1	--	--
2-methyl-4,6-dinitrophenol	534521	10	5	--	--
3-methyl-4-chlorophenol	59507	5	1	--	--
N-nitrosodi-n-propylamine	621647	10	5	--	--
N-nitrosodimethylamine	62759	10	5	--	--
N-nitrosodiphenylamine	86306	10	1	--	--
Nitrobenzene	98953	10	1	--	--
2-Nitrophenol	88755	--	10	--	--
4-Nitrophenol	100027	5	10	--	--
Pentachlorophenol	87865	1	5	--	--
Phenanthrene	85018	--	5	0.05	--
Phenol	108952	1	1	--	50
Pyrene	129000	--	10	0.05	--
2,4,6-Trichlorophenol	88062	10	10	--	--

Table II-2 Notes:

- a) GC Method = Gas Chromatography
- b) GCMS Method = Gas Chromatography / Mass Spectrometry
- c) HPLC Method = High Pressure Liquid Chromatography
- d) COLOR Method= Colorimetric

* To determine the lowest standard concentration in an instrument calibration curve for this technique, multiply the given ML* by 1000 (see chapter III, "Use of Minimum* Levels").

* See Appendix I for definition of terms.

**TABLE II-3
MINIMUM* LEVELS - INORGANICS**

Minimum* Level (µg/L)

Inorganic Substances	CAS Number	COLOR Method ^a	DCP Method ^b	FAA Method ^c	GFAA Method ^d	HYDRIDE Method ^e	ICP Method ^f	ICPMS Method ^g	SPGFAA Method ^h	CVAA Method ⁱ
Antimony	7440360	--	1000.	10.	5.	0.5	50.	0.5	5.	--
Arsenic	7440382	20.	1000.	--	2.	1.	10.	2.	2.	--
Beryllium	7440417	--	1000.	20.	0.5	--	2.	0.5	1.	--
Cadmium	7440439	--	1000.	10.	0.5	--	10.	0.2	0.5	--
Chromium (total)	--	--	1000.	50.	2.	--	10.	0.5	1.	--
Chromium (VI)	18540299	10.	--	5.	--	--	--	--	--	--
Copper	7440508	--	1000.	20.	5.	--	10.	0.5	2.	--
Cyanide	57125	5.	--	--	--	--	--	--	--	--
Lead	7439921	--	10000.	20.	5.	--	5.	0.5	2.	--
Mercury	7439976	--	--	--	--	--	--	0.5	--	0.2
Nickel	7440020	--	1000.	50.	5.	--	20.	1.	5.	--
Selenium	7782492	--	1000.	--	5.	1.	10.	2.	5.	--
Silver	7440224	--	1000.	10.	1.	--	10.	0.2	2.	--
Thallium	7440280	--	1000.	10.	2.	--	10.	1.	5.	--
Zinc	7440666	--	1000.	20.	--	--	20.	1.	10.	--

Table II-3 Notes

- a) COLOR Method = Colorimetric
- b) DCP Method = Direct Current Plasma
- c) FAA Method = Flame Atomic Absorption
- d) GFAA Method = Graphite Furnace Atomic Absorption
- e) HYDRIDE Method = Gaseous Hydride Atomic Absorption
- f) ICP Method = Inductively Coupled Plasma
- g) ICPMS Method = Inductively Coupled Plasma / Mass Spectrometry
- h) SPGFAA Method = Stabilized Platform Graphite Furnace Atomic Absorption (i.e., US EPA 200.9)
- i) CVAA Method = Cold Vapor Atomic Absorption

* To determine the lowest standard concentration in an instrument calibration curve for these techniques, use the given ML* (see chapter III, "Use of Minimum* Levels").

* See Appendix I for definition of terms.

TABLE II-4
MINIMUM* LEVELS – PESTICIDES AND PCBs*

Pesticides – PCBs	CAS Number	Minimum* Level (µg/L)
		GC Method ^{a,*}
Aldrin	309002	0.005
Chlordane*	57749	0.1
4,4'-DDD	72548	0.05
4,4'-DDE	72559	0.05
4,4'-DDT	50293	0.01
Dieldrin	60571	0.01
a-Endosulfan	959988	0.02
b-Endosulfan	33213659	0.01
Endosulfan Sulfate	1031078	0.05
Endrin	72208	0.01
Heptachlor	76448	0.01
Heptachlor Epoxide	1024573	0.01
a-Hexachlorocyclohexane	319846	0.01
b-Hexachlorocyclohexane	319857	0.005
d-Hexachlorocyclohexane	319868	0.005
g-Hexachlorocyclohexane (Lindane)	58899	0.02
PCB 1016	--	0.5
PCB 1221	--	0.5
PCB 1232	--	0.5
PCB 1242	--	0.5
PCB 1248	--	0.5
PCB 1254	--	0.5
PCB 1260	--	0.5
Toxaphene	8001352	0.5

Table II-4 Notes

a) GC Method = Gas Chromatography

* To determine the lowest standard concentration in an instrument calibration curve for this technique, multiply the given ML* by 100 (see chapter III, “Use of Minimum* Levels”).

* See Appendix I for definition of terms.

APPENDIX III STANDARD MONITORING PROCEDURES

1. INTRODUCTION

The purpose of this appendix is to provide guidance to the Regional Water Boards on implementing the Ocean Plan and to ensure the reporting of useful information. Monitoring should be question driven rather than just gathering data and should be focused on assuring compliance with narrative and numeric water quality standards, the status and attainment of beneficial uses, and identifying sources of pollution.

It is not feasible to prescribe requirements in the Ocean Plan that encompass all circumstances and conditions that could be encountered by all dischargers, nor is it desirable to limit the flexibility of the Regional Water Boards in the monitoring of ocean* waters. This appendix should therefore be considered the basic framework for the design of an ocean discharger monitoring program. The Regional Water Boards are responsible for issuing monitoring and reporting programs (MRPs) that will implement this monitoring guidance. Regional Water Boards can deviate from the procedures required in the appendix only with the approval of the State Water Resources Control Board.

This monitoring guidance utilizes a model monitoring framework. The model monitoring framework has three components that comprise a range of spatial and temporal scales: (1) core monitoring, (2) regional monitoring, and (3) special studies.

1) Core monitoring consists of the basic site-specific monitoring necessary to measure compliance with individual effluent limits and/or impacts to receiving water* quality. Core monitoring is typically conducted in the immediate vicinity of the discharge by examining local scale spatial effects.

2) Regional monitoring provides information necessary to make assessments over large areas and serves to evaluate cumulative effects of all anthropogenic inputs. Regional monitoring data also assists in the interpretation of core monitoring studies. It is recommended that the Regional Water Boards require participation by the discharger in an approved regional monitoring program, if available, for the receiving water.* In the event that a regional monitoring effort takes place during a permit cycle in which the MRP does not specifically address regional monitoring, a Regional Water Board may allow relief from aspects of core monitoring components in order to encourage participation.

3) Special studies are directed monitoring efforts designed in response to specific management or research questions identified through either core or regional monitoring programs. Often they are used to help understand core or regional monitoring results, where a specific environmental process is not well understood, or to address unique issues of local importance. Regional Water Boards may require special studies as appropriate. Special studies are not addressed further in this guidance because they are beyond its scope.

The Ocean Plan does not address all site-specific monitoring issues and allows the Regional Water Boards to select alternative protocols with the approval of the State Water Board. If no direction is given in this appendix for a specific provision of the Ocean Plan, it is within the

* See Appendix I for definition of terms.

discretion of the Regional Water Boards to establish the monitoring requirements for that provision.

2. QUALITY ASSURANCE

All receiving* and ambient water monitoring conducted in compliance with MRPs must be comparable with the Quality Assurance requirements of the Surface Water Ambient Monitoring Program (SWAMP).

SWAMP comparable means all sample collection and analyses shall meet or exceed the measurement quality objectives (MQOs) – including all sample types, frequencies, control limits and holding time requirements – as specified in the SWAMP Quality Assurance Project Plan (QAPrP)

The SWAMP QAPrP is located at: http://www.waterboards.ca.gov/water_issues/programs/swamp/tools.shtml#qa.

For those measurements that do not have SWAMP MQOs available, then MQOs shall be at the discretion of the Regional Water Board. Refer to the USEPA guidance document (EPA QA/G-4) for selecting data quality objectives, located at <http://www.epa.gov/quality/qs-docs/g4-final.pdf>.

Water Quality data must be reported according to the California Environmental Data Exchange Network (CEDEN) “Data Template” format for all constituents that are monitored in receiving and ambient water. CEDEN Data Template are available at: <http://ceden.org>.

3. TYPE OF WASTE DISCHARGE SOURCES

Discharges to ocean waters* are highly diverse and variable, exhibiting a wide range of constituents, effluent quality and quantity, location and frequency of discharge. Different types of discharges will require different approaches. This Appendix provides specific direction for three broad types of discharges: (1) Point Sources, (2) Storm Water Point Sources and (3) Non-point Sources.

3.1. Point Sources

Industrial, municipal, marine laboratory and other traditional point sources of pollution that discharge wastewater directly to surface waters and are required to obtain NPDES permits.

3.2. Storm Water Point Sources

Storm Water Point Sources, hereafter referred to as Storm Water Sources, are those NPDES permitted discharges regulated by Construction or Industrial Storm Water General Permits or municipal separate storm sewer system (MS4s) Permits. MS4 Permits are further divided into Phase I and II Permits. A Phase I MS4 Permit is issued by a Regional Water Board for medium (serving between 100,000 and 250,000 people) and large (serving 250,000 or more people) municipalities. A Phase II MS4 General Permit is issued by the State Water Resources Control Board for the discharge of storm water for smaller municipalities, and includes nontraditional Small MS4s, which are governmental facilities such as military bases, public campuses, prison and hospital complexes.

* See Appendix I for definition of terms.

3.3. Non-point Sources

A Non-point Source is any source of pollutants that is not a Point Source described in section 3.1 or a Storm Water Source as described in section 3.2. Land use categories contributing to non-point sources include but are not limited to:

- a. Agriculture
- b. Grazing
- c. Forestry/timber harvest
- d. Urban not covered under an NPDES permit
- e. Marinas and mooring fields
- f. Golf Courses not covered under an NPDES Permit

Only agricultural and golf course related non-point source discharge monitoring is addressed in this Appendix, but Regional Water Boards may issue MRPs for other non-point sources at their discretion. Agriculture includes irrigated lands. Irrigated lands are where water is applied for the purpose of producing crops, including, but not limited to, row and field crop, orchards, vineyard, rice production, nurseries, irrigated pastures, and managed wetlands.

4. INDICATOR BACTERIA*

4.1. Point Sources

Primary questions to be addressed:

1. Does the effluent comply with the water quality standards in the receiving water*?
2. Does the sewage effluent reach water contact zones or commercial shellfish* beds?

To answer these questions, core monitoring shall be conducted in receiving water* on the shoreline for the indicator bacteria* at a minimum weekly for any point sources discharging treated sewage effluent:

- a. within one nautical mile of shore, or
- b. within one nautical mile of a commercial shellfish* bed, or
- c. if the discharge is in excess of 10 million gallons per day (MGD).

Alternatively, these requirements may be met through participation in a regional monitoring program to assess the status of marine contact recreation water quality. If the permittee participates in a regional monitoring program, in conjunction with local health organization(s), core monitoring may be suspended for that period at the discretion of the Regional Water Board. Regional monitoring should be used to answer the above questions, and may be used to answer additional questions. These additional questions may include, but are not limited to, questions regarding the extent and magnitude of current or potential receiving water* indicator bacteria* problems, or the sources of indicator bacteria.*

4.2. Storm Water

Primary questions to be addressed:

1. Does the receiving water* comply with water quality standards?

* See Appendix I for definition of terms.

2. Is the condition of the receiving water* protective of contact recreation and shellfish* harvesting beneficial uses?
3. Are the indicator bacteria* levels in receiving water* getting better or worse?
4. What is the relative contribution of indicator bacteria* to the receiving water* from storm water runoff?

To answer these questions, core monitoring for indicator bacteria* shall be required periodically for storm water discharges representative of the area of concern. At a minimum, for municipal storm water discharges, all receiving water* at outfalls greater than 36 inches in diameter or width must be monitored (ankle depth, point zero) at the following frequencies:

- a. During wet weather with a minimum of three storms per year, and
- b. When non-storm water discharges* occur (flowing during dry weather), and if located at an AB 411 beach, at least weekly. (An AB 411 Beach is defined as a beach visited by more than 50,000 people annually and located on an area adjacent to a storm drain that flows in the summer. (Health & Saf. Code § 115880.)).

Regional Water Boards may waive monitoring once structural best management practices have been installed, evaluated and determined to have successfully controlled indicator bacteria.*

Alternatively, these requirements may be met through participation in a regional monitoring program to assess the status of marine contact recreation water quality. If the permittee participates in a regional monitoring program, in conjunction with local health organization(s), core monitoring may be suspended for that period at the discretion of the Regional Water Board. Regional monitoring should be used to answer the above questions, and may be used to answer additional questions. These additional questions may include, but are not limited to, questions regarding the extent and magnitude of current or potential receiving water* indicator bacteria* problems, or the sources of indicator bacteria.*

4.3. Non-point Sources

Primary questions to be addressed:

1. Does the receiving water* comply with water quality standards?
2. Do agricultural and golf course non-point source discharges reach water contact or shellfish* harvesting zones?
3. Are the indicator bacteria* levels in receiving water* getting better or worse?
4. What is the relative contribution of indicator bacteria* to the receiving water* from agricultural and golf course non-point sources?

To answer these questions, core monitoring of representative agricultural irrigation tail water and storm water runoff, at a minimum, will be conducted in receiving water* (ankle depth, point zero) for indicator bacteria*:

- a. During wet weather, at a minimum of two storm events per year, and
- b. When non-storm water discharges* occur (flowing during dry weather), and if located at an AB 411 beach or within one nautical mile of shellfish* bed, at least weekly.

Alternatively, these requirements may be met through participation in a regional monitoring program to assess the status of marine contact recreation water quality. If the discharger

* See Appendix I for definition of terms.

participates in a regional monitoring program, in conjunction with local health organization(s), core monitoring may be suspended for that period at the discretion of the Regional Water Board. Regional monitoring should be used to answer the above questions, and may be used to answer additional questions. These additional questions may include, but are not limited to, questions regarding the extent and magnitude of current or potential receiving water* indicator bacteria* problems, or the sources of indicator bacteria.*

5. CHEMICAL CONSTITUENTS

5.1. Point Sources

Primary questions addressed:

1. Does the effluent meet permit effluent limits thereby ensuring that water quality standards are achieved in the receiving water*?
2. What is the mass of the constituents that are discharged annually?
3. Is the effluent concentration or mass changing over time?

Consistent with Appendix VI, the core monitoring for the substances in Table 1 and Table 2 shall be required periodically. For discharges less than 10 MGD, the monitoring frequency shall be at least one complete scan of the Table 1 substances annually. Discharges greater than 10 MGD shall be required to monitor at least semiannually.

5.2. Storm Water

Primary questions addressed:

1. Does the receiving water* meet the water quality standards?
2. Are the conditions in receiving water* getting better or worse?
3. What is the relative runoff contribution to pollution in the receiving water*?

For Phase I and Phase II MS4 dischargers, core receiving water* monitoring will be required at a minimum for 10 percent of all outfalls greater than 36 inches in diameter or width once per year. If a discharger has less than five outfalls exceeding 36 inches in diameter or width, they shall conduct monitoring at a minimum of only once per outfall during a five year period. Monitoring shall be for total suspended solids, oil & grease, total organic carbon, pH, temperature, biochemical oxygen demand, turbidity, Table 1 metals, PAHs,* and pesticides determined by the Regional Water Boards. Regional Water Boards may waive monitoring once structural best management practices have been installed, evaluated and determined to have successfully controlled pollutants.

For industrial storm water discharges, runoff monitoring must be conducted at all outfalls at least two storm events per year. In addition, at least one representative receiving water* sample must be collected per industrial storm water permittee during two storm events per year. Monitoring shall be conducted for total suspended solids, oil & grease, total organic carbon, pH, temperature, biochemical oxygen demand, turbidity, and Table 1 metals and PAHs.*

The requirements for individual core monitoring for Table 1 metals, PAHs* and pesticides may be waived at the discretion of the Regional Water Board, if the permittee participates in a regional program for monitoring runoff and/or receiving water* to answer the above questions as

* See Appendix I for definition of terms.

well as additional questions. Additional questions may include, but are not limited to, questions regarding the extent and magnitude of current or potential receiving water* problems from storm water runoff, or sources of any runoff pollutants.

5.3. Non-point Sources

The primary questions are:

1. Does the agricultural or golf course runoff meet water quality standards in the receiving water*?
2. Are nutrients present that would contribute to objectionable aquatic algal blooms or degrade* indigenous biota?
3. Are the conditions in receiving water* getting better or worse?
4. What is the relative agricultural runoff or golf course contribution to pollution in the receiving water*?

To answer these questions, a statistically representative sample (determined by the Regional Water Board) of receiving water* at the sites of agricultural irrigation tail water and storm water runoff, and golf course runoff in each watershed will be monitored for Ocean Plan Table 1 metals, ammonia as N, nitrate as N, phosphate as P, and pesticides determined by the Regional Board:

- a. During wet weather, at a minimum of two storm events per year, and
- b. During dry weather, when flowing, at a frequency determined by the Regional Boards.

This requirement may be satisfied by core monitoring individually, or through participation in a regional program for monitoring runoff and receiving water* at the discretion of the Regional Water Board to answer the above questions as well as additional questions. Additional questions may include, but are not limited to, questions regarding the sources of agricultural pollutants.

6. SEDIMENT MONITORING

All Sources:

1. Is the dissolved sulfide concentration of waters in sediments significantly* increased above that present under natural conditions?
2. Is the concentration of substances set forth in Table 1, for protection of marine aquatic life, in marine sediments at levels which would degrade* the benthic community?
3. Is the concentration of organic pollutants in marine sediments at levels that would degrade* the benthic community?

6.1. Point Sources

For discharges greater than 10 MGD, acid volatile sulfides, OP Pesticides, Table 1 metals, ammonia N, PAHs,* and chlorinated hydrocarbons will be measured in sediments annually in a core monitoring program approved by the Regional Water Board. Sediment sample locations will be determined by the Regional Water Board. If sufficient data exists from previous water column monitoring for these parameters, the Regional Water Board at its discretion may reduce the frequency of monitoring, or may allow this requirement to be satisfied through participation in a regional monitoring program.

* See Appendix I for definition of terms.

6.2. Storm Water

For Phase I MS4 permittees, discharges greater than 72 inches in diameter or width discharging to low energy coastal environments with the likelihood of sediment deposition, acid volatile sulfides, OP Pesticides, Ocean Plan Table 1 metals, ammonia N, PAHs,* and chlorinated hydrocarbons will be measured in sediments once per permit cycle.

Regional Water Boards may waive monitoring once structural best management practices have been installed, evaluated and determined to have successfully controlled pollutants.

This requirement may be satisfied by core monitoring individually or through participation in a regional monitoring program at the discretion of the Regional Water Board. Sediment sample locations will be determined by the Regional Water Board.

7. AQUATIC LIFE TOXICITY

Toxicity tests are another method used to assess risk to aquatic life. These tests assess the overall toxicity of the effluent, including the toxicity of unmeasured constituents and/or synergistic effects of multiple constituents.

7.1. Point Sources

1. Does the effluent meet permit effluent limits for toxicity thereby ensuring that water quality standards are achieved in the receiving water*?
2. If not:
 - a. Are unmeasured pollutants causing risk to aquatic life?
 - b. Are pollutants in combinations causing risk to aquatic life?

Core monitoring for Table 1 effluent toxicity shall be required periodically. For discharges less than 0.1 MGD the monitoring frequency for acute and/or chronic toxicity* shall be twice per permit cycle. For discharges between 0.1 and 10 MGD, the monitoring frequency for acute and/or chronic toxicity* of the effluent should be at least annually. For discharges greater than 10 MGD, the monitoring frequency for acute and/or chronic toxicity* of the effluent should be at least semiannually.

For discharges greater than 10 MGD in a low energy coastal environment with the likelihood of sediment deposition, Core monitoring for acute sediment toxicity is required and will utilize alternative amphipod species (*Eohaustorius estuarius*, *Leptocheirus plumulosus*, *Rhepoxynius abronius*).

If an exceedance is detected, six additional toxicity tests are required within a 12-week period. If an additional exceedance is detected within the 12-week period, a toxicity reduction evaluation (TRE) is required, consistent with chapter III.C.10 that requires a TRE if a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table 1.

7.2. Storm Water

1. Does the runoff meet objectives for toxicity in the receiving water*?
2. Are the conditions in receiving water* getting better or worse with regard to toxicity

* See Appendix I for definition of terms.

3. What is the relative runoff contribution to the receiving water* toxicity?
4. What are the causes of the toxicity* and the sources of the constituents responsible?

For Phase I MS4, Phase II MS4, and industrial storm water discharges, core toxicity monitoring will be required at a minimum for 10 percent of all outfalls greater than 36 inches in diameter or width at a minimum of once per year. Receiving water* monitoring shall be for Table 1 critical life stage chronic toxicity* for a minimum of one invertebrate species.

For storm water discharges greater than 72 inches in diameter or width in a low energy coastal environment with the likelihood of sediment deposition, core sediment monitoring for acute sediment toxicity is required and will utilize alternative amphipod species (*Eohaustorius estuarius*, *Leptocheirus plumulosus*, *Rhepoxynius abronius*).

Regional Water Boards may waive monitoring once structural best management practices have been installed, evaluated and determined to have successfully controlled toxicity.

If an exceedance is detected, an additional toxicity test is required during the subsequent storm event. If an additional exceedance is detected at that time, a TRE is required, consistent with chapter III.C.10 that requires a TRE if a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table 1. A sufficient volume must be collected to conduct a TIE, if necessary, as a part of a TRE.

The requirement for core toxicity monitoring may be waived at the discretion of the Regional Water Board, if the permittee participates in a regional monitoring program to answer the above questions, as well as any other additional questions that may be developed by the regional monitoring program.

7.3. Non-point Sources

1. Does the agricultural and golf course runoff meet water quality standards for toxicity in the receiving water*?
2. Are the conditions in receiving water* getting better or worse with regard to toxicity?
3. What is the relative agricultural and golf course runoff contribution to receiving water* toxicity?
4. What are the causes of the toxicity, and the sources of the constituents responsible?

To answer these questions, a statistically representative sample (determined by the Regional Water Board) of receiving water* at the sites of agricultural irrigation tail water and storm water runoff, and golf course runoff, in each watershed will be monitored:

- a. During wet weather, at a minimum of two storm events per year, and
- b. During dry weather, when flowing, at a frequency determined by the Regional Boards.

Core receiving water* monitoring shall include Table 1 critical life stage chronic toxicity* for a minimum of one invertebrate species.

For runoff in a low energy coastal environment with the likelihood of sediment deposition, core sediment monitoring shall include acute sediment toxicity utilizing alternative amphipod species (*Eohaustorius estuarius*, *Leptocheirus plumulosus*, *Rhepoxynius abronius*) at a minimum once per year.

* See Appendix I for definition of terms.

If an exceedance is detected, an additional toxicity test is required during the subsequent storm event. If an additional exceedance is detected, a TRE is required, consistent with chapter III.C.10 that requires a TRE if a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table 1. A sufficient volume must be collected to conduct a TIE, if necessary, as a part of a TRE.

The requirement for core monitoring may be waived at the discretion of the Regional Water Board, if the permittee participates in a regional monitoring program to answer the above questions, as well as any other additional questions that may be developed by the regional monitoring program.

8. BENTHIC COMMUNITY HEALTH

8.1. Point Sources

1. Are benthic communities degraded* as a result of the discharge?

To answer this question, benthic community monitoring shall be conducted

- a. for all discharges greater than 10 MGD, or
- b. those discharges greater than 0.1 MGD and one nautical mile or less from shore, or
- c. discharges greater than 0.1 MGD and one nautical mile or less from a State Water Quality Protection Area* or a State Marine Reserve.

The minimum frequency shall be once per permit cycle, except for discharges greater than 100 MGD the minimum frequency shall be at least twice per permit cycle.

This requirement may be satisfied by core monitoring individually or through participation in a regional monitoring program at the discretion of the Regional Board.

9. BIOACCUMULATION

9.1. Point Sources

1. Does the concentration of pollutants in fish, shellfish,* or other marine resources used for human consumption bioaccumulate to levels that are harmful to human health?
2. Does the concentration of pollutants in marine life bioaccumulate to levels that degrade* marine communities?

To answer these questions, bioaccumulation monitoring shall be conducted, at a minimum, once per permit cycle for:

- a. discharges greater than 10 MGD, or
- b. those discharges greater than 0.1 MGD and one nautical mile or less from shore, or
- c. discharges greater than 0.1 MGD and one nautical mile or less from a State Water Quality Protection Area* or a State Marine Reserve, Park or Conservation Area.

Constituents to be monitored must include pesticides (at the discretion of the Regional Board), Table 1 metals, and PAHs.* Bioaccumulation may be monitored by a mussel watch program or a fish tissue program. Resident mussels are preferred over transplanted mussels. Sand crabs

* See Appendix I for definition of terms.

and/or fish may be added or substituted for mussels at the discretion of the Regional Water Board.

This requirement may be satisfied individually as core monitoring or through participation in a regional monitoring program at the discretion of the Regional Water Board.

9.2. Storm Water

1. Does the concentration of pollutants in fish, shellfish,* or other marine resources used for human consumption bioaccumulate to levels that are harmful to human health?
2. Does the concentration of pollutants in marine life bioaccumulate to levels that degrade* marine communities?

For Phase I MS4 dischargers, bioaccumulation monitoring shall be conducted, at a minimum, once per permit cycle. Constituents to be monitored must include OP Pesticides, Ocean Plan Table 1 metals, Table 1 PAHs,* Table 1 chlorinated hydrocarbons, and pyrethroids.

Bioaccumulation may be monitored by a mussel watch program or a fish tissue program. Sand crabs, fish, and/or Solid Phase Microextraction may be added or substituted for mussels at the discretion of the Regional Water Board.

This requirement may be satisfied individually as core monitoring or through participation in a regional monitoring program at the discretion of the Regional Water Board.

10. RECEIVING WATER* CHARACTERISTICS

All Sources:

1. Is natural light* significantly* reduced at any point outside the zone of initial dilution* as the result of the discharge of waste*?
2. Does the discharge of waste* cause a discoloration of the ocean surface?
3. Does the discharge of oxygen demanding waste* cause the dissolved oxygen concentration to be depressed at any time more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding* waste* materials*?
4. Does the discharge of waste* cause the pH to change at any time more than 0.2 units from that which occurs naturally?
5. Does the discharge of waste* cause the salinity* to become elevated in the receiving water*?
6. Do nutrients cause objectionable aquatic growth or degrade* indigenous biota?

10.1. Point Sources

For discharges greater than 10 MGD, turbidity (alternatively light transmissivity or surface water transparency), color [Chlorophyll-A and/or color dissolved organic matter (CDOM)], dissolved oxygen and pH shall be measured in the receiving water* seasonally, at a minimum, in a core monitoring program approved by the Regional Water Board. If sufficient data exists from previous water column monitoring for these parameters, the Regional Water Board, at its discretion, may reduce the frequency of water column monitoring, or may allow this requirement to be satisfied through participation in a regional monitoring program. Use of regional ocean observing programs, such as the Southern California Coastal Ocean Observing System

* See Appendix I for definition of terms.

(SCCOOS) and the Central and Northern California Ocean Observing System (CeNCCOOS) is encouraged.

Salinity* must also be monitored by all point sources discharging brine* as part of their core monitoring program. Seawater desalination facilities* discharging brine* into ocean waters* and wastewater facilities that receive brine from seawater desalination facilities and discharge into ocean waters shall monitor salinity as described in chapter III.M.4.

10.2. Storm Water

At a minimum, 10 percent of Phase I MS4 discharges greater than 36 inches, receiving water* turbidity, color, dissolved oxygen, pH, nitrate, phosphate, and ammonia shall be measured annually in a core monitoring program approved by the Regional Water Board.

Regional Water Boards may waive monitoring once structural best management practices have been installed, evaluated and determined to have successfully controlled pollutants. The Regional Water Board, at its discretion, may also allow this requirement to be satisfied through participation in a regional monitoring program.

10.3. Non-point Sources

Representative agricultural and golf course discharges shall be measured, at a minimum twice annually (during two storm season and irrigation season) for receiving water* turbidity, color, dissolved oxygen, pH, nitrate, phosphate, ammonia in a core monitoring program approved by the Regional Water Board. The Regional Water Board, at its discretion, may allow this requirement to be satisfied through participation in a regional monitoring program.

11. ANALYTICAL REQUIREMENTS

Procedures, calibration techniques, and instrument/reagent specifications shall conform to the requirements of 40 CFR PART 136. Compliance monitoring shall be determined using an US EPA approved protocol as provided in 40 CFR PART 136. All methods shall be specified in the monitoring requirement section of waste* discharge requirements.

Where methods are not available in 40 CFR PART 136, the Regional Water Boards shall specify suitable analytical methods in waste* discharge requirements. Acceptance of data should be predicated on demonstrated laboratory performance.

Laboratories analyzing monitoring data shall be certified by the California Department of Public Health, in accordance with the provisions of Water Code section 13176, and must include quality assurance quality control data with their reports.

Sample dilutions for total and fecal coliform bacterial analyses shall range from 2 to 16,000. Sample dilutions for enterococcus bacterial analyses shall range from 1 to 10,000 per 100 mL. Each test method number or name (e.g., EPA 600/4-85/076, Test Methods for *Escherichia coli* and *Enterococci* in Water by Membrane Filter Procedure) used for each analysis shall be specified and reported with the results.

* See Appendix I for definition of terms.

Test methods used for coliforms (total and fecal) shall be those presented in Table 1A of 40 CFR PART 136, unless alternate methods have been approved in advance by U.S. EPA pursuant to 40 CFR PART 136.

Test methods used for enterococcus shall be those presented in U.S. EPA publication EPA 600/4-85/076, Test Methods for *Escherichia coli* and *Enterococci* in Water by Membrane Filter Procedure or any improved method determined by the Regional Board to be appropriate. The Regional Water Board may allow analysis for *Escherichia coli* (*E. coli*) by approved test methods to be substituted for fecal coliforms if sufficient information exists to support comparability with approved methods and substitute the existing methods.

The State or Regional Water Board may, subject to U.S. EPA approval, specify test methods which are more sensitive than those specified in 40 CFR PART 136. Because storm water and non-point sources are not assigned a dilution factor, sufficient sampling and analysis shall be required to determine compliance with Table 1 Water Quality Objectives. Total chlorine residual is likely to be a method detection limit effluent limitation in many cases. The limit of detection of total chlorine residual in standard test methods is less than or equal to 20 µg/L.

Toxicity monitoring requirements in permits prepared by the Regional Water Boards shall use marine test species instead of freshwater species when measuring compliance. The Regional Water Board shall require the use of critical life stage toxicity tests specified in this Appendix to measure TUc. For Point Sources, a minimum of three test species with approved test protocols shall be used to measure compliance with the toxicity objective. If possible, the test species shall include a fish, an invertebrate, and an aquatic plant. After a screening period, monitoring can be reduced to the most sensitive species.

Dilution and control water should be obtained from an unaffected area of the receiving waters.* The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay test and reported with the test results.

Use of critical life stage bioassay testing shall be included in waste* discharge requirements as a monitoring requirement for all Point Source discharges greater than 100 MGD

Procedures and methods used to determine compliance with benthic monitoring should use the following federal guidelines when applicable: Macroinvertebrate Field and Laboratory Methods for Evaluating the Biological Integrity of Surface Waters (1990) -- EPA/600/4-90/030 (PB91-171363). This manual describes guidelines and standardized procedures for the use of macroinvertebrates in evaluating the biological integrity of surface waters.

Procedures used to determine compliance with bioaccumulation monitoring should use the U.S. EPA. Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories (November 2000, EPA 823-B-00-007), NOAA Technical Memorandum NOS ORCA 130, Sampling and Analytical Methods of the National Status and Trends Program Mussel Watch Project (1998 update), and/or State Mussel Watch Program, 1987-1993 Data Report, State Water Resources Control Board 94-1WQ.

* See Appendix I for definition of terms.

**TABLE III-1
APPROVED TESTS – CHRONIC TOXICITY* (TUc)**

<u>Species</u>	<u>Effect</u>	<u>Tier</u>	<u>Reference</u>
giant kelp, <i>Macrocystis pyrifera</i>	percent germination; germ tube length	1	1,3
red abalone, <i>Haliotis rufescens</i>	Abnormal shell development	1	1,3
oyster, <i>Crassostrea gigas</i> ; mussels, <i>Mytilus spp.</i>	Abnormal shell development; percent survival	1	1,3
urchin, <i>Strongylocentrotus purpuratus</i> ; sand dollar, <i>Dendraster excentricus</i>	Percent normal development	1	1,3
urchin, <i>Strongylocentrotus purpuratus</i> ; sand dollar, <i>Dendraster excentricus</i>	Percent fertilization	1	1,3
shrimp, <i>Holmesimysis costata</i>	Percent survival; growth	1	1,3
shrimp, <i>Mysidopsis bahia</i>	Percent survival; growth; fecundity	2	2,4
topsmelt, <i>Atherinops affinis</i>	Larval growth rate; percent survival	1	1,3
Silversides, <i>Menidia beryllina</i>	Larval growth rate; percent survival	2	2,4

Table III-1 Notes

The first tier test methods are the preferred toxicity tests for compliance monitoring. A Regional Water Board can approve the use of a second tier test method for waste* discharges if first tier organisms are not available.

* See Appendix I for definition of terms.

Protocol References

1. Chapman, G.A., D.L. Denton, and J.M. Lazorchak. 1995. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to west coast marine and estuarine organisms. U.S. EPA Report No. EPA/600/R-95/136.
2. Klemm, D.J., G.E. Morrison, T.J. Norberg-King, W.J. Peltier, and M.A. Heber. 1994. Short-term methods for estimating the chronic toxicity of effluents and receiving water to marine and estuarine organisms. U.S. EPA Report No. EPA-600-4-91-003.
3. SWRCB 1996. Procedures Manual for Conducting Toxicity Tests Developed by the Marine Bioassay Project. 96-1WQ.
4. Weber, C.I., W.B. Horning, I.I., D.J. Klemm, T.W. Nieheisel, P.A. Lewis, E.L. Robinson, J. Menkedick and F. Kessler (eds). 1988. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms. EPA/600/4-87/028. National Information Service, Springfield, VA.

* See Appendix I for definition of terms.

**APPENDIX IV
PROCEDURES FOR THE NOMINATION AND DESIGNATION OF
STATE WATER QUALITY PROTECTION AREAS.***

1. Any person may nominate areas of ocean* waters for designation as SWQPA-ASBS or SWQPA-GP by the State Water Board. Nominations shall be made to the appropriate Regional Water Board and shall include:
 - (a) Information such as maps, reports, data, statements, and photographs to show that:
 - (1) Candidate areas are located in ocean* waters as defined in the "Ocean Plan".
 - (2) Candidate areas are intrinsically valuable or have recognized value to man for scientific study, commercial use, recreational use, or esthetic reasons.
 - (3) Candidate areas need protection beyond that offered by waste* discharge restrictions or other administrative and statutory mechanisms.
 - (b) Data and information to indicate whether the proposed designation may have a significant* effect on the environment.
 - (1) If the data or information indicate that the proposed designation will have a significant* effect on the environment, the nominee must submit sufficient information and data to identify feasible changes in the designation that will mitigate or avoid the significant* environmental effects.
2. The State Water Board or a Regional Water Board may also nominate areas for designation as SWQPA-ASBS or SWQPA-GP on their own motion.
3. A Regional Water Board may decide to (a) consider individual SWQPA-ASBS or SWQPA-GP nominations upon receipt, (b) consider several nominations in a consolidated proceeding, or (c) consider nominations in the triennial review of its water quality control plan (basin plan). A nomination that meets the requirements of 1. above may be considered at any time but not later than the next scheduled triennial review of the appropriate basin plan or Ocean Plan.
4. After determining that a nomination meets the requirements of paragraph 1. above, the Executive Officer of the affected Regional Water Board shall prepare a Draft Nomination Report containing the following:
 - (a) The area or areas nominated for designation as SWQPA-ASBS or SWQPA-GP.
 - (b) A description of each area including a map delineating the boundaries of each proposed area.
 - (c) A recommendation for action on the nomination(s) and the rationale for the recommendation. If the Draft Nomination Report recommends approval of the proposed designation, the Draft Nomination Report shall comply with the CEQA documentation requirements for a water quality control plan amendment in section 3777, title 23, California Code of Regulations.

* See Appendix I for definition of terms.

5. The Executive Officer shall, at a minimum, seek informal comment on the Draft Nomination Report from the State Water Board, Department of Fish and Game, other interested state and federal agencies, conservation groups, affected waste dischargers, and other interested parties. Upon incorporation of responses from the consulted agencies, the Draft Nomination Report shall become the Final Nomination Report.
6.
 - (a) If the Final Nomination Report recommends approval of the proposed designation, the Executive Officer shall ensure that processing of the nomination complies with the CEQA consultation requirements in section 3778, Title 23, California Code of Regulations and proceed to step 7 below.
 - (b) If the Final Nomination Report recommends against approval of the proposed designation, the Executive Officer shall notify interested parties of the decision. No further action need be taken. The nominating party may seek reconsideration of the decision by the Regional Water Board itself.
7. The Regional Water Board shall conduct a public hearing to receive testimony on the proposed designation. Notice of the hearing shall be published three times in a newspaper of general circulation in the vicinity of the proposed area or areas and shall be distributed to all known interested parties 45 days in advance of the hearing. The notice shall describe the location, boundaries, and extent of the area or areas under consideration, as well as proposed restrictions on waste* discharges within the area.
8. The Regional Water Board shall respond to comments as required in section 3779, Title 23, California Code of Regulations, and 40 C.F.R. Part 25 (July 1, 1999).
9. The Regional Water Board shall consider the nomination after completing the required public review processes required by CEQA.
 - (a) If the Regional Water Board supports the recommendation for designation, the board shall forward to the State Water Board its recommendation for approving designation of the proposed area or areas and the supporting rationale. The Regional Water Board submittal shall include a copy of the staff report, hearing transcript, comments, and responses to comments.
 - (b) If the Regional Water Board does not support the recommendation for designation, the Executive Officer shall notify interested parties of the decision, and no further action need be taken.
10. After considering the Regional Water Board recommendation and hearing record, the State Water Board may approve or deny the recommendation, refer the matter to the Regional Water Board for appropriate action, or conduct further hearing itself. If the State Water Board acts to approve a recommended designation, the State Water Board shall amend Appendix V, Table V-1, of this Plan. The amendment will go into effect after approval by the Office of Administrative Law and US EPA. In addition, after the effective date of a designation, the affected Regional Water Board shall revise its water quality control plan in the next triennial review to include the designation.

* See Appendix I for definition of terms.

12. The State Water Board Executive Director shall advise other agencies to whom the list of designated areas is to be provided that the basis for an SWQPA-ASBS or SWQPA-GP designation is limited to protection of marine life from waste* discharges.

* See Appendix I for definition of terms.

**APPENDIX V
STATE WATER QUALITY PROTECTION AREAS*
AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE***

**TABLE V-1
STATE WATER QUALITY PROTECTION AREAS*
AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE*
(DESIGNATED OR APPROVED BY THE STATE WATER RESOURCES CONTROL BOARD)**

No.	ASBS Name	Date Designated	State Water Board Resolution No.	Region No.
1.	Jughandle Cove	March 21, 1974,	74-28	1
2.	Del Mar Landing	March 21, 1974,	74-28	1
3.	Gerstle Cove	March 21, 1974,	74-28	1
4.	Bodega	March 21, 1974,	74-28	1
5.	Saunders Reef	March 21, 1974,	74-28	1
6.	Trinidad Head	March 21, 1974,	74-28	1
7.	King Range	March 21, 1974,	74-28	1
8.	Redwoods National Park	March 21, 1974,	74-28	1
9.	James V. Fitzgerald	March 21, 1974,	74-28	2
10.	Farallon Islands	March 21, 1974,	74-28	2
11.	Duxbury Reef	March 21, 1974,	74-28	2
12.	Point Reyes Headlands	March 21, 1974,	74-28	2
13.	Double Point	March 21, 1974,	74-28	2
14.	Bird Rock	March 21, 1974,	74-28	2
15.	Año Nuevo	March 21, 1974,	74-28	3
16.	Point Lobos	March 21, 1974,	74-28	3
17.	San Miguel, Santa Rosa, and Santa Cruz Islands	March 21, 1974,	74-28	3
18.	Julia Pfeiffer Burns	March 21, 1974,	74-28	3
19.	Pacific Grove	March 21, 1974,	74-28	3
20.	Salmon Creek Coast	March 21, 1974,	74-28	3
21.	San Nicolas Island and Begg Rock	March 21, 1974,	74-28	4
22.	Santa Barbara and Anacapa Islands	March 21, 1974,	74-28	4
23.	San Clemente Island	March 21, 1974,	74-28	4

Table V-1 Continued on next page...

* See Appendix I for definition of terms.

Table V-1 (Continued)
Areas of Special Biological Significance*
(Designated or Approved by the State Water Resources Control Board)

No.	ASBS Name	Date Designated	State Water Board Resolution No.	Region No.
24.	Laguna Point to Latigo Point	March 21, 1974,	74-28	4
25.	Northwest Santa Catalina Island	March 21, 1974,	74-28	4
26.	Western Santa Catalina Island	March 21, 1974,	74-28	4
27.	Farnsworth Bank	March 21, 1974,	74-28	4
28.	Southeast Santa Catalina	March 21, 1974,	74-28	4
29.	La Jolla	March 21, 1974,	74-28	9
30.	Heisler Park	March 21, 1974,	74-28	9
31.	San Diego-Scripps	March 21, 1974,	74-28	9
32.	Robert E. Badham	April 18, 1974	74-32	8
33.	Irvine Coast	April 18, 1974	74-32	8,9
34.	Carmel Bay	June 19, 1975	75-61	3

* See Appendix I for definition of terms.

APPENDIX VI

REASONABLE POTENTIAL ANALYSIS PROCEDURE FOR DETERMINING WHICH TABLE 1 OBJECTIVES REQUIRE EFFLUENT LIMITATIONS

In determining the need for an effluent limitation, the Regional Water Board shall use all representative information to characterize the pollutant discharge using a scientifically defensible statistical method that accounts for the averaging period of the water quality objective, accounts for and captures the long-term variability of the pollutant in the effluent, accounts for limitations associated with sparse data sets, accounts for uncertainty associated with censored data sets, and (unless otherwise demonstrated) assumes a lognormal distribution of the facility-specific effluent data.

The purpose of the following procedure (see also Figure VI-1) is to provide direction to the Regional Water Boards for determining if a pollutant discharge causes, has the reasonable potential to cause, or contributes to an excursion above Table 1 water quality objectives in accordance with 40 CFR 122.44 (d)(1)(iii). The Regional Water Board may use an alternative approach for assessing reasonable potential such as an appropriate stochastic dilution model that incorporates both ambient and effluent variability. The permit fact sheet or statement of basis will document the justification or basis for the conclusions of the reasonable potential assessment. This appendix does not apply to permits or any portion of a permit where the discharge is regulated through best management practices (BMP) unless such discharge is also subject to numeric effluent limitations.

Step 1: Identify C_o , the applicable water quality objective from Table 1 for the pollutant.

Step 2: Does information about the receiving water* body or the discharge support a reasonable potential assessment (RPA) without characterizing facility-specific effluent monitoring data? If yes, go to *Step 13* to conduct an RPA based on best professional judgment (BPJ). Otherwise, proceed to *Step 3*.

Step 3: Is facility-specific effluent monitoring data available? If yes, proceed to *Step 4*. Otherwise, go to *Step 13*.

Step 4: Adjust all effluent monitoring data C_e , including censored (ND or DNQ) values to the concentration X expected after complete mixing. For Table 1 pollutants use $X = (C_e + D_m C_s) / (D_m + 1)$; for acute toxicity* use $X = C_e / (0.1 D_m + 1)$; where D_m is the minimum probable initial dilution* expressed as parts seawater* per part wastewater and C_s is the background seawater* concentration from Table 3. For ND values, C_e is replaced with "<MDL*;" for DNQ values C_e is replaced with "<ML.*" Go to *Step 5*.

Step 5: Count the total number of samples n , the number of censored (ND or DNQ) values, c and the number of detected values, d , such that $n = c + d$.

Is any *detected* pollutant concentration after complete mixing greater than C_o ? If yes, the discharge causes an excursion of C_o ; go to *Endpoint 1*. Otherwise, proceed to *Step 6*.

Step 6: Does the effluent monitoring data contain three or more detected observations ($d \geq 3$)? If yes, proceed to *Step 7* to conduct a parametric RPA. Otherwise, go to *Step 11* to conduct a nonparametric RPA.

* See Appendix I for definition of terms.

Step 7: Conduct a parametric RPA. Assume data are lognormally distributed, unless otherwise demonstrated. Does the data consist entirely of detected values ($c/n = 0$)? If yes,

- calculate summary statistics M_L and S_L , the mean and standard deviation of the natural logarithm transformed effluent data expected after complete mixing, $\ln(X)$,
- go to *Step 9*.

Otherwise, proceed to *Step 8*.

Step 8: Is the data censored by 80% or less ($c/n \leq 0.8$)? If yes,

- calculate summary statistics M_L and S_L using the censored data analysis method of Helsel and Cohn (1988),
- go to *Step 9*.

Otherwise, go to *Step 11*.

Step 9: Calculate the UCB i.e., the one-sided, upper 95 percent confidence bound for the 95th percentile of the effluent distribution after complete mixing. For lognormal distributions, use $UCBL_{(.95,.95)} = \exp(M_L + S_L g'_{(.95,.95,n)})$, where g' is a normal tolerance factor obtained from the table below (Table VI-1). Proceed to *Step 10*.

Step 10: Is the UCB greater than C_o ? If yes, the discharge has a reasonable potential to cause an excursion of C_o ; go to *Endpoint 1*. Otherwise, the discharge has no reasonable potential to cause an excursion of C_o ; go to *Endpoint 2*.

Step 11: Conduct a non-parametric RPA. Compare each data value X to C_o . Reduce the sample size n by 1 for each tie (i.e., inconclusive censored value result) present. An adjusted ND value having $C_o < MDL^*$ is a tie. An adjusted DNQ value having $C_o < ML^*$ is also a tie.

Step 12: Is the adjusted $n > 15$? If yes, the discharge has no reasonable potential to cause an excursion of C_o ; go to *Endpoint 2*. Otherwise, go to *Endpoint 3*.

Step 13: Conduct an RPA based on BPJ. Review all available information to determine if a water quality-based effluent limitation is required, notwithstanding the above analysis in *Steps 1* through *12*, to protect beneficial uses. Information that may be used includes: the facility type, the discharge type, solids loading analysis, lack of dilution, history of compliance problems, potential toxic impact of discharge, fish tissue residue data, water quality and beneficial uses of the receiving water,* CWA 303(d) listing for the pollutant, the presence of endangered or threatened species or critical habitat, and other information.

Is data or other information unavailable or insufficient to determine if a water quality-based effluent limitation is required? If yes, go to *Endpoint 3*. Otherwise, go to either *Endpoint 1* or *Endpoint 2* based on BPJ.

Endpoint 1: An effluent limitation must be developed for the pollutant. Effluent monitoring for the pollutant, consistent with the monitoring frequency in Appendix III, is required.

Endpoint 2: An effluent limitation is not required for the pollutant. Appendix III effluent monitoring is not required for the pollutant; the Regional Board, however, may require occasional monitoring for the pollutant or for whole effluent toxicity as appropriate.

* See Appendix I for definition of terms.

Endpoint 3: The RPA is inconclusive. Monitoring for the pollutant or whole effluent toxicity testing, consistent with the monitoring frequency in Appendix III, is required. An existing effluent limitation for the pollutant shall remain in the permit, otherwise the permit shall include a reopener clause to allow for subsequent modification of the permit to include an effluent limitation if the monitoring establishes that the discharge causes, has the reasonable potential to cause, or contributes to an excursion above a Table 1 water quality objective.

Appendix VI References:

Helsel D. R. and T. A. Cohn. 1988. Estimation of descriptive statistics for multiply censored water quality data. *Water Resources Research*, Vol 24(12):1977-2004.

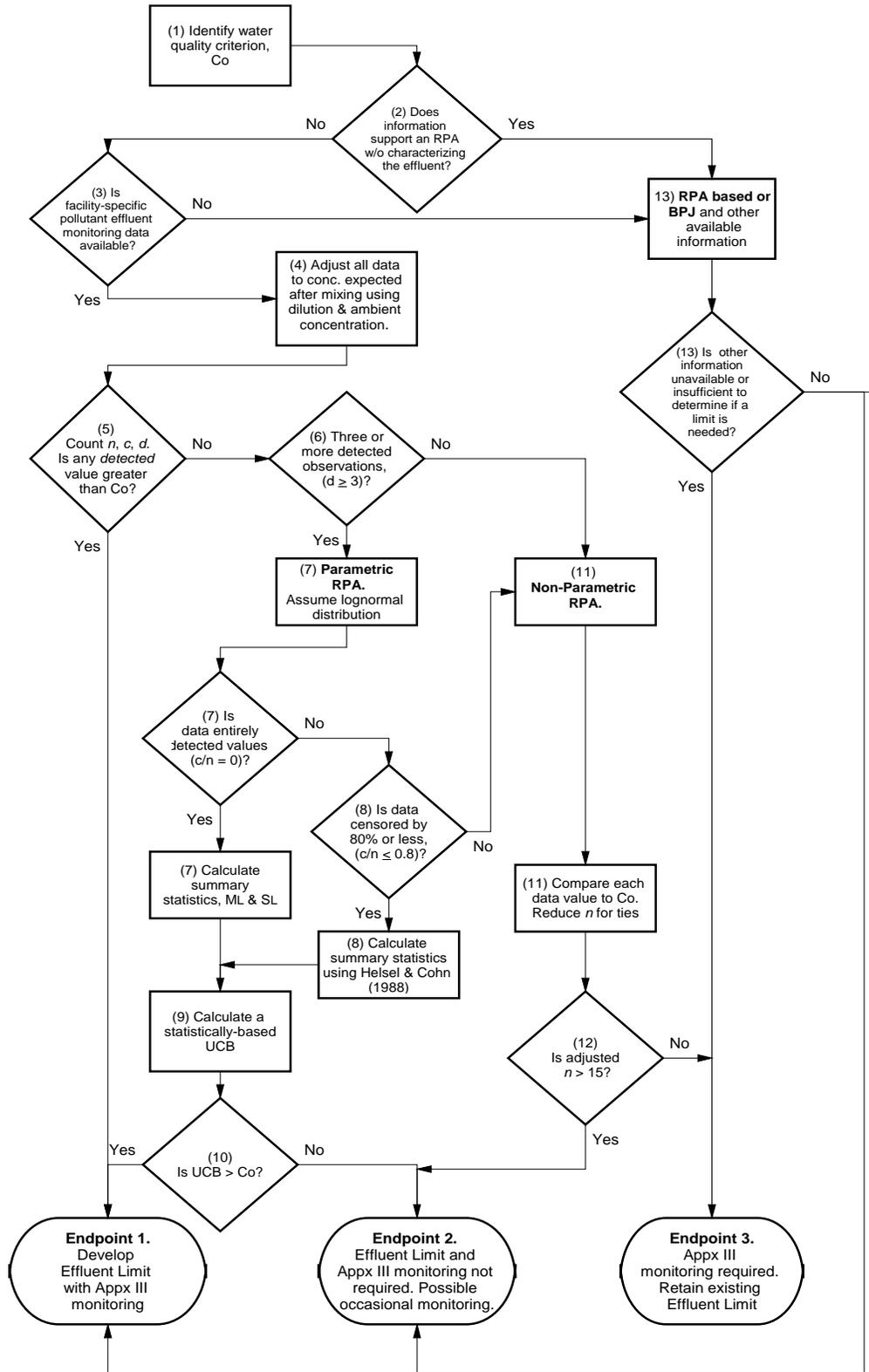
Hahn J. H. and W. Q. Meeker. 1991. *Statistical Intervals, A guide for practitioners*. J. Wiley & Sons, NY.

TABLE VI-1: Tolerance factors $g'_{(.95,.95,n)}$ for calculating normal distribution one-sided upper 95 percent tolerance bounds for the 95th percentile (Hahn & Meeker 1991)

<i>n</i>	$g'_{(.95,.95,n)}$	<i>n</i>	$g'_{(.95,.95,n)}$
2	26.260	21	2.371
3	7.656	22	2.349
4	5.144	23	2.328
5	4.203	24	2.309
6	3.708	25	2.292
7	3.399	26	2.275
8	3.187	27	2.260
9	3.031	28	2.246
10	2.911	29	2.232
11	2.815	30	2.220
12	2.736	35	2.167
13	2.671	40	2.125
14	2.614	50	2.065
15	2.566	60	2.022
16	2.524	120	1.899
17	2.486	240	1.819
18	2.453	480	1.766
19	2.423	∞	1.645
20	2.396		

* See Appendix I for definition of terms.

Figure VI-1. Reasonable potential analysis flow chart



* See Appendix I for definition of terms.

APPENDIX VII

EXCEPTIONS TO THE CALIFORNIA OCEAN PLAN

**TABLE VII-1
EXCEPTIONS TO THE OCEAN PLAN**

(GRANTED BY THE STATE WATER RESOURCES CONTROL BOARD)

Year	Resolution	Applicable Provision	Discharger
1977	77-11	Discharge Prohibition, ASBS #23	US Navy San Clemente Island
1979	79-16	Discharge Prohibition for wet weather discharges from combined storm and wastewater collection system.	The City and County of San Francisco
1983	83-78	Discharge Prohibition, ASBS #7	Humboldt County Resort Improvement District No.1
1984	84-78	Discharge Prohibition, ASBS #34	Carmel Sanitary District
1988	88-80	Total Chlorine Residual Limitation	Haynes Power Plant Harbor Power Plant Scattergood Power Plant Alamitos Power Plant El Segundo Power Plant Long Beach Power Plant Mandalay Power Plant Ormond Beach Power Plant Redondo Power Plant
1990	90-105	Discharge Prohibition, ASBS #21	US Navy San Nicolas Island
2004	2004-0052	Discharge Prohibition, ASBS #31	UC Scripps Institution of Oceanography
2006	2006-0013	Discharge Prohibition, ASBS #25	USC Wrigley Marine Science Center
2007	2007-0058	Discharge Prohibition, ASBS #4	UC Davis Bodega Marine Laboratory
2011	2011-0049	Discharge Prohibition, ASBS #6	HSU Telonicher Marine lab
2011	2011-0050	Discharge Prohibition, ASBS #19	Monterey Bay Aquarium
2011	2011-0051	Discharge Prohibition, ASBS #19	Stanford Hopkins Marine Station
2012	2012-0012, as amended on June 19 2012; in 2012-0031	ASBS Discharge Prohibition, General Exception for Storm Water and Nonpoint Sources	27 applicants for the General Exception

* See Appendix I for definition of terms.

APPENDIX VIII MAPS OF THE OCEAN, COAST, AND ISLANDS

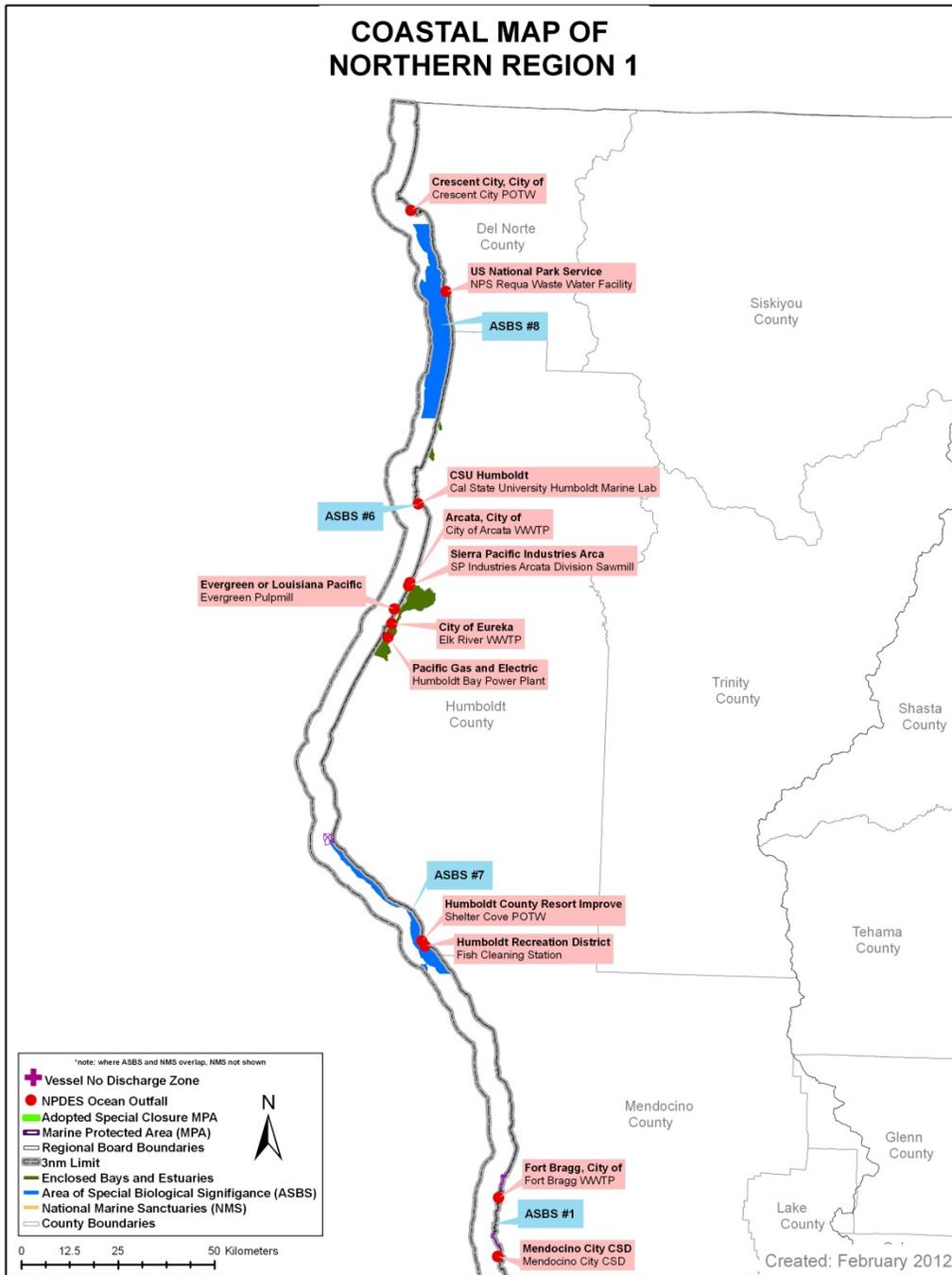


Figure VIII-1. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in northern Region 1.

* See Appendix I for definition of terms.

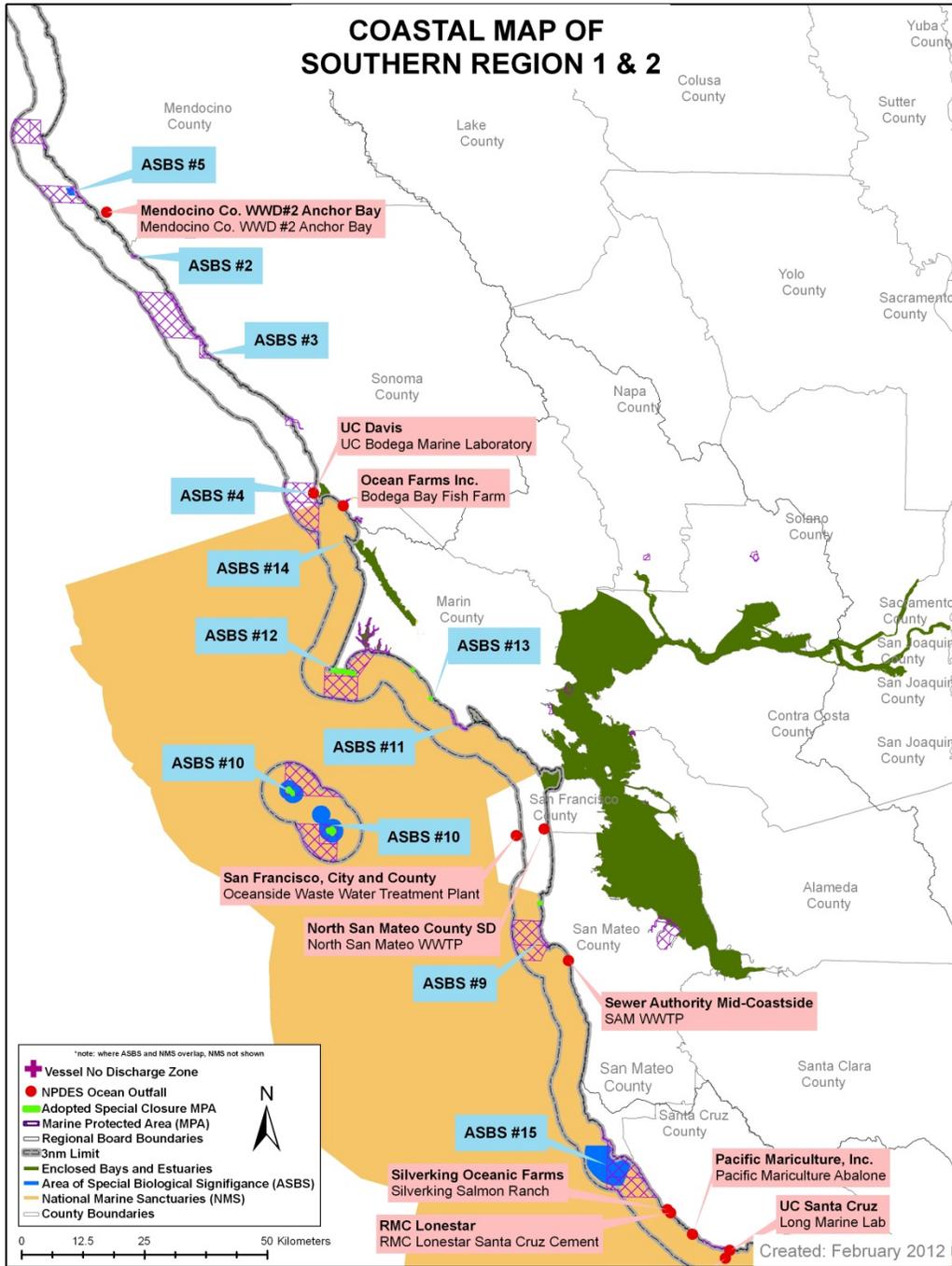


Figure VIII-2. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in southern Region 1 and Region 2.

* See Appendix I for definition of terms.

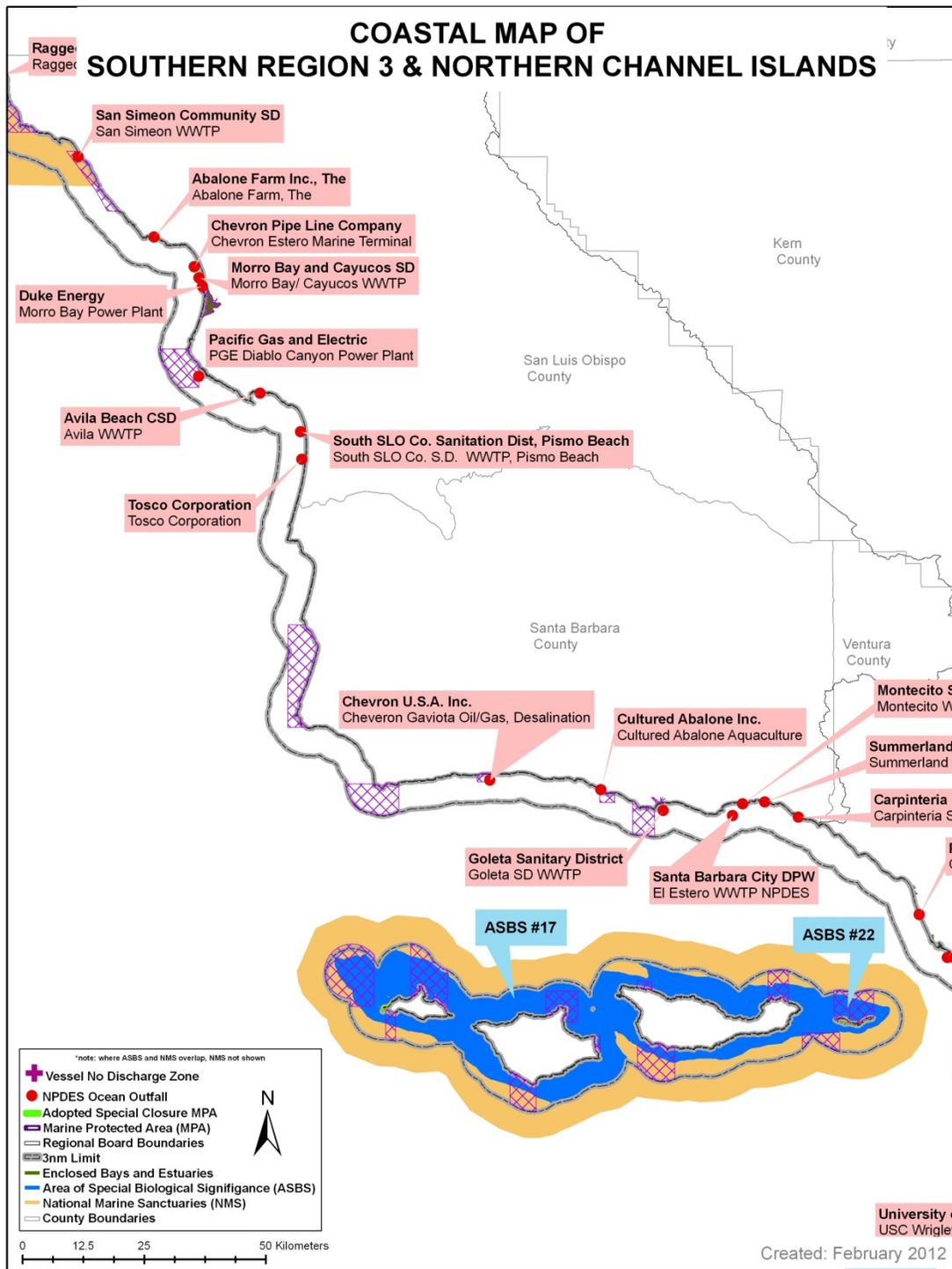


Figure VIII-4. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in southern Region 3 and northern Channel Islands.

* See Appendix I for definition of terms.

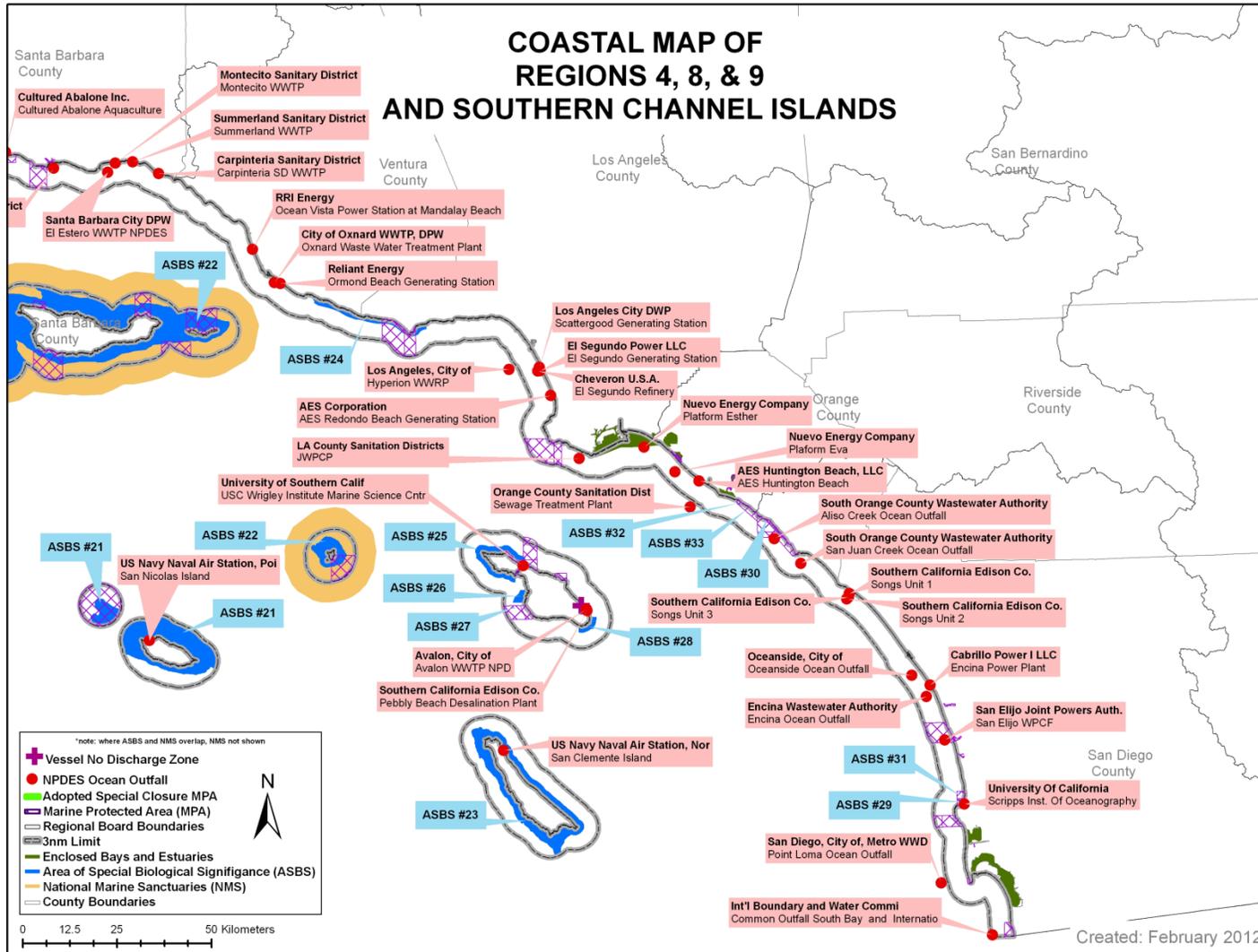


Figure VIII-5. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in southern Channel Islands and Regions 4, 8 and 9.

* See Appendix I for definition of terms.

ATTACHMENT

18

**Water Quality Control Policy
for
Addressing Impaired Waters: Regulatory Structure and Options**

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Water Quality Control Policy
for
Addressing Impaired Waters: Regulatory Structure and Options

Preface

The State Water Resources Control Board and the Regional Water Quality Control Boards (Water Boards) are committed to protecting and restoring the waters of California to ensure that all applicable beneficial uses are fully attained. Where waters are not meeting their beneficial uses from anthropogenic sources of pollutants, the Water Boards will use the Total Maximum Daily Load (TMDL) program to craft an implementation plan to ensure that the waters meet all applicable standards as soon as is practicable. The TMDL program remains a high priority program of the Water Boards.

This Policy is intended to ensure that the impaired waters of the state are addressed in a timely and meaningful fashion. In those cases where immediate restoration activities are available, the policy encourages those actions to take place immediately rather than waiting for a regulatory action by the Water Boards. In this respect, the Water Boards are committed to work with all interested parties to develop appropriate plans to restore water bodies to water quality standards. The Water Boards will continue to pursue information from all interested persons in developing such plans and will encourage early restoration activities prior to completion of a TMDL, where such activities will result in improved water quality.

While the Policy allows a TMDL to be established through alternative regulatory actions, it is anticipated that the majority of TMDLs will be established through an implementation plan adopted as a Basin Plan amendment. This is due to the complexity of the problems needing correction for most of the impaired waters. Where alternative regulatory methods are used to establish TMDLs, however, those TMDLs will be incorporated into the Water Quality Management Plan after they are approved. Using existing regulatory programs to ensure waters are restored, where such mechanism exists, will promote a cost effective and timely response that has proven elusive when relying exclusively on basin planning to establish TMDLs.

The Water Boards are committed to use all means to ensure that the waters of the State are protected for the use and enjoyment of the people of the State and that the waters attain the highest water quality that is reasonable, considering all demands being made and to be made of the waters. The Water Boards will continue to use the best information and science available to the program in developing restoration plans for the waters of the State.

I. Addressing Impaired Waters

Section 303(d) of the Clean Water Act (CWA) contains backstop provisions designed to ensure that all state water quality standards are met. The water quality of many waters of the state is currently unacceptable. The Total Maximum Daily Load (TMDL) program was created by the State Board to implement the requirements of these backstop provisions, consistent with state and federal law, for the purpose of ensuring that water quality standards are attained. The TMDL program is the primary program responsible for achieving clean water where traditional controls on point sources have proven inadequate to do so. The program thus is charged with creating plans that consider all sources and causes of impairment, and allocating responsibility for corrective measures, regardless of sources or cause, that will attain water quality standards.

The State Water Resources Control Board (State Board) and Regional Water Quality Control Boards (Regional Boards) are delegated the responsibility for implementing California's Porter Cologne Water Quality Control Act and the federal Clean Water Act (CWA). Pursuant to relevant provisions of both of those acts the State and Regional Boards establish water quality standards, including designated (beneficial) uses and criteria or objectives to protect those uses. Section 303(d) of the CWA (33 USC § 1313(d)) requires the states to identify certain waters within their borders that are not attaining water quality standards and to establish the total maximum daily load (TMDL) for certain pollutants impairing those waters. According to USEPA, a TMDL is a numerical calculation of the amount of a pollutant that a water body can assimilate and still meet standards. A TMDL includes one or more numerical targets that represent attainment of the applicable standards, considering seasonal variations and a margin of safety, in addition to the allocation of the target or load among the various sources of the pollutant. These include waste load allocations (WLAs) for point sources, and load allocations (LAs) for nonpoint sources and natural background. TMDLs established for impaired waters must be submitted to the US Environmental Protection Agency (USEPA) for approval.

CWA section 303(e) requires the states to implement their approved TMDLs through their Continuing Planning Process. The USEPA's regulations do not provide for USEPA approval of TMDL implementation plans (however the regulations do require NPDES permits to be consistent with the assumptions and requirements of TMDLs and available WLAs). TMDL implementation is therefore largely a function of California law, including but not limited to CWC Section 13242, which requires a program of implementation to achieve water quality objectives.

Regional Boards have wide latitude, numerous options, and some legal constraints that apply when determining how to address impaired waters. Irrespective of whether CWA section 303(d) requires a TMDL, the process for addressing waters that do not meet applicable standards must be accomplished through existing regulatory tools and mechanisms. This policy is intended to outline those tools and mechanisms, and explain how the federal requirement to establish TMDLs fits within those confines. This policy also establishes a certification¹ process whereby the Regional Boards can formally recognize regulatory or nonregulatory actions of other entities as appropriate implementation programs when the Regional Boards determine those actions will result in attainment of standards. In addition, implementation activities taken to achieve LAs must be consistent with the SWRCB Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Implementation Policy).

This policy is not intended and shall not be construed as limiting the authority of the State Board or the Regional Boards in any manner. A flowchart is included as attachment A, which tracks this discussion.

The following principles apply to the process of resolving impairments in surface waters not attaining standards in California:

¹ The term "certification" has been used in many contexts related to point and nonpoint source pollution control. Its use here is expressly intended to not embody any of those definitions. Unless otherwise indicated, the term "certification", as used in this policy, is limited to describing a process by which the Regional Boards can formally recognize an acceptable alternative implementation program for a TMDL. The term "Certification" is further defined in the glossary.

A. If the water body is neither impaired nor threatened, the appropriate regulatory response is to delist the water body.

The first step in addressing a listing is to identify the scope of the problem. In some cases, this analysis will lead to a conclusion that standards are in fact being attained and the water is not threatened, either because the assumptions underlying the listing were incorrect, or because the impairment has been corrected. In such circumstances, it is appropriate to delist the water body in accordance with the “Water Quality Control Policy for Developing California’s Clean Water Act Section 303(d) List.”

B. If the failure to attain standards is due to the fact that the applicable standards are not appropriate to natural conditions, an appropriate regulatory response is to correct the standards.

If the water body is impaired, the cause of the impairment must be ascertained. There are five common reasons (see below²) that standards are being exceeded. In most cases, a pollution reduction strategy of some sort will be warranted. However, in some instances part or the entire cause of the impairment will be due to problems with the standards themselves. While in most cases the existing standards are appropriate and amenable to TMDL development, periodically investigation during the development of a TMDL or its implementation plan may reveal that the standards may be inappropriate or imprecise, thus rendering water quality attainment impossible unless standards are modified. In such cases, staff will undertake a limited review of the standards. The purpose of standards review during the TMDL process is not to reassess the Water Boards’ previous policy determinations that underlie the Beneficial Use Designations or Water Quality Objectives, but rather to ensure that the standards are amenable to an appropriate implementation plan. Modification of standards should not be viewed as “an easy fix” to avoid a TMDL, and review of the appropriateness of the standards will not be considered in every case. Reviewing the appropriateness of the policies underlying standards is complex and involves processes that generally are beyond the scope of TMDL process. Review of standards’ underlying policies generally occurs in the triennial review process. Unlike the triennial review process, the TMDL process is not designed to evaluate standards’ appropriateness, but to create a strategy to attain those standards that have already been established. If staff determines that the policies underlying the existing standards should be revisited, in lieu of crafting an implementation plan under this policy, the impaired water shall be referred to the Water Quality Standards staff for consideration of an appropriate standards action, through the appropriate processes. Irrespective, it is always necessary to review the standards applicable to the listed waterbody in order to determine the appropriate target or targets. Three typical examples of where standards may need modification are where:

- 1. Natural conditions alone are incompatible with the Standards:** This occurs either when natural background levels of a pollutant exceed water quality objectives, or natural background conditions are incompatible with the beneficial uses assigned in the basin plan, or natural background conditions are degrading the water body.
- 2. Standards are too broad or too vague:** For example, a water body may extend beyond an area where associated beneficial uses are appropriate, such as the geographic boundaries of an estuarine environment.

² This is not intended to be an exclusive list of causes.

- 3. Incompatible Uses Exist:** This may occur when two or more uses are incompatible with each other. For instance, wildlife waste may generate pathogen levels that render the water unsuitable for human recreation.

In each of the above situations, revision of the standards themselves may be the best (or only) way to address the impairment. Revision of the standards can include removing uses, establishing subcategories of uses, establishing seasonal uses (all of which may require a Use Attainability Analysis (UAA), establishing a Site-Specific Objective (SSO), or other modification of the water quality standard. When a standards action is deemed appropriate, the State and Regional Board shall follow all applicable requirements, including but not limited to those set forth in part 131 of Title 40 of the Code of Federal Regulations and Article 3 of Division 7, Chapter 4 of the California Water Code.

Additionally, an anti-degradation finding may authorize the lowering of water quality to some degree, which may address the impairment. The anti-degradation policies established in federal regulations and state policy both authorize the lowering of water quality in certain circumstances, where doing so would not impair beneficial uses. If an anti-degradation finding is appropriate, the requirements of 40 CFR § 131.12 and Resolution #68-16 shall be adhered to.

C. The State Board and Regional Boards are responsible for the quality of all waters of the state, irrespective of the cause of the impairment. In addition, a TMDL must be calculated for impairments caused by certain EPA designated pollutants.

The two other common causes or categories of impairment are related to anthropogenic factors. They include waters impaired by pollution and waters impaired by certain EPA designated pollutants. The Porter-Cologne Water Quality Control Act charges the State Board and Regional Boards with the responsibility of protecting the beneficial uses and quality of all waters of the state, irrespective of the cause of the impairment. Thus, if possible, the impairment should be corrected in either event. Presently, the EPA has designated all pollutants as suitable for TMDL calculation under proper technical conditions.

- 1. Pollutants:** The term “pollutant” is defined in section 502(6) of the Clean Water Act. Section 303(d) of the Clean Water Act requires TMDLs be established for each impairing “pollutant” that is suitable for TMDL calculation. EPA has determined that under proper technical conditions, all pollutants are suitable for TMDL calculation. Thus, before undertaking an action to correct an impairment, the Loading Capacity of the pollutant must be calculated for impaired waters, and thus the load reductions necessary (considering seasonal variations and a margin of safety) to attain standards. Corrective action will implement the assumptions and requirements of the Loading Capacity using any combination of existing regulatory tools.
- 2. Pollution:** The term “pollution” is defined in section 502(19) of the Clean Water Act and section 13050(l) of the California Water Code. When non-pollutant pollution is the cause of the impairment, the Regional Boards may skip the step of calculating the Loading Capacity and proceed immediately to designing corrective action using existing regulatory tools.

D. Whether or not a TMDL calculation is required as described above, impaired waters will be corrected (and implementation plans crafted) using existing regulatory tools

All violations of standards should be redressed, and the Boards may use any combination of existing regulatory tools to do so. Existing regulatory tools include³ individual or general waste discharge requirements (be they under Chapter 4 or under Chapter 5.5 (NPDES permits) of the Porter-Cologne Water Quality Control Act), individual or general waivers of waste discharge requirements, enforcement actions, interagency agreements, regulations, basin plan amendments, and other policies for water quality control. Basin plan amendments can include adopting new or revised implementation measures, adopting prohibitions, or where appropriate, modifying standards. The priority ranking assigned to an impaired water will help the Regional Boards determine which impairments will be addressed in what order, according to available resources. The following sections describe the different forms in which an implementation plan may be adopted. The requirement to establish the TMDL or Loading Capacity for the pollutant does not change this analysis.

1. If the solution to an impairment will require multiple actions of the regional board that affect multiple persons, the solution must be implemented through a basin plan amendment or other regulation.

The requirement to use a basin plan amendment or other regulation to tie together numerous actions by the Regional Board stems from the California Administrative Procedures Act (APA). Consistent with the APA, any policy, plan, or guideline must be adopted as a regulation in the proper manner before it may be applied. The term “underground regulation” has been used to describe regulations that have not been properly adopted. The APA requirements ensure that persons subject to regulations have the opportunity to participate in the process during which the assumptions underlying an implementation plan are derived. If there were no such process, every regulated person would be subject to subsequent requirements based upon assumptions determined in a previous proceeding to which they were not a party. Accordingly, when an implementation plan would require multiple actions of the Regional Board, the plan itself must be adopted as a separate action to enable interested persons to comment upon the assumptions of the plan, before they are imposed, one by one, on members of the public at large. The Regional Boards generally use the basin planning process to adopt such plans.

2. If the solution to an impairment can be implemented with a single vote of the regional board, it may be implemented by that vote.

When an implementation plan can be adopted in a single regulatory action, such as a permit, a waiver, or an enforcement order, there is no legal requirement to first adopt the plan through a basin plan amendment. The plan may be adopted directly in that single regulatory action. The permittee (or other regulated party), and any other interested persons may challenge all assumptions underlying the implementation plan during that permitting (or other regulatory) action. In such circumstances, a basin plan amendment may be redundant. There may nonetheless be case-specific reasons why a Regional Board may choose to adopt an implementation plan by a basin plan amendment even if it could be implemented by a single vote

³ This section is not intended to articulate an exhaustive list of tools available to the State Board or Regional Boards to address violations of standards. It is only intended to provide an example of possibilities.

of the Regional Board. There is no error in doing so should the Regional Board, for whatever reason, deem it desirable.

- 3. If a solution to an impairment is being implemented by a regulatory action of another state, regional, local, or federal agency, and the Regional Board finds that the solution will actually correct the impairment, the Regional Board may certify that the regulatory action will correct the impairment and if applicable, implement the assumptions of the TMDL, in lieu of adopting a redundant program.**

The Regional Boards and State Board have the ultimate responsibility over water quality protection for all waters in the State. That responsibility does not imply that the State Board or a Regional Board must adopt redundant regulations when they determine that another regulatory body is adequately addressing a water quality problem. Like most state agencies, the State and Regional Boards generally have inadequate resources to timely address each and every water quality problem, and they must therefore, prioritize use of their resources to where they will do the most good. The fact, however, that another regulatory body is addressing a water quality problem is not alone a sufficient basis for a Regional Board to forego remedial action. The Regional Boards may neither delegate nor abdicate their responsibility over the waters of the State. Furthermore, they may not indefinitely defer taking necessary action if another agency is not properly addressing a problem. However, where another agency is constructively involved in efforts to address an impairment, the SWRCB and RWQCB should seek to take those efforts into account and, where appropriate, take advantage of these third-party efforts. Not only does this avoid unnecessary duplication of effort, it can leverage the SWRCB's and RWQCBs' limited staffing and financial resources.

Only when the Regional Board independently determines that a program being implemented by another regulatory entity will be adequate to correct the impairment, may the Regional Board rely upon that program. If a Regional Board makes such findings, and the findings are supported by substantial evidence in the administrative record, the Regional Board may certify that such program will implement the assumptions and requirements of the TMDL. Nothing in this policy should be construed as implying that State may avoid its responsibilities under Water Code sections 13263, 13269, 13377, or any other section of the Porter Cologne Act. In other words, this certification procedure shall not be deemed to allow the Regional Board to rely upon an alternative program where the Regional Board has a legal responsibility to implement its own requirements (such as issuing or waiving WDRs, or imposing certain effluent limitations in permits where such effluent limitations are required by law). The Regional Boards must perform their statutorily mandated responsibilities irrespective of whether another body is also regulating an activity.

Finally, if water quality problems persist, the Regional Board may not indefinitely defer enforcement action to other agencies. The RWQCB can ask the agency to enforce its own requirements, and if they fail to do so in a manner consistent with the assumptions and requirements of the TMDL, the Regional Board must exercise its independent authority.

- 4. If a solution to an impairment is being implemented by a non-regulatory action of another entity, and the regional board finds that the solution will actually correct the impairment, the regional board may certify that the non-regulatory action will correct the impairment and if applicable, implement the assumptions of the TMDL, in lieu of adopting a redundant program.**

Similar to subsection c., above, the Regional Boards may rely upon actions by non-regulatory entities, if the Regional Board makes findings, supported by substantial evidence in the record, that a program being implemented by a non-regulatory entity will be adequate to correct the impairment. The fact that the Regional Boards have limited resources to accomplish their water quality mission can and should be used as a basis to encourage interested persons to undertake to abate impairments in the time before the Regional Boards may otherwise be able to address them. For instance, several RWQCBs have had experience working with industry groups, both formally and informally, to develop education and self-regulation within a particular industry. Other organizations have become active in NPS pollution prevention and land restoration efforts through CWA §319(h) grants, State bond grants, or the State Revolving Fund loan program. Many of the partnerships formed to take advantage of these financial resources have developed into self-sustaining third-party organizations. Some are affiliated with RCDs or have developed as part of the Coordinated Resource Management Planning (CRMP) approach; others are watershed groups or have developed their own organizational structure based on other geographic or industry-specific factors. In some situations the organizations accomplish their goals through a mix of public and private partnership efforts. The RWQCB staff has worked with these groups at various levels. The RWQCBs have broad flexibility and discretion in fashioning TMDL implementation programs, and are encouraged to be as innovative and creative as possible, and, as appropriate, to build upon Third-Party Programs

II. Process for adopting TMDLs

Section 1. Definitions:

- a) Certification.** As used in this policy, the term “certification” shall refer to a formal attestation by a Regional Board that a specific program of implementation, proposed by another regulatory or non-regulatory entity, will be consistent with the assumptions and requirements of a Regional Board-established TMDL that is set at a level that will ensure attainment of water quality standards, considering seasonal variations and a margin of safety. The term “certify” or “certifies” shall refer to the act of issuing the certification. A certification under this policy shall not be deemed to confer any other form of certificate or create any other form of certification, including but not limited to those described in sections 1288 or 1341 of Title 33 of the United States Code.
- b) Loading capacity (LC).** The greatest amount of loading that a water can receive without violating water quality standards.
- c) Load allocation (LA).** The portion of a receiving water’s loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources. Load allocations are best estimates of the loading, which can range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading. Wherever possible, natural and nonpoint source loads should be distinguished. (40 CFR 130.2(g))

- d) Waste Load allocation (WLA).** The portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality-based effluent limitation (40 CFR 130.2(h)).
- e) Margin of Safety (MOS).** The required component of the TMDL that accounts for the uncertainty about the relationship between the pollutant loads and the quality of the receiving waterbody (CWA section 303(d)(1)(C)). The MOS is normally incorporated into the conservative assumptions used to develop TMDLs (generally within the calculations or models) and approved by EPA either individually or in state/EPA agreements. This may be referred to as an "implicit" MOS. If the MOS needs to be larger than that which is allowed through the conservative assumptions, additional MOS can be added as a separate component of the TMDL (in this case, quantitatively, a TMDL = LC = WLA + LA + MOS). When the MOS is expressed as a specific reservation or assignment of part of the LC, it may be referred to as an "explicit" MOS.
- f) Total Maximum Daily Load (TMDL).** The sum of the individual wasteload allocations (WLAs) for point sources, load allocations (LAs) for nonpoint sources and natural background, and a margin of safety (MOS). TMDLs can be expressed in terms of mass per time, toxicity, or other appropriate measures that relate to a state's water quality standard.

Section 2. TMDLs are adopted with programs that implement correction of the impairment. TMDLs may be adopted in any of the following ways:

- a)** The TMDL may be adopted with and reflected in assumptions underlying a basin plan amendment, or another regulation or policy for water quality control that is designed to guide the Regional Board in correcting the impairment
- b)** The TMDL may be adopted with and reflected in assumptions underlying a permitting action, enforcement action, or another single regulatory action that is designed by itself to correct the impairment
- c)** The TMDL may be adopted with and reflected in a resolution or order that certifies either that:
 - i)** A regulatory program has been adopted and is being implemented by another state, regional, local, or federal agency, and the program will correct the impairment; or
 - ii)** A non-regulatory program is being implemented by another entity, and the program will correct the impairment.
- d)** Subsection c), above, shall not be construed as authorizing the Regional Board to delegate its authority over water quality control to another regulatory or non-regulatory entity. In all cases the Regional Board must determine the LC of the water body, and thus the load reductions necessary (considering seasonal variations and a margin of safety) to attain standards. The Regional Board must exercise its independent discretion to determine whether or not such alternative program is consistent with the LC. As such, any resolution under subsection c), above, must include specific findings, supported by substantial evidence in the record, that demonstrate each of the following about the regulatory or non-regulatory program:
 - i)** The program is consistent with the assumptions and requirements of the TMDL;
 - ii)** Sufficient mechanisms exist to provide reasonable assurances that the program will address the impairment in a reasonable period of time;

- iii) Sufficient mechanisms to enforce the program exist or the regional board otherwise has sufficient confidence that the program will be implemented, such that further regulatory action in the form of a TMDL implementation plan by the Regional Board is unnecessary and would be redundant.

The above findings will require a fact-specific inquiry, dependent upon the type of impairment at issue, the identity, authority, and interests of those proposing the alternative program, and a variety of other factors. A lower confidence that the program will remain in place and will succeed can be mitigated by findings that sufficient fallback provisions exist to ensure that the impairment will be addressed in a reasonable period of time if the program is unsuccessful. Such fallback provisions could include instructions that staff commence a regulatory program under section 2.a) or 2.b) above at a time-certain if the impairment has not then been addressed.

- e) Any certification under subdivision c) above, may only be issued and remains valid if:
 - i) A monitoring plan that addresses the impaired water has been adopted or approved by the Regional Board, and it is adhered to;
 - ii) The program contains conditions that require trackable progress, and such progress is tracked. A timeline must identify the point or points at which regulatory intervention and reversion to Regional Board direct oversight will be triggered if the pace of work lags or fails;
 - iii) The certification contains a provision setting forth that the it must be revoked by the Regional Board based upon its findings that the program has not been adequately implemented, is not achieving its goals, or is no longer adequate to restore water quality;
 - iv) For alternative programs intended to control non-point source contributions to an impairment, such programs comport with the requirements of the Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program, including, but not limited to, the Key Elements of an NPS Pollution Control Implementation Program.

Any interested party may file a petition with the State Board pursuant to Water Code section 13320 to review a Regional Board's failure to adequately ensure that the certification remains valid.

- f) A Regional Board may delegate the authority to make certifications under section 2.c) to its Executive Officer for non-controversial TMDLs.
- g) A certification under section 2.c), above, shall be valid only for the purpose of implementing TMDLs required by section 303(d) of the Clean Water Act. Such a certification shall not be deemed to constitute a "certification" as used in any other section of the Clean Water Act or as used in any other statute.
- h) A certification under section 2 c), above, shall include a date upon which the certification will expire, if not reissued. On or before the expiration date, the Regional Board shall review the actions taken to address the impaired waters, and may renew the certification if significant progress has been made to correct the impairment, or the Regional Board may direct staff to develop another regulatory solution to the impairment.
- i) When TMDLs are adopted under sections 2.b) or 2.c), above, the TMDLs must be referenced in the relevant Basin Plans before or during the next triennial review. (40 CFR 130.6(c).)

Section 3. State Board Review. The manner of review by the State Board shall depend upon and be consistent with the manner in which the TMDL has been adopted by the Regional Board.

- a) Basin Plan amendments are subject to State Board approval pursuant to Water Code section 13245.
- b) Permits and orders are subject to State Board review pursuant to Water Code section 13320.
- c) Interested persons may file a petition for State Board reconsideration of any resolution or order issuing or denying a certification under section 2.c) above, in the manner described in Division 3, Chapter 28, Article 6, of Title 23 of the California Code of Regulations, however, any such petition shall be filed not later than 30 days after the date of the certification resolution or order by the Regional Board.

Section 4. Transmittal to USEPA and Request for Approval. The TMDL shall be transmitted to USEPA for approval as follows:

- a) By the Division of Water Quality, for TMDLs adopted pursuant to Section 2.a).
 - i) The Division of Water Quality shall not transmit the TMDL for approval until the Office of Administrative Law has concluded any applicable review of the regulations implementing the TMDL.
- b) By the Regional Board's Executive Officer, for TMDLs adopted pursuant to Section 2.b) or 2.c).
 - i) The Division of Water Quality shall prepare a standard transmittal form for use by the Regional Boards.
 - ii) The Regional Board shall not transmit the TMDL for approval until either the time to file a petition for review with the State Board has lapsed, or the State Board has dismissed any petitions challenging, or has otherwise approved, the certification or order. The Regional Board may transmit the TMDL for approval if a petition is pending and either no request for a stay has been filed, or the State Board has denied the request for a stay.
 - iii) A copy of each transmittal by a Regional Board shall be sent to the Division of Water Quality.

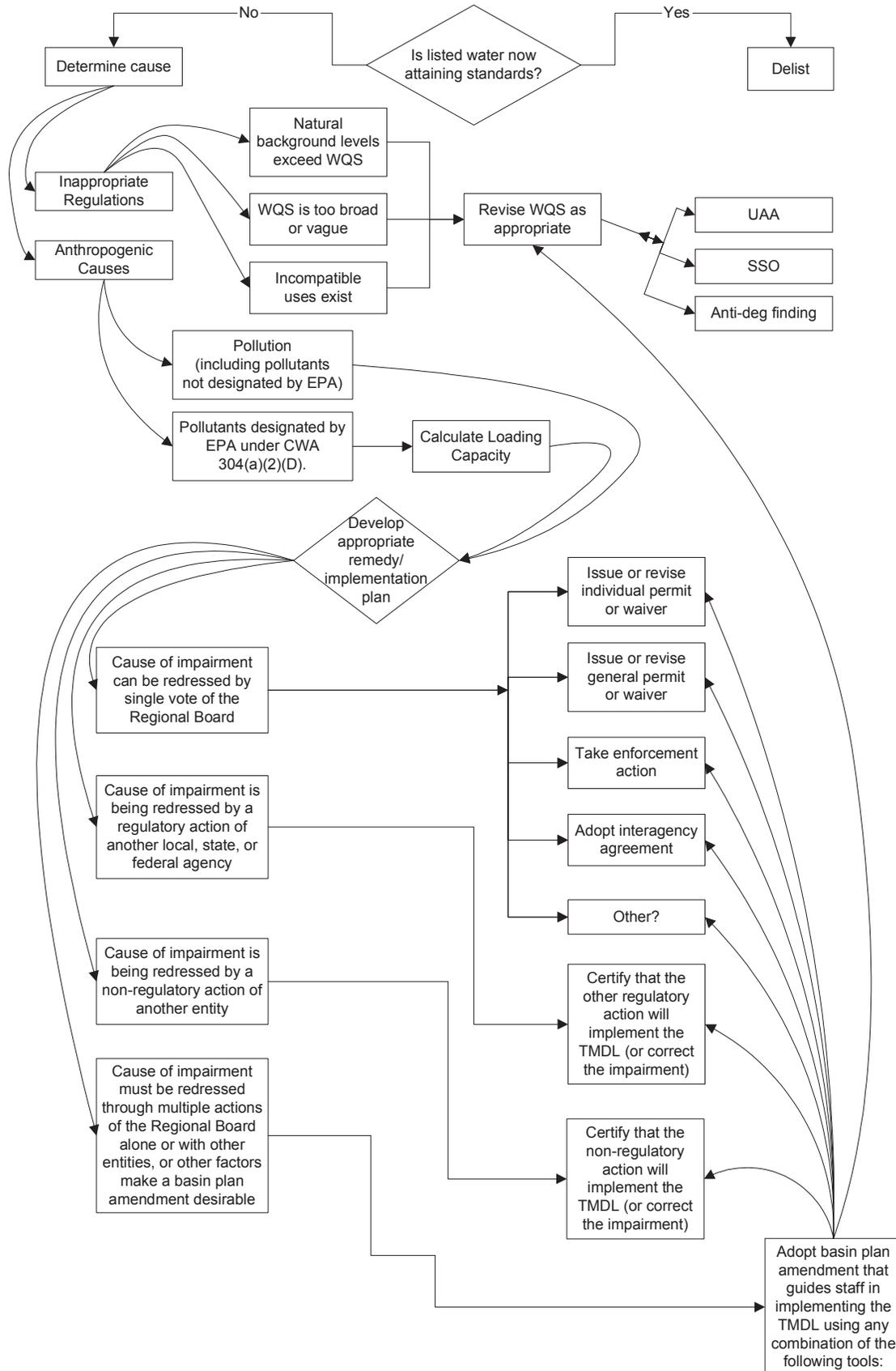
Section 5. Delisting.

- a) When a Regional Board determines that a water body is in fact attaining standards and is not threatened, the Regional Board may on its own motion entertain a resolution recommending the water body be delisted, in lieu of waiting until the next listing cycle. Given the process established by the 303(d) list policy to list and delist waters at regular intervals, failure to take action under this subsection in lieu of waiting until the next 303(d) listing cycle, shall not be deemed inappropriate or improper.
- b) No water body shall be deemed delisted pursuant to section 5.a), above, until the State Board has approved the recommendation, and the decision has been transmitted to, and thereafter approved by, USEPA.

Section 6. Existing Authority Preserved.

a) Nothing in this policy shall affect the responsibility of the State Board or any Regional Board to implement the provisions of an applicable Basin Plan or other policy for water quality control, and to ensure that all water quality standards are attained, whether or not a TMDL has yet been established for a given water body. Nor shall any provision of this policy be construed as limiting the authority of the State Board or any Regional Board with respect to any of its existing regulatory tools or processes. Furthermore, where multiple actions of a Regional Board are simply using existing regulatory or enforcement authorities to IMPLEMENT one or more existing regulatory standards, and/or prohibitions, no underground regulation problem is presented and no rulemaking is required because the regulatory standard, and/or prohibition has already been adopted through the proper rulemaking or legislative process.

Attachment A: Impaired Waters Regulatory Decision Tree



Note: After implementation of the chosen regulatory tool(s) the practitioner would start at the beginning of the decision tree to evaluate the effectiveness of the implementation program and, as appropriate, choose an alternative regulatory option to address the water body impairment

ATTACHMENT

19

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD
ORDER WQ 2015-0075

In the Matter of Review of

Order No. R4-2012-0175, NPDES Permit No. CAS004001

**WASTE DISCHARGE REQUIREMENTS FOR MUNICIPAL SEPARATE STORM SEWER
SYSTEM (MS4) DISCHARGES WITHIN THE COASTAL WATERSHEDS OF
LOS ANGELES COUNTY, EXCEPT THOSE DISCHARGES ORIGINATING FROM THE
CITY OF LONG BEACH MS4**

Issued by the
California Regional Water Quality Control Board,
Los Angeles Region

SWRCB/OCC FILES A-2236 (a)-(kk)

BY THE BOARD:

In this order, the State Water Resources Control Board (State Water Board) reviews [Order No. R4-2012-0175](#) (NPDES Permit No. CAS004001) adopted by the Los Angeles Regional Water Quality Control Board (Los Angeles Water Board) on November 8, 2012. Order No. R4-2012-0175 regulates discharges of storm water and non-storm water from the municipal separate storm sewer systems (MS4s) located within the coastal watersheds of Los Angeles County, with the exception of the City of Long Beach MS4, and is hereinafter referred to as the “Los Angeles MS4 Order” or the “Order.” We received 37 petitions challenging various provisions of the Los Angeles MS4 Order. For the reasons discussed herein, we generally uphold the Los Angeles MS4 Order, but with a number of revisions to the findings and provisions in response to issues raised in the petitions and as a result of our own review of the Order.

I. BACKGROUND

The Los Angeles MS4 Order regulates discharges from the MS4s operated by the Los Angeles County Flood Control District, Los Angeles County, and 84 municipal permittees (Permittees) in a drainage area that encompasses more than 3,000 square miles and multiple watersheds. The Order was issued by the Los Angeles Water Board in

accordance with section 402(p)(3)(B) of the Clean Water Act¹ and sections 13263 and 13377 of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act),² as a National Pollutant Discharge Elimination System (NPDES) permit to control storm water and non-storm water discharges that enter the area's water bodies from the storm sewer systems owned or operated by the multiple governmental entities named in the Order. The Los Angeles MS4 Order superseded Los Angeles Water Board [Order No. 01-182](#) (2001 Los Angeles MS4 Order), and is the fourth iteration of the NPDES permit for MS4 discharges in the relevant area.

The Los Angeles MS4 Order incorporates most of the pre-existing requirements of the 2001 Los Angeles MS4 Order, including the water quality-based requirement to not cause or contribute to exceedances of water quality standards in the receiving water. The Los Angeles MS4 Order also requires Permittees to comply with new water quality-based requirements to implement 33 watershed-based total maximum daily loads (TMDLs) for the region. The Order links both of these water quality-based requirements to the programmatic elements of the Order by allowing Permittees to comply with the water quality-based requirements, in part, by developing and implementing a watershed management program (WMP) or enhanced watershed management program (EWMP), as more specifically defined in the Order.

Following adoption of the Los Angeles MS4 Order, we received 37 timely petitions challenging various provisions of the Order and, in particular, the provisions implementing TMDLs and integrating water quality-based requirements and watershed-based program implementation. Several petitioners asked that their petitions be held in abeyance;³ however, due to the number of active petitions also seeking review, we declined to hold those petitions in abeyance at that time.⁴ Five petitioners additionally requested that we partially stay the Los Angeles MS4 Order. Following review, the Executive Director of the State Water Board denied the stay requests for failure to comply with the prerequisites for a stay as specified in California Code of Regulations, title 23, section 2053.

¹ 33 U.S.C. § 1342(p)(3)(B).

² Wat. Code, §§ 13263, 13377.

³ See Cal. Code Regs., tit. 23, § 2050.5, subd. (d).

⁴ By letter dated January 30, 2013, we provided an opportunity for petitioners to submit an explanation for why a petition should be held in abeyance notwithstanding the existence of the active petitions. In response, two petitioners, City of Signal Hill and the City of Claremont, argued that their petitions raised unique issues not common to the remaining petitions and therefore appropriate for abeyance. We thereafter denied their requests on July 29, 2013, finding that the unique issues could nevertheless be resolved concurrently with the issues in the other petitions. On October 9, 2013, the City of Claremont withdrew two of the claims in its petition.

We deemed the petitions complete by letter dated July 8, 2013, and, as permitted under our regulations,⁵ consolidated the petitions for review.

An issue front and center in the petitions is the appropriateness of the approach of the Los Angeles MS4 Order in addressing what we generally refer to as “receiving water limitations.” Receiving water limitations in MS4 permits are requirements that specify that storm water and non-storm water discharges must not cause or contribute to exceedances of water quality standards in the waters of the United States that receive those discharges. In precedential State Water Board [Order WQ 99-05](#) (*Environmental Health Coalition*), we directed that all MS4 permits contain specific language that explains how the receiving water limitations will be implemented. (For clarity, we refer to MS4 permit language that relates to implementation of the permit’s receiving water limitations as “receiving water limitations provisions.”) We held a workshop on November 20, 2012, concerning receiving water limitations in MS4 permits. The purpose of the workshop was to receive public comment on an issue paper discussing several alternatives to the receiving water limitations provisions currently included in MS4 permits as directed by Order WQ 99-05 (Receiving Water Limitations Issue Paper).⁶

Because the Los Angeles MS4 Order contains new provisions that authorize the Permittees to develop and implement WMP/EWMPs in lieu of requiring compliance with the receiving water limitations provisions, we view our review of the Order as an appropriate avenue for resolving some of the issues raised in our November 20, 2012 workshop. Through notice to all interested persons, we bifurcated the responses to the petitions and solicited two separate sets of responses: (1) Responses to address issues related to whether the WMP/EWMP alternatives contained in the Los Angeles MS4 Order are an appropriate approach to revising the receiving water limitations provisions in MS4 permits (August 15, 2013 Receiving Water Limitations Submissions); and (2) Responses to address all other issues raised in the petitions (October 15, 2013 Responses).⁷ We held a workshop on October 8, 2013, to hear public comment on the first set of responses.

⁵ Cal. Code Regs., tit. 23, § 2054.

⁶ Information on that workshop is available at http://www.waterboards.ca.gov/water_issues/programs/stormwater/rwl.shtml (as of Nov 18, 2014).

⁷ We requested the bifurcated responses initially by letter dated July 15, 2013. Subsequent letters on July 29, 2013, and September 18, 2013, clarified the nature of the submissions and extended the submission deadline for the second response.

State Water Board regulations generally require final disposition on petitions within 270 days of the date a petition is deemed complete.⁸ However, in this case, we required additional time to review the large number of issues raised in the petitions. When the State Water Board anticipates addressing a petition on the merits after the review period passes, it may indicate that it will review the matter on its own motion.⁹ On April 1, 2014, we adopted [Order WQ 2014-0056](#) taking up review of the issues in the petitions on our own motion.¹⁰

We now resolve the issues in the petitions with this order.

II. ISSUES AND FINDINGS

The 37 petitions raise over sixty contentions claiming deficiencies in the Los Angeles MS4 Order. This Order addresses the most significant contentions. To the extent petitioners raised issues that are not discussed in this Order, such issues are dismissed as not raising substantial issues appropriate for State Water Board review.¹¹

Before proceeding to the merits of the petitions, we will resolve several procedural issues.

Requests to Take Official Notice or Supplement the Record with Additional Evidence

We received a number of requests to take official notice of documents not in the administrative record of the adoption of the Los Angeles MS4 Order by the Los Angeles Water Board (hereinafter Administrative Record)¹² and a number of requests to admit supplemental evidence not considered by the Los Angeles Water Board.¹³ We reviewed the requests with

⁸ Cal. Code Regs., tit. 23, § 2050.5, subd. (b).

⁹ See Wat. Code, § 13320, subd. (a); Cal. Code Regs., tit. 23, § 2050.5, subd. (c).

¹⁰ To avoid premature litigation on the petition issues as a result of our review extending past the 270 day-regulatory review period, at our suggestion most of the petitioners asked that their petitions be placed in abeyance until adoption by the State Water Board of a final order. We granted those requests. Simultaneously with adopting this order, we are removing the petitions from abeyance and acting upon them.

¹¹ *People v. Barry* (1987) 194 Cal.App.3d 158, 175-177; *Johnson v. State Water Resources Control Bd.* (2004) 123 Cal.App.4th 1107, 1114; Cal. Code Regs., tit. 23, § 2052, subd. (a)(1).

¹² The Administrative Record was prepared by the Los Angeles Water Board and is available at <http://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/AdminRecordOrderNoR4_2012_0175/index.shtml> (as of Nov. 18, 2014).

¹³ Several requests for official notice or to admit supplemental evidence were received concurrently with submission of the petitions, with the August 15, 2013 Receiving Water Limitations Submissions, and with the October 15, 2013 Responses. Additional requests for official notice were submitted concurrently with comments on first and revised public drafts of this order and were opposed by several parties. (Request for Official Notice, Natural Resources Defense Council, Los Angeles Waterkeeper, and Heal the Bay, Jan. 21, 2015; Request for Official Notice, Natural Resources Defense Council, Los Angeles Waterkeeper and Heal the Bay, June 2, 2015.) Although we have reviewed these additional requests for official notice, we have not granted the requests for the various reasons articulated in this section, in Section II.B.8, and in footnote 74.

consideration of whether they were appropriate for notice or admission based on the legal standards governing our proceedings¹⁴ and whether the documents would materially aid in our review of the issues in the proceedings. We grant the requests with regard to documents 1-7 below, and additionally take official notice on our own motion of documents 8, 9, and 10.¹⁵

1. [Order No. 2013-0001-DWQ](#), NPDES Permit for Storm Water Discharges from Small MS4s, adopted by State Water Board, February 5, 2013;¹⁶
2. Modified NPDES Permit No. DC0000022 for the MS4 for the District of Columbia issued by the United States Environmental Protection Agency (USEPA), November 9, 2012, and a responsiveness summary issued in support of its original adoption of the permit, October 7, 2011;¹⁷
3. Administrative Procedures Update Number 90-004 on Antidegradation Policy Implementation for NPDES Permitting, issued by the State Water Board, July 2, 1990;¹⁸
4. Chapter 7 of the NPDES Permit Writers' Manual, updated by USEPA, September 2010;¹⁹
5. Letter to the Water Management Administration, Maryland Department of the Environment, issued by USEPA, August 8, 2012;²⁰

¹⁴ For official notice see Cal. Code Regs., tit. 23, § 648.2; Gov. Code, § 11515; Evid. Code, § 452. For admission of supplemental evidence see Cal. Code Regs., tit. 23, § 2050.6.

¹⁵ We note that two documents for which we received requests for official notice are already in the administrative record: USEPA, Memorandum Setting Forth Revisions to the November 22, 2002 Memorandum Establishing Total Maximum Daily Load Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs (Nov. 12, 2010) (Administrative Record, section 10.II, RB-AR23962-23968); USEPA, Chapter 6 of the NPDES Permit Writers' Manual (updated Sept. 2010) (Administrative Record, section 10.IV, RB-AR24905-24932).

¹⁶ County of Los Angeles October 15, 2013 Response, Att. C; also available at <http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/phsii2012_5th/order_final.pdf> (as of Nov. 18, 2014).

¹⁷ Los Angeles Water Board Request for State Water Board to Take Official Notice of Or Accept as Supplemental Evidence Exhibit A through SS (Oct. 15, 2013) (Los Angeles Water Board Request for Official Notice), Exh.'s A, B; also available at <http://www.epa.gov/reg3wapd/pdf/pdf_npdes/stormwater/DCMS4/MS4FinalLimitedModDocument/FinalModifiedPermit_10-25-12.pdf> and <http://www.epa.gov/reg3wapd/pdf/pdf_npdes/stormwater/DCMS4/FinalPermit2011/DCMS4FINALResponsivenessSummary093011.pdf> (as of Nov. 18, 2014).

¹⁸ Los Angeles Water Board Request for Official Notice, Exh.C; also available at <http://www.swrcb.ca.gov/water_issues/programs/npdes/docs/apu_90_004.pdf> (as of Nov. 18, 2014).

¹⁹ Chapter 7 of USEPA's NPDES Permit Writers' Manual, EPA-833-K-10-001, September 2010 (NPDES Permit Writers' Manual) was submitted as Exhibit C to Natural Resources Defense Council, Los Angeles Waterkeeper and Heal the Bay Request for Official Notice (Dec. 10, 2012) (Environmental Petitioners' Request for Official Notice). The chapter may additionally be accessed through links at <<http://water.epa.gov/polwaste/npdes/basics/NPDES-Permit-Writers-Manual.cfm>> (as of Nov. 18, 2014).

6. Memorandum to the Water Management Division Directors, Regions I-X, and NPDES State Directors, issued by USEPA, 1989;²¹
7. “Guidance on Implementing the Antidegradation Provisions of 40 C.F.R. 131.12,” issued by USEPA, Region 9, June 3, 1987;²²
8. [Order WQ 2014-0077-DWQ](#), amending NPDES Statewide Storm Water Permit for State of California Department of Transportation, [Order 2012-0011-DWQ](#), adopted by State Water Board, May 20, 2014;²³
9. Statement from USEPA soliciting comments on the USEPA Memorandum Setting forth Revisions to the November 22, 2002 Memorandum Establishing Total Maximum Daily Load Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs (November 12, 2010), issued March 17, 2011.²⁴
10. Memorandum, “Revisions to the November 22, 2002 Memorandum ‘Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs,’” issued by USEPA, November 26, 2014.²⁵

In addition, we are incorporating the administrative record of the November 20, 2012 workshop on receiving water limitations, including the Receiving Water Limitations Issue Paper and comments by interested persons, into our record for the petitions on the Los Angeles MS4 Order.²⁶

(continued from previous page)

²⁰ Environmental Petitioners’ Request for Official Notice, Exh.B, available at <http://www.waterboards.ca.gov/public_notices/petitions/water_quality/docs/a2236/a2236m_rfon.pdf> (as of Nov. 18, 2014).

²¹ Environmental Petitioners’ Request for Official Notice, Exh.D; also available at <<http://www.epa.gov/npdes/pubs/owm0231.pdf>> (as of Nov. 18, 2014).

²² Environmental Petitioners’ Request for Official Notice, Exh.E; available at <http://www.waterboards.ca.gov/public_notices/petitions/water_quality/docs/a2236/a2236m_rfon.pdf> (as of Nov. 18, 2014).

²³ Available at <http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2014/wqo2014_0077_dwq.pdf> (as of Nov. 18, 2014).

²⁴ Available at <http://water.epa.gov/polwaste/npdes/stormwater/upload/sw_tmdlwla_comments.pdf> (as of Nov. 18, 2014).

²⁵ Available at <http://water.epa.gov/polwaste/npdes/stormwater/upload/EPA_SW_TMDL_Memo.pdf> (as of March 30, 2015).

²⁶ The Receiving Water Limitations Issue Paper and comments and workshop presentations by interested person are available at <http://www.waterboards.ca.gov/water_issues/programs/stormwater/rwl.shtml>.

Among other requests, we are not granting the requests to take official notice of or supplement the Administrative Record with the notices of intent, workplans, draft programs, and other documents filed by Permittees toward development of WMPs/EWMPs and associated monitoring programs following adoption of the Los Angeles MS4 Order or comments submitted on those documents, or the conditional approvals of several of the programs. With regard to factual evidence regarding actions taken by Permittees to comply with the Los Angeles MS4 Order after it was adopted, we believe it appropriate to close the record with the adoption of the Los Angeles MS4 Order. However, we are keenly aware that the success of the Los Angeles MS4 Order in addressing water quality issues depends primarily on the careful and effective development and implementation of programs consistent with the requirements of the Order; we speak to that issue later in our discussion.

City of El Monte's Amended Petition

Petitioner City of El Monte (El Monte) timely filed a petition on December 10, 2012, challenging a number of provisions of the Los Angeles MS4 Order. Thereafter, on February 19, 2013, El Monte filed an amended petition, based on information it asserted was not available prior to the deadline for submission of the petition.

Water Code section 13320, subdivision (a) provides that a petition for review of a regional water quality control board (regional water board) action must be filed within 30 days of the regional water board's action.²⁷ The State Water Board interprets that requirement strictly and petitions filed more than 30 days from regional water board action are rejected as untimely. El Monte asserted that the two additional arguments raised in the amended petition were based on information that was not available prior to the deadline for submitting the petition and were therefore appropriate for State Water Board consideration.

Even if we were required by statute or regulation to accept amended petitions based on new information, here, El Monte's new arguments are not supported by information previously unavailable. First, El Monte argues that the Supreme Court's decision in *Los Angeles County Flood Control District v. Natural Resources Defense Council* (2013) 133 S.Ct. 710 invalidated certain provisions of the Los Angeles MS4 Order that require compliance with water quality standards and total maximum daily load requirements through receiving water monitoring. Contrary to El Monte's assertion, the decision by the Supreme Court did not invalidate any requirements of the Los Angeles MS4 Order and did not result in any changes to

²⁷ See also Cal. Code Regs., tit. 23, § 2050.

the Order. The Supreme Court decision, to the extent it applies to the legal issues before us in this matter, constitutes precedential case law and must be considered in our review of the Los Angeles MS4 Order, but it does not constitute new information that supports an amended petition.²⁸

Second, El Monte argues that the Los Angeles Water Board failed to consider various provisions of the California Watershed Improvement Act of 2009²⁹ when it adopted the Los Angeles MS4 Order. To the extent El Monte believed that the California Watershed Improvement Act was relevant to adoption of the Los Angeles MS4 Order, El Monte had the opportunity to raise that issue in comments before the Los Angeles Water Board and in its timely petition to the State Water Board. Having failed to raise the issue before the Los Angeles Water Board and in its timely petition, El Monte cannot raise the issue in an amended petition.³⁰

We reject El Monte's amended petition as untimely.

Environmental Petitioners' Motion to Strike

Petitioners Natural Resources Defense Council, Los Angeles Waterkeeper, and Heal the Bay (Environmental Petitioners), submitted a motion on November 11, 2013, requesting that the State Water Board strike sections of the October 15, 2013 Responses by six petitioners (Motion to Strike). The relevant sections respond to a collateral estoppel argument made by the Environmental Petitioners in their August 15, 2013 Receiving Water Limitations Submission to the State Water Board. Several parties asserted in their petitions that requiring compliance with water quality standards in MS4 permits violates federal law or conflicts with prior State Water Board precedent. The Environmental Petitioners responded in their August 15, 2013 Receiving Water Limitations Submission that these arguments were barred by collateral estoppel because the claims were settled in prior court cases challenging the 2001 Los Angeles MS4 Order. Six of the October 15, 2013 Responses, namely those by the Cities of

²⁸ We note that the State Water Board has the option of allowing additional briefing when there are material legal developments concerning issues raised in a petition, but we did not find such briefing would aid review of the petitions in this case.

²⁹ Wat. Code, § 16100 et seq.

³⁰ In addition to being untimely, El Monte's argument lacks merit. The California Watershed Improvement Act of 2009 grants authority to local government permittees regulated by an MS4 permit to develop and implement watershed improvement plans, but does not limit the authority of a regional water board to impose terms related to watershed management in an MS4 permit. Further, the terms of the WMPs/EWMPs are largely consistent with the watershed improvement plans authorized by the Act, so a permittee can comply with the Los Angeles MS4 Order while also using the authority provided by the California Watershed Improvement Act of 2009 if it so chooses.

Arcadia, Claremont, Covina, Duarte and Huntington Park, San Marino et al.,³¹ and Sierra Madre, incorporated a response to the collateral estoppel argument.

We stated in a July 15, 2013 letter that “[i]nterested persons may not use the [October 15]³² deadline for responses on the remaining petition issues as an opportunity to respond to comments filed on the receiving water limitations approach.” We clarified further in a July 29, 2013 letter: “[W]hen submitting subsequent responses to the petitions in accordance with the [October 15] deadline, petitioners and interested persons should not raise new issues related to the specific questions regarding the watershed management program/enhanced watershed management program or respond to any August 15, 2013, submissions; however petitioners and interested persons will not be precluded from responding to specific issues raised in the original petitions on grounds that the issues are related to the receiving water limitations language.”

We find that the collateral estoppel responses by the six petitioners are disallowed by the direction we provided in our July 15 and July 29, 2013 letters. However, as will be apparent in our discussion in section II.A, we do not rely on the Environmental Petitioners’ collateral estoppel argument in resolving the petitions. Our determination that portions of the October 15, 2013 Responses are disallowed is, therefore, immaterial to the resolution of the issues.³³

Having resolved the procedural issues, we turn to the merits of the Petitions.

A. Implementation of the Iterative Process as Compliance with Receiving Water Limitations

The Los Angeles MS4 Order includes receiving water limitations provisions that are consistent with our direction in Order WQ 99-05 in Part V.A of the Los Angeles MS4 Order. Part V.A. provides, in part, as follows:

1. Discharges from the MS4 that cause or contribute to the violation of receiving water limitations are prohibited.

³¹ The cities of San Marino, Rancho Palos Verdes, South El Monte, Norwalk, Artesia, Torrance, Beverly Hills, Hidden Hills, Westlake Village, La Mirada, Vernon, Monrovia, Agoura Hills, Commerce, Downey, Inglewood, Culver City, and Redondo Beach submitted a joint October 15, 2013 Response.

³² The July 15, 2013 letter set a deadline of September 20, 2013, which was subsequently extended to October 15, 2013.

³³ In a November 21, 2013 letter, we indicated that we would consider the Motion to Strike concurrently with drafting of this Order, but that we would not accept any additional submissions in this matter, including any responses to the Motion to Strike. City of San Marino objected to the letter and submitted an opposition to the Motion to Strike. Several petitioners submitted joinders in City of San Marino’s motion. For the same reasons articulated above, we are not accepting these submissions; they would not affect our resolution of the issues.

2. Discharges from the MS4 of storm water, or non-storm water, for which a Permittee is responsible [footnote omitted], shall not cause or contribute to a condition of nuisance.
3. The Permittees shall comply with Parts V.A.1 and V.A.2 through timely implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the storm water management program and its components and other requirements of this Order including any modifications. . . .³⁴

The petitioners that are permittees (hereinafter referred to as “Permittee Petitioners”)³⁵ argue that the above language either means, or should be read and/or clarified to mean, that good faith engagement in the requirements of Part V.A.3, traditionally referred to as the “iterative process,” constitutes compliance with Parts V.A.1. and V.A.2. The position put forth by Permittee Petitioners is one we took up when we initiated a process to re-examine the receiving water limitations and iterative process in MS4 permits statewide with our Receiving Water Limitations Issue Paper and the November 20, 2012 workshop. We summarize the law and policy regarding Permittee Petitioners’ position again here and ultimately disagree with Permittee Petitioners that implementation of the iterative process does or should constitute compliance with receiving water limitations.

The Clean Water Act generally requires NPDES permits to include technology-based effluent limitations and any more stringent limitations necessary to meet water quality standards.³⁶ In the context of NPDES permits for MS4s, however, the Clean Water Act does not explicitly reference the requirement to meet water quality standards. MS4 discharges must meet a technology-based standard of prohibiting non-storm water discharges and reducing pollutants in the discharge to the Maximum Extent Practicable (MEP) in all cases, but requiring strict compliance with water quality standards (e.g., by imposing numeric effluent limitations) is at the discretion of the permitting agency.³⁷ Specifically the Clean Water Act states as follows:

Permits for discharges from municipal storm sewers –

. . .

(ii) shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers; and

³⁴ Los Angeles MS4 Order, Part V.A, pp. 38-39.

³⁵ For ease of reference, where an argument is made by multiple Permittee Petitioners, even if not by all, we attribute that argument to Permittee Petitioners generally, and do not list which of the 37 Permittee Petitioners in fact make the argument. Where only one or two Permittee Petitioners make a particular argument, we have identified the specific Permittee Petitioner(s).

³⁶ 33 U.S.C. §§ 1311, 1342(a).

³⁷ 33 U.S.C. § 1342(p)(3)(B); *Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F.3d 1159.

(iii) shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as . . . the State determines appropriate for the control of such pollutants.³⁸

Thus, a permitting agency imposes requirements related to attainment of water quality standards where it determines that those provisions are “appropriate for the control of [relevant] pollutants” pursuant to the Clean Water Act municipal storm water provisions.

Under the Porter-Cologne Act, waste discharge requirements must implement applicable water quality control plans, which include the beneficial uses to be protected for a given water body and the water quality objectives reasonably required for that protection.³⁹ In this respect, the Porter-Cologne Act treats MS4 dischargers and other dischargers even-handedly and anticipates that all waste discharge requirements will implement the water quality control plans. However, when implementing requirements under the Porter-Cologne Act that are not compelled by federal law, the State Water Board and regional water boards (collectively, “water boards”) have some flexibility to consider other factors, such as economics, when establishing the appropriate requirements.⁴⁰ Accordingly, since the State Water Board has discretion under federal law to determine whether to require strict compliance with the water quality standards of the water quality control plans for MS4 discharges, the State Water Board may also utilize the flexibility under the Porter-Cologne Act to decline to require strict compliance with water quality standards for MS4 discharges.

We have previously exercised the discretion we have under federal law in favor of requiring compliance with water quality standards, but have required less than strict compliance. We have directed, in precedential orders, that MS4 permits require discharges to be controlled so as not to cause or contribute to exceedances of water quality standards in receiving waters,⁴¹ but have prescribed an iterative process whereby an exceedance of a water quality standard triggers a process of BMP improvements. That iterative process involves reporting of the violation, submission of a report describing proposed improvements to BMPs

³⁸ 33 U.S.C. § 1342(p)(3)(B).

³⁹ Wat. Code, § 13263. The term “water quality standards” encompasses the beneficial uses of the water body and the water quality objectives (or “water quality criteria” under federal terminology) that must be met in the waters of the United States to protect beneficial uses. Water quality standards also include the federal and state antidegradation policy.

⁴⁰ Wat. Code, §§ 13241, 13263; *City of Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613.

⁴¹ State Water Board Orders WQ 98-01 (*Environmental Health Coalition*), WQ 99-05 (*Environmental Health Coalition*), WQ 2001-15 (*Building Industry Association of San Diego*).

expected to better meet water quality standards, and implementation of these new BMPs.⁴² The current language of the existing receiving waters limitations provisions was actually developed by USEPA when it vetoed two regional water board MS4 permits that utilized a prior version of the State Water Board's receiving water limitations provisions.⁴³ In State Water Board Order WQ 99-05, we directed that all regional boards use USEPA's receiving water limitations provisions.

There has been significant confusion within the regulated MS4 community regarding the relationship between the receiving water limitations and the iterative process, in part because the water boards have commonly directed dischargers to achieve compliance with water quality standards by improving control measures through the iterative process. But the iterative process, as established in our precedential orders and as generally written into MS4 permits adopted by the water boards, does not provide a "safe harbor" to MS4 dischargers. When a discharger is shown to be causing or contributing to an exceedance of water quality standards, that discharger is in violation of the permit's receiving water limitations and potentially subject to enforcement by the water boards or through a citizen suit, regardless of whether or not the discharger is actively engaged in the iterative process.⁴⁴

The position that the receiving water limitations are independent from the provisions that establish the iterative process has been judicially upheld on several occasions. The receiving water limitations provisions of the 2001 Los Angeles MS4 Order specifically have been litigated twice, and in both cases, the courts upheld the provisions and the Los Angeles Water Board's interpretation of the provisions. In a decision resolving a challenge to the 2001 Los Angeles MS4 Order, the Los Angeles County Superior Court stated: "[T]he Regional [Water] Board acted within its authority when it included [water quality standards compliance] in

⁴² State Water Board Order WQ 99-05, pp. 2-3; see also State Water Board Order WQ 2001-15, pp. 7-9. Additionally, consistent with federal law, we found it appropriate to require implementation of BMPs in lieu of numeric water quality-based effluent limitations to meet water quality standards. See State Water Board Orders WQ 91-03 (*Citizens for a Better Environment*), WQ 91-04 (*Natural Resources Defense Council*), WQ 98-01, WQ 2001-15. This issue is discussed in greater detail in Section II.C. of this order.

⁴³ See State Water Board Orders WQ 99-05, WQ 2001-15.

⁴⁴ Several Permittee Petitioners have argued that the State Water Board's opinion in State Water Board Order WQ 2001-15 must be read to endorse a safe harbor in the iterative process. We disagree. Regardless, the State Water Board's position that the iterative process of the subject permit did not create a "safe harbor" from compliance with receiving water limitations was clearly established in subsequent litigation on that order. (See *Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.* (Super. Ct. 2003, No. GIC780263), *affd.* *Building Industry Assn. of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866.)

the Permit without a ‘safe harbor,’ whether or not compliance therewith requires efforts that exceed the ‘MEP’ standard.”⁴⁵ The lack of a safe harbor in the iterative process of the 2001 Los Angeles MS4 Order was again acknowledged in 2011 and 2013, this time by the Ninth Circuit Court of Appeal. In these instances, the Ninth Circuit was considering a citizen suit brought by the Natural Resources Defense Council against the County of Los Angeles and the Los Angeles County Flood Control District for alleged violations of the receiving water limitations of that order. The Ninth Circuit held that, as the receiving water limitations of the 2001 Los Angeles MS4 Order (and accordingly as the precedential language in State Water Board Order WQ 99-05) was drafted, engagement in the iterative process does not excuse liability for violations of water quality standards.⁴⁶ The California Court of Appeal has come to the same conclusion in interpreting similar receiving water limitations provisions in MS4 Orders issued by the San Diego Regional Water Quality Control Board in 2001 and the Santa Ana Regional Water Quality Control Board in 2002.⁴⁷

While we reiterate that the judicial rulings have been consistent with the water boards’ intention and position regarding the relationship between the receiving water limitations and the iterative process, we acknowledge that some in the regulated community perceived the 2011 Ninth Circuit opinion in particular as a re-interpretation of that relationship. Our Receiving Water Limitations Issue Paper and subsequent workshop reflected our desire to re-examine the issue in response to concerns expressed by the regulated community in the aftermath of that ruling.

As stated above, both the Clean Water Act and the Porter-Cologne Act afford some discretion to not require strict compliance with water quality standards for MS4 discharges. In each of the discussed court cases above, the court’s decision is based on the specific permit language; thus the cases do not address our authority with regard to requiring compliance with water quality standards in an MS4 permit as a threshold matter, and they do not require us to continue to exercise our discretion as we decided in State Water Board Order

⁴⁵ *In re Los Angeles County Municipal Storm Water Permit Litigation* (L.A. Super. Ct., No. BS 080548, Mar. 24, 2005) Statement of Decision from Phase I Trial on Petitions for Writ of Mandate, pp. 4-5, 7. The decision was affirmed on appeal (*County of Los Angeles v. State Water Resources Control Board* (2006) 143 Cal.App.4th 985); however, this particular issue was not discussed in the court of appeal’s decision.

⁴⁶ *Natural Resources Defense Council v. County of Los Angeles* (9th Cir. 2011) 673 F.3d. 880, rev’d on other grounds sub nom. *Los Angeles County Flood Control Dist. v. Natural Resources Defense Council* (2013) 133 S.Ct. 710, mod. by *Natural Resources Defense Council v. County of Los Angeles* (9th Cir. 2013) 725 F.3d 1194, cert. den. *Los Angeles County Flood Control Dist. v. Natural Resources Defense Council* (2014) 134 S.Ct. 2135.

⁴⁷ *Building Industry Assn. of San Diego County, supra*, 124 Cal.App.4th 866; *City of Rancho Cucamonga v. Regional Water Quality Control Bd.* (2006) 135 Cal.App.4th 1377.

WQ 99-05. Although it would be inconsistent with USEPA's general practice of requiring compliance with water quality standards over time through an iterative process,⁴⁸ we may even have the flexibility to reverse⁴⁹ our own precedent regarding receiving water limitations and receiving water limitations provisions and make a policy determination that, going forward, we will either no longer require compliance with water quality standards in MS4 permits, or will deem good faith engagement in the iterative process to constitute such compliance.⁵⁰

However, with this Order, we now decline to do either. As the storm water management programs of municipalities have matured, an increasing body of monitoring data indicates that many water quality standards are in fact not being met by many MS4s. The iterative process has been underutilized and ineffective to date in bringing MS4 discharges into compliance with water quality standards. Compliance with water quality standards is and should remain the ultimate goal of any MS4 permit. We reiterate and confirm our determination that provisions requiring compliance with receiving water limitations are "appropriate for the control of . . . pollutants" addressed in MS4 permits and that therefore, consistent with our authority under the Clean Water Act, we will continue to require compliance with receiving water limitations.⁵¹

⁴⁸ See, e.g. Modified NPDES Permit No. DC0000022 for the MS4 for the District of Columbia, *supra*, fn. 17.

⁴⁹ Of course any change of direction would be subject to ordinary principles of administrative law. (See Code Civ. Proc., § 1094.5, subd. (b).)

⁵⁰ As such, it is not necessary to address the collateral estoppel arguments raised by the Environmental Petitioners and opposed by Permittee Petitioners. We agree that it is settled law that we have the discretion to require compliance with water quality standards in an MS4 permit under federal and state law. We also agree that it is settled law that the receiving water limitations provisions currently spelled out in our MS4 permits do not carve out a safe harbor in the iterative process. But the question for us is whether we should continue to exercise our discretion to utilize the same approach to receiving water limitations established under our prior precedent, or proceed in a new direction.

⁵¹ Several Permittee Petitioners argued in comments submitted on the first draft of this order that, because we find that we have some discretion under Clean Water Act section 402(p)(3) to not require compliance with receiving water limitations, the Los Angeles Water Board's action in requiring such compliance -- and our action in affirming it -- is pursuant to state authority. (See, e.g., Cities of Arcadia, Claremont, and Covina, Comment Letter, Jan. 21, 2015.) The Permittee Petitioners argue that the action is therefore subject to evaluation in light of the factors set out in Water Code section 13263 and 13241 pursuant to *City of Burbank*, *supra*, 35 Cal.4th 613. Under *City of Burbank*, a regional water board must consider the factors specified in section 13241 when issuing waste discharge requirements under section 13263, subdivision (a), but only to the extent those waste discharge requirements exceed the requirements of the federal Clean Water Act. (35 Cal.4th at 627.) Nowhere in our discussion in this section do we mean to disavow either that the Los Angeles Water Board acted under federal authority to impose "such other provisions as . . . determine[d] appropriate for the control of . . . pollutants" in adopting the receiving water limitations provisions of the Los Angeles MS4 Order in the first instance or that we are acting under federal authority in upholding those provisions. (33 U.S.C. § 1342(p)(3)(B)(iii).) The receiving water limitations provisions do not exceed the requirements of federal law. We nevertheless also point out that the Los Angeles Water Board engaged in an analysis of the factors under section 13241 when adopting the Order. (See Los Angeles MS4 Order, Att. F, Fact Sheet, pp. F-139 to F-155.)

As we explained in 2001, “[u]rban runoff is causing and contributing to impacts on receiving waters throughout the state and impairing their beneficial uses.”⁵² More than a decade later, this is still true. By definition, many of our urban waterways will never attain water quality standards and fully realize their beneficial uses if municipal runoff is allowed to continue to cause or contribute to exceedances of water quality standards. Further, the efforts of other dischargers who are required to not cause or contribute to exceedances of water quality standards would be largely in vain if we did not regulate MS4 dischargers with a somewhat even hand.

Such an approach is additionally consistent with the Porter-Cologne Act’s emphasis on water quality control plans as the cornerstone of water quality planning and regulation and the act’s expectation that all waste discharge requirements will implement the water quality control plans. We believe that direct enforcement of water quality standards is necessary to protect water quality, at a minimum as a back-stop where dischargers fail to meet requirements of the Order designed to achieve progress toward meeting the standards. We will not reverse our precedential determination in State Water Board Order WQ 99-05 that established the receiving water limitations provisions for MS4 permits statewide and reiterate that we will continue to read those provisions consistent with how the courts have: engagement in the iterative process does not excuse exceedances of water quality standards. We accordingly also decline to direct any revisions to the receiving water limitations provisions of the Los Angeles MS4 Order, which are consistent with our precedential language.⁵³

Yet, we are sympathetic to the assertions made by MS4 dischargers that the receiving water limitations provisions mandated by our Order WQ 99-05 may result in many years of permit noncompliance, because it may take years of technical efforts to achieve compliance with the receiving water limitations, especially for wet weather discharges.

⁵² State Water Board Order WQ 2001-15, p. 7.

⁵³ We disagree with Permittee Petitioners’ argument that the receiving water limitations in Part V.A of the Los Angeles MS4 Order are confusing, unclear, or overbroad, because they prohibit causing or contributing to a violation of a receiving water limitation rather than a violation of water quality standards. The Los Angeles Water Board defines “receiving water” as “[a] ‘water of the United States’ in to which waste and/or pollutants are or may be discharged.” (Los Angeles MS4 Order, Att. A., p. A-16.) The Los Angeles Water Board further defines “receiving water limitations” as “[a]ny applicable numeric or narrative water quality objective or criterion, or limitation to implement the applicable water quality objective or criterion, for the receiving water as contained in Chapter 3 or 7 of the Water Quality Control Plan for the Los Angeles Region (Basin Plan), water quality control plans or policies adopted by the State Water Board, or federal regulations, including but not limited to, 40 CFR §131.38.” (*Ibid.*) Receiving water limitations are therefore the water quality standards, including water quality objectives and criteria, that apply to the receiving water as expressed in the water quality control plan for the region, statewide water quality control plans that specify objectives for water bodies in the region, State Water Board policies for water quality control, and federal regulations.

Accordingly, we believe that the MS4 permits should incorporate a well-defined, transparent, and finite alternative path to permit compliance that allows MS4 dischargers that are willing to pursue significant undertakings beyond the iterative process to be deemed in compliance with the receiving water limitations.

With the WMP/EWMP provisions of the Los Angeles MS4 Order, the Los Angeles Water Board is striving to allow one such alternative compliance path. As such, the fundamental issue for review before us in this matter is whether the Los Angeles MS4 Order's WMP/EWMP provisions constitute a legal and technically sound compliance alternative for achieving receiving water limitations. We discuss and resolve this issue in the next section.

B. WMP/EWMP as Alternative Compliance Options for Complying with Receiving Water Limitations

The WMP/EWMP provisions allow Permittees to choose an integrated and collaborative watershed-based approach to meeting the requirements of the Los Angeles MS4 Order, including the receiving water limitations. Permittees develop a plan, either collaboratively or individually, that addresses water quality priorities within a watershed. Permittees first prioritize water quality issues within each watershed. Permittees may use the WMP/EWMP to address water body-pollutant combinations for which a TMDL has been developed, giving highest priority to those with interim and final compliance deadlines within the permit term. Permittees may also address water body-pollutant combinations for which no TMDL has been developed, but where the water body is impaired or shows exceedances of the standards for the relevant pollutant from an MS4 source. Once prioritization is completed, Permittees assess the sources of the pollutants and select watershed strategies that are designed to eliminate non-storm water discharges to the MS4 that are a source of pollutants, that meet all applicable TMDL-derived interim and final water quality-based effluent limitations (WQBELs) and/or limitations to be met in the receiving water (referred to herein as "other TMDL-specific limitations")⁵⁴ pursuant to corresponding compliance schedules, and that ensure that discharges from the MS4 do not cause or contribute to exceedances of receiving water limitations. Except as described below for storm water retention projects, Permittees conduct a "reasonable assurance analysis" for each water body-pollutant combination incorporated into the

⁵⁴ Some of the TMDL limitations of the Los Angeles MS4 Order are expressed not as WQBELs but as standards to be met in the receiving water. The Los Angeles MS4 Order refers to these limitations as "receiving water limitations;" however, in order to avoid confusion with the general receiving water limitations in Part V.A., we will use the term "other TMDL-specific limitations." Accordingly, while the Los Angeles MS4 Order uses the term "receiving water limitations" to refer to both the receiving water limitations in part V.A and some of the TMDL-based requirements in Attachments L-R, when we use the term we refer only to the receiving water limitations in part V.A.

WMP/EWMP to demonstrate the ability of the program to meet those objectives. Permittees additionally implement an integrated monitoring and assessment program to determine progress, adapting strategies and measures as necessary.⁵⁵

In addition to all the requirements above, for those Permittees that choose to develop and implement an EWMP, the EWMP provisions also require that Permittees collaborate on multi-benefit regional projects and, wherever feasible, retain all non-storm runoff, as well as all storm water runoff from the 85th percentile 24-hour storm event (hereinafter “storm water retention approach”) for the drainage areas tributary to the projects.⁵⁶

The primary controversy concerning the WMP/EWMP provisions of the Los Angeles MS4 Order is the manner in which they interact with the receiving water limitations and the WQBELs and other TMDL-specific limitations. Under certain conditions detailed in the Order, Permittees may be deemed in compliance with the receiving water limitations and the WQBELs and other TMDL-specific limitations by fully implementing the WMP/EWMP, rather than by demonstrating that the receiving water limitations and the WQBELs and other TMDL-specific limitations have actually been achieved. Specifically:

1. Permittees that develop and implement a WMP/EWMP and fully comply with all requirements and dates of achievement for the WMP/ EWMP as established in the Los Angeles MS4 Order, are deemed to be in compliance with the receiving water limitations in Part V.A for the water body-pollutant combinations addressed by the WMP/EWMP.⁵⁷

2. Permittees fully in compliance with the requirements and dates of achievement of the WMP/EWMP are deemed in compliance with the *interim* WQBELs and other TMDL-specific limitations in Attachments L-R for the water body-pollutant combinations addressed by the WMP/EWMP.⁵⁸

3. Permittees implementing an EWMP and utilizing the storm water retention approach in a drainage area tributary to the applicable water body are deemed in compliance with the *final* WQBELs and other TMDL-specific limitations in Attachments L-R for the water body-pollutant combinations addressed by the storm water retention approach.⁵⁹

⁵⁵ Los Angeles MS4 Order, Part VI.C., pp. 49-67.

⁵⁶ *Id.*, Part VI.C.1.g., pp. 48-49.

⁵⁷ *Id.*, Part VI.C.2.b., p. 52.

⁵⁸ *Id.*, Parts VI.C.3.a., p. 53, VI.E.2.d.i.4., pp. 143-44. The Los Angeles MS4 Order establishes separate requirements for Trash TMDLs and the WMP/EWMP are not a means of achieving compliance with the Trash TMDL provisions. (See Part VI.E.5, pp. 147-154.) References to TMDLs in this section exclude the Trash TMDLs.

⁵⁹ *Id.*, Part VI.E.2.e.i.(4), p. 145. As with Part VI.E.2.d.i.4, this Part does not apply to Trash TMDLs.

4. Because the Order additionally provides that full compliance with the general TMDL requirements in Part VI.E and the WQBELs and other TMDL-specific limitations in Attachments L through R constitutes compliance with the receiving water limitations in V.A for the specific pollutants addressed by the relevant TMDL,⁶⁰ provisions 2 and 3 above also constitute compliance with the receiving water limitations for the particular water body-pollutant combinations.

5. Finally, Permittees that have declared their intention to develop a WMP/EWMP may be deemed in compliance with receiving water limitations and with interim WQBELs with compliance deadlines occurring prior to approval of the WMP/EWMP if they meet certain conditions during the development phase.⁶¹

Both Environmental Petitioners and Permittee Petitioners put forth a number of arguments to the effect that the WMP/EWMP provisions of the Los Angeles MS4 Order are contrary to federal and state law or reflect poor policy. We discuss each argument below.

1. Anti-backsliding

The Environmental Petitioners argue that the inclusion of the WMP/EWMP in the Los Angeles MS4 Order violates the anti-backsliding provisions of the Clean Water Act and of the federal regulations.⁶² The Clean Water Act generally prohibits the relaxation of an effluent limitation established in an NPDES permit when that permit is renewed; the federal regulations include similar provisions. The Environmental Petitioners argue that the WMP/EWMP of the Los Angeles MS4 Order, by allowing a discharger to be deemed in compliance with receiving water limitations, even where a discharger may in fact be causing or contributing to an exceedance of a water quality standard, represent a relaxation of the receiving water limitations provisions contained in the 2001 Los Angeles MS4 Order.⁶³

We do not agree with the Environmental Petitioners that the WMP/EWMP provisions of the Los Angeles MS4 Order violate the anti-backsliding provisions of either the Clean Water Act or the federal regulations. Anti-backsliding provisions are an important aspect

⁶⁰ *Id.*, Part VI.E.2.c.ii., p. 143. Although this provision reflects a departure from provisions in previous MS4 permits, the provision has not generated controversy and has not been contested in the petitions. The State Water Board supports this provision in MS4 permits, as discussed at section II.B.5.b. of this order.

⁶¹ *Id.*, Parts VI.C. 2.d., pp. 52-53, VI.E.2.d.i.(4)(d), p. 144.

⁶² 33 U.S.C. § 1342(o); 40 C.F.R. §122.44(f).

⁶³ The receiving water limitations of the 2001 Los Angeles MS4 Order (like the receiving water limitations in Section V.A. of the Los Angeles MS4 Order) were modeled on the precedential language in State Water Board Order WQ 99-05.

of the Clean Water Act that generally promote continued progress toward clean water, but the provisions do not apply in all circumstances and are subject to certain exceptions. The 2001 Los Angeles MS4 Order required compliance with receiving water limitations, directed Permittees to achieve those limitations through the iterative process, but retained the Los Angeles Water Board's discretion to enforce compliance with the receiving water limitations at any time. The Los Angeles MS4 Order requires compliance with receiving water limitations, but allows implementation of control measures through the WMPs/EWMPs to constitute such compliance, and reserves direct enforcement of the receiving water limitations to situations where a permittee fails to comply with the WMP/EWMP provisions. The approaches under the prior and current orders are designed to achieve the same results – compliance with receiving water limitations – but through distinct paths that are not easily comparable for purposes of the specific, technical anti-backsliding requirements laid out in federal law.⁶⁴ We nevertheless discuss the provisions below.

The Clean Water Act contains both statutory anti-backsliding provisions in section 402(o) and regulatory anti-backsliding provisions in 40 C.F.R. section 122.44(f). The Clean Water Act's statutory prohibition against backsliding applies under a narrow set of criteria specified in Clean Water Act section 402(o). First, section 402(o) prohibits relaxing effluent limitations originally established based on best professional judgment, when there is a newly revised effluent limitation guideline.⁶⁵ The WMP/EWMP is not derived from an effluent limitation guideline, so this first prohibition is inapplicable. Second, section 402(o) prohibits relaxing effluent limitations imposed pursuant to Clean Water Act sections 301(b)(1)(C) or 303(d) or (e).⁶⁶ The receiving water limitations provisions in the 2001 Los Angeles MS4 Order were not

⁶⁴ Responding to an argument that NPDES Permit No. DC00000221 for MS4 discharges to the District of Columbia violated anti-backsliding requirements by removing certain numeric limitations in the prior permit, USEPA stated: "The Commenter implies that a Permit that replaces a numeric effluent limit with a non-numeric one is somehow automatically less stringent on that parameter. However, the narrative requirement only violates the anti-backsliding prohibition if the two provisions are comparable. . . . In this case, the two provisions are not comparable: EPA has determined that compliance with the performance standards in the Final Permit will result in more water quality protections for the DC MS4's receiving streams than did the previous aggregate numeric limit." (Responsiveness Summary, p. 84, *supra*, fn.17, citing *Communities for a Better Environment v. State Water Resources Control Bd.* (2005) 132 Cal. App. 4th 1313.)

⁶⁵ 33 U.S.C. § 1342(o)(1) ("In the case of effluent limitations established on the basis of subsection (a)(1)(B) of this section, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 1314 (b) of this title subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.").

⁶⁶ *Ibid.* ("In the case of effluent limitations established on the basis of section 1311 (b)(1)(C) or section 1313 (d) or (e) of this title, a permit may not be renewed, reissued, or modified to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit except in compliance with section 1313 (d)(4) of this title.").

established based on either section 301(b)(1)(C) or section 303(d) or (e), so this prohibition on backsliding is inapplicable.⁶⁷ The receiving water limitations provisions in MS4 permits are imposed under section 402(p)(3)(B) of the Clean Water Act rather than under section 301(b)(1)(C),⁶⁸ and are accordingly not subject to the anti-backsliding requirements of section 402(o).

With respect to the regulatory anti-backsliding provisions in 40 Code of Federal Regulations section 122.44(l), the non-applicability is less clear cut. USEPA promulgated 40 Code of Federal Regulations section 122.44(l)(1) and its predecessor anti-backsliding regulations prior to the Water Quality Act of 1987, which established the municipal permitting requirements of section 402(p)(3)(B). There is ample regulatory history to demonstrate USEPA's intent in establishing the anti-backsliding policy and regulations with respect to evolving technology standards for traditional point sources.⁶⁹ We have found no definitive guidance, however, since that time from USEPA or the courts applying the general provisions of section 122.44(l) in the context of municipal storm water permits.⁷⁰ Further, we have previously noted that anti-backsliding principles may be difficult to assess in the context of non-

⁶⁷ The Environmental Petitioners do not argue that the Los Angeles MS4 Order is contrary to Clean Water Act section 303(d)(4) (33 U.S.C. § 1313(d)(4)), which also sets out anti-backsliding requirements. Section 303(d)(4) sets out the conditions under which effluent limitations based on TMDL wasteload allocations may be relaxed. Specifically, effluent limitations for a discharge impacting an impaired water body where standards have not yet been attained may only be relaxed if either the cumulative effect of the revisions still assures the attainment of the water quality standards or the designated use that is not being attained is removed. (33 U.S.C. § 1313(d)(4)(A).) Where a water body has attained standards, effluent limitations may only be relaxed consistent with the federal antidegradation policy. (33 U.S.C. § 1313(d)(4)(B).)

⁶⁸ *Defenders of Wildlife, supra*, 191 F.3d at pp. 1165-1166.

⁶⁹ See, e.g., 44 Fed.Reg. 32854, 32864 (Jun. 7, 1979) (describing codification of predecessor regulation codified at 40 C.F.R. 122.15(i).) In the context of municipal storm water, the MEP standard is the technology standard; the record here supports that MEP, as reflected in the permit conditions, has evolved since the issuance of the 2001 Los Angeles MS4 Order to become more stringent. (See, e.g., Los Angeles MS4 Order, Part VI.D.9.h.vii., p.132, compared to 2001 Los Angeles MS4 Order, Part 4.F.5.c., pp.48-49 [trash controls]; Los Angeles MS4 Order, Part VI.D.7.c., pp. 97-109, as compared to 2001 Los Angeles MS4 Order, Part 4.D.3., pp.36-37 [new development/redevelopment project performance criteria]; Los Angeles MS4 Order, Part VI.D.8.d., pp.113-114, as compared to 2001 Los Angeles MS4 Order, Part 4.E., pp.42-45 [requirements for construction sites less than one acre].)

⁷⁰ As requested by the Environmental Petitioners, we took official notice of a Letter to the Water Management Administration, Maryland Department of the Environment, issued by USEPA Region III on August 8, 2012. (See fn. 19). We acknowledge that the letter states at page 3 that a provision in the Prince George County, Maryland, Phase I MS4 draft permit allowing for more time to complete tasks that were required under the previous permit constituted backsliding. The letter refers in passing to section 122.44(l)(1), but the letter has no regulatory effect and, further, is devoid of any analysis. The Environmental Petitioners have also pointed us to discussion of the regulatory anti-backsliding provisions in the NPDES Permit Writers' Manual. (NPDES Permit Writers' Manual, p. 7-4.) The relevant section of the NPDES Permit Writers' Manual does not explicitly distinguish between municipal storm water permits and traditional NPDES Permits in its discussion of the applicability of regulatory anti-backsliding provisions; however, nor does it specifically direct application of the anti-backsliding regulatory provisions to municipal storm water permits. We do not find this discussion to be to be determinative on the issue.

quantitative, non-numeric requirements such as BMPs and plans.⁷¹ It is unnecessary, however, to resolve the ultimate applicability of the regulatory anti-backsliding provisions, because, assuming for the sake of argument they do apply, the WMP/EWMP provisions would qualify for an exception to backsliding as discussed below.

Even if the receiving water limitations in MS4 permits could be considered subject to the anti-backsliding requirements of the Clean Water Act or the federal regulations, backsliding would be permissible based on the new information available to the Los Angeles Water Board when it developed and adopted the Los Angeles MS4 Order. The Clean Water Act and federal regulations contain exceptions to the anti-backsliding requirements where new information is available to the permitting authority that was not available at the time of the issuance of the prior permit and that would have justified the imposition of less stringent effluent limitations at that time.⁷² The Los Angeles Water Board makes a compelling argument in its October 15, 2013 Response that the development of 33 watershed-based TMDLs adopted since 2001, the inclusion and implementation of three of those TMDLs in the 2001 Los Angeles MS4 Order, and the TMDL-specific and general monitoring and analysis during implementation, have made new information available to the Los Angeles Water Board that fundamentally shaped the WMP/EWMP alternative of the Los Angeles MS4 Order. The Los Angeles Water Board states that the new information resulted in a new understanding that “time to plan, design, fund, operate and maintain [best management practices (BMPs)] is necessary to attain water quality improvements, and these BMPs are best implemented on a watershed scale.”⁷³ The Los Angeles Water Board further points out that, in terms of water supply, there has been a paradigm shift in the last decade from viewing storm water as a liability to viewing it as a regional asset, and that the Los Angeles MS4 Order was drafted to incorporate this new paradigm into its structure.

The WMP/EWMP approach represents a comprehensive attempt to implement the Board’s new understanding regarding how to make progress toward achieving water quality

⁷¹ See Order WQ 96-13 (*Save San Francisco Bay Association*) at pp. 8-10. Although the relevant portion of that decision primarily concerned Clean Water Act section 402(o), its analysis is equally instructive with respect to 40 C.F.R. section 122.44(l). (In passing, we note that the order appears to assume that the permit’s water quality-based requirements for the MS4 permit were derived pursuant to section 301(b)(1)(C); however, that assumption is in error based on the *Defenders of Wildlife* decision and subsequent State Water Board precedent.)

⁷² See 33 U.S.C. § 1342(o)(2)(B)(i); 40 C.F.R. § 122.44(l)(1) (anti-backsliding does not apply if the circumstances on which the previous permit was based have materially and substantially changed and would constitute cause for permit modification under 40 C.F.R. section 122.62); 40 C.F.R. § 122.62(a)(2) (stating that new information not available at the time the previous permit was issued is cause for modification); see also 40 C.F.R. §122.44(l)(2)(i)(B)(1).

⁷³ Los Angeles Water Board October 15, 2013 Response, p. 51.

standards as well as supporting the development of new water supplies.⁷⁴ The anti-backsliding requirements of the Clean Water Act and the federal regulations thus did not foreclose the incorporation of the WMP/EWMP alternatives into the Los Angeles MS4 Order even though the alternatives allow additional time to achieve receiving water limitations as compared to the immediate compliance required under the 2001 Los Angeles MS4 Order.

We shall amend Finding II.N. and Part III.D.4, page F-20, of Attachment F, Fact Sheet, as follows:

Finding II.N:

N. Anti-Backsliding Requirements. Section 402(o)(2) of the CWA and federal regulations at 40 CFR section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous permit. **The Fact Sheet of this Order contains further discussion regarding anti-backsliding.**

Attachment F, Fact Sheet, Part III.D.4:

4. Anti-Backsliding Requirements. Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. ~~All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous permit.~~ **While this Order allows implementation of Watershed Management Plans/EWMPs to constitute compliance with receiving water limitations under certain circumstances, the availability of that alternative and the corresponding availability of additional time to come into compliance with receiving water limitations, does not violate the anti-backsliding provisions. The receiving**

⁷⁴ The Environmental Petitioners argue that information relied on to develop the WMP/EWMP approach was available to the Los Angeles Water Board at the time of the issuance of the 2001 Los Angeles MS4 Order, since regional and watershed based strategies and technologies in storm water planning, as well as the potential benefits of storm water for water supply, were considered prior to the last permit cycle. Similarly, the Environmental Petitioners argue that some of the data gathered through TMDL development was through the process of assessing impairments and through preparing drafts of the TMDL and was therefore available to the Los Angeles Water Board in 2001. (Environmental Petitioners, Written Comments, Jan. 21, 2015, pp. 15-17, 23-25.) The Environmental Petitioners have asked us to take official notice of several documents that support these assertions. It is not necessary for us to do so because we do not disagree with the Environmental Petitioners that some of the information that the Los Angeles Water Board has cited in support of an exception to the anti-backsliding requirements was available at the time of the adoption of the 2001 Los Angeles MS4 Order. We nevertheless concur with the Los Angeles Water Board that the more than a decade of implementation of storm water requirements, as well as the development and implementation of TMDL requirements, since 2001, has, as a whole, fundamentally reshaped our understanding of the physical and time scale on which such measures must be implemented to bring MS4s into compliance with receiving water limitations. Further, we find that all regional water boards are informed by the information gained in the Los Angeles region, so that any regional water board that adopts an alternative compliance path in a subsequent Phase I permit would not be in violation of anti-backsliding requirements, regardless of the particular storm water permitting history of that region.

water limitations provisions of this Order are imposed under section 402(p)(3)(B) of the Clean Water Act rather than based on best professional judgment, or based on section 301(b)(1)(C) or sections 303(d) or (e), and are accordingly not subject to the anti-backsliding requirements of section 402(o). Although the non-applicability is less clear with respect to the regulatory anti-backsliding provisions in 40 Code of Federal Regulations section 122.44(l), the regulatory history suggests that USEPA's intent was to establish the anti-backsliding regulations with respect to evolving technology standards for traditional point sources. (See, e.g., 44 Fed.Reg. 32854, 32864 (Jun. 7, 1979)). It is unnecessary, however, to resolve the ultimate applicability of the regulatory anti-backsliding provisions, because the WMP/EWMP provisions qualify for an exception to backsliding as based on new information. The Watershed Management Plan/EWMP provisions of this Order were informed by new information available to the Board from experience and knowledge gained through the process of developing 33 watershed-based TMDLs and implementing several of the TMDLs since the adoption of the previous permit. In particular, the Board recognized the significance of allowing time to plan, design, fund, operate and maintain watershed-based BMPs necessary to attain water quality improvements and additionally recognized the potential for municipal storm water to benefit water supply. Thus, even if the receiving water limitations are subject to anti-backsliding requirements, they were revised based on new information that would support an exception to the anti-backsliding provisions. (33 U.S.C. § 1342(o)(2)(B)(i); 40 C.F.R. § 122.44(l)(1); 40 C.F.R. §122.44(l)(2)(i)(B)(1)).

2. Antidegradation

The Environmental Petitioners argue that the WMP/EWMP provisions of the Los Angeles MS4 Order violate the federal and state antidegradation policies.⁷⁵ The federal and state antidegradation policies generally require that the existing quality of water bodies be maintained, unless degradation is justified through specific findings. At a minimum, any degradation may not lower the quality of the water below the water quality standards.⁷⁶

The federal and state antidegradation policies are not identical; however, where the federal antidegradation policy is applicable, the State Water Board has interpreted State Water Board Resolution No. 68-16, the state antidegradation policy, to incorporate the federal antidegradation policy.⁷⁷ In the context of the Los Angeles MS4 Order, a federal NPDES permit, compliance with the federal antidegradation policy would require consideration of the following: First, the Los Angeles MS4 Order must ensure that “existing instream uses and the level of

⁷⁵ 40 C.F.R. § 131.12; State Water Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality Waters in California (State Water Board Resolution No. 68-16).

⁷⁶ *Ibid.*

⁷⁷ State Water Board Order WQ 86-17 (*Fay*), pp. 16-19.

water quality necessary to protect the existing uses” is maintained and protected.⁷⁸ Second, if the baseline quality of a water body for a given constituent “exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected” through the requirements of the Los Angeles MS4 Order unless the Los Angeles Water Board makes findings that (1) any lowering of the water quality is “necessary to accommodate important economic or social development in the area in which the waters are located;” (2) “water quality adequate to protect existing uses fully“ is assured; and (3) “the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control” are achieved.⁷⁹

The Los Angeles MS4 Order must also comply with any requirements of State Water Board Resolution No. 68-16 beyond those imposed through incorporation of the federal antidegradation policy.⁸⁰ In particular, the Los Angeles Water Board must find that not only present, but also anticipated future uses of water are protected, and must ensure “best practicable treatment or control” of the discharges.⁸¹ The baseline quality considered in making the appropriate findings is the best quality of the water since 1968, the year of the adoption of Resolution No. 68-16, or a lower level if that lower level was allowed through a permitting action that was consistent with the federal and state antidegradation policies.⁸²

⁷⁸ 40 C.F.R. § 131.12(a)(1). This provision has been interpreted to mean that, “[i]f baseline water quality is equal to or less than the quality as defined by the water quality objective, water quality shall be maintained or improved to a level that achieves the objectives.” (State Water Board, Administrative Procedures Update, Antidegradation Policy Implementation for NPDES Permitting, 90-004 (APU 90-004), p. 4.) This provision is completely consistent with, and implemented by, the receiving water limitations provisions discussed above.

⁷⁹ 40 C.F.R. § 131.12(a)(2); see also State Water Board Resolution No. 68-16, Resolve 2. The federal regulations additionally require strict maintenance of water quality for “outstanding national resources.” (40 C.F.R. § 131.12(a)(3).) There are no designated outstanding national resource waters covered by the Los Angeles MS4 Order.

⁸⁰ See State Water Board Order WQ 86-17 (*Fay*), p. 23, fn. 11.

⁸¹ State Water Board Resolution No. 68-16, Resolve 2. Best practicable treatment or control is not defined in Resolution No. 68-16; however, the State Water Board has evaluated what level of treatment or control is technically achievable using “best efforts.” (See State Water Board Orders WQ 81-5 (*City of Lompoc*), WQ 82-5 (*Chino Basin Municipal Water District*), WQ 90-6 (*Environmental Resources Protection Council*).) A Questions and Answers document on Resolution No. 68-16 by the State Water Board states as follows: “To evaluate the best practicable treatment or control method, the discharger should compare the proposed method to existing proven technology; evaluate performance data, e.g. through treatability studies; compare alternative methods of treatment or control; and/or consider the method currently used by the discharger or similarly situated dischargers . . . The costs of the treatment or control should also be considered . . .” (Questions and Answers, Resolution No. 68-16, State Water Board (Feb. 16, 1995), pp. 5-6.)

⁸² APU 90-004, p.4. The baseline for application of the federal antidegradation policy is 1975. For state antidegradation requirements, see also *Asociacion de Gente Unida por el Agua v. Central Valley Water Board* (2012) 210 Cal.App.4th 1255,1270. The baseline for the application of the state antidegradation policy is generally the highest water quality achieved since 1968. However, where a water quality objective for a particular constituent was adopted after 1968, the baseline for that constituent is the highest water quality achieved since the adoption of the (*Continued*)

The Los Angeles MS4 Order contains a conclusory antidegradation finding, but the Fact Sheet contains additional discussion.⁸³ The Fact Sheet discussion essentially conveys that, where there are high quality waters in the region, the antidegradation requirements are met because the Order requires best practicable treatment or control in the form of MEP and water quality standards compliance and, further, where the water quality is already impaired, the Order requires implementation of TMDL requirements to achieve water quality standards over time. The Fact Sheet also finds that the Los Angeles MS4 Order does not authorize an increase in waste discharges. The Los Angeles Water Board argues that it was not required to make more detailed findings because, using its best professional judgment and available data, it concluded that the Los Angeles MS4 Order would prevent any degradation. For this proposition, the Los Angeles Water Board cites to State Water Board guidance from 1990 (APU 90-004).⁸⁴ The guidance may be construed to exempt the Los Angeles Water Board from conducting an extensive pollutant by pollutant analysis for each water body in the region, but it does not exempt the Board from clearly stating its basis for finding that its action is consistent with the antidegradation policies.

The Los Angeles Water Board has provided a more extensive analysis of why the Los Angeles MS4 Order complies with the antidegradation policies in its October 15, 2013 Response. The Los Angeles Water Board argues that most of the water bodies impacted by the Los Angeles MS4 Order are already impaired for multiple constituents and that, even if some of these water bodies may have been higher quality in 1968, a scenario largely contradicted by the available data,⁸⁵ the appropriate baseline for the quality of such waters is the level of control achieved under the prior permit. The Los Angeles Water Board further argues that the Los Angeles MS4 Order has provisions that are equally or more stringent than those of the

(continued from previous page)

objective. Resolution 68-16 requires a comparison of the existing quality to “the quality established in policies as of the date on which such policies become effective.” (Resolution 68-16, Resolve 1.)

⁸³ Los Angeles MS4 Order, Finding II.M; Fact Sheet, Att. F, pp. F19-F20.

⁸⁴ APU 90-004, p. 2.

⁸⁵ We reviewed the Administrative Record, including the 1998 Clean Water Act section 303(d) List (May 12, 1999) (Administrative Record, section 10.VI.E., RB-AR35684-35733), the 2010 Clean Water Act section 303(d) List (Oct. 11, 2011) (Administrative Record, section 10.VI.E., RB-AR35734-35785), Santa Monica Bay Restoration Project, An Assessment of Inputs of Fecal Indication Organisms and Human Enteric Viruses from Two Santa Monica Bay Storm Drains (1990) (Administrative Record, section 10.VI.E, RB-AR43363-43413), Toxic Substances Monitoring Program, 10 Year Summary Report 1978-1987 (Administrative Record, Order No. 01-182, R0044602-0045053) and comments submitted by interested persons to the Los Angeles Water Board (Administrative Record RB-AR1006-1038, RB-AR1100-1128, RB-AR1768-2119, RB-AR2653-2847, RB-AR5642-17888). We found no specific evidence presented to the Los Angeles Water Board of high quality waters in the region with regard to pollutants typically associated with storm water discharges; however, we also recognize that in the absence of specific evidence of high quality waters, a blanket statement that there are no high quality water body-pollutant combinations may be overbroad.

2001 Los Angeles MS4 Order and therefore will not allow water quality to degrade below the level of control achieved under the prior permit.

We agree with the Los Angeles Water Board that the Los Angeles MS4 Order maintains and improves the level of control achieved under the 2001 Los Angeles MS4 Order. We expect that the Los Angeles MS4 Order's TMDL requirements and receiving water limitations, which may be implemented through the WMP/EWMP provisions, will be the means for achieving water quality standards for the majority of degraded water bodies in the region. To assert, as the Environmental Petitioners do, that compliance with the receiving water limitations provisions of the 2001 Los Angeles Order is more stringent than establishing specific implementation requirements with clear deadlines for TMDL and receiving water limitations compliance is misguided. We are concerned with the totality of the provisions in the two permits and find that, viewed from that broader perspective, the Los Angeles MS4 Order is at least as stringent in addressing degradation as its predecessor.⁸⁶ The Los Angeles MS4 Order improves on past practices that have been inadequate to protect water quality, and includes a monitoring and assessment program that will identify any changes in water quality.⁸⁷ In general, under the Los Angeles MS4 Order, we expect to see a trajectory away from any past degradation, even if there may be some continued short-term degradation.

We are not persuaded, however, that the level of control achieved under the 2001 Los Angeles MS4 Order necessarily represents the baseline for purposes of an antidegradation analysis. The 2001 Los Angeles MS4 Order had only minimal findings regarding antidegradation and it is not apparent that any degradation that may have continued under the conditions of the 2001 Los Angeles MS4 Order was anticipated by the Los Angeles Water Board and supported with appropriate analysis regarding economic and social benefits⁸⁸ and best practicable treatment or control. We therefore find that the appropriate baseline remains 1968 or the highest quality of receiving waters attained since 1968. We acknowledge

⁸⁶ In making this finding we also recognize that the Permittees may be deemed in compliance with receiving water limitations prior to approval of the WMP/EWMP. (Los Angeles MS4 Order Parts VI.C.2.d., pp. 52-53, VI.E.2.d.i.(4)(d), p. 144.) As discussed further under section II.B.6., we find that the Los Angeles Water Board reasonably exercised its discretion in allowing for compliance during the program development phase and further that the program development phase does not detract from the overall effectiveness of the permit provisions.

⁸⁷ See *Asociacion de Gente Unida*, *supra*, 210 Cal.App.4th at p. 1278.

⁸⁸ We note that the administrative record provides evidence that some discharge of storm water is to the maximum benefit of the people of the state because such discharge is necessary for flood control and public safety and helps accommodate development. (See, e.g., Administrative Record, section 10.VI.C, RB-AR30101; RB-AR32557-32558.)

that the evidence in the record indicates that it is unlikely that many water bodies were high quality even as far back as 1968, but we cannot make a blanket statement to that effect.⁸⁹

Despite this conclusion, we will not remand the antidegradation issue to the Los Angeles Water Board for further consideration, but will make the findings ourselves based on the record before us. Our findings are necessarily made at a generalized level. Even if the directive of APU 90-004 to carry out a complete antidegradation analysis for each water body-pollutant combination is applicable here, there is simply insufficient data available (to us or the Los Angeles Water Board) to make such findings. The APU 90-004 contemplates the appropriate antidegradation analysis for a discrete discharge or facility. It has limited value when considering antidegradation in the context of storm water discharges from diffuse sources, conveyed through multiple outfalls, with multiple pollutants impacting multiple water bodies within a municipality, or in this case, region, especially given that reliable data on the baseline water quality from 1968 is not available.⁹⁰

The Environmental Petitioners propose that antidegradation be addressed in subsequent actions of the Los Angeles Water Board by requiring that the reasonable assurance analysis (discussed in greater detail in section II.B.4.c. of this Order) supporting a WMP/EWMP also demonstrate that the proposed control measures will maintain high quality of waters with regard to pollutants for which they are not impaired. We reject this approach for two reasons. First, the Los Angeles Water Board was required under the federal and state antidegradation policies to evaluate whether permit conditions would lead to degradation of high quality waters at the time of permit issuance. Second, requiring Permittees to incorporate an evaluation of all water body-pollutant combinations, including those where there are no impairments or exceedances, would require them to expand the reasonable assurance analysis beyond its useful function and manageable scope.

We shall amend Finding II.M and Part D.3 at pages F-19 to F-20 of Attachment F, the Fact Sheet, as follows:

⁸⁹ See fn. 85.

⁹⁰ We note that USEPA did not conduct a detailed antidegradation analysis in issuing NPDES Permit No. DC00000221 for MS4 discharges to the District of Columbia, presumably for similar reasons. The court in *Asociacion de Gente Unida* relied on APU 90-004 in part in rejecting an antidegradation analysis conducted by the Central Valley Regional Water Quality Control Board for discharges of pollutants to groundwater from dairy facilities region-wide, but the court's objection was to the regional water board's reliance on an illusory prohibition of discharge to groundwater in finding that no antidegradation analysis was required, not to the sufficiency of any generalized antidegradation analysis the Board might have conducted in lieu of its reliance on the prohibition. (210 Cal.App.4th at pp. 1271-1273.)

Finding II. M.

M. Antidegradation Policy

40 CFR section 131.12 requires that state water quality standards include an antidegradation policy consistent with the federal antidegradation policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16 ("Statement of Policy with Respect to Maintaining the Quality of the Waters of the State"). Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. The permitted discharge is consistent with the antidegradation provision of section 131.12 and State Water Board Resolution No. 68-16 **as set out in the Fact Sheet.**

Attachment F, Fact Sheet Part III.D.3.

3. Antidegradation Policy. 40 CFR section 131.12⁴ requires that the state water quality standards include an antidegradation policy consistent with the federal antidegradation policy. The State Water Board established California's antidegradation policy in [State Water Board Resolution No. 68-16](#) ("Statement of Policy with Respect to Maintaining the Quality of the Waters of the State"). Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. Resolution No. 68-16 and 40 CFR section 131.12 require the Regional Water Board to maintain high quality waters of the State **unless degradation is justified based on specific findings. First, the Board must ensure that "existing instream uses and the level of water quality necessary to protect the existing uses" are maintained and protected. Second, if the baseline quality of a water body for a given constituent exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected through the requirements of the Order unless the Board makes findings that (1) any lowering of the water quality is necessary to accommodate important economic or social development in the area in which the waters are located; (2) water quality adequate to protect existing uses fully is assured; and (3) the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control are achieved. The Board must also comply with any requirements of State Water Board Resolution No. 68-16 beyond those imposed through incorporation of the federal antidegradation policy. In particular, the Board must find that not only present, but also anticipated future uses of water are protected, and must ensure best practicable treatment or control of the discharges. The baseline quality considered in making the appropriate findings is the best quality of the water since 1968, the year of the adoption of Resolution No. 68-16, or a lower level if that lower level was allowed through a permitting action that was consistent with the federal and state antidegradation policies.** until it is demonstrated that any change in quality will

~~be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Water Board's policies. Resolution 68-16 requires that discharges of waste be regulated to meet best practicable treatment or control to assure that pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit to the people of the State be maintained.~~

The discharges permitted in this Order are consistent with the antidegradation provisions of 40 CFR section 131.12 and Resolution 68-16 **as set out in the Findings below:-**

1. Many of the water bodies within the area covered by this Order are of high quality. The Order requires the Permittees to meet best practicable treatment or control to meet water quality standards. As required by 40 CFR section 122.44(a), the Permittees must comply with the "maximum extent practicable" technology-based standard set forth in CWA section 402(p). Many of the waters within the area covered by this Order are impaired and for multiple pollutants discharged through MS4s and are not high quality waters with regard to these pollutants. In most cases, there is insufficient data to determine whether these water bodies were impaired as early as 1968, but the limited available data shows impairment dating back for more than two decades. Many such water bodies are listed on the State's CWA Section 303(d) List and either the Regional Water Board or USEPA has established TMDLs to address the impairments. This Order ensures that existing instream (beneficial) water uses and the level of water quality necessary to protect the existing uses is maintained and protected. This Order requires the Permittees to comply with permit provisions to implement the WLAs set forth in the TMDLs in order to restore the beneficial uses of the impaired water bodies consistent with the assumptions and requirements of the TMDLs. This Order further requires compliance with receiving water limitations to meet water quality standards in the receiving water either by demonstrating compliance pursuant to Part V.A and the Permittee's monitoring and reporting program pursuant to Part VI.B or by implementing Watershed Management Programs/EWMPs with a compliance schedule. This Order includes requirements to develop and implement storm water management programs, achieve water quality-based effluent limitations, and effectively prohibit non-storm water discharges through the MS4.

2. To the extent that some of the water bodies within the jurisdiction are high quality waters with regard to some constituents, this Order finds as follows:

a. Allowing limited degradation of high quality water bodies through MS4 discharges is necessary to accommodate important economic or social development in the area and is consistent with the maximum benefit to the people of the state. The discharge of storm water in certain circumstances is to the maximum benefit to the people of the state because it can assist with maintaining instream flows that support beneficial uses, may spur the development of multiple-benefit projects, and may be necessary for flood control, and public safety as well as to accommodate development in the

area. The alternative – capturing all storm water from all storm events – would be an enormous opportunity cost that would preclude MS4 permittees from spending substantial funds on other important social needs. The Order ensures that any limited degradation does not affect existing and anticipated future uses of the water and does not result in water quality less than established standards. The Order requires compliance with receiving water limitations that act as a floor to any limited degradation.

b. The Order requires the highest statutory and regulatory requirements and requires that the Permittees meet best practicable treatment or control. The Order prohibits all non-storm water discharges, with a few enumerated exceptions, through the MS4 to the receiving waters. As required by 40 CFR section 122.44(a), the Permittees must comply with the “maximum extent practicable” technology-based standard set forth in CWA section 402(p), and implement extensive minimum control measures in a storm water management program. Recognizing that best practicable treatment or control may evolve over time, the Order includes new and more specific requirements as compared to Order No. 01-182. The Order incorporates options to implement Watershed Management Programs or EWMPs that must specify concrete and detailed structural and non-structural storm water controls that must be implemented in accordance with an approved time schedule. The Order contains provisions to encourage, wherever feasible, retention of the storm water from the 85th percentile 24-hour storm event.

~~The issuance of this Order does not authorize an increase in the amount of discharge of waste. The Order includes new requirements to implement WLAs assigned to Los Angeles County MS4 discharges that have been established in 33 TMDLs, most of which were not included in the previous Order.~~

3. Compliance Schedules and the Appropriateness of Enforcement Orders

The Environmental Petitioners concede that immediate compliance with receiving water limitations is not achievable in many instances and that some additional time to reach compliance is warranted. They have proposed an alternative to the WMP/EWMP that would incorporate many of the provisions of those programs but require implementation through the mechanism of a time schedule order or other enforcement order rather than as permit conditions. The Los Angeles MS4 Order already provides that Permittees who are out of compliance with final WQBELs and other TMDL-specific limitations may request a time schedule order.⁹¹ Under the alternative proposed by the Environmental Petitioners, all Permittees that are currently out of compliance with receiving water limitations not addressed by a TMDL as well as with interim TMDL requirements with passed compliance deadlines, would be issued a time schedule order or other enforcement order not to exceed the five year term of

⁹¹ Los Angeles MS4 Order, Part VI.E.4., pp.146-147.

the permit. The Permittees would then implement a WMP/EWMP type plan to achieve compliance with the appropriate limitations within the confines of the enforcement order.

In the prior two sections, we found that the WMP/EWMP provisions are not contrary to the anti-backsliding or antidegradation requirements of federal and state law. We therefore disagree with the Environmental Petitioners that the relevant provisions must be stricken from the Order and incorporated instead into an enforcement order for those reasons. We also find that, given that strict compliance with water quality standards is discretionary in MS4 permits, the Los Angeles Water Board was not restricted to limiting the schedule for compliance with receiving water limitations to the term of the Los Angeles MS4 Order.

Further, from a policy perspective, we find that the MS4 Permittees that are developing and implementing a WMP/EWMP should be allowed additional time to come into compliance with receiving water limitations and interim and final TMDLs through provisions built directly into their permit, rather than through enforcement orders. Building a time schedule into the permit itself, as the Los Angeles MS4 Order does, is appropriate because it allows a more efficient regulatory structure compared to having to issue multiple enforcement orders. More importantly, it is appropriate to regulate Permittees in a manner that allows them to strive for compliance with the permit terms, provided no provision of law otherwise precludes including the schedule in the NPDES permit. For example, for traditional point source discharges subject to strict compliance with water quality standards pursuant to section 301(b)(1)(C), the terms of a compliance schedule are dictated by our compliance schedule policy (State Water Board Resolution 2008-0025) and any additional time for compliance could only be under the auspices of an enforcement order outside the permit.⁹²

The WMP/EWMP provisions constitute an effort to set ambitious, yet achievable, targets for Permittees; receiving water limitations, on the other hand, while the ultimate goal of MS4 permitting, may not in all cases be achievable within the five-year permit cycle. Generally, permits are best structured so that enforcement actions are employed when a discharger shows some shortcoming in achieving a realistic, even if ambitious, permit condition and not under circumstances where even the most diligent and good faith effort will fail to achieve the required condition. We add that it is our intention to encourage a watershed-based approach to addressing storm water issues going forward and that it would be contrary to that intention to

⁹² We also note that the State Water Board's Policy for the Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2005) (State Implementation Policy) and the CTR itself (40 C.F.R. § 131.38(e)) restrict the scope of compliance schedules for effluent limitations addressing the discharge of toxic pollutants; however the policy does not apply to storm water discharges. (State Implementation Policy, p.3, fn.1.)

structure the watershed-based requirements as an enforcement order. We will not require Permittees that propose and timely implement a WMP/EWMP to request time schedule orders or other enforcement orders as a precondition of being in compliance with the receiving water limitations or interim TMDL requirements of the Los Angeles MS4 Order.

While declining to structure the WMP/EWMP provisions generally as an enforcement order, we acknowledge that time schedule orders are appropriate under some circumstances. We have already noted that the Los Angeles MS4 Order allows a Permittee to request a time schedule order where a final compliance deadline for a state-adopted TMDL has passed and the Permittee believes that additional time to comply with the requirement is necessary.⁹³ We expect that a Permittee will request a time schedule order also if the Permittee fails to meet a final compliance deadline for a TMDL after the adoption date of the Los Angeles MS4 Order. We will also provide that a Permittee may request a time schedule order if the Permittee fails to meet a final compliance deadline for a receiving water limitation set in the Permittee's WMP/EWMP.

We shall add a new Part VI.C.6.b and revise Part VI.E.4.b as follows:

Part VI.C.6

b. Where a Permittee believes that additional time to comply with a final receiving water limitation compliance deadline set within a WMP/EWMP is necessary, and the Permittee fails to timely request or is not granted an extension by the Executive Officer, a Permittee may, no less than 90 days prior to the final compliance deadline, request a time schedule order pursuant to California Water Code section 13300 for the Regional Water Board's consideration.

Part VI.E.4

b. Where a Permittee believes that additional time to comply with the final water quality-based effluent limitations and/or receiving water limitations is necessary, a Permittee may within 45 days of Order adoption, **or no less than 90 days prior to the final compliance deadline if after adoption of the Order,** request a time schedule order pursuant to California Water Code section 13300 for the Regional Water Board's consideration.

4. Rigor and Accountability in the WMPs/EWMPs

We now turn to a consideration, from a technical as well as policy lens, as to whether the WMPs/EWMPs are structured in a manner that will maximize the likelihood of

⁹³ *Ibid.*

reaching the ultimate goal of the compliance alternative – achieving receiving water limitations.⁹⁴ We can support an alternative approach to compliance with receiving water limitations only to the extent that that approach requires clear and concrete milestones and deadlines toward achievement of receiving water limitations and a rigorous and transparent process to ensure that those milestones and deadlines are in fact met. Conversely, we cannot accept a process that leads to a continuous loop of iterative WMP/EWMP implementation without ultimate achievement of receiving water limitations.

We find below that the WMP/EWMP provisions generally ensure the appropriate rigor, transparency, and accountability, and that, with the few revisions we direct, are designed to lead to achievement of receiving water limitations.⁹⁵

a. Milestones and Compliance Deadlines

We first consider whether the WMP/EWMP provisions require clear, concrete, and finite milestones and deadlines.

For water body-pollutant combinations addressed by TMDLs, the Los Angeles MS4 Order requires the Permittees to incorporate the compliance schedules found in Attachments L through R of the Order, which reflect previously adopted TMDL-based requirements, into the WMP/EWMP, and, as necessary, to develop interim milestones and dates for their achievement.⁹⁶ A Permittee that does not thereafter comply with the approved compliance schedule must instead demonstrate compliance with the WQBELs and other TMDL-specific limitations of the Order.⁹⁷ For water body-pollutant combinations not addressed by a TMDL, but where the relevant pollutant is one for which the water body is identified as impaired on the Clean Water Act section 303(d) List and the pollutant is in the same class as a TMDL pollutant, the Order requires that the WMP/EWMP incorporate a schedule consistent with the TMDL schedule for the same class pollutant.⁹⁸ A Permittee that does not thereafter comply with

⁹⁴ From a legal standpoint, our analysis serves to verify that the Los Angeles MS4 Order's alternative compliance approach through WMPs/EWMPs is supported by the findings and by evidence in the record. (*Topanga Assn. for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506.)

⁹⁵ We do not agree with Permittee Petitioners that the WMP/EWMP provisions are precluded by the program requirements of 40 Code of Federal Regulations section 122.26. Nor do we agree that the requirements are vague or lack definition. The WMP/EWMP provisions of the Order are guidelines for development of a subsequent program with more specificity to be approved by the Los Angeles Water Board or its Executive Officer.

⁹⁶ Los Angeles MS4 Order, Part VI.C.5.c., pp.64-65.

⁹⁷ *Id.*, Part VI.E.2.d.i(4)(c), p.144.

⁹⁸ *Id.*, Part VI.C.2.a.i., pp. 49-50.

the approved compliance schedule must instead demonstrate immediate compliance with the receiving water limitations in Part V.A.⁹⁹ We will not disturb these provisions.

With regard to exceedances of receiving water limitations not addressed by a TMDL, and where the pollutant is not in the same class as a pollutant addressed by a TMDL, the Order requires that the WMP/EWMP include milestones based on measurable criteria or indicators and a schedule for achieving the milestones. The WMP/EWMP must also incorporate a final date for achievement of receiving water limitations, but that date is circumscribed simply as “as soon as possible.”¹⁰⁰ Parts VI.C.2.a.ii.(4) and VI.C.2.a.iii.(2)(c) help clarify the meaning of “as soon as possible:”

Permittees shall identify enforceable requirements and milestones and dates for their achievement to control MS4 discharges such that they do not cause or contribute to exceedances of receiving water limitations within a timeframe(s) that is as short as possible, taking into account the technological, operation, and economic factors that affect the design, development, and implementation of the control measures that are necessary. The time between dates shall not exceed one year. Milestones shall relate to a specific water quality endpoint (e.g., x% of the MS4 drainage area is meeting the receiving water limitations) and dates shall relate either to taking a specific action or meeting a milestone.¹⁰¹

We will make a revision to the compliance schedule provisions to make it clear that the term “as soon as possible” is to be interpreted consistent with the more specific direction cited above. However, because the WMP/EWMP, and therefore the proposed compliance schedule, is subject to public review and comment and approval by the Los Angeles Water Board or its

⁹⁹ *Id.*, Part VI.C.2.c., p.52.

¹⁰⁰ *Id.*, Part VI.C.5.c.iii.(3), p. 65. If the pollutant is not in the same class as those addressed in a TMDL, but the water body is still identified as impaired for that pollutant, the WMP/EWMP must either have a final compliance deadline within the 5 year permit term or Permittees are expected to initiate development of a stakeholder-proposed TMDL and incorporate a compliance schedule consistent with the TMDL. (*Id.*, Part VI.C.2.a. ii., pp. 50-51) (If the exceedances are in a drainage area implementing the storm water retention approach, there is no requirement to initiate the TMDL development process.) The requirement to address receiving water limitations is ongoing. As exceedances are found through monitoring for water body-pollutant combinations not identified on the 303(d) List, Permittees must either meet receiving water limitations or include the water body-pollutant combination in the WMP/EWMP and set enforceable requirements and milestones and dates for their achievement within a time frame that is as short as possible. (*Id.*, Part VI.C.2.a.iii, pp. 51-52.) Permittees are deemed in compliance with receiving water limitations only for water body-pollutant combinations addressed in the WMP/EWMPs. Thus, as pointed out by several interested parties, for lower priority water body-pollutant combinations not incorporated into a WMP/EWMP for which exceedances are detected, Permittees may be in violation of the receiving water limitations. A Permittee always has the ability to reprioritize a water body-pollutant combination from low priority to high priority and amend its WMP/EWMP to incorporate measures to address that water body-pollutant combination.

¹⁰¹ *Id.*, Parts VI.C.2.a.ii.4, p. 50, VI.C.2.a.iii.(2)(c), p. 51 (identical language).

Executive Officer,¹⁰² we do not find it necessary to constrain the determination of milestones and dates for the achievement of receiving water limitations any further.

We shall amend Part VI.C.5.c.iii.(3)(b) as follows:

- (b) A final date for achieving the receiving water limitations as soon as possible, **consistent with Parts VI.C.2.a.ii.(4) & VI.C.2.a.iii.(2)(c).**

b. Constraints on Extension of Deadlines

The fact that the Los Angeles MS4 Order requires the establishment of concrete and rigorous deadlines within the WMP/EWMP for the achievement of receiving water limitations is critical to ensuring progress on such achievement; however, the Order also contemplates that the deadlines, with the exception of those compliance deadlines established in a TMDL, may be extended.¹⁰³ The WMP/EWMP is subject to an adaptive management process. Based on the results of that process the Permittees may propose modifications, including modifications to compliance deadlines and interim milestones, in the Annual Report.¹⁰⁴

The potential for multiple extensions is nevertheless ameliorated by the fact that extensions of compliance deadlines and interim milestones require Los Angeles Water Board Executive Officer approval,¹⁰⁵ and are accordingly, subject to a 30-day public comment period.¹⁰⁶ The public comment period will allow all other interested persons to weigh in on the appropriateness of any requested extensions. If thereafter dissatisfied with the determination made by the Executive Officer, interested persons may additionally seek review of the Executive Officer's decision by the Los Angeles Water Board.¹⁰⁷ Of course, in cases where no extension

¹⁰² *Id.*, Part VI.C.4.c., p.56, Table 9, p. 54, Part VI.A.5.b., p. 42, Att. F, Fact Sheet, p. F-42. Under Part VI.A.5.b, “[a]ll documents submitted to the Regional Water Board Executive Officer for approval shall be made available to the public for a 30-day period to allow for public comment.”

¹⁰³ *Id.*, Parts VI.C.7, p.66, VI.C.8, pp.66-67.

¹⁰⁴ *Id.*, Part, VI.C.8, p.67. Under another provision of the Order, Permittees may at any time request an extension of deadlines for achievement of interim milestones established to address exceedances of receiving water limitations not otherwise addressed by a TMDL. (*Id.*, Part VI.C.6.a., p.65.) (We note that the cited provision refers to “milestones established pursuant to Part VI.C.4.c.ii.(3),” but the intent appears to have been to reference Part VI.C.5.c.iii.(3).) But as we read the Los Angeles MS4 Order, extensions of not just interim deadlines for achievement of milestones but also final compliance deadlines to achieve receiving water limitations are already allowed under the adaptive management provisions of Part VI.C.8.a.ii.: “Based on the results of the adaptive management process, Permittees shall report any modifications, including where appropriate *new compliance deadlines* and interim milestones, with the exception of those compliance deadlines established in a TMDL, necessary to improve the effectiveness of the Watershed Management Program or EWMP, in the Annual Report” (Emphasis added.)

¹⁰⁵ *Id.*, Parts VI.C.8, p.67, VI.C.6.a., p.65. We recognize that as currently written the adaptive management provisions in effect deem any modifications to the WMPs/EWMPs approved if the Executive Officer “expresses no objections” within 60 days. (*Id.*, Part VI.C.8.a.iii., p. 67.) With our revisions, any deadline extensions must be affirmatively approved by the Executive Officer.

¹⁰⁶ *Id.*, Part VI.A.5.b, p. 42.

¹⁰⁷ *Id.*, Part VI.A.6, p.42.

is available, as with final deadlines established in TMDLs,¹⁰⁸ or where no extension is requested or granted, failure to meet a deadline means that the Permittee will have to comply from that time forward with the receiving water limitations or WQBELs and other TMDL-specific limitations or request a time schedule order. Therefore, Permittees cannot rely on the certainty of a deadline extension, and Permittees have a strong incentive to implement control measures that will in fact get them to compliance by the established deadline. Given that the Permittees and the Los Angeles Water Board are working with limited data¹⁰⁸ regarding storm water impacts and control measure performance, especially where TMDLs have not been developed, we are hesitant to remove all flexibility for deadline extensions, and find that the Order strikes an appropriate balance.

Permittee Petitioners seek even greater flexibility under the WMP/EWMP provisions for adjusting approved control measures and time lines. They advocate for amendments that would allow a Permittee to propose alternative controls or time lines upon a demonstration that required controls for timely achievement of a limitation are either technically infeasible or otherwise constitute a substantial hardship to the Permittee. We have found above that, in the case of final deadlines set in the WMP/EWMP for achievement of receiving water limitations not otherwise addressed in a TMDL, the Los Angeles MS4 Order already provides for an opportunity to propose new deadlines through the adaptive management process. We will make a clarifying revision below to confirm that Permittees may ask for extensions in meeting receiving water limitations not addressed by a TMDL. Technical infeasibility or substantial hardship may be grounds for such a request. The Los Angeles Water Board Executive Officer, in turn, may, after allowing for public review and comment, choose to (1) extend the deadline, (2) decline the extension but approve any time schedule order requested by the Permittee, or (3) decline the extension and not approve a time schedule order, with the result that the Permittee will be out of compliance with the provision of the WMP/EWMP and therefore the receiving water limitations of Part V.A. As stated previously, interested persons may thereafter ask the Los Angeles Water Board to review the Executive Officer's determination.¹⁰⁹

With regard to final deadlines for WQBELs and other TMDL-specific limitations, we will not amend the WMP/EWMP provisions to add flexibility for extensions. We find that the only option appropriately available to a Permittee unable to meet final deadlines that are set out in a TMDL and incorporated into the Los Angeles MS4 Order and the WMP/EWMPs, is to

¹⁰⁸ *Id.*, Part VI.C.8.a.ii., p.67.

¹⁰⁹ *Id.*, Part VI.A.6, p.42.

request a time schedule order, consistent with Part VI.E.2.e. of the Order, as that Part was amended in section II.B.3. above.¹¹⁰

We shall amend Part VI.C.6.a as follows:

- a. Permittees may request an extension of deadlines for achievement of interim milestones **and final compliance deadlines** established pursuant to Part VI.C.45.c.iii.(3) ~~only~~, **with the exception of those final compliance deadlines established in a TMDL**. Permittees shall provide requests in writing at least 90 days prior to the deadline and shall include in the request the justification for the extension. Extensions ~~shall be subject to approval by~~ **must be affirmatively approved by** the Regional Water Board Executive Officer, **notwithstanding Part VI.C.8.a.iii.**

c. Rigor and Accountability in the Process

We see three additional components of the WMPs/EWMPs as essential to ensuring that the proposed WMPs/EWMPs are in fact designed to achieve receiving water limitations within the appropriate time frame.

First, as documents to be approved by either the Los Angeles Water Board or its Executive Officer, the WMPs/EWMPs are subject to a public review and comment period.¹¹¹ Such review includes consideration of proposed control measures, deadlines for achievement of final limitations, and the reasonable assurance analysis that supports the WMP/EWMP. We expect this public process to vet the proposed WMPs/EWMPs and facilitate revisions to strengthen the programs as needed, thereby providing some assurance that approved WMPs/EWMPs will achieve the water quality targets set out.

Second, the requirement for a reasonable assurance analysis in particular is designed to ensure that Permittees are choosing appropriate controls and milestones for the WMP/EWMP.¹¹² Competent use of the reasonable assurance analysis should facilitate achievement of final compliance within the specified deadlines.¹¹³

¹¹⁰ Final TMDL deadlines are established and incorporated into the Basin Plans during the TMDL development process. That process invites stakeholder participation and the proposed schedule is subject to public review and comment and approval by the relevant regional water board, the State Water Board, and USEPA. The deadlines are established with consideration of the time needed for compliance for all dischargers contributing to an impairment, including industrial and construction storm water dischargers and traditional NPDES dischargers. Although we recognize that it may not always be feasible for municipal storm water dischargers to meet final TMDL deadlines, short of amending the Basin Plan to modify the deadlines (see *California Association of Sanitation Agencies v. State Water Resources Control Board* (2012) 208 Cal.App.4th 1438), we find it appropriate for the dischargers to request time schedule orders rather than be granted an extension within the provisions of the Los Angeles MS4 Order.

¹¹¹ See Los Angeles MS4 Order, Parts VI.C.4.d., p. 57, VI.C.6, p. 65, Table 9, p.54; see also *id.*, Part VI.A.5., p. 42.

¹¹² *Id.*, Part VI.C.5.b.iv.(5), pp. 63-64.

¹¹³ We note that the Los Angeles Water Board has released guidance on the development of a reasonable assurance analysis. The guidance was released after adoption of the Los Angeles MS4 Order and accordingly is not (*Continued*)

Third, the adaptive management provisions of the Order ensure that the Permittees will evaluate monitoring data and other new information every two years and consider progress up to that point on achieving WQBELs and other TMDL-specific limitations. Permittees are required as part of the adaptive management process to propose modifications to improve the effectiveness of the WMP/EWMP and implement those modifications.¹¹⁴

While we are supportive of all of these measures, we find that they should be strengthened. As a preliminary matter, we will require the Permittees to submit specific information, concurrently with the two-year adaptive management process, that will assist the Los Angeles Water Board in determining how effective the WMP/EWMP path is in spurring the completion of on-the-ground structural control measures that lead to measurable water quality improvement. As we discuss further in Section II.B.8 of this Order, we will direct the Los Angeles Water Board to report to the State Water Board periodically on the effectiveness of the WMP/EWMP approach and expect the additional information submitted by the Permittees to inform that report.

More significantly, we will add a provision that requires Permittees to comprehensively update the reasonable assurance analysis and the WMP/EWMP, following an opportunity to implement the adaptive management process. Given the limitations inherent in models, as well as the potential incentive to choose the lowest effort and cost level predicted by the model to achieve receiving water limitations,¹¹⁵ we are concerned that reliance on one initial reasonable assurance analysis is insufficient to ensure that in the long term WMPs/EWMPs will

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part of the Administrative Record. We nevertheless take this opportunity to state that we expect any revisions and updates to the guidance to be subject to a public process as part of reissuance of the Los Angeles MS4 Order.

¹¹⁴ Los Angeles MS4 Order, Part VI.C.8., pp. 66-67. We add that the adaptive management process will also allow Permittees to revise their WMPs/EWMPs to take advantage of funding opportunities as they arise in the future, including funding opportunities through Assembly Bill 2403 (approved by Governor, June 28, 2014 (2013-2014 Reg. Sess.)) and Proposition 1 (approved by ballot Nov. 4, 2014). We are cognizant of criticism that the adaptive management process is just another version of the ineffective iterative process of the receiving water limitations. These arguments are misplaced. Unlike the iterative process of the receiving water limitations, the adaptive management process is only one component of a series of actions required under the WMP/EWMP and acts as a periodic check to ensure that all the other requirements are achieving the stated goals of the WMP/EWMP within clearly stated deadlines. As our discussion above makes clear, we would not endorse an alternative compliance path with the sole requirement to adaptively manage implemented control measures. Further, the adaptive management process in the Los Angeles MS4 Order differs from the iterative process in that Permittees must carry out the adaptive management process every two years, limiting any discretionary determination as to when the program must be evaluated. (Los Angeles MS4 Order, Part VI.C.8.a.)

¹¹⁵ The numerical analysis methods and models approved for use by Permittees for estimating hydrologic conditions and contaminant fate and transport in the watersheds should, in principle, be able to propagate any and all known uncertainty to the outputs and results. It is in the public interest that the Los Angeles Water Board communicate this uncertainty to all stakeholders, as the results in most cases will affect the beneficial uses of California waters. Moreover, it is highly desirable that, to the extent possible, the Los Angeles Water Board define a minimum level of uncertainty (or level of confidence) acceptable for a reasonable assurance analysis to be approved.

achieve relevant water quality goals. . Currently, as stated above, the Permittees are required to implement the adaptive management process every two years from the date of program approval. Under the provision we add, the Permittees will be required to comprehensively update the reasonable assurance analysis (including potentially considering whether the model itself and its assumptions require updating) and the WMP/EWMP after several years of adaptive management, based on previous years' monitoring data and other performance measures. The Permittee will submit a full revised package to the Los Angeles Water Board Executive Officer for approval, following public review.

Given that the WMPs/EWMPs in many cases address water quality targets that are to be achieved a decade or more in the future, a periodic, complete re-consideration and recalibration of the assumptions and predictions that support the proposed control measures and implementation schedule in light of new data, above and beyond the two-year adaptive management requirements of the Los Angeles MS4 Order, is essential, notwithstanding the additional time and effort that Permittees must expend on the update. We also recognize that such review is a staff intensive process for the Los Angeles Water Board, but addressing storm water impacts is a priority for that Board. Although we expect that the update will be necessary in most cases, the new requirements provide that the Executive Officer of the Los Angeles Water Board may waive the requirement for an update if the Permittee demonstrates through water quality monitoring that the WMP/EWMP is meeting appropriate targets. Our direction to require a comprehensive update of the reasonable assurance analyses and the WMPs/EWMPs after several cycles of adaptive management should in no way be construed as limiting the Los Angeles Water Board Executive Officer's discretion to request such updates earlier in the implementation process or the obligation of the Permittees to initiate such updates earlier in the implementation process based on the ongoing adaptive management process.

The second added provision will not be relevant for the permit term of the order before us; however, we anticipate that the next iteration of an MS4 Order for the Los Angeles area will closely track the Los Angeles MS4 Order to allow for continued implementation of the WMP/EWMPs.

We shall amend Part VI.C.8 by adding new subsections a.iv. and b. as follows:

a.

iv. Permittees shall report the following information to the Regional Water Board concurrently with the reporting for the adaptive management process:

(1) On-the-ground structural control measures completed;

(2) Non-structural control measures completed;

- (3) Monitoring data that evaluates the effectiveness of implemented control measures in improving water quality;**
- (4) Comparison of the effectiveness of the control measures to the results projected by the RAA;**
- (5) Comparison of control measures completed to date with control measures projected to be completed to date pursuant to the Watershed Management Program or EWMP;**
- (6) Control measures proposed to be completed in the next two years pursuant to the Watershed Management Program or EWMP and the schedule for completion of those control measures;**
- (7) Status of funding and implementation for control measures proposed to be completed in the next two years.**

b. Watershed Management Program Resubmittal Process

- i. In addition to adapting the Watershed Management Program or EWMP every two years as described in Part VI.C.8.a., Permittees must submit an updated Watershed Management Program or EWMP with an updated Reasonable Assurance Analysis by June 30, 2021, or sooner as directed by the Regional Water Board Executive Officer or as deemed necessary by Permittees through the Adaptive Management Process, for review and approval by the Regional Water Board Executive Officer. The updated Reasonable Assurance Analysis must incorporate both water quality data and control measure performance data, and any other information informing the two-year adaptive management process, gathered through December 31, 2020. As appropriate, the Permittees must consider any new numeric analyses or other methods developed for the reasonable assurance analysis. The updated Watershed Management Program or EWMP must comply with all provisions in Part VI.C. The Regional Water Board Executive Officer will allow a 60-day public review and comment period with an option to request a hearing. The Regional Water Board Executive Officer must approve or disapprove the updated Watershed Management Program or EWMP by June 30, 2022. The Executive Officer may waive the requirement of this provision, following a 60-day public review and comment period, if a Permittee demonstrates through water quality monitoring data that the approved Watershed Management Program or EWMP is meeting appropriate water quality targets in accordance with established deadlines.**

5. Determination of Compliance with Final Requirements

a. Compliance with Final TMDL Requirements¹¹⁶

Part VI.E.2.e.i.4. of the Los Angeles MS4 Order provides that Permittees will be deemed in compliance with the final WQBELs and other TMDL-specific limitations if “[i]n drainage areas where Permittees are implementing an EWMP, (i) all non-storm water and (ii) all storm water runoff up to and including the volume equivalent to the 85th percentile, 24 hour event is retained for the drainage area tributary to the applicable receiving water.”¹¹⁷ Part VI.E.2.e.i.4 is one of four options available to the Permittee in Part VI.E.2.e. to be deemed in compliance with WQBELs and other TMDL-specific limitations. The other three options allow a Permittee to establish compliance with a final WQBEL or other TMDL-specific limitation by showing that (1) there are no violations of the final WQBEL; (2) there are no exceedances of the receiving water limitation for the specific pollutant in the receiving water at or downstream of the Permittee’s outfall, or (3) there is no direct or indirect discharge from the Permittee’s MS4 to the receiving water during any relevant time period.¹¹⁸ These three options ensure that either the receiving water limitations or WQBELs and other TMDL-specific limitations are in fact being complied with. In contrast, the storm water retention approach assumes compliance with *final* WQBELs and other TMDL-specific limitations, and accordingly, compliance with the receiving water limitations in Part V for the relevant water body-pollutant combinations,¹¹⁹ even if the final WQBELs and other TMDL-specific limitations are not actually being achieved. The Environmental Petitioners argue that the Los Angeles Water Board has failed to establish through findings and record evidence that the storm water retention approach will in fact achieve compliance with the WQBELs and other TMDL-specific limitations and that the Los Angeles

¹¹⁶ The Los Angeles MS4 Order additionally deems compliance with *interim* WQBELs and other TMDL-specific limitations if the “Permittee has submitted and is fully implementing an approved” WMP/EWMP. (Los Angeles MS4 Order, Part VI.E.2.d.i.(4), p. 143; see also *id.*, Part VI.C.3.a., p. 53.) Because Permittees are required to incorporate into the WMP/EWMP compliance schedules “compliance deadlines occurring within the permit term for all applicable interim . . . water quality-based effluent limitations and/or receiving water limitations in Part VI.E and Attachments L through R,” we expect that in most cases full implementation of the WMP/EWMP necessarily results in compliance with interim WQBELs and other TMDL-specific limitations. However, to the extent this is not the result reached, we find that requiring implementation of the WMP/EWMP with control measures designed to achieve interim WQBELs and other TMDL-specific limitations, in lieu of showing actual compliance with any *interim* numeric requirements, is consistent with the assumptions and requirements of the wasteload allocations of the relevant TMDLs. (40 C.F.R. § 122.44(d)(1)(vii)(B).)

¹¹⁷ Los Angeles MS4 Order, Part VI.E.2.e.i.(4), p. 145.

¹¹⁸ *Id.*, Part VI.E.2.e.i.(1)-(3), pp. 144-45.

¹¹⁹ We note again that Part VI.E.2.c.i. states that Part VI.E establishes the manner of achieving compliance with the receiving water limitations in Part V.A where the receiving water limitations are associated with water body-pollutant combinations addressed in a TMDL.

MS4 Order's reliance on the storm water retention approach for final compliance determination is therefore contrary to the law.

We are supportive of the EWMP's use of the storm water retention approach as a technical requirement. Retention of storm water is likely to be an effective path to water quality improvement. Furthermore, in addition to preventing pollutants from reaching the receiving water except as a result of high precipitation events (which also generally result in significant dilution in the receiving water), the storm water retention approach has additional benefits including recharge of groundwater, increased water supply, reduced hydromodification effects, and creation of more green space to support recreation and habitat.¹²⁰

We have some concerns, however, with the lack of verification in the Los Angeles MS4 Order that final WQBELs and other TMDL-specific limitations or receiving water limitations will in fact be met as a result of implementation of the storm water retention approach. We acknowledge that, in most cases, the final TMDLs have deadlines outside of the permit term for the Los Angeles MS4 Order and that, therefore, with regard to those, our concerns are more theoretical at this point than immediate. Nevertheless, we agree with the Environmental Petitioners that the evidence in the Administrative Record is not sufficient to establish that the storm water retention approach will in all cases result in achievement of final WQBELs and other TMDL-specific limitations and, more importantly, are concerned that the Order itself does not incorporate clear requirements that would provide for such verification in the process of implementation.

With regard to evidence in the Administrative Record, it is clear that the storm water retention approach is a promising approach for achieving compliance with receiving water limitations, with multiple additional environmental benefits. But the research regarding the storm water retention approach is still in early stages and we cannot say with certainty at this point that implementation will lead to compliance with receiving water limitations in all cases.¹²¹

With that conclusion in mind, we look to the Los Angeles MS4 Order itself to determine if there are sufficient additional provisions to assure that, in the long run, the storm water retention approach will achieve the ultimate goal of compliance with receiving water limitations. We first note that the Order does not require a reasonable assurance analysis when

¹²⁰ See e.g. Administrative Record, section 10.VI.C, RB-AR29263-29311, RB-AR32318-32350.

¹²¹ We reviewed the citations to the Administrative Record provided in the Los Angeles Water Board October 15, 2013 Response and in the October 15, 2013 Responses of many of the Petitioners. We find that the cited studies show the storm water retention to be a promising approach to meeting water quality standards, but do not establish, at a sufficiently high level of confidence, that the storm water retention approach will definitively achieve compliance with the receiving water limitations.

a Permittee opts for the storm water retention approach. Permittees are required to conduct a reasonable assurance analysis for each water body-pollutant combination addressed by a WMP, with the objective of demonstrating the ability of the controls to ensure that MS4 discharges achieve applicable WQBELs and do not cause or contribute to exceedances of receiving water limitations.¹²² The relevant provisions reference EWMPs, but elsewhere the Order states that the reasonable assurance analysis is only required for areas covered by the EWMP where retention of the 85th percentile, 24-hour storm event is not feasible.¹²³ The Fact Sheet also implies that the requirement for a reasonable assurance analysis is confined to situations where the storm water retention approach is not feasible.¹²⁴ In sum, then, Permittees that choose to develop and implement an EWMP are required to conduct a reasonable assurance analysis for each waterbody-pollutant combination addressed by the EWMP, except in the drainage areas that are tributary to the storm water retention projects.

The fact that the storm water retention approach does not require a reasonable assurance analysis prior to implementation to demonstrate the ability of the approach to achieve compliance with the limitations is mitigated in part by required monitoring and adaptive management to verify compliance following implementation. Although the provision could be clearer, we read the language “[i]n drainage areas where Permittees are implementing an EWMP” in Part VI.E.2.e.i.(4) to require Permittees to be in compliance with all aspects of the EWMP, including the monitoring and adaptive management provisions of Parts VI.C.7 and 8, to be deemed in compliance with final limitations through the storm water retention approach. As we read the Order, a Permittee’s showing that it has retained all non-storm water and all storm water up to and including the volume equivalent to the 85th percentile, 24-hour event, establishes compliance, but only if the Permittee continues to conduct monitoring and adapt the EWMP in response to the monitoring. The Los Angeles Water Board appears to read the Order the way we do, as it states in its October 15, 2013 Response that “the Permit requires monitoring and adaptive management, which will continue to inform the Los Angeles Water Board regarding the efficacy of this storm water retention approach in conjunction with implementation of the other storm water management program elements and any needed

¹²² Los Angeles MS4 Order, Part VI.C.5.b.iv.(5), pp. 63-64.

¹²³ *Id.*, Part VI.C.1.g., p. 48.

¹²⁴ *Id.*, Att. F, Fact Sheet, p. F-39.

modifications to the approach.”¹²⁵ The Los Angeles Water Board further states in comments submitted on a draft of this order, as follows:

The Los Angeles MS4 Order does not exclude EWMPs or areas within an EWMP where the stormwater retention standard is achieved from the integrated watershed monitoring, assessment and adaptive management processes. Neither does the Los Angeles MS4 Order specify or contemplate an end to the monitoring, assessment and adaptive management processes in the case of a Watershed Management Program (WMP) or EWMP. These required elements, including receiving water and outfall monitoring, evaluation of these monitoring data, and modification of the EWMP to improve its effectiveness, will be continually conducted throughout the Watershed Management Area addressed by the EWMP. . . . The Los Angeles Water Board understood that these regional multi-benefit projects would take time to implement and that Permittees needed to be afforded this time in the Los Angeles MS4 Order. The Los Angeles Water Board will continually evaluate progress during the implementation period. If, as full implementation nears, some Receiving Water Limitations are still not achieved, the Los Angeles Water Board and State Water Board have a variety of tools that can be used at a regional or statewide level including reconsideration of TMDLs, Basin Planning actions, policy development and permitting, among others.¹²⁶

We will make a revision to Part VI.E.2.e.i. to make it clear that the Permittee must be in compliance with all other requirements of the EWMP in addition to implementation of the storm water retention approach in order to be deemed in compliance with the final WQBELs and other TMDL-specific limitations.

With no definitive evidence in the record establishing that the storm water retention approach will achieve final requirements, no reasonable assurance analysis required at the outset, and reliance only on subsequent monitoring and adaptive management to improve results if final limitations are not in fact achieved, the storm water retention approach does not provide a level of assurance of success that would lead us to conclude that its implementation, with nothing else, is sufficient to constitute compliance with final WQBELs and other TMDL-specific limitations. We understand that there are nevertheless very good reasons to encourage its use. Certainly for all non-storm water and for all storm water generated in storms up to the 85th percentile storm, the storm water retention approach achieves compliance because there is no discharge. And there are significant benefits beyond water quality, including most importantly benefits to water supply. We also believe that public projects requiring investment of this magnitude are unlikely to be carried out without a commitment from the water boards that Permittees will be considered in compliance even if the resulting improvement in water quality

¹²⁵ Los Angeles Water Board, October 15, 2013 Response, p. 62.

¹²⁶ Los Angeles Water Board, Comment Letter, January 21, 2015, pp. 2-3.

does not rise all the way to complete achievement of the final WQBELs and other TMDL-specific limitations.

We are not willing to go as far as saying that compliance with the storm water retention approach alone constitutes compliance with final WQBELs and other TMDL-specific limitations for all time, regardless of the actual results.¹²⁷ Nonetheless, we anticipate that implementation of such projects will bring the drainage area most and, in many cases, all of the way to achievement of water quality standards. Where there is still a gap in required water quality improvement, we expect the Executive Officer of the Los Angeles Water Board to require appropriate actions, consistent with the provisions of the Los Angeles MS4 Order and the Los Angeles Water Board's stated interpretation of those provisions,¹²⁸ to close that gap with additional control measures in order for the Permittee to be considered in compliance with the WQBEL or other TMDL-specific limitation. There are various mechanisms to provide assurances that additional control measures will be implemented to achieve the WQBEL or other TMDL-specific limitation, and in some instances, it may be appropriate for the Los Angeles Water Board to issue a time schedule order governing the implementation of further control measures. Further, as acknowledged by the Los Angeles Water Board in its comments, in some circumstances, reconsideration of the underlying TMDLs and the final deadlines within those TMDLs may instead be warranted.¹²⁹ We additionally recognize that municipal storm water management is an area of continued development and, with continued research and data evaluation, water quality standards may evolve and become more nuanced or sophisticated over time.

While we decline to interpret the storm water retention approach to, in and of itself, constitute compliance with final WQBELs and other TMDL-specific limitations, we emphasize here that any additional control measures to reach compliance that may be required by the Los Angeles Water Board must not require changes to installed storm water retention projects. Any revisions should be prospective in nature and should not disturb projects that Permittees have already installed in good faith to comply with the provisions of their EWMP.

¹²⁷ Further, Permittees still have substantial incentive to develop and implement an EWMP. If a permittee pursues an EWMP, it will be deemed in compliance with the receiving water limitations during the EWMP development phase, and it may also recognize significant non-water quality benefits.

¹²⁸ Los Angeles Water Board, Comment Letter, January 21, 2015, pp. 2-3. As explained in footnote 110, at this time we see limited options available to the Los Angeles Water Board in addressing compliance with final deadlines for WQBELs and other TMDL-specific limitations.

¹²⁹ We also acknowledge the need for and commit to supporting state-wide solutions for source reduction as appropriate, similar to the brake pad legislation adopted to address copper discharges. (Senate Bill 346 (approved by the Governor September 27, 2010).)

Ultimately, we must set out to verify through appropriate monitoring that final WQBELs and other TMDL-specific limitations can be achieved through the storm water retention approach, or be willing to revise that approach. However, new or additional measures required at that point should be additive to the storm water retention approach measures already installed.

In sum, despite the uncertainty inherent in allowing the storm water retention approach, we concur in its use in the Los Angeles MS4 Order, with the clarification that ultimate compliance is subject to continued planning, monitoring and adaptive management. We shall amend Part VI.E.2.e.i. as follows:

- i. A Permittee shall be deemed in compliance with an applicable final water quality-based effluent limitation and final receiving water limitation for the pollutant(s) associated with a specific TMDL if any of the following is demonstrated:

...

- (4) In drainage areas where Permittees are implementing an EWMP, (i) all non-storm water and (ii) all storm water runoff up to and including the volume equivalent to the 85th percentile, 24 hour event is retained for the drainage area tributary to the applicable receiving water, **and the Permittee is implementing all requirements of the EWMP, including, but not limited to, Parts VI.C.7 and VI.C.8 of this Order.** This provision (4) shall not apply to final trash WQBELs.

b. Compliance with Final Receiving Water Limitations

The Los Angeles MS4 Order states that for receiving water limitations associated with water-body pollutant combinations addressed in a TMDL, compliance with the TMDL requirements of the Order in Part VI.E and Attachments L through R constitutes compliance with the receiving water limitations in Part V.A.¹³⁰ In other words, if there is an exceedance for a pollutant in a water body that has a TMDL addressing that pollutant, as long as the Permittee is complying with the requirements for the TMDL, the Permittee is deemed in compliance with the receiving water limitation. No petitioner has contested this provision and we find that it constitutes an appropriate approach to compliance with receiving water limitations for water body-pollutant combinations that are addressed by a TMDL.

For exceedances of receiving water limitations for a water body-pollutant combination not addressed by a TMDL, as previously discussed, the Permittee must either incorporate control measures to address the exceedances into the Permittee's WMP/EWMP or comply directly with the receiving water limitations provisions of Part V.A of the Order. For

¹³⁰ Los Angeles MS4 Order, Part VI.E.2.c.ii., p. 143.

Permittees that choose the WMP/EWMP approach, the WMP/EWMP must incorporate “a final date for achieving the receiving water limitation.”¹³¹ To the extent the Permittee does not achieve the limitation by that final date and does not request and receive an extension, the Permittee has “fail[ed] to meet [a] requirement or date for its achievement in an approved Watershed Management Program or EWMP”¹³² and is immediately subject to the receiving water limitations provisions of the Order, with the same result that it is out of compliance. In other words, implementation of non-structural and structural control measures in accordance with the timelines established in the WMP/EWMP constitutes compliance with the receiving water limitations up until the final deadline for achievement of the relevant receiving water limitation; however, at the deadline for final compliance, there must be verification of achievement based on the receiving water limitation itself. While we find that the Order provisions lead to this result as written, for the sake of greater clarity, we will specifically state that final compliance with receiving water limitations must be determined through verification that the receiving water limitation is actually being achieved.

We shall amend Part VI.C.2.c. as follows:

- c. If a Permittee fails to meet any requirement or date for its achievement in an approved Watershed Management Program or EWMP, the Permittee shall be subject to the provisions of Part V.A. for the waterbody-pollutant combination(s) that were to be addressed by the requirement. **For water body-pollutant combinations that are not addressed by a TMDL, final compliance with receiving water limitations is determined by verification through monitoring that the receiving water limitation provisions in Part V.A.1 and 2 have been achieved.**

c. Compliance with the Non-Storm Water Discharge Prohibition

The Environmental Petitioners suggest that the Los Angeles MS4 Order is unclear as to whether compliance with the WMP/EWMP may also constitute compliance with the non-storm water discharge prohibition of the Order. We disagree that the Los Angeles MS4 Order is unclear on this issue. The Permittees’ obligation to comply with the receiving water limitations and WQBELs and other TMDL-specific limitations in Parts V.A and VI.E is independent of the Permittees’ obligation to comply with the effective prohibition of non-storm water discharges in Part III.A. The several provisions stating that Permittees will be deemed to be in compliance with the receiving water limitations of the Los Angeles MS4 Order for implementing the WMP/EWMP specifically reference Parts V.A and VI.E of the Order and not

¹³¹ *Id.*, Part VI.C.5.c.iii.(3)(b), p. 65.

¹³² *Id.*, Part VI.C.2.c., p. 52.

III.A.¹³³ This notwithstanding, Parts VI.C.1.d and VI.C.5.b.iv.(2) require that a Permittee's WMP/EWMP include program elements and control measures to effectively prohibit non-storm water discharges consistent with Part III.A and Part VI.D.4.d or VI.D.10. Therefore, a Permittee's implementation of program elements and control measures consistent with Part III.A and Part VI.D.4.d or VI.D.10, through its approved WMP/EWMP, may provide a mechanism for compliance with Part III.A. Although we accordingly see no need to direct revisions to the Order, we provide this clarification here to respond to the Environmental Petitioners' concern and address any confusion that may exist.

6. "Safe Harbor" During the Planning Phase for the WMP/EWMP

Under the Los Angeles MS4 Order, a Permittee that has declared its intention to develop a WMP/EWMP is deemed in compliance with the receiving water limitations and with interim WQBELs with due dates prior to approval of the WMP/EWMP for the water body-pollutant combinations the WMP/EWMP addresses, provided it meets certain conditions, even though the Permittee is developing, not implementing the WMP/EWMP. Specifically, the Permittee is deemed in compliance if the Permittee (1) provides timely notice of its intent to develop a WMP/EWMP; (2) meets all interim and final deadlines for development of a WMP/EWMP; (3) targets implementation of watershed control measures in the existing program

¹³³ Los Angeles MS4 Order, Parts VI.C.2.b., p. 52, VI.C.3.a., p. 53, VI.E.2.c.ii., p. 143, VI.C. 2.d., pp. 52-53, VI.E.2.d.i.(4)(d), p. 144. To the extent that a non-storm water discharge authorized by Part III.A may be causing or contributing to an exceedance of receiving water limitations in V.A, compliance with the WMP/EWMP provisions would constitute compliance with the receiving water limitations and any relevant interim WQBELs and other TMDL-specific limitations, as long as the WMP/EWMP addresses the water body-pollutant combination for that water body. However, the discharger would have to additionally comply with requirements in Part III.A. and Part VI.D.4.d or VI.D.10 through its approved WMP/EWMP for conditionally exempt non-storm water discharges that are found to cause or contribute to an exceedance in the receiving water. (See *id.*, Part III.A.4.c.-e., pp. 31-32.) We disagree that every discharge from a Permittee's MS4 to the receiving water of non-storm water that is not specifically authorized under Part III.A will necessarily be subject to enforcement under the Los Angeles MS4 Order. Section 402(p)(3)(B)(ii) of the Clean Water Act imposes a requirement to "effectively prohibit" non-storm water discharges. Part III.A of the Los Angeles MS4 Order effectuates that requirement with a requirement for the Permittee to prohibit non-storm water discharges: "Each Permittee shall, for the portion of the MS4 for which it is an owner or operator, prohibit non-storm water discharges through the MS4 to receiving waters, except where such discharges are . . . [listing exceptions]." (Los Angeles MS4 Order, Part III.A.1, p. 27.) The Los Angeles MS4 Order incorporates a specific and detailed programmatic requirement – the Illicit Connections and Illicit Discharges Elimination Program – for the Permittees to achieve their obligation to effectively prohibit non-storm water discharges. (Los Angeles MS4 Order, Parts VI.D.4.d., pp. 81-86, VI.D.10, pp. 137-141.) We recognize that even the most comprehensive efforts to address unauthorized non-storm water discharges may not eliminate all such discharges. Where a Permittee is fully implementing its Illicit Connections and Illicit Discharges Elimination Program, either pursuant to Parts VI.D.4.d. or VI.D.10, or by incorporation of customized actions into a WMP/EWMP as approved by the Los Angeles Water Board (see Los Angeles MS4 Order Part VI.D.1.a., p. 67), we would expect any enforcement action under Part III.A to be supported by a fact-specific analysis of the nature and source of the unauthorized non-storm water discharge and the efforts of the Permittee to prohibit the discharge.

to address known contributions of pollutants; and (4) receives approval of the WMP/EWMP within the specified time periods.¹³⁴

The Environmental Petitioners object to the availability of a “safe harbor” during the planning phase. We disagree with the Environmental Petitioners that providing a “safe harbor” in the planning phase is disallowed by applicable law -- see our discussion of anti-backsliding requirements in section II.B.1. and antidegradation requirements in section II.B.2. However, we understand that deeming a discharger in compliance with receiving water limitations during the planning phase, not just the implementation phase, could weaken the incentive for Permittees to efficiently and timely seek approval of a WMP/EWMP and to move on to implementation. It is the implementation of the WMP/EWMP that will in fact lead to progress toward compliance with receiving water limitations; the planning phase is essential, but should be only as long as necessary for a well-planned program with carefully analyzed controls to be developed. Given the significance of the water quality issues addressed by the WMP/EWMPs, it is paramount that implementation begin as soon as feasible. Accordingly, the “safe harbor” in the planning phase is appropriate only if it is clearly constrained in a manner that sustains incentives to move on to approval and implementation and is structured with clear, enforceable provisions.

Having reviewed the planning sections of the WMP/EWMP provisions carefully, we find that the Los Angeles MS4 Order does sufficiently constrain the planning phase, so that the “safe harbor” provided is not unreasonable. As already stated, compliance is deemed only if the Permittee is meeting the relevant deadlines for development and approval of the WMP/EWMP.¹³⁵ There are no provisions in the Order that allow for extensions to these deadlines. If a Permittee fails to obtain approval within the allowed number of months for the development of a WMP/EWMP, the Order states that the Permittee must then instead demonstrate actual compliance with receiving water limitations and with applicable interim WQBELs.¹³⁶ The Los Angeles MS4 Order is also clear that achievement of any TMDL-associated final deadlines occurring prior to the approval deadlines for the WMP/EWMP cannot be excused through commitment to planning for a WMP/EWMP.¹³⁷

¹³⁴ *Id.*, Parts VI.C.2.d., p. 52, VI.C.3.b., p. 53, VI.E.2.d.i.(4)(d), p. 144.

¹³⁵ *Id.*, Parts VI.C.2.d., p. 52, VI.C.3.b., p. 53, VI.E.2.d.i.(4)(d), p. 144.

¹³⁶ *Id.*, Part VI.C.4.e., p. 58.

¹³⁷ *Id.*, Parts VI.C.3.c., p. 53, VI.C.4.d.iii, p. 58. Under Part VI.C.4.d.iii., Permittees must ensure that MS4 discharges achieve compliance with interim, in addition to final, trash WQBELs during the planning phase.

Further, Permittees are subject to a number of conditions during the planning phase that will ensure that progress toward achievement of receiving water limitations is not put on hold pending approval of the plan. These include requirements to put in place Low Impact Development (LID) ordinances and green streets policies¹³⁸ and to continue to implement watershed control measures in the existing storm water management programs, including those to eliminate non-storm water discharges,¹³⁹ but in a manner that is targeted to address known pollutants.¹⁴⁰

Given the clear, enforceable requirements limiting the planning phase of the WMP/EWMP provisions, we find that the Los Angeles MS4 Order's inclusion of provisions deeming compliance with the receiving water limitations and with interim WQBELs during development of the programs is reasonable.

In fact, we are concerned that the Los Angeles Water Board has left no room for any deviation from the prescribed development schedule for WMP/EWMPs. A Permittee working in good faith to develop a WMP/EWMP over multiple months may encounter an issue that requires it to ask for a short extension on an interim or final deadline. Under such circumstances, the Los Angeles Water Board should be able to consider the request for the extension, rather than have its hands tied and have to reject a WMP/EWMP based on lack of timeliness. We will add a provision to the Order that provides the Los Angeles Water Board or its Executive Officer discretion in granting such extensions, but the Permittee will not be deemed in compliance with the applicable receiving water limitations and WQBELs during the period of the extension.

We shall add a new Part VI.C.4.g. as follows:

g. Permittees may request an extension of the deadlines for notification of intent to develop a Watershed Management Program or EWMP, submission of a draft plan, and submission of a final plan. The extension is subject to approval by the Regional Water Board or the Executive Officer. Permittees that are granted an extension for any deadlines for development of the WMP/EWMP shall be subject to the baseline requirements in Part VI.D and shall demonstrate compliance with receiving water limitations pursuant to Part V.A. and with applicable interim water quality-based effluent limitations in Part VI.E pursuant to subparts VI.E.2.d.i.(1)-(3) until the Permittee has an approved WMP/EWMP in place.

¹³⁸ *Id.*, Part VI.C.4.c., pp. 56-57.

¹³⁹ *Id.*, Part VI.C.4.d.i.-ii., pp. 57-58.

¹⁴⁰ *Id.*, Parts VI.C.2.d.iii., pp. 52-53, VI.C.3.b.iii., p. 53, VI.E.2.d.i.(4)(d)(3), p. 144.

7. Conclusion

In conclusion, we uphold the WMP/EWMP provisions as a reasonable alternative compliance option for meeting receiving water limitations and uphold the WMP/EWMP provisions in all other aspects, except as specifically stated above. We find that the WMP/EWMP approach is a clearly defined, implementable, and enforceable alternative to the receiving water limitations provisions that we mandated in Order WQ 99-05, and that the alternative provides Permittees an ambitious, yet achievable, path forward for steady and efficient progress toward achievement of those limitations while remaining in compliance with the terms of the permit.

We direct all regional water boards to consider the WMP/EWMP approach to receiving water limitations compliance when issuing Phase I MS4 permits going forward.¹⁴¹ In doing so, we acknowledge that regional differences may dictate a variation on the WMP/EWMP approach, but believe that such variations must nevertheless be guided by a few principles.¹⁴² We expect the regional water boards to follow these principles unless a regional water board makes a specific showing that application of a given principle is not appropriate for region-specific or permit-specific reasons.

1. The receiving water limitations provisions of Phase I MS4 permits should continue to require compliance with water quality standards in the receiving water and should not deem good faith engagement in the iterative process to constitute such compliance. The Phase I MS4 permits should therefore continue to use the receiving water limitations provisions as directed by State Water Board Order WQ 99-05.

¹⁴¹ We acknowledge that small MS4s permitted under the statewide General Permit for WDRs for Storm Water Discharges from Small MS4s (Order No. 2013-0001-DWQ) (General Phase II MS4 Permit) have similar practical issues as Phase I permittees in complying with receiving water limitations. Nevertheless, because the General Phase II MS4 Permit is issued by the State Water Board, not the regional water boards, we limit our guidance to regional water boards to the Phase I permits. The State Water Board is committed to working with small MS4s, the regional water boards, and interested persons in developing an alternative compliance option for the General Phase II MS4 Permit.

¹⁴² In considering appropriate guidance for regional water boards drafting alternative compliance paths in municipal storm water permits, we have reviewed the proposed "strategic compliance program" model language that was submitted by the California Stormwater Quality Association (CASQA) and supported in whole or in part by a number of interested persons. (CASQA August 15, 2013 Receiving Water Limitations Submission, Attachment A, Section E.) While we have not in these proceedings adopted the CASQA language, or, for that matter, any specific language, for alternative compliance path provisions, regional water boards remain free to consider and incorporate the CASQA approach into their municipal storm water permits to the extent they determine and document that the approach, including any modifications, satisfies the principles we set out in this section as well as all other direction we have provided in this order.

2. The Phase I MS4 permits should include a provision stating that, for water body-pollutant combinations with a TMDL, full compliance with the requirements of the TMDL constitutes compliance with the receiving water limitations for that water body-pollutant combination.
3. The Phase I MS4 permits should incorporate an ambitious, rigorous, and transparent alternative compliance path that allows permittees appropriate time to come into compliance with receiving water limitations without being in violation of the receiving water limitations during full implementation of the compliance alternative.
4. The alternative compliance path should encourage watershed-based approaches, address multiple contaminants, and incorporate TMDL requirements.
5. The alternative compliance path should encourage the use of green infrastructure and the adoption of low impact development principles.
6. The alternative compliance path should encourage multi-benefit regional projects that capture, infiltrate, and reuse storm water and support a local sustainable water supply.
7. The alternative compliance path should have rigor and accountability. Permittees should be required, through a transparent process, to show that they have analyzed the water quality issues in the watershed, prioritized those issues, and proposed appropriate solutions. Permittees should be further required, again through a transparent process, to monitor the results and return to their analysis to verify assumptions and update the solutions. Permittees should be required to conduct this type of adaptive management on their own initiative without waiting for direction from the regional water board.

8. Direction to the Los Angeles Water Board to Report to the State Water Board on Implementation

We recognize that our review has been limited to the provisions of the Los Angeles MS4 Order. The success of the WMP/EWMP approach depends in large part on the steps that follow adoption of these provisions, i.e., the effort invested by Permittees in developing WMPs/EWMPs that truly address the stringent provisions of the Order, the precision with which the Los Angeles Water Board reviews the draft programs and requires revisions, and, most importantly, the actual implementation and appropriate enforcement of the programs once approved. The work going forward must ensure that the WMPs/EWMPs in fact exhibit the rigor and accountability the provisions of the Los Angeles MS4 Order demand. We expect that the Los Angeles Water Board will make careful oversight and enforcement a priority and that they will be aided in this process by the public review and comment opportunities built into the terms of the Order.

The process of developing the WMPs/EWMPs is currently ongoing -- the Los Angeles Water Board has been reviewing draft and revised draft WMPs and workplans for EWMPs – and, although we have been asked by the Environmental Petitioners to take official notice of some of the submissions and conditional approvals in the process, it is premature for the State Water Board to speak to the sufficiency of the resulting WMPs/EWMPs until the Los Angeles Water Board, with full input from the stakeholders, has had the opportunity to consider, revise, and finally approve the programs. We note again that all documents submitted to the Los Angeles Water Board Executive Officer for approval are subject to a 30-day public comment period¹⁴³ and that any formal determination or approval by the Executive Officer may be reviewed by the Los Angeles Water Board upon request by an interested person.¹⁴⁴ And an interested person may petition the State Water Board to review an action or failure to act of the Los Angeles Water Board.¹⁴⁵

Once the WMPs/EWMPs are approved, ensuring that they are diligently and timely implemented must remain a top priority for the Los Angeles Water Board. We expect that the Los Angeles Water Board will continue to work cooperatively and closely with the Permittees, the Environmental Petitioners, and other interested persons in this process, but that the Board will also use its enforcement authority to ensure that appropriate progress is made toward water quality goals. We intend to remain involved in this process, as we must learn statewide from the successes and shortcomings of the approach we are endorsing with this order. We accordingly direct the Los Angeles Water Board to report to us on progress in implementation of the WMPs/EWMPs, and progress in improving water quality during this and the next permit term by February 28, 2018, by February 29, 2020, and by March 31, 2022. Specifically, we ask that the Los Angeles Water Board report on region-wide data for the following:

- On-the-ground structural control measures completed;
- Non-structural control measures completed;
- Monitoring data that evaluates the effectiveness of implemented control measures in improving water quality;

¹⁴³ Los Angeles MS4 Order, Part V.A.5.b, p. 42.

¹⁴⁴ *Id.*, Part V.A.6, p. 42.

¹⁴⁵ Wat. Code, § 13320. On April 28, 2015, the Executive Officer of the Los Angeles Water Board conditionally approved several submitted WMPs. On May 28, 2015, the Environmental Petitioners filed a petition challenging the conditional approvals and requesting review by the Los Angeles Water Board and by the State Water Board of the Executive Officer's determination.

- Comparison of the effectiveness of the control measures to the results projected by the reasonable assurance analyses;
- Comparison of control measures completed to date with control measures projected to be completed to date pursuant to the WMPs/EWMPs;
- Control measures proposed to be completed in the next two years pursuant to the WMPs/EWMPs and the schedule for completion of those control measures;
- Status of funding and implementation for control measures proposed to be completed in the next two years;
- Trends in receiving water quality related to pollutants typically associated with storm water;
- Available permit compliance data, including requests for compliance extensions;
- Enforcement actions taken and results.

In addition to covering the above information, the third report shall summarize and reflect the comprehensive information gathered through the updates of the reasonable assurance analyses and WMPs/EWMPs conducted by the Permittees in the second permit term.

C. Appropriateness of TMDL Requirements

Section 303(d) of the Clean Water Act requires the water boards to identify impaired water bodies that do not meet water quality standards after applying required technology-based effluent limitations.¹⁴⁶ TMDLs are developed by either the regional water boards or by USEPA in response to section 303(d) listings of impaired water bodies. A TMDL is defined as the sum of the individual wasteload allocations for point sources of pollution, the load allocations for nonpoint sources of pollution, and the contribution from background sources of pollution,¹⁴⁷ and represents the maximum amount of a pollutant that a water body may receive and still achieve water quality standards. TMDLs developed by regional water boards include implementation provisions¹⁴⁸ and are typically incorporated into the regional water board's water quality control plan.¹⁴⁹ TMDLs developed by USEPA typically contain the total load and load allocations required by section 303(d), but do not set out comprehensive implementation provisions.¹⁵⁰ Most TMDLs are not self-executing, but instead rely upon subsequently-issued permits to impose requirements on discharges that implement the TMDLs' wasteload

¹⁴⁶ 33 U.S.C. § 1313(d).

¹⁴⁷ 40 C.F.R. § 130.2(i).

¹⁴⁸ Wat. Code, §§ 13050, subd. (j), 13242.

¹⁴⁹ See 40 C.F.R. §§ 130.6(c)(1).

¹⁵⁰ *Am. Farm Bureau Fed'n v. U.S. E.P.A.* (M.D. Pa. 2013) 984 F. Supp. 2d 289, 314.

allocations.¹⁵¹ The Los Angeles MS4 Order includes TMDL-specific requirements that implement 33 TMDLs (twenty-five adopted by the Los Angeles Water Board, seven established by USEPA, and one adopted by the Santa Ana Regional Water Quality Control Board that assigned requirements to two Permittees of the Los Angeles MS4 Order) in Part VI.E and in Attachments L-R.

Petitioners raise a number of challenges to the TMDL-based requirements of the Los Angeles MS4 Order. We take up several of those arguments in this section.¹⁵²

1. Inclusion of Numeric WQBELs

Permittee Petitioners argue that the numeric WQBELs incorporated into the Los Angeles MS4 Order as TMDL-based limitations are contrary to the Clean Water Act and to state law and policy. We disagree.

Under the federal regulations implementing the Clean Water Act, effluent limitations in NPDES permits developed to achieve water quality standards must be consistent with the assumptions and requirements of any available wasteload allocation for the discharge.¹⁵³ In addition, the Porter-Cologne Act requires that waste discharge requirements implement any relevant water quality control plans,¹⁵⁴ including TMDL requirements that have been incorporated into the water quality control plans. The Los Angeles MS4 Order incorporates numeric WQBELs and other limitations that the Los Angeles Water Board found are consistent with the TMDL requirements applicable to the Permittees.

Permittee Petitioners argue that there is no requirement under federal law for incorporation of TMDL requirements into an MS4 permit and that the inclusion of the requirements in Part VI.E and in Attachments L-R was therefore at the discretion of the Los Angeles Water Board. They point out, as we acknowledged in section II.A, that MS4 discharges must meet a technology-based standard of prohibiting non-storm water discharges and reducing pollutants in the discharge to the MEP, but that requirements to strictly meet water quality standards are at the discretion of the permitting agency.¹⁵⁵ Because TMDL requirements are a path to achieving water quality standards, the Permittee Petitioners argue, the Los Angeles Water Board had the discretion not to include them in the Los Angeles MS4 Order.

¹⁵¹ *City of Arcadia v. EPA* (N.D. Cal. 2013) 265 F.Supp.2d 1142, 1144-1145.

¹⁵² We note that we do not take up any arguments that challenge the terms of the TMDLs. Those arguments should have been made during the public process when the TMDLs were adopted. They are untimely now.

¹⁵³ 40 C.F.R. § 122.44(d)(1)(vii)(B).

¹⁵⁴ Wat. Code, § 13263, subd. (a).

¹⁵⁵ 33 U.S.C. § 1342(p); *Defenders of Wildlife, supra*, 191 F.3d 1159.

Answering the question of whether the Los Angeles Water Board was required under federal law to strictly effectuate TMDL compliance through the Los Angeles MS4 Order is a largely irrelevant exercise because we have already reaffirmed in this order that we will continue to require water quality standards compliance in MS4 permits. Further, given the back-stop nature of TMDLs, and the fact that each set of dischargers must meet their share of the allocation to reach the total reductions set out, a regime in which municipal storm water dischargers were given a pass on TMDL obligations would render the promise of water quality standards achievement through TMDLs illusory. This is especially true in a large urbanized area where pollutants in storm water constitute a significant share of the impairment and where other dischargers would be disproportionately burdened if MS4s were not held to their allocations. Although not dispositive, we also note that USEPA has assumed in guidance (discussed in more detail below) issued on storm water and TMDL implementation that MS4 permits must incorporate effluent limitations consistent with the assumptions and requirements of relevant wasteload allocations.¹⁵⁶ To the extent the TMDL provisions of the Clean Water Act and the federal regulations could be read to preclude mandatory incorporation of wasteload allocations into an MS4 permit, effluent limitations consistent with those load allocations should nevertheless be required under Clean Water Act section 402, subsection (p)'s direction that the MS4 permit shall require "such other controls" as the permitting authority determines "appropriate for the control of such pollutants."¹⁵⁷ Finally, for TMDLs incorporated into water quality control plans, the implementation plan associated with the TMDL applies to all dischargers named, including MS4 permittees, and the MS4 permits must be consistent with the direction in the water quality control plan.¹⁵⁸

Having found that the Los Angeles Water Board acted in a manner consistent with federal and state law when it developed WQBELs to address applicable TMDLs, we next turn to whether *numeric* WQBELs were appropriate. We find that the Los Angeles Water Board

¹⁵⁶ USEPA, Memorandum, "Establishing Total Maximum Daily Load Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs," (Nov. 22, 2002) (2002 USEPA Memorandum); see also USEPA, Memorandum, "Revisions to the November 22, 2002 Memorandum 'Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs,'" (Nov. 26, 2014) (2014 USEPA Memorandum). The 2014 USEPA Memorandum replaced a memorandum with the same title issued on November 12, 2010, which was subsequently opened to public comment. (USEPA Statement (March 17, 2011), available at <http://water.epa.gov/polwaste/npdes/stormwater/upload/sw_tmdlwla_comments.pdf> (as of Nov. 18, 2014).)

¹⁵⁷ 33 U.S.C. § 1342(p)(3)(B)(iii). See, e.g., State Water Board Orders WQ 91-03, WQ 91-04, WQ 98-01, WQ 99-05, WQ 2001-15.

¹⁵⁸ Wat. Code, § 13263, subd. (a); see also *State Water Res. Control Bd. Cases* (2006) 136 Cal. App. 4th 674, 730 (noting the obligation of the water boards to follow the program of implementation included in a water quality control plan).

acted within its legal authority when establishing numeric WQBELs, and further that its choice of numeric WQBELs was a reasonable exercise of its policy discretion.

In the context of MS4 discharges, effluent limitations in NPDES permits may be expressed in the form of either numeric limitations or best management practices (BMPs). The federal regulations specifically state that BMP-based effluent limitations may be used to control pollutants for storm water discharges.¹⁵⁹ USEPA has issued two memoranda, on November 22, 2002 (2002 USEPA Memorandum), and on November 26, 2014 (2014 USEPA Memorandum), providing guidance to the states on translating wasteload allocations for storm water into effluent limitations in NPDES Permits.¹⁶⁰ The 2002 USEPA Memorandum contemplated that “the NPDES permitting authority will review the information provided by the TMDL . . . and determine whether the effluent limit is appropriately expressed using a BMP approach (including an iterative BMP approach) or a numeric limit.”¹⁶¹ The 2002 USEPA Memorandum further stated that “EPA expects that most WQBELs for NPDES-regulated municipal . . . storm water discharges will be in the form of BMPs, and that numeric limits will be used only in rare instances.”¹⁶² The 2014 USEPA Memorandum, after noting the increased information available to the permitting agencies after more than a decade of experience with setting wasteload allocations and effluent limitations, explained that:

Where the TMDL includes WLAs for stormwater sources that provide numeric pollutant loads, the WLA should, where feasible, be translated into effective, measurable WQBELs that will achieve this objective. This could take the form of a numeric limit, or of a measurable, objective BMP-based limit that is projected to achieve the WLA. . . . The permitting authority’s decision as to how to express the WQBEL(s), either as numeric effluent limitations or as BMPs, with clear, specific, and measurable elements, should be based on an analysis of the specific facts and circumstances surrounding the permit, and/or the underlying

¹⁵⁹ 40 C.F.R. § 122.44(k)(2); see also 33 U.S.C. § 1342(p)(3)(B)(iii). 40 Code of Federal Regulations section 122.44(k)(3) further contemplates that BMP-based effluent limitations are appropriate where it is infeasible to develop a numeric effluent limitation.

¹⁶⁰ 2002 USEPA Memorandum; 2014 USEPA Memorandum. In addition to the two memoranda, USEPA published guidance titled “Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits” ((Sept. 1996) 61 Federal Register 57425), which recommended inclusion of BMPs in first-round permits, and expanded or better-tailored BMPs in subsequent permits. In 2005, the State Water Board assembled a blue ribbon panel to address the feasibility of including numeric effluent limits as part of NPDES municipal, industrial, and construction storm water permits. The panel issued a report dated June 19, 2006, which included recommendations as to the feasibility of including numeric limitations in storm water permits. The report concluded that it was not feasible, at that time, to set enforceable numeric effluent limitations for municipal storm water discharges.

¹⁶¹ 2002 USEPA Memorandum, p. 5.

¹⁶² *Id.*, p. 2.

WLA, including the nature of the stormwater discharge, available data, modeling results, and other relevant information.¹⁶³

Both options – to choose BMP-based WQBELs or to choose numeric WQBELs – were legally available to the Los Angeles Water Board. In adopting numeric WQBELs, the Los Angeles Water Board analyzed the specific facts and circumstances surrounding storm water discharges in the region and reasonably concluded that numeric WQBELs were warranted because storm water discharges constituted a significant contributor to the water quality standards exceedances in the area and the exceedances had not been to date resolved through BMP-based requirements. Moreover, the Los Angeles Water Board concluded that it could feasibly develop numeric WQBELs following the extensive work already conducted to develop the TMDLs, which involved analyzing pollutant sources and allocating loads using empirical relationships or quantitative models. We will not second-guess the determination of the Los Angeles Water Board, given its extensive and unique role in developing the TMDLs and the permit to implement the TMDLs, that numeric WQBELs were appropriate for the Los Angeles MS4 Order.¹⁶⁴

We emphasize, however, that we are not taking the position that numeric WQBELs are appropriate in all MS4 permits or even with respect to certain TMDLs within an MS4 permit. In a recent amendment to State Water Board Order 2011-0011-DWQ, NPDES Statewide Storm Water Permit for State of California Department of Transportation (Caltrans),¹⁶⁵ we found BMP-based TMDL requirements to be “consistent with the assumptions and requirements of the WLAs” of the TMDLs applicable to Caltrans. That determination was based on a number of factors including the fact that Caltrans, a single discharger, was named in over 80 TMDLs statewide, the fact that Caltrans had relatively little contribution to the exceedances in each of those TMDLs, and the consideration that there was significant efficiency to be gained by streamlining and standardizing control measure implementation throughout Caltrans’ statewide storm water program. Similarly, regional water boards may find BMP-based requirements to be appropriate based on TMDL-specific, region-specific, or permittee-specific

¹⁶³ 2014 USEPA Memorandum, p. 6.

¹⁶⁴ The Los Angeles Water Board incorporated a discussion in the Fact Sheet of how the TMDL wasteload allocations were translated into numeric WQBELs in order to implement the TMDLs in the Los Angeles MS4 Order. (Los Angeles MS4 Order, Att.F, Fact Sheet, pp. F-89-F-100). See 40 C.F.R. § 124.8. We are not independently reviewing the calculations and analyses underlying the specific numeric limitations arrived at by the Los Angeles Water Board; rather, our review has been limited to a determination of whether the choice of numeric rather than BMP-based limitations was reasonable. To the extent any petitioners asked us to independently review the issue in their petitions seeking review of the Order, the issue is dismissed. See fn. 11.

¹⁶⁵ State Water Board Order WQ 2014-0077-DWQ.

considerations. In many ways, the Los Angeles MS4 Order was uniquely positioned to incorporate numeric WQBELs because of the extensive TMDL development in the region in the past decade and the documented role of MS4 discharges in contributing to the impairments addressed by those TMDLs. Thus, while we decline to remove the numeric WQBELs from the Los Angeles MS4 Order, we also decline to urge the regional water boards to use numeric WQBELs in all MS4 permits.¹⁶⁶

2. Requirement for Reasonable Potential Analysis

The federal regulations implementing NPDES permitting require the permitting authority to establish WQBELs for point source discharges when those discharges cause, have the “reasonable potential” to cause, or contribute to an excursion above water quality standards.¹⁶⁷ Permittee Petitioners argue that the Los Angeles Water Board did not conduct an appropriate reasonable potential analysis prior to imposing numeric WQBELs. The argument is misguided. The Los Angeles Water Board established that the MS4 discharges can cause or contribute to exceedances of water quality standards through the process of developing TMDLs and assigning wasteload allocations. At the permitting stage, the Los Angeles Water Board’s legal obligation was to develop WQBELs “consistent with the assumptions and requirements of any wasteload allocation” in the TMDLs,¹⁶⁸ and not to reconsider reasonable potential.¹⁶⁹

3. USEPA-Established TMDLs

USEPA has established seven TMDLs that include wasteload allocations for MS4 discharges covered by the Los Angeles MS4 Order. In contrast to state-adopted TMDLs, USEPA-established TMDLs do not contain an implementation plan or schedule for achievement of the wasteload allocations,¹⁷⁰ with the effect that Permittees must comply with wasteload allocations immediately. To avoid this result, the regional water board may either adopt a

¹⁶⁶ Relying on the 2014 USEPA Memorandum, Permittee Petitioners also argue that the Los Angeles Water Board was required to disaggregate storm water sources within applicable TMDLs. The 2014 USEPA Memorandum only encourages permit writers to assign specific shares of the wasteload allocation to specific permittees during the permitting process, reasoning that permit writers may have more detailed information than the TMDL writers to assign reductions for specific sources. (2014 USEPA Memorandum, p.8.) In an MS4 system as complex and interconnected as that covered under the Los Angeles MS4 Order, we do not expect the permitting authority to be able to disaggregate wasteload allocations by discharger. Further, as discussed in section II.F. on joint responsibility, the Los Angeles MS4 Order has provided a means for Permittees with commingled discharges to demonstrate that they are not responsible for any given exceedance of a limitation.

¹⁶⁷ 40 C.F.R. § 122.44(d)(1)(iii).

¹⁶⁸ 40 C.F.R. § 122.44(d)(1)(vii)(B).

¹⁶⁹ See USEPA, NPDES Permit Writers Manual (updated September 2010), Chapter 6, section 6.3.3.

¹⁷⁰ See, e.g., *Am. Farm Bureau Fed'n v. U.S. E.P.A.*, *supra*, 984 F. Supp. 2d at p. 314.

separate implementation plan as a water quality control plan amendment¹⁷¹ or issue the Permittee a compliance order with a compliance schedule.¹⁷² For the seven USEPA-established TMDLs applicable to the Permittees, the Los Angeles Water Board authorizes Permittees subject to a wasteload allocation in a USEPA-established TMDL to propose control measures that will be effective in meeting the wasteload allocation, and a schedule for their implementation that is as short as possible, as part of a WMP/EWMP.¹⁷³ Permittees that do not submit an adequate WMP/EWMP are required to demonstrate compliance with the wasteload allocations immediately.¹⁷⁴

Permittee Petitioners argue that the Los Angeles Water Board has acted inconsistently in requiring BMP-based compliance with the USEPA-established TMDLs but requiring numeric WQBELs for the state-established TMDLs. We have already stated above in section C.1 that the permitting authority has discretion to choose between BMP-based and numeric effluent limitations depending on fact-specific considerations. The Los Angeles Water Board was not restricted to choosing one single uniform approach to implementing all 33 TMDLs in the Los Angeles MS4 Order. In fact, straight-jacketing NPDES permit writers to choose one approach to the exclusion of another, even within the confines of a single MS4 permit, would run afoul of USEPA's expectations in the 2014 USEPA Memorandum for a fact-specific, documented justification for the permit requirements included to implement a wasteload allocation.

The Environmental Petitioners argue that the provisions are contrary to law because they excuse Permittees from complying with final numeric wasteload allocations as long as they are implementing the BMPs proposed in the WMP/EWMP. The approach taken by the Los Angeles MS4 Order to compliance here is similar to the provisions for compliance with receiving water limitations that are not otherwise addressed by a TMDL: The Permittee proposes control measures and a timeline that is as short as possible and is considered in compliance with the final numeric limitations while implementing the control measures consistent with the schedule. We find that, given the absence of an implementation plan with final compliance deadlines specified in the Los Angeles Water Board's water quality control

¹⁷¹ Wat. Code, § 13242.

¹⁷² *Id.*, See, e.g., § 13300.

¹⁷³ The Los Angeles MS4 Order's Fact Sheet states that the Los Angeles Water Board may choose to adopt implementation plans or issue enforcement orders in the future. (Los Angeles MS4 Order, Att. F, Fact Sheet, p. F-111.)

¹⁷⁴ Los Angeles MS4 Order, Part VI.E.3., pp. 145-146.

plan, this approach is consistent with the assumptions and requirements of the relevant wasteload allocations. We will not revise the provisions.

D. Non-Storm Water Discharge Provisions

Permittee Petitioners argue that the non-storm water discharge provisions of the Los Angeles MS4 Order are contrary to the Clean Water Act. Specifically, Permittee Petitioners assert that the Los Angeles MS4 Order improperly regulates non-storm water discharges from the MS4 to the receiving waters by imposing the prohibition of discharge “through the MS4 to the receiving waters” and by imposing WQBELs and other numeric limitations, rather than the MEP standard, on dry weather discharges.

The Los Angeles MS4 Order states that “[e]ach Permittee shall, for the portion of the MS4 for which it is an owner or operator, prohibit non-storm water discharges through the MS4 to receiving waters” with certain exceptions including discharges separately regulated under an NPDES permit and discharges conditionally exempt from the prohibition consistent with the federal regulations.¹⁷⁵ Permittee Petitioners take issue with the imposition of the prohibition “through the MS4 to receiving waters” because the language does not track the specific requirement of the Clean Water Act that the MS4 permit “include a requirement to effectively prohibit non-stormwater discharges *into the storm sewer.*” (Emphasis added.)¹⁷⁶

We find the variation in language to be a distinction without a difference. Whether the Los Angeles MS4 Order prohibits non-storm water discharges *into* the MS4 or *through* the MS4 to receiving waters, the intent and effect of the prohibition is to prevent non-exempt non-storm water discharges from reaching the receiving waters.¹⁷⁷ The legal standard governing non-storm water – effective prohibition -- is not altered because the Los Angeles MS4 Order imposes the prohibition at the point of entry into the receiving water rather than the point of entry into the MS4 itself. Instructively, USEPA has used the terms “into,” “from,” and “through” interchangeably when describing the prohibition.¹⁷⁸

¹⁷⁵ *Id.*, Part III.A, pp 27-33.

¹⁷⁶ 33 U.S.C. § 1342(p)(3)(B)(ii).

¹⁷⁷ The Los Angeles Water Board notes that the language in the Los Angeles MS4 Order is not significantly changed from the version in the 2001 Los Angeles MS4 Order, which prohibited non-storm water discharges “into the MS4 and watercourses.” The Board additionally asserts that phrasing the prohibition as “through the MS4 to receiving waters” provides Permittees with greater flexibility to use measures that control non-storm water after it enters the MS4, including regional solutions such as low-flow diversions and catch-basin inserts.

¹⁷⁸ See, e.g., 55 Fed. Reg. 47990, 47995-47996 (“Section 402(p)(B)(3) of the CWA requires that permits for discharges *from municipal separate storm sewer systems* require the municipality to ‘effectively prohibit’ non-storm water discharges *from the municipal separate storm sewer*...Ultimately, such non-storm water discharges *through a municipal separate storm sewer* must either be removed from the system or become subject to an NPDES permit. . . . (Continued)

Permittee Petitioners' objection to the phrasing of the prohibition in the Los Angeles MS4 Order appears to be based largely on the assumption that prohibiting non-storm water discharges at the point of entry into the receiving water rather than at the point of entry into the MS4 allows the Los Angeles Water Board to impose requirements on those discharges that would otherwise not be available under the Clean Water Act and federal regulations. We disagree.

As a preliminary matter, regardless of the phrasing of the non-storm water discharge prohibition, MEP is not the standard that governs non-storm water discharges. Permittee Petitioners have asserted that, for non-storm water discharges that enter the MS4, MEP is the governing standard just as it is for storm water discharges. This assertion misinterprets the statute. The Clean Water Act imposes two separate standards for regulation of non-storm water and storm water in an MS4 permit: The MS4 permit "shall include a requirement to effectively prohibit non-stormwater discharges" into the MS4, and "shall require controls to reduce the discharge of pollutants to the maximum extent practicable. . . ." ¹⁷⁹ Although the statute imposes the MEP standard to control of "pollutants" rather than specifically to "pollutants in storm water," any reading of section 402(p)(3)(B)(iii) to apply generally to both non-storm water and storm water would render the effective prohibition of non-storm water in section 402(p)(3)(B)(ii) meaningless. The federal regulations confirm the distinction between the treatment of storm water and non-storm water by establishing requirements to prevent illicit discharges from entering the MS4. ¹⁸⁰ While the regulations have no definition for "non-storm water discharges," illicit discharges most closely represent the statutory term and are defined as "any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit . . . and discharges resulting from firefighting activities." ¹⁸¹ Further, contrary to assertions by Permittee Petitioners, the definition of storm water in the federal regulations is not inclusive of dry weather discharges. The federal regulations define storm water as "storm water runoff, snow melt runoff, and surface runoff and

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The CWA prohibits the point source discharge of non-storm water not subject to an NPDES permit *through municipal separate storm sewers to waters of the United States.*" (Emphasis added.)

¹⁷⁹ 33 U.S.C. § 1342(p)(3)(b)(iii).

¹⁸⁰ 40 C.F.R. § 122.26(d)(2)(iv)(B).

¹⁸¹ *Id.*, § 122.26(b)(2). The preamble to the regulations states: "Today's rule defines the term 'illicit discharge' to describe any discharge through a municipal separate storm sewer system that is not composed entirely of storm water and that is not covered by an NPDES permit." (55 Fed. Reg. 47990, 47995 (Nov. 16, 1990).)

drainage.”¹⁸² Surface runoff and drainage cannot be understood to refer to dry weather discharges where USEPA has specifically stated in the preamble to the relevant regulations that it would not expand the definition of storm water to include “a number of classes of discharges which are not in any way related to precipitation events.”¹⁸³ Accordingly, dry weather discharges are not a component of storm water discharges subject to the MEP standard.¹⁸⁴

Second, the Los Angeles Water Board’s legal authority to impose TMDL-based WQBELs and other limitations on dry weather discharges is derived not from the phrasing of the discharge prohibition in the statute but from the TMDLs themselves, as well as the Clean Water Act direction to require “such other provisions” as the permitting authority “determines appropriate for the control of such pollutants.” We have already found that the Los Angeles MS4 Order reasonably (and legally) incorporated numeric WQBELs and other limitations to implement the TMDLs. The Los Angeles Water Board’s authority to impose the limitations for dry weather conditions is accordingly independent of the provisions establishing the non-storm water effective prohibition.

Permittee Petitioners also assert that requiring compliance with the non-storm water discharge prohibition through and from the MS4 would frustrate enforcement of the illicit connection and illicit discharge elimination programs of the Los Angeles MS4 Order, which continue to require the Permittee to prohibit illicit discharges and connections to the MS4.¹⁸⁵ On this point, we agree with the Los Angeles Water Board that the illicit connection and illicit discharge elimination program is a means to implement the non-storm water prohibition and independently implementable and enforceable. We are more sympathetic to the argument by Permittee Petitioners that, in the context of a complex MS4 system with commingled discharges, the prohibition of discharges through the MS4 to the receiving waters poses greater compliance challenges than a prohibition of discharges into the MS4; however, the Los Angeles MS4 Order’s Monitoring and Reporting Program contains a procedure by which a Permittee will notify the Board and the upstream jurisdiction when non-exempted, non-storm water discharges pose an issue in commingled discharges.¹⁸⁶ Further, the Los Angeles Water Board states in its

¹⁸² 40 C.F.R. § 122.26(b)(13).

¹⁸³ 55 Fed. Reg. 47990, 47995 (Nov. 16, 1990).

¹⁸⁴ We disagree that the phrasing of the non-storm water discharge prohibition in the Los Angeles MS4 Order means that *any* dry weather discharges from the MS4 could be construed as a violation of the Clean Water Act for the same reasons articulated in footnote 133 of this order.

¹⁸⁵ Los Angeles MS4 Order, Parts VI.A.2.a.iii, p. 40, VI.D.4.d., p. 81-86, VI.D.10, p. 137-141.

¹⁸⁶ Los Angeles MS4 Order, Att. E, Monitoring and Reporting Program, Part IX.F.6, p. E-27.

October 15, 2013 Response that the upstream jurisdiction would then have the responsibility to further investigate and address the discharge.¹⁸⁷ The challenge of addressing compliance and enforcement in the context of interconnected MS4s and commingled discharges is a challenge pervasive in the MS4 regulatory structure and not unique to non-storm water discharges. We are not sufficiently persuaded by Permittee Petitioners' arguments regarding compliance to disturb the non-storm water prohibitions as currently established in the Los Angeles MS4 Order.

E. Monitoring Provisions

Relying on Water Code sections 13165, 13225, and 13267, Permittee Petitioners argue that the Los Angeles Water Board was required to conduct a cost-benefit analysis to support the monitoring and reporting requirements of the Los Angeles MS4 Order. Because the monitoring and reporting provisions of the Los Angeles MS4 Order are incorporated pursuant to federal law, the cited provisions are inapplicable here. The monitoring and reporting provisions of the Los Angeles MS4 Order were established under the Clean Water Act and USEPA's regulations.¹⁸⁸ Further, under state law, Water Code section 13383, rather than Water Code section 13267, controls monitoring and reporting requirements in the context of NPDES permitting, and that provision does not include a requirement to ensure that the burden, including costs of the report, bear a reasonable relationship to the need for the report.¹⁸⁹

¹⁸⁷ Los Angeles Water Board, October 15, 2013 Response, p. 33 & fn. 116.

¹⁸⁸ See 33 U.S.C. §§ 1318, 1342(a)(2); 40 C.F.R. §§ 122.26(d)(2)(i)(F), 122.26(d)(2)(iii)D, 122.41(h), 122.41(j), 122.41(l), 122.42(c), 122.44(i), 122.48.

¹⁸⁹ Permittee Petitioners argue that the cost considerations of Water Code sections 13225 and 13267 are relevant to the Los Angeles MS4 Order notwithstanding the fact that it was issued under federal authority because the requirements of those section are not inconsistent with the requirements of section 13383. (See Water Code, §13372, subd. (a) ("To the extent other provisions of this division are consistent with the requirements for state programs . . . those provisions apply . . .").) This exact assertion was taken up by the trial court in litigation challenging the 2001 Los Angeles MS4 Order and decided in favor of the Los Angeles Water Board. The trial court stated: "As noted in *Silkwood v. Kerr-McGee Corp.* (1984) 464 U.S. 238, the Court held, in part: 'state law is still preempted. . . where the state law stands as an obstacle to the accomplishment of the full purposes and objectives of Congress.' (464 U.S. at p. 248.) Applying Water Code sections 13225 and 13267 would stand, in the words of *Silkwood* as: 'an obstacle to the accomplishment of the full purposes and objectives of [the federal law].' (Ibid)." (*In re Los Angeles County Municipal Storm Water Permit Litigation* (L.A. Super. Ct., No. BS 080548, Mar. 24, 2005) Statement of Decision from Phase II Trial on Petitions for Writ of Mandate, at pp.19-20 (Administrative Record, section 10.II., RB-AR23197-23198.). Further, we note that Water Code section 13383, subdivision (c) specifically references subdivision (c) of section 13267 when establishing facility inspection requirements; in contrast, section 13383, subdivision (a) does not reference subdivision (b) of section 13267, which incorporates the requirement that "[t]he burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports." Water Code section 13383, subdivision (a), was therefore arguably intended to stand in place of the requirements in section 13267(b). Finally, even where authority to impose a monitoring and reporting requirement is clearly derived from Water Code section 13267, the provision requires consideration of the costs and benefits of monitoring and reporting, but not a full cost-benefit analysis. We therefore find that the Los Angeles Water Board did not fail to meet its legal obligations by not carrying out a full cost-benefit analysis specific to the monitoring and reporting requirements of the Los Angeles MS4 Order. However, in making this finding, in no way do we mean to disavow the significance of cost consideration in permitting actions, even where not specifically required by law. We note again that the Los Angeles Water Board carefully considered the costs of (Continued)

Moreover, the monitoring and reporting requirements of the Los Angeles MS4 Order do not exceed the requirements of the Clean Water Act and the federal regulations.¹⁹⁰ In particular, we find that the receiving water monitoring requirements of the Order are reasonable in light of the need to identify water quality exceedances and evaluate progress in compliance with water quality standards. The argument made by several Permittee Petitioners that the federal regulations allow only two types of monitoring – effluent and ambient – for compliance is without support in the relevant regulations. The relevant law is clear that the permitting authority is required to incorporate monitoring and reporting requirements sufficient to determine compliance with the permit conditions.¹⁹¹ In contrast, nothing in the Clean Water Act or the regulations states that requiring wet weather receiving water monitoring is beyond the authority of the permitting agency.¹⁹² Further, accepting such a constrained interpretation of the Clean Water Act’s monitoring requirements would undermine storm water permitting assessment. Excluding wet weather receiving water monitoring would preclude storm water dischargers from assessing the impacts of their discharges on waters of the United States during the events for which they are primarily being permitted—storm events. We find nothing in the text or preamble of the federal regulations to support a narrow interpretation of monitoring to exclude wet weather receiving monitoring.

To the extent Permittee Petitioners are arguing that the MEP standard, applied at the outfall, constrains the permitting authority’s discretion to require monitoring beyond the outfall, we also find no support in the law for that proposition. We have already stated that we will continue to require compliance with water quality standards in MS4 permits. Wet weather receiving water monitoring is fundamental to assessing the effects of storm water discharges on water quality and determining the trends in water quality as Permittees implement control

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compliance with the Los Angeles MS4 Order generally as summarized in the Fact Sheet. (See Los Angeles MS4 Order, Att. F, Fact Sheet, pp. F-144-F-149.) Further, the Los Angeles Water Board considered monitoring costs-related comments on earlier drafts of the Los Angeles MS4 Order, and, in a number of cases, where presented with an argument that a cost related to a particular monitoring requirement was not commensurate with the benefits to be received from that requirement, made revisions to the requirement. (See, e.g., Administrative Record, section 8, RB-AR19653-19654, RB-AR19666, RB-AR19674, RB-AR19681.)

¹⁹⁰ The Los Angeles Water Board provided its rationale for the receiving water monitoring requirements in the Fact Sheet of the Los Angeles MS4 Order. (Los Angeles MS4 Order, Att. F, Fact Sheet, F-113-F-137.)

¹⁹¹ See 33 U.S.C. § 1318(a)(2); 40 C.F.R. § 122.26(d)(2)(i)(F). While we do not interpret these requirements to mean that each and every permit condition must have a corresponding monitoring and reporting requirement, neither do we see any constraints on the water boards’ authority to establish monitoring and reporting requirements.

¹⁹² Permittee Petitioners reference language in the federal regulations concerning “effluent and ambient monitoring” (40 C.F.R. § 122.44(d)(1)(vi)(C)(3)) and appear to be using the phrase as support for their argument. That section is inapposite as it applies to situations where a State has not established a water quality objective for a pollutant present in the effluent and instead establishes effluent limitations on an indicator parameter for the pollutant of concern.

measures. Compliance may be determined at the outfall – for example, where a permittee determines that the discharge does not exceed an applicable WQBEL or receiving water limitation – but outfall monitoring alone cannot provide the broader data related to trends in storm water discharge impacts on the receiving water. Accordingly, receiving water monitoring is a legal and reasonable component of the monitoring and reporting program. Further, because Permittees are responsible for impacts to the receiving waters resulting from their MS4 discharges, Permittees may be required to participate in monitoring not only in receiving waters within their jurisdiction but also in monitoring all receiving waters that their discharges impact.

We will make no revisions to the Monitoring and Reporting provisions of the Order.

F. Joint Responsibility

In the extensive and interconnected system regulated by the Los Angeles MS4 Order, discharges originating from one Permittee’s MS4 frequently commingle with discharges from other Permittees’ MS4s within or outside of the Permittee’s jurisdiction. Permittee Petitioners argue that the Los Angeles MS4 Order improperly ascribes responsibility to all Permittees with commingled discharges where those commingled discharges exceed a WQBEL or cause or contribute to exceedances of receiving water limitations. Specifically, Permittee Petitioners take issue with the fact that the Los Angeles MS4 Order ascribes “joint responsibility”¹⁹³ to the co-Permittees without a showing that a particular Permittee has in fact discharged the pollutant causing or contributing to the exceedance.

The Los Angeles Water Board counters that the joint responsibility regime is consistent with the intent of the Clean Water Act and further that it does not compel a Permittee to clean up the discharge of another Permittee. The Los Angeles Water Board points to two provisions for this latter proposition. First, even with joint responsibility, Permittees that have commingled MS4 discharges need only comply with permit conditions relating to discharges from the MS4 for which they are owners or operators.¹⁹⁴ Second, even where joint responsibility is presumed, a Permittee may subsequently counter the presumption of joint responsibility by

¹⁹³ “Joint responsibility” is the term used in the Los Angeles MS4 Order. (See Los Angeles MS4 Order, Part II.K.1, p. 23 (“‘Joint responsibility’ means that the Permittees that have commingled MS4 discharges are responsible for implementing programs in their respective jurisdictions, or within the MS4 for which they are an owner and/or operator, to meet the water quality-based effluent limitations and/or receiving water limitations assigned to such commingled MS4 discharges.”) As defined by the Los Angeles Water Board and as discussed below, this term does not have the same meaning and scope as the legal doctrine of “joint liability.”

¹⁹⁴ Los Angeles MS4 Order, Parts II.K.1, pp. 23-24, VI.A.4.a., p. 41; 40 C.F.R. § 122.26(a)(3)(vi); see also, *id.*, Part VI.E.2.b.ii., p. 142 (stating in the context of TMDL requirements that, where discharges are commingled and assigned a joint WLA, “each Permittee is only responsible for discharges from the MS4 for which they are owners and/or operators.”)

affirmatively demonstrating that its MS4 discharge did not cause or contribute to the relevant exceedances.¹⁹⁵

Given the size and complexity of the MS4s regulated under the Los Angeles MS4 Order and the challenges inherent in designing a monitoring program that could parse out responsibility for each individual Permittee, we find that a joint responsibility regime is a reasonable approach to assigning initial responsibility for an exceedance. The Los Angeles MS4 Order provisions addressing TMDLs also appropriately take a joint responsibility approach, given that the wasteload allocations from which the WQBELs and other TMDL-specific limitations are derived are most frequently expressed as joint allocations shared by all MS4 dischargers in the watershed. We further agree with the Los Angeles Water Board that the regime is one that is permissible under applicable law. The Clean Water Act contemplates that MS4 permits may be issued on a system-wide or jurisdiction-wide basis¹⁹⁶ and the federal regulations anticipate the need for inter-governmental cooperation.¹⁹⁷ Further, the United States Court of Appeal, Ninth Circuit, recently stated in *Natural Resources Defense Council v. County of Los Angeles* (2013) 725 F.3d 1194 that the permitting authority has wide discretion concerning the terms of a permit, including the manner in which permittees share liability.¹⁹⁸

Yet, we also find that joint responsibility in an MS4 Order is only appropriate if the ultimate responsibility for addressing an exceedance rests with those permittees that actually cause or contribute to the exceedance in question. The re-issued Los Angeles MS4 Order contains additional specificity and monitoring, beyond that contained in the 2001 Los Angeles MS4 Order, to document compliance and the presence or absence of an individual municipality's contribution of pollutants to the storm water. For this reason, the general reasoning of the Ninth Circuit's 2013 *Natural Resources Defense Council v. County of Los Angeles* decision finding liability based solely on the presence of pollutants above water quality standards in the receiving waters is of limited forward-looking importance. Generally, in the context of MS4 permits, we do not sanction joint responsibility to the extent that that joint

¹⁹⁵ *Id.*, Part VI.E.2., pp.141-42; see also *id.*, Part II.K.1, pp. 23-24.

¹⁹⁶ 33 U.S.C. § 1342(p)(3)(B)(i).

¹⁹⁷ See 40 C.F.R. §§ 122.26(d)(2)(i)(D), 122.26(d)(2)(iv), 122.26(d)(2)(vii).

¹⁹⁸ *Natural Resources Defense Council v. County of Los Angeles* (9th Cir. 2013) 725 F.3d 1194, 1205, fn. 16, cert. den. *Los Angeles County Flood Control Dist. v. Natural Resources Defense Council* (2014) 134 S.Ct. 2135. The Ninth Circuit went on to find that, based on the specific language of the 2001 Los Angeles MS4 Order, the Permittees were jointly liable for exceedances detected by mass emissions monitoring.

responsibility would require each Permittee to take full responsibility for addressing violations, regardless of whether, and to what extent, each permittee contributed to the violation.¹⁹⁹

The Los Angeles MS4 Order does not impose such a joint responsibility regime where each Permittee must take full responsibility for addressing other Permittees' violations. In addition to clearly stating that permittees are responsible only for their contribution to the commingled discharges, the Los Angeles MS4 Order provides that Permittees may affirmatively show that their discharge did not cause or contribute to an exceedance. Joint responsibility, as applied by the Los Angeles MS4 Order, is thus consistent with our expectation that ultimate responsibility for addressing an exceedance rests with those Permittees that actually cause or contribute to the exceedance and consistent with the regulatory direction that co-permittees need only comply with permit conditions relating to discharges from the MS4 for which they are owners or operators.

While the result is that the burden rests on the Permittee to demonstrate that its commingled discharge is not the source of an exceedance, rather than on the Los Angeles Water Board to demonstrate that a Permittee's commingled discharge is causing or contributing to the exceedance, the result is not contrary to law. The Los Angeles Water Board has the initial burden to show that a violation of the Los Angeles MS4 Order has occurred,²⁰⁰ but the Board can do so by establishing an exceedance of a limitation by jointly responsible Permittees and need not identify the exact source of the exceedance. This scheme represents a reasonable policy approach to a complicated compliance question where the Permittees are more closely familiar than the Los Angeles Water Board with their outfalls and their discharges in the extensive and interconnected MS4 network.

We are, however, concerned that the Los Angeles MS4 Order's treatment of the joint responsibility issue is too narrow. The Los Angeles Water Board addresses the issue of joint responsibility primarily in the context of compliance with the TMDL requirements of the Order. Commingled discharges pose the same questions of assigning responsibility where receiving water limitations are exceeded in water bodies receiving MS4 discharges from multiple jurisdictions, but where the pollutant is not addressed by a TMDL. A similar approach to

¹⁹⁹ In a "joint and several liability" scheme, a plaintiff may collect his or her entire damages from any one defendant, and the defendants must then rely on principles of indemnity or contribution to apportion ultimate liability amongst themselves. (See *American Motorcycle Assn. v. Superior Court of Los Angeles County* (1978) 20 Cal. 3d 578, 586-590.) Because the Los Angeles MS4 Order's joint responsibility scheme does not equate to joint liability, and because we do not find such liability appropriate from a policy perspective, we do not address Petitioners' legal arguments as to whether joint or joint and several liability in the storm water context would be consistent with applicable law.

²⁰⁰ See e.g. *Sackett v. E.P.A.* (9th Cir. 2010) 622 F.3d 1139 rev'd on other grounds *Sackett v. E.P.A.* (2012) 132 S. Ct. 1367.

assigning responsibility for addressing the exceedances is appropriate there. We will add new language to the Los Angeles MS4 Order mirroring Part VI.E.2.b., but applying the principles more generally.

We also take this opportunity to emphasize that all MS4 permits should be drafted to avoid one potential, but likely unintended, result arising from *Natural Resources Defense Council v. County of Los Angeles*. The broadest reading of the Ninth Circuit's holding following remand from the U.S. Supreme Court would assign joint liability to all Permittees for any exceedance at a monitoring location designated for the purpose of compliance determination, even if the particular pollutant is not typically found in storm water and has a likely alternative source such as an industrial discharger or waste water treatment plan. Providing municipalities an opportunity to demonstrate that they did not contribute to a pollutant present in receiving waters above standards will prevent this outcome.

We shall amend Part VI.B. as follows:

B. Monitoring and Reporting Program (MRP) Requirements

- 1.** Dischargers shall comply with the MRP and future revisions thereto, in Attachment E of this Order or may, in coordination with an approved Watershed Management Program per Part VI.C, implement a customized monitoring program that achieves the five Primary Objectives set forth in Part II.A. of Attachment E and includes the elements set forth in Part II.E. of Attachment E.

2. Compliance Determination for Commingled Discharges

- a. For commingled discharges addressed by a TMDL, a Permittee shall demonstrate compliance with the requirements of Part E as specified at Part E.2.b.**
- b. For commingled discharges not addressed by a TMDL, a Permittee shall demonstrate compliance with the requirements of Part V.A as follows:**
 - i. Pursuant to 40 CFR section 122.26(a)(3)(vi), each Permittee is only responsible for discharges from the MS4 for which they are owners and/or operators.**
 - ii. Where Permittees have commingled discharges to the receiving water, or where Permittees' discharges commingle in the receiving water, compliance in the receiving water shall be determined for the group of Permittees as a whole unless an individual Permittee demonstrates that its discharge did not cause or contribute to the exceedance, pursuant to subpart iv. below.**

- iii. For purposes of compliance determination, each Permittee is responsible for demonstrating that its discharge did not cause or contribute to an exceedance of the receiving water limitation in the target receiving water.
- iv. A Permittee may demonstrate that its discharge did not cause or contribute to an exceedance of a receiving water limitation in one of the following ways:
 - (1) Demonstrate that there was no discharge from the Permittee's MS4 into the applicable receiving water during the relevant time period;
 - (2) Demonstrate that the discharge from the Permittee's MS4 was controlled to a level that did not cause or contribute to the exceedance in the receiving water;
 - (3) Demonstrate that there is an alternative source of the pollutant that caused the exceedance, that the pollutant is not typically associated with MS4 discharges, and that the pollutant was not discharged from the Permittee's MS4; or
 - (4) Demonstrate that the Permittee is in compliance with the Watershed Management Programs provisions under VI.C.

G. Separation of Functions in Advising the Los Angeles Water Board

Petitioners Cities of Duarte and Huntington Park (Duarte and Huntington Park) argue that their rights to due process of law were violated when the same attorneys advised both the Los Angeles Water Board staff and the Board itself in the course of the proceedings to adopt the Los Angeles MS4 Order. We disagree and reaffirm our position that permitting actions do not require the water boards to separate functions when assigning counsel to advise in development and adoption of a permit.

A water board proceeding to adopt a permit, including an NPDES permit, waste discharge requirements, or a waiver of waste discharge requirements, is an adjudicative proceeding subject to the Administrative Procedure Act's administrative adjudication statutes in Government Code section 11400 et seq.²⁰¹ Section 11425.10, part of the "Administrative Adjudication Bill of Rights," provides that "[t]he adjudicative function shall be separated from the investigative, prosecutorial, and advocacy functions with the agency" ²⁰² In accordance with

²⁰¹ See Cal. Code Regs., tit. 23, § 648, subd. (b).

²⁰² Gov. Code, § 11425.10, subd. (a)(4). Subdivision (a)(4) references section 11425.30, which addresses disqualification of a presiding officer that has served as "investigator, prosecutor, or advocate" in the proceeding or its preadjudicative stage or is subject to "the authority, direction, or discretion" of a person who has served in such roles.

this directive, the water boards separate functions in all enforcement cases, assigning counsel and staff to prosecute the case, and separate counsel and staff to advise the board.

In a permitting action, water board counsel have an advisory role, not an investigative, prosecutorial, or advocacy role. Permitting actions are not investigative in nature and there is no consideration of liability or penalties that would make the action prosecutorial in nature. Further, while both counsel and staff are expected to develop recommendations for their boards, the role of counsel and staff is not to act as an advocate for one particular position or party concerning the permitting action, but to advise the board as neutrals, with consideration of the legal, technical, and policy implications of all options before the board. In the case of counsel, such consideration and advice includes not just legal evaluation of the substantive options for permitting but also of procedural issues such as admissibility of the evidence, conduct of the hearing, and avoidance of board member conflicts. Because counsel and staff are advisors to the board rather than advocates for a particular position, the same counsel may advise staff in the course of development of the permit and the board in the adoption proceedings.

A primary purpose of separation of functions in adjudicatory proceedings is the need to prevent improper ex parte communications.²⁰³ The exceptions to the ex parte communications rules further support the position that counsel advising board staff may also advise the board itself. While section 11430.10 of the Government Code generally prohibits communications concerning issues in a pending administrative proceeding between the presiding officer and an employee of the agency that is a party,²⁰⁴ one exception provides that a communication “for the purpose of assistance and advice to the presiding officer,” in this case the board, “from a person who has not served as investigator, prosecutor, or advocate in the proceeding or its preadjudicative stage” is permissible. Even if board counsel could be considered an advocate in the proceeding, another provision (specifically referencing the water boards) excepts the communication from the general ex parte communications rules. A communication is not an ex parte communication if:

- (c) The communication is for the purpose of advising the presiding officer concerning any of the following matters in an adjudicative hearing that is nonprosecutorial in character:

²⁰³ See *Dept. of Alcoholic Beverage Control v. Alcoholic Beverage Control Appeals Bd.* (2006) 40 Cal.4th 1, 9-10.

²⁰⁴ Government Code section 11430.10 prohibits communications between an employee that is a “party” to a pending proceeding and the presiding officer. We disagree that Los Angeles Water Board staff, as an advisor to the Board, was a “party” to the proceedings for adoption of the Los Angeles MS4 Order, but, even if staff could be considered a party, the cited exceptions to the ex parte communications rules would apply.

...
(2) The advice involves an issue in a proceeding of the San Francisco Bay Conservation and Development Commission, California Tahoe Regional Planning Agency, Delta Protection Commission, Water Resources Control Board, or a regional water quality control board.²⁰⁵

The fact that communications that would otherwise be considered prohibited ex parte communications are specifically permitted in non-prosecutorial adjudicative proceedings of the water boards further supports the position that the water boards are not obligated by law to separate functions in permitting actions.

We acknowledge that there may be some unique factual circumstances under which a permitting proceeding could violate due process or the Administrative Procedure Act because board counsel either acted or gave the appearance of acting as a prosecutor or advocate. Duarte and Huntington Park point to a writ of mandate issued by the Los Angeles Superior Court in 2010,²⁰⁶ holding that a 2006 proceeding to incorporate provisions of the Santa Monica Bay Beaches TMDL into the 2001 Los Angeles MS4 Order was not fairly conducted because Los Angeles Water Board counsel had acted as an advocate for Board staff, directly examining Board staff witnesses, cross-examining witnesses called by permittees, objecting to questions asked by permittees, and making a closing argument on behalf of Board staff, while simultaneously advising the Board. The proceedings to adopt the Los Angeles MS4 Order did not follow the type of adversarial structure that led the Superior Court to find a violation of separation of functions in the 2006 proceedings.²⁰⁷ Further, nothing in the conduct of the Los Angeles Water Board attorneys in the Los Angeles MS4 Order proceedings leads us to find that they acted as advocates for a particular position or party, rather than as advisors to the Board.

²⁰⁵ Gov. Code, § 11430.30. We note that the Law Revision Commission comments on section 11430.30, subdivision (c), state that “[s]ubdivision (c) applies to nonprosecutorial types of administrative adjudications, such as . . . proceedings . . . setting *water quality protection . . . requirements*.” (Emphasis added.) The notes further state that “[t]he provision recognizes that the length and complexity of many cases of this type may as a practical matter make it impossible for any agency to adhere to the restrictions of [ex parte communications], given limited staffing and personnel.” (25 Cal.L.Rev.Comm. Reports 711 (1995).) We agree that the lengthy and complex nature of permitting proceedings, and the limited staffing resources of the water boards, caution against an expansive interpretation of separation of functions in non-prosecutorial adjudications.

²⁰⁶ *County of Los Angeles v. State Water Resources Control Board* (Super. Ct., Los Angeles Co. (June 2, 2010, Minute Order) No. BS122724) (Administrative Record, section 10.II, RB-AR23665-23667.)

²⁰⁷ We also note that, although the writ directed that petitioners were entitled to a new hearing “in which the same person does not act as both an advocate before the Board and an advisor to the Board,” the writ had no direct bearing on the separate proceedings to adopt the Los Angeles MS4 Order. In any case, as discussed, Board attorneys did not act as advocates in the proceedings to adopt the Los Angeles MS4 Order.

The two specific cases pointed to by Duarte and Huntington Park – advice by Board counsel to Board member Mary Ann Lutz regarding recusal due to ex parte communications and advice to the Board generally on the lack of a cost-benefit analysis requirement in federal law – may be contrary to the legal position held by Duarte and Huntington Park, but there is nothing in the record to suggest that the advice was driven by biased advocacy for a Board staff position.²⁰⁸ In the absence of such evidence, we find no reason to depart from the general rule that separation of functions is not required in a permitting proceeding²⁰⁹ and find that Los Angeles Water Board counsel acted in accordance with applicable laws in advising Board staff and the Board itself.

H. Signal Hill's Inclusion in the Order

The City of Signal Hill (Signal Hill) argues that the Los Angeles Water Board acted contrary to relevant law when it issued the system-wide Los Angeles MS4 Order that included Signal Hill, even though Signal Hill had submitted an application for an individual permit.²¹⁰ We disagree.

Signal Hill points out that the federal regulations allow an operator of an MS4 to choose between submitting an application jointly with one or more other operators for a joint permit or individually for a distinct permit.²¹¹ However, the choice of application does not necessarily dictate the type of permit that the permitting authority ultimately deems appropriate. The permitting authority in turn has discretion to determine if the permit should be issued on a

²⁰⁸ See Administrative Record, section 7, RB-AR18309-18316, RB-AR18397-18400 (Transcript of Proceedings on Oct. 4, 2012), section 7, RB-AR18892-18894 (Transcript of Proceedings on Oct. 5, 2012).

²⁰⁹ Although *Morongo Band of Mission Indians v. State Water Resources Control Board* (2009) 45 Cal.4th 731 concerned an enforcement proceeding and therefore is not on point for our legal determination above, we take note of the direction by the California Supreme Court that separation of functions in an administrative tribunal should not be expanded beyond its appropriate scope: “In construing the constitutional due process right to an impartial tribunal, we take a more practical and less pessimistic view of human nature in general and of state administrative agency adjudicators in particular . . . [and where proper procedure is followed and in the absence of a specific demonstration of bias or unacceptable risk of bias] we remain confident that state administrative agency adjudicators will evaluate factual and legal arguments on their merits, applying the law to the evidence in the record to reach fair and reasonable decisions.” (*Morongo Band of Mission Indians, supra*, at pp. 741-742.)

²¹⁰ Signal Hill was one of several permittees under the 2001 Los Angeles MS4 Order that elected not to submit an application jointly with the other permittees for the renewed permit. The other parties have not challenged their inclusion under the Los Angeles MS4 Order. The Los Angeles Water Board rejected Signal Hill's application as incomplete; however, our determination that the Los Angeles Water Board had the discretion to issue the system-wide Los Angeles MS4 Order is not dependent on that fact.

²¹¹ 40 C.F.R. § 122.26(a)(3)(iii). Signal Hill has also cited regulations applicable to Small MS4s at 40 Code of Federal Regulations sections 122.30 through 122.37. These regulations are not applicable here because the Los Angeles Water Board has designated the Greater Los Angeles County MS4, which includes the incorporated cities and the unincorporated areas of Los Angeles County within coastal watersheds, as a large MS4 pursuant to 40 Code of Federal Regulations section 122.26(b)(4).

jurisdictional or system-wide basis.²¹² While the federal regulations do not specifically state that, in exercising that discretion, the permitting authority may override the permit applicant's preference for an individual permit, nothing in the regulations constrains its authority to do so. Section 122.26(a)(3)(iii) of 40 Code of Federal Regulations does not require the permitting authority to take any specific action in response to the submission of an individual application. And sections 122.26(a)(3)(ii) and 122.26(a)(3)(iv) provide that the permitting authority "may issue" system-wide or distinct permits. The preamble to the regulations similarly contemplates wide discretion for the permitting authority to choose system-wide permits, including a permit that would allow an entire system in a geographical region to be designated under one permit.²¹³ Particularly because the option of a system-wide permit would be significantly frustrated if MS4 operators were allowed to opt out at their discretion, the most reasonable reading of the regulations is that the permitting authority, not the applicant, makes the ultimate decision as to the scope of the permit that will be issued. Accordingly, we find that the Los Angeles Water Board had the discretion under the relevant law to issue the Los Angeles MS4 Order with Signal Hill as a permittee.

We also find that the Los Angeles Water Board's decision regarding Signal Hill was appropriately supported by findings in the Order and in the Fact Sheet.²¹⁴ Finding C of the Los Angeles MS4 Order, as well as discussion in the Fact Sheet,²¹⁵ establishes that the Los Angeles Water Board found a system-wide permit to be appropriate for a number of reasons, including that Permittees' MS4s comprise a large interconnected system with frequently commingled discharges, that the TMDLs to be implemented apply to the jurisdictional areas of multiple Permittees, that the passage of Assembly Bill 2554²¹⁶ in 2010 provided a potential means for funding collaborative water quality improvement plans among Permittees, and that the results of an online survey conducted by Los Angeles Water Board staff showed that the

²¹² 33 U.S.C. § 1342(p)(3)(B)(i); 40 C.F.R. § 122.26(a)(1)(v), (a)(3)(ii), (a)(3)(iv).

²¹³ See 55 Fed. Reg. 47990, 48039-48043 (preamble to the Phase I regulations noting that section 122.26(a)(3)(iv) would allow an entire system in a geographical region to be designated under one permit and further discussing that sections 122.26(a)(1)(v) and (a)(3)(ii) allow the permitting authority broad discretion in issuing system-wide permits).

²¹⁴ *Topanga Assn., supra*, 11 Cal.3d at 515.

²¹⁵ Los Angeles MS4 Order, Part II.C., pp. 14-15; *id.*, Att. F, Fact Sheet, pp. F-15-F-18.

²¹⁶ Assembly Bill No. 2554, Chapter 602, an act to amend sections 2 and 16 of the Los Angeles County Flood Control Act (Chapter 755 of the Statutes of 1915), relating to the Los Angeles County Flood Control District, Sept. 30, 2010 (Administrative Record, section 10.VI.C., RB-AR29172-29179). The Bill allows the Los Angeles County Flood Control District to assess a property-related fee or charge, subject to voter approval in accordance with proposition 218, for storm water and clean water programs.

majority of Permittees favored either a single MS4 permit for Los Angeles County or several watershed-based permits.

Signal Hill points out that the reasons enumerated by the Los Angeles Water Board as grounds for issuance of a system-wide permit did not preclude the Los Angeles Water Board from issuing an individual permit to the City of Long Beach (Long Beach).²¹⁷ The Los Angeles Water Board has provided the rationale for distinguishing Signal Hill and Long Beach in its October 15, 2013 Response. The Los Angeles Water Board explains that Long Beach has had an individual permit for more than a decade and that, unlike Signal Hill, it was not permitted under the 2001 Los Angeles MS4 Order. The Board's decision to issue a separate permit to Long Beach was originally the result of a settlement agreement that resolved litigation on the MS4 permit issued by the Los Angeles Water Board in 1996, and Long Beach has a proven track record in implementing the individual permit while cooperating with Permittees under the Los Angeles MS4 Order.²¹⁸ We find that the Los Angeles Water Board reasonably distinguished between Long Beach and the Permittees under the Los Angeles MS4 Order in making determinations as to individual permitting. We will not reverse its determination but we will add a brief statement reflecting that reasoning to the Fact Sheet.

We shall amend section III.D.1.a. at page F-18, Attachment F, Fact Sheet, as follows:

The Regional Water Board determined that the cities of Signal Hill and Downey, the five upper San Gabriel River cities, and the LACFCD are included as Permittees in this Order. **In making that determination, the Regional Water Board distinguished between the permitting status of those cities and the permitting status of the City of Long Beach at this time because the City of Long Beach has a proven track record in implementing an individual permit and developing a robust monitoring program under that individual permit, as well as in cooperation with other MS4 dischargers on watershed based implementation. While all other incorporated cities with discharges within the coastal watersheds of Los Angeles County, as well as Los Angeles County and the Los Angeles County Flood Control District, are permitted under this Order,** individually tailored permittee requirements are provided in this Order, where appropriate.

²¹⁷ Signal Hill is located in the geographical middle of Long Beach and is entirely surrounded by that city.

²¹⁸ Los Angeles Water Board, October 15, 2013 Response, p. 25, fn. 78.

III. CONCLUSION

Based on the above discussion, we conclude as follows:

1. Although we are not bound by federal law or state law to require compliance with water quality standards in municipal storm water permits, we will not depart from our prior precedent regarding compliance with water quality standards. The regional water boards shall continue to require compliance with receiving water limitations in municipal storm water permits through incorporation of receiving water limitations provisions consistent with State Water Board Order WQ 99-05.
2. However, we find that municipal storm water dischargers may not be able to achieve water quality standards in the near term and therefore that it is appropriate for municipal storm water permits to incorporate a well-defined, transparent, and finite alternative path to permit compliance that allows MS4 dischargers that are willing to pursue significant undertakings beyond the iterative process to be deemed in compliance with the receiving water limitations.
3. We find that the WMP/EWMP provisions of the Los Angeles MS4 Order, with minor revisions that we incorporate herein, are an appropriate alternative to immediate compliance with receiving water limitations. The WMP/EWMP provisions are ambitious, yet achievable, and include clear and enforceable deadlines for the achievement of receiving water limitations and a rigorous and transparent process for development and implementation of the WMPs/EWMPs.
4. We find that the WMP/EWMP provisions do not violate anti-backsliding requirements.
5. We find that the WMP/EWMP provisions do not violate antidegradation requirements; however, we find that the antidegradation findings made by the Los Angeles Water Board are too cursory and revise those findings consistent with the federal and state antidegradation policies.
6. We find that issuance of time schedule orders is appropriate where a final receiving water limitations deadline set in the WMP/EWMP or a final TMDL-related deadline is not met; however we find that the WMP/EWMP compliance schedule need not otherwise be structured as an enforcement order.
7. We clarify the WMP/EWMP provisions to make it clear that final compliance with receiving water limitations and final WQBELs and other TMDL-specific limitations must be verified through monitoring.

8. We clarify the WMP/EWMP provisions to make it clear that Permittees may request extensions of deadlines incorporated into the WMPs/EWMPs except those final deadlines established in a TMDL. However, any deadline extensions must be approved by the Executive Officer after public review and comment.
9. In order to add greater rigor and accountability to the process of achieving receiving water limitations, we revise the WMP/EWMP provisions to add that the Permittees must comprehensively evaluate new data and information and revise the WMPs/EWMPs, including the supporting reasonable assurance analysis, by June 30, 2021, for approval by the Executive Officer.
10. We find that the storm water retention approach is a promising approach to achieving receiving water limitations, but also find that the Administrative Record does not support a finding that the approach will necessarily lead to achievement of water quality standards in all cases. We revise the WMP/EWMP provisions to clarify that, in the case of implementation of an EWMP with the storm water retention approach, if compliance with a final WQBEL or other TMDL-specific limitation is not in fact achieved in the drainage area, a Permittee will be considered in compliance with the relevant limitation only if the Permittee continues to adaptively manage the EWMP to achieve ultimate compliance with the WQBEL or other TMDL limitation.
11. We find reasonable the WMP/EWMP provisions that allow permittees to be deemed in compliance with receiving water limitations during the planning and development phase of the WMP/EWMP. We revise the WMP/EWMP provisions to state that, if a Permittee fails to meet one of the deadlines, the Permittee may still develop a WMP/EWMP for approval by the Los Angeles Water Board or its Executive Officer; however, the Permittee will not be deemed in compliance with receiving water limitations or WQBELs and other TMDL-specific limitations during the subsequent WMP/EWMP development period.
12. We recognize that the Los Angeles MS4 Order WMP/EWMP compliance path alternative may not be appropriate in all MS4 permits. In order to provide guidance to regional water boards preparing Phase I MS4 permits, we lay out several principles to be followed in drafting receiving water limitations compliance alternatives: Phase I MS4 permits should (1) continue to require compliance with water quality standards in accordance with our Order WQ 99-05; (2) allow compliance with TMDL requirements to constitute compliance with receiving water limitations; (3) provide for a compliance

alternative that allows permittees to achieve compliance with receiving water limitations over a period of time as described above; (4) encourage watershed-based approaches, address multiple contaminants, and incorporate TMDL requirements; (5) encourage the use of green infrastructure and the adoption of low impact development principles; (6) encourage the use of multi-benefit regional projects that capture, infiltrate, and reuse storm water; and (7) require rigor, accountability, and transparency in identification and prioritization of issues in the watershed, in proposal and implementation of control measures, in monitoring of water quality, and in adaptive management of the program. We expect the regional water boards to follow these principles unless the regional water board makes a specific showing that application of a given principle is not appropriate for region-specific or permit-specific reasons.

13. We recognize that the success of the WMP/EWMP approach depends in large part on the steps that follow adoption of the provisions, including the development and approval of rigorous WMPs/EWMPs and the implementation and appropriate enforcement of the programs once approved. We direct the Los Angeles Water Board to periodically report specific information to the State Water Board regarding implementation of the WMPs/EWMPs, including on-the-ground structural control measures completed, monitoring data evaluating the effectiveness of such measures, control measures proposed to be completed and proposed funding and schedule, trends in receiving water quality related to storm water discharges, and compliance and enforcement data.
14. We find that the Los Angeles Water Board acted in a manner consistent with the law when establishing numeric WQBELs. We further find that the development of numeric WQBELs was a reasonable exercise of the Los Angeles Water Board's policy discretion, given its experience in developing the relevant TMDLs and the significance of storm water impacts in the region. However, we find that numeric WQBELs are not necessarily appropriate in all MS4 permits or for all parameters in any single MS4 permit.
15. We find that the Los Angeles Water Board's choice of BMP-based WQBELs, to be proposed by the Permittee in the WMP/EWMP to address USEPA-established TMDLs was reasonable.

16. We find that the Los Angeles Water Board did not act contrary to federal law when it prohibited the discharge of non-storm water “through the MS4 to receiving water” instead of “into” the MS4. Regardless of the exact wording of the prohibition, the standard that applies to non-storm water is the requirement of “effective prohibition.” However, the Los Angeles Water Board also has authority to regulate any dry weather discharges from the MS4s under the applicable TMDLs.
17. We find that the monitoring and reporting provisions of the Los Angeles MS4 Order are consistent with applicable law and reasonable.
18. We find that assigning joint responsibility for commingled discharges that cause exceedances is not contrary to applicable law. Given the size and complexity of the MS4s regulated under the Los Angeles MS4 Order, the joint responsibility regime also constitutes a reasonable policy choice. The Los Angeles MS4 Order specifically allows a permittee to avoid joint responsibility by demonstrating that its commingled discharge is not the source of an exceedance.
19. We find that representation of the Los Angeles Water Board and the Los Angeles Water Board staff by the same attorneys in the proceedings to adopt the Los Angeles MS4 Order was lawful and reasonable.
20. We find that the Los Angeles Water Board acted in a manner consistent with applicable law and reasonably when it issued a system-wide permit that included Signal Hill.

Addressing the water quality impacts of municipal storm water is a complex and difficult undertaking, requiring innovative approaches and significant investment of resources. We recognize and appreciate the commendable effort of the Los Angeles Water Board to come up with a workable and collaborative solution to the difficult technical, policy, and legal issues, as well as the demonstrated commitment of many of the area’s MS4 dischargers and of the environmental community to work with the Los Angeles Water Board in the development and implementation of the proposed solution. We also recognize the extensive work that interested persons from across the state, including CASQA, have invested in assisting us in understanding how the watershed-based alternative compliance approach developed by the Los Angeles Water Board may inform statewide approaches to addressing achievement of water quality requirements. While storm water poses an immediate water quality problem, we believe that a rigorous and transparent watershed-based approach that emphasizes low impact development, green infrastructure, multi-benefit projects, and capture, infiltration, and reuse of storm water is

a promising long-term approach to addressing the complex issues involved. We must balance requirements for and enforcement of immediate, but often incomplete, solutions with allowing enough time and leeway for dischargers to invest in infrastructure that will provide for a more reliable trajectory away from storm water-caused pollution and degradation. We believe that the Los Angeles MS4 Order, with the revisions we have made, strikes that balance at this stage in our storm water programs, but expect that we will continue to revisit the question of the appropriate balance as the water boards' experience in implementing watershed-based solutions to storm water grows.

IV. ORDER

IT IS HEREBY ORDERED that the Los Angeles MS4 Order is amended as described above in this order. The Los Angeles Water Board is directed to prepare a complete version of the Los Angeles MS4 Order (including any necessary non-substantive conforming corrections), post the conformed Los Angeles MS4 Order on its website, and distribute it as appropriate.

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held June 16, 2015.

AYE: Chair Felicia Marcus
Vice Chair Frances Spivy-Weber
Board Member Tam M. Doduc
Board Member Steven Moore
Board Member Dorene D'Adamo

NAY: None

ABSENT: None

ABSTAIN: None



Jeanine Townsend
Clerk to the Board

ATTACHMENT

20

CONFORMED (04/07/15)

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD
ORDER 2012-0011-DWQ

AS AMENDED BY
ORDER WQ 2014-0006-EXEC,
ORDER WQ 2014-0077-DWQ, AND
ORDER WQ 2015-0036-EXEC

NPDES NO. CAS000003
**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STATEWIDE STORM WATER PERMIT
WASTE DISCHARGE REQUIREMENTS (WDRS)
FOR
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION**

The State Water Resources Control Board adopted Order 2012-0011-DWQ on:	September 19, 2012
The Executive Director of the State Water Resources Control Board issued Order WQ 2014-0006-EXEC on:	January 17, 2014
The State Water Resources Control Board adopted Order WQ 2014-0077-DWQ on:	May 20, 2014
The Executive Director of the State Water Resources Control Board issued Order WQ 2015-0036-EXEC on:	April 7, 2015
The amendments to Order 2012-0011-DWQ contained in Order 2015-0036-DWQ are effective on:	April 7, 2015

CERTIFICATION

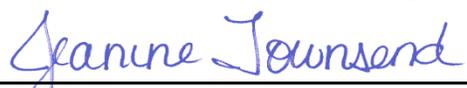
The undersigned, Clerk to the State Water Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on September 19, 2012.

AYE: Chairman Charles R. Hoppin
Vice Chair Frances Spivy-Weber
Board Member Tam M. Doduc
Board Member Steven Moore
Board Member Felicia Marcus

NAY: None

ABSENT: None

ABSTAIN: None



Jeanine Townsend
Clerk to the Board

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD
ORDER 2012-0011-DWQ

AS AMENDED BY
ORDER WQ 2014-0006-EXEC,
ORDER WQ 2014-0077-DWQ, AND
ORDER WQ 2015-0036-EXEC

NPDES NO. CAS000003
**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STATEWIDE STORM WATER PERMIT
WASTE DISCHARGE REQUIREMENTS (WDRS)
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DEPARTMENT OF TRANSPORTATION**

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REQUIREMENTS FOR STATE OF CALIFORNIA, DEPARTMENT OF
TRANSPORTATION

- ATTACHMENT I: INCIDENT REPORT FORM
- ATTACHMENT II: MONITORING CONSTITUENT LIST
- ATTACHMENT III: ASBS PRIORITY DISCHARGE LOCATIONS
- ATTACHMENT IV: TMDL IMPLEMENTATION REQUIREMENTS
- ATTACHMENT V: REGIONAL WATER BOARD SPECIFIC REQUIREMENTS
- ATTACHMENT VI: STANDARD PROVISIONS
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CALIFORNIA STATE WATER RESOURCES CONTROL BOARD
ORDER 2012-0011-DWQ

AS AMENDED BY
ORDER WQ 2014-0006-EXEC,
ORDER WQ 2014-0077-DWQ, AND
ORDER WQ 2015-0036-EXEC

NPDES NO. CAS000003
**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STATEWIDE STORM WATER PERMIT
WASTE DISCHARGE REQUIREMENTS (WDRS)
FOR
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION**

FINDINGS

The State Water Resources Control Board (State Water Board) finds that:

Permit Application

1. The State of California, Department of Transportation (hereafter the Department) has applied to the State Water Board for reissuance of its statewide storm water permit and waste discharge requirements to discharge storm water and permitted non-storm water to waters of the United States under the National Pollutant Discharge Elimination System (NPDES) permit program.

Background and Authority

Permit Background

2. Prior to issuance of the Department's first statewide storm water permit (Order No. 99-06-DWQ), the Regional Water Boards regulated storm water discharges from the Department's storm drain systems with individual permits. On July 15, 1999, the State Water Board adopted a statewide permit to consolidate storm water permits previously adopted by the Regional Water Boards. This statewide permit regulates storm water and non-storm water discharges from the Department's properties and facilities, and discharges associated with operation and maintenance of the State highway system. The Department's properties include all Right-of-Way (ROW) owned by the Department. The Department's facilities include, but are not limited to, maintenance stations/yards, equipment storage areas, storage facilities, fleet vehicle parking and maintenance areas and warehouses with material storage areas.

Federal Authority

3. In 1987, the United States Congress amended the federal Clean Water Act (CWA) and added section 402(p), which established a framework for regulating municipal and

industrial storm water discharges under the NPDES Permit Program. On November 16, 1990, the U.S. Environmental Protection Agency (U.S. EPA) promulgated federal regulations for controlling pollutants in storm water runoff discharges (known as Phase I storm water regulations). Phase I storm water regulations require permit coverage for storm water discharges from large and medium Municipal Separate Storm Sewer Systems (MS4s), certain categories of industrial facilities, and construction activities disturbing five or more acres of land. On December 8, 1999, U.S. EPA promulgated regulations, known as Phase II storm water regulations, which require NPDES permit coverage for storm water discharges from small MS4s and construction sites which disturb one to five acres of land.

State Authority

4. California Water Code (Wat. Code) section 13376 provides that any person discharging or proposing to discharge pollutants to waters of the United States within the jurisdiction of the state shall apply for and obtain Waste Discharge Requirements (WDRs). (For this permit, the State term “WDRs” is equivalent to the federal term “NPDES permits” as used in the Clean Water Act). The State Water Board issues this Order pursuant to section 402 of the Clean Water Act and implementing regulations adopted by U.S. EPA and chapter 5.5, division 7 of the California Water Code (commencing with § 13370 et seq.). It shall serve as an NPDES permit for point source discharges to surface waters. This Order also serves as WDRs pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with § 13260 et seq.). Applicable State regulations on discharges of waste are contained in the California Code of Regulations (Cal. Code Regs.), tit. 23, Division 3, Chapter 9.

Storm Water Definition

Storm Water Discharge

5. Storm water discharges consist only of those discharges that originate from precipitation events. Storm water is defined in the Code of Federal Regulations (40 C.F.R. § 122.26(b)(13)) as storm water runoff, snowmelt runoff, and surface runoff and drainage. During precipitation events, storm water picks up and transports pollutants into and through MS4s and ultimately to waters of the United States.

Non-Storm Water Discharge

6. Non-storm water discharges consist of all discharges from an MS4 that do not originate from precipitation events.

Generally, non-storm water discharges to an MS4 are prohibited, conditionally exempt from prohibition, or regulated separately by an NPDES permit. The categories of conditionally exempt non-storm water discharge are specified at 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B)(1). Non-storm water discharges that are regulated by a separate NPDES permit are not subject to the discharge prohibition. Prohibited non-storm water discharges include conditionally exempt discharges that are found to be a source of pollutants to waters of the United States. Illicit discharges must also be prohibited. An illicit discharge is defined in 40 Code of Federal Regulations section 122.26(b)(2) as "any discharge to a municipal storm sewer that is not composed entirely of storm water except

discharges pursuant to an NPDES permit (other than the NPDES Permit for discharges from the Municipal Separate Storm Sewer System) and discharges resulting from fire fighting activities." Provision B of this Order addresses non-storm water discharge.

Non-storm water discharges to an MS4 with a discharge to an ASBS are subject to a different set of conditions as stated in Finding 22.a.

Performance Standards

Performance Standard for Discharges from MS4s

7. Clean Water Act section 402(p) establishes performance standards for discharges from MS4s. Clean Water Act section 402(p)(3)(B) requires that municipal permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." This Order prohibits storm water discharges that do not comply with the maximum extent practicable (MEP) standard.
8. Compliance with the MEP standard involves applying Best Management Practices (BMPs) that are effective in reducing or eliminating the discharge of pollutants to the waters of the United States. MEP emphasizes pollutant reduction and source control BMPs to prevent pollutants from entering storm water runoff. MEP may require treatment of the storm water runoff if it contains pollutants. BMP development is a dynamic process, and the menu of BMPs contained in a SWMP may require changes over time as experience is gained and/or the state of the science and art progresses. MEP is the cumulative effect of implementing, evaluating, and making corresponding changes to a variety of technically appropriate and economically feasible BMPs, ensuring that the most appropriate controls are implemented in the most effective manner. The State Water Board has held that "MEP requires permittees to choose effective BMPs, and to reject applicable BMPs only where other effective BMPs will serve the same purpose, the BMPs would not be technically feasible, or the costs would be prohibitive." (SWRCB, 2000b).

Permit Coverage and Scope

Discharges Regulated by this Permit

9. This Order regulates the following discharges:
 - a. Storm water discharges from all Department-owned MS4s;
 - b. Storm water discharges from the Department's vehicle maintenance, equipment cleaning operations facilities and any other non-industrial facilities with activities that have the potential of generating significant quantities of pollutants; and
 - c. Certain categories of non-storm water discharges as listed under provision B. of this Order.

This Order does not regulate storm water discharges from leased office spaces, Department owned batch plants or any other industrial facilities, as industrial facilities defined in the Statewide Industrial General Permit. The Department will obtain coverage

for storm water discharges associated with industrial activities under the Statewide Industrial General Permit for each batch plant and industrial facility, and shall comply with applicable requirements. While this Order does not regulate storm water discharges associated with industrial activities, it does impose contractor requirements for certain industrial facilities.

This Order does not regulate discharges from the Department's construction activities, including dewatering effluent discharges from construction projects. Instead, the Department will obtain coverage for storm water discharges associated with construction activities under Order No. 2009-0009-DWQ Statewide Construction General Permit. While this Order does not regulate storm water discharges associated with construction activities, it does impose electronic filing, notification, reporting and contractor requirements for certain construction projects, and imposes limitations on types of materials that may be used during construction which may have an impact on post-construction discharges. Any discharges from a site occurring after completion of construction are fully subject to the requirements of this Order.

Some Regional Water Boards have issued specific requirements for dewatering effluent discharges in their regions. The Department will consult with the appropriate Regional Water Board and comply with the applicable dewatering requirements in each region.

Department Activities and Discharges

Department Activities

10. The Department is primarily responsible for the design, construction, management, and maintenance of the State highway system including; freeways, bridges, tunnels, and facilities such as corporation yards, maintenance facilities, rest areas, weigh stations, park and ride lots, toll plazas and related properties. The Department is also responsible for initial emergency spill response and cleanup for unauthorized discharges of waste within the Department's ROW.

Department Discharges

11. The Department's discharges include storm water and non-storm water discharges generated from:
 - a. Maintenance and operation of State-owned ROW;
 - b. Department storage and disposal areas;
 - c. Department facilities;
 - d. Department Airspaces; and
 - e. Other properties and facilities owned and operated by the Department.

The Department discharges either directly to surface waters or indirectly through municipal storm water conveyance systems. These surface waters include creeks, rivers, reservoirs, wetlands, saline sinks, lagoons, estuaries, bays, and the Pacific Ocean and tributaries thereto, some or all of which are waters of the United States as defined in 40 Code of

Federal Regulations section 122.2. As specified, this Order regulates the Department's municipal storm water and non-storm water discharges.

Potential Pollutants

12. Discharges of storm water and non-storm water from Department properties, facilities, and activities have been shown to contribute pollutants to waters of the United States. As such, these discharges may be causing or threatening to cause violations of water quality objectives and can have damaging effects on human health and aquatic ecosystems. The quality and quantity of these discharges vary considerably and are affected by many environmental factors including hydrology, geology, land use, climatology and chemistry, and by controllable management factors including maintenance practices, spill prevention and response activities, public education (i.e., concerning trash and other storm water pollutants) and pollution prevention.

Pollutant sources from the Department properties, facilities, and activities include motor vehicles, highway surface materials such as fine particles of asphalt and concrete, highway maintenance products, construction activities, erodible shoulder materials, eroding cut and filled slopes, abrasive sand and deicing salts used in winter operations, abraded tire rubber, maintenance facilities, illegal connections, illegal dumping, fluids from accidents and spills, and landscape care products.

Pollutant categories include, but are not limited to, metals (such as copper, lead, and zinc), synthetic organic compounds (pesticides), Polycyclic Aromatic Hydrocarbons (PAHs) from vehicle emissions, oil and grease, Total Petroleum Hydrocarbons (TPH), sediment, nutrients (nitrogen and phosphorus fertilizers), debris (trash and litter), pathogens, and oxygen demanding substances (decaying vegetation, animal waste, and other organic matter).

Characterization Monitoring

13. Under the previous permit (Order No. 99-06-DWQ), the Department conducted a comprehensive, multi-component storm water monitoring program. The Department monitored and collected pollutant characterization information at more than 180 sites statewide, yielding more than 60,000 data points. The Department used the data to evaluate the effectiveness of the Department's maintenance facility pollution prevention plans and highway operation control measures. This information is also used to identify pollutants of concern in the Department's discharges.

Department Discharge Characterization Studies

14. The Department compared the monitoring results from the 2002 and 2003 Runoff Characterization Studies (California Department of Transportation, 2003)¹ to California Toxics Rule (CTR) objectives and to several surface water quality objectives considered potentially relevant to storm water runoff quality. The Department prioritized constituents as high, medium, and low, according to a percentage estimate by which the most stringent water quality objective was exceeded. The Department identified lead, copper, zinc,

¹ References are found in Attachment X of this Order.

aluminum, diazinon, chlorpyrifos, and iron as high priority constituents in the Department's runoff. The sources of other water quality objectives considered were:

- a. National Primary Drinking Water Maximum Contaminant Levels (40 C.F.R., § 141.1);
- b. U.S. EPA Action Plan for Beaches and Recreational Waters;
- c. U.S. EPA Aquatic Life Criteria;
- d. California Department of Public Health Maximum Contaminant Levels; and California Department of Fish and Game Recommended Criteria for Diazinon and Chlorpyrifos.

Department Discharges that are Subject to MS4 Permit Regulations

15. An MS4 is a conveyance or system of conveyances, including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains. An MS4 is designed or used for collecting or conveying storm water. It is not a combined sanitary sewer and is not part of a Publicly Owned Treatment Works (POTW). Clean Water Act section 402(p) and 40 Code of Federal Regulations section 122.26 (a)(v) give the State authority to regulate discharges from an MS4 on a system-wide or jurisdiction-wide basis. All MS4s under the Department's jurisdiction are considered one system, and are regulated by this Order. Therefore, all storm water and exempted and conditionally exempted non-storm water discharges from the Department owned MS4 are subject to the requirements in this Order.

Maintenance and Construction Activities not Subject to the Construction General Permit

16. Some maintenance and construction activities such as roadway and parking lot repaving and resurfacing may not be subject to the Construction General Permit. Such activities may involve grinding and repaving the existing surface and have the potential to mobilize pollutants, even though it may not involve grading or land disturbance. The Department's Maintenance Staff Guide (Department, 2007b), Project Planning and Design Guide (Department, 2010) and the California Stormwater Quality Association (CASQA) California Construction Stormwater BMP Handbook (CASQA, 2009) specify BMPs for paving and grinding operations. The Department is required to implement BMPs for such operations to control the discharge of pollutants to the MEP.

Department Construction Projects Involving Lead Contaminated Soils

17. Department construction projects may involve soils that contain lead in quantities that meet the State definition of hazardous waste but not the federal definition. The Department of Toxic Substances Control (DTSC) has issued a variance (V09HQSCD006) effective July 1, 2009, allowing the Department to place soil containing specific concentrations of aerially deposited lead under pavement or clean soil. In addition to complying with the terms of the variance, the Department also needs to notify the appropriate Regional Water Boards to determine the appropriate regulation of these soils.
18. Past monitoring data show that storm water runoff from the Department's facilities contains pollutants that may adversely affect the beneficial uses of receiving waters. Facilities not

subject to the Industrial General Permit are required to implement BMPs to reduce the discharge of pollutants from these facilities to the MEP.

Provisions of This Order

19. Storm water discharges from MS4s are highly variable in frequency, intensity, and duration, and it is difficult to characterize the amount of pollutants in the discharges. In accordance with 40 Code of Federal Regulations section 122.44(k)(2), the inclusion of BMPs in lieu of numeric effluent limitations is appropriate in storm water permits. This Order requires implementation of BMPs to control and abate the discharge of pollutants in storm water to the MEP. To assist in determining if the BMPs are effectively achieving MEP standards, this Order requires effluent and receiving water monitoring. The monitoring data will be used to determine the effectiveness of the applied BMPs and to make appropriate adjustments or revisions to BMPs that are not effective.

Receiving Water Limitations

20. The effect of the Department's storm water discharges on receiving water quality is highly variable. For this reason, this Order requires the Department to implement a storm water program designed to achieve compliance with water quality standards, over time through an iterative approach. If discharges are found to be causing or contributing to an exceedance of an applicable Water Quality Standard, the Department is required to revise its BMPs (including use of additional and more effective BMPs).

Discharges to Areas of Special Biological Significance

21. The State Water Board has designated 34 coastal marine waters as Areas of Special Biological Significance (ASBS) in the California Ocean Plan. An ASBS is a coastal area requiring protection of species or biological communities. The Department discharges storm water into the following ASBS:
- a. Redwoods National Park ASBS
 - b. Saunders Reef ASBS
 - c. James V. Fitzgerald ASBS
 - d. Año Nuevo ASBS
 - e. Carmel Bay ASBS
 - f. Point Lobos ASBS
 - g. Julia Pfeiffer Burns ASBS
 - h. Salmon Creek Coast ASBS
 - i. Laguna Point to Latigo Point ASBS
 - j. Irvine Coast ASBS
22. The Ocean Plan prohibits waste discharges into ASBS. The Ocean Plan allows the State Water Board to grant exceptions to this prohibition, provided that: (1) the exception will not compromise protection of ocean waters for beneficial uses, and (2) the public interest will be served. The Department has applied for and been granted an exception under the General Exception for Storm Water and Non-Point Source Discharges to ASBS. The exception

allows the continued discharge into ASBS provided the Department complies with the special protections specified in the General Exception.

- 22a. Non-storm water discharges to ASBS are prohibited except as specified in the General Exception. Certain enumerated non-storm water discharges are allowed under the General Exception if essential for emergency response purposes, structural stability, slope stability, or if occur naturally. In addition, an NPDES permitting authority may authorize non-storm water discharges to an MS4 with a direct discharge to an ASBS to the extent the NPDES permitting authority finds that the discharge does not alter natural ocean water quality in the ASBS. This Order allows utility vault discharges to segments of the Department MS4 with a direct discharge to an ASBS, provided the discharge is authorized by the General NPDES Permit for Discharges from Utility Vaults and Underground Structures to Surface Water, NPDES No. CAG 990002. The State Water Board is in the process of reissuing the General NPDES Permit for Utility Vaults. As part of the renewal, the State Water Board will require a study to characterize representative utility vault discharges to an MS4 with a direct discharge to an ASBS and will impose conditions on such discharges to ensure the discharges do not alter natural ocean water quality in the ASBS. Given the limited number of utility vault discharges to MS4s that discharge directly to an ASBS, the State Water Board finds that discharges from utility vaults and underground structures to a segment of the Department's MS4 with a direct discharge to an ASBS are not expected to result in the MS4 discharge causing a substantial alteration of natural ocean water quality in the ASBS in the interim period while the General NPDES Permit for Discharges from Utility Vaults is renewed and the study is completed. However, if a Regional Water Board determines a specific discharge from a utility vault or underground structure does alter the natural ocean water quality in an ASBS, the Regional Water Board may prohibit the discharge as specified in this Order.

New Development and Re-development Design Standards

23. 40 Code of Federal Regulations section 122.26(d)(2)(iv)(A)(2) requires municipal storm water permittees to implement a new development and redevelopment program to reduce the post-construction generation and transport of pollutants. Development can involve grading and soil compaction, an increase in impervious surfaces (roadways, roofs, sidewalks, parking lots, etc.), and a reduction of vegetative cover, all of which increase the amount of rainfall that ends up as runoff, and decrease the particle size and the load of watershed sediment. The increase in runoff generally leads to increased pollutant loading from watersheds, even if post-construction pollutant concentrations are similar to pre-construction concentrations. The accelerated erosion and deposition resulting from an increase in runoff and a decrease in the size and load of watershed sediment generally causes a stream channel to respond by deepening and widening and detaching from the historic floodplain. The magnitude of response depends on geology, land use, and channel stability at the time of the watershed disturbance. Increased pollutant loads and alteration of the runoff/sediment balance have the potential to negatively impact the beneficial uses of receiving waters including streams, lakes, wetlands, ground water, oceans, bays and estuaries, and the biological habitats supported by these aquatic systems.

24. Department projects have the potential to negatively impact stream channels and downstream receiving waters through modification of the existing runoff hydrograph. The hydromodification requirements in this Order are “effluent limitations,” which are defined by the Clean Water Act to include any restriction on the quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources (C.W.A., § 502(11)).
25. Waters of the United States supporting the beneficial use of fish migration could be adversely impacted by improperly designed or maintained stream crossings, or through natural channel evolution processes affected by Department activities. This Order requires the Department to submit to the State Water Board the annual report required under Article 3.5 of the Streets and Highways Code reporting on the Department’s progress in locating, assessing, and remediating barriers to fish passage.
26. Low Impact Development (LID) is a sustainable practice that benefits water supply and contributes to water quality protection. Unlike traditional storm water management, which collects and conveys storm water runoff through storm drains, pipes, or other conveyances to a centralized storm water facility, LID uses site design and storm water management to maintain the site’s pre-project runoff rates and volumes by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to the source.
27. On October 5, 2000, the State Water Board adopted a precedential decision concerning the use of Standard Urban Storm Water Mitigation Plans (SUSMPs) (Order WQ 2000-11). The SUSMP in that case required sizing design standards for post-construction BMPs for specific categories of new development and redevelopment projects. Order WQ 2000-11 found that provisions in the SUSMPs, as revised in the order, reflected MEP. The LID requirements, post-construction requirements for impervious surface and the design standards in this Order are consistent with Order WQ 2000-11 and meet the requirement for development of a SUSMP.

Self-Monitoring Program

28. Effluent and receiving water monitoring are necessary to evaluate the effectiveness of BMP measures and to track compliance with water quality standards. This Order requires the Department to conduct effluent and receiving water monitoring.

Storm Water Management Plan (SWMP)

29. The SWMP describes the procedures and practices that the Department proposes to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters. On May 17, 2001, the State Water Board approved a Storm Water Management Plan submitted by the Department. That SWMP was updated in 2003 (Department, 2003c) and the updates were approved by the Executive Director of the State Water Board on February 13, 2003. On January 15, 2004, the Department submitted a proposed Storm Water Management Plan as part of its NPDES permit application to renew its previous statewide storm water permit (Order No. 99-06-DWQ). The State Water Board and Regional Water Board staff and the Department discussed and revised Best Management

Practices (BMP) controls and many other components proposed in each section of the SWMP during numerous meetings from January 2004 to 2006. The Department submitted a revised SWMP in June 2007. The 2004 and 2007 SWMPs have not been approved by the State Water Board and the Department has continued to implement the 2003 SWMP. The Department is in the process of revising aspects of the 2003 SWMP to address the Findings of Violation and Order for Compliance issued by U.S. EPA in 2011 (U.S. EPA Docket No. CWA-09-2011-0001).

30. The SWMP and any future modifications or revisions are integral to and enforceable components of this Order. Any documents incorporated into the SWMP by reference that specify the manner in which the Department will implement the SWMP shall be consistent with the requirements of this Order.
31. This Order requires the Department to submit an Annual Report each year to the State Water Board. The Annual Report serves the purpose of evaluating, assessing, and reporting on each relevant element of the storm water program, and revising activities, control measures, BMPs, and measurable objectives, as necessary, to meet the applicable standards.
32. Revisions to the SWMP requiring approval by the State Water Board's Executive Director are subject to public notice and the opportunity for a public hearing.

Total Maximum Daily Load (TMDL) Requirements

33. TMDLs are calculations of the maximum amount of a pollutant that a water body can receive and still meet water quality standards. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point sources (the waste load allocations or WLAs) and non-point sources (load allocations or LAs), plus the contribution from background sources and a margin of safety (40 C.F.R., § 130.2, subd.(i)). Discharges from the Department's MS4 are considered point source discharges.
34. This Order implements U.S. EPA-approved or U.S. EPA-established TMDLs applicable to the Department. This Order requires the Department to comply with all TMDLs listed in Attachment IV. Attachment IV identifies TMDLs adopted by the Regional Water Boards and approved by the State Water Board and U.S. EPA that assign the Department a Waste Load Allocation (WLA) or that specify the Department as a responsible party in the implementation plan. In addition, Attachment IV identifies TMDLs established by U.S. EPA that specify the Department as a responsible party or that identify NPDES permitted storm water sources or point sources generally, or identify roads generally, as subject to the TMDL. In accordance with 40 Code of Federal Regulations section 122.44, subdivision (d)(1)(vii)(B), NPDES water quality-based effluent limitations (WQBELs) must be consistent with the assumptions and requirements of available TMDL WLAs. In addition, Water Code section 13263, subdivision (a), requires that waste discharge requirements implement any relevant water quality control plans. The TMDL requirements in this Order are consistent with the assumptions and requirements of the TMDLs applicable to the Department.

35. TMDL WLAs in this Order are not limited by the MEP standard. Due to the nature of storm water discharges, and the typical lack of information on which to base numeric WQBELs, federal regulations (40 C.F.R., § 122.44, subd. (k)(2)) allow for the implementation of BMPs to control or abate the discharge of pollutants from storm water.
36. The Department reported in its 2008-09 Annual Report to the State Water Board that it is subject to over 50 TMDLs and is in the implementation phase of over 30 TMDLs. The State Water Board has since determined that the Department is subject to 84 TMDLs. WLAs and LAs for some TMDLs are shared jointly among several dischargers, with no specific mass loads assigned to individual dischargers. In some of these cases, multiple dischargers are assigned a grouped or aggregate waste load allocation, and each discharger is jointly responsible for complying with the aggregate waste load allocation.
37. The high variance in the level of detail and specificity in the TMDLs developed by the Regional Water Boards and U.S. EPA necessitates the development of more specific permit requirements in many cases, including deliverables and required actions, derived from each TMDL's WLA and implementation requirements. These requirements will provide clarity to the Department regarding its responsibilities for compliance with applicable TMDLs. The development of TMDL-specific permit requirements is subject to notice and a public comment period. Because most of the TMDLs were developed by the Regional Water Boards, and because some of the WLAs are shared by multiple dischargers, the development of TMDL-specific permit requirements has been coordinated initially at the Regional Water Board level.
38. Attachment IV specifies TMDL-specific permit implementation requirements for the Lake Tahoe sediment and nutrients TMDL, Napa River Sediment TMDL, Sonoma Creek Sediment TMDL, and the Lake Elsinore and Canyon Lake Nutrients TMDL. These requirements are consistent with the assumptions and requirements of applicable WLAs assigned to the Department, and with the adopted and approved TMDL, Basin Plan, and related Regional Water Board Orders and Resolutions.
39. For all remaining TMDLs identified in Attachment IV, the Regional Water Boards, in consultation with the State Water Board and the Department, developed categorical pollutant permit requirements. The Fact Sheet contains supporting analyses explaining how the proposed categorical pollutant permit requirements will implement the TMDL and are consistent with the assumptions and requirements of any applicable WLA and how the BMPs will be sufficient to implement applicable WLAs. Following a notice and comment period, Attachment IV of this Order and the Fact Sheet was reopened consistent with provision E.11.c. for incorporation of these requirements and supporting analysis into the Order and Fact Sheet.
40. This Order specifies the requirements to be followed for the Comprehensive TMDL Monitoring Plan. TMDL monitoring requirements are found in Attachment IV, Section III.A. The Regional Water Boards may require additional monitoring through Regional Water Board orders pursuant to Water Code section 13383.

41. Attachment IV may additionally be reopened consistent with provision E.11.b. of this Order for incorporation of newly adopted TMDLs or amendments to existing TMDLs into the Permit.

Non-Compliance

42. NPDES regulations require the Department to notify the Regional Water Board and/or State Water Board of anticipated non-compliance with this Order (40 C.F.R., § 122.41(l)(2)); or of instances of non-compliance that endanger human health or the environment (40 C.F.R., § 122.41(l)(6)).

Regional Water Board and State Water Board Enforcement

43. The Regional Water Boards and the State Water Board will enforce the provisions and requirements of this Order.

Region Specific Requirements

Basin Plans

44. Each Regional Water Board has adopted a Basin Plan for the watersheds within its jurisdiction. Basin Plans identify the beneficial uses for each water body and the water quality objectives necessary to protect them. The Department is subject to the prohibitions and requirements of each Basin Plan.

Region Specific Requirements

45. Regional Water Boards have identified Region-specific water quality issues and concerns pertaining to discharges from the Department's properties. Region-specific requirements to address these issues are included in this Order.

Local Municipalities and Preemption

46. Storm water and non-storm water from MS4s that are owned and managed by other NPDES permitted municipalities may discharge to storm water conveyance systems owned and managed by the Department. This Order does not supersede the authority of the Department to prohibit, restrict, or control storm water discharges and conditionally exempt non-storm water discharges to storm drain systems or other watercourses within its jurisdiction as allowed by State and federal law.

Storm water and non-storm water from the Department's ROW, properties, facilities, and activities may discharge to storm water conveyance systems managed by other NPDES permitted municipalities. This Order does not preempt or supersede the authority of the permitted municipalities to prohibit, restrict, or control storm water discharges and conditionally exempt non-storm water discharges to storm drain systems or other watercourses within their jurisdiction as allowed by State and federal law.

Anti-Degradation Policy

47. 40 Code of Federal Regulations section 131.12 requires that state water quality standards include an anti-degradation policy consistent with the federal policy. The State Water Board established California's anti-degradation policy in State Water Board Resolution No.

68-16. Resolution No. 68-16 incorporates the federal anti-degradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plans implement, and incorporate by reference, both the State and federal anti-degradation policies. This Order is consistent with the anti-degradation provision of 40 Code of Federal Regulations section 131.12 and State Water Board Resolution No. 68-16.

Endangered Species Act

48. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, §§ 2050 to 2115.5) or the Federal Endangered Species Act (16 U.S.C.A., §§ 1531 to 1544). This Order requires compliance with effluent limitations, receiving water limitations, and other requirements to protect the beneficial uses of waters of the United States. The Department is responsible for meeting all requirements of the applicable Endangered Species Act.

California Environmental Quality Act (CEQA)

49. The action to adopt an NPDES Permit is exempt from the provisions of CEQA (Public Resources Code, § 21100, et. seq.), pursuant to section 13389 of the California Water Code (County of Los Angeles et al., v. California Water Boards et al., (2006), 143 Cal.App.4th 985).

Public Notification

50. The Department, interested agencies, and persons have been notified of the State Water Board's intent to reissue requirements for storm water discharges and have been provided an opportunity to submit their written comments and recommendations. State Water Board staff prepared a Fact Sheet and Response to Comments, which are incorporated by reference as part of this Order.

Public Hearing

51. The State Water Board, through public testimony in public meetings and in written form, has received and considered all comments pertaining to this Order.

Cost of Compliance

52. The State Water Board has considered the costs of complying with this Order and whether the required BMPs meet the minimum "maximum extent practicable" standard required by federal law. The MEP approach is an evolving, flexible, and advancing concept, which considers technical and economic feasibility. Because of the numerous advances in storm water regulation and management and the size of the Department's MS4, the Order does not require the Department to fully incorporate and implement all advances in a single permit term, but takes an incremental approach that allows for prioritization of efforts for the most effective use of the increased, but nevertheless limited, Department funds. This Order will have an effect on costs to the Department above and beyond the costs from the Department's prior permit. Such costs will be incurred in complying with the post-

construction, hydrograph modification, Low Impact Development, and monitoring and reporting requirements of this Order. Additional costs will also be incurred in correcting non-compliant discharges.² These incremental costs are necessary to advance the controls and management of storm water by the Department and to facilitate reduction of the discharge of pollutants to the MEP.

53. This Order supersedes Order No. 99-06-DWQ.

54. This Order serves as an NPDES permit pursuant to Clean Water Act section 402 or amendments thereto, and shall become effective on July 1, 2013, provided that the Regional Administrator, U.S. EPA, Region IX, expresses no objections.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code, regulations, and plans and policies adopted thereafter, and to the provisions of the Clean Water Act and regulations and guidelines adopted thereafter, that the Department shall comply with the following:

A. GENERAL DISCHARGE PROHIBITIONS

1. Storm water discharges from the Department's Municipal Separate Storm Sewer System (MS4) containing pollutants that have not been reduced to the Maximum Extent Practicable (MEP), are prohibited. The Department shall achieve the pollutant reductions described in this Prohibition through implementation of the provisions in this Order and the approved SWMP.
2. Discharges to Areas of Special Biological Significance (ASBS).
 - a. Existing storm water discharges into an ASBS are allowed only if the discharges:
 - 1) Are essential for flood control or slope stability, including roof, landscape, road, and parking lot drainage;
 - 2) Are designed to prevent soil erosion;
 - 3) Occur only during wet weather; and
 - 4) Are composed of only storm water runoff, except as provided at B.6.
 - b. Discharges composed of storm water runoff shall not alter natural water quality in an ASBS.
 - c. The discharge of trash is prohibited.
 - d. Only discharges from existing storm water outfalls are allowed. Any proposed or new storm water runoff discharge shall be routed to existing storm water discharge outfalls and shall not result in any new contribution of waste to an ASBS (i.e., no

² Although the cost of compliance with TMDL waste load allocations was considered, compliance with TMDLs is not subject to the MEP standard.

additional pollutant loading). “Existing storm water outfalls” are those that were constructed or under construction prior to January 1, 2005. “New contribution of waste” is defined as any addition of waste beyond what would have occurred as of January 1, 2005. A change to an existing storm water outfall, in terms of re-location or alteration, in order to comply with these special conditions, is allowed and does not constitute a new discharge.

- e. The discharges comply with all terms, prohibitions, and special conditions contained in sections E.2.c.2)a)i) and E.5. of this Order.
3. Discharge of material other than storm water, or discharge that is not composed entirely of storm water, to waters of the United States or another permitted MS4 is prohibited, except as conditionally exempted under Section B.2 of this Order or authorized by a separate National Pollutant Discharge Elimination System (NPDES) permit.
4. The discharge of storm water or conditionally exempt non-storm water that causes or contributes to the violation of water quality standards or water quality objectives (collectively WQSs), the California Toxics Rule (CTR), or impairs the beneficial uses established in a Water Quality Control Plan, or a promulgated policy of the State or Regional Water Boards, is prohibited. The Department shall comply with all discharge prohibitions contained in Regional Water Board Basin Plans.
5. The discharge of storm water to surface waters of the United States in a manner causing or threatening to cause a condition of pollution or nuisance as defined in Water Code section 13050 is prohibited.
6. Discharge of wastes or wastewater from road-sweeping vehicles or from other maintenance activities to any waters of the United States or to any storm drain leading to waters of the United States is prohibited unless in compliance with section E.2.h.3)c)ii) of this Order or authorized by another NPDES permit.
7. The dumping, deposition, or discharge of waste by the Department directly into waters of the United States or adjacent to such waters in any manner that may allow its being transported into the waters is prohibited unless authorized by the Regional Water Board.
8. The discharge of sand, silt, clay, or other earthen materials from any activity in quantities which cause deleterious bottom deposits, turbidity, or discoloration in waters of the United States or which unreasonably affect or threaten to affect beneficial uses of such waters, is prohibited.

B. NON-STORM WATER DISCHARGE PROHIBITIONS

Non-storm water discharges, other than those to ASBS, must comply with the following provisions:

1. The Department shall effectively prohibit non-storm water discharges into its storm water conveyance system unless such discharges are either:
 - a. Authorized by a separate NPDES permit; or
 - b. Conditionally exempt in accordance with provision B.2. of this NPDES permit
2. Conditionally Exempt Non-storm Water Discharges.

The following non-storm water discharges are conditionally exempt from Prohibition B.1 unless the Department or the State Water Board Executive Director identifies them as sources of pollutants to receiving waters. For discharges identified as sources of pollutants, the Department shall either eliminate the discharge or otherwise effectively prohibit the discharge.

- a. Diverted stream flows;
 - b. Rising ground waters;
 - c. Uncontaminated ground water infiltration (as defined at 40 C.F.R., § 35.2005(20)) to MS4s;
 - d. Uncontaminated pumped ground water;
 - e. Foundation drains, including slope lateral drains;
 - f. Springs;
 - g. Water from crawl space pumps;
 - h. Footing drains;
 - i. Air conditioning condensation;
 - j. Flows from riparian habitats and wetlands;
 - k. Water line flushing³;
 - l. Minor, incidental discharges of landscape irrigation water⁴;
 - m. Discharges from potable water sources³;
 - n. Irrigation water⁵;
 - o. Minor incidental discharges from lawn watering;
 - p. Individual residential car washing; and
 - q. Dechlorinated swimming pool discharges.
3. Some Regional Water Boards have separate dewatering and/or “de minimus” NPDES discharge permits or Basin Plan requirements for some or all of these listed non-storm water discharges. The Department shall check with the appropriate Regional Water Board to determine if a specific non-storm water discharge requires coverage under a separate NPDES permit.
 4. The Department is not required to prohibit emergency fire fighting flows (i.e., flows necessary for the protection of life or property). Discharges associated with emergency

³ In order to remain conditionally exempt, discharges shall be dechlorinated prior to discharge.

⁴ In order to remain conditionally exempt, landscape irrigation systems must be designed, operated and maintained to control non-incidental runoff. See definition of incidental runoff in Attachment VIII.

⁵ Return flows from irrigated agriculture are not point-source discharges and are not prohibited from entering the Department’s MS4.

firefighting do not require BMPs, but they are recommended if feasible. As part of the SWMP, the Department shall develop and implement a program to reduce pollutants from non-emergency fire fighting flows (i.e., flows from controlled or practice blazes and maintenance activities) as specified in the SWMP.

5. If the State Water Board Executive Director determines that any category of conditionally exempt non-storm water discharge is a source of pollutants, the State Water Board Executive Director may require the Department to conduct additional monitoring and submit a report on the discharges. The State Water Board Executive Director may also order the Department to cease a non-storm water discharge if it is found to be a source of pollutants.

Non-storm water discharges to ASBS must comply with the following provisions:

6. Non-storm water discharges to ASBS are prohibited except as stated in this Section.

The following non-storm water discharges are allowed, provided that the discharges are essential for emergency response purposes, structural stability, slope stability, or occur naturally:

- a. Discharges associated with emergency fire fighting operations.
- a. Foundation and footing drains.
- b. Water from crawl space or basement pumps.
- c. Hillside dewatering.
- d. Naturally occurring groundwater seepage via a storm drain.
- f. Non-anthropogenic flows from a naturally occurring stream via a culvert or storm drain, as long as there are no contributions of anthropogenic runoff.

Discharges from utility vaults and underground structures to a segment of the Department's MS4 with a direct discharge to an ASBS are permitted if such discharges are authorized by the General NPDES Permit for Discharges from Utility Vaults and Underground Structures to Surface Water, NPDES No. CAG 990002. A Regional Water Board may nonetheless prohibit a specific discharge from a utility vault or underground structure if it determines that the discharge is causing the MS4 discharge to the ASBS to alter natural ocean water quality in the ASBS.

Additional non-storm water discharges to a segment of the Department's MS4 with a direct discharge to an ASBS are allowed only to the extent the relevant Regional Water Board finds that the discharge does not alter natural ocean water quality in the ASBS.

Authorized non-storm water discharges shall not cause or contribute to a violation of the water quality objectives in Chapter II of the Ocean Plan or alter natural ocean water quality in an ASBS.

C. EFFLUENT LIMITATIONS

The Department shall reduce the discharge of pollutants from its MS4 to waters of the United States to the MEP, as necessary to achieve TMDL WLAs established for discharges by the Department, and to comply with the Special Protections for discharges to ASBS.

D. RECEIVING WATER LIMITATIONS

1. Receiving water quality objectives, as specified in the Water Quality Control Plans and promulgated policies and regulations of the State and Regional Water Boards, are applicable to discharges from the Department's facilities and properties.
2. The discharge of storm water from a facility or activity shall not cause or contribute to an exceedance of any applicable water quality standard.
3. Storm water discharges shall not cause the following conditions to create a condition of nuisance or to adversely affect beneficial uses of waters of the United States:
 - a. Floating or suspended solids, deposited macroscopic particulate matter, or foam;
 - b. Bottom deposits or aquatic growth;
 - c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
 - d. Visible, floating, suspended, or deposited oil or other products of petroleum origin, and/or;
 - e. Toxic or deleterious substances present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.
4. The Department shall comply with Sections A.4, D.2 and D.3 of this Order through timely implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the SWMP and other requirements of this Order including any modifications. The SWMP shall be designed to achieve compliance with Sections A.4, D.2 and D.3 of this Order. If exceedance(s) of WQS persist notwithstanding implementation of the SWMP and other requirements of this Order, the Department shall assure compliance with Sections A.4, D.2 and D.3 of this Order by complying with the procedure specified at Section E.2.c.6)c) of this Order.
5. Provided the Department has complied with the procedure set forth in provision E.2.c.6)c) of this Order and is implementing the revised SWMP required by provision E.1., the Department is not required to repeat the procedure called for in provision E.2.c.6)c) for continuing or recurring exceedances of the same receiving water limitations unless directed by the State Water Board's Executive Director or Regional Water Board Executive Officer to develop additional BMPs.

6. Where the Department discharges waste to a water of the State that is not a water of the United States, compliance with the prohibitions, limitations, and provisions of this Order when followed for that water of the State will constitute compliance with the requirements of the Porter-Cologne Water Quality Control Act, unless the Department is notified otherwise in writing by the State Water Board Executive Director or a Regional Water Board Executive Officer.

E. PROVISIONS

1. Storm Water Management Plan (SWMP)

- a. The Department shall update, maintain and implement an effective SWMP that describes how the Department will meet requirements of this Order as outlined in E.1.b below. The Department shall submit for Executive Director approval an updated SWMP consistent with the provisions and requirements of this Order within one year of the effective date of this Order. The SWMP shall identify and describe the BMPs that shall be used. The SWMP shall be reviewed annually and modified as necessary to maintain an effective program in accordance with the procedures of this Order. The SWMP shall reflect the principles that storm water management is to be a year-round proactive program to eliminate or control pollutants at their source or to reduce them from the discharge by either structural or nonstructural means when elimination at the source is not possible.
- b. The SWMP shall contain the following elements:
 - 1) Overview
 - 2) Management And Organization
 - 3) Monitoring And Discharge Characterization Program
 - 4) Project Planning And Design
 - 5) BMP Development and Implementation
 - 6) Construction
 - 7) Compliance with the Industrial General Permit
 - 8) Maintenance Program Activities, including facilities operations
 - 9) Non-Departmental Activities
 - 10) Non-Storm Water Activities/ Discharges
 - 11) Training
 - 12) Public Education and Outreach
 - 13) Region Specific Activities (See provision E.6 and Attachment V.)
 - 14) Program Evaluation
 - 15) Measurable Objectives
 - 16) Reporting
 - 17) References

The Department shall implement all requirements of this Order regardless of whether those requirements are addressed by an element of the SWMP.

- c. The SWMP shall include all provisions and commitments in the 2003 SWMP (Department, 2003c), as revised in response to U.S. EPA's Findings of Violation and Order for Compliance (U.S. EPA Docket No. C.W.A.-09-2011-0001). The Department shall continue to implement the 2003 SWMP to the extent that it does not conflict with the requirements of this Order and until a new SWMP is approved pursuant to this Order.
- d. All policies, guidelines, and manuals referenced by the SWMP and related to storm water are intended to facilitate implementation of the SWMP, and shall be consistent with the requirements of this Order.
- e. The SWMP shall define terms in a manner that is consistent with the definitions in 40 Code of Federal Regulations section 122.2. This includes, but is not limited to, the definitions for pollutant, waters of the United States, and point source. Where there is a conflict between the SWMP and the language of this Order, the language of this Order shall govern.
- f. Unless otherwise specified in this Order, proposed revisions to the SWMP shall be submitted to the State Water Board Executive Director as part of the Annual Report. The Department shall revise all other appropriate manuals to reflect modifications to the SWMP.
- g. Revisions to the SWMP requiring Executive Director approval will be publicly noticed for thirty days on the State Water Board's website and via the storm water electronic notification list. During the public notice period, members of the public may submit written comments or request a public hearing. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised at the hearing. Upon review of the request or requests for a public hearing, the Executive Director may, in his or her discretion, schedule a public hearing prior to approval of the SWMP revision. The Executive Director shall schedule a hearing if there is a significant degree of public interest in the proposed revision. If no public hearing is conducted, the Executive Director shall consider all public comments received and may approve the SWMP revision if it meets the conditions set forth in this Order. Any SWMP revision approved by the Executive Director will be posted on the State Water Board's website.
- h. The Department shall maintain for public access on its website the latest approved version of the SWMP. The Department shall update the SWMP on its website within 30 days of approval of revisions by the State Water Board.

2. Storm Water Program Implementation Requirements

a. Overview

The Department shall provide an overview of the storm water program in the SWMP. The overview will include:

- 1) A statement of the SWMP purpose;
- 2) A description of the regulatory background;
- 3) A description of the SWMP applicability;
- 4) A description of the relationship of the Permit, SWMP, and related Department documents; and
- 5) A description of the permits addressed by the SWMP.

b. Management and Organization

The Department shall provide in the SWMP an overview of its management and organizational structure, roles and responsibilities of storm water personnel, a description of the role and focal point of the Department's storm water program, and a description of the Storm Water Advisory Teams. The Department shall implement the program specified in the SWMP. The Department shall also implement any additional requirements contained in this Order.

1) *Coordination with Local Municipalities*

- a) The Department is expected to comply with the lawful requirements of municipalities and other local, regional, and/or other State agencies regarding discharges of storm water to separate storm sewer systems or other watercourses under the agencies' jurisdictions.
- b) The Department shall include a **MUNICIPAL COORDINATION PLAN** in the SWMP. The plan shall describe the specific steps that the Department will take in establishing communication, coordination, cooperation, and collaboration with other MS4 storm water management agencies and their programs including establishing agreements with municipalities, flood control departments, or districts as necessary or appropriate. The Department shall report on the status and progress of interagency coordination activities in each Annual Report.

2) *Legal Authority*

- a) The Department shall establish, maintain, and certify that it has adequate legal authority through statute, permit, contract or other means to control discharges to and from the Department's properties, facilities and activities.
- b) The Department has provided a statement certified by its chief legal counsel that the Department has adequate legal authority to implement and enforce

each of the key regulatory requirements contained in 40 Code of Federal Regulations sections 122.26(d)(2)(i)(A-F). The Department shall submit annually, as part of the Annual Report, a **CERTIFICATION OF THE ADEQUACY OF LEGAL AUTHORITY**.

3) *Fiscal Resources*

- a) The Department shall seek to maintain adequate fiscal resources to comply with this NPDES Permit. This includes but is not limited to:
 - i) Implementing and maintaining all BMPs;
 - ii) Implementing an effective storm water monitoring program; and
 - iii) Retaining qualified personnel to manage the storm water program.
- b) The Department shall submit a **FISCAL ANALYSIS** of the storm water program annually. At a minimum, the fiscal analysis shall show:
 - i) The allocation of funds to the Districts for compliance with this Order;
 - ii) The funding for each program element;
 - iii) A comparison of actual past year expenditures with the current year's expenditures and next year's proposed expenditures;
 - iv) How the funding has met the goals specified in the SWMP and District workplans; and
 - v) Description of any cost sharing agreements with other responsible parties in implementing the storm water management program.
- c) The fourth year report shall contain a **BUDGET ANALYSIS** for the next permit cycle.

4) *Practices and Policies*

The Department shall identify in the SWMP any of the Department's practices and policies that conflict with implementation of the storm water program. The Department shall annually propose changes, including changes to implementation schedules, needed to resolve these conflicts and otherwise effectively implement the SWMP and the requirements of this Order.

5) *Inspection Program*

The Department shall have an inspection program to ensure that this Order and the SWMP are implemented, and that facilities are constructed, operated, and maintained in accordance with this Order and the SWMP. The program shall include training for inspection personnel, documentation of field activities, a reporting system that can be used to track effectiveness of control measures, enforcement procedures (or referral for enforcement) for non-compliance, procedures for taking corrective action, and responsibilities and responsible personnel of all affected functional offices and branches.

The inspection program shall also include standard operating procedures for documenting inspection findings, a system of escalating enforcement response to non-compliance (including procedures for addressing third party (i.e., contractor) non-compliance), and a system to ensure the timely resolution of all violations of this Order or the SWMP. The Department shall delegate adequate authority to appropriate personnel within all affected functional offices and branches to require corrective actions (including stop work orders).

6) *Incident Reporting - Non-Compliance and Potential/Threatened Non-Compliance*

The Department shall report all known incidents of non-compliance with this Order. Non-compliance may be emergency, field, or administrative. The Department shall electronically file a complete **INCIDENT REPORT FORM** (Attachment I) in the Storm Water Multiple Application Report and Tracking System (SMARTS)⁶ and provide verbal notifications as soon as practicable, but no later than the time frames specified in Attachment I. Submission of an Incident Report Form is not an admission by the Department of a violation of this Order. The types of incidents requiring non-compliance reporting are discussed in Attachment I. The State Water Board or Regional Water Board may require additional information. The Department shall include in the Annual Report a summary of all incidents by type and District, and report on the status of each.

The Department shall report all potential or threatened non-compliance to the State Water Board and appropriate Regional Water Board in accordance with the “Anticipated non-compliance” provisions described in Attachment VI (Standard Provisions). The report shall describe the timing, nature and extent of the anticipated non-compliance. An Incident Report Form is not required for anticipated non-compliance. Anticipated non-compliance may be for field or administrative incidents only.

c. Monitoring and Discharge Characterization Requirements

The Department shall revise and implement the SWMP consistent with the requirements specified below.

1) *Monitoring Site Selection*

Monitoring shall be conducted in two tiers. Tier 1 consists of all sites for which monitoring is required pursuant to the requirements of the General Exception, including Special Protections, to the California Ocean Plan waste discharge prohibitions for storm water and non-point source discharges to ASBS, and sites in impaired watersheds for which the Department has been assigned a WLA and monitoring requirements pursuant to an approved TMDL. Tier 2 consists of all sites where the Department has existing monitoring data, including both storm water and non-storm water. Tier 2 sites may include locations where the Department has conducted characterization monitoring or where monitoring has been conducted for other purposes.

⁶ <https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp>

The Department shall conduct without limitation all Tier 1 monitoring as required under the ASBS Special Protections and under the adopted and approved TMDLs. The Department may satisfy Tier 1 monitoring requirements by participating in stakeholder groups. Retrofitting and verification monitoring under Tier 2 need not be initiated until there are less than 100 sites actively monitored under Tier 1. There shall be a minimum of 100 active monitoring sites at any one time, consisting of Tier 1, Tiers 1 and 2, or Tier 2.

Sites from Tier 2 shall be prioritized by the Department in consideration of the threat to water quality, including the pollutant and its concentration or load, the distance to receiving water, water quality objectives, and any existing impairments in the receiving waters. The prioritized list shall be submitted to the State Water Board within eight (8) months of the effective date of this Order. The State Water Board will review the prioritized list and may revise it to reflect Regional or State Water Board priorities. The revised list will be approved by the Executive Director and will become effective upon notice to the Department.

2) *Water Quality Monitoring*

a) Tier 1 Monitoring Requirements

i) Areas of Special Biological Significance

The Department's ASBS monitoring program shall include both core discharge monitoring and ocean receiving water and reference site monitoring. The State and Regional Water Boards must approve receiving water and reference site sampling locations and any adjustments to the monitoring program. All ocean receiving water and reference area monitoring must be comparable with the Water Boards' Surface Water Ambient Monitoring Program (SWAMP).

Safety concerns: Sample locations and sampling periods must be determined considering safety issues. Sampling may be postponed upon notification to the State and Regional Water Boards if hazardous conditions exist.

(1) Core Discharge Monitoring Program

Core discharge monitoring is the monitoring of storm water effluents from the storm water outfalls at the priority discharge locations listed in Attachment III.

(a) General Sampling Requirements for Timing and Storm Size

Runoff must be collected during a storm event that is greater than 0.1 inch and generates runoff, and at least 72 hours from the previously measurable storm event. Runoff samples shall be collected during the same storm and at approximately the same time when post-storm receiving water is sampled, and analyzed for

the same constituents as receiving water and reference site samples (see section E.2.c.2)a)i(2)) as described below.

(b) Runoff Flow Measurements

For storm water outfalls in existence as of December 31, 2007, 18 inches (457mm) or greater in diameter/width, including multiple outfall pipes in combination having a width of 18 inches, runoff flows must be measured or calculated, using a method acceptable to and approved by the State Water Board. Report measurements annually for each precipitation season to the State and Regional Water Boards.

(c) Runoff samples – storm events

- (i) Outfalls equal to or greater than 18 inches (0.46m) in diameter or width.

Samples of storm water runoff shall be collected during the same storm as receiving water samples and analyzed for oil and grease, total suspended solids, and, within the range of the southern sea otter indicator bacteria or some other measure of fecal contamination. Samples of storm water runoff shall be collected and analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS. If the Department has no outfall greater than 36 inches, then storm water runoff from the applicant's largest outfall shall be further collected during the same storm as receiving water samples and analyzed for Ocean Plan Table B (shown in Attachment II) metals for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and phosphates).

- (ii) Outfalls equal to or greater than 36 inches (0.91m) in diameter or width.

Samples of storm water runoff shall be collected during the same storm as receiving water samples and analyzed for oil and grease, total suspended solids, and, within the range of the southern sea otter indicator bacteria or some other measure of fecal contamination. Samples of storm water runoff shall be further collected during the same storm as receiving water samples and analyzed for Ocean Plan Table B metals for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and

phosphates). Samples of storm water runoff shall be collected and analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS.

(d) If the Department does not participate in a regional monitoring program as described in provision E.2.c.2)a)i)(2)(b) in addition to (i) and (ii) above, a minimum of the two largest outfalls or 20 percent of the larger outfalls, whichever is greater, shall be sampled (flow weighted composite samples) at least three times annually during wet weather (storm event) and analyzed for all Ocean Plan Table A (shown in Attachment II) constituents, Table B constituents for marine aquatic life protection (except for toxicity, only chronic toxicity for three species shall be required), DDT, PCBs, Ocean Plan PAHs, OP pesticides, pyrethroids, nitrates, phosphates, and Ocean Plan indicator bacteria. For discharges to ASBS in more than one Regional Water Board, at a minimum, one (the largest) such discharge shall be sampled annually in each Region.

(e) The Executive Director of the State Water Board may reduce or suspend core monitoring once the storm runoff is fully characterized. This determination may be made at any point after the discharge is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.

(2) Ocean Receiving Water and Reference Area Monitoring Program
In addition to performing the Core Discharge Monitoring Program in provision E.2.c.2)a)i)(1) above, the Department must perform ocean receiving water monitoring. The Department may either implement an individual monitoring program or participate in a regional integrated monitoring program.

(a) Individual Monitoring Program

If the Department elects to perform an individual monitoring program to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within the affected ASBS, in addition to Core Discharge Monitoring, the following additional monitoring requirements shall be met:

(i) Three times annually, during wet weather (storm events), the receiving water at the point of discharge from the outfalls described in provision E.2.c.2)a)i)(1)(c) above shall be sampled and analyzed for Ocean Plan Table A constituents, Table B constituents for marine aquatic life, DDT, PCBs, Ocean Plan

PAHs, OP pesticides, pyrethroids, nitrates, phosphates, salinity, chronic toxicity (three species), and Ocean Plan indicator bacteria.

The sample location for the ocean receiving water shall be in the surf zone at the point of discharges; this must be at the same location where storm water runoff is sampled. Receiving water shall be sampled prior to (pre-storm) and during (or immediately after) the same storm (post storm). Post storm sampling shall be during the same storm and at approximately the same time as when the runoff is sampled. Reference water quality shall also be sampled three times annually and analyzed for the same constituents pre-storm and post-storm, during the same storm seasons when receiving water is sampled. Reference stations will be determined by the State Water Board's Division of Water Quality and the applicable Regional Water Board(s).

- (ii) Sediment sampling shall occur at least three times during every five (5) year period. The subtidal sediment (sand or finer, if present) at the discharge shall be sampled and analyzed for Ocean Plan Table B constituents for marine aquatic life, DDT, PCBs, PAHs, pyrethroids, and OP pesticides. For sediment toxicity testing, only an acute toxicity test using the amphipod *Eohaustorius estuarius* must be performed.
- (iii) A quantitative survey of intertidal benthic marine life shall be performed at the discharge and at a reference site. The survey shall be performed at least once every five (5) year period. The survey design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The results of the survey shall be completed and submitted to the State Water Board and Regional Water Board at least six months prior to the end of the permit cycle.
- (iv) Once during each permit term and in each subsequent five year period, a bioaccumulation study shall be conducted to determine the concentrations of metals and synthetic organic pollutants at representative discharge sites and at representative reference sites. The study design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The bioaccumulation study may include California mussels (*Mytilus californianus*) and/or sand crabs (*Emerita analoga* or *Blepharipoda occidentalis*). Based on the study results, the Regional Water Board and the

State Water Board's Division of Water Quality, may adjust the study design in subsequent permits, or add or modify additional test organisms (such as shore crabs or fish), or modify the study design appropriate for the area and best available sensitive measures of contaminant exposure.

(v) Marine Debris: Representative quantitative observations for trash by type and source shall be performed along the coast of the ASBS within the influence of the discharger's outfalls. The design, including locations and frequency, of the marine debris observations is subject to approval by the Regional Water Board and State Water Board's Division of Water Quality.

(vi) The monitoring requirements of the Individual Monitoring Program in this section are minimum requirements. After a minimum of one (1) year of continuous water quality monitoring of the discharges and ocean receiving waters, the Executive Director of the State Water Board may require additional monitoring, or adjust, reduce or suspend receiving water and reference station monitoring. This determination may be made at any point after the discharge and receiving water is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.

(b) Regional Integrated Monitoring Program

The Department may elect to participate in a regional integrated monitoring program, in lieu of an individual monitoring program, to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within an ASBS. This regional approach shall characterize natural water quality, pre- and post-storm, in ocean reference areas near the mouths of identified open space watersheds and the effects of the discharges on natural water quality (physical, chemical, and toxicity) in the ASBS receiving waters, and should include benthic marine aquatic life and bioaccumulation components. The design of the ASBS stratum of a regional integrated monitoring program may deviate from the prescribed individual monitoring approach described in provision E.2.c.2)a)i)(2)(a) if approved by the State Water Board's Division of Water Quality and the Regional Water Boards.

(i) Ocean reference areas shall be located at the drainages of flowing watersheds with minimal development (in no instance more than 10% development), and shall not be located in CWA Section 303(d) listed waterbodies or have tributaries that are

303(d) listed. Reference areas shall be free of wastewater discharges and anthropogenic non-storm water runoff. A minimum of low threat storm runoff discharges (e.g. stream highway overpasses and campgrounds) may be allowed on a case-by-case basis. Reference areas shall be located in the same region as the ASBS receiving water monitoring occurs. The reference areas for each Region are subject to approval by the participants in the regional monitoring program and the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean reference water samples must be collected from each station, each from a separate storm during the same storm season that receiving water is sampled. A minimum of one reference location shall be sampled for each ASBS receiving water site sampled by the Department. Because the Department discharges to ASBS in more than one Regional Water Board region, at a minimum, one reference station and one receiving water station shall be sampled in each region.

- (ii) ASBS ocean receiving water must be sampled in the surf zone at the location where the runoff makes contact with ocean water (i.e. at "point zero"). Ocean receiving water stations must be representative of worst-case discharge conditions (i.e. co-located at a large drain greater than 36 inches, or if drains greater than 36 inches are not present in the ASBS then the largest drain greater than 18 inches). Ocean receiving water stations are subject to approval by the participants in the regional monitoring program and the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean receiving water samples must be collected during each storm season from each station, each from a separate storm. A minimum of one receiving water location shall be sampled in each ASBS by the Department. At a minimum, one reference station and one receiving water station shall be sampled in each applicable Regional Water Board.
- (iii) Reference and receiving water sampling shall commence during the first full storm season following the adoption of these special conditions, and post-storm samples shall be collected during the same storm event when storm water runoff is sampled. Sampling shall occur in a minimum of two storm seasons.

- (iv) Receiving water and reference samples shall be analyzed for the same constituents as storm water runoff samples. At a minimum, constituents to be sampled and analyzed in reference and discharge receiving waters must include oil and grease, total suspended solids, Ocean Plan Table B metals for protection of marine life, Ocean Plan PAHs, pyrethroids, OP pesticides, ammonia, nitrate, phosphates, and critical life stage chronic toxicity for three species. In addition, within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination shall be analyzed.
- (v) Determinations of compliance with Special Protections requirements for ASBS discharges (State Water Board resolution DWQ 2012-0012) shall be made by the Executive Director of the State Water Board or his designee. When a determination is made that a site or discharge is in compliance with the Special Protections, the site will no longer be considered an active monitoring site pursuant to provision E.2.c.1). This provision applies regardless of any continued monitoring that may be required at the site pursuant to the Special Protections.

ii) Total Maximum Daily Load Watersheds

The Department shall comply with the TMDL monitoring requirements in Attachment IV, or in orders of the Regional Water Boards pursuant to Water Code section 13383 that require TMDL-related monitoring. TMDL monitoring shall also include the constituents listed in Attachment II, except as exempted in Attachment IV.

Determinations of compliance with the TMDL shall be made by the Executive Officer of the Regional Water Board or his designee. When a determination is made that a site or discharge is in compliance with the TMDL, the site will no longer be considered an active monitoring site pursuant to provision E.2.c.1) and monitoring of Attachment II constituents will be discontinued. This provision applies regardless of any continued monitoring that may be required at the site pursuant to the TMDL.

b) Tier 2 Retrofit and Verification Monitoring Requirements

Corrective actions shall be implemented at the top 15 percent of sites (rounded up) on the Tier 2 priority list, subject to the number of sites per year specified in provision E.2.c.1). Follow up monitoring shall be conducted to confirm the effectiveness of the measures implemented, as determined by the Executive Officer of the Regional Water Board or his designee. Follow up monitoring is not required where the discharge has been eliminated, or where

the implemented BMP provides full retention of the 85th percentile, 24-hour rain event.

Determinations of compliance at the Tier 2 sites shall be made by the Executive Officer of the Regional Water Board or his designee. When a determination is made that a site or discharge is in compliance, the site will no longer be considered an active monitoring site pursuant to provision E.2.c.1).

3) *Corrective Actions*

Corrective actions may include structural or non-structural BMPs. All structural BMPs must be designed according to the requirements in provisions E.2.d. and E.2.e.

4) *Field and Laboratory Data Requirements*

The Department shall prepare, maintain, and implement a Quality Assurance Project Plan (QAPP) in accordance with the Surface Water Ambient Monitoring Program. All monitoring samples shall be collected and analyzed according to the Department's QAPP developed for the purpose of compliance with this Order. SWAMP Quality Assurance Program Plan (2008) is available at:

http://www.waterboards.ca.gov/water_issues/programs/swamp/tools.shtml

All samples shall be analyzed by a certified or accredited laboratory as required by Water Code section 13176. Global Positioning System (GPS) coordinates shall be recorded for all monitoring sites, including sites selected for the final Tier 2 priority list (top 15%) according to existing data.

Water quality data (receiving water and effluent) shall be uploaded to the Storm Water Multi-Application Reporting and Tracking System (SMARTS) and must conform to "CEDEN Minimum Data Templates" format. CEDEN Minimum Data Templates are available at <http://ceden.org/>.

Analytical results shall be filed electronically in SMARTS within 30 days of receipt by the Department.

5) *Monitoring Results Report*

The Department shall submit, separate from the Annual Report, a **MONITORING RESULTS REPORT (MRR)** by October 1 of each year.

- a) The MRR shall include a list of all sites in Tier 1 and Tier 2 being actively monitored, and the results of the past fiscal year's monitoring activities including effluent and receiving water quality monitoring.
- b) The Department shall specifically highlight sample values that exceed applicable WQSs, including toxicity objectives. Complete sample results or

lab data need not be included, but must be retained and filed electronically, and must be provided to the Regional Water Board or State Water Board as provided in provision E.2.c.4).

- c) The MRR shall include a summary of sites requiring corrective actions needed to achieve compliance with this Order, and a review of any iterative procedures (where applicable) at sites needing corrective actions.
- d) The reporting period for the MRR shall be July 1 of the prior year through June 30 of the current year.

6) *Compliance Monitoring and Reporting*

- a) The Department shall review and propose any updates, as needed, to the Non-compliance Reporting Plan for Municipal and Construction Activities in section 9.4.1 of the SWMP. The plan shall identify the staff in each District Office and Regional Water Board to send and receive **INCIDENT REPORT FORMS** (Attachment I). The Department shall continue to implement the July 2008 Construction Compliance Evaluation Plan or any updated plan as approved by the Executive Director.
- b) The Department shall summarize, by District, all non-compliance incidents, including construction, in the Annual Report. The summary shall include incident dates, types, locations, and the status of the non-compliance incidents.
- c) Receiving Water Limitations Compliance.
 - i) Upon a determination by the Department or the Regional Water Board Executive Officer that a discharge is causing or contributing to an exceedance of an applicable WQS, the Department shall provide verbal notification within five (5) days, and within 30 days thereafter submit a report to the appropriate Regional Water Board with a copy to the State Water Board. Verbal notification is not required where the determination is made by the Regional Water Board. An Incident Report is not required. Where the pollutant causing the exceedance is subject to a waste load allocation listed in Attachment IV of this Order, the Department shall comply with the requirements of the relevant TMDL in lieu of this provision.
 - ii) The report shall describe BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance. The report shall include an implementation schedule. The Regional Water Board Executive Officer may require modifications to the report.
 - iii) The Department shall submit any modifications to the report required by the Regional Water Board within 30 days of notification.
 - iv) The Department shall implement the revised BMPs and conduct any additional monitoring required according to the implementation schedule.

- d) Toxicity
 - i) Tests for chronic toxicity, where required, shall be estimated as specified in Short-term Method for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA/821-R-02-013, October 2002; Table IA, 40 Code of Federal Regulations section 136 and its subsequent amendments or revisions.
 - ii) For the Department's discharges, the In-stream Waste Concentration (IWC) is 100 percent (i.e., either is 100 percent storm water or 100% non-storm water). To calculate either a Pass or Fail of the effluent concentration chronic toxicity test at the IWC, the instructions in Appendix A in the National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA/833-R-10-003) shall be used. A Pass result indicates no toxicity at the IWC, and a Fail result indicates toxicity at the IWC. Results shall be reported as provided in provision E.2.c.5).

- e) Toxicity Reduction Evaluations (TREs)
 - i) The Department shall include in the SWMP a TRE workplan (1-2 pages) specifying the steps that will be taken in preparing a TRE, when a TRE is required pursuant to provision E.2.c.6)e)ii). The workplan shall include, at a minimum:
 - (a) A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of toxicity, effluent variability, and BMP efficiencies.
 - (b) A description of the steps that will be taken to identify effective pollutant/toxicity reduction opportunities.
 - (c) If a Toxicity Identification Evaluation (TIE) is necessary, an indication of who would conduct the TIEs (i.e., a Department laboratory or outside contractor).
 - ii) Upon a determination that a discharge is causing or contributing to an exceedance of an applicable toxicity standard, a TRE may be required by the appropriate Regional Water Board Executive Officer on a site specific basis. The TRE shall be conducted according to the workplan in the SWMP.

d. Project Planning and Design

The Department shall describe in the SWMP how storm water management is incorporated into the project planning and design process, and how the procedures and methodologies used in the selection of Design and Construction BMPs will be used in Department projects. The Department shall implement the program specified in the SWMP, any documents incorporated into the SWMP by reference, and any additional requirements contained in this Order.

Department and Non-Department projects within the Department's ROW that are new development or redevelopment shall comply with the standard project planning and design requirements for new development and redevelopment specified below. These requirements shall apply to all new and redevelopment projects that have not completed the project initiation phase on the effective date of this Order.

1) *Design Pollution Prevention Best Management Practices*

The following design pollution prevention best management practices shall be incorporated into all projects that create disturbed soil area (DSA), including projects designed to meet the post-construction treatment requirements (Section E.2.d.2)). The SWMP shall be updated to reflect these principles.

- a) Conserve natural areas, to the extent feasible, including existing trees, stream buffer areas, vegetation and soils;
- b) Minimize the impervious footprint of the project;
- c) Minimize disturbances to natural drainages;
- d) Design and construct pervious areas to effectively receive runoff from impervious areas, taking into consideration the pervious areas' soil conditions, slope and other pertinent factors;
- e) Implement landscape and soil-based BMPs such as compost-amended soils and vegetated strips and swales;
- f) Use climate-appropriate landscaping that minimizes irrigation and runoff, promotes surface infiltration, and minimizes the use of pesticides and fertilizers; and
- g) Design all landscapes to comply with the California Department of Water Resources Water Efficient Landscape Ordinance.

<http://www.water.ca.gov/wateruseefficiency/landscapeordinance/technical.cfm>

Where the California Department of Water Resources Water Efficient Landscape Ordinance conflicts with a local water conservation ordinance, the Department shall comply with the local ordinance.

2) *Post-Construction Storm Water Treatment Controls*

a) Projects Subject to Post-Construction Treatment Requirements

i) Department Projects

The Department shall implement post construction treatment control BMPs for the following new development or redevelopment projects:

- (1) Highway Facility projects that create 1 acre or more of new impervious surface.
- (2) Non-Highway Facility projects that create 5,000 square feet or more of new impervious surface.

ii) Non-Department Projects within Department ROW

- (1) The Department shall exercise control or oversight over Non-Department projects through encroachment permits or other means.
- (2) Non-Department development or redevelopment projects shall be subject to the same post-construction treatment control requirements as Department projects.
- (3) For all Non-Department Projects that trigger post-construction treatment control requirements, the Department shall review and approve the design of post-construction treatment controls and BMPs prior to implementation.

iii) Waiver

Where a Regional Water Board Executive Officer finds that a project will have a minimal impact on water quality, the Executive Officer may waive the treatment control requirements, or lessen the stringency of the requirements, for a project. Waivers may not be granted for projects subject to treatment control requirements based on a waste load allocation assigned to the Department.

b) Numeric Sizing Criteria for Storm Water Treatment Control BMPs:

Treatment control BMPs constructed for Department and Non-Department projects shall be designed according to the following priorities (in order of preference):

- i) Infiltrate, harvest and re-use, and/or evapotranspire the storm water runoff;
- ii) Capture and treat the storm water runoff.

The storm water runoff volumes and rates used to size BMPs shall be based on the 85th percentile 24-hour storm event. This sizing criterion shall apply to the entire treatment train within Project Limits. Design Pollution Prevention BMPs can be used to comply with this requirement.

In the event the entire runoff volume from an 85th percentile 24-hour storm event cannot be infiltrated, harvested and re-used, or evapotranspired, the excess volume may be treated by Low Impact Development (LID)-based flow-through treatment devices. Where LID-based flow-through treatment devices are not feasible, the excess volume may be treated through conventional volume-based or flow-based storm water treatment devices.

The Department shall always prioritize the use of landscape and soil-based BMPs to treat storm water runoff. Other BMPs may be used only after landscape and soil-based BMPs are determined to be infeasible. The

Department shall also consider other effective storm water treatment control methods or devices for Department approval.

c) Scope of Design Criteria Applicability for Redevelopment Projects

i) For Highway Facilities:

- (1) Where redevelopment results in an increase in impervious area that is less than or equal to 50 percent of the total post-project impervious area within Project Limits, the numeric sizing criteria shall only apply to the new impervious area and not to the entire project.

If the redeveloped impervious area cannot be hydraulically separated from the existing impervious area, the Department shall either: provide treatment for redeveloped areas and as much of the hydraulically inseparable flow as feasible, based on site conditions and constraints; or identify treatment opportunities equivalent to the redeveloped area (see Alternative Compliance, below).

If it is not possible to separate the flows from redeveloped areas from the existing impervious area, the treatment system shall be designed to treat as much of the hydraulically inseparable flow as feasible, and shall bypass or divert any excess around the treatment device. The purpose of this requirement is to prevent overloading the treatment device and impairing its performance.

- (2) Where redevelopment results in an increase in impervious area that is greater than 50 percent of the total post-project impervious area within Project Limits, the numeric sizing criteria apply to the entire project.

ii) For Non-Highway Facilities, where redevelopment results in an increase in impervious area that is less than or equal to 50 percent of the total post-project impervious area of an existing development, the numeric sizing criteria shall only apply to the new impervious area and not to the entire project.

- (1) If the redeveloped impervious area cannot be hydraulically separated from the existing impervious area, the Department shall either provide treatment for existing and redeveloped areas, or identify treatment opportunities equivalent to the redeveloped area (See Alternative Compliance, below).

- (2) Where redevelopment results in an increase in impervious area that is greater than 50 percent of the total post-project impervious area of an existing development, the numeric sizing criteria apply to the entire project.

d) Alternative Compliance

If the Department determines that all or any portion of on-site treatment for a project is infeasible on-site, the Department shall prepare a proposal for alternative compliance for approval by the Regional Water Board Executive Officer or his designee until such time as a statewide process is approved by the Executive Director of the State Water Board. The proposal shall include documentation supporting the determination of infeasibility. Alternative compliance may be achieved outside Project Limits within the Department's ROW, including within another Department project. Alternative compliance to be achieved outside Project Limits shall include provisions for the long-term maintenance of such treatment facilities.

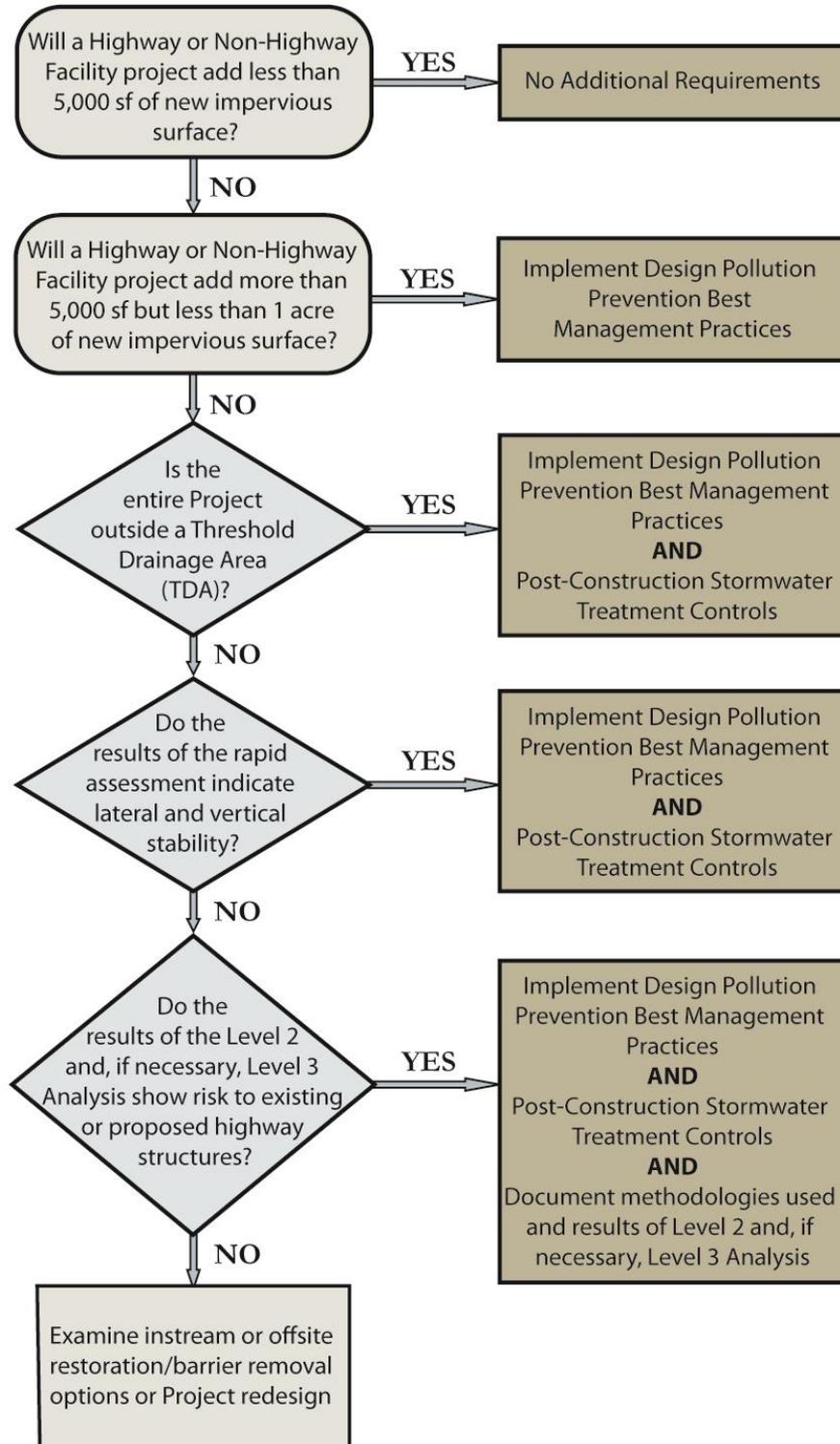
3) *Hydromodification Requirements*

The Department shall ensure that all new development and redevelopment projects do not cause a decrease in lateral (bank) and vertical (channel bed) stability in receiving stream channels. Unstable stream channels negatively impact water quality by yielding much greater quantities of sediment than stable channels. The Department shall employ the risk-based approach detailed in this permit to assess lateral and vertical stability. The approach assists the Department in assessing pre-project channel stability and implementing mitigation measures that are appropriate to protect structures and minimize stream channel bank and bed erosion. The approach is depicted in Figure 1 and described below.

- a) Highway or Non-Highway Facility projects that add between 5,000 square feet and 1 acre of new impervious surface must implement the Design Pollution Prevention Best Management Practices in Section E.2.d.1).
- b) Highway or Non-Highway Facility projects that add 1 acre or more of new impervious surface completely outside of a Threshold Drainage Area⁷ must implement the Design Pollution Prevention Best Management Practices and the Post-Construction Storm Water Treatment Controls in Section E.2.d.

⁷ Threshold Drainage Area is defined as the area draining to a location at least 20 channel widths downstream of a stream crossing (pipe, swale, culvert, or bridge) within Project Limits. Delineating the Threshold Drainage Area is not necessary if there is/ are no stream crossing(s) within the Project Limits.

FIGURE 1: Hydromodification Flowchart



- c) Highway or Non-Highway Facility projects that add 1 acre or more of new impervious surface with any impervious portion of the project located within a Threshold Drainage Area must conduct a rapid assessment of stream stability⁸ at each stream crossing (e.g., pipe, culvert, swale or bridge) within that Threshold Drainage Area. If the stream crossing is a bridge, a follow up rapid assessment of stream stability is also required and can be coordinated with the federally-mandated bridge inspection process. The assessment will be conducted within a representative channel reach to assess lateral and vertical stability. A representative reach is a length of stream channel that extends at least 20 channel widths upstream and downstream of a stream crossing. For example, a 20 foot-wide channel would require analyzing a 400 foot distance upstream and downstream of the discharge point or bridge. If sections of the channel within the 20 channel width distance are immediately upstream or downstream of steps, culverts, grade controls, tributary junctions, or other features and structures that significantly affect the shape and behavior of the channel, more than 20 channel widths should be analyzed.
- d) If the results of the rapid assessment indicate that the representative reach is laterally and vertically stable (i.e., a rating of excellent or good) the Department does not have to conduct further analyses and must implement the Design Pollution Prevention Best Management Practices and the Post-Construction Storm Water Treatment Controls in Section E.2.d.
- e) If the results of the rapid assessment indicate that the representative reach will not be laterally and vertically stable (i.e., a rating of excellent or good), the Department must determine whether the instability, in conjunction with the proposed project, poses a risk to existing or proposed highway structures by conducting appropriate Level 2 (and, if necessary, Level 3) analyses. The Department shall follow the Level 2 and 3 analysis guidelines contained in HEC-20 (FHWA, 2001) or a suitable equivalent within an accessible portion of the reach. If the results of the appropriate Level 2 (and, if necessary Level 3) analyses indicate that there is no risk to existing or proposed highway structures, the Department must implement the Design Pollution Prevention Best Management Practices and the Post-Construction Storm Water Treatment Controls in Section E.2.d. and document the methodologies used, the results, and the mitigation measures suggested as part of the appropriate Level 2 and, if necessary, Level 3 analyses.
- f) If the results of the Level 2 and 3 analysis indicate that the instability, in conjunction with the proposed project, poses a risk to existing or proposed highway structures, other options must be implemented, including, but not limited to, in-stream and floodplain enhancement/restoration, fish barrier

⁸ Guidance and worksheets used for the rapid assessment of stream stability are in the Federal Highway Administration publication "*Assessing Stream Channel Stability at Bridges in Physiographic Regions*" (FHWA, 2006).

removal as identified in the report required under Article 3.5 of the Streets and Highways Code (see below), regional flow control, off-site BMPs, and, if necessary, project re-design.

- 4) *Stream Crossing Design Guidelines to Maintain Natural Stream Processes*
The Department shall review and revise as necessary the guidance document “Fish Passage Design for Road Crossings” (Department, 2009). In reviewing and revising the guidance document, the Department shall be consistent with the latest stream crossing design, construction, and rehabilitation criteria contained in the California Salmonid Stream Habitat Restoration Manual (California Department of Fish & Game, 2010) and National Marine Fisheries Service guidance (NMFS, 2001). The review shall be completed no later than one year after the effective date of this Order. The Department shall submit in the Year 2 Annual Report a report detailing the review of the guidance document. The Year 2 Annual Report shall also report on the implementation of the road crossing guidelines.

If it is infeasible to meet any of the guidelines specified above, the Department shall prepare written documentation justifying the determination of infeasibility. Documentation shall be provided to the Regional Water Board for approval.

The Department shall submit to the State Water Board by October 1 of each year the same report required under Article 3.5 of the Streets and Highways Code requiring the Department to report on the status of its efforts in locating, assessing, and remediating barriers to fish passage.

e. BMP Development & Implementation

In the SWMP, the Department shall include a description of how BMPs will be developed, constructed and maintained. The Department shall continue to evaluate and investigate new BMPs through pilot studies. The Department shall submit updates to the **STORM WATER TREATMENT BMP TECHNOLOGY REPORT** and the **STORM WATER MONITORING AND BMP DEVELOPMENT STATUS REPORT** in the Annual Report.

1) *Vector Control*

- a) All storm water BMPs that retain storm water shall be designed, operated and maintained to minimize mosquito production, and to drain within 96 hours of the end of a rain event, unless designed to control vectors. BMPs shall be maintained at the frequency specified by the manufacturer. This limitation does not apply in the Lake Tahoe Basin and in other high-elevation regions of the Sierra Nevada above 5000 feet elevation with similar alpine climates. The Department shall operate and maintain all BMPs to prevent the propagation of vectors, including complying with applicable provisions of the California Health and Safety Code relating to vector control.

- b) The Department shall cooperate and coordinate with the California Department of Public Health (CDPH) and with local mosquito and vector control agencies on issues related to vector production in the Department's structural BMPs. The Department shall prepare and maintain an inventory of structural BMPs that retain water for more than 96 hours. The inventory need not include BMPs in the Lake Tahoe Basin or other regions of the Sierra Nevada above 5000 feet. The inventory shall be provided to CDPH in electronic format for distribution to local mosquito and vector control agencies. The inventory shall be provided in Year 2 of the permit and updated every two years.

2) *Storm Water Treatment BMPs*

- a) The Department shall inspect all newly installed storm water treatment BMPs within 45 days of installation to ensure they have been installed and constructed in accordance with approved plans. If approved plans have not been followed, the Department shall take appropriate remedial actions to bring the BMP or control into conformance with its approved design.
- b) The Department shall inspect all installed storm water treatment BMPs at least once every year, beginning one year after the effective date of this Order.
- c) The Department may drain storm water treatment BMPs to the MS4 if the discharge does not cause or contribute to exceedances of water quality standards. Retained sediments shall be disposed of properly, in compliance with all applicable local, State, and federal acts, laws, regulations, ordinances, and statutes.
- d) The Department shall develop and utilize a watershed-based database to track and inventory treatment BMPs and treatment BMP maintenance within its jurisdiction. At a minimum, the database shall include:
 - i) Name and location of BMP;
 - ii) Watershed, Regional Water Board and District where project is located;
 - iii) Size and capacity;
 - iv) Treatment BMP type and description;
 - v) Date of installation;
 - vi) Maintenance certifications or verifications;
 - vii) Inspection dates and findings;
 - viii) Compliance status;
 - ix) Corrective actions, if any; and
 - x) Follow-up inspections to ensure compliance.

Electronic reports for each BMP inspected during the reporting period shall be submitted to each associated Regional Water Board in tabular form. A summary of the tracking system data shall be included in the Annual Report along with a report on maintenance activities for post construction BMPs.

The tracking system database shall be made available to the State Water Board or any Regional Water Board upon request.

3) BMPs shall not constitute a hazard to wildlife.

4) *Biodegradable Materials.*

The Department shall utilize wildlife-friendly 100% biodegradable⁹ erosion control products wherever feasible. At any site where erosion control products containing non-biodegradable materials have been used for temporary site stabilization, the Department shall remove such materials when they are no longer needed. If the Department finds that erosion control netting or products have entrapped or harmed wildlife at any site or facility, the Department shall remove the netting or product and replace it with wildlife-friendly biodegradable products.

f. Construction

1) *Compliance with the Statewide Construction Storm Water General Permit (CGP) and Lake Tahoe Construction General Permit (TCGP)*

Construction activities that may receive coverage under the CGP or the TCGP are not covered under this MS4 Permit. The Department shall electronically file Permit Registration Documents (PRD) for coverage under the CGP or TCGP for all projects subject to the CGP or TCGP.

2) *Construction Activities not Requiring Coverage Under the CGP*

For construction activities that are not subject to the CGP or the TCGP, the Department shall implement BMPs to reduce the discharge of pollutants to the MEP in storm water discharges associated with land disturbance activities including clearing, grading and excavation activities that result in the disturbance of less than one acre of total land area. The Department shall also implement BMPs to reduce the discharge of pollutants to the MEP for construction and maintenance activities that do not involve land disturbance such as roadway and parking lot repaving and resurfacing. The Department must comply with any region-specific waste discharge requirements, including any requirements applicable to activities involving less than one acre land disturbance.

3) *Construction Projects Involving Lead Contaminated Soils*

The Department has applied for and received variances from the California Department of Toxic Substances Control (DTSC) for the reuse of some soils that contain lead. For construction projects that have received a DTSC variance, the Department shall notify the appropriate Regional Water Board in writing 30 days prior to advertisement for bids to allow a determination by the Regional Water Board of the need for development of Waste Discharge Requirements (WDRs).

⁹ For purposes of this Order, photodegradable synthetic products are not considered biodegradable.

- 4) *Pavement Grindings*
The Department shall comply with the requirements of the Regional Water Boards for the management of pavement grindings as well as with all local and State regulations, including Titles 22 and 27 of the California Code of Regulations.
 - 5) *Contractor Compliance*
The Department shall require its contractors to comply with this Order and with all applicable requirements of the CGP.
 - 6) *Construction Non-Compliance Reporting*
Incidents of non-compliance with the CGP shall be reported pursuant to the provisions of the CGP. The Department shall provide in the Annual Report a summary of all construction project non-compliance (Section E.2.c.6)b)).
- g. Compliance with Statewide Industrial Storm Water General Permit (IGP)
Industrial activities are not covered under this MS4 permit. The Department shall electronically file PRDs for coverage under the IGP for all facilities subject to coverage under the IGP. The categories of industrial facilities are provided in Attachment 1 of the Industrial General Permit (NPDES Permit No. CAS000001; the current Order No. 97-03-DWQ). The Department shall require its industrial facility contractors to comply with all requirements of the IGP. The discharge of pollutants from facilities not covered by the Industrial General Permit will be reduced to the MEP through the appropriate implementation of BMPs.
- h. Maintenance Program Activities and Facilities Operations
- 1) *Implement SWMP Requirements*
The Department shall implement the program specified in the SWMP to reduce or eliminate pollutants in storm water discharges from Department maintenance facilities and maintenance activities. The Department shall also implement any additional requirements contained in this Order.
 - 2) A **FACILITY POLLUTION PREVENTION PLAN (FPPP)** describes the activities conducted at a facility and the BMPs to be implemented to reduce or eliminate the discharge of pollutants in storm water runoff from the facility.

The Department shall prepare, revise and/or update the FPPPs for all maintenance facilities by October 1 of the first year. Each facility shall be evaluated separately and assigned appropriate site specific BMPs. The FPPP shall describe the activities conducted at the facility and the BMPs to be implemented to reduce or eliminate the discharge of pollutants in storm water runoff from the facility. The FPPP shall describe the inspection program used to ensure that maintenance BMPs are implemented and maintained. The Department shall identify in each Annual Report the status of the FPPP for each

Maintenance Facility by District and Region, including the date of the last update or revision and the nature of any revisions.

The Department shall evaluate all non-maintenance Facilities, excluding leased properties, for water quality problems. If the Department identifies a water quality problem at a non-maintenance facility, it shall prepare an FPPP for that facility. If Regional Water Board staff determines that a non-maintenance facility may discharge pollutants to the storm water drainage system or directly to surface waters, the Department shall prepare an FPPP for that facility.

Regional Water Board staff has the authority to require the submittal of an FPPP at any time, to require changes to a FPPP, and to require changes in the implementation of the provisions of a FPPP.

3) *Highway Maintenance Activities*

a) The Department shall develop and implement runoff management programs and systems for existing roads, highways, and bridges to reduce runoff pollutant concentrations and volumes entering surface waters. The Department shall:

- i) Identify priority and watershed pollutant reduction opportunities (e.g., improvements to existing urban runoff control structures). Priority shall be given to sites in sensitive watersheds or where there is an existing or potential threat to water quality;
- ii) Establish schedules for implementing appropriate controls; and
- iii) Identify road segments with slopes that are prone to erosion and sediment discharge and stabilize these slopes to control the discharge of pollutants to the MEP. An inventory of vulnerable road segments shall be maintained in the District Work Plans. Stabilization activities shall be reported in the Annual Report. This section does not apply to landslides and other forms of mass wasting which are covered under section E.2.h.3)d).

b) *Vegetation Control*

The Department shall control its handling and application of chemicals including pesticides, herbicides, and fertilizers to reduce or eliminate the discharge of pollutants to the MEP. The Department shall incorporate integrated pest management and integrated vegetation management practices into its vegetation control program¹⁰. At a minimum, the Department shall:

- i) Apply herbicides and pesticides in compliance with federal, state and local use regulations and product label directions.

¹⁰ <http://www.epa.gov/opp00001/factsheets/ipm.htm> and <http://www.ipm.ucdavis.edu/>

- (1) Violations of regulations shall be reported to the County Agricultural Commissioners within 10 business days.
 - (2) The Annual Report shall include a summary of violations and follow-up actions to correct them.
- ii) Minimize the application of chemicals by using integrated pest management and integrated vegetation management. For example, the Department may reduce the need for application of fertilizers and herbicides by using native species and using mechanical and biological methods for control of exotic species.
 - iii) Prior to chemical applications, assess site-specific and application-specific conditions to prevent discharge. The assessment shall include the following variables:
 - (1) Expected precipitation events, especially those with the potential for high intensity;
 - (2) Proximity to water bodies;
 - (3) Intrinsic mobility of the chemical;
 - (4) Application method, including any tendency for aerial dispersion;
 - (5) Fate and transport of the chemical after application;
 - (6) Effects of using combinations of chemicals; and
 - (7) Other conditions as identified by the applicator.
 - iv) Apply nutrients at rates and by means necessary to establish and maintain vegetation without causing significant nutrient runoff to surface water.
 - v) Ensure that all employees or contractors who, within the scope of their duties, prescribe or apply herbicides, pesticides, or fertilizers (including over-the-counter products) are appropriately trained and licensed to comply with these provisions.
 - vi) Propose SWMP provisions as appropriate.
 - vii) Include the following items in the Annual Report:
 - (1) A summary of the Department's chemical use. Report the quantity of chemicals used during the previous reporting period by name and type of chemical, by District, and by month.
 - (2) An assessment of long-term trends in herbicide usage. Include a table presenting yearly District herbicide totals by chemical type;
 - (3) A comparison of the statewide herbicide use with the Department's herbicide reduction goals;

- (4) An analysis of the effectiveness of implementation of vegetation control BMPs. Improvements to BMP implementation either being used or proposed for usage shall be discussed. If no improvements are proposed, explain why;
- (5) Justification for any increases in use of herbicides, pesticides, and fertilizers;
- (6) A report on the number and percentage of employees who apply pesticides and have been trained and licensed in the Department's Pesticide and Fertilizer Pollution Control Program policies; and
- (7) Training materials, if requested by the State Water Board.

c) Storm Water Drainage System Facilities Maintenance

- i) The Department shall inspect all urban¹¹ drainage inlets and catch basins a minimum of once per year and shall remove all waste and debris from drainage inlets and catch basins when waste and debris have accumulated to a depth of 50 percent of the inlet or catch basin capacity.
- ii) Waste and debris, including sweeper and vacuum truck waste, shall be managed and reported in accordance with all applicable laws and regulations, including the Cal. Code Regs. Title 27, Division 2, Subdivision 1.
- iii) The Department shall develop a **WASTE MANAGEMENT PLAN** that includes a comprehensive inventory of waste storage, transfer, and disposal sites; the source(s) of waste and the physical and chemical characterization of the waste retained at each site; estimated annual volumes of material and existing or planned waste management practices for each waste and facility type. Waste characterization need not be conducted on a site-by-site basis but may be evaluated programmatically based upon the highway environment and associated land uses contributing to the sites, climate, and ecoregion. The Waste Management Plan shall be submitted for State Water Board review and approval within one year of the effective date of this Order.

d) Landslide Management Activities

The Department shall develop a **LANDSLIDE MANAGEMENT PLAN** that includes BMPs for Department construction and maintenance work landslide-related activities (e.g., prevention, containment, clean-up). The *Landslide Management Plan* shall address all forms of mass wasting such as slumps, mud flows, and rockfalls, and shall include BMPs specifically for burn site management activities. The Department shall submit the *Landslide Management Plan* with the Year 1 Annual Report and implement the *Landslide Management Plan* for the remainder of the Permit term.

¹¹ For purposes of this requirement, the term "urban" shall mean located within an "urbanized area" as determined by the latest Decennial Census by the Bureau of the Census (Urbanized Area).

4) *Surveillance Activities*

a) Spill Response

The Department will follow the applicable Emergency Management Agency (EMA) procedures and timelines specified in Water Code sections 13271 and 13272 for reporting spills.

b) Illegal Connection/Illicit Discharge (IC/ID) and Illegal Dumping Response

i) The Department shall implement the BMPs and other requirements of the SWMP and this Order to reduce and eliminate IC/IDs and illegal dumping.

ii) The Department shall develop an **IC/ID AND ILLEGAL DUMPING RESPONSE PLAN** that includes, at a minimum, the following:

- (a) Procedures for investigating reports or discoveries of IC/IDs or incidents of illegal dumping, for remediating or eliminating the IC/IDs, and for clean-up of illegal dump sites.
- (b) Procedures for prevention of illegal dumping at sites subject to repeat or chronic incidents of illegal dumping.
- (c) Procedures for educating the public, raising awareness and changing behaviors regarding illegal dumping, and encouraging the public to contact the appropriate local authorities if they witness illegal dumping.

Within 6 months of the effective date of this Order, the Department shall submit the **IC/ID AND ILLEGAL DUMPING RESPONSE PLAN** to the State Water Board Executive Director for approval.

iii) The Department shall report all suspected IC/IDs to the Regional Water Board.

c) Reporting Requirements for Trash and Litter

The Department shall report on the trash and litter removal activities that are currently underway or are initiated after adoption of this Order. Activities include, but are not limited to, storm drain maintenance, road sweeping, public education and the Adopt-A-Highway program. Reporting and assessment of these or future activities shall follow protocols established by the Department and shall include estimated annual volumes of the trash and litter removed. Results shall be submitted as part of the Annual Report in a summary format by District. Prior year's data shall be included to facilitate an analysis of trends.

d) Department Activities Outside the Department's Right-of-Way

The Department shall include provisions in its contracts that require the contractor to obtain and comply with applicable permits for project-related facilities and operations outside the Department's ROW. Facilities may include concrete or asphalt batch plants, staging areas, concrete slurry

processing or other material recycling operations, equipment and material storage yards, material borrow areas, and access roads.

5) *Maintenance Facility Compliance Inspections*

- a) District staff shall inspect all maintenance facilities at least twice annually. Follow up inspections shall be conducted when deficiencies are noted. The inspections are to identify areas contributing to a discharge of pollutants associated with maintenance facility activities, to determine if control practices to reduce pollutant loadings identified in the Facility Pollution Prevention Plans (FPPP) are adequate and properly implemented, and to determine whether additional control practices are needed. The District shall keep a record of inspections. The record of the inspections shall include the date of the inspection, the individual(s) who performed the inspection, a report of the observations, recommendations for any corrective actions identified or needed, and a description of any corrective actions undertaken.
- b) The Regional Water Board may require the Department to conduct additional site inspections, to submit reports and certifications, or to perform additional sampling and analysis to the extent authorized by the Water Code.
- c) Records of all inspections, compliance certifications, and non-compliance reporting shall be retained for a period of at least three years. With the exception of non-compliance reporting, the Department is not required to submit these records unless requested.

6) *Operation and Maintenance of Post-Construction BMPs*

The Department shall prepare and implement long-term operation and maintenance plans for every site subject to the post-construction storm water treatment design standards. The plans must ensure the following: a) Long-term structural LID BMPs are maintained as necessary to ensure they continue to work effectively; b) Proprietary devices are maintained according to the manufacturer's directions; and c) Post-construction BMPs are replaced if they lose their effectiveness.

i. Non-Departmental Activities

The Department shall summarize its control over all non-departmental (third party) activities performed on Department ROW in the SWMP. The summary shall describe how the Department shall ensure compliance with this Order in all non-departmental activities.

The Department shall not grant or renew encroachment permits or easements benefitting any third party required to obtain coverage under the Statewide Construction and/or Industrial Storm Water General Permits unless the party has obtained coverage. In all leases, rental agreements, and all other contracts with

third parties conducting activities within the ROW, the Department shall require the third party to comply with applicable requirements of the Construction General Permit, the Industrial General Permit, and this Order.

j. Non-Storm Water Activities/ Discharges

- 1) The Department shall describe the management activities for all non-storm water discharges in the SWMP. Management activities shall include the procedures for prohibiting illicit discharges and illegal connections, and procedures for spill response, cleanup, reporting, and follow-up.
- 2) *Agricultural Return Flows*
The Department shall provide reasonable support to the monitoring activities of agricultural dischargers whose runoff enters the MS4. Reasonable support includes facilitating monitoring activities, providing necessary access to monitoring sites, and cooperating with monitoring efforts as needed. It does not include actively conducting monitoring or providing funding. The Department may require agricultural dischargers to follow established Department access and encroachment procedures in establishing sites and conducting monitoring activities, and may deny access at sites that may restrict traffic flow or pose a danger to any party.
- 3) See Section B of this Order for the complete list of conditionally exempt non-storm water discharges and compliance requirements.

k. Training

- 1) The Department shall implement a training program for Department employees and construction contractors. The training program shall be described in the SWMP.
- 2) The training program shall cover:
 - a) Causes and effects of storm water pollution;
 - b) Regulatory requirements;
 - c) Best Management Practices;
 - d) Penalties for non-compliance with this Order; and
 - e) Lessons learned.
- 3) The Department shall provide a review and assessment of all training activities in the Annual Report.

I. Public Education and Outreach

The Department shall implement a Statewide Public Education Program and describe it in the SWMP. The Department shall continue to seek opportunities to participate in public outreach and education activities with other MS4 permittees.

- 1) The Statewide Public Education Program shall include the following elements:
 - a) Research: A plan for conducting research on public behavior that affects the quality of the Department's runoff. The information gathered will form the foundation for all the public education conducted.
 - b) Education: Education of the general public to modify behavior and communicate with commercial and industrial entities whose actions may add pollutants to the Department's storm water.
 - c) Mass Media Advertising: Continue the advertising campaign as a focal point of the public education strategy. The campaign should focus on the behaviors of concern and should be designed to motivate the public to change those behaviors. The public education campaign should be revised and updated according to the results of the research. The Department may cooperate with other organizations to implement the public education campaign.
- 2) A **PUBLIC EDUCATION PROGRAM PROGRESS REPORT** shall be submitted as part of the Annual Report.

m. Program Evaluation

- 1) The Department shall implement the program specified in the SWMP and any additional requirements contained in this Order.
- 2) **Field Activities SELF-AUDIT**
The Department will perform compliance evaluations for field activities including construction, highway maintenance, facility maintenance, and selected targeted program components. The results of the field compliance evaluations for each fiscal year will be provided in the Annual Report.
- 3) **OVERALL PROGRAM EFFECTIVENESS EVALUATION:**
Each year, the Department shall submit an **OVERALL PROGRAM EFFECTIVENESS EVALUATION** together with the Annual Report. The Department shall increase the scope of the evaluation each year in response to the environmental monitoring data it collects. The effectiveness evaluation shall be comparable to that outlined in CASQA's *Municipal Stormwater Program Effectiveness Assessment Guidance*¹² and shall emphasize assessment of BMPs specifically targeting primary pollutants of concern. The effectiveness evaluation shall include, but is not limited to, the following components:

¹² <https://www.casqa.org/store/products/tabid/154/p-7-effectiveness-assessment-guide.aspx>

- a) Assessment of program effectiveness in achieving permit requirements and measurable objectives.
 - b) Assessment of program effectiveness in protecting and restoring water quality and beneficial uses.
 - c) Identification of quantifiable effectiveness measurements for each BMP, including measurements that link BMP implementation with improvement of water quality and beneficial use conditions.
 - d) Identification of how the Department will propose revisions to the SWMP to optimize BMP effectiveness when effectiveness assessments identify BMPs or programs that are ineffective or need improvement.
- n. Measurable Objectives
 The Department shall implement the program specified in the SWMP and any additional requirements contained in this Order. In the SWMP, the Department shall identify measurable objectives to meet the SWMP's goals, proposed activities and tasks to meet the objectives, and a time schedule for the proposed activities and tasks. In the Annual Report, the Department shall report on its progress in meeting the measurable objectives.
- o. References
 The Department shall provide references for all information, documents, and studies used in the development of the SWMP.

3. Annual Report

- a. The Department shall submit 13 copies of an **ANNUAL REPORT** to the State Water Board Executive Director by October 1 of each year. An electronic copy shall also be uploaded into SMARTS in the portable document format (PDF). The reporting period for the Annual Report shall be July 1 through June 30. The Annual Report shall contain all information and submittals required by this Order including, but not limited to:
 - 1) A District-by-District description of storm water pollution control activities conducted during the reporting period;
 - 2) A progress report on meeting the SWMP's measurable objectives;
 - 3) An Overall Program Effectiveness Evaluation as described in section E.2.m.3);
 - 4) Proposed revisions to the SWMP, including revisions to existing BMPs, along with corresponding justifications;
 - 5) A report on post-construction BMP maintenance activities;
 - 6) A list of non-approved BMPs that were implemented in each District during the reporting period including the type of BMP, reason for use, physical location, and description of any monitoring;
 - 7) An evaluation of project planning and design activities conducted during the year;

- 8) A summary of non-compliance with this Order and the SWMP as specified in Section E.2.c.6)b). The summary shall include an assessment of the effectiveness of any Department enforcement and penalties, and as appropriate, proposed solutions to improve compliance;
- 9) An evaluation of the Monitoring Results Report, including a summary of the monitoring results;
- 10) Proposed revisions to the Department's Vegetation Control Program;
- 11) Proposals for monitoring and control of non-storm water discharges that are found to be sources of pollutants as described in Section B. of this Order;
- 12) District Workplans (See below); and
- 13) Measures implemented to meet region-specific requirements.

A partial summary of reporting requirements is contained in Attachment IX of this Order.

b. ***DISTRICT WORKPLANS***

The Department shall submit ***DISTRICT WORKPLANS*** (workplans) for each District by October 1 of each year, as part of the Annual Report. The workplans will be forwarded to the appropriate Regional Water Board Executive Officer for acceptance. Workplans are deemed accepted after 60 days after receipt by the Regional Water Board unless rejected in writing. District staff shall meet with Regional Water Board staff on an annual basis prior to submittal of the workplans to discuss alternatives and ensure that appropriate post construction controls are included in the project development process through review of the workplan and early consultation and coordination between District and Regional Water Board staff. Workplans shall conform with the requirements of applicable Regional Water Board Basin Plans and shall include, at a minimum:

- 1) A description of all activities and projects, including maintenance projects, to be undertaken by the Districts. For all projects with soil disturbing activities, this shall include a description of the construction and post construction controls to be implemented;
- 2) The area of new impervious surface and the percentage of new impervious surface to existing impervious surface for each project;
- 3) The area of disturbed soil associated with each project or activity;
- 4) A description of other permits needed from the Regional Water Boards for each project or activity;
- 5) Potential and actual impacts of the discharge(s) from each project or activity;
- 6) The proposed BMPs to be implemented in coordination with other MS4 permittees to comply with WLAs and LAs assigned to the Department for specific pollutants in specific watersheds or sub watersheds;
- 7) The elements of the statewide monitoring program to be implemented in the District;

- 8) Identification of high-risk areas (such as locations where spills or other releases may discharge directly to municipal or domestic water supply reservoirs or ground water percolation facilities);
- 9) Spill containment, spill prevention and spill response and control measures for high-risk areas; and
- 10) Proposed measures to be taken to meet Region-specific requirements included in Attachment V.
- 11) An inventory of vulnerable road segments having slopes that are prone to erosion and sediment discharge.

4. TMDL Compliance Requirements

a. Implementation

The Department shall comply with all TMDL-related requirements identified in Attachment IV.

In addition, consistent with provision E.11.b of this Order, the State Water Board may reopen this Order to incorporate any modifications or revisions to the TMDLs in Attachment IV, or to incorporate any new TMDLs adopted during the term of this Order that assign a WLA to the Department or that identify the Department as a responsible party in the TMDL implementation plan.

b. Status Review Report

The Department shall prepare a **TMDL STATUS REVIEW REPORT** to be submitted with each Annual Report. The **TMDL STATUS REVIEW REPORT** shall include all information required in Attachment IV.

5. ASBS Compliance Requirements

a. Priority Discharges

Attachment III, ASBS Priority Discharge Locations, identifies representative monitoring locations where the Department has priority discharges to ASBS. Priority discharges are those that pose the greatest threat to water quality in the ASBS and which the State Water Board identifies to require monitoring and potential installation of structural or non-structural controls.

b. Alternate Locations

The Executive Director of the State Water Board may authorize revisions to Attachment III, ASBS Priority Discharge Locations, where access limitations or safety considerations make it infeasible to conduct monitoring. Alternate locations proposed by the Department shall be in as close proximity to the original priority discharge locations as is feasible.

c. Compliance Schedule

- 1) On the effective date of the Exception, all non-authorized non-storm water discharges (e.g., dry weather flow) to ASBS shall be effectively prohibited.
- 2) No later than September 20, 2013, the Department shall submit a draft written ASBS Compliance Plan to the State Water Board Executive Director that describes its strategy to comply with these provisions, including the requirement to maintain natural water quality in the affected ASBS (see provision E.5.d.). The final ASBS Compliance Plan, including a description and final schedule for structural controls based on the results of runoff and receiving water monitoring, shall be submitted no later than September 20, 2015 and shall be included in the SWMP.
- 3) Within 18 months of the effective date of the Exception, any non-structural controls that are necessary to comply with these provisions shall be implemented.
- 4) Within six (6) years of the effective date of the Exception, any structural controls identified in the ASBS Compliance Plan that are necessary to comply with these provisions shall be operational.
- 5) Within six (6) years of the effective date of the Exception, the Department must comply with the requirement that their discharges into the affected ASBS maintain natural ocean water quality. If the initial results of post-storm receiving water quality testing indicate levels higher than the 85th percentile threshold of reference water quality data and the pre-storm receiving water levels, then the Department must re-sample the receiving water, pre- and post-storm. If after re-sampling, the post-storm levels are still higher than the 85th percentile threshold of reference water quality data, and the pre-storm receiving water levels, for any constituent, then natural ocean water quality is exceeded. See Figure 2.
- 6) The Executive Director of the State Water Board may only authorize additional time to comply with provisions E.5.b.4) and E.5.b.5) above if good cause exists to do so. Good cause means a physical impossibility or lack of funding.

If the Department claims physical impossibility, it shall notify the Executive Director of the State Water Board in writing within thirty (30) days of the date that the discharger Department first knew of the event or circumstance that caused or would cause it to fail to meet the deadline in provisions E.5.c.4) or E.5.c.5). The notice shall describe the reason for the noncompliance or anticipated noncompliance and specifically refer to this Permit provision. The Department shall describe the anticipated length of time the delay in compliance may persist, the cause or causes of the delay as well as measures to minimize the impact of

the delay on water quality, the measures taken or to be taken by the Department to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The Department shall adopt all reasonable measures to avoid and minimize such delays and their impact on water quality.

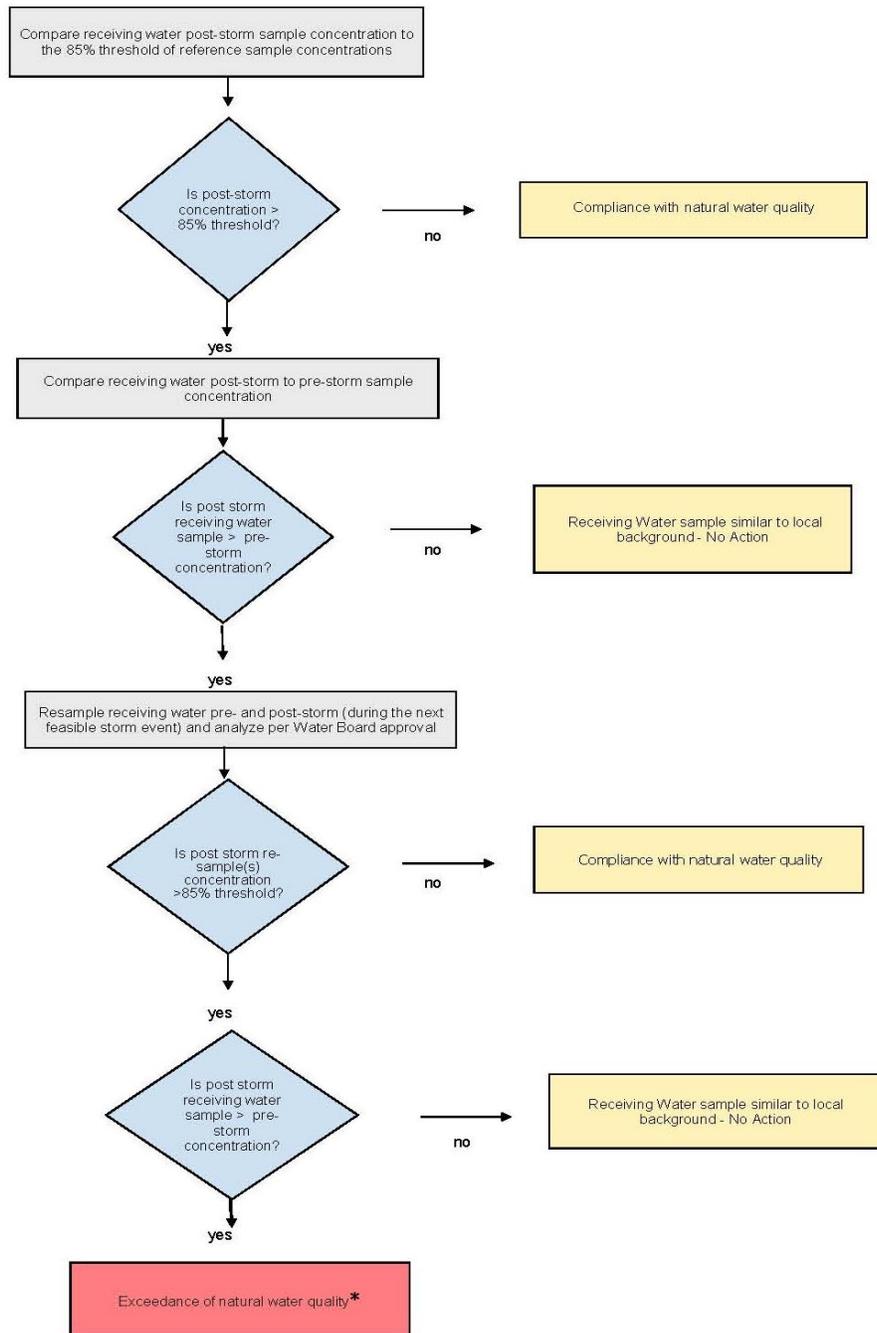
The Department may request an extension of time for compliance based on lack of funding. The request for an extension shall require a demonstration and documentation of a good faith effort to acquire funding through the Department's budgetary process, and a demonstration that funding was unavailable or inadequate.

d. ASBS Compliance Plan

The Department shall develop and submit to the Executive Director of the State Water Board a draft ASBS Compliance Plan not later than September 20, 2013. The ASBS Compliance Plan shall address all locations listed in Attachment III as follows:

- 1) Include a map of surface drainage of storm water runoff, showing areas of sheet runoff, priority discharge locations, and any structural Best Management Practices (BMPs) already employed and/or BMPs to be employed in the future. The map shall also show the storm water conveyances in relation to other features such as service areas, sewage conveyances and treatment facilities, landslides, areas prone to erosion, and waste and hazardous material storage areas, if applicable.
- 2) Describe the measures by which all non-authorized non-storm water runoff (e.g., dry weather flows) has been eliminated, how these measures will be maintained over time, and how these measures are monitored and documented.
- 3) Require minimum inspection frequencies as follows:
 - a) The minimum inspection frequency for construction sites shall be weekly during the rainy season;
 - b) The minimum inspection frequency for industrial facilities shall be monthly during the rainy season; and
 - c) Storm water outfall drains equal to or greater than 18 inches (457 mm) in diameter or width shall be inspected once prior to the beginning of the rainy season and once during the rainy season, and maintained to remove trash and other anthropogenic debris.

Figure 2
ASBS Special Protections
Flowchart to Determine Compliance with Natural Water Quality



*** When an exceedance of natural water quality occurs, the Department must comply with section I.A.2.h of the Special Protections as well as the requirements of this Order. Note, when sampling data is available, end-of-pipe effluent concentrations will be considered by the Water Boards in making this determination.**

- 4) Address storm water discharges (wet weather flows) and, in particular, describe how pollutant reductions in storm water runoff, that are necessary to comply with these special conditions, will be achieved through BMPs. Structural BMPs need not be installed if the discharger can document to the satisfaction of the State Water Board Executive Director that such installation would pose a threat to health or safety. BMPs to control storm water runoff discharges (at the end-of-pipe) during a design storm shall be designed to achieve on average the following target levels:
 - a) Table B Instantaneous Maximum Water Quality Objectives in Chapter II of the Ocean Plan; or
 - b) A 90% reduction in pollutant loading during storm events, for the Department's total discharges.

The baseline for these determinations is the effective date of the Exception, except for those structural BMPs installed between January 1, 2005 and adoption of the Special Protections.

- 5) Address erosion control and the prevention of anthropogenic sedimentation in ASBS. The natural habitat conditions in the ASBS shall not be altered as a result of anthropogenic sedimentation.
 - 6) Describe the non-structural BMPs currently employed and planned in the future (including those for construction activities), and include an implementation schedule. The ASBS Compliance Plan shall include non-structural BMPs that address public education and outreach. The ASBS Compliance Plan shall also describe the structural BMPs, including any low impact development (LID) measures currently employed and planned for higher threat discharges, and shall include an implementation schedule. To control storm water runoff discharges (at the end-of-pipe) during a design storm, the Department must first consider, and use where feasible, LID practices to infiltrate, use, or evapotranspire storm water runoff on-site, if LID practices would be the most effective at reducing pollutants from entering the ASBS.
 - 7) The BMPs and implementation schedule shall be designed to ensure that natural water quality conditions in the receiving water are achieved and maintained by either reducing flows from impervious surfaces or reducing pollutant loading, or some combination thereof.
- e. Reporting
- If the results of the receiving water monitoring described in provision E.2.c.2)a)i indicate that the storm water runoff is causing or contributing to an alteration of natural ocean water quality in the ASBS, the discharger shall submit a report to the State Water Board and Regional Water Board within 30 days

of receiving the results.

- 1) The report shall identify the constituents in storm water runoff that alter natural ocean water quality and the sources of these constituents.
- 2) The report shall describe BMPs that are currently being implemented, BMPs that are identified in the SWMP for future implementation, and any additional BMPs that may be added to the SWMP to address the alteration of natural water quality. The report shall include a new or modified implementation schedule for the BMPs.
- 3) Within 30 days of the approval of the report by the State Water Board Executive Director, the discharger shall revise its ASBS Compliance Plan to incorporate any new or modified BMPs that have been or will be implemented, the implementation schedule, and any additional monitoring required.
- 4) As long as the discharger has complied with the procedures described above and is implementing the revised SWMP, the discharger does not have to repeat the same procedure for continuing or recurring exceedances of natural ocean water quality conditions due to the same constituent.

6. Region Specific Requirements

- a. The Department shall implement the region-specific requirements specified in this Order.
- b. In the SWMP, the Department shall describe how individual Districts will address region-specific requirements in each Regional Water Board.
- c. Region specific requirements are specified in Attachment V of this Order.

7. Regional Water Board Authorities

- a. Upon the effective date of this Order, the Regional Water Boards shall enforce the requirements of this Order. Enforcement may include, but is not limited to, reviewing FPPPs, reviewing workplans and monitoring reports, conducting compliance inspections, conducting monitoring, reviewing Annual Reports and other information, and issuing enforcement orders.
- b. Regional Water Boards may require submittal of FPPPs.
- c. Regional Water Boards may require retention of records for more than three years.
- d. To the extent authorized by the Water Code, Regional Water Boards may impose additional monitoring and reporting requirements and may provide guidance on monitoring plan implementation (Water Code, § 13383).
- e. Regional Water Board staff may inspect the Department's facilities, roads, highways, bridges, and construction sites.

- f. Regional Water Boards may issue other individual storm water NPDES permits or WDRs to the Department, particularly for discharges beyond the scope of this Order.

8. Requirements of Other Agencies

This Order does not preempt or supersede the authority of other State or local agencies (such as the Department of Toxic Substances Control or the California Coastal Commission) and local municipalities to prohibit, restrict, or control storm water discharges and conditionally exempt non-storm water discharges to storm drain systems or other watercourses within their jurisdictions as allowed by State and federal law.

9. Standard Provisions

The Department shall comply with the Standard Provisions (Attachment VI) and any amendments thereto.

10. Permit Compliance and Rescission of Previous Waste Discharge Requirements

This Order shall serve and become effective as an NPDES permit and the Department shall comply with all its requirements on July 1, 2013. Requirements prescribed by this Order supersede the requirements prescribed by Order No. 99-06-DWQ, except for compliance purposes for violations occurring before the effective date of this Order.

11. Permit Re-Opener

This Order may be modified, revoked and reissued, or terminated for cause due to promulgation of amended regulations, receipt of U.S. EPA guidance concerning regulated activities, judicial decision, or in accordance with 40 Code of Federal Regulations 122.62, 122.63, 122.64, and 124.5. The State Water Board may reopen and modify this Order at any time prior to its expiration under any of the following circumstances:

- a. Present or future investigations demonstrate that the discharge(s) regulated by this Order may have the potential to cause or contribute to adverse impacts on water quality and/or beneficial uses.
- b. New or revised Water Quality Objectives come into effect, or any new TMDL is adopted or revised that assigns a WLA to the Department or that identifies the Department as a responsible party in the TMDL implementation plan. In such cases, effluent limitations and other requirements in this Order may be modified as necessary to reflect the new TMDLs or the new or revised Water Quality Objectives; or
- c. TMDL-specific permit requirements for adopted TMDLs are developed by a Regional Water Board for incorporation into this Order.

- d. The State Water Board determines, after opportunity for public comment and a public workshop, that revisions are warranted to those provisions of the Order addressing compliance with water quality standards in the receiving water and/or those provisions of the Order establishing an iterative process for implementation of management practices to assure compliance with water quality standards in the receiving water.

12. Dispute Resolution

In the event of a disagreement between the Department and a Regional Water Board over the interpretation of any provision of this Order, the Department shall first attempt to resolve the issue with the Executive Officer of the Regional Water Board. If a satisfactory resolution is not obtained at the Regional Water Board level, the Department may submit the issue in writing to the Executive Director of the State Water Board or his designee for resolution, with a copy to the Executive Officer of the Regional Water Board. The issue must be submitted to the Executive Director within ten days of any final determination by the Executive Officer of the Regional Water Board. The Executive Officer of the Regional Water Board will be provided an opportunity to respond.

13. Order Expiration and Reapplication

- a. This Order expires on June 30, 2018.
- b. If a new order is not adopted by June 30, 2018, then the Department shall continue to implement the requirements of this Order until a new one is adopted.
- c. In accordance with Title 23, Division 3, Chapter 9 of the California Code of Regulations, the Department shall file a report of waste discharge no later than 180 days before the expiration date of this Order as application for reissuance of this permit and waste discharge requirements. The application shall be accompanied by a SWMP, and a summary of all available water quality data for the discharge and receiving waters, including conventional pollutant data from at least the most recent three years, and toxic pollutant data from at least the most recent five years, in the discharge and receiving water. Additionally, the Discharger shall include the final results of any studies that may have a bearing on the limits and requirements of the next permit.

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

**FACT SHEET
FOR**

ORDER 2012-0011-DWQ

AS AMENDED BY
ORDER WQ 2014-0006-EXEC,
ORDER WQ 2014-0077-DWQ, AND
ORDER WQ 2015-0036-EXEC

NPDES NO. CAS000003
**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STATEWIDE STORM WATER PERMIT
WASTE DISCHARGE REQUIREMENTS (WDRS)
FOR
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION**

This Fact Sheet contains information regarding the waste discharge requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit for the California State Department of Transportation (Department) for discharges of storm water and certain types of non-storm water. This Fact Sheet describes the factual, legal, and methodological basis for the permit conditions, provides supporting documentation, and explains the rationale and assumptions used in deriving the limits and requirements.

BACKGROUND

In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act (CWA)) was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful, unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the Clean Water Act added section 402(p). Section 402(p) establishes that storm water discharges are point source discharges and lays out a framework for regulating municipal and industrial storm water discharges under the NPDES program. On November 16, 1990, the United States Environmental Protection Agency (U.S. EPA) promulgated final regulations that establish the storm water permit requirements.

Pursuant to the 1990 regulations, storm water permits are required for discharges from a municipal separate storm sewer system (MS4) serving a population of 100,000 or more. U.S. EPA defines an MS4 as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) owned or operated by a State (40 Code of Federal Regulations

(C.F.R.), § 122.26(b)(8)). The regulations also require storm water permits for 11 categories of industry, including construction activities where the construction activity: (1) disturbs more than one (1) acre of land; (2) is part of a larger common plan of development; and/or (3) is found to be a significant threat to water quality.

Before July 1999, storm water discharges from Department storm water systems were regulated by individual NPDES permits issued by the Regional Water Quality Control Boards (Regional Water Boards). On July 15, 1999, the State Water Resources Control Board (State Water Board) issued a statewide permit (Order No. 99-06-DWQ), which regulated all storm water discharges from Department owned MS4s, maintenance facilities and construction activities. The existing permit (Order No. 99-06-DWQ) will be superseded by adoption of a new permit.

Industrial activities are covered by two General Permits that have been adopted by the State Water Board. The Department's construction activities are subject to the requirements under the NPDES General Permit for Construction Activities (CGP, NPDES Permit No. CAS000002) for construction activities that are equal to or greater than one (1) acre. The exception to this is in the Lake Tahoe area, where the Lahontan Regional Water Board adopted its own construction general permit (NPDES Permit No. CAG616002). The Department's industrial facility activities are subject to the requirements of the NPDES General Permit for Industrial Activities (IGP, NPDES Permit No. CAS000001).

The Department is responsible for the design, construction, management, and maintenance of the State highway system, including freeways, bridges, tunnels, the Department's facilities, and related properties. The Department's discharges consist of storm water and non-storm water discharges from State owned right-of-way (ROW).

Clean Water Act section 402(p) and 40 Code of Federal Regulations section 122.26 (a)(v) give the State authority to regulate discharges from an MS4 on a system-wide or jurisdiction-wide basis. The State Water Board considers all storm water discharges from all MS4s and activities under the Department's jurisdiction as one system. Therefore, this Order is intended to cover all of the Department's municipal storm water activities.

This Order will be implemented by the Department and enforced by the State Water Board and nine Regional Water Boards.

The Department operates highways and highway-related properties and facilities that cross through local jurisdictions. Some storm water discharges from the Department's MS4 enter the MS4s owned and managed by these local jurisdictions. This Order does not supersede the authority of local agencies to prohibit, restrict, or control storm water discharges and conditionally exempt non-storm water discharges to storm drain systems or other watercourses within their jurisdiction as allowed by State and federal law. The Department is expected to comply with the lawful requirements of municipalities and other local, regional, and/or state agencies regarding discharges of storm water to separate storm sewer systems or other watercourses under the agencies' jurisdictions.

GENERAL DISCHARGE PROHIBITIONS

This Order authorizes storm water and conditionally exempt non-storm water discharges from the Department's properties, facilities and activities. This Order prohibits the discharge of material other than storm water, unless specifically authorized in this Order.

The Department owns and operates highway systems that are located adjacent to and discharge into many ASBS. This Order specifies that Department discharges to an ASBS are prohibited except in compliance with the conditions and special protections contained in the General Exception for Storm Water and Non-Point Source Discharges to ASBS, State Water Board Resolution 2012-0012. This State Water Board resolution is hereby incorporated by reference and the Department is required to comply with applicable requirements. Attachment III identifies 77 priority Department ASBS discharge locations. These locations represent sites having significant potential to impact the ASBS that are feasible to retrofit. The following locations are not included in the list:

1. Inland sites discharging indirectly to the ASBS;
2. Sites where the discharge is attenuated through vegetation;
3. Sites where it is infeasible to install a BMP, e.g. an overhanging outfall or where there is insufficient space to install a treatment control; and
4. Sites that would pose a safety hazard to motorists, or that would be unsafe to install or maintain.

Provision E.5 of the Order requires the Department to ensure that structural controls at these locations are operational within six (6) years of the effective date of the General Exception.

NON-STORM WATER

Non-storm water discharges are subject to different requirements under the Order depending on whether they are discharged to ASBS.

Non-storm water discharges outside ASBS:

Non-storm water discharges must be effectively prohibited unless they are authorized by a separate NPDES permit or are conditionally exempt under provisions of the Order consistent with 40 CFR, §122.26 (d)(2) (iv)(B). Non-storm water discharges that are not specifically or conditionally exempted by this Order are subject to the existing regulations for point source discharges. Conditionally exempt non-storm water discharges that are found to be significant sources of pollution are to be effectively prohibited.

Discussion of Agricultural Return Flows:

The Department (2007a) indicated in its Non-Storm Water Report that agricultural irrigation water return flows carrying pollutants pass under the Department's ROW in many locations and enter its MS4. Agricultural return flows are not prohibited or conditionally exempted non-

storm water discharges and are not subject to the non-storm water requirements of the Order.

The regulations conditionally exempt MS4s from the requirement to effectively prohibit “irrigation water” discharges to the MS4. The regulations also completely exempt MS4s from addressing non-storm water discharges (also called “illicit discharges”) if they are regulated by an NPDES permit (40 C.F.R., §§ 122.26(b)(2); 122.26(d)(2)(iv)(B)). The term “irrigation water” is not defined and the regulations do not clarify whether that term is intended to encompass agricultural return flows that may run on to the Department’s rights of way.

Because agricultural return flows cannot be regulated by an NPDES permit, it is unlikely that they were intended to be treated as “illicit discharges” under the federal MS4 regulations. In discussing illicit non-storm water discharges and the requirement to effectively prohibit such discharges, the preamble of the Phase I final regulations states: “The CWA prohibits the *point source* discharge of non-storm water not subject to an NPDES permit through municipal separate storm sewers to waters of the United States. Thus, classifying such discharges as illicit properly identifies such discharges as being illegal” (55 FR 47996) (emphasis added). Implicit in this statement is that illicit discharges do not include non-point source discharges, including agricultural return flows, which are statutorily excluded from the definition of a point-source discharge (C.W.A., § 502(14)).¹³

Clean Water Act Section 402(l)(1) states that an NPDES permitting agency “shall not require a permit under this section for discharges composed entirely of return flows from irrigated agriculture.” Accordingly, agricultural return flows co-mingling with an illicit discharge would be treated as a point source discharge. This fact, however, does not lead the State Water Board to find that agricultural return flows should be subject to the conditional prohibition on non-storm water discharges.

First, the illicit discharge prohibition acts to prevent non-storm water discharges “*into the storm sewers*” (C.W.A., § 402(p)(3)(B)(ii)) (emphasis added). Based on a plain reading of the statutory language,¹⁴ a determination of what constitutes an illicit discharge should be made with reference to the nature of the discharge as it enters the MS4. Unless the agricultural return flow has co-mingled with a point source discharge prior to entering the MS4, it is not subject to the discharge prohibition. Further, since certain point source discharges are conditionally exempted from the requirement for effective prohibition under 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B)(1), the fact that the agricultural return flow may have co-mingled with such an exempted dry weather point source discharge prior to entering the MS4 does not render it an illicit discharge subject to the effective

¹³ Elsewhere in the preamble, EPA refers to the conditionally exempted non-storm water discharges as “seemingly innocent flows that are characteristic of human existence *in urban environments* and which discharge to municipal separate storm sewers” (55 F.R.48037) (emphasis added). This language further suggests that the term “irrigation water” was not intended to encompass irrigation return flows characteristic of a rural area.

¹⁴ 40 C.F.R. §122.26(d)(2)(iv)(B)(1) similarly states that the MS4 is to “prevent illicit discharges *to the municipal separate storm sewer system.*” (Emphasis added.)

prohibition.¹⁵ See *Fishermen Against the Destruction of the Environment, Inc. v. Closter Farms, Inc.* (11th Cir. 2002) 300 F.3d 1294.

Second, even assuming that the agricultural return flow mingling with a point source discharge *after* entering the MS4 would trigger the requirements related to non-storm water discharges, agricultural return flows are not expected to require an effective prohibition. Irrigation of agricultural fields typically occurs in dry weather, not wet weather, and therefore the State Water Board anticipates that irrigation return flows into the Department's MS4 would generally not co-mingle with discharges other than exempt non-storm water discharges.

Further, agricultural return flows entering an MS4, while not regulated by an NPDES permit, are through much of the State regulated under WDRs, waivers, and Basin Plan prohibitions. The regulations exempt MS4s from addressing non-storm water discharges that are regulated by an NPDES permit. Flows to the Department's MS4 regulated through state-law based permits are subject to regulatory oversight analogous to being subject to an NPDES permit. The appropriate regulatory mechanism for these discharges is the non-point source regulatory programs and not a municipal storm water permit.¹⁶

Non-Storm Water Discharges to ASBS:

Non-storm water discharges to ASBS are prohibited except as specified in the General Exception. Certain enumerated non-storm water discharges are allowed under the General Exception if essential for emergency response purposes, structural stability, slope stability, or if occur naturally.

Discussion of Utility Vault Discharges:

In addition, an NPDES permitting authority may authorize non-storm water discharges to an MS4 with a direct discharge to an ASBS to the extent the NPDES permitting authority finds that the discharge does not alter natural ocean water quality in the ASBS. This Order allows utility vault discharges to segments of the Department MS4 with a direct discharge to an ASBS, provided the discharge is authorized by the General NPDES Permit for Discharges from Utility Vaults and Underground Structures to Surface Water, NPDES No. CAG 990002. The State Water Board is in the process of reissuing the General NPDES Permit for Utility Vaults. As part of the renewal, the State Water Board will require a study to characterize representative utility vault discharges to an MS4 with a direct discharge to an ASBS and will impose conditions on such discharges to ensure the discharges do not alter natural ocean water quality in the ASBS. Given the limited number of utility vault discharges to MS4s that

¹⁵ The Federal Register discussion clarifies that "irrigation return flows are excluded from regulation under the NPDES program," but that "joint discharges," i.e. discharges with a component "from activities unrelated to crop production" may be regulated (55 FR 47996).

¹⁶ It should also be noted that the Department has limited control options since up gradient flows such as agricultural runoff must in many cases be allowed to flow under or alongside the roadway so as to not threaten roadway integrity.

discharge directly to an ASBS, the State Water Board finds that discharges from utility vaults and underground structures to MS4s with a direct discharge to an ASBS are not expected to result in the MS4 discharge causing a substantial alteration of natural ocean water quality in the ASBS in the interim period while the General NPDES Permit for Discharges from Utility Vaults is renewed and the study is completed. However, if a Regional Water Board determines a specific discharge from a utility vault or underground structure does alter the natural ocean water quality in an ASBS, the Regional Water Board may prohibit the discharge as specified in this Order. It should also be noted that, under the California Ocean Plan Section III.E.2 (Implementation Provisions for ASBS), limited-term activities that result in temporary and short-term changes in existing water quality in the ASBS may be permitted.

EFFLUENT LIMITS

The State of California Nonpoint Source Program Five-Year Implementation Plan (SWRCB, 2003) (the Plan) describes a variety of pollutants in urban storm water and non-storm water that are carried in MS4 discharges to receiving waters. These include oil, sand, de-icing chemicals, litter, bacteria, nutrients, toxic materials and general debris from urban and suburban areas. The Plan identifies construction as a major source of sediment erosion and automobiles as primary sources of petroleum hydrocarbons.

The Natural Resources Defense Council (NRDC) also identified two main causes of storm water pollution in urban areas (NRDC, 1999). Both identified causes are directly related to development in urban and urbanizing areas:

1. Increased volume and velocity of surface runoff. There are three types of human-made impervious cover that increase the volume and velocity of runoff: (i) rooftops, (ii) transportation imperviousness, and (iii) non-porous (impervious) surfaces. As these impervious surfaces increase, infiltration will decrease, forcing more water to run off the surface, picking up speed and pollutants.
2. The concentration of pollutants in the runoff. Certain industrial, commercial, residential and construction activities are large contributors of pollutant concentrations in urban runoff. As human population density increases, it brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc.

As a result of these two causes, runoff leaving developed urban areas is significantly greater in volume, velocity, and pollutant load than pre-development runoff from the same area.

NPDES storm water permits must meet applicable provisions of sections 301 and 402 of the Clean Water Act. For discharges from an MS4, Clean Water Act section 402(p)(3)(B)(iii) requires control of pollutants to the maximum extent practicable (MEP). A permitting agency also has the discretion to require dischargers to implement more stringent controls, if

necessary, to meet water quality standards (*Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F.3d 1159, 1166.), (discussed below under Receiving Water Limitations).

MEP is the technology-based standard established by Congress in Clean Water Act section 402(p)(3)(B)(iii) that municipal dischargers of storm water must meet. Technology-based standards establish the level of pollutant reductions that dischargers must achieve. MEP is generally achieved by emphasizing pollution prevention and source control BMPs as the first lines of defense in combination with structural and treatment methods where appropriate. The MEP approach is an ever evolving, flexible, and advancing concept, which considers technical and economic feasibility. As knowledge about controlling urban runoff continues to evolve, so does that which constitutes MEP.

In a precedential order (State Water Board Order WQ 2000-11 (In the Matter of the petitions of the Cities of Bellflower et al.)), the State Water Board has stated as follows:

While the standard of MEP is not defined in the storm water regulations or the Clean Water Act, the term has been defined in other federal rules. Probably the most comparable law that uses the term is the Superfund legislation, or CERCLA, at section 121(b). The legislative history of CERCLA indicates that the relevant factors, to determine whether MEP is met in choosing solutions and treatment technologies, include technical feasibility, cost, and state and public acceptance. Another example of a definition of MEP is found in a regulation adopted by the Department of Transportation for onshore oil pipelines. MEP is defined as to “the limits of available technology and the practical and technical limits on a pipeline operator”

These definitions focus mostly on technical feasibility, but cost is also a relevant factor. There must be a serious attempt to comply, and practical solutions may not be lightly rejected. If, from the list of BMPs, a permittee chooses only a few of the least expensive methods, it is likely that MEP has not been met. On the other hand, if a permittee employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost would exceed any benefit to be derived, it would have met the standard. MEP requires permittees to choose effective BMPs, and to reject applicable BMPs only where other effective BMPs will serve the same purpose, the BMPs would not be technically feasible, or the cost would be prohibitive. Thus while cost is a factor, the Regional Water Board is not required to perform a cost-benefit analysis.

The final determination of whether a municipality has reduced pollutants to the maximum extent practicable can only be made by the permitting agency, and not by the discharger.

Because of the numerous advances in storm water regulation and management and the size of the Department’s MS4, this Order does not require the Department to fully incorporate and

implement all advances in a single permit term. The Order allows for prioritization of efforts to ensure the most effective use of available funds.

This Order will have an impact on costs to the Department above and beyond the costs from the Department's prior permit. Such costs will be incurred in complying with the post-construction, hydrograph modification, Low Impact Development, and monitoring and reporting requirements of this Order. Additional costs will also be incurred in correcting non-compliant discharges. Recognizing that there are cost increases associated with the Order, the State Water Board has prepared a cost analysis to approximate the anticipated cost associated with implementing this permit. The resulting cost analysis is discussed later in this Fact Sheet under the section on "Cost of Compliance and Other MEP Considerations." The cost analysis has been prepared based on available data and is not a cost-benefit analysis.

The individual and collective activities required by this Order and contained in the Department's Storm Water Management Plan (SWMP) meet the MEP standard.

RECEIVING WATER LIMITATIONS

Under federal law, an MS4 permit must include "controls to reduce the discharge of pollutants to the maximum extent practicable . . . and such other provisions as . . . the State determines appropriate for the control of such pollutants." (Clean Water Act §402(p)(3)(B)(iii).) The State Water Board has previously determined that limitations necessary to meet water quality standards are appropriate for the control of pollutants discharged by MS4s and must be included in MS4 permits. (State Water Board Orders WQ 91-03, 98-01, 99-05, 2001-15; see also *Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F3d 1159.). The Proposed Order accordingly prohibits discharges that cause or contribute to violations of water quality standards.

The Proposed Order further sets out that, upon determination that a Permittee is causing or contributing to an exceedance of applicable water quality standards, the Permittee must engage in an iterative process of proposing and implementing additional control measures to prevent or reduce the pollutants causing or contributing to the exceedance. This iterative process is modeled on receiving water limitations set out in State Water Board precedential Order WQ 99-05 and required by that Order to be included in all municipal storm water permits.

The Ninth Circuit held in *Natural Resources Defense Council, Inc. v. County of Los Angeles* (2011) 673 F.3d 880 that engagement in the iterative process does not provide a safe harbor from liability for violations of permit terms prohibiting exceedances of water quality standards. The Ninth Circuit holding is consistent with the position of the State Water Board and Regional Water Boards that exceedances of water quality standards in an MS4 permit constitute violations of permit terms subject to enforcement by the Boards or through a citizen suit. While the Boards have generally directed dischargers to achieve compliance by improving control measures through the iterative process, the Board retains the discretion to

take other appropriate enforcement and the iterative process does not shield dischargers from citizen suits.

The State Water Board has received multiple comments, from the Department and from other interested parties, expressing confusion and concern about the Order provisions regarding receiving water limitations and the iterative process. The Department has commented that the provisions as currently written do not provide the Department with a viable path to compliance with the proposed Order. Other commenters, including environmental parties, support the current language.

As stated above, the provisions in this Order regarding receiving water limitations and the iterative process are based on precedential Board orders. Accordingly, substantially identical provisions are found in the proposed statewide Phase II MS4 NPDES permit, as well as the Phase I NPDES permits issued by the Regional Water Boards. In the context of the proposed Phase II MS4 permit, similar comments have been received. Because of the broad applicability of any policy decisions regarding the receiving water limitations and iterative process provisions, the State Water Board has proposed a public workshop to consider this issue and seek public input.

Rather than delay consideration of adoption of the tentative Order in anticipation of any future changes to the receiving water limitations and iterative process provisions that may result from the public workshop and deliberation, the Board has added a specific reopener clause at Section 11.d. to facilitate any future revisions as necessary.

NUMERIC EFFLUENT LIMITATIONS AND BLUE RIBBON PANEL OF EXPERTS

Under 40 Code of Federal Regulations section 122.44(k)(2)&(3); the State Water Board may impose BMPs for control of storm water discharges in lieu of numeric effluent limitations.¹⁷

In 2005, the State Water Board assembled a blue ribbon panel to address the feasibility of including numeric effluent limits as part of NPDES municipal, industrial, and construction storm water permits. The panel issued a report dated June 19, 2006, which included recommendations as to the feasibility of including numeric limitations in storm water permits, how such limitations should be established, and what data should be required (SWRCB, 2006).

¹⁷ On November 12, 2010, U.S. EPA issued a revision to a November 22, 2002 memorandum in which it had “affirm[ed] the appropriateness of an iterative, adaptive management best management practices (BMP) approach” for improving storm water management over time. In the revisions, U.S. EPA recommended that, in the case the permitting authority determines that MS4 discharges have the reasonable potential to cause or contribute to a water quality excursion, the permitting authority, where feasible, include numeric effluent limitations as necessary to meet water quality standards. However, the revisions recognized that the permitting authority’s decision as to how to express water quality based effluent limitations (WQBELs), i.e. as numeric effluent limitations or BMPs, would be based on an analysis of the specific facts and circumstances surrounding the permit. U.S. EPA has since invited comment on the revisions to the memorandum and will be making a determination as to whether to “either retain the memorandum without change, to reissue it with revisions, or to withdraw it.”

http://www.epa.gov/npdes/pubs/sw_tmdlwla_comments_pdf

The report concluded that “It is not feasible at this time to set enforceable numeric effluent criteria for municipal BMPs and in particular urban discharges. However, it is possible to select and design them much more rigorously with respect to the physical, chemical and/or biological processes that take place within them, providing more confidence that the estimated mean concentrations of constituents in the effluents will be close to the design target.”

Consistent with the findings of the Blue Ribbon Panel and precedential State Water Board orders (State Water Board Orders Nos. WQ 91-03 and WQ 91-04), this Order allows the Department to implement BMPs to comply with the requirements of the Order.

In 1980, the State Water Resources Control Board adopted concentration-based numeric effluent limitations for total nitrogen, total phosphate, total iron, turbidity, and grease and oil for storm water discharges in the Lake Tahoe Basin. The Lahontan Regional Water Board included revised versions of those limitations in Table 5.6-1 of the Water Quality Control Plan for the Lahontan Region (Basin Plan). The numeric effluent limitations in Table 5.6-1 were included in previous iterations of the Department's MS4 permit. This Order does not include these referenced numeric effluent limitations. The TMDL for sediment and nutrients in Lake Tahoe, approved by U.S. EPA on August 16, 2011, removed statements from the Basin Plan requiring the effluent limitations in Table 5.6-1 to apply to municipal jurisdictions and the Department. The Lake Tahoe TMDL would constitute cause for permit revocation and reissuance in accordance with 40 Code of Federal Regulations section 122.62(a)(3), so the removal of the referenced numeric effluent limitations is consistent with 40 Code of Federal Regulations section 122.44(l)(1). Further, any water quality based effluent limitations in MS4 permits are imposed under section 402(p)(3)(B) of the Clean Water Act rather than under section 301(b)(1)(C), and are accordingly not subject to the antibacksliding requirements of section 402(o). The Order requires compliance with pollutant load reduction requirements established by the Lake Tahoe TMDL for total nitrogen, total phosphorus, and fine sediment particles.

OTHER PROVISIONS OF THIS ORDER

Storm Water Management Plan (SWMP)

The SWMP describes the procedures and practices that the Department proposes to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters. On May 17, 2001, the State Water Board approved a Storm Water Management Plan submitted by the Department. That SWMP was updated in 2003 (Department, 2003c) and the updates were approved by the Executive Director of the State Water Board on February 13, 2003. On January 15, 2004, the Department submitted a proposed Storm Water Management Plan as part of its NPDES permit application to renew its previous statewide storm water permit (Order No. 99-06-DWQ). The State Water Board and Regional Water Board staff and the Department discussed and revised Best Management Practices (BMP) controls and many

other components proposed in each section of the SWMP during numerous meetings from January 2004 to 2006. The Department submitted a revised SWMP in June 2007 (Department, 2007c). The 2004 and 2007 SWMPs have not been approved by the State Water Board and the Department has continued to implement the 2003 SWMP. The Department is in the process of revising aspects of the 2003 SWMP to address the Findings of Violation and Order for Compliance issued by U.S. EPA in 2011 (U.S. EPA Docket No. CWA-09-2011-0001).

This Order requires the Department to update, maintain and implement an effective SWMP that describes how the Department will meet requirements of this Order. Within one year of the effective date of the Order, the Department shall submit for Executive Director approval a SWMP consistent with the provisions and requirement of the Order. The SWMP is an integral and enforceable component of this Order and is required to be updated on an annual basis.

In ruling upon the adequacy of federal regulations for discharges from small municipal storm sewer systems, the court in *Environmental Defense Center v. United States EPA* (9th Cir. 2003) 344 F.3d 832 held that NPDES “notices of intent” that required the inclusion of a proposed storm water management program (SWMP) are subject to the public participation requirements of the federal Clean Water Act because they are functionally equivalent to NPDES permit applications and because they contain “substantive information” about how the operator will reduce its discharges to the maximum extent practicable. By implication, the public participation requirements of the Clean Water Act may also apply to proposals to revise the Department’s SWMP. Although the Proposed Order contains significantly more detailed and prescriptive requirements for achievement of MEP than previously adopted orders for the Department, some of the substantive information about how MEP will be achieved is arguably still set out in the SWMP. This Order accordingly provides for public participation in the SWMP revision process. However, because there may be a need for numerous revisions to the SWMP during the term of this Order, a more streamlined approach to SWMP revisions is needed to provide opportunities for public hearings while preserving the State Water Board’s ability to effectively administer its NPDES storm water permitting program. (See *Costle v. Pacific Legal Foundation* (1980) 445 U.S. 198, 216-221, *Natural Resources Defense Council v. Costle* (9th Cir. 1977) 568 F.2d 1369, 1382.)

This Order establishes that revisions to the SWMP requiring Executive Director approval will be publicly noticed for thirty days on the State Water Board’s website (except as otherwise specified). During the public notice period, a member of the public may submit a written comment or request that a public hearing be conducted. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. Upon review of the request or requests for a public hearing, the Executive Director may, in his or her discretion, schedule a public hearing to take place before approval of the SWMP revision. The Executive Director shall schedule a hearing if there is a significant degree of public interest in the proposed revision. If no public hearing is conducted, the Executive Director may approve the SWMP revision if it meets the conditions set forth in this Order.

Any SWMP revision approved by the Executive Director will be posted on the State Water Board's website.

The Department references various policies, manuals, and other guidance related to storm water in the SWMP. These documents are intended to facilitate implementation of the SWMP and must be consistent with all requirements of the Order.

In addition to the annual submittal of the proposed SWMP revisions, this Order also requires the Department to submit workplans that explain how the program will be implemented in each District. The purpose of the workplans is to bring the proposed statewide program of the SWMP to the practical and implementable level at the District, watershed, and water body level.

Legal Authority

The Department has submitted a certification of adequate legal authority to implement the program. Through implementation of the storm water program, the Department may find that the legal authority is, in fact, not adequate. This Order requires the Department to reevaluate the legal authority each year and recertify that it is adequate. The Department is required to submit the Certification of the Adequacy of Legal Authority as part of the Annual Report each year. If it becomes clear that the legal authority is not adequate to fully implement the SWMP and the requirements of this Order, the Department must seek the authority necessary for implementation of the program.

SWMP Implementation Requirements

Management and Organization

The Department must maintain adequate funding to implement an effective storm water program and must submit an analysis of the funding each year. This includes a report on the funding that is dedicated to storm water as well as an estimate of the funding that has been allocated to various program elements that are not included in the storm water program funding. An example of this would be to estimate the funding that has been made available to the Maintenance Program to implement the development of Maintenance Facility Pollution Prevention Plans (FPPP) and to implement the Best Management Practices (BMPs) that are necessary for water quality.

The Department's facilities and rights-of-way may cross or overlap other MS4s. The Department is required to coordinate their activities with other municipalities and local governments that have responsibility for storm water runoff. This Order requires the Department to prepare a Municipal Coordination Plan describing the approach that the Department will take in establishing communication, coordination, cooperation and collaboration with other storm water management programs.

Discharge Monitoring and Reporting Program

Since 1998, the Department has conducted monitoring of runoff from representative transportation facilities throughout California. The key objectives of the characterization

monitoring were to produce scientifically credible data on runoff from the Department's facilities, and to provide useful information in designing effective storm water management strategies. Between 2000 and 2003, the Department conducted a three-year characterization monitoring study (Department, 2003b). The study generated over 60,000 data points from over 180 monitoring sites. Results were compared with California Toxics Rule (CTR) objectives and other relevant receiving water quality objectives (U.S. EPA, 2000b). Copper, lead, and zinc were estimated to exceed the CTR objectives for dissolved and total fractions in greater than 50 percent of samples. Diazinon and chlorpyrifos were also found to exceed the California Department of Fish and Game recommended chronic criteria in a majority of samples.

The discharge monitoring program has been structured to focus on the highest priority water quality problems in order to ensure the most effective use of limited funds. A tiered approach is established that gives first priority to monitoring in ASBS and TMDL watersheds. Monitoring in these locations must be conducted pursuant to the applicable requirements of the ASBS Special Protections or TMDL, without limitation as to the number of sites. The second monitoring tier requires the Department to examine and prioritize existing monitoring locations where existing data show elevated levels of pollutants. Fifteen percent of the highest priority sites must be scheduled for retrofit, with a maximum of 100 sites per year.

Monitoring constituents were chosen by the State Water Board from the results of the Department's comprehensive, multi-component storm water characterization monitoring program conducted in 2002 and 2003 and various other characterization studies.

Toxicity in storm water discharges from the Department's rights-of-way has been reported in a number of studies. A 2005 report prepared for the Department by the University of California at Davis "Toxicity of Storm Water from Caltrans Facilities" reported significant occurrences of acute and chronic toxicity (Department, 2005). Toxicity Identification Evaluations showed toxicity from a number of compounds, including heavy metals, organic compounds, pesticides and surfactants. Toxicity testing is required under the Order, and a workplan for conducting Toxicity Reduction Evaluations is required to be included in the SWMP.

Monitoring data must be filed electronically in the Storm Water Multiple Application Report and Tracking System (SMARTS). Receiving water monitoring data must be comparable¹⁸ with the Surface Water Ambient Monitoring Program (SWAMP), (SWAMP, 2010), and must be uploaded to the California Data Exchange Network (CEDEN).

¹⁸ U.S. EPA defines comparability as the measure of confidence with which one data set, element, or method can be considered as similar to another. Functionally, SWAMP comparability is defined as adherence to the SWAMP Quality Assurance Program Plan and the Surface Water Ambient Monitoring Program Information Management Plan.

Incident Reporting - Non-Compliance and Potential/Threatened Non-Compliance

The Department may at times be out of compliance with the requirements of this Order. Incidents of non-compliance and potential or threatened non-compliance must be reported to the State and Regional Water Boards. This Order identifies the conditions under which non-compliance reporting will be required. This Order distinguishes between emergency, field, and administrative (procedural) incidents that require notification to the State and Regional Water Boards, and requires that a summary of non-compliance incidents and the subsequent actions taken by the Department to reduce, eliminate and prevent the reoccurrence of the non-compliance be included in the Annual Report.

Emergency, field and administrative incidents are defined in Attachment I and have separate reporting requirements. Generally, failure to meet any permit requirement that is local or regional in nature will be reported to the Regional Water Boards. Attachment I outlines the reporting timelines for the three categories. This reporting will be conducted through the Storm Water Multiple Application Report and Tracking System (SMARTS)¹⁹. Distribution of this report internally between the State Water Board and any Regional Water Boards will be conducted through this system.

Project Planning and Design

In Order WQ 2000-11, the State Water Board considered Standard Urban Storm Water Mitigation Plans (SUSMPs) related to new development and redevelopment. The SUSMPs include a list of BMPs for specific development categories, and a numeric design standard for structural or treatment control BMPs. The numeric design standard created objective and measurable criteria for the amount of runoff that must be treated or infiltrated by BMPs. While this Order does not regulate construction activities, it does regulate the post-construction storm water runoff pursuant to municipal storm water regulations. SUSMPs are addressed in this Order through the numeric sizing criteria that apply to treatment BMPs at specified new and redevelopment projects and through requirements to implement Low Impact Development through principles of source control, site design, and storm water treatment and infiltration.

The Order provides the Department with an alternative compliance method for complying with the Treatment Control BMP numeric sizing criteria for projects where on-site treatment is infeasible. Under that method, the Department may propose complying with the requirements by installing and maintaining equivalent treatment BMPs at an offsite location (meaning outside of Project Limits) within the watershed, or by contributing funds to achieve the same amount of treatment at a regional project within the watershed. This compliance method will provide some flexibility to the Department in meeting the treatment control requirements.

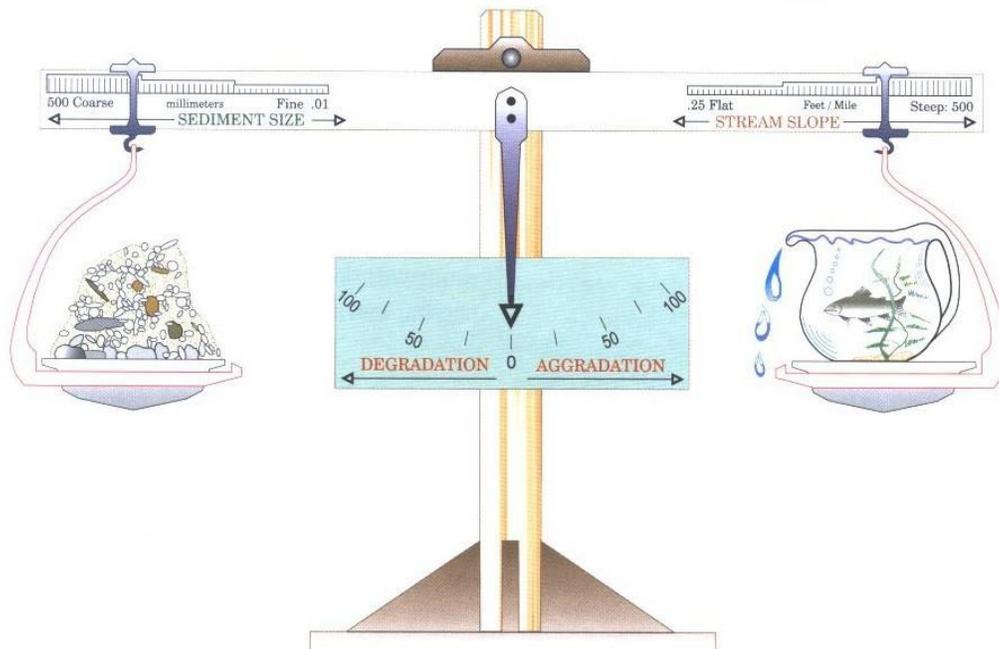
¹⁹ <https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp>

Hydromodification and Channel Protection

Department development and redevelopment projects have the potential to negatively impact stream channels and downstream receiving waters. The potential impacts of hydromodification by Department projects must be assessed in the project planning and design stage, and measures taken to mitigate them. This section describes the rationale and approach for the hydromodification and channel protection requirements.

A dominant paradigm in fluvial geomorphology holds that streams adjust their channel dimensions (width and depth) in response to long-term changes in sediment supply and bankfull discharge. The bankfull stage corresponds to the discharge at which channel maintenance is the most effective, that is, the discharge at which the moving sediment, forming or removing bars, and forming or changing bends and meanders, are doing work that results in the average morphologic characteristics of channels (Finkenbine, 2000). A.W. Lane showed the generalized relationship between sediment load, sediment size, stream discharge and stream slope, as shown in Figure 1, (Rosgen, 1996). A change in any one of these variables sets up a series of mutual adjustments in the companion variables resulting in a direct change in the physical characteristics of the stream channel.

Figure 1 - Schematic of the Lane Relationship



$$(\text{Sediment LOAD}) \times (\text{Sediment SIZE}) \quad \propto \quad (\text{Stream SLOPE}) \times (\text{Stream DISCHARGE})$$

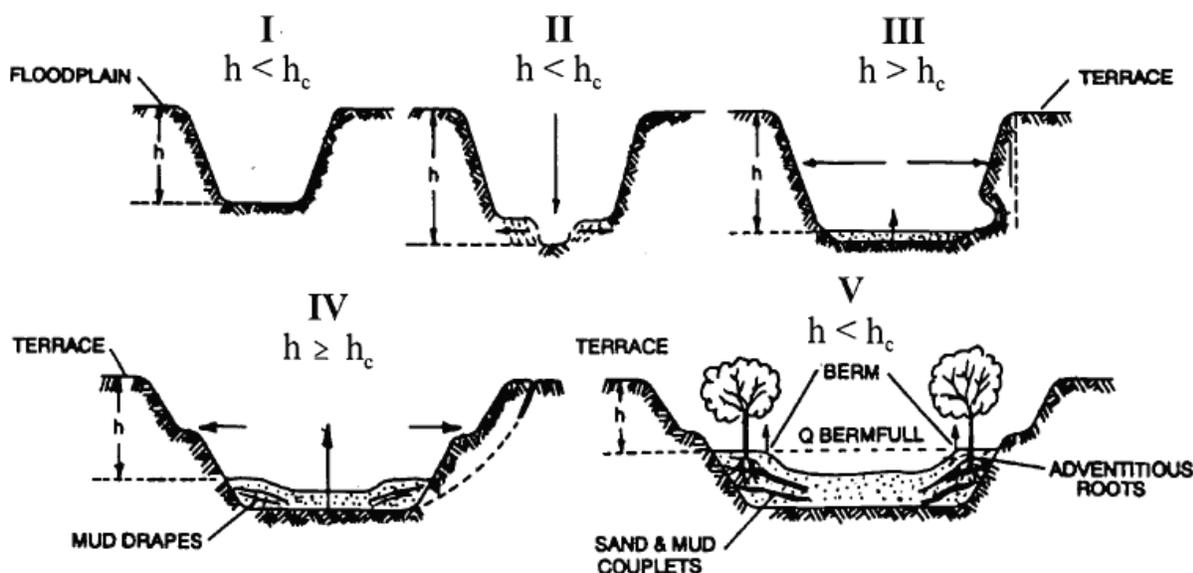
After Lane (1955) as cited in Rosgen (1996)

Stream slope times stream discharge (the right side of the scale) is an approximation of stream power, a unifying concept in fluvial geomorphology (Bledsoe, 1999). Urbanization generally increases stream power and affects the resisting forces in a channel (represented as sediment load and sediment size on the left side of the scale).

During construction, sediment loads can increase from 2 to 40,000 times over pre-construction levels (Goldman, 1986). Most of this sediment is delivered to stream channels during large, episodic rain events (Wolman, 2001). This increased sediment load leads to an initial aggradation phase where stream depths may decrease as sediment fills the channel, leading to a decrease in channel capacity and an increase in flooding and overbank deposition. A degradation phase initiates after construction is completed.

Schumm et al (Schumm, 1984) developed a channel evolution model that describes the series of adjustments from initial downcutting, to widening, to establishing new floodplains at lower elevations (Figure 2).

Figure 2 - Channel Changes Associated with Urbanization



h = bank height

h_c = critical bank height (the bank is susceptible to failure when bank heights are greater than critical bank height. Stable banks have low angles and heights)

After Incised Channel Evolution Sequence in Schumm et al. 1984

Channel incision (Stage II) and widening (Stages III and to a lesser degree, Stage IV) are due to a number of fundamental changes on the landscape. Connected impervious area and compaction of pervious surfaces increase the frequency and volume of bankfull discharges (Stein, 2005; Booth, 1997), resulting in an increase in stream power. Increased drainage density (miles of stream length per square mile of watershed) also affects receiving channels (May, 1998; SCVURPPP, 2002). Increased drainage density and hydraulic efficiency leads to an increase in the frequency and volume of bankfull discharges because the time of concentration is shortened. Flows from engineered pipes and channels are also often “sediment starved” and seek to replenish their sediment supply from the channel.

Encroachment of stream channels can also lead to an increase in stream slope, which leads to an increase in stream power. In addition, watershed sediment loads and sediment size (with size generally represented as the median bed and bank particle size, or d_{50}) decrease during urbanization (Finkenbine, 2000; Pizzuto, 2000). This means that even if pre- and post- development stream power are the same, more erosion will occur in the post-development stage because the smaller particles are less resistant.

As shown in Stages II and III, the channel deepens and widens to accommodate the increased stream power (Hammer, 1973; Booth, 1990) and decrease in sediment load and sediment size. Channels may actually narrow as entrained sediment from incision is deposited laterally in the channel (Trimble, 1997). After incised channels begin to migrate laterally (Stage III), bank erosion begins, which leads to general channel widening (Trimble, 1997). At this point, a majority of the sediment that leaves a drainage area comes from within the channel, as opposed to the background and construction related hillslope contribution (Trimble, 1997). Stage IV is characterized by more aggradation and localized bank instability. Stage V represents a new quasi-equilibrium channel morphology in balance with the new flow and sediment supply regime. In other words, stream power is in balance with sediment load and sediment size.

The magnitude of the channel morphology changes discussed above varies along a stream network as well as with the age of development, slope, geology (sand-bedded channels may cycle through the evolution sequence in a matter of decades whereas clay-dominated channels may take much longer), watershed sediment load and size, type of urbanization, and land use history. It is also dependent on a channel's stage in the channel evolution sequence when urbanization occurs. Management strategies must take into account a channel's stage of adjustment and account for future changes in the evolution of channel form (Stein, 2005).

The hydromodification requirements in this Order are based on established Federal Highway Administration procedures for assessing stream stability at highway crossings. These procedures are geomorphically based and have historically been used to inform bridge and culvert design and to ensure that these structures are not impacted by decreased lateral and vertical stability (FHWA, 2001; FHWA, 2006). Maintaining lateral and vertical stability will not only protect highway structures but will serve the broader interest of maintaining stable stream form and function.

These hydromodification requirements are risk based and reflect the concept that stable channels (as determined from a Level 1 rapid analysis) do not have to undergo any further analysis and that hydrology-based design standards are protective.

If stream channels are determined to be laterally and or vertically unstable, the analysis procedures are much more rigorous and the mitigation measures are potentially more extensive. There is support in the literature for the type of tiered, risk-based approach taken in this Order (Booth, 1990; Watson, 2002; Bledsoe, 2002; Bledsoe et al., 2008).

California Senate Bill 857 (2006) amended Article 3.5 of the Streets and Highways Code to require the Department to assess and remediate barriers to passage of anadromous fish at stream crossings along the State Highway System. The bill also requires the Department to, among other things, prepare an annual report to the legislature on the status of the Department's efforts in locating, assessing, and remediating barriers to fish passage. Waters of the State supporting the beneficial use of fish migration could be adversely impacted by improperly designed or maintained stream crossings, or through natural channel evolution processes. Accordingly, this Order requires the Department to also submit the annual report required under SB 857 to the State Water Board.

Low Impact Development (LID)

On January 20, 2005, the State Water Board adopted sustainability as a core value for all California Water Boards' activities and programs, and directed State Water Board staff to consider sustainability in all future policies, guidelines, and regulatory actions. Sustainability can be achieved through appropriate implementation of the LID techniques required by this Order.

The proper implementation of LID techniques not only results in water quality protection benefits and a reduction of land development and construction costs, but also enhances property values, and improves habitat, aesthetic amenities, and quality of life (U.S. EPA, 2007). Further, properly implemented LID techniques reduce the volume of runoff leaving a newly developed or re-developed area thereby lowering the peak rate of runoff, and thus minimizing the adverse effects of hydromodification on stream habitat (SWRCB, 2007). The requirements of this Order facilitate the implementation of LID strategies to protect water quality, reduce runoff volume, and to promote sustainability.

Unlike traditional storm water management, which collects and conveys storm water runoff through storm drains, pipes, or other conveyances to a centralized storm water facility, LID takes a different approach by using site design and storm water management to maintain the site's pre-development runoff rates and volumes. The goal of LID is to mimic a site's pre-development hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to the source of rainfall. LID has been a proven approach in other parts of the country and is seen in California as an alternative to conventional storm water management.

LID is a tool that can be used to better manage natural resources and limit the pollution delivered to waterways. To achieve optimal benefits, LID needs to be integrated with watershed planning and appropriate land use programs. LID by itself will not deliver all the water quality outcomes desired; however, it does provide enhanced storm water treatment and mitigates increased volume and flow rates (SWRCB, 2007).

This Order approaches LID through source control design principles, site design principles and storm water treatment and infiltration principles. Source control and site design principles are required as applicable to provide enough flexibility such that projects are not forced to include inappropriate or impractical measures. Not all of the storm water treatment

and infiltration principles identified in the Order are required to be implemented but are listed in order of preference with the most environmentally protective and effective alternatives listed first.

BMP Development and Implementation

The Department has developed a BMP program for control of pollutants from existing facilities and for new and reconstructed facilities. This BMP program includes development, construction, maintenance and evaluation of BMPs, and investigation of new BMPs. The goal of BMP implementation is to control the discharge of pollutants to the applicable standards.

While erosion control BMPs are typically used on construction sites, some are used as permanent, post-construction BMPs. Typical erosion control BMPs involve use of straw or fiber rolls and mats. These rolls and mats are often held together by synthetic mesh or netting. Synthetic materials are persistent in the environment and have been found to be a source of pollutants, trash (Brzozowski, 2009), and hazard to wildlife through entrapment (Brzozowski, 2009; Barton and Kinkead, 2005; Walley et al, 2005; Stuart et al, 2001). For erosion control products used as permanent, post-construction BMPs, this Order requires the use of biodegradable materials, and the removal of any temporary erosion control products containing synthetic materials when they are no longer needed. Biodegradable materials are required in erosion control products used by the Departments of Transportation in the states of Delaware and Iowa (Brzozowski, 2009). Use of synthetic (plastic) materials is also prohibited through a Standard Condition in Streambed Alteration Agreements by the California Department of Fish and Game, Region 1 (Van Hattem, personal communication, 2009).

Potential Unintended Public Health Concerns Associated with Structural BMPs

The Department worked collaboratively with the California Department of Public Health (CDPH) on a comprehensive, multi-component monitoring program of more than 120 structural BMPs for mosquito production (Department, 2004). The data revealed that certain BMPs may unintentionally create habitat suitable for mosquitoes and other vectors. The California Health and Safety Code prohibits landowners from knowingly providing habitat for or allowing the production of mosquitoes and other vectors, and gives local vector control agencies broad inspection and abatement powers. This Order requires the Department to comply with applicable provisions of the Health and Safety Code and to cooperate and coordinate with CDPH and local mosquito and vector control agencies on vector control issues in the Department's MS4.

Construction

The Department's construction activities were previously regulated under the MS4 permit (Order 99-06-DWQ), which required the Department to comply with the substantive provisions of the CGP but not the requirement to file separate notices of intent for each construction project. Some Regional Water Boards have had difficulty enforcing the provisions of the CGP when enrollment under that permit is not required. This Order requires the Department to file for separate coverage for each construction project under the

CGP. This change is expected to increase the Department's accountability for discharges from construction sites and improve the ability of the Regional Water Boards to take enforcement actions as necessary.

Though discharges from construction activities are not regulated under this Order, any discharges from a site occurring after completion of construction (i.e. post-construction discharges) are fully subject to the requirements of this Order.

Some Department construction-related activities such as roadway and parking lot repaving and resurfacing may mobilize pollutants, even though they may not trigger coverage under the CGP. Such activity may discharge pollutants to the environment, however. BMPs for the control of such discharges are specified in the Department's Project Planning and Design Guide and Construction Site BMP Field Manual and Trouble Shooting Guide, and in the California Stormwater Quality Association (CASQA) California Stormwater BMP Handbook (Department, 2010; Department, 2003a); (CASQA, 2009). The Department is required to implement BMPs to control such discharges.

Because some Department construction projects may not involve grading or land disturbance of one acre or more, these smaller projects do not trigger requirements to enroll under the Construction General Permit. This Order requires the Department to implement BMPs to control discharges from such projects to the MEP. Failure to implement appropriate BMPs is a violation of this Order.

Maintenance Program Activities

Preservation of vegetation is an effective method for the control of pollutants in runoff; however the Department must control vegetation in its rights-of-way for purposes of traffic safety and nuisance. The Department currently implements a vegetation control program with a stated purpose of minimizing the use of agricultural chemicals and maximizing the use of appropriate native and adapted vegetation for erosion control, filtering of runoff, and velocity control.

Notwithstanding the Department's commitment to reduce the use of agricultural chemicals, the Department reported a total amount of 208,549 pounds of herbicide used in the 2008-2009 Storm Water Management Program Annual Report (Department (2010a); CTSW-RT-10-182-32.1). Reported reasons for increased herbicide usage included:

1. Local weather conditions, such as increased rainfall, leading to increased weed production.
2. The need to address new mandates for fire suppression (fuel abatement) adjacent to roadways.
3. Requests from local cities and counties.
4. Increase in or outbreaks of noxious weeds in areas adjacent to farmland.

This Order contains detailed requirements for the control of vegetation and reporting requirements for the use of agricultural chemicals.

The Department's maintenance facilities discharge pollutants to the MS4. This Order requires the Department to prepare Facility Pollution Prevention Plans (FPPPs) for all maintenance facilities. The Department is also required to implement BMP programs at each facility as necessary and periodically inspect each facility.

Spill cleanup is part of the Department's maintenance program. This Order requires the Department to ensure that spills on its rights-of-way are fully and appropriately cleaned up, and to provide appropriate notifications to local municipalities which may be affected by the spill. The Department is also required to notify the appropriate Regional Water Board of any spill with the potential to impact receiving waters.

This Order requires the Department to monitor and clean storm drain inlets when they have reached 50 percent capacity. The Department must initiate procedures contained in an Illegal Connection/Illicit Discharge (IC/ID) and Illegal Dumping Response Plan where storm water structures are found to contain excessive material resulting from illegal dumping, and it must determine if enhanced BMPs are needed at the site.

This Order requires the Department to implement the BMPs and other requirements of the SWMP and this Order to reduce and eliminate IC/IDs. It also requires the Department to prepare a Storm Drain System Survey Plan and an Illegal Dumping Response Plan.

Facilities Operations

There is potential for the discharge of pollutants from Department facilities during rain events. The discharge of pollutants from facilities not covered by the IGP will be reduced to the MEP through the appropriate implementation of BMPs.

This Order requires the Department to file an NOI for coverage under the IGP for industrial facilities as specified in Attachment 1 of the IGP. This requirement is expected to increase the Department's accountability for discharges from industrial facilities and improve the ability of the Regional Water Boards to take enforcement actions as necessary.

Department Activities Outside the Department's Right-of-Way

Facilities and operations outside the Department's ROW may support various Department activities. Facilities may include concrete or asphalt batch plants, staging areas, concrete slurry processing or other material recycling operations, equipment and material storage yards, material borrow areas, and access roads. Facilities may be operated by the Department or by a third party. The Department is required to include provisions in its contracts that require the contractor to obtain and comply with applicable permits for facilities and operations outside the Department's ROW when these facilities are active for the primary purpose of accommodating Department activities.

Non-Department Projects and Activities

Non-Department projects and activities include construction projects or other activities conducted by a third party within the Department's ROW. The Department is responsible for runoff from all non-Department projects and activities in its rights-of-way unless a separate

permit is issued to the other entity. At times, local municipalities or private developers may undertake construction projects or other activities within the Department's ROW. The Department may exercise control or oversight over these third party projects or activities through encroachment permits or other means. This Order sets project planning and design requirements for non-Department projects.

Management Activities for Non-Storm Water Discharges

Non-storm water discharges are dry weather flows that do not originate from precipitation events. Non-storm water discharges are illicit discharges and are prohibited by the federal regulations (40 C.F.R., § 122.26 (d)(2)(iv)(B)(1)) unless exempted or separately permitted. Procedures for prohibiting illicit discharges and illegal connections, and for responding to illegal dumping and spills are needed to prevent environmental damage and must be described in the SWMP.

Training and Public Education

Education is an important element of municipal storm water runoff management programs. U.S. EPA (2005) finds that "An informed and knowledgeable community is crucial to the success of a storm water management program since it helps ensure the following: Greater support for the program as the public gains a greater understanding of the reasons why it is necessary and important, [and] greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters."

U.S. EPA also states "The public education program should use a mix of appropriate local strategies to address the viewpoints and concerns of a variety of audiences and communities, including minority and disadvantaged communities, as well as children."

This Order requires the Department to implement a Training and Public Education program. The Training and Public Education program focuses on three audiences: Department employees, Department contractors, and the general public. The Department must implement programs for all three audiences. The Training and Public Education program is considered a BMP and an analysis of its effectiveness is needed.

Program Evaluation

This Order requires the Department to evaluate the effectiveness and adequacy of the storm water program on an annual basis. This includes both water quality monitoring and a self-audit of the program. The audit is intended to determine the effectiveness of the storm water and non-storm water programs through the evaluation of factors and program components such as:

1. Storm water and non-storm water discharges, including pollutant concentrations from locations representative of the Department's properties, facilities, and activities;
2. Maintenance activity control measures;
3. Facility pollution prevention plans;

4. Permanent control measures; and
5. Highway operation control measures.

In addition to water quality monitoring and the self-audit, the Department must perform an Overall Program Effectiveness Evaluation each year to determine the effectiveness of the program in achieving environmental and water quality objectives. The scope of the evaluation is expected to increase each year in response to the continuing collection of environmental monitoring data.

Reporting

Comprehensive reporting is needed to determine compliance with this Order and to track the effectiveness of the Department's storm water program over time. A summary of the reports required from the Department is presented in Attachment IX of the Order. The State Water Board and Regional Water Boards have the authority under various sections of the California Water Code to request additional information as needed.

The Department must track, assess and report on program implementation to ensure its effectiveness. In addition to the individual reports referenced above, the Department is required to submit an annual report to the State Water Board by October 1 of each year. The Annual Report must evaluate compliance with permit conditions, evaluate and assess the effectiveness of BMPs, summarize the results of the monitoring program, summarize the activities planned for the next reporting cycle, and, if necessary, propose changes to the SWMP.

Total Maximum Daily Loads (TMDL)

Section 303(d) of the Clean Water Act requires States to identify waters ("impaired" water bodies) that do not meet water quality standards after applying certain required technology-based effluent limits. States are required to compile this information in a list and submit the list to the U.S. EPA for review and approval. This list is known as the Section 303(d) list of impaired waters.

As part of the listing process, States are required to prioritize waters/watersheds for future development of TMDLs. A TMDL is defined as the sum of the individual waste load allocations (WLAs) for point sources of pollution, plus the load allocations (LAs) for nonpoint sources of pollution, plus the contribution from background sources of pollution and a margin of safety. The State Water Board and Regional Water Boards have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, and to subsequently develop TMDLs.

TMDLs are developed by either the Regional Water Boards or U.S. EPA in response to Section 303(d) listings. TMDLs developed by Regional Water Boards include implementation provisions and can be incorporated as Basin Plan amendments. TMDLs developed by U.S. EPA typically contain the total load and load allocations required by Section 303(d), but do not contain comprehensive implementation provisions. Subsequent

steps after Regional Water Board TMDL development are: approval by the State Water Board, approval by the Office of Administrative Law, and ultimately, approval by U.S. EPA.

The Department has been assigned mass based and concentration based WLAs for constituents contributing to a TMDL in specific regions. The Department is subject to TMDLs in the North Coast, San Francisco Bay, Central Coast, Los Angeles, Central Valley, Lahontan, Colorado River, Santa Ana, and San Diego Regions. These TMDLs are summarized in Table 1 of this Fact Sheet below, and Table IV.2 of Attachment IV of this Order.

Table 1. Department Statewide TMDLs

Water Body	Pollutant	U.S. EPA Approved/Established
<i>North Coast Region</i>		
Albion River *	Sediment	December 2001
Big River *	Sediment	December 2001
Lower Eel River *	Temperature & Sediment	December 18, 2007
Middle Fork Eel River *	Temperature & Sediment	December 2003
South Fork Eel River *	Sediment & Temperature	December 16, 1999
Upper Main Eel River and Tributaries (including Tomki Creek, Outlet Creek and Lake Pillsbury) *	Sediment & Temperature	December 29, 2004
Garcia River	Sediment	March 16, 1998
Gualala River *	Sediment	November 29, 2004
Klamath River	Temperature, Dissolved Oxygen, Nutrient, & Microcystin	December 28, 2010
Lost River	Nitrogen and Biochemical Oxygen Demand	December 30, 2008
Mad River *	Sediment & Turbidity	December 21, 2007
Navarro River *	Temperature & Sediment	December 27, 2000
Noyo River *	Sediment	December 16, 1999
Redwood Creek *	Sediment	December 30, 1998
Scott River	Sediment and Temperature	August 11, 2006
Shasta River	Dissolved Oxygen & Temperature	January 26, 2007
Ten Mile River *	Sediment	December 2000

Water Body	Pollutant	U.S. EPA Approved/Established
Trinity River *	Sediment	December 20, 2001
South Fork Trinity River and Hayfork Creek *	Sediment	December 1998
Van Duzen River & Yager Creek *	Sediment	December 16, 1999
<i>San Francisco Bay Region</i>		
Napa River	Sediment	January 20, 2011
Richardson Bay	Pathogens	December 18, 2009
San Francisco Bay	PCBs	March 29, 2010
San Francisco Bay	Mercury	February 12, 2008
San Pedro and Pacifica State Beach	Bacteria	August 1, 2013
San Francisco Bay Urban Creeks	Diazinon & Pesticide-Related Toxicity	May 16, 2007
Sonoma Creek	Sediment	September 8, 2010
<i>Central Coast Region</i>		
San Lorenzo River (includes Carbonera Lompico, Shingle Mill Creeks)	Sediment	February 19, 2004
Morro Bay (includes Chorro Creek, Los Osos Creek, and the Morro Bay Estuary)	Sediment	January 20, 2004
<i>Los Angeles Region</i>		
Ballona Creek	Metals (Ag, Cd, Cu, Pb, & Zn) and Selenium	December 22, 2005 and reaffirmed on October 29, 2008
Ballona Creek	Trash	August 1, 2002 and February 8, 2005
Ballona Creek Estuary	Toxic Pollutants (Ag, Cd, Cu, Pb, Zn, Chlordane, DDTs, Total PCBs, and Total PAHs)	December 22, 2005
Ballona Creek, Ballona Estuary and Sepulveda Channel	Bacteria	March 26, 2007
Ballona Creek Wetlands *	Sediment and Invasive Exotic Vegetation	March 26, 2012
Calleguas Creek and its Tributaries and Mugu	Metals and Selenium	March 26, 2007

Water Body	Pollutant	U.S. EPA Approved/Established
Lagoon		
Calleguas Creek its Tributaries and Mugu Lagoon	Organochlorine Pesticides, Polychlorinated Biphenyls, and Siltation	March 14, 2006
Colorado Lagoon	Organochlorine Pesticides, Polychlorinated Biphenyls, Sediment Toxicity, Polycyclic Aromatic Hydrocarbons, and Metals	June 14, 2011
Dominguez Channel, Greater Los Angeles and Long Beach Harbor Waters	Toxic Pollutants: Metals (Cu, Pb, Zn), DDT, PAHs, and PCBs	March 23, 2012
Legg Lake	Trash	February 27, 2008
Long Beach City Beaches and Los Angeles & Long Beach Harbor Waters *	Indicator Bacteria	March 26, 2012
Los Angeles Area (Echo Park Lake) *	Nitrogen, Phosphorus, Chlordane, Dieldrin, PCBs, and Trash	March 26, 2012
Los Angeles Area (Lake Sherwood) *	Mercury	March 26, 2012
Los Angeles Area (North, Center, and Legg Lakes) *	Nitrogen and Phosphorus	March 26, 2012
Los Angeles Area (Peck Road Park Lake) *	Nitrogen, Phosphorus, Chlordane, DDT, Dieldrin, PCBs, and Trash	March 26, 2012
Los Angeles Area (Puddingstone Reservoir) *	Nitrogen, Phosphorus, Chlordane, DDT, PCBs, Hg, and Dieldrin	March 26, 2012
Los Angeles River and Tributaries	Metals	December 22, 2005 and October 29, 2008 & Reopened and Modified on November 3, 2011
Los Angeles River	Trash	July 24, 2008
Los Angeles River Watershed	Bacteria	March 23, 2012
Los Cerritos *	Metals	March 17, 2010
Machado Lake	Pesticides and Polychlorinated Biphenyls	March 20, 2012
Machado Lake	Trash	February 27, 2008

Water Body	Pollutant	U.S. EPA Approved/Established
Machado Lake	Eutrophic, Algae, Ammonia, and Odors (Nutrient)	March 11, 2009
Malibu Creek Watershed	Bacteria	January 10, 2006, Revised November 8, 2013**
Malibu Creek and Lagoon *	Sedimentation and Nutrients to Address Benthic Community Impairments	July 2, 2013
Malibu Creek Watershed	Trash	June 26, 2009
Marina del Rey Harbor	Toxic Pollutants	March 16, 2006
Marina del Rey, Harbor Back Basins, Mothers' Beach	Bacteria	March 18, 2004, Revised November 7, 2013**
Revolon Slough and Beardsley Wash	Trash	August 1, 2002 and February 8, 2005
San Gabriel River *	Metals (Cu, Pb, & Zn) and Selenium	March 26, 2007
Santa Clara River Estuary and Reaches 3, 5, 6, and 7	Coliform	January 13, 2012
Santa Clara River Reach 3 *	Chloride	June 18, 2003
Santa Monica Bay *	DDTs and PCBs	March 26, 2012
Santa Monica Bay Nearshore & Offshore	Debris (trash & plastic pellets)	March 20, 2012
Santa Monica Bay Beaches	Bacteria	June 19, 2003, Revised November 7, 2013**
Upper Santa Clara River	Chloride	April 6, 2010
Ventura River Estuary	Trash	February 27, 2008
Ventura River and its Tributaries	Algae, Eutrophic Conditions, and Nutrients	June 28, 2013
Central Valley Region		
Cache Creek, Bear Creek, Sulphur Creek and Harley Gulch	Mercury	February 7, 2007
Clear Lake	Nutrients	September 21, 2007
Sacramento – San Joaquin Delta	Methylmercury	October 20, 2011
Lahontan Region		

Water Body	Pollutant	U.S. EPA Approved/Established
Lake Tahoe	Sediment and Nutrients	August 16, 2011
Truckee River	Sediment	September 16, 2009
<i>Colorado River Region</i>		
Coachella Valley Storm Water Channel	Bacterial Indicators	April 27, 2012
<i>Santa Ana Region</i>		
Big Bear Lake	Nutrients for Hydrological Conditions	September 25, 2007
Lake Elsinore and Canyon Lake	Nutrients	September 30, 2005
Rhine Channel Area of the Lower Newport Bay *	Chromium and Mercury	June 14, 2002
San Diego Creek and New Port Bay, including the Rhine Channel *	Metals (Cadmium, Copper, Lead, & Zinc)	June 14, 2002
San Diego Creek and Upper Newport *	Cadmium	June 14, 2002
San Diego Creek Watershed	Organochlorine Compounds (DDT, Chlordane, PCBs, and Toxaphene)	November 12, 2013
Upper & Lower Newport Bay	Organochlorine Compounds (DDT, Chlordane, & PCBs)	November 12, 2013
<i>San Diego Region</i>		
Chollas Creek	Diazinon	November 3, 2003
Chollas Creek	Dissolved Copper, Lead, and Zinc	December 18, 2008
Rainbow Creek	Total Nitrogen and Total Phosphorus	March 22, 2006
Project 1 – Revised Twenty Beaches and Creek in the San Diego Region (Including Tecolote Creek)	Indicator Bacteria	June 22, 2011
* U.S. EPA Established TMDL		
** OAL Approved, U.S. EPA Approval Pending		

The TMDL-based requirements of this Order are not limited to the maximum extent practical (MEP) standard. The TMDL-based requirements have been imposed in accordance with 40 Code of Federal Regulations section 122.44(d)(1)(vii)(B). Pursuant to 40 Code of Federal Regulations section 122.44(d)(1)(vii)(B), the effluent limitations for NPDES permits must be consistent with the assumptions and requirements of any available WLA for the discharge prepared by the state and approved by EPA, or established by EPA. In addition, Water Code section 13263, subdivision (a), requires that waste discharge requirements implement

any relevant water quality control plans (basin plans), including TMDL requirements that have been incorporated into the basin plans.

Effluent limitations for NPDES-regulated storm water discharges that implement WLAs in TMDLs may be expressed in the form of best management practices (BMPs). (See 33 U.S.C. §1342(p)(3)(B)(iii); 40 C.F.R. §122.44(k)(2)&(3).) Where effluent limitations are expressed as BMPs, there should be adequate demonstration in the administrative record of the permit, including in the Fact Sheet, that the BMPs will be sufficient to comply with the WLAs.²⁰ (See 40 C.F.R. §§ 124.8, 124.9 & 124.18.) The NPDES permit must also specify the monitoring necessary to determine compliance with permit limitations. (See 40 C.F.R. § 122.44(i).) Where effluent limitations are specified as BMPs, the permit should also specify the monitoring necessary to assess if the expected load reductions attributed to BMP implementation are achieved (e.g., BMP performance data). The permit should additionally provide a mechanism to make adjustments to the required BMPs as necessary to ensure their adequate performance.²¹

As detailed below, this Order establishes BMP-based requirements for TMDL implementation that are consistent with the requirements and assumptions of the relevant WLAs. This Order further requires implemented BMPs to be monitored for effectiveness and to be adaptively managed for modifications as necessary to achieve WLAs.

Overview

The State Water Board and Regional Water Boards have reviewed the WLAs, implementation requirements, and monitoring requirements specified in the adopted and approved Regional Water Board Basin Plans or in U.S. EPA-established TMDLs applicable to the Department. In most of the relevant TMDLs, the Department's contribution to impairment is a small portion of the overall contribution from multiple sources (less than five percent). While the Department is generally a small contributor to impairment, the statewide reach of its highway system means that it is a contributor in numerous impaired watersheds. The Department must comply with applicable TMDLs across the state.

The fact that one discharger – the Department – must implement requirements for over 84 TMDLs administered by nine Regional Water Boards poses a unique challenge in permitting. Many of the TMDLs are designed to address the same pollutants causing impairment, and progress in achievement of the WLA for these pollutant categories requires implementation of similar control measures coupled with monitoring and adaptive management. In past

²⁰ Establishing Total Maximum Daily Load Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs," Memorandum, U.S. EPA, November 22, 2002. On November 12, 2010, U.S. EPA issued a revision to the November 22, 2002, memorandum, recommending that "where the TMDL includes WLAs for storm water sources that provide numeric pollutant load or numeric surrogate pollutant parameter objectives, the WLA should, where feasible, be translated into numeric WQBELs in the applicable storm water permits." The revision further stated, however, that the permitting authority's decision as to how to express water quality based effluent limitations (WQBELs), i.e. as numeric effluent limitations or BMPs, would be based on an analysis of the specific facts and circumstances surrounding the permit.

²¹ *Ibid.*

regulatory actions, however, the Department has been directed to comply with the TMDL requirements by reference to the sections of the relevant basin plan and through coordination with the relevant Regional Water Board. As a result, the Department has devoted significant effort to coordination and exercises to determine the next steps, with limited progress in installing on-the-ground control measures to achieve actual water quality improvements. This Order provides a focused and streamlined process for TMDL compliance so that the Department may proceed as quickly as possible to installation of control measures and monitoring, and adaptive management of those control measures to result in water quality improvements. The Order's TMDL requirements provide consistency in determining compliance requirements, where appropriate. To allow for consistency, with resulting time and cost-efficiency, in achieving compliance with the TMDL requirements applicable to the Department, the State Water Board has developed a set of pollutant category requirements to be implemented by the Department.

The pollutant categories are as follows:

1. Sediment/Nutrients/Mercury/Siltation/Turbidity TMDLs
2. Metals/Toxics/Pesticides TMDLs
3. Trash TMDLs
4. Bacteria TMDLs
5. Diazinon TMDLs
6. Selenium TMDLs
7. Temperature TMDLs
8. Chloride TMDLs

Table IV.2 of Attachment IV of this Order lists all TMDLs applicable to the Department. For each TMDL, Table IV.2 cross-references one or more pollutant category. The Department must implement the cross-referenced pollutant category requirements to achieve compliance with the TMDL provisions of the Order. Where TMDL-specific, rather than, or in addition to, pollutant category-specific permit requirements are appropriate (because of the unique local conditions or specific requirements in the TMDL), those requirements are also noted in Table IV.2. In addition, Table IV.2 cross-references the monitoring, reporting and adaptive management requirements applicable to all pollutant categories.

Attachment IV of this Order recognizes that, because the Department must comply with numerous TMDLs, the Department must phase in implementation requirements for TMDLs over several years. To achieve the highest water quality benefit as quickly as feasible in the permit term, this phase-in must be accomplished in a manner that addresses discharges with the highest impact on water quality first. Accordingly, Attachment IV requires the Department, by October 1, 2014, to prepare and submit an inventory of all impaired reaches subject to TMDLs to which the Department discharges with prioritized implementation of controls for these reaches based on a set of qualitative criteria. In preparing the initial prioritization, the Department must consider the degree of impairment of the water body, measured by the percent pollution reduction needed to achieve the WLA, the contributing drainage area from the Department's right of way (ROW) relative to the watershed draining to the reach, and the relative proximity of the ROW to the receiving water.

The State Water Board will allow a 30-day public comment period on the Department's initial prioritization and will work with the Department and the Regional Water Boards to compile a final prioritization to be approved by the State Water Board Executive Director. Criteria for final prioritization to be considered by the Department, the State Water Board and Regional Water Boards include:

- a. Opportunities for synergistic benefits with existing or anticipated projects or activities within the reach, e.g., cooperative efforts with other dischargers or projects within an ASBS.
- b. Multiple TMDLs that can be addressed by a single BMP within a reach.
- c. TMDL deadlines specified in a Basin Plan.
- d. Regional Water Board and State Water Board priorities.
- e. Accessibility for construction and/or maintenance (i.e. safety considerations).
- f. Multi-benefit projects that provide benefits in addition to water quality improvement, such as groundwater recharge or habitat enhancement.

In finalizing the prioritization, the State Water Board and Regional Water Boards will consider the compliance date for attainment of the WLAs established in the Basin Plans and may adjust the prioritization accordingly. It is the intent of the State Water Board to have the Department meet listed TMDL deadlines where feasible.

Upon State Water Board Executive Director approval of final prioritization, the Department must implement control measures to achieve 1650 Compliance Units (CUs) per year. One CU is equivalent to one acre of the Department's ROW, from which the runoff is retained, treated, or otherwise controlled prior to discharge to the relevant reach. BMPs installed during construction activities in TMDL watersheds may receive CU credit for that portion of the treatment volume that exceeds the baseline treatment control requirements specified in the Order. A CU may be claimed when the BMP retrofit project enters the Project Initiation Document (PID) phase of implementation per the requirements of the Order. If a BMP retrofit project is not completed within the approved time schedule, the CU(s) will be revoked unless the Executive Director approves a delay.

The determination of the number of CUs the Department must complete each year is based on the objective of addressing every TMDL in Attachment IV within 20 years. A primary factor considered in the determination of the number of CUs to be completed each year is the compliance due date for the final WLA for many of the relevant TMDLs. The State Water Board considered two approaches in determining the annual number of CUs.

The first approach is based on a simple calculation of the number of acres of ROW that must be treated to ensure that all TMDL watersheds are addressed over a 20 year time frame. Data submitted by the Department indicate that there are 68,000 acres of ROW within TMDL watersheds.

It is not possible or necessary to treat 100 percent of the runoff from TMDL watersheds. In evaluating monitoring sites for discharges into ASBS, staff found that approximately 64

percent of the sites considered could not be addressed, either due to access limitations or safety considerations. Similar conditions are expected to exist in TMDL watersheds, although the percentage will not be as high because the terrain found along most of California's coastline is more difficult and rugged than the terrain that typically exists in the rest of the state. Accordingly, for purposes of this calculation based on the Department's preliminary estimates, the percentage of inaccessible/unsafe sites is reduced by one-half for TMDL watersheds, or 32 percent, translating into approximately 22,000 fewer acres ($68,000 \times 32 \text{ percent} = 22,000$) that must be treated. Therefore, the Department will have to address approximately 46,000 acres of ROW to comply with the TMDL requirements of Attachment IV. With the objective of addressing all TMDLs in Attachment IV within 20 years, the Department must treat or otherwise address 2300 acres per year ($46,000/20 = 2300$) throughout the state within the TMDL watersheds listed in Attachment IV.

The second approach for determination of CUs considered by the State Water Board is based on the Department's updated estimates of ROWs that must be treated. This proposal provided by the Department segregates the TMDLs into eight pollutant categories, similar to those presented in Attachment IV, including sediments, metals, trash and bacteria. The Department proposed annual CU commitments based upon the individual categories, with 600 CUs for sediments, a combined 710 CUs for metals and trash, and 340 CUs for bacteria, for an annual total of 1650 CUs. The proposal does not include other pollutant categories in which the acreage and controls for sediments, metals, trash, and bacteria would overlap with the acreage and controls for these other pollutants. This overlap of coverage was identified for the above categorical annual commitments so that the total ROW acreage requiring treatment equates to 33,000 acres.

Though the two approaches produce similar results, the State Water Board confirms that the second approach is sufficient for TMDL-implementation planning at the current stage of TMDL implementation; therefore the second compliance unit determination approach described above is implemented in this Order. The State Water Board believes that 1650 CUs represent a reasonable balance of resources and environmental protection, and will be sufficient to address the TMDLs in Attachment IV in the foreseeable future. The Department is ultimately responsible for demonstrating that it has complied with the TMDLs in Attachment IV by meeting the WLAs and other TMDL performance criteria, independent of its annual obligation to receive credit for compliance units. 1650 CUs per year may be more or less than is needed to comply with the TMDLs in Attachment IV within 20 years. This permit expires in 2018; therefore Attachment IV of this Order requires the Department to present to the State Water Board, at a public meeting to be scheduled approximately 180 days prior to the expiration of the Order, a TMDL Progress Report containing an evaluation of the progress achieved during this permit term. The State Water Board will then evaluate the compliance unit approach and the Department's progress in meeting the 20 year objective before consideration of subsequent requirements in a subsequently renewed permit.

Using an average cost \$176,000 per BMP/acre²², the proposed annual cost to meet this requirement relying solely on retrofits is approximately \$290,000,000. The Department's contribution to impairment in any given TMDL is generally a small portion of the overall contribution from multiple sources. In many cases, synergistic effects can be achieved and water quality improvements are better served through coordinated efforts with other parties to the TMDL. To encourage collaborative implementation, Attachment IV of this Order allows CUs for collaborative efforts based on the amount of financial participation made by the Department. To determine an appropriate financial equivalence staff used the cost data submitted by the Department of \$176,000 per BMP/acre or per CU. However, to encourage collaborative efforts, staff proposes a 50 percent discount for participation in these types of agreements. Attachment IV accordingly sets the CU equivalent at \$88,000. Based on the same approach described above, and relying solely on contributions to collaborative efforts, the annual cost to the Department is approximately \$145,000,000.

Attachment IV allows for two types of collaborative implementation: Cooperative Implementation Agreements between the Department and other responsible parties to conduct work to comply with a TMDL, and a Cooperative Implementation Grant Program funded by the Department and administered by the State Water Board. The grant program will be used to fund capital projects in impaired watersheds in which the Department has been assigned a WLA or otherwise has responsibility for implementation of the TMDL. Cooperative implementation will satisfy some or all of the Department's obligations under a TMDL, whether or not discharges from the Department's ROW are controlled or treated.

Cooperative implementation has the following advantages:

- Allows for retrofit projects off the ROW, at locations that may otherwise have space, access, or safety limitations within the ROW;
- Provides for the involvement of local watershed partners who have an interest and expertise in the best way to protect, manage, and enhance water quality in the watershed;
- Allows for implementation of BMPs and other creative solutions not typically available to the Department;
- Allows for larger watershed scale projects; and
- Leverages resources from other entities.

In addition, the Cooperative Implementation Grant Program eliminates the Department's complex budgeting and project approval process to expedite the implementation of BMPs in impaired watersheds.

If the Department elects to fund a Cooperative Implementation Grant Program, the Department and the State Water Board will enter into a formal agreement to specify the terms of the grant program and the commitments and responsibilities of the parties. The agreement will specify the following:

²² Construction capital cost based on information provided by Department staff.

- The Department will pay all State Water Board costs in administering the grant program. No credit for compliance units will be given for administrative costs paid to the State Water Board.
- The Department will track and report on the projects funded under the grant program.
- Grantees will be responsible for the long term management, operation, and maintenance of BMPs.
- Grants are limited to other responsible parties named in the TMDL.
- Projects shall address storm water runoff and treat or control the same Pollutants of Concern that the Department is responsible for.
- Priority is given to projects that address impairments in the highest priority reaches identified in the prioritization process specified in Attachment IV, Section I.A.
- If the grant program is discontinued, any unexpended funds will be returned to the Department and the corresponding compliance units will be revoked and added to subsequent annual compliance unit totals.

Attachment IV reflects the State Water Board's commitment to streamlining TMDL compliance for the Department to proceed as quickly as feasible to implement on-the-ground control measures and obtain measurable improvement in water quality. In the prioritization process, the Department and the Water Boards will consider the final compliance deadlines under the TMDLs; however, the State Water Board recognizes that the requirements in Attachment IV do not mirror all specific interim deadlines for studies, reports, and pollutant reductions in the TMDLs included to demonstrate progress toward meeting the WLAs. The requirements in Attachment IV are general yet consistent with specific planning, study, and reporting requirements in the TMDLs.

The Department is required annually to include in the TMDL Status Review Report its proposal for reaches to be addressed in the upcoming year, with selected control measures and projected schedule for implementation. The Department is also required to report a set of information that encompasses updates on cooperative and individual implementation activities completed, as well as an analysis of the effectiveness of existing BMPs and activities in meeting the WLAs. This information will be reviewed by the State Water Board and will be publicly available. Control measures and implementation schedules proposed for the upcoming year are subject to the approval of the Executive Director, or designee.

Attachment IV does not list the final required WLAs for each TMDL. With few exceptions, the WLAs are to be achieved jointly by a number of storm water dischargers and accordingly are of limited use in determining and enforcing the Department's specific responsibilities under the TMDL. The State Water Board finds that effective implementation and enforcement of Attachment IV is better achieved through clear requirements for implementation of controls, and monitoring and adaptive management of such controls, than by implementation of joint WLAs into the permit requirements.

Nevertheless, the WLAs, both Department-specific and joint with other dischargers, are discussed in the sections below. While the WLAs are not incorporated into Attachment IV as permit requirements, the discussion establishes that Attachment IV is consistent with the

requirements and assumptions of the WLAs. In general, the Department is a relatively small contributor to the impairment to be addressed by the relevant TMDLs.²³ Attachment IV requires a focused effort to address the priority discharges through measurable and streamlined progress in implementation of controls, effectively addressing the relatively small contribution from the Department. The Department must verify progress through reporting of subsequent monitoring and adaptive management activities.

As an additional step in determining compliance toward achievement of WLAs, the Department must submit a TMDL Progress Report with its application for permit reissuance in January of 2018, analyzing the effectiveness of the control measures installed for each reach and whether the control measures have been or will be sufficient to achieve WLAs and other performance standards by the final TMDL compliance deadlines. The TMDL Progress Report will be subject to public review and comment and will inform the State Water Board as it considers subsequent requirements in a subsequently reissued permit.

A. General Requirements for all TMDLs: Comprehensive TMDL Monitoring, Reporting, and Adaptive Management

As previously discussed, an NPDES permit must specify the monitoring necessary to determine compliance with effluent limitations. Where effluent limitations are specified as BMPs, the permit should specify the monitoring necessary to assess if the expected load reductions attributed to BMP implementation are achieved. The permit should additionally provide a mechanism to make adjustments to the required BMPs as necessary to ensure their adequate performance. Attachment IV requires continuation of existing monitoring plans as approved by the Regional Water Board Executive Officer. Where there is no approved monitoring plan in place for a TMDL, the Department is required to submit a plan to the State Water Board by January 1, 2015, with a time schedule to implement the plan. The submitted plan must be designed to assess the effectiveness of implemented BMPs and to inform BMP selection. The Department shall use the monitoring data to conduct an on-going assessment of the performance and effectiveness of BMPs and shall use the assessment to inform modifications to control measures to achieve WLAs and other applicable performance standards.

BMP effectiveness monitoring and the adaptive management strategy related to BMP implementation allows for flexibility in source control methods until the most appropriate BMPs are identified and installed for the control of a pollutant. The Department will evaluate the effectiveness of the controls that were implemented each year and submit the results of the evaluation in the TMDL Status Review Report, which is submitted as part of the Annual Report. If the controls implemented are shown to be ineffective, then the Department must either re-design the BMP or implement a new type of control measure to address the inadequacies of the current design. The process of assessing the performance and

²³ In the few instances where the Department's contribution is a relatively high percentage of the total contribution from identified sources, as identified in this Fact Sheet, the State Water Board would expect the Department to prioritize addressing such discharges and evaluating the performance and effectiveness of the selected BMPs.

effectiveness of BMPs and using that assessment to modify or replace inadequate BMPs ensures that the Department will make progress toward achieving the requirements of the TMDLs within the permit term.

The Department must also prepare and submit a TMDL Progress Report to the State Water Board as part of its permit reissuance application. That report must include: (1) a summary of the effectiveness of the control measures installed for each reach that has been addressed, as a result of BMP effectiveness assessment, (2) a determination as to whether the control measures have been or will be sufficient to achieve WLAs and other performance standards by the final compliance deadlines, (3) where the control measures are determined not to be sufficient to achieve WLAs or other performance standards by the final compliance deadlines, a proposal for improved control measures to address the relevant pollutants, and (4) a summary of the estimated amount of pollutants that were prevented from entering into the receiving waters. The TMDL Progress Report will be subject to public review and comment and will inform the requirements of the reissued permit.

B. Sediments/Nutrients/Mercury/Siltation/Turbidity Pollutant Category

General Description of Pollutant Category

The TMDLs in this pollutant category identify sediment from roads as a significant or primary source of these pollutants. Excessive sediment loads have resulted in the non-attainment of water quality objectives for sediment, suspended material, and settleable material. Excess sediment delivery to stream channels is associated with several natural processes as well as anthropogenic sources.

Sources of Pollutant and How Pollutants Enters the Waterway

Natural sources include geologically unstable areas that are subject to landslides, as well as smaller sediment sources such as gullies and stream-bank failures. Anthropogenic sources include road-related stream crossing failures, gullies, fill failures, and landslides precipitated by road-related surface erosion and cut bank failures. Road-related activities which can increase sediment discharge to a waterway include the construction and maintenance of paved and unpaved roadways, watercourse crossing construction, reconstruction, maintenance, use, and obliteration, and many activities conducted on unstable slopes. Unstable areas are areas with a naturally high risk of erosion and areas or sites that will not reasonably respond to efforts to prevent, restore or mitigate sediment discharges. Unstable areas are characterized by slide areas, gullies, eroding stream banks, or unstable soils that are capable of delivering sediment to a watercourse. Slide areas include shallow and deep seated landslides, debris flows, debris slides, debris torrents, earthflows, headwall swales, inner gorges and hummocky ground. Unstable soils include unconsolidated, non-cohesive soils and colluvial debris.

Mercury is negatively impacting the beneficial uses of many waters of the state. As of 2010, more than 180 water bodies are designated as impaired by mercury, and fish in these waters can have mercury concentrations that pose a health risk for humans and wildlife that eat the fish, including threatened and endangered species. The beneficial uses impacted by

mercury include, but may not be limited to, COMM, WILD, and RARE beneficial uses. Also REC-1 has been used for many waters to indicate fish consumption as part of fishing. Sources of mercury include gold and mercury mines, naturally mercury enriched soils, atmospheric deposition, improper disposal of mercury containing items, such as batteries and dental amalgam. Mercury from many of these sources can end up in storm water and industrial and municipal wastewater.

Watershed Contribution

The Department is a relatively minor source of pollutants and small percentage of the watershed. The Department will address the highest problem areas and therefore, addressing the problem at the appropriate level for the Sediment, Nutrients, Mercury, Siltation and Turbidity TMDLs.

Control Measures

Attachment IV requires the Department to implement control measures to prevent erosion and sediment discharge. The measures that control the discharge of sediment can be effective in controlling releases of nutrients and mercury. This can be achieved by protecting hillsides, intercepting and filtering runoff, avoiding concentrated flows in natural channels and drains, and not modifying natural runoff flow patterns.

In addition to TMDL requirements, the Department has developed a BMP program for control of pollutants from existing facilities and for new and reconstructed facilities. This BMP program includes implementation, maintenance and evaluation of BMPs, and the investigation of new BMPs. The goal of BMP implementation is to control the discharge of pollutants to achieve the applicable standards. Erosion control BMPs are typically used on construction sites, although some are also used as permanent, post-construction BMPs.

Department's Contribution

The Department's discharge contribution is discussed under the individual TMDLs below. The TMDLs in this pollutant category attribute most anthropogenic sediment related beneficial use impairments to logging activities and, to a lesser degree, some agricultural activities. Logging activities routinely include extensive construction and maintenance of unpaved roads which range over large areas, whereas the Department maintains a network of paved highways which account for a small fraction of the total area devoted to all paved roadways within the boundaries of these TMDLs.

The requirements in Attachment IV are generally sufficient to address the sediment TMDLs that originate from a comparatively minor pollutant source, and this is accomplished by focusing on the most problematic areas and activities within this relatively low-volume subset of anthropogenic discharges for this pollutant category.

NORTH COAST REGION SEDIMENT TMDLS

As discussed under individual TMDLs below, the TMDLs in this pollutant category attribute most anthropogenic sediment-related beneficial use impairments to logging activities and, to a lesser degree, some agricultural activities. Logging activities in the North Coast region routinely include extensive construction and maintenance of unpaved roads which range over large areas of the Coast Range’s vertical topography, whereas the Department maintains a network of paved highways which accounts for a small fraction of the total area devoted to all paved roadways within the boundaries of these TMDLs.

WLAS

The North Coast Regional Water Board has adopted the “Total Maximum Daily Load Implementation Policy Statement for Sediment-Impaired Receiving Waters in the North Coast Region” on November 29, 2004. The goals of the Policy are to control sediment waste discharges to impaired water bodies so that the TMDLs are met, sediment water quality objectives are attained, and beneficial uses are no longer adversely affected by sediment. This policy requires the use of NPDES permits and waste discharge requirements to achieve compliance with sediment-related water quality standards.

The sediment control requirements in Attachment IV (TMDL Requirements) of this Order are intended to reduce the adverse impacts of excessive sediment discharges to sediment-impaired waters, including impacts to the cold water salmonid fishery and the COLD, COMM, RARE, SPWN, and MIGR beneficial uses. The beneficial uses associated with the cold water salmonids fishery are often the most sensitive to sediment discharges. The North Coast Regional Water Board’s basin plan has the following narrative water quality objectives which apply to sediment-related discharges to receiving waterbodies:

Parameter	Water Quality Objectives
Suspended Material	Waters shall not contain suspended material in concentrations that cause nuisance or adversely affects beneficial uses.
Settleable Material	Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affect beneficial uses.
Sediment	The suspended sediment load and suspended sediment discharge rate of surface water shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
Turbidity	Turbidity shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.

Department’s Contribution:

The Department’s specific discharge contribution is discussed under the individual TMDLs below.

Albion River Sediment TMDL, December 2001

Final WLA

U.S. EPA states that there are no significant individual point sources of sediment in the Albion River watershed.

Final WLA Specific to the Department

U.S. EPA states that there are no significant individual point sources of sediment in the Albion River watershed. As a consequence, its wasteload allocation is set to zero.

Final Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Contribution (relative contribution to pollutant loading)

Approximately five percent of the total miles of roads within the watershed are paved, whereas logging road construction, logging road usage, and other activities associated with logging operations constitute the majority of anthropogenic sediment discharges. The Department's paved roadways thus constitute some undetermined fraction of the total paved road mileage: its wasteload allocation is set to zero.

Big River Sediment TMDL, December 2001

Final WLA

U.S. EPA states that there are no significant individual point sources of sediment in the Big River watershed, so the wasteload allocation is zero.

Final WLA Specific to the Department

U.S. EPA states that there are no significant individual point sources of sediment in the Big River watershed.

Final Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Contribution (relative contribution to pollutant loading)

Approximately three (3) percent of the miles of roadways within the watershed are paved, whereas logging road construction, logging road usage, and other activities associated with logging operations constitute the majority of anthropogenic sediment discharges. The Department is not listed as a source of point source discharges of sediment.

Lower Eel River Sediment & Temperature TMDL, December 18, 2007

Final Sediment WLA

For the Department’s facilities, construction sites, and municipalities, the wasteload allocation is expressed as equivalent to the load allocations, as specified in the following table:

Sediment Source		Average Daily		Average Daily		Percent Reduction 1955 -2003
		1955 – 2003 Loading	Load Allocation	1955 – 2003 Loading	Load Allocation	
		(tons/mi ² /yr)	(tons/mi ² /yr)	(tons/mi ² /day)	(tons/mi ² /day)	
Natural Load Allocation		718	718	2.0	2.0	0%
Roads	Episodic	43	9	0.1	0.02	80%
	Chronic	115	17	0.3	0.05	85%
Timber Harvest		590	147	1.6	0.4	75%
Skid Trail		7	1	0.02	0.5	90%
Bank Erosion		21	6	0.1	0.03	70%
Total Human-related Load Allocation		775	180	2.1	0.5	77%
Total Load Allocations Natural and Human-Related Sources		1,493	898	4.1	2.5	

Final WLA Specific to the Department

As stated above, U.S. EPA’s wasteload allocation for the temperature TMDL assigned to the Department and other point source dischargers is zero net increase in receiving water temperature.

Final Deadlines

As noted above, U.S. EPA did not set a specific sediment WLA for the Department.

Department’s Contribution (relative contribution to pollutant loading)

The Department’s relative sediment contribution is not known.

Eel River (Middle-Fork) Eden Valley and Round Valley HSAs Temperature and Sediment TMDL, December 2003

Final Sediment WLA

U.S. EPA states that because discharge from point sources cannot be readily determined, and because possible loading from point sources is not distinguished from general management-related loading in the source analysis, U.S. EPA considers the rates set as load allocations (i.e., for nonpoint sources) to also represent wasteload allocations (i.e., for those point sources that would be covered by general NPDES permits).

Table 7: Sediment TMDLs and Allocation (t/m²/yr)

Source	Black Butte	Elk Creek	Round Valley	Upper MF	Williams Thatcher	BASINWIDE Load
TOTAL Natural	724	1,059	374	410	417	574
Percent Reduction over current	0%	0%	0%	0%	0%	0%
Subtotals Landslides	9	12	10	2	2	6
Percent Reduction over current	0%	5%	5%	0%	5%	5%
Subtotal Small Management Sources	7	41	9	8	19	23
Percent Reduction over current	0%	32%	95%	0%	89%	70%
Total Management-Related	16	53	19	10	21	29
Percent Reduction over current	0%	27%	91%	0%	88%	65%
TMDL – ALL SOURCES	740	1,112	393	420	438	603
Percent Reduction over current	0%	2%	32%	0%	26%	8%
Percent Natural	98%	95%	95%	98%	95%	95%
Percent Management	2%	5%	5%	2%	5%	5%

Final Sediment WLA Specific to the Department

As discussed above, U.S. EPA did not assign a specific sediment WLA to the Department.

Final Sediment Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Sediment Contribution (relative contribution to pollutant loading)

U.S. EPA states that the Department's discharges of sediment, like other point sources of anthropogenic sediment discharges in this TMDL, are comparatively minor sources of this pollutant.

South Fork Eel River Temperature & Sediment TMDL, December 16, 1999

U.S. EPA's source analysis indicates that the sediment loading due to nonpoint erosion from roads and other anthropogenic activities accounts for a substantial portion of the total sediment loading in this watershed.

The waste load allocation for point sources are for sediment only, i.e., they are not directly related to the temperature portion of the TMDL, nor does U.S. EPA set a waste load allocation for point sources under the temperature portion of the TMDL. However, U.S. EPA also states that any improvements in stream temperature from reduced sedimentation contribute to the cumulative benefits of both sediment and temperature load reductions, and this assumption is accommodated in U.S. EPA's calculations for the margin of safety in this TMDL.

Final Sediment WLA

U.S. EPA set the wasteload allocation to zero because it found that there are no point sources of sediment in this watershed.

Final Sediment WLA Specific to the Department

As stated above, U.S. EPA states that there are no point source discharges of sediment within this TMDL, so the Department's wasteload allocation is set to zero.

Final Sediment Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Sediment Contribution (relative contribution to pollutant loading)

U.S. EPA states that there are no discharges from point sources within this TMDL, and because of this finding, the Department's potential contribution to anthropogenic sediment loading is insignificant.

Upper Main Eel River Temperature & Sediment TMDL, December 29, 2004**Final Sediment WLA**

For the sediment TMDL, U.S. EPA states that point sources are not significant, and sets the waste load allocation to zero.

Final Sediment WLA Specific to the Department

U.S. EPA views point source contributions to sediment loading in this TMDL, so the Department's wasteload allocation is set to zero.

Final Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Sediment Contribution (relative contribution to pollutant loading)

U.S. EPA considers all point sources of anthropogenic sediment loading to be insignificant for purposes of this TMDL.

Garcia River Sediment & Temperature TMDL, March 16, 1998**Final Sediment WLA**

The wasteload allocation is effectively set to zero for "controllable" anthropogenic discharges of sediment, including those associated with roads, since all controllable discharges of sediment from roadways are prohibited.

Final Sediment WLA Specific to the Department

Although not specifically included in this TMDL, the wasteload allocation for all "controllable" anthropogenic discharges of sediment from roadways is effectively set to zero.

Final Sediment Deadlines

The structure of this 2002 TMDL requires responsible parties to choose an option for controlling 'sediment delivery', and some 'due dates' have already passed, e.g., January 2005 was the deadline for the Long Term Road System Plan- it is unclear which option, if any, has been selected by the Department.

Department's Sediment Contribution (relative contribution to pollutant loading)

The Department's relative sediment pollutant loading is not known.

Gualala River Sediment & Temperature TMDL, November 29, 2004**Final Sediment WLA**

U.S. EPA set the wasteload allocation for sediment discharges to zero, noting that point sources of sediment pollution are insignificant within the area described in this TMDL.

Final Sediment WLA Specific to the Department

There is no wasteload allocation specifically assigned to the Department, but as mentioned above, U.S. EPA set these to zero because of their comparative insignificance as sources.

Final Sediment Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Sediment Contribution (relative contribution to pollutant loading)

Approximately three percent of the miles of roadways included within this TMDL are paved. The Department's potential contribution to pollutant loading is some unspecified fraction of the former, whereas logging road construction, logging road usage, and other activities associated with logging operations constitute the majority of anthropogenic sediment discharges. Due to its relative insignificance as a source of sediment pollution the Department's wasteload allocation is set to zero.

Klamath River in California Temperature, Dissolved Oxygen, Nutrients, and Microcystin TMDL, December 28, 2010
Final Nutrients WLA

Daily mass-based nutrient (total phosphorus and total nitrogen) and organic matter load allocations are assigned to segments of the Klamath River and its tributaries.

Source Area	Daily TP Load Allocations (lbs/day)	Daily TN Load Allocations (lbs/day)
Stateline	245+	3,139+
Upstream of Copco 1 Reservoir	(61)+	(330)+
Stateline to Iron Gate Dam inputs	22+	339+
Δ Iron Gate Hatchery	0+	0+
Tributaries between Iron Gate Dam and the Shasta River	49+	317+
Shasta River	75+	220+
Tributaries between Shasta River and Scott River	17+	97+
Scott River	87+	1,279+
Tributaries between Scott River and Salmon River	187+	1,050+
Salmon River	193+	1,583+
Tributaries between Salmon River and Trinity River	90+	504+
Trinity River	762+	5,783+
Tributaries between Trinity River and Turwar Creek	179+	1,004+
Total Maximum Daily Load	1,845	14,985

Final Nutrients WLA Specific to the Department

There are no WLAs that are assigned specifically to the Department. The Department is expected to address nutrient inputs into the Klamath River watershed through control of sediment from its road and highway facilities.

Final Nutrients Deadlines

There are no final deadlines for achievement of WLAs. However, the Department shall submit annual reports to the North Coast Regional Water Board documenting progress in implementing.

Department's Nutrients Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the nutrient pollutant loading is not known.

Lost River Nitrogen Biochemical Oxygen Demand to address Dissolved Oxygen and pH Impairments December 30, 2008

The Lower Lost River TMDL was developed by the North Coast Regional Water Quality Control Board and approved by U.S. Environmental Protection Agency (U.S. EPA) (regional board resolution number R1-2010-0026). It established TMDLs for Nitrogen and Biochemical Oxygen Demand to address Dissolved Oxygen and pH Impairments. The Lower Lost River TMDLs implementation plan which was established by U.S. EPA is included in the Klamath River TMDL. Both the Klamath River TMDL and the Lower Lost River TMDL were both approved on December 28, 2010.

Final Nitrogen WLAs

Segment	Total Dissolved Inorganic Nitrogen WLA (average kg/day)	Total Carbonaceous Biochemical Oxygen Demand (CBOD) (average kg/day)
Lost River from Border of Tule Lake Refuge	79.5	197.0
Tule Lake Refuge TMDLs	181.5	90.10
Lower Klamath Refuge TMDLs	76.2	889.9

Final Nitrogen WLAs Specific to the Department

Segment	Dissolved inorganic nitrogen, (average kg/day)	Carbonaceous Biochemical Oxygen Demand (CBOD) (average kg/day)
Lost River from border of Tule Lake Refuge	0.3	0.5
Tule Lake Refuge TMDLs	0.3	0.5
Lower Klamath Refuge TMDLs	0.3	0.5

Final Nitrogen Deadlines

There are no deadlines associated with these TMDLs.

Department's Nitrogen Contribution (relative contribution to pollutant loading)

Segment	Percentage of Total Dissolved Inorganic Nitrogen WLA	Percentage of Total Carbonaceous Biochemical Oxygen Demand (CBOD) WLA
Lost River from border of Tule Lake Refuge	100	100
Tule Lake Refuge TMDLs	3.0	10.1
Lower Klamath Refuge TMDLs	100	100

Mad River Sediment and Turbidity TMDL, December 21, 2007

U.S. EPA states that almost all sources of sediment in the Mad River watershed are from diffuse, nonpoint sources, including runoff from roads, timber operations, and natural background. In the Mad River basin, individual point sources are negligible sources of sediment and suspended sediment. To ensure protection of the cold water beneficial use, EPA has determined that it is appropriate to consider the rates set forth in these TMDLs as load allocations to also represent wasteload allocations for the *diffuse* discharges in the watershed that are subject to NPDES permits, as discussed below.

Final WLAs for Sediment and Turbidity

Wasteload allocations for diffuse, permitted point sources function similarly to and are represented by the nonpoint source load allocations, and wasteload allocations for permitted point sources are provided concentration-based wasteload allocations equivalent to what is included in the permits in order to account for incidental sediment and suspended sediment discharges. The TMDLs for sediment and turbidity include separate but identical load allocations for nonpoint sources and wasteload allocations for the diffuse point sources for each subarea. These WLAs are equivalent to and represented by the LAs, and the LAs are expressed on a unit loading basis (tons/mi²/year); therefore, they are not added to the LAs in the TMDL equation.

Table 20. Total Sediment Load Allocations Summary for the Mad River Watershed

Sediment Source	Average Annual		Average Daily		Percent Reduction over 1976 – 2006 Period
	1976 – 2006 Loading (tons/mi ² /yr)	Load Allocation (tons/mi ² /yr)	1976 – 2006 Loading (tons/mi ² /yr)	Load Allocation (tons/mi ² /yr)	
Natural Load Allocation	894	894	2.4	2.4	0%
Roads	Landslides	1,298			
	Surface	242			
Roads Subtotal	1,540	174	4.2	0.5	89%
Harvest	Landslide	38			
	Surface	2			

Sediment Source	Average Annual		Average Daily		Percent Reduction over 1976 – 2006 Period
	1976 – 2006 Loading (tons/mi ² /yr)	Load Allocation (tons/mi ² /yr)	1976 – 2006 Loading (tons/mi ² /yr)	Load Allocation (tons/mi ² /yr)	
Harvest Subtotal	40	5	0.1	0.01	89%
Total Human-related Load	1,580	179	4.3	0.5	89%
Total Load: All Sources	2,474	1,073	6.8	2.9	57%
Note: values have been rounded.					

Suspended sediment is estimated as a proportion of total sediment load, and the reductions for the suspended sediment load are shown in Table 21 (below). The reductions reflect similar priorities as for the total sediment load. Suspended sediment is estimated as a proportion of total sediment load, and the reductions for the suspended sediment load are shown in Table 21. The reductions reflect similar priorities as for the total sediment load.

Table 21. Suspended Sediment Load Allocations Summary for the Mad River Watershed

Sediment Source		Average Annual		Average Daily		Percent Reduction over 1976 – 2006 Period
		1976 – 2006 Loading (tons/mi ² /yr)	Load Allocation (tons/mi ² /yr)	1976 – 2006 Loading (tons/mi ² /yr)	Load Allocation (tons/mi ² /yr)	
Natural Load Allocation		809	809	2.2	2.2	0 %
Road	Landslides	1,174				
	Surface	219				
Roads Subtotal		1,393	158	3.8	0.4	89%
Harvest	Landslides	34				
	Surface	2				
Harvest Subtotal		36	4	0.1	0.01	89%
Total Human-related Load		1,430	162	3.9	0.4	89%
Total Load: All Sources		2,238	971	6.1	2.7	57%

Final WLAs for Sediment and Turbidity Specific to the Department

U.S. EPA grouped the Department’s discharges under its NPDES municipal storm water permit with other “diffuse” NPDES-permitted storm water discharges occurring in this TMDL. U.S. EPA’s source analysis did not distinguish between land areas subject to NPDES regulation and nonpoint sources of sediment and turbidity. U.S. EPA’s TMDLs thus include separate but identical load allocations (LAs) for nonpoint sources and wasteload allocations (WLAs) for the “diffuse” point sources for each subarea. These WLAs are equivalent to and

represented by the LAs, and the LAs are expressed on a unit loading basis (tons/mi²/year); therefore, they are not added to the LAs in the TMDL equation.

For the diffuse permitted sources such as the Department's discharges under its municipal storm water permit, the waste load allocation is expressed as equivalent to the load allocation for (all) roads. The load allocations for roads are listed in the tables given above.

U.S. EPA also states that the Regional Water Board may wish to refine these TMDLs and allocations further in the future.

Final Sediment and Turbidity Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Sediment and Turbidity Contribution

U.S. EPA states that non-NPDES nonpoint sources are responsible for nearly all sediment loading in the watershed, but does not estimate the Department's potential contribution to sediment and turbidity waste loading in this TMDL. Only six percent of the roads in this watershed are paved, and some unspecified portions of the latter are State highways.

Navarro River Sediment and Temperature TMDL, December 27, 2000

Final Sediment WLA

The Navarro River TMDLs for temperature and sediment are based on separate analyses. Reduced sediment loads could be expected to lead to increased frequency and depth of pools, and to reduced wetted channel width/depth ratios.

Final Sediment WLA Specific to the Department

The Department is not specifically mentioned as a source of pollutant loading for temperature and sediment, nor are any other point sources of these pollutants. The wasteload allocation for the Department is therefore presumed to be set to zero.

Final Sediment Deadlines

U.S. EPA did not specify deadlines for implementation of this TMDL.

Department's Sediment Contribution

As mentioned above, neither Department nor other point sources are identified as sources of pollutant loading for temperature or sediment, so U.S. EPA has determined that these potential sources are insignificant in this TMDL.

Noyo River Sediment TMDL, December 16, 1999

Final Sediment WLA

U.S. EPA apportioned the total load among several non-point sources of sediment, after accounting for background load. As a consequence, this TMDL does not include wasteload allocations for point sources.

Final Sediment WLA Specific to the Department

U.S. EPA did not specify deadlines for implementation of this TMDL.

Department's Sediment Contribution (relative to pollutant loading)

As stated above, U.S. EPA did not establish wasteload allocations for point sources of sediment.

Redwood Creek Sediment TMDL, U.S. EPA Established December 30, 1998

Final Sediment WLA

U.S. EPA did not establish wasteload allocations for point sources in this TMDL.

Final WLA

U.S. EPA established this TMDL on December 30, 1998 and it became effective immediately.

Final WLA Specific to the Department and the Department's Contribution

As stated above, U.S. EPA did not establish wasteload allocations for point sources of sediment.

Final Deadlines

U.S. EPA did not specify deadlines for implementation of this TMDL.

Department's Contribution (relative to pollutant loading)

The Department's contribution relative sediment pollutant loading is not known.

Scott River Sediment and Temperature TMDL, August 11, 2006

Final Sediment WLA

U.S. EPA states that there are no point sources of sediment and/or temperature related discharges within the area encompassed by this TMDL, so the wasteload allocation is set to zero.

Final Sediment WLA Specific to the Department

None.

Final Sediment Deadlines

U.S. EPA directed Regional Water Board staff to evaluate the Department's state-wide NPDES permit in the North Coast Region by September 8, 2008. The purpose of the evaluation was to determine the adequacy and effectiveness of the Department's storm water program in preventing and reducing elevated water temperatures in the North Coast Region, including the Scott River watershed.

Department's Sediment Contribution (relative to pollutant loading)

As noted above, U.S. EPA did not establish specific wasteload allocations for point sources, so the wasteload allocations are set to zero. The Department's point source contribution is therefore judged to be insignificant.

Ten Mile River Sediment TMDL, December 2000

Final Sediment WLA

U.S. EPA states that there are no point sources of sediment discharges within the area included within this TMDL: wasteload allocations are therefore set to zero.

Final Sediment WLA Specific to the Department

As stated above, U.S. EPA did not establish wasteload allocations for point sources such as the Department in this TMDL, so the wasteload allocations are set to zero.

Final Sediment Deadlines

U.S. EPA did not specify deadlines for implementation of this TMDL.

Department's Sediment Contribution (relative pollutant loading)

The Department's relative sediment contribution is judged to be insignificant.

Trinity River Sediment TMDL, December 20, 2001

Final Sediment WLA

U.S. EPA did not subdivide waste load and load allocations into specific sources such as roads and timber harvest, unlike several of its other sediment-related TMDLs in Region 1. U.S. EPA divided the basin into subareas because of the wide range of sediment delivery rates within each of the several subareas. U.S. EPA further states that although nonpoint sources are responsible for most sediment loading in the watershed, point sources also discharge some sediment.

The TMDL identified wasteload allocations for point sources and load allocations for nonpoint sources as pollutant loading rates (tons/square mile/year) for subareas within the Trinity Basin. The source analysis supporting these allocations evaluated sediment loading at a subarea scale, and did not attempt to distinguish sediment loading at the scale of specific land ownership, nor did the source analysis specifically distinguish between land areas subject to NPDES regulation and land areas not subject to NPDES regulation. As a

consequence, the TMDL includes separate but identical load allocations for nonpoint sources and wasteload allocations for point sources for each subarea. The joint LA/WLA's for each subarea are given in the following tables:

Table 5-2. TMDL and Allocations by Source Category for Upper Area

Source Categories		Subareas within the Upper Assessment Area				
		Reference Subwatersheds ¹	Westside Tributaries ²	Upper Trinity ³	East Fork Tributaries ⁴	East Side Tributaries ⁵
Current Sediment Delivery Rate						
Background (non-management)		1,125	421	2,759	258	241
Management	Roads	129	101	162	319	48
	Timber Harvest	240	31	1,084	46	22
	Legacy (Roads, Mining)	7	25	21	26	96
	Total Mgmt.	376	157	1,267	391	96
Total Sediment Delivery		1,051	578	4,026	649	337
Total as percent of background		133%	137%	146%	252%	140%
Loading Capacity (TMDL) and Allocations (tons/mi²/yr)						
TMDL (= 1.25 X Background)		1,406	526	3,449	323	301
Background Allocation		1,125	421	2,759	258	241
Total Management Allocation (= TMDL – Background)		281	105	690	65	60
Percent reduction needed in management to attain TMDL		25%	33%	46%	83%	37%
<ol style="list-style-type: none"> 1. Stuarts Fork, Swift Creek, Coffee Creek 2. Stuart Arm Area, Stoney Creek, Mule Creek, East Fork Stuart Fork, West Side Trinity Lake, Hatchet Creek, Buckeye Creek; 3. Upper Trinity River, Tangle Blue, Sunflower, Graves, Bear Upper Trinity Mainstem Area, Ramshorn Creek, Ripple Creek, Minnehaha Creek, Snowside Gulch Area, Scorpion Creek 4. East Fork Trinity, Cedar Creek, Squirrel Gulch Area 5. East Side Tributaries, Trinity Lake 						

Table 5.3 TMDL and Allocations by Source Category for Upper Middle Area

Source Categories	Subareas within the Upper Assessment Area						
	Weaver and Rush Creeks (72 mi ²)	Deadwood Creek, Hoadley Gulch and Poker Bar Area (47 mi ²)	Lewiston Lake Area (25 mi ²)	Grass Valley Creek ¹ (37 mi ²)	Indian Creek (34 mi ²)	Reading and Brown Creek (104 mi ²)	
Current Sediment Delivery Rates (tons/mi²/yr)							
Background (non-management)	675	273	195	175	324	263	
Management	Roads	144	220	83	287	1,570	125
	Timber Harvest	61	280	37	1,136	330	204
	Legacy (Roads, Mining)	81	62	69	65	68	42
	Total Mgmt.	286	562	189	1,488	1,968	372
Total Sediment Delivery	961	835	384	1,663	2,292	635	
Total as percent of background	142%	305%	197%	950%	707%	241%	
Loading Capacity (TMDL) and Allocations (tons/mi²/yr)							
TMDL (= 1.25 X Background)	844	341	244	219	405	329	
Background Allocation	675	273	195	175	324	263	
Total Management Allocation (= TMDL – Background)	169	68	49	44	81	66	
Percent reduction needed in management to attain TMDL	41%	88%	74%	97%	96%	82%	
1. The rates in Grass Valley Creek do not account for the amount of sediment trapped by Buckhorn Dam and Hamilton Ponds.							

Table 5.4 TMDL and Allocations by Source Category for Lower Middle Assessment Area

Source Categories		Subareas within the Lower Middle Assessment Area				
		Reference Subwatersheds ¹ (434 mi ²)	Canyon Creek (64 mi ²)	Upper Tributaries ² (72 mi ²)	Middle Tributaries ³ (54 mi ²)	Lower Tributaries ² (96 mi ²)
Current Sediment Delivery Rates (tons/mi²/yr)						
Background (non-management)		1,568	1,302	268	210	221
Management	Roads	11	2,482	60	37	41
	Timber Harvest	4	4	29	16	20
	Legacy (Roads, mining)	9	17	46	28	29
	Total Mgmt.	24	2,503	135	81	90
Total Sediment Delivery		1,592	3,805	403	291	311
Total as percent of background		102%	292%	150%	139%	141%
Loading Capacity (TMDL) and Allocations (tons/mi²/yr)						
TMDL (= 1.25 X Background)		1,592	1,628	335	263	276
Background Allocation		1,568	1,302	268	210	221
Total Management Allocation (= TMDL – Background)		24	326	67	53	55
Percent reduction needed in management to attain TMDL		0	87%	50%	35%	39%
1. New River, Big French, Manzanita, North Fork, East Fork North Fork. 2. Dutch, Soldier, Oregon Gulch, Conner Creek Area. 3. Big Bar Area, Prairie Creek, Little French Creek. 4. Swede, Italian, Canadian, Cedar Flat, Mill, McDonald, Hennessy, Quinby Creek Area, Hawkins, Sharber.						

Table 5.5. TMDL and Allocations by Source Category for Lower Assessment Area

Source Categories	Subareas within the Lower Assessment Area. Outside of Hoopa Valley Tribe Reservation Boundaries					
	Reference Subwatersheds Horse Linto Creek: 64 mi ²)	Mill Creek and Tish Tang (39mi ²)	Willow Creek (43 mi ²)	Campbell Creek and Supply Creek (11 mi ²)	Lower Mainstem Area and Coon Creek (32mi ²)	
Current Sediment Delivery Rates (tons/mi²/yr)						
Background (non-management)	2,110	839	374	7,845	252	
Management	Roads	483	703	854	14,349	76
	Timber Harvest	87	83	201	785	15
	Legacy (Roads, Mining)	26	26	26	26	22
	Total Mgmt.	596	812	1,081	15,160	113
Total Sediment Delivery	2,706	1,651	1,455	23,005	365	
Total as percent of background	128%	197%	389%	293%	145%	
Loading Capacity (TMDL) and Allocations (tons/mi²/yr)						
TMDL (= 1.25 X Background)	2,638	1,049	468	9,806	315	
Background Allocation	2,110	839	374	7,845	245	
Total Management Allocation (= TMDL – Background)	528	210	94	1,961	63	
Percent reduction needed in management to attain TMDL	11%	74%	91%	87%	44%	
Note: Since Background rates for Lower Mainstem Area and Coon Creek were not available from GMA (2001), U.S. EPA used the same rate as was calculated for the Quinby Creek Area is comparable in size and underlain by the same geology type (Galice Formation).						

Final Sediment Deadlines

U.S. EPA did not specify deadlines for implementation.

Final Sediment WLA Specific to the Department

U.S. EPA issued joint LAs and WLA's, as noted above, so source-specific wasteload allocations were not developed for this TMDL.

Department's Sediment Contribution (relative pollutant loading)

It is not possible to estimate the Department's point source contribution from the source analysis developed by U.S. EPA.

South Fork Trinity River Watershed Sediment Total Maximum Daily Load (U.S. EPA, 1998)

Final Sediment WLA

U.S. EPA states that there are no point source discharges, and set the waste load allocation to zero.

Final Sediment WLA Specific to the Department

There is no waste load allocation for the Department's discharges. In keeping with U.S. EPA's rationale, this means that the waste load allocation for the Department's sediment discharges is zero.

Final Deadlines

No deadlines were specified.

Department's Pollutant Contribution

The Department is mentioned as a possible source of sediment discharges, but the relative contribution of its potential discharges were not measured or estimated. The State highways it mentions in the geographic area included in the TMDL are portions of Highways 36 and 101.

Van Duzen River Watershed Sediment Total Maximum Daily Load (U.S. EPA, 1999)

Final Sediment WLA

U.S. EPA states that there are no point source discharges, and set the waste load allocation to zero.

Final Sediment WLA Specific to the Department

There is no waste load allocation for the Department's discharges. In keeping with U.S. EPA's rationale, this means that the waste load allocation for the Department's sediment discharges is zero.

Final Sediment TMDL Deadlines

No deadlines were specified.

Department's Pollutant Contribution

The Department is mentioned as a possible source of sediment discharges, but the relative contribution of its potential discharges were not measured or estimated. The State highways it mentions in the geographic area included in the TMDL are portions of Highways 3, 36, and 299.

SAN FRANCISCO BAY REGION SEDIMENT AND MERCURY TMDLS

Napa River Sediment TMDL, January 20, 2011

Final Sediment WLA

The wasteload allocations are listed in the following table:

Point Source Category	Current Load		Reduction Needed (percentage)	Wasteload Allocations	
	Metric (Tons/year)	Percentage of Natural Background		Metric (Tons/year)	Percent of Natural Background
Construction Storm Water Order No. 99-08-DWQ	500	0.3	0	500	.03
Municipal Storm Water NPDES Permit No. CAS000001	800	0.5	0	800	0.5
Industrial Storm Water NPDES Permit No. CAS000001	500	0.3	0	500	0.3
Department Storm Water-Order No. 99-06-DWQ	600	0.4	0	600	0.4
Wastewater Treatment Plant Discharges^a					
City of St. Helena NPDES Permit No. CA0038016	30	<0.1	0	30	<0.1
Town of Yountville/CA Veteran's Home NPDES Permit No. CA0038121	30	<0.1	0	30	<0.1
City of Calistoga NPDES Permit No. CA0037966	40	<0.1	0	40	<0.1
TOTAL	2,500	2		2,500	2

a. For wastewater treatment plant discharges, compliance with existing permit effluent limit of 30 mg/L of TSS is consistent with these wasteload allocations.

Note: Above estimates for loads, percent reductions, and allocations are rounded to two significant figures.

Final Sediment WLA Specific to the Department

The Department's wasteload allocation is 600 metric tons/year.

Final Sediment Deadlines

The Department is deemed to be implementing appropriate control measures if it discharges in compliance with its municipal storm water permit, and if it conducts the monitoring program included in its storm water permit.

Department's Sediment Contribution (relative to pollutant loading)

The Regional Water Board indicates that the Department is a fairly minor anthropogenic source of sediment discharges, and attributes its current discharges to only 0.4% of natural background loading. As a consequence, the Regional Water Board has determined that compliance with its NPDES permit will enable the Department to meet its sediment wasteload allocation.

Sonoma Creek Sediment TMDL, September 8, 2010

Final WLA

Although roadways are cited as a major source of sediment loading in the Sonoma Creek watershed, the Regional Water Board has determined that compliance with its NPDES permit for storm water will enable the Department to meet its wasteload allocation for sediment.

Final Sediment WLA Specific to the Department

The Department's wasteload allocation is 100 tons/year, which is its current (2005) estimated annual discharge of sediment within the area encompassed by this TMDL.

Final Sediment Deadlines

In collaboration with stakeholders in the watershed, Water Board staff will develop a detailed monitoring program to assess progress of TMDL attainment and provide a basis for reviewing and revising TMDL elements or implementation actions. As an initial milestone, by fall 2011, the Regional Water Board and watershed partners were required to complete monitoring plans to evaluate: a) attainment of water quality targets; and b) suspended sediment and turbidity conditions. Initial data collection, based on the protocols established in these monitoring plans was anticipated to begin in the winter of 2011-2012.

Department's Sediment Contribution (relative to pollutant loading)

The Regional Water Board estimates that the Department's point source discharges of sediment constitute approximately 8% of total point sources discharges of sediment.

San Francisco Bay Mercury TMDL, February 12, 2008

The San Francisco Bay Mercury TMDL was adopted by the San Francisco Bay Regional Water Quality Control Board as Resolution Number R2-2006-0052 on August 9, 2006. It was approved by U.S. EPA on February 12, 2008.

Final Mercury WLA

There are no WLAs specific to the Department. Instead, the Department's WLA is an unspecified portion of the WLA assigned to the city or municipal NPDES permit in which the Department's roads or facilities reside.

Final Mercury WLA Specific to the Department

No deadlines specified.

Final Mercury Deadlines

The WLAs must be attained by February 12, 2028.

Department's Mercury Contribution (relative contribution to pollutant loading)

The Department's contribution is unknown.

CENTRAL COAST SEDIMENT TMDLS

Although roadways are cited as a major source of sediment loading in some Central Coast watersheds, the Central Coast Regional Water Board has determined that compliance with the Department's NPDES permit will meet the Department's wasteload allocation.

***San Lorenzo River (includes Carbonera Lompico, and Shingle Mill Creeks)
Sediment TMDL, February 19, 2004***

Final Sediment WLA

The sediment load to the San Lorenzo River derives from both nonpoint sources and point sources. The TMDL combines nonpoint source LAs and point source WLAs for each segment of this TMDL, as specified in the following table:

Sediment Source Category	Allocation (tons/year)			
	Shingle Mill Creek	Carbonera Creek	Lompico Creek	San Lorenzo River
Upland Timber Harvest Plan (THP) Roads	0	419	362	25,215
Streamside THP Roads on Steep Slopes	0	182	164	10,949
Upland Public/ Private Roads	146	1,235	367	13,835
Streamside Public/Private Roads on Steep Slopes	77	135	239	6,178

Sediment Source Category	Allocation (tons/year)			
	Shingle Mill Creek	Carbonera Creek	Lompico Creek	San Lorenzo River
THP Land	0	23	16	1,057
Other Urban and Rural Land	310	2,622	965	43,368
Mass Wasting	0	4,082	6,440	157,388
Channel/Bank Erosion	324	3,030	989	48,149
Total Allocation = TMDL³	857	11,728	9,542	306,139

Note:

³ The term "TMDL" is used here for familiarity. The allowable loads for the San Lorenzo River and its tributaries are actually expressed as a Total Annual Loads (tons/year). This expression of load accounts for seasonal variation in sediment loads explained by the seasonality of rainfall in this region of the Central Coast.

Final Sediment WLA Specific to the Department

As stated above, no specific waste load allocation was assigned to the Department.

Final Sediment Deadlines

Compliance with its municipal storm water permit is deemed to be sufficient to meet the Department's waste load allocation for sediment.

Department's Sediment Contribution (relative contribution to pollutant loading)

This TMDL does not estimate the relative contribution of the Department's roadways/facilities to sediment discharges, but this source appears to be moderate based on this TMDL's source analysis.

Morro Bay (includes Chorro Creek, Los Osos Creek, and the Morro Bay Estuary) Sediment TMDL, January 20, 2004

Final WLA

The sediment load to Morro Bay, Los Osos Creek and Chorro Creek derives from both nonpoint sources and point sources. The TMDL combines nonpoint source LAs and point source WLAs for each segment of this TMDL, as specified in the following table:

Final Sediment WLA Specific to the Department

Loading Allocations (TMDL expressed as annual load)	Watershed	Total (Tons/Yr) Rounded to the nearest ton
	Chorro Creek at Reservoir	6,541
	Dairy Creek	440
	Pennington Creek	966
	San Luisito Creek	7,315
	San Bernardo Creek	10,269
	Minor Tributaries	4,489
	Chorro Creek (Subtotal)	30,020
	Los Osos Creek	3,052
	Warden Creek and Tributaries	1,812
	Los Osos Creek (Subtotal)	4,864
	Morro Bay Watershed (Total)	34,885

Final Sediment WLA Specific to the Department

Although no specific wasteload allocation was assigned to the Department, this TMDL states that discharges which are in compliance with their respective storm water (and other) NPDES permits are meeting their portion of shared responsibility for achieving sediment load reduction.

Final Sediment Deadlines

Implementation will rely on the State's Plan for NPS pollution control (CWC §13369) and continued implementation of existing regulatory controls as appropriate for point sources, including storm water pursuant to NPDES surface water discharge regulations and Waste Discharge Requirements under Porter-Cologne. Final compliance with sediment load reductions is scheduled to be achieved by 2054 (50 years from the adoption of the TMDL).

Department's Sediment Contribution (relative contribution to pollutant loading)

The Department's contribution to sediment loading was not estimated in this TMDL.

LOS ANGELES REGION SEDIMENT/NUTRIENTS/MERCURY TMDLS

Department's Pollution Contribution:

Although roadways are cited as a major source of sediment loading in some watersheds, for purposes of current sediment-related TMDLs, the Los Angeles Regional Water Board has determined that compliance with its NPDES permit will meet the Department's wasteload allocations for sediment.

**Ballona Creek Wetlands Sediment and Invasive Exotic Vegetation TMDLs,
March 26, 2012**

Final Sediment WLA

U.S. EPA established wasteload allocations (WLAs) for sediment to address the impairments identified for the Ballona Creek Wetlands. WLAs are assigned to the Los Angeles County MS4 and their co-permittees, and the Department, who are responsible for the loading of sediment into Ballona Creek Wetlands. The WLAs are the total allowable sediment load that can be discharged into Ballona Creek Wetlands. This total sediment load includes both suspended sediment and sediment bed load that are transported from Ballona Creek Watershed into Ballona Creek Wetlands. Invasive exotic vegetation listed on the California Noxious Weed list are given a WLA and LA of zero.

Since the current existing discharge of sediment load is not contributing to the listed impairments or otherwise causing a negative impact to Ballona Creek Wetlands, this TMDL establishes joint WLAs based on existing conditions. The allowable WLA is set at 58,354 yd³/yr (or 44,615 m³/yr). The joint wasteload allocation is as follows:

Responsible Jurisdiction	Input	Sediment Wasteload Allocation ¹ (yd ³ /yr)	Existing Total Sediment Load (yd ³ /yr)
Los Angeles County MS4 , Co-Permittees & Department	Ballona Creek Watershed	58,354	58,354

Final Sediment WLA Specific to the Department

As stated above, there is no WLA specific to the Department. The joint point source WLA is 58,354 cubic yards of sediment per year, which is equivalent to the current estimated total sediment loading contributed by these sources.

Final Sediment Deadlines

U.S. EPA did not specify deadlines for implementation of this TMDL.

Department’s Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to anthropogenic sediment loading is not estimated or quantified in this TMDL. However, the joint WLAs are set to the current estimated sediment discharges, which the Department can meet through compliance with its NPDES municipal storm water permit.

Calleguas Creek and its Tributaries & Mugu Lagoon Metals (including Mercury) and Selenium TMDL, March 26, 2007

Final Mercury WLA

The Department shares group mass-based WLAs for mercury for Calleguas Creek and Revolon Slough with other Permitted Storm water Dischargers (PSDs). Final WLAs are mass-based and are dependent upon annual flow ranges.

Final Mass-based WLAs for Annual Flow Ranges, Mercury in Suspended Sediment

Flow Range, Millions of Gallons per Year	Calleguas Creek (lbs/yr)	Revolon Slough (lbs/yr)
0-15,000 MGY	0.4	0.1
15,000-25,000 MGY	1.6	0.7
Above 25,000 MGY	9.3	1.8

Final Mercury WLA Specific to the Department

There is no specific allocation for the Department.

Final Mercury Deadlines

The final WLAs must be achieved within 15 years after the effective date of the amendment, or March 26, 2022.

Department’s Mercury Contribution (relative contribution to pollutant loading)

The Department’s areal proportion of the watershed is not known.

The Los Angeles Area Lakes and Reservoir

TMDLs specific to the Department include targets for the following lakes:

- Echo Park Lake: nitrogen phosphorus, chlordane, dieldrin, PCBs, and trash
- Lake Sherwood: mercury
- Legg Lakes (North, Center and Legg): nitrogen and phosphorus
- Peck Road Park Lake: nitrogen and phosphorus
- Puddingstone Reservoir: nitrogen, phosphorus, chlordane, DDT, PCBs, Hg, and Dieldrin

Wasteload allocations were assigned to responsible jurisdictions based on existing loading of nitrogen and phosphorus to each lake. To allow flexibility in implementing the nutrient TMDLs, responsible jurisdictions receiving required reductions have the option to submit a request to the Regional Board for alternative concentration-based wasteload allocations. These jurisdictions can receive alternative concentration-based wasteload allocations not to exceed 1.0 and 0.1 milligrams per liter total nitrogen and total phosphorus, respectively.

During wet weather, runoff from industrial sites has the potential to contribute pollutant loadings. During dry weather, the potential contribution of pollutant loadings from industrial storm water is low because non-storm water discharges are prohibited or authorized by the

permit only under the following circumstances: when they do not contain significant quantities of pollutants, where Best Management Practices are in place to minimize contact with significant materials and reduce flow, and when they are in compliance with Regional Board and local agency requirements.

Los Angeles Area (Echo Park Lake) Total Nitrogen, Total Phosphorus, Chlordane, Dieldrin, PCBs, and Trash TMDLs, March 26, 2012)

Final Nutrient WLAs

	Total Phosphorus, (lbs/year)	Total Nitrogen, (lbs/year)
TOTAL	83.3	682

Final Nutrient WLAs Specific to the Department

Subwatershed	Total Phosphorus, (lbs/year)	Total Nitrogen, (lbs/year)
Northern	0.608	4.77
Southern	0.051	0.403

Final Nutrient Deadlines

There are no final deadlines specified for the Department.

Department's Nutrient Contributions (relative contribution to pollutant loading)

Subwatershed	Percentage of the Total Phosphorus Load	Percentage of the Total Nitrogen Load
Northern	0.6 %	0.7 %
Southern	0.05 %	0.06 %

Los Angeles Area (North, Center & Legg Lakes) Nitrogen and Phosphorus, TMDLs, March 26, 2012

Final Nutrient WLA Nitrogen & Phosphorous TMDLs

	Total Phosphorus (lbs/year)	Total Nitrogen (lbs/year)
TOTAL	1,541	9,135

Final WLAs Specific to the Department

Subwatershed	Total Phosphorus, (lbs/year)	Total Nitrogen, (lbs/year)
Direct to Center Lake	4.6	15.5
Direct to Legg Lake	1.2	4.0
Direct to North Lake	19.1	64.1
Northwestern	9.4	29.3
Northeastern	10.9	34.0

Alternative concentration-based WLAs are available to the Department if it satisfies certain criteria as detailed in the TMDL. Those WLAs are:

Subwatershed	Maximum Allowable WLA for Total Phosphorus (mg/L)	Maximum Allowable WLA for Total Nitrogen (mg/L)
Direct to Center Lake	0.1	1.0
Direct to Legg Lake	0.1	1.0
Direct to North Lake	0.1	1.0
Northwestern	0.1	1.0
Northeastern	0.1	1.0

Final Nutrient Deadlines

There are no final deadlines specified for the Department.

Department's Nutrient Contribution (relative contribution to pollutant loading)

Subwatershed	Percentage of the Total Phosphorus Load	Percentage of the Total Nitrogen Load
Direct to Center Lake	0.2 %	0.2 %
Direct to Legg Lake	0.1 %	<0.1 %
Direct to North Lake	1.0 %	0.6 %
Northwestern	0.5 %	0.3 %
Northeastern	0.6 %	0.3 %

Los Angeles Area (Peck Road Park Lake) Nitrogen, Phosphorus, Chlordane, DDT, Dieldrin, PCBs, and Trash TMDLs, March 26, 2012

Final Nutrient WLAs

	Total Phosphorus (lbs/year)	Total Nitrogen (lbs/year)
TOTAL	19,319	186,845

Final Nitrogen & Phosphorus WLA Specific to the Department

Subwatershed	Total Phosphorus (lbs/year)	Total Nitrogen (lbs/year)
Eastern	158	1,165
Western	34.2	251

Final Nutrient Deadlines

There are no final deadlines specified for the Department.

Department's Nutrient Contribution (relative contribution to pollutant loading)

Subwatershed	Percentage of the Total Phosphorus Load	Percentage of the Total Nitrogen Load
Eastern	0.8 %	0.6 %
Western	0.2 %	0.1 %

Los Angeles Area (Puddingstone Reservoir) Nitrogen, Phosphorus, Chlordane, DDT, PCBs, Mercury, and Dieldrin TMDLs, March 26, 2012

Final Nutrient WLAs for Puddingstone Reservoir

Final Nitrogen and Phosphorus WLAs

	Total Phosphorus (lbs/year)	Total Nitrogen (lbs/year)
TOTAL	4,226	18,756

Final Nitrogen, Phosphorus WLAs Specific to the Department

Subwatershed	Total Phosphorus (lbs/year)	Total Nitrogen (lbs/year)
Northern	167	745
Southern	14.8	68.2

Alternative concentration-based WLAs are available to the Department if it satisfies certain criteria as detailed in the TMDL. Those WLAs are:

Subwatershed	Maximum Allowable WLA for Total Phosphorus (mg/L)	Maximum Allowable WLA for Total Nitrogen (mg/L)
Northern	0.1	1.0
Direct Southern	0.1	1.0

Final Nutrient Deadlines

There are no final deadlines specified for the Department.

Department's Nutrient Contribution (relative contribution to pollutant loading)

Subwatershed	Percentage of the Total Phosphorus Load	Percentage of the Total Nitrogen Load
Northern	3.6 %	3.4 %
Southern	0.3 %	0.3 %

Final Mercury WLA for Puddingstone Reservoir

Final Waste Load Allocations are assigned to the Department for sub-watersheds for Puddingstone Reservoir, and must be met at the Department's discharge points.

Final Mercury WLA for Puddingstone Reservoir Specific to the Department

Mercury WLAs for Puddingstone Reservoir

Subwatershed	Area (ac)	Existing Annual Hg Load (g/yr)	Percent of Load	Final Wasteload Allocation (g/yr)
Puddingstone-Northern	110	1.32	1.85	0.702
Puddingstone-Southern	11.6	0.0960	0.13	0.051

Fish Harbor is impaired for mercury in sediment. The Department is named as a responsible party for WLAs to Fish Harbor. The final concentration-based WLA for sediment in Fish Harbor is 0.15 mg per kilogram of dry sediment.

Final Mercury Deadlines for Puddingstone Reservoir

The Department is subject to the prescribed point source interim WLAs which are effective as of March 23, 2012. Compliance with all final WLAs is required by March 23, 2032.

Department's Mercury Contribution for Puddingstone Reservoir (relative contribution to pollutant loading)

Subwatershed	Annual Hg Load (g/yr)	Percent of Total Load
Northern	1.32	1.85
Southern	0.096	0.13
Total	1.42	1.99

Los Angeles Area (Lake Sherwood) Mercury TMDL, March 26, 2012

Final Mercury WLA

Final waste load allocations are assigned to the Department for one sub-watershed, Lake Sherwood, and must be met at the Department's discharge points.

Final Mercury WLA Specific to the Department

Mercury WLAs for Lake Sherwood

Subwatershed	Area (ac)	Existing Annual Hg Load (g/yr)	Percent of Load	Final Wasteload Allocation (g/yr)
Carlisle Canyon	2.75	0.049	0.12	0.014

Final Mercury Deadlines

There are no final deadlines specified for the Department.

Department's Mercury Contribution (relative contribution to pollutant loading)

Subwatershed	Annual Hg Load (g/yr)	Percent of Total Load
Carlisle Canyon	0.049	0.12
Entire Watershed	0.049	0.001

Machado Lake Eutrophic, Algae, Ammonia, and Odors (Nutrients), March 11, 2009

Final Nutrients WLA

Final concentration-based Waste Load Allocations are established for total phosphorus and total nitrogen (defined as the sum of the concentrations of Total Kjeldhal Nitrogen, Nitrate as N, and Nitrite as N). For most storm water permittees, the final WLA for total phosphorus is 0.1 mg/L. For total nitrogen, the final WLA is 1.0 mg/L.

Final Nutrients WLA Specific to the Department

For the Department, the final WLA for total phosphorus is 0.1 mg/L. For total nitrogen, the final WLA is 1.0 mg/L.

Final Nutrients Deadlines

The Department must achieve its final WLAs by September 11, 2018.

Department's Nutrients Contribution (relative contribution to pollutant loading)

The Department's contribution to the overall loading is not defined in the TMDL. The draft Machado Lake Nutrients TMDL Implementation Plan, submitted on March 11, 2011 by the Department states that the Department's roadways and facilities comprise approximately 1.2 percent of the Machado Lake Watershed.

Malibu Creek & Lagoon TMDL for Sedimentation and Nutrients, July 2, 2013

Sediment loading into Malibu Lagoon is much higher than naturally expected. The excess sediment accumulates in the Lagoon tidal channels and carries greater nutrient loads and cause algae blooms with likely adverse impacts on benthic macroinvertebrates.

Final Sedimentation WLA

Allocations for Sedimentation as listed in Table 10-2. (Based on SCAG 2008 land use and Jurisdictional maps provided by MS4 Co-permittees.)

Type of Allocation	Responsible Party	Impervious Area (total acres)	Pervious Area (acres)	Allocation Fraction	Sedimentation Allocation (tons/yr)
WLA	WLA Los Angeles Co. below	887	10,612	17.4%	1,012
WLA	Department below Malibou Lake	60	61	0.8%	44
LA	Unincorporated area draining to Las Virgenes Creek**	8	267	0.3%	16
LA	Protected land below Malibou Lake*	253	16,820	13.7	796
LA	Load Allocation at outlet of Malibou Lake	3,669	37,550	67.9%	3,950
Total		4,878	65,310	100.0 %	5,817

Final Sedimentation WLA Specific to the Department

See Table 10-2 above for the Department's below Malibou Lake.

Final Sedimentation Deadlines

U.S. EPA did not develop final deadlines for this TMDL.

Department's Sedimentation Contribution (relative contribution to pollutant loading)

See the Department's Nutrients Contribution below.

Final Nutrients WLA

There are no total final WLAs for Malibu Creek and Lagoon. Below are the concentration-based numeric targets as listed in Table 10-4 of this TMDL.

Season	Total Nitrogen (mg/l)	Total Phosphorus (mg/l)
Summer (Apr 15 – Nov 15)	0.65	0.1
Winter (Nov 16 - Apr 14)	1.0	0.2

Final Nutrients WLA Specific to the Department

Final WLAs are established Total Nitrogen (TN) and Total Phosphorus (TP) for summer and winter as listed in Table 10-4 of this TMDL.

Summer TN, mg/l (Apr 15 – Nov 15)	Winter TN, mg/l (Nov 16 – Apr 14)	Summer TP, mg/l (Apr 15 – Nov 15)	Winter TP, mg/l (Nov 16 – Apr 14)
1.0	4.0	0.1	0.2

Final Nutrients Deadlines

EPA did not develop final deadlines for this TMDL.

Department's Nutrients Contribution (relative contribution to pollutant loading)

The Department's total area within the watershed is 206 acres, of a total of 65,310 acres or 0.317% of the total watershed.

The Department's contribution to the nutrient loads is not specified in the TMDL, but it can be assumed that the contribution is nearly the same as the allocation fraction for sediment in Table 10-2, at 0.8%. Multiplying the monthly watershed loads for winter and summer from Tables 5-3 and 5-4, respectively, by the Department's allocation fraction provides an approximation of the Department's total contribution to the monthly load.

Source	Summer TN Load kg/mo (Apr 15 – Nov 15)	Winter TN Load kg/mo (Nov 16 – Apr 14)	Summer TP Load kg/mo (Apr 15 – Nov 15)	Winter TP Load kg/mo (Nov 16 – Apr 14)
Total Load	789	20,442	140	2,842
Department Runoff (estimate based on area)	6.31	164	1.12	22.7

Ventura River and its Tributaries Algae, Eutrophic Conditions, and Nutrients TMDL, June 28, 2013

This TMDL establishes dry-weather and wet-weather WLAs for nitrogen and a dry-weather TMDL for phosphorus.

Final Nutrients WLA

The final dry-weather Total Nitrogen and Total Phosphorus loads are not explicitly stated in the TMDL.

Final Nutrients WLA Specific to the Department

The final total dry-weather total nitrogen WLA for the Department is 1.1 pound/day. The final dry-weather total phosphorus WLA for the Department is 0.11 pound/day.

Wet-weather allocations for “nitrogen”, defined as the sum of Nitrate-N and Nitrite-N, are the same for all storm water dischargers and are site-specific to the reaches of the watershed:

Reach	Nitrate-N + Nitrite-N (mg/L)
Estuary	7.4
Reach 1	7.4
Reach 2	10
Cañada Larga	10
Reach 3	5
San Antonio Creek	5
Reach 4	5
Reach 5	5

Final Nutrients Deadlines

Wet-weather WLAs for the Department apply on the effective date of the TMDL. Dry-weather WLAs for the Department must be achieved by June 28, 2019.

Department’s Nutrients Contribution

The Department’s proportional contributions to the final WLAs are estimated to be approximately 1 percent each.

CENTRAL VALLEY REGION NUTRIENTS AND MERCURY TMDLS***Clear Lake Nutrients TMDL, September 21, 2007*****Final Nutrients WLA**

The final WLA for phosphorus for Clear Lake is 2100 kg per year.

Final Nutrients WLA Specific to the Department

The Department is given a final WLA for phosphorus of 100 kg per year.

Final Nutrients Deadlines

The Department shall achieve its WLAs by September 21, 2017.

Department’s Nutrients Contribution (relative contribution to pollutant loading)

The Department contributes 4.8 percent to the final phosphorus WLA.

**Cache Creek, Bear Creek, Sulphur Creek and Harley Gulch Mercury TMDL,
February 7, 2011**

Final Methylmercury WLA

Implementation Summary Cache Creek and Bear Creek Methylmercury Allocations

Source	Acceptable Annual Load (g/yr)
Cache Creek (Clear Lake to North Fork Confluence)	11
North Fork Cache Creek	12.4
Harley Gulch	0.04
Davis Creek	0.7
Bear Creek @ Highway 20	3
In-channel production and un-gauged tributaries	32
Bear Creek @ Bear Valley Road	0.9
Sulphur Creek	0.8
In-channel production and un-gauged tributaries	1

Final Mercury WLA Specific to the Department

No specific WLA assigned to the Department.

Final Mercury Deadlines

None specified.

Department's Mercury Contribution (relative contribution to pollutant loading)

The Department's relative contribution to pollutant loading is not known.

**Sacramento-San Joaquin River Delta Estuary Methylmercury TMDL,
October 20, 2011**

Final Methylmercury WLA

Delta Methylmercury Allocations

Permittee	NPDES Permit	Waste Load Allocation (g/yr)
Central Delta		
County of Contra Costa	CAS083313	0.75
City of Lodi	CAS000004	0.053
Port of Stockton MS4	CAS084077	0.39
County of San Joaquin	CAS000004	0.57
Stockton Area MS4	CAS083470	3.6
SUBTOTAL		5.4
Marsh Creek		
County of Contra Costa	CAS083313	0.30
SUBTOTAL		0.30
Mokelumne River		

Permittee	NPDES Permit	Waste Load Allocation (g/yr)
County of San Joaquin	CAS000004	0.016
<i>SUBTOTAL</i>		<i>0.016</i>
Sacramento River		
City of Rio Vista	CAS000004	0.0078
Sacramento Area MS4	CAS082597	1.0
County of San Joaquin	CAS000004	0.11
County of Solano	CAS000004	0.041
City of West Sacramento	CAS000004	0.36
County of Yolo	CAS000004	0.041
<i>SUBTOTAL</i>		<i>1.6</i>
San Joaquin River		
City of Lathrop	CAS000004	0.097
Port of Stockton MS4	CAS084077	0.0036
County of San Joaquin	CAS000004	0.79
Stockton Area MS4	CAS083470	0.18
City of Tracy	CAS000004	0.65
<i>SUBTOTAL</i>		<i>1.7</i>
West Delta		
County of Contra Costa	CAS083313	3.2
<i>SUBTOTAL</i>		<i>3.2</i>
Yolo Bypass		
County of Solano	CAS000004	0.021
City of West Sacramento	CAS000004	0.28
County of Yolo	CAS000004	0.083
<i>SUBTOTAL</i>		<i>0.38</i>
TOTAL		12.596

Final Methylmercury WLA Specific to the Department

There are no WLAs specific to the Department. However, allocations for each of the defined municipal entities in the above table include all current and future permitted dischargers within the geographic boundaries of these municipalities and unincorporated areas, including the Department.

Final Methylmercury Deadlines

The final WLAs for dischargers in the Delta and Yolo bypass shall be met as soon as possible, but no later than January 1st, 2030.

Department's Methylmercury Contribution (relative contribution to pollutant loading)

The Department's contribution to the methylmercury load is not known.

LAHONTAN REGION SEDIMENT/NUTRIENTS TMDLS

Lake Tahoe Sediment and Nutrients TMDL, August 16, 2011

Attachment IV incorporates TMDL-specific permit requirements for the sediments and nutrients TMDL for Lake Tahoe. The TMDL requires the Department to meet pollutant load reduction requirements and to develop and implement a comprehensive Pollutant Load Reduction Plan (PLRP).

Final Sediment WLA

The pollutant load reduction requires the Department to reduce fine sediment particle (FSP), total phosphorus (TP), and total nitrogen (TN) loads by ten percent, seven percent and eight percent respectively by September 30, 2016. The Department shall prepare a Pollutant Load Reduction Plan (PLRP) describing how it expects to meet the pollutant load reductions.

Final Sediment Deadlines

This plan is to be submitted no later than July 15, 2013. By July 15, 2014, the Department shall submit a Progress Report documenting pollutant load reductions accomplished between May 1, 2004 (baseline year) and October 15, 2011. The Department shall also prepare and submit a Storm Water Monitoring Plan for review and approval by the Regional Board by July 15, 2013 and implement the approved plan.

Final deadlines for both nitrogen and phosphorus WLAs are for 65 years after the effective date of the TMDL (August 16, 2076).

Department's Sediment Contribution (relative contribution to pollutant loading)

Final Nutrient WLA

Constituent	Basin-Wide Load (MT/yr)	Urban Upland Load	Final Urban Upland Reduction %	Final WLA, (MT/yr)
Nitrogen	345	63	50	31.5
Phosphorus	38	18	46	8.28

Final Nutrient WLA Specific to the Department

The Department's specific contributions to the loads are not defined. The Department is part of a group of Urban Upland (storm water) dischargers. The Department was required to submit a 2004 baseline load estimate specific to its jurisdiction by August 16, 2013.

Final Nutrient Deadlines

Final deadlines for both nitrogen and phosphorus WLAs are for 65 years after the effective date of the TMDL (August 16, 2076).

Department's Nutrient Contribution (relative contribution to pollutant loading)
The Department's relative contribution to pollutant loading is not known.

Truckee River Sediment TMDL, September 16, 2009

TMDL attainment will be evaluated through the TMDL targets: these targets express desired conditions in the watershed, rather than sediment mass reductions. This was deemed to be appropriate because sediment mass reductions are not a practical indication of beneficial use protection due to the inherent natural variability of sediment delivery and the uncertainties associated with accurately measuring sediment loads and reductions.

Final Sediment WLA

For the most part, point source dischargers' compliance with their respective NPDES permits are deemed to be evidence of compliance with their respective responsibilities to help achieve desired watershed conditions, as described above.

Final Sediment WLA Specific to the Department

The Department's compliance with its storm water permit is deemed to be evidence of compliance with its responsibility to help achieve desired watershed conditions, as described above.

Final Sediment TMDL Deadlines

The Truckee River instream sediment targets are currently being met and will be further evaluated for TMDL attainment.

Department's Contribution (relative contribution to pollutant loading)

The Department's relative contribution to sediment pollutant loading is not known.

SANTA ANA REGION NUTRIENTS AND MERCURY TMDLS

Big Bear Lake Nutrients for Dry Hydrological Conditions TMDL, September 25, 2007

This TMDL contains waste load allocations for phosphorus loads under dry hydrological conditions, defined as an average tributary inflow to Big Bear Lake ranging from 0 to 3,049 acre-feet, average lake levels ranging from 6,671 to 6,735 feet and annual precipitation ranging from 0 to 23 inches.

Final Nutrients WLA

The total Waste Load Allocation is 475 pounds/year.

Final Nutrients WLA Specific to the Department

There is no WLA specific to the Department.

Final Nutrients Deadlines

The WLA must be achieved by December 31, 2015.

Department’s Nutrients Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to nutrient pollutant loading is not known.

Lake Elsinore and Canyon Lake Nutrients TMDL, September 30, 2005

The Department has already committed to cooperative implementation actions, monitoring actions, special studies and implementation actions jointly with other responsible agencies as an active paying member of the Lake Elsinore/Canyon Lake TMDL Task Force. If the Department doesn’t fulfill its Lake Elsinore/Canyon Lake Task Force obligations or if the Department chooses to opt out of the cooperative approach with the TMDL Task Force for implementation actions, monitoring actions, and/or special studies then the Department will have to implement the requirements listed in Table IV.2. of Attachment IV.

Final Nutrients WLA

Waterbody	Final Total Phosphorus Waste Load Allocation (kg/year)	Final Total Nitrogen Waste Load Allocation (kg/year)
Canyon Lake	487	6,248
Lake Elsinore	3,845	7,791

Final Nutrients WLA Specific to the Department

There are no WLAs specific to the Department.

Final Nutrients Deadlines

Final allocation compliance is to be achieved by December 31, 2020.

Department’s Nutrient Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to the nutrient pollutant loading is not available.

Rhine Channel Area of Lower Newport Bay Chromium and Mercury, U.S. EPA Established on June 14, 2002

Mercury Final WLA

A WLA for mercury to Rhine Channel is 0.225 kilograms/year.

Mercury Final WLA Specific to the Department

The final mass-based Mercury WLA for the Department is 0.0027 kilograms/year.

Mercury Final Deadlines

The Santa Ana Regional Water Quality Control Board anticipated a Basin Plan Amendment addressing implementation of the above TMDLs in 2007; these amendments have not yet been completed

Department's Mercury Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the mercury loading is approximately three percent. This WLA was developed by taking the available load and dividing it roughly in proportion to the land areas associated with the remaining source categories (including the Department).

SAN DIEGO REGION SEDIMENT AND NUTRIENTS TMDLS

Historical loading of sediment to some coastal wetlands within Region 9 has resulted in impacts to natural wetland functions. The excess deposition and movement of sediment within remaining coastal wetlands has greatly altered the natural conditions. Urbanized development of the watershed and the channel straightening has modified both the sediment supply and the ability of flows to transport sediments. Additionally, channelization of streams has cut off the banks and floodplains of natural rivers within these watersheds. Sediments carried in flows are not stored within the banks but are rather transported to the outlet of coastal estuaries where they are deposited. Recurring dredging operations in coastal areas also affect sediment transport and deposition patterns in these watersheds. Wetland and estuarine habitats tend to be fragmented by existing roads, infrastructure, and surrounding urbanized development.

In some Region 9 watersheds, natural processes of erosion have been accelerated due to anthropogenic watershed disturbances, resulting in impairment of additional principally biological resources, but also recreational uses, including: RARE, MIGR, SPWN, WILD, EST, MAR, BIOL, REC1, REC2, NAV.

Rainbow Creek Total Nitrogen and Total Phosphorus TMDL, March 22, 2006

Final Nutrient WLA

The final WLA for nitrogen is 82 kilograms/year. The final WLA for phosphorus is eight kilograms/year.

Final Nutrient WLA Specific to the Department

The final WLA for nitrogen for the Department is 49 kilograms/year. The final WLA for phosphorus for the Department is five kilograms/year.

Final Nutrient Deadlines

The Department shall achieve the final WLA by December 31, 2021.

Department's Nutrient Contribution (relative contribution to pollutant loading)
The Department's contribution to the nitrogen and phosphorus WLAs is three percent of the total.

C. Metals/Toxics/Pesticides TMDL Pollutant Category

General Description of Pollutant Category

Toxic pollutants, including but not limited to Pesticides, Polycyclic Aromatic Hydrocarbons (PAHs) and Polychlorinated Biphenyls (PCBs), cause several impairments to California's water quality.

Sources of Pollutant & How it Enters the Waterway

The main transport mechanism for these pollutants is through fine sediment. Once the contaminated fine sediments wash off the roadways and into storm drains or nearby receiving waters they re-suspend in the water column and become bioavailable.

Metals including copper, zinc, lead, cadmium, nickel and chromium are toxic to aquatic life and cause impairments to California's waterbodies. Toxic metals are present in water as both dissolved and total recoverable fractions. During times of high precipitation (storm events), the primary transport mechanism for metals, especially in the total recoverable fraction, is again the mobilization of fine sediment. Accumulated contaminated fine sediment washes off roadways and into storm drains or nearby receiving waters. Metals in the sediment become bioavailable while suspended in the water column. During times of low precipitation, flows that reach storm drains or discharge points are typically insufficient to mobilize fine sediment, but dissolved metal ions are still bioavailable and reach discharge points.

Mechanical components of automobiles, especially those that are subjected to frictional stresses are either known or supposed sources of these metals (i.e., copper from brake pads and zinc from synthetic rubber tires). Some toxic metals are also present in petroleum-based lubricants and in gasoline and diesel fuel (i.e. cadmium).

Watershed Contribution

The Department is identified in many TMDLs as a source of toxic pollutants because they own and operate the roadways which act as conveyance systems of fine sediments. However, in most cases the Department makes up a relatively minor load for toxic pollutants because the models used to develop TMDLs rely on the percentage of land use to determine WLAs.

The Department is named in the TMDLs below as a source of metals in storm water because it owns, operates and maintains roadways and facilities present in these watersheds. As with toxics, in most cases, the Department is assigned a relatively minor proportion of the entire storm water WLA for each metal because its roadways and facilities comprise a small proportion of the total watershed area.

Control Measures

The requirements in Part C of Attachment IV of this permit address both dissolved and sediment-bound sources of toxics and metals. Section C.1 addresses treatment of the fine sediment fraction of toxics and metals and requires that the Department implement structural controls/BMPs.

Dissolved fraction metal impairments require an inventory of outfalls/discharge points to waterbodies within each prioritized reach impaired by dissolved fraction metals and to propose and implement appropriate controls consistent with the report.

The Reach Prioritization and Implementation Requirements in Section I.A. and I.B. of Attachment IV place a priority on identifying and addressing the highest source generating areas. This strategy will control the largest sources of fine sediment for a minor pollutant source and allow for attainment of the applicable WLAs consistent with the Toxic Pollutants and Metals TMDLs identified in Table IV.2 of Attachment IV.

In Section III.C.1, the options for controlling sediment-bound toxics and metals are essentially the same. The types of BMPs expected to be implemented to address fine sediment discharges under C.1 are those expected to be implemented to address sediment discharges for the sediment TMDLs discussed above.

Section III.C.2 explains that Dissolved Fraction Metals levels in storm water are reduced when contaminated sediment is removed or mitigated, but additional structural and non-structural BMPs may still be necessary to achieve compliance. In some cases, this may require building or instituting BMPs in addition to those used for metals in fine sediments for the same discharge points. Structural BMPs might include Infiltration or detention basins/trenches, filtration using metal-absorbing media, etc.

Section III.C.3. Pesticides. The Department is to comply with the Vegetation Control provision that specifies practices for the safe handling and use of pesticides, including compliance with federal, state and local regulations, and label directions.

SAN FRANCISCO BAY REGION TOXIC TMDLS

San Francisco Bay PCBs TMDL, March 29, 2010

The TMDL identifies storm water runoff as a major source for PCB transport and includes the Department's roadways, non-roadway facilities, and rights-of-way.

Final PCBs WLA

The total WLA for all storm water runoff sources is two kilograms/year.

Final PCBs WLA Specific to the Department

All storm water runoff sources share a two kilograms/year WLA.

Final PCBs Deadlines

The WLA of two kilograms/year is broken up by county and is to be achieved within 20 years or March 29, 2030.

Department's PCBs Contribution (relative contribution to pollutant loading)

The TMDL also directs the storm water sources to implement this TMDL through the applicable NPDES permits.

San Francisco Bay Urban Creeks Diazinon and Pesticide Toxicity, May 16, 2007**Final Pesticide Toxicity WLA**

The TMDL states that most urban runoff flows through storm drains operated by all storm water entities including the Department. The WLA for each storm water entity is 1 TUC_a (TUC_a = 100/No Observed Adverse Effect Concentration) and one TUC_c (TUC_c = 100/No Observed Effect Concentration) in water and sediment.

Final Pesticide Toxicity WLA Specific to the Department

The Department's level of responsibility is not identified.

Final Pesticide Toxicity Deadlines

The TMDL specifies that all NPDES permits for runoff management agencies, including the Department, require implementation of best management practices and control measures that reduce pesticides in urban runoff to the maximum extent practicable. No final compliance date is specified, however, the Regional Water Board may require additional control measures if the Department fails to meet the TMDL targets.

Department's Contribution (relative contribution to pollutant loading)

The Department's relative contribution to pesticide toxicity pollutant loading is not known.

LOS ANGELES REGION METALS AND TOXICITY TMDLS***Ballona Creek Metals & Selenium TMDL, December 22, 2005 and reaffirmed on December 29, 2008***

The TMDL identifies storm water as a significant contributor to loadings of copper, lead and zinc (and selenium) to Ballona Creek and Sepulveda Canyon Channel in both dry weather and wet weather.

Final Metals WLA

Storm water allocations are divided among the MS4 and general permits named in the TMDL based on an areal weighting approach.

Final Metals WLA Specific to the Department

The Department is assigned separate dry-weather and wet-weather Waste Load Allocations (WLAs). Dry-weather conditions apply to days when the maximum daily flow in Ballona Creek is less than 40 cubic feet per second (cfs), and wet-weather conditions apply to days when the maximum daily flow in Ballona Creek is equal to or greater than 40 cfs. Both dry-weather and wet-weather WLAs are mass-based, although alternate concentration-based dry-weather WLAs are allowed due to the expense of obtaining accurate flow measurements.

Dry-weather WLAs g/day, Total Recoverable Metal:

Waterbody	Copper	Lead	Zinc
Ballona Creek	11.2	6.0	143.1
Sepulveda Channel	5.1	2.7	64.7

Wet-weather WLAs, g/day, Total Recoverable Metal; V is daily flow volume in liters:

Waterbody	Copper	Lead	Zinc
All	$2.37 * V * 10^{-7}$	$7.78 * V * 10^{-7}$	$1.57 * V * 10^{-6}$

Alternate dry-weather WLAs, µg/L, Total Recoverable Metal:

Waterbody	Copper	Lead	Zinc
All	24	13	304

Final Metals Deadlines

The Department is responsible for meeting its assigned mass-based WLAs, but has the option to work with the other MS4 permittees. Each municipality and permittee is required to meet the storm water waste load allocation at designated TMDL effectiveness monitoring points. The MS4 permittees including the Department may use a combination of structural and non-structural BMPs to achieve compliance with the storm water WLAs. Total compliance is to be achieved by January 11, 2021.

Department's Metals Contribution (relative contribution to pollutant loading)

The Department's relative contribution to metals pollutant loading is not known.

Ballona Creek Estuary Toxic Pollutants TMDL, December 22, 2005

Final OC-Compounds & PAHs WLA

The storm water WLAs are apportioned between the MS4 permittees, the Department, the general construction, and the general industrial storm water permits based on an areal weighting approach.

Final WLA Specific to the Department

The Department is assigned the following WLAs based on the 1.3 percent land area associated with the Department:

Metals Storm Water WLAs Apportioned between Permits

Cadmium (kg/yr)	Copper (kg/yr)	Lead (kg/yr)	Silver (kg/yr)	Zinc (kg/yr)
0.11	3.2	4.4	0.09	14

Organics Storm Water WLAs Apportioned between Permits

Total Chlordane (g/yr)	Total DDTs (g/yr)	Total PCBs (g/yr)	Total PAHs (g/yr)
0.05	0.15	2	400

Final WLA Deadlines

The implementation schedule for the MS4 and the Department permittees consists of a phased approach, with compliance to be achieved in prescribed percentages of the watershed with total compliance to be achieved within 15 years of the TMDL effective date or December 22, 2020.

Department's WLA Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the pollutant loading is unknown.

Calleguas Creek OC Pesticides, PCBs, and Siltation TMDL, March 14, 2006

Final OC Pesticides & PCBs WLA

In accordance with current U.S. EPA practice, a group concentration-based WLA has been developed for MS4s, including the Department's MS4. The grouped allocation will apply to all NPDES-regulated municipal storm water discharges in the Calleguas Creek Watershed. Storm water WLAs will be incorporated into the NPDES permit as receiving water limits measured at the downstream points of each subwatershed and are expected to be achieved through the implementation of BMPs as outlined in the implementation plan.

Interim WLAs as an In-stream Annual Average (ng/g)

Pollutant	Mugu Lagoon	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek
Total Chlordane	25.0	17.0	48.0	3.3	3.3	3.4
4,4-DDD	69.0	66.0	400.0	290.0	14.0	5.3
4,4-DDE	300.0	470.0	1,600.0	950.0	170.0	20.0
4,4-DDT	39.0	110.0	690.0	670.0	25.0	2.0
Dieldrin	19.0	3.0	5.7	1.1	1.1	3.0

Pollutant	Mugu Lagoon	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek
Total PCBs	180.0	3,800.0	7,600.0	25,700.0	25,700.0	3,800.0
Toxaphene	22,900.0	260.0	790.0	230.0	230.0	260.0

Final WLAs as an In-stream Annual Average

Pollutant	Mugu Lagoon (ng/g)	Calleguas Creek (ng/g)	Revolon Slough (ng/g)	Arroyo Las Posas (ng/g)	Arroyo Simi (ng/g)	Conejo Creek (ng/g)
Total Chlordane	3.3	3.3	0.9	3.3	3.3	3.3
4,4-DDD	2.0	2.0	2.0	2.0	2.0	2.0
4,4-DDE	2.2	1.4	1.4	1.4	1.4	1.4
4,4-DDT	0.3	0.3	0.3	0.3	0.3	0.3
Dieldrin	4.3	0.2	0.1	0.2	0.2	0.2
Total PCBs	180.0	120.0	130.0	120.0	120.0	120.0
Toxaphene	360.0	0.6	1.0	0.6	0.6	0.6

Final OC Pesticides & PCBs WLA Specific to the Department

See Tables above.

Final OC Pesticides & PCBs Deadlines

The above Final WLAs (ng/g) as an in-stream annual average are to be achieved by March 24, 2026, but the schedule and allocations can be altered based on the results of several special studies required in the TMDL implementation plan.

Department's OC Pesticides & PCBs Contribution (relative contribution to pollutant loading)

The Department's relative pesticide and PCB contribution is not known.

Calleguas Creek and its Tributaries & Mugu Lagoon Metals and Selenium TMDL, March 26, 2007

Final Metals WLAs

Urban storm water runoff was identified as a source for metals pollution in the TMDL. The Department shares group WLAs for nickel, copper and selenium with other Permitted Storm water Dischargers (PSDs). Concentration-based interim limits for nickel, copper and selenium are effective from the date of the TMDL for all PSDs. Final WLAs are mass-based.

There are final WLAs for both dry-weather and wet-weather conditions. The dry-weather WLAs apply to days when flows in the stream are less than the 86th percentile flow rate for each reach. The wet-weather WLAs apply to days when flows in the stream exceed the 86th percentile flow rate for each reach. Dry weather limits are based on chronic California Toxics Rule (CTR) criteria. Wet weather limits are based on acute CTR criteria.

Interim Concentration-based Wet and Dry Weather Limits

Metal	Calleguas and Conejo Creek			Revolon Slough		
	Dry CMC µg/L	Dry CCC µg/L	Wet CMC µg/L	Dry CMC µg/L	Dry CCC µg/L	Wet CMC µg/L
Copper	23	19	204	23	19	204
Nickel	15	13	*	15	13	*

* The current loads do not exceed the TMDL under wet conditions: interim limits not required

Final Mass-based Dry-weather WLAs, lbs/day, Total Recoverable Metal in Water Column

Metal	Calleguas and Conejo Creek			Revolon Slough		
	Low	Average	Elevated	Low	Average	Elevated
Copper (lbs/day)	0.04 * WER – 0.02	0.12 * WER – 0.02	0.18 * WER – 0.03	0.03 * WER – 0.01	0.06 * WER – 0.03	0.13 * WER – 0.02
Nickel (lbs/day)	0.100	0.120	0.440	0.050	0.069	0.116

Final Mass-based Wet-weather WLAs, lbs/day, total recoverable metal in water column

Metal	Calleguas Creek	Revolon Slough
Copper (lbs/day)	$(0.00054*Q^2 + 0.032*Q - 0.17)*WER - 0.06$	$(0.0002*Q^2 + 0.0005*Q)*WER$
Nickel (lbs/day)	$0.014*Q^2 + 0.82*Q$	$0.027*Q^2 + 0.47*Q$

A WER is applied to final numeric targets for copper for the Mugu Lagoon, Calleguas Creek 2, and Revolon/Beardsley reaches; the WER defaults to a value of one (1) unless a site-specific study is approved. The mass-based WLAs apply to the Permitted Storm water Dischargers as a group, and the Department has no specific proportional WLA.

Final Metals WLA Specific to the Department

The WLAs above apply to all permitted storm water dischargers, including the Department. The Department has no specific final WLAs.

Final Metals Deadlines

All PSDs have required interim reductions of 25 percent and 50 percent by March 26, 2012 and March 26, 2017, respectively. The final WLAs must be achieved within 15 years after the effective date of the amendment (March 26, 2022). Implementation shall be achieved through BMPs. The Department was originally tasked with submitting an Urban Water Quality Control Plan by March 26, 2012. Implementation is meant to be achieved using BMPs. The Department was required to conduct a source control study and submit an

Urban Water Quality Management Program for copper, nickel, selenium and mercury by March 26, 2009.

Department’s Metals Contribution (relative contribution to pollutant loading)

The Department’s contribution to the metal loads is unknown.

Colorado Lagoon OC Pesticides, PCBs, Sediment Toxicity, PAHs and Metals TMDL, June 14, 2011

The TMDL identifies the point sources of OC pesticides, PCBs, PAHs, and metals discharged to Colorado Lagoon are urban runoff and storm water discharges from the MS4 and the Department. The Colorado Lagoon watershed is divided into five sub-basins that discharge storm water and urban dry weather runoff to Colorado Lagoon. Each of the sub-basins is served by a major storm sewer trunk line and supporting appurtenances that collect and transport storm water and urban dry weather runoff to Colorado Lagoon.

Final WLAS for OC Pesticides, PCBs, and PAHs

The Department and the City of Long Beach shall each be responsible for achieving the following final mass-based WLAs assigned to the Line I Storm Drain as it conveys storm water from both the Department’s facilities and the City of Long Beach:

Final Mass-based WLA for MS4 Discharges

Total Chlordane	Dieldrin (mg/yr)	Total PAHs (mg/yr)	Total PCBs (mg/yr)	Total DDTs (mg/yr)
3.65	0.15	29,321.50	165.49	11.52

In addition, concentration-based WLAs for sediment are assigned to MS4 permittees including the City of Long Beach, LACFCD, and the Department. Concentration-based WLAs for sediment are applied as average monthly limits. Compliance with the concentration-based WLAs for sediment shall be determined by pollutant concentrations in the sediment in the lagoon at points in the West Arm, North Arm, and Central Arm that represent the cumulative inputs from the MS4 drainage system to the lagoon. Concentration-based interim WLAs for sediment are set to allow time for removal of contaminated sediment through proposed implementation actions. Interim WLAs are based on the 95th percentile value of sediment data collected from 2000-2008. The following interim and final WLAs will be included in MS4 permits in accordance with NPDES guidance and requirements:

Concentration-based WLAs

Pollutants	Interim WLAs (µg/dry kg)	Final WLAs (µg/dry kg)
Total Chlordane	129.65	0.50
Dieldrin	26.20	0.02
Total PAHs	4,022	4,022
Total PCBs	89.90	22.7
Total DDTs	149.80	1.58

Final WLAs for Metals

The Department is jointly responsible with the City of Long Beach in attaining final mass-based WLAs for lead and zinc in sediment and storm water conveyed to Colorado Lagoon via the Line I Storm Drain. In addition, concentration-based interim limits are established for all storm water dischargers, including the Department.

Interim Concentration-based WLAs for Metals in Sediment

Metal	Average Monthly Sediment	
	Interim WLA (µg/kg)	Final WLA (µg/kg)
Lead	399,500	46,700
Zinc	565,000	150,000

Final Mass-based WLAs for Metals in Line I Storm Drain

Metal	mg/yr
Lead	340,455.99
Zinc	1,093,541.72

Proposed BMPs that may apply to the Line I Storm Drain include:
 Low-flow diversion, trash separation devices, vegetated bioswales, cleaning of existing culverts, or direct removal of accumulated sediment

Final OC Pesticides, PCBs & PAHs WLA Specific to the Department

See tables above.

Final OC Pesticides, PCBs & PAHs Deadlines

The Department is subject to the prescribed point source interim WLAs which are effective as of July 28, 2011. Compliance with all final WLAs is required by July 28, 2018.

The Department's OC Pesticides, PCBs & PAHs Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the OC Pesticides, PCBs, and PAHs pollutant loading is not known.

Dominguez Channel and Greater Los Angeles and Long Beach Harbor Toxic Pollutants TMDL, March 23, 2012

The toxic pollutants included in this TMDL include Copper, lead, zinc, DDT, PAHs, and PCBs.

Final WLAs for OC Pesticides PCBs, and PAHs

Interim and final WLA are assigned to storm water discharges including those from the Department’s MS4. Dominguez Channel freshwater allocations are set for wet weather only because exceedances have only been observed in wet weather. Mass-based allocations have been set where sufficient data was available to calculate mass-based allocations; otherwise, concentration-based allocations have been set. Interim and final WLAs shall be included in permits in accordance with state and federal regulations and guidance.

An interim freshwater toxicity allocation of two chronic toxicity units (TUc) applies to all point sources to Dominguez Channel during wet weather including the Department. A final freshwater toxicity allocation of one (1) TUc applies to all point sources to Dominguez Channel during wet weather including the Department.

Interim sediment allocations for Dominguez Channel Estuary and greater Los Angeles and Long Beach Harbor waters are assigned to storm water discharges based on the 95th percentile of sediment data collected from 1998-2006. The final mass-based allocations for PAHs expressed as an annual loading (kilograms/year) of pollutants in the sediment deposited to the Dominguez Channel Estuary, Los Angeles River Estuary, and the Greater Los Angeles and Long beach Harbor Waters. The final mass-based allocations for Total DDT and Total PCBs, expressed annual loading (grams/year) of pollutants in the sediment deposited to the Dominguez Channel Estuary, Los Angeles River Estuary, and the Greater Los Angeles and Long Beach Harbor Waters.

OC Pesticides PCBs, and PAHs Interim and Final WLAs

Interim Concentration-Based Sediment Allocations			
	Total PAHs (mg/kg)	Total DDTs (mg/kg)	Total PCBs (mg/kg)
Dominguez Channel Estuary	31.60	1.727	1.490
Long Beach Inner Harbor	4.58	0.070	0.060
Los Angeles Inner Harbor	90.30	0.341	2.107
Long Beach Outer Harbor	4,022	0.075	0.248
Los Angeles Outer Harbor	4,022	0.097	0.310
Los Angeles River Estuary	4.36	0.254	0.683
San Pedro Bay	4,022	0.057	0.193
Cabrillo Marina	36.12	0.186	0.199
Consolidated Slop	386.00	1.724	1.920
Cabrillo Beach Area	4,022	0.145	0.033
Fish Harbor	2102.7	40.5	36.6

Final Mass-Based Sediment Allocations for the Department			
	Total PAHs (kg/yr)	Total DDTs (g/yr)	Total PCBs (g/yr)
Dominguez Channel Estuary	0.0023	0.004	0.004
Consolidated Slip	0.00009	0.00014	0.00006
Inner Harbor	0.0017	0.0010	0.0011
Outer Harbor	0.00021	0.000010	0.00004
Fish Harbor	0.000021	0.0000010	0.000006
Cabrillo Marina	0.0000016	0.00000028	0.00000024
San Pedro Bay	0.077	0.002	0.019
LA River Estuary	0.333	0.014	0.047

Final Concentration-based Sediment WLAs for Other Bioaccumulative Compounds (dry sediment)		
Total Chlordane (µg/kg)	Dieldrin (µg/kg)	Toxaphene (µg/kg)
0.5	0.02	0.10

Final OC Pesticides PCBs, and PAHs WLAs for Metals

Interim and final WLAs for copper, lead and zinc are assigned to storm water discharges including those from the Department's MS4. Freshwater allocations for Dominguez Channel are set for wet weather only because exceedances have only been observed in wet weather. Wet weather conditions in Dominguez Channel and all of its upstream tributaries apply to any day when the maximum daily flow is greater than 62.7 cfs at any point in Dominguez Channel. Mass-based allocations have been set where sufficient data were available to calculate mass-based allocations; otherwise, WLAs are concentration-based.

Interim allocations for Dominguez Channel and Torrance Lateral are assigned to storm water dischargers, including the Department, and are based on the 95th percentile of total metals data collected from January 2006 to January 2010 using a log-normal distribution. Interim sediment allocations for Dominguez Channel Estuary and greater Los Angeles and Long Beach Harbor waters are assigned to storm water discharges based on the 95th percentile of sediment data collected from 1998-2006.

Interim Concentration-Based WLAs for Dominguez Channel and Torrance Lateral

Total Copper (µg/L)	Total Lead (µg/L)	Total Zinc (µg/L)
207.51	122.88	898.87

Interim Concentration-Based Sediment Allocations (mg/kg sediment)

Waterbody	Copper (mg/kg)	Lead (mg/kg)	Zinc (mg/kg)
Dominguez Channel Estuary	220.0	510.0	789.0
Long Beach Inner Harbor	142.3	50.4	240.6
Los Angeles Inner Harbor	154.1	145.5	362.0
Long Beach Outer Harbor	67.3	46.7	150
Los Angeles Outer Harbor	104.1	46.7	150
Los Angeles River Estuary	53.0	46.7	183.5
San Pedro Bay	76.9	66.6	263.1
Cabrillo Marina	367.6	72.6	281.8
Consolidated Slip	1470.0	1100.0	1705.0
Cabrillo Beach Area	129.7	46.7	163.1
Fish Harbor	558.6	116.5	430.5

Wet-weather freshwater metals allocations are assigned to Dominguez Channel and all of its upstream reaches and tributaries above Vermont Avenue. Mass-based (grams/day) WLAs are divided between the Department and other MS4 permittees by subtracting the other storm water or NPDES WLAs, air deposition and margin of safety from the total loading capacity. Metals targets used to calculate these WLAs were based on an assumed hardness of 50 mg/L and 90th percentile annual flow rates for Dominguez Channel (62.7 cfs).

The Department's Final mass-based water WLAs for Dominguez Channel

Total Copper	Total Lead	Total Zinc
32.3 (g/day)	142.6 (g/day)	232.6 (g/day)

For the Torrance Lateral subwatershed, concentration-based freshwater WLAs for both water and sediment are assigned to all dischargers, including the Department. Metals targets used to calculate these WLAs were based on an assumed hardness of 50 mg/L and 90th percentile annual flow rates.

The Department's Final concentration-based WLAs for Torrance Lateral

Media (units)	Total Copper	Total Lead	Total Zinc
Water (µg/L, unfiltered)	9.7	42.7	69.7
Sediment (mg/kg, dry)	31.6	35.8	121

The final mass-based allocations for metals are expressed as an annual loading (kilograms/year) of pollutants in the sediment deposited to the Dominguez Channel Estuary, Los Angeles River Estuary, and the Greater Los Angeles and Long Beach Harbor Waters. The Interim and Final WLAs are:

Reach	Total Copper (kg/yr)	Total Lead (kg/yr)	Total Zinc (kg/yr)
Dominguez Channel Estuary	0.384	0.93	4.7
Consolidated Slip	0.043	0.058	0.5

Reach	Total Copper (kg/yr)	Total Lead (kg/yr)	Total Zinc (kg/yr)
Inner Harbor	0.032	0.641	2.18
Outer Harbor	0.0018	0.052	0.162
Fish Harbor	0.0000005	0.00175	0.0053
Cabrillo Marina	0.00019	0.0028	0.007
San Pedro Bay	0.88	2.39	9.29
LA River Estuary	5.1	9.5	34.8

In addition to the above, Fish Harbor is impaired for mercury in sediments, Consolidated Slip is impaired for mercury, cadmium and chromium in sediments and Dominguez Channel Estuary is impaired for cadmium in sediments. These waterbodies are assigned no interim WLAs but are assigned final concentration-based WLAs. The Department is NOT named as a responsible party for WLAs to Consolidated Slip.

Final concentration-based sediment WLAs for other metals, dry sediment

Reach	Cadmium mg/kg	Chromium mg/kg	Mercury mg/kg
Dominguez Channel Estuary	1.2	-	-
Fish Harbor	-	-	0.15

Note: The Department is NOT specifically named as a responsible party for implementation actions to Dominguez Channel proper in the 1st Phase of implementation to reduce the amount of sediment transport from point sources that directly or indirectly discharge to the Dominguez Channel and the Harbor waters, even though it has specific WLAs.

Final Toxic Pollutant WLA Specific to the Department

See tables above.

Final Toxic Pollutant Deadlines

The Department is subject to the prescribed point source interim WLAs which are effective as of March 23, 2012. Compliance with all final WLAs is required by March 23, 2032.

Department's Toxic Pollutant Contribution (relative contribution to pollutant *loading*)

The Department's relative contribution to the toxic pollutant loading is not known.

Los Angeles Area Lakes for Organochlorine Pesticides and PCBs

To assess compliance with the organochlorine (OC) compounds TMDLs, monitoring should include monitoring of fish tissue at least every three years as well as once yearly sediment and water column sampling. For the OC pesticides and PCBs TMDLs a demonstration that fish tissue targets have been met in any given year must at minimum include a composite sample of skin off fillets from at least five common carp each measuring at least 350mm in length. At a minimum, compliance monitoring should measure the following in-lake water quality parameters: total suspended sediments, total PCBs, total chlordane, dieldrin, and total DDTs; as well as the following in-lake sediment parameters: total organic carbon, total PCBs, total chlordane, dieldrin, and total DDTs. WLAs are assigned to storm water inputs.

These sources should be measured near the point where they enter the lakes once a year during a wet weather event. Sampling should be designed to collect sufficient volumes of suspended solids to allow for the analysis of at minimum: total organic carbon, total suspended solids, total PCBs, total chlordane, dieldrin, and total DDTs. Measurements of the temperature, dissolved oxygen, pH and electrical conductivity should also be taken.

U.S. EPA established TMDLs do not include implementation plans so all WLAs are considered in effect as of the approval date.

Los Angeles Area (Echo Park Lake) Nitrogen, Phosphorus, Chlordane, Dieldrin, and Trash TMDLs, U.S. EPA Established on March 26, 2012

The entire watershed of Echo Park Lake is contained in MS4 jurisdictions, and watershed loads are therefore assigned WLAs. The Department's areas and facilities that operate under a general industrial storm water permit also receive WLAs. There are TMDLs for PCBs, Chlordane, and Dieldrin, and each has specific WLAs for the Department which are detailed below. The TMDLs have two sets of WLAs, one of which relies on meeting various fish tissue targets that would supersede the initial set of WLAs. Each WLA must be met at the point of discharge.

Final WLAs

PCBs WLA

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (µg/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	1.77	0.17
Southern	Department	State Highway Storm water	1.77	0.17

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	59.8	0.17
Southern	Department	State Highway Storm water	59.8	0.17

Total Chlordane TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	2.10	0.59
Southern	Department	State Highway Storm water	2.10	0.59

If Fish Tissue Targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	3.24	0.59
Southern	Department	State Highway Storm water	3.24	0.59

Dieldrin TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	0.80	0.14
Southern	Department	State Highway Storm water	0.80	0.14

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	1.90	0.14
Southern	Department	State Highway Storm water	1.90	0.14

Final OC Compounds WLA Specific to the Department

See tables above.

Final OC Compounds Deadlines

U.S. EPA did not establish deadlines.

Department's OC Compounds Contribution (relative contribution to pollutant loading)
 The Department's relative contribution to the OC Pesticide pollutant loading is unknown.

Los Angeles Area (Peck Road Park Lake) Nitrogen, Phosphorus, Chlordane, DDT, Dieldrin, PCBs, and Trash

Final OC Compounds WLA

The entire watershed of Peck Road Park Lake is contained in MS4 jurisdictions, and watershed loads are therefore assigned WLAs. The Department areas and facilities that operate under a general industrial storm water permit also receive WLAs. There are TMDLs for PCBs, Chlordane, DDTs, and Dieldrin and each has specific WLAs for the Department which are detailed below. The TMDLs have two sets of WLAs, one of which relies on meeting various fish tissue targets that would supersede the initial set of WLAs. Each WLA must be met at the point of discharge.

Final OC Compounds WLA Specific to the Department

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	1.29	0.17
Western	Department	State Highway Storm water	1.29	0.17

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	59.8	0.17
Western	Department	State Highway Storm water	59.8	0.17

Total Chlordane TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	1.73	0.59
Western	Department	State Highway Storm water	1.73	0.59

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	3.24	0.59
Western	Department	State Highway Storm water	3.24	0.59

Total DDTs TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	5.28	0.59
Western	Department	State Highway Storm water	5.28	0.59

Dieldrin TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	0.43	0.14
Western	Department	State Highway Storm water	0.43	0.14

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	1.90	0.14
Western	Department	State Highway Storm water	1.90	0.14

Final OC Compounds WLA Specific to the Department

See tables above.

Final OC Compounds Deadlines

U.S. EPA did not establish deadlines.

Department’s OC Compounds Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to the OC Pesticides and PCBs pollutant loading is not known.

Los Angeles Area (Puddingstone Reservoir) Nitrogen, Phosphorus, Chlordane, DDT, PCBs, Mercury, and Dieldrin TMDLs, U.S. EPA Established on March 26, 2012

Final OC Compounds WLA

In the Puddingstone Reservoir watershed, WLAs are required for all permittees in the northern subwatershed and the Department's areas in the southern subwatershed. There are TMDLs for PCBs, Chlordane, DDTs, and Dieldrin and each has specific WLAs for the Department which are detailed below.

Final OC Compounds WLA Specific to the Department

The TMDLs have two sets of WLAs, one of which relies on meeting various fish tissue targets that would supersede the initial set of WLAs. Each WLA must be met at the point of discharge.

Total PCBs TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	0.59	0.17
Southern	Department	State Highway Storm water	0.59	0.17

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	59.8	0.17
Southern	Department	State Highway Storm water	59.8	0.17

Total Chlordane TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	0.75	0.57
Southern	Department	State Highway Storm water	0.75	0.57

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	3.24	0.57
Southern	Department	State Highway Storm water	3.24	0.57

Total DDTs TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	3.94	0.59
Southern	Department	State Highway Storm water	3.94	0.59

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	5.28	0.59
Southern	Department	State Highway Storm water	5.28	0.59

Dieldrin TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	0.22	0.14
Southern	Department	State Highway Storm water	0.22	0.14

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	1.90	0.14
Southern	Department	State Highway Storm water	1.90	0.14

Final OC Compounds WLA Specific to the Department

See tables above.

Final OC Compounds Deadlines

U.S. EPA did not establish deadlines.

Department’s OC Compounds Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to pollutant loading is not known.

Los Angeles River Watershed Metals TMDL, September 6, 2007

Final Metals WLA

This TMDL includes wet-weather and dry-weather WLAs for copper, lead, and zinc. Wet-weather conditions are when the maximum daily flow of the Los Angeles River is greater than or equal to 500 cfs. Dry-weather conditions are where maximum daily flow is less than 500 cfs; critical flows are also listed for each of the reaches in this TMDL.

Final Metals WLA Specific to the Department

For dry-weather conditions, the Department is assigned grouped WLAs with other MS4 permittees.

WERs are explicitly included in these WLAs, but default to a value of 1 (unit less) unless site-specific values are approved by the Regional Water Board. Concentration-based limits are also allowed for dry weather due to the expense of obtaining accurate flow measurements; in this case, the concentration-based limits are equal to dry-weather reach-specific dry-weather numeric targets.

Final Mass-based Dry-weather WLAs for Storm water and MS4s, Total Recoverable Metals

Waterbody	Critical Flow (CFS)	Copper (kg/day)	Lead (kg/day)	Zinc (kg/day)
LAR 6	7.20	0.53 x WER	0.33 x WER	-
LAR 5	0.75	0.05 x WER	0.03 x WER	-
LAR 4	5.13	0.32 x WER	0.12 x WER	-

Waterbody	Critical Flow (CFS)	Copper (kg/day)	Lead (kg/day)	Zinc (kg/day)
LAR 3	4.84	0.06 x WER	0.03 x WER	-
LAR 2	3.86	0.13 x WER	0.07 x WER	-
LAR 1	2.58	0.14 x WER	0.07 x WER	-
Bell Creek	0.79	0.06 x WER	0.04 x WER	-
Tujunga Wash	0.03	0.001x WER	0.0002xWER	-
Burbank Channel	3.3	0.15 x WER	0.07 x WER	-
Verdugo Wash	3.3	0.18 x WER	0.10 x WER	-
Arroyo Seco	0.25	0.01 x WER	0.01 x WER	-
Rio Hondo Reach 1	0.50	0.01 x WER	0.006 x WER	0.16 x WER
Compton Creek	0.90	0.04 x WER	0.02 x WER	-

Note: All WERs are equal to 1 (unit less)

Final Concentration-based reach-specific numeric targets, total recoverable metals

Waterbody	Copper (µg/L)	Lead (µg/L)	Zinc (µg/L)
LA River Reach 6	WER ¹ * 30	WER ¹ * 19	-
LA River Reach 5	WER ¹ * 30	WER ¹ * 19	-
LA River Reach 4	WER ² * 26	WER ¹ * 10	-
LA River Reach 3 above LA-Glendale WRP	WER ² * 23	WER ¹ * 12	-
LA River Reach 3 below LA-Glendale WRP	WER ² * 26	WER ¹ * 12	-
LA River Reach 2	WER ² * 22	WER ¹ * 11	-
LA River Reach 1	WER ² * 23	WER ¹ * 12	-
Bell Creek	WER ¹ * 30	WER ¹ * 19	-
Burbank Western Channel (above WRP)	WER ² * 26	WER ¹ * 14	-
Burbank Western Channel (below WRP)	WER ² * 19	WER ¹ * 9.1	-
Verdugo Wash	WER ² * 23	WER ¹ * 12	-
Compton Creek	WER ¹ * 19	WER ¹ * 8.9	-
Arroyo Seco	WER ² * 22	WER ¹ * 11	-
Rio Hondo Reach 1	WER ¹ * 13	WER ¹ * 5.0	WER ¹ * 131
Monrovia Canyon	-	WER ¹ * 8.2	-

Note:
¹ WER is equal to 1 (unit less)
² WER for this constituent in this reach is 3.96

Wet-weather allocations are apportioned among storm water permit holders based on percent area of the watershed served by storm drains.

Final Mass-based wet-weather WLAs, Total Recoverable Metals

Metal	Waste Load Allocation (kg/day) Total Recoverable
Cadmium	WER * 5.3 * 10 ⁻¹¹ * daily volume (L) – 0.03
Copper	WER * 2.9 * 10 ⁻¹⁰ * daily volume (L) – 0.2
Lead	WER * 1.06 * 10 ⁻⁰⁹ * daily volume (L) – 0.07
Zinc	WER * 2.7 * 10 ⁻⁰⁹ * daily volume (L) – 1.6

Final Metals Deadlines

By January 11, 2024, the jurisdictional group shall demonstrate that 100 percent of the group’s total drainage area served by the storm drain system is effectively meeting the dry-weather WLAs and 50 percent of the group’s total drainage area served by the storm drain system is effectively meeting the wet-weather WLAs. By January 11, 2028, the jurisdictional group shall demonstrate that 100 percent of the group’s total drainage area served by the storm drain system is effectively meeting both the dry-weather and wet-weather WLAs. MS4s and the Department may meet the TMDL using a phased implementation approach using a combination of structural and non-structural BMPs.

Department’s Metals Contribution (relative contribution to pollutant loading)

Unknown

Los Cerritos Channel Metals TMDL, March 17, 2010

Final Metals WLA

This TMDL assigns the Department wet-weather WLAs for copper, lead and zinc and a dry-weather WLA for copper only. Wet weather is defined as where the maximum daily flow of Los Cerritos Channel is greater than 23 cfs, and dry weather is where the maximum daily flow of the Channel is less than 23 cfs. For dry-weather copper targets, a site-specific translator was used, defined as the median value of the ratio of direct measurements to CTR criteria. Only the Department and other MS4s have a mass-based WLA for copper for dry weather, and this is divided among permittees based on estimates of respective percentage of total watershed area.

Final mass-based wet-weather WLAs are divided among the Department, other MS4 permittees, General Construction permittees and General Industrial permittees based on an estimate of the percentage of land area covered under each permit. The Department’s estimated percent area of the watershed is 0.8 percent.

Final Metals WLA Specific to the Department

Copper Dry-weather WLA, Total Recoverable Metal	
Copper	1.0 g/day

Metals Wet-weather WLAs, Total Recoverable Metal (V is daily flow volume in liters)		
Copper g/day	Lead g/day	Zinc g/day
$0.070 * V * 10^{-6}$	$0.397 * V * 10^{-6}$	$0.680 * V * 10^{-6}$

Final Metals Deadlines

U.S. EPA did not include implementation measures for the TMDL, and as such implementation procedures are the responsibility of the Los Angeles Regional Water Board. Implementation measures for this TMDL are currently being developed by the Los Angeles Regional Water Board.

Department's Metals Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the metals pollutant loading is not known.

Machado Lake Pesticides and PCBs TMDL, March 20, 2012

The point sources of pesticides and PCBs into Machado Lake are storm water and urban runoff discharges including those from the Department's MS4. Storm water and urban runoff dischargers to Machado Lake occur through the following sub-drainage systems: Wilmington Drain, Project 77 and Project 510.

Final Pesticides and PCBs WLA

The following WLAs apply to all point sources:

Pollutants	WLAs (ug/kg dry weight)
Total PCBs	59.8
DDT (all congeners)	4.16
DDE (all congeners)	3.16
DDD (all congeners)	4.88
Total DDT	5.28
Total Chlordane	3.24
Dieldrin	1.9

Final Pesticides and PCBs WLA Specific to the Department

See table above.

Final Pesticides and PCBs Deadlines

The TMDL WLAs are applied with a three-year averaging period and shall be incorporated into MS4 permits, including the Department's MS4 permit, and general construction and industrial storm water NPDES permits and any other non-storm water NPDES permits.

Storm water dischargers may coordinate compliance with the TMDL. Permitted storm water dischargers can implement a variety of implementation strategies to meet the required WLAs, such as non-structural and structural BMPs, and/or diversion and treatment to reduce sediment transport from the watershed to the lake. Compliance with the TMDL may be based on a coordinated Monitoring and Reporting Program. The Department is subject to the prescribed point source WLAs with a final compliance date of September 30, 2019.

Department’s Pesticides and PCBs Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to the OC Pesticides and PCBs pollutant loading is not known.

Marina Del Rey Harbor Toxics Pollutants TMDL, March 26, 2006

Final Toxic Pollutant WLAs

The Department is assigned mass-based WLAs for copper, lead and zinc along with other storm water permittees in the watershed. The Copper, Lead, and Zinc WLAs are apportioned between the permittees based on an estimate of the percentage of land area covered under each permit.

Total Mass-based Storm Water Metal WLAs:

Copper (kg/yr)	Lead (kg/yr)	Zinc (kg/year)
2.06	2.83	9.11

Total Mass-based Storm Water Organics WLAs:

Total Chlordane (g/yr)	Total PCBs (g/yr)
0.03	1.38

Final Toxic Pollutants WLAs Specific to the Department

Mass-based Metals WLAs for Caltrans

Copper (kg/yr)	Lead (kg/yr)	Zinc (kg/year)
0.022	0.03	0.096

Mass-based Organics WLAs for the Department:

Total Chlordane (g/yr)	Total PCBs (g/yr)
0.0003	0.015

Final Toxic Pollutant Deadlines

The implementation schedule for the MS4 permittees and the Department consists of a phased approach. A combination of non-structural and structural BMPs may be used to achieve compliance with the WLAs, with compliance to be achieved in prescribed percentages of the watershed. Total compliance is to be achieved within 10 years or March 22, 2016. However, the Regional Board may extend the implementation period up to 15 years or March 22, 2021, if an integrated water resources approach is employed.

Department Toxic Pollutant Contribution (relative contribution to pollutant loading)

The Department is assigned approximately one percent of the WLA for each pollutant, based on an estimate of area within the watershed.

San Gabriel River Metals & Selenium TMDL, U.S. EPA Established on March 26, 2007

Final Metals WLA

The Department is assigned WLAs for dry-weather and wet-weather for copper, lead and zinc (as well as selenium). For San Gabriel River Reach 2, the critical flow for wet weather is 260 cfs; for Coyote Creek, the critical flow is 156 cfs. The combined storm water WLA is allocated to individual permits based on percent area of the developed portion of the watershed.

For dry-weather copper, all MS4 storm water permittees, including the Department, are assigned concentration-based WLAs specific to San Gabriel River Reach 1, Coyote Creek, and the San Gabriel River Estuary.

Dry-weather Concentration-Based Copper WLAs for Storm water Permittees

Waterbody	Concentration-based WLA (µg/L)
Estuary	3.7
San Gabriel Reach 1	18
Coyote Creek	20

The TMDL establishes wet-weather WLAs to San Gabriel River Reach 2 for lead, and the Department is part of a grouped mass-based WLA. For Coyote Creek, mass-based WLAs are applied to copper, lead, and zinc. These WLAs are further divided among municipal storm water, industrial storm water, and construction storm water permits that are expressed as an area-based proportion of the total WLA. The Department and other MS4s share WLAs because there are not enough data on the relative reach-specific extent of these permittees' areas. The mass-based WLAs for the grouped Department's and MS4s are defined as the

daily storm volume times the numeric target of the metal for the waterbody times the estimated percentage of watershed covered by these permits.

WLAs for San Gabriel River Reach 2, Coyote Creek and to all of their respective Tributaries

Reach	Copper (kg/day)	Lead (kg/day)	Zinc (kg/day)
San Gabriel Reach 2	--	Daily storm vol * 166 µg/L * 49%	--
Coyote Creek	Daily storm vol * 27 µg/L * 91.5%	Daily storm vol * 106 µg/L * 91.5%	Daily storm vol * 158 µg/L * 91.5%

Final Metals WLA Specific to the Department

No specific WLAs.

Final Metals Deadlines

U.S. EPA did not include implementation measures for the TMDL, and implementation procedures are the responsibility of the Los Angeles Regional Water Board. Implementation measures or this TMDL are currently being developed by the Los Angeles Regional Water Board.

Department’s Metals Contribution (relative contribution to pollutant loading)

The Department’s contribution to the metals loads is not known.

Santa Monica Bay PCBs and DDTs TMDLs, U.S. EPA Established on March 26, 2012

Final PCBs and DDTs WLA

The grouped WLAs are apportioned to the Los Angeles County MS4 permit, the Department’s MS4 permit, and enrollees under the general construction and industrial storm water permits. Mass-based WLAs are to be partitioned among the four groups based on the percent area of each major group in the watersheds draining to Santa Monica Bay. Permittees covered under the general construction and storm water permittees are not expected to perform individual sampling; instead, monitoring should be conducted on a coordinated, watershed-wide basis consistent with the WLAs in the TMDL. The establishment of watershed efforts to identify and address sources of DDTs and PCBs within the watersheds and reporting of the total storm water loadings of DDT and PCB to Santa Monica Bay is encouraged.

The analysis of DDT and PCBs on suspended particle loadings from the mass emission stations will provide more robust measures of mass loadings. If additional data indicate that existing storm water loadings differ from the storm water WLAs defined in the TMDL, the Los Angeles Regional Water Board should consider re-opening the TMDL to better reflect actual loadings.

BMPs and pollutant removal are the most suitable courses of action to reduce DDT and PCBs in the Santa Monica Bay Watershed. Attention should be focused on those watersheds with the highest potential loadings to Santa Monica Bay, such as those that are more heavily urbanized. BMPs should also be targeted to reduce potential PCB loads from industrial and construction runoff as studies have shown that these may be a major source of PCBs. U.S. EPA also recommends implementation of a PCB Source Identification and Control program within storm water permits to evaluate and identify controllable sources of PCBs.

Final PCBs and DDT WLAs Specific to the Department

Final PCBs and DDTs WLAs

Total PCBs (g/yr)	Total DDTs (g/yr)
3.9	0.75

Final PCBs and DDTs Deadlines

U.S. EPA recommends that storm water WLAs be evaluated based on a three year averaging period. This will provide more robust assessment for compliance and should smooth out variability due to wet years. This is consistent with timeframes provided for the Los Angeles Harbor/Long Beach TMDL.

Department’s PCBs and DDTs Contribution (relative contribution to pollutant loading)

The footprint of the Department’s MS4 is 2.7 percent of the area within the Santa Monica Bay watersheds.

SANTA ANA REGION METALS/TOXICS/PESTICIDES TMDLS

Rhine Channel Area of Lower Newport Bay Chromium and Mercury, U.S. EPA Established on June 14, 2002

Final Chromium WLA

For Rhine Channel, the final Chromium WLA is 7.44 kg/yr in sediment.

Final Chromium WLA Specific to the Department

The final mass-based Chromium WLA for the Department is 0.89 kilograms/year in sediment.

Final Chromium Deadlines

The Santa Ana Regional Water Board anticipated a Basin Plan Amendment addressing implementation of the above TMDLs in 2007; these amendments have not yet been completed.

Department’s Chromium Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the Chromium loading is approximately three percent of the total, based on area.

San Diego Creek and Newport Bay, including Rhine Channel Metals (Copper and Zinc) TMDL, U.S. EPA Established on June 14, 2002

Final Metals WLA

WLAs are established for cadmium, copper, lead and zinc in the San Diego Creek watershed, for cadmium, copper, lead and zinc in Newport Bay, and for cadmium, copper, lead, zinc and chromium (and mercury) in Rhine Channel. San Diego Creek is a fresh water stream, while Newport Bay and Rhine Channel are saltwater.

Final Metals WLA Specific to the Department

For San Diego Creek, the Department is assigned concentration-based WLAs for cadmium, copper, lead, and zinc. There are no wet-weather or dry-weather WLAs, but there are four sets of WLAs for each metal for four different flow tiers. All flow tiers have an acute and chronic WLA, except for the highest flow tier, which only has an acute WLA.

Concentration-based WLAs for San Diego Creek Watershed by Flow Tiers, µg/L

Metal	< 20 cfs); H = 400 mg/L		21 – 181 cfs		182 - 815 cfs		> 815 cfs
	Acute	Chronic	Acute	Chronic	Acute	Chronic	Acute
Cu	50	29.3	40	24.3	30.2	18.7	25.5
Pb	281	10.9	224	8.8	162	6.3	134
Zn	379	382	316	318	243	244	208

* Applies to Upper Newport Bay Only

For Newport Bay, mass-based WLAs for cadmium, copper, lead and zinc were assigned to the Department. These WLAs were developed on estimates made using Best Professional Judgment because insufficient data were available to accurately estimate relative contributions to existing loads. The Department's share of the estimated loads is based on the relative proportion of watershed land area among the Department and adjacent permit-holders.

Final mass-based WLAs in Newport Bay, Dissolved Metals

Metal	Cu	Pb	Zn
Total	423 lbs/yr	2,171 lbs/yr	22,866 lbs/yr

Additional concentration-based limits apply only to sources which discharge directly to the Bay, including storm water dischargers from storm drains direction to Bay segments.

Newport Bay Concentration-based Dissolved Metal TMDLs, WLAs/LAs

Metal	Dissolved saltwater Acute TMDLs and allocations (µg/L)	Dissolved saltwater chronic TMDLs and allocations (µg/L)
Cu	4.8	3.1
Pb	210	8.1
Zn	90	81

* Applies to Upper Newport Bay Only

Final Metals Deadlines

U.S. EPA did not include implementation measures for the TMDL.

Department’s Metals Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to the metals pollutant loading is not known.

San Diego Creek and Upper Newport Bay Cadmium TMDL, U.S. EPA Established on June 14, 2002

Final Cadmium WLA

Concentration-based WLAs for San Diego Creek Watershed by Flow Tiers

Metal	< 20 cfs; H = 400 mg/L		21 – 181 cfs		182 - 815 cfs		> 815 cfs
	Acute	Chronic	Acute	Chronic	Acute	Chronic	Acute
Cd (µg/L)	19.1	6.2	15.1	5.3	10.8	4.2	8.9

* Applies to Upper Newport Bay Only

Newport Bay Concentration-based Dissolved Metal TMDLs, WLAs/LAs

Metal	Dissolved saltwater Acute TMDLs and allocations (µg/L)	Dissolved saltwater chronic TMDLs and allocations (µg/L)
Cd	42	9.3

* Applies to Upper Newport Bay Only

Final Cadmium WLA Specific to the Department

See Table above.

Final Cadmium Deadlines

U.S. EPA did not include implementation measures for the TMDL.

Department’s Cadmium Contribution

The Department’s relative contribution to the cadmium pollutant loading is not known.

San Diego Creek Watershed, Organochlorine Compounds and PCBs TMDLs, November 12, 2013

Final OC Compounds WLA

The Department is listed as a primary source of pollutant loads to the San Diego Creek watershed. The mass-based WLAs were expressed as both daily and annual values. Pollutants include Total DDT, Chlordane, Total PCBs and Toxaphene.

WLAs Expressed as a Daily Value (grams/day)					
Watershed	Input	Total DDT	Chlordane	Total PCBs	Toxaphene
San Diego Creek	Department (11%)	0.11	0.07	0.03	0.002
WLAs Expressed as a Annual Value (grams/year)					
Watershed	Input	Total DDT	Chlordane	Total PCBs	Toxaphene
San Diego Creek	Department (11%)	39.2	25.2	12.4	0.6

Final OC Compounds WLA Specific to the Department

See Tables above.

Final OC Compounds Deadlines

Compliance with the TMDLs and WLAs is to be achieved as soon as possible, but no later than December 31, 2020. The way that this deadline applies to a particular discharger differs depending on whether the discharger is participating in the Working Group. Ultimate compliance with permit limitations based on WLAs is expected to be based upon iterative implementation of effective BMPs to manage the discharge of fine sediments containing organochlorine compounds, along with monitoring to measure BMP effectiveness.

Department’s OC Compounds Contribution (relative contribution to pollutant loading)

Based upon the percentage of the total urban land use comprised by Urban-Roads, Department’s facilities and roadways make up 11 percent of the land area and are assigned a proportion of the overall WLAs accordingly.

Upper & Lower Newport Bay Organochlorine Compounds TMDL, November 12, 2013

Final OC Compounds WLA

Upper Newport Bay and Lower Newport Bay OC Compounds WLAs

WLAs Expressed as a Daily Value (grams/day)					
Watershed	Input	Total DDT	Chlordane	Total PCBs	Toxaphene
Upper Newport Bay	Department (11%)	0.04	0.03	0.02	-
Lower Newport Bay	Department (11%)	0.02	0.01	0.07	-

WLAs Expressed as a Annual Value (grams/year)					
Watershed	Input	Total DDT	Chlordane	Total PCBs	Toxaphene
Upper Newport Bay	Department (11%)	15.8	9.2	9.1	-
Lower Newport Bay	Department (11%)	5.8	3.4	23.9	-

Final OC Compounds WLA Specific to the Department

See Tables above.

Final OC Compounds Deadlines

Compliance with the TMDLs and WLAs is to be achieved as soon as possible, but no later than December 31, 2020. The way that this deadline applies to a particular discharger differs depending on whether the discharger is participating in the Working Group. Ultimate compliance with permit limitations based on WLAs is expected to be based upon iterative implementation of effective BMPs to manage the discharge of fine sediments containing organochlorine compounds, along with monitoring to measure BMP effectiveness.

Department's OC Compounds Contribution (relative contribution to pollutant loading)

Based upon the percentage of the total urban land use comprised by Urban-Roads, Department's facilities and roadways make up 11 percent of the land area and are assigned a proportion of the overall WLAs accordingly.

SAN DIEGO REGION METALS TMDL

Chollas Creek Dissolved Copper, Lead and Zinc TMDLs, December 18, 2008

Final Metals WLA

WLAs are concentration-based and set as the acute and chronic limits in the California Toxics Rule times 90 percent for all permitted dischargers, in units of µg/L, as dissolved metals. The final WLAs are based on statistical measures of hardness used in calculating permit requirements.

Final Concentration-based WLAs

Chollas Creek, Copper, Lead, and Zinc WLAs, Dissolved Metal

Metal	Numeric Target for Acute Conditions: Criteria Maximum Concentration, (µg/L)	Numeric Target for Chronic Conditions: Criteria Continuous Concentration, (µg/L)
Copper	$(1) * (0.96) * \{e^{[0.9422 * \ln(\text{hardness}) - 1.700]}\} * 0.9$	$(1) * (0.96) * \{e^{[0.8545 * \ln(\text{hardness}) - 1.702]}\} * 0.9$
Lead	$(1) * \{1.46203 - [0.145712 * \ln(\text{hardness})]\} * \{e^{[1.273 * \ln(\text{hardness}) - 1.460]}\} * 0.9$	$(1) * \{1.46203 - [0.145712 * \ln(\text{hardness})]\} * \{e^{[1.273 * \ln(\text{hardness}) - 4.705]}\} * 0.9$
Zinc	$(1) * (0.978) * \{e^{[0.8473 * \ln(\text{hardness}) + 0.884]}\} * 0.9$	$(1) * (0.986) * \{e^{[0.8473 * \ln(\text{hardness}) + 0.884]}\} * 0.9$

Final Metals WLA Specific to the Department

There are no WLAs specific to the Department.

Final Metals Deadlines

The Department along with other responsible parties must meet 100 percent of Chollas Creek Metals TMDL WLA reductions by December 18, 2028.

Department's Contribution *(relative contribution to pollutant loading)*

The Department's contribution to the metal loads is not known.

D. Trash TMDL Pollutant Category

General Description of Pollutant Category

As discussed under the ten individual TMDLs below, the TMDLs in the trash pollutant category establish that the Department varies in the significance of a source of trash and debris. The scale of the Department as a source depends on the magnitude and location of the impacted water body and corresponding land uses. For the individual TMDLs, the Department is not the sole responsible party for source of trash and debris. Other point source responsible parties include Los Angeles County MS4 permittees, Ventura County MS4 permittees, and industrial permittees.

Since trash generation rates are dependent on land use, the requirements for the Department in Attachment IV Section III.D.1 focus on significant trash generating areas. These areas include: highway on- and off-ramps in high density residential, commercial and industrial land uses, rest areas and park-and-rides, state highways in commercial and industrial land uses, and mainline highway segments to be identified by the Department through pilot studies and/or surveys. The requirements in Attachment IV are expected to address the highest source of trash from the Department by focusing management practices on the highest problem areas.

Attachment IV Section III.D.1 establishes a prohibition of discharge of trash to receiving waters. All of the individual TMDLs set a numeric target of zero trash, since the receiving water body lacks an assimilative capacity for any piece of the trash. Attaining the numeric target is difficult due to the transport mechanisms of the trash, specifically for the Department whose users are temporary and transitory. Attachment IV Section III.D.2 sets forth two compliance options to achieve the prohibition of discharge. The compliance options focus on implementation of management practices, treatment controls, and institutional controls in the significant trash generating areas and the coordination with neighboring municipalities to implement treatment and institutional controls in significant trash generating areas and priority land use areas (high density residential, industrial, commercial, mixed urban, and public transportation stations).

Sources of Pollutant & How it Enters the Waterway

Trash and debris are the man-made products that are improperly discarded and transported to surface water bodies. Trash is considered a 'gross pollutants' and excludes sediments, oil and grease, and vegetation. Trash can include cigarette butts, paper, fast food containers, plastic grocery bags, cans and bottles, used diapers, construction site debris, industrial plastic pellets, old tires and appliances. Trash and debris cause impairments to beneficial uses of surface water bodies, including rivers, lakes, enclosed bays and estuaries, and ocean waters.

Watershed Contribution

Trash impacts aquatic habitat and life. Mammals, turtles, birds, fish, and crustaceans are threatened following the ingestion or entanglement of trash. Ingestion and entanglement can be fatal for freshwater, estuarine, saline and marine aquatic life. Similarly, habitat alterations and degradations due to trash can make natural habitats unsuitable for spawning, migration, and preservation of aquatic life. These negative effects of trash to aquatic life can impact several beneficial uses. The aquatic life beneficial uses that can be impacted by negative effects of trash include: Warm Freshwater Habitat (WARM); Cold Freshwater habitat (COLD); Inland Saline Water Habitat (SAL); Estuarine Habitat (EST); Marine Habitat (MAR); Wildlife Habitat (WILD); Preservation of Biological Habitats (BIOL); Rare, Threatened, or Endangered Species (RARE); Migration of Aquatic Organisms (MIGR); Spawning, Reproduction, and/or Early Development (SPWN); and Wetland Habitat (WET).

Trash impacts human activity by means of jeopardizing public health and safety and posing harm and hindrance in recreational, navigational, and commercial activities. The human

beneficial uses impacted by trash and debris include: Navigation (NAV); Water Contact Recreation (REC-1); Non-Contact Water Recreation (REC-2); Commercial and Sport Fishing (COMM); Aquaculture (AQUA); Shellfish Harvesting (SHELL); and Industrial Service Supply (IND).

Trash and debris, which is intentionally or accidentally discarded in watershed drainage areas, enter a water body through a transport mechanism. Transport mechanisms include the following:

1. Storm drains: trash is deposited throughout the watershed and is carried to a water body during and after significant rainstorms through storm drains.
2. Wind/wave action: trash can also blow into the waterways directly.
3. Direct disposal: direct dumping of trash to water body.

The amount and type of trash and debris that is washed into the storm drain system is generally a function of the surrounding land use. It is generally accepted that commercial, industrial, high density residential land use contribute larger loads of gross pollutants per area compared to low residential and open space and park land use areas.

Control Measures

Full capture system is a type of treatment control that is a device or series of devices that traps all particles that are 5 mm or greater and has a design treatment capacity that is not less than the peak flow rate, Q, resulting from a one-year, one-hour, storm in the subdrainage area. For the Department, there are three types of full capture systems that fall under the category of Gross Solids Removal Devices (GSRDs). Gross Solids Removal Devices (GSRDs) were developed by the Department to be retrofitted into existing highway drainage systems or implemented in future highway drainage systems. GSRDs are structures that remove litter and solids five mm and larger from the storm water runoff using various screening technologies. Overflow devices are incorporated, and the usual design of the overflow release device is based upon the design storm for the roadway. Though designed to capture litter, the devices can also capture some of the vegetation debris. The devices shown below are generally limited to accept flows from pipes 30 inches in diameter and smaller.

The three types of potential GSRDs the Department could utilize are linear radial and two versions using an inclined screen. A linear radial device is relatively long and narrow, with flow entering one end and exiting the other end. It is suited for narrow and flat rights-of-way with limited space. It utilizes modular well screen casings with 5 mm louvers and is contained in a concrete vault, although it also could be attached to a headwall at a pipe outfall. While runoff flows enter into the screens, they pass radially through the louvers and trap litter in the casing. A smooth bottom to convey litter to the end of the screen sections is required, so a segment of the circumference of each screen is uncovered. The louvered sections have access doors for cleaning by vacuum truck or other equipment. Under most placement conditions the goal would be to capture within the casing one year's volume of

litter. This device has been configured with an overflow/bypass for larger storm events and if the unit becomes plugged.

Two Inclined Screen Devices have also been developed. Each device requires about 1-meter of hydraulic head and is better suited for fill sections. In the Type 1 device, the storm water runoff flows over the weir and falls through the inclined bar rack. The screen has five-mm maximum spacing between the bars. Flow passes through the screen and exits via the discharge pipe. The trough distributes influent over the inclined screen. Storm water pushes captured litter toward the litter storage area. The gross solids storage area is sloped to drain to prevent standing water. This device has been configured with an overflow/bypass for larger storm events and if the unit becomes plugged. It has a goal of litter capture and storage for one year. The Type 2 Inclined Screen only comes in a sloped sidewall version.

Full capture devices and treatment controls are highly effective to capture and retain trash when properly maintained. However, there are locations that might be infeasible to install treatment controls. The Department may elect to employ institutional controls, which are non-structural best management practices that may include street sweeping and anti-litter education and outreach programs. Street sweeping minimizes trash loading to the river by removing trash from streets and curbs. Maintaining a regular street sweeping schedule reduces the buildup of trash on streets and prevents trash from entering catch basins and the storm drain system. Street sweeping can also improve the appearance of roadways. There are at least three types of street sweepers the Department may employ: 1) mechanical, 2) vacuum filter, and 3) regenerative air sweepers. Public education can be an effective implementation alternative to reduce the amount of trash entering water bodies. The public is often unaware that trash littered on the street ends up in receiving waters, much less the cost of abating it. The Department may elect to continue to participate in educational programs like 'Adopt-A-Highway' and 'Don't Trash California'.

As specified in Attachment IV Section III.D.3, the Department shall submit an annual status report of the selected treatment and institutional control measures implemented to comply with the prohibition of discharge of trash. In addition to the annual status report, the Department should conduct a pilot survey to further determine highway characteristics and sections that should be included in the category of significant trash generating areas. The pilot study will further assure compliance with the prohibition of discharge and reduction of trash to receiving water bodies from high trash generation areas from the Department's jurisdiction.

LOS ANGELES REGION TRASH TMDLS

Ballona Creek Trash TMDL, August 1, 2002 and February 8, 2005

Final WLA

The numeric target for this TMDL is zero trash in the water. Storm drains were identified as a major source of trash. WLAs were assigned to permittees of the Los Angeles County MS4 permit and the Department.

Final WLA Specific to the Department

The Department is assigned the following baseline WLAs of trash.

Weight (lbs/mile ²)	Volume (ft ³ /mile ²)
7479.36	892.64

Final Deadlines

The implementation schedule for the MS4 and the Department permittees consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within twelve years from the effective date of the TMDL (September 30, 2015).

Department's Contribution (relative contribution to pollutant loading)

The Department's Baseline WLA relative to all other point sources (municipal permittees) is 13 percent.

Legg Lake Trash TMDL, February 27, 2008

Final WLA

The numeric target for this TMDL is zero trash in Legg Lake and on the shoreline. Both point sources and nonpoint sources are identified as sources of trash in Legg Lake. WLAs were assigned to the permittees of the Los Angeles County MS4 permit and the Department.

Final Trash WLA Specific to the Department

The Department is assigned the following baseline WLAs assuming a trash generation rate of 6677 (gallons of uncompressed litter per mile² per year).

Point Source Area (mile ²)	Baseline WLA (gal/yr)
0.09	586.92

Final Trash Deadlines

The implementation schedule for the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years from the effective date of the TMDL (March 6, 2016).

Department's Trash Contribution (relative contribution to pollutant loading)

The Department's Baseline WLA relative to all other point sources (municipal permittees) is 7.9 percent.

Los Angeles Area (Echo Park Lake) Nitrogen, Phosphorus, Chlordane, Dieldrin, PCBs, and Trash TMDL, March 26, 2012

Final Trash WLA

The numeric target for this TMDL is zero trash in Echo Park Lake and on the shoreline. Both point sources and nonpoint sources are identified as sources of trash. WLAs could be assigned to permittees of the Los Angeles County MS4 permit and the Department.

The Department is estimated to have the following baseline WLAs assuming a trash generation rate of 6,677 (gallons of uncompressed litter per mile² per year).

Point Source Area (mile ²)	Current Point Source Trash Load (gal/yr)
0.022	150

Final Trash WLA Specific to the Department

No WLAs were assigned to the Department.

Final Trash Deadlines

There is no compliance and implementation schedule for the Echo Park Lake Trash TMDL.

Department's Trash Contribution (relative contribution to pollutant loading)

As there is no assigned WLA, the Department's contribution to the estimated point source trash loads is 16.7 percent.

Los Angeles Area (Peck Road Park) Lake Nitrogen, Phosphorus, Chlordane, DDT, Dieldrin, PCBs, and Trash TMDL, March 26, 2012

Final Trash WLA

The numeric target for this TMDL is zero trash in Peck Road Lake and on the shoreline. Both point sources and nonpoint sources are identified as sources of trash. WLAs could be assigned to permittees of the Los Angeles County MS4 permit and the Department.

Final Trash WLA Specific to the Department

No WLAs were assigned to the Department.

Final Trash Deadlines

There is no compliance and implementation schedule for the Peck Road Park Lake Trash TMDL.

Department’s Trash Contribution (relative contribution to pollutant loading)

As there are no assigned WLAs, the Department’s contribution to the estimated point source trash loads is 3.9 percent or 950 gal/yr.

Los Angeles River Trash TMDL, December 24, 2008

Final Trash WLA

The numeric target for the Los Angeles River Watershed Trash TMDL is zero trash in the water. Storm drains were identified as a major source of trash in the Los Angeles River. WLAs were assigned to permittees of the Los Angeles County MS4 permit and the Department.

Final Trash WLA Specific to the Department

The Department is assigned the following baseline WLAs for trash.

WLA (gal)	WLA (lbs)
59421	66,566

Final Trash Deadlines

The implementation schedule for the MS4 and the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within seven years from the effective date of the TMDL (September 30, 2014).

Department’s Trash Contribution (relative contribution to pollutant loading)

The Department’s Baseline WLA relative to all other point sources (municipal permittees) is 11.8 percent.

Machado Lake Trash TMDL, February 27, 2008

Final Trash WLA

The numeric target for this TMDL is zero trash in Machado Lake and on the shoreline. Both point sources and nonpoint sources are identified as sources of trash in Machado Lake. WLAs were assigned to permittees of the Los Angeles County MS4 permit and the Department.

Final Trash WLA Specific to the Department

The Department is assigned the following baseline WLA assuming a trash generation rate of 5,334 (gallons of uncompressed litter per mile² per year).

Point Source Area (mile ²)	Baseline WLA (gal/yr)
0.63	4,215.84

Final Trash Deadlines

The implementation schedule for the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years of the effective date of the TMDL (March 6, 2016).

Department's Trash Contribution (relative contribution to pollutant loading)

The Department's Baseline WLA relative to all other point sources (municipal permittees) is 4.5 percent.

Malibu Creek Watershed Trash TMDL, June 26, 2009

Final Trash WLAs

The numeric target for the Malibu Creek Watershed Trash TMDL is zero trash in or on the water and on the shoreline. For point sources, zero means that no trash is discharged into the water body of concern, shoreline, and channels. Both point source and nonpoint sources of trash were identified in the water bodies in the Malibu Creek Watershed. For point sources, WLAs were assigned to permittees of the Los Angeles County MS4 permit and Ventura County MS4 permit and the Department.

Final Trash WLA Specific to the Department

The Department is assigned the following WLAs assuming a trash generation rate of 640 (gallons of uncompressed litter).

Point Source Area (mile ²)	Baseline WLA (gal/yr)
0.32	10,813

Final Trash Deadlines

The implementation schedule for the MS4 and the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years of the effective date of the TMDL (July 7, 2017).

Department's Trash Contribution (relative contribution to pollutant loading)

The Department's Baseline WLA relative to all other point sources (municipal permittees) is 65.5 percent.

Revolon Slough and Beardsley Wash Trash TMDL, August 1, 2002, February 8, 2005, and February 27, 2008

Final Trash WLA

The numeric target for the Revolon Slough and Beardsley Wash TMDL is zero trash within Revolon Slough, Beardsley Wash and their tributaries. Both point source and nonpoint sources of trash were identified in the Revolon Slough and Beardsley Wash. For point sources, WLAs were assigned to permittees of the Ventura County MS4 permit and the Department.

Final Trash WLA Specific to the Department

The Department is assigned the following WLA (gal/year) assuming a trash generation rate of 640 (gallons of uncompressed litter).

Point Source Area (mile²)	Baseline WLA (gal/yr)
1.68	11,215.45

Final Trash Deadlines

The implementation schedule for the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years of the effective date of the TMDL (March 6, 2016).

Department's Trash Contribution (relative contribution to pollutant loading)

The Department's Baseline WLA relative to all other point sources (municipal permittees) is 64.1 percent.

Santa Monica Bay Nearshore & Offshore Debris (trash and plastic pellets), March 20, 2012

Final Trash WLA

The numeric target for the Santa Monica Bay Debris TMDL is zero trash in Santa Monica Bay. For point sources, zero trash is defined as no trash discharged into water bodies within the Santa Monica Bay Watershed and into Santa Monica Bay or on the shoreline of Santa Monica Bay. For nonpoint sources, zero trash is defined as no trash on the shoreline or beaches, or in harbors adjacent to Santa Monica Bay. The numeric target for plastic pellets in the Santa Monica Bay Debris TMDL is zero plastic pellets in Santa Monica Bay. Both point source and nonpoint sources of trash were identified in Santa Monica Bay Nearshore and Offshore areas. For point sources, WLAs were assigned to permittees of the Los Angeles County MS4 permit and Ventura County MS4 permit and the Department.

Final Trash WLA Specific to the Department

The Baseline WLA for the Department was based on a trash generation rate of 33,452.8 gallons per mile² per year.

Point Source Area (mile ²)	Baseline WLA (gal/year)
1.08	36,129.0

Final Trash Deadlines

The implementation schedule for the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years of the effective date of the TMDL (March 12, 2020).

Department's Trash Contribution (relative contribution to pollutants)

The Department's Baseline WLA relative to all other point sources (municipal permittees) is 32.8 percent.

Ventura River Estuary Trash TMDL, February 27, 2008

Final Trash WLA

The numeric target for the Ventura River Estuary Trash TMDL is zero trash in or on the water and on the shoreline. Both point source and nonpoint sources of trash were identified in the Ventura River Estuary.

Final Trash WLA Specific to the Department

The Department is assigned the following WLAs assuming a trash generation rate of 640 (gallons of uncompressed litter).

Point Source Area (mile ²)	Baseline WLA (gal/yr)
0.31	2,049.86

Final Trash Deadlines

The implementation schedule for the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years of the effective date of the TMDL (March 8, 2016).

Department's Trash Contribution (relative contribution to pollutants)

The Department's Baseline WLA relative to all other point sources (municipal permittees) is 34.8 percent.

E. Bacteria TMDL Pollutant Category

General Description of Pollutant Category

Receiving waters are often adversely affected by urban storm water runoff containing bacteria. Several reaches and tributaries have been impaired due to excessive amounts of coliform bacteria. There is a causal relationship between adverse health effects and recreational water quality, as measured by bacterial indicator densities. Fecal coliform bacteria may be introduced from a variety of sources including storm water runoff, dry-weather runoff, onsite wastewater and animal wastes. In addition, humans may be exposed to waterborne pathogens through recreation water use or by harvesting and consuming filter-feeding shellfish.

Attachment IV of this permit requires the Department to prioritize reaches, including those within watersheds under a bacteria TMDL, and then further to select each year the reaches for implementing control measures to address the highest priority reaches.

Sources of Pollutant & How it Enters the Waterway

Major contributors are flows and associated bacteria loading from storm water conveyance systems. The extent of bacteria loading from natural sources such as birds, waterfowl and other wildlife, however, are unknown as data does not exist to quantify the impact of wildlife on the waterbodies.

Watershed Contribution

The TMDLs in the Bacteria Pollutant Category show that the Department is a relatively minor source of pollutants.

Control Measures

This prioritization strategy will control the largest sources of bacteria first and allow for attainment of the applicable WLAs consistent with the bacteria TMDLs identified in Part E of Attachment IV. The Department must install structural and nonstructural controls utilizing BMPs to variously control dry weather discharges and wet weather discharges.

The Department has options that would be effective for controlling non-storm water runoff during dry weather. The Department is required to implement control measures to ensure that the effective prohibition of non-storm water discharges is implemented. This can be achieved through infiltration, diversion, or other methods. Generally, there should be no flow from areas during dry weather. Overwatering, broken sprinklers and irrigation pipes can be a source of dry weather flows. The Department can limit dry weather discharges by ensuring that broken sprinklers and irrigation pipes are fixed within 72 hours. To control overwatering and the resulting runoff, the Department could review watering schedules for irrigated areas on an annual basis.

To control runoff during wet weather, the Department should work with responsible agencies to jointly comply with the TMDL whenever possible. If the Department does not work with the other responsible agencies, non-structural and structural BMPs would be necessary.

Increasing infiltration through the slowing of runoff and improving soil structure and texture to encourage infiltration of storm water are non-structural ways to reduce runoff. In addition, structural BMPs like biofiltration strips, biofiltration swales and detention basins can work in concert with the non-structural BMPs to capture of the runoff.

Wet-weather flows for the most part impact water contact recreation beneficial uses (REC-1). The Department shall implement control measures to prevent or eliminate the discharge of bacteria from its ROW through a combination of source control and treatment BMPs. These treatment BMPs shall include retention/detention, infiltration, diversion of storm water or through preemptive activities such as sweeping, clean-up of illegal dumping, and public education on littering.

SAN FRANCISCO BAY BACTERIA TMDLS

Richardson Bay Pathogens TMDL, December 18, 2009

The TMDL identifies storm water runoff as a potential pathogen source, along with sanitary sewer systems and houseboats and vessel marinas. The Department is listed in the storm water runoff source category along with other implementing parties.

Final Pathogens WLA

The WLA for Fecal Coliform in the pollutant category of storm water runoff is a median of < 14 MPN/100 ml and a 90th percentile limit of <43 MPN/100 ml (no more than 10 percent of total samples during any 30-day period may exceed this number)

The implementation plan for storm water runoff has the following actions:

1. Implement applicable storm water management plan.
2. Update/amend storm water management plan, as appropriate, to include specific measures to reduce pathogen loading, including additional education and outreach efforts, and installation of additional pet waste receptacles.
3. Report progress on implementation of pathogen reduction measures to the Water Board.

For most pollutants, TMDLs are expressed on a mass-load basis (e.g., kilograms per year). For pathogen indicators such as fecal coliform, however, it is the number of organisms in a given volume of water (i.e., their density), and not their total number (or mass) that is significant with respect to public health risk and protection of beneficial uses. The density of fecal coliform organisms in a discharge and/or in the receiving waters is the technically relevant criteria for assessing the impact of discharges, water quality, and public-health risk. U.S. EPA guidance recommends establishing density-based TMDLs for pollutants that are not readily controllable on a mass basis. Therefore, we propose density-based TMDLs and pollutant load allocations, expressed in terms of fecal coliform concentrations.

Establishment of a density-based, rather than a mass-based, TMDL carries the advantage of eliminating the need to conduct a complex and potentially error-prone analysis to link loads and projected densities. A load-based pathogens TMDL would require calculation of acceptable loads based on acceptable bacterial densities and anticipated discharge volumes, and then back-calculation of expected densities under various load reduction scenarios. Since discharge volumes in Richardson Bay are highly variable and difficult to measure, such an analysis would inevitably involve a great deal of uncertainty with no increased water quality benefit.

Pathogen WLA Specific to the Department

As stated in the TMDL, the Department's wasteload allocations for discharges from municipal separate storm sewers are set by NPDES permits No. CAS000004 [Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s)] and CAS000003 (National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit Waste Discharge Requirements (WDRs) for State Of California Department Of Transportation).

Final Pathogens Deadline

The completion date for these implementation actions is "as specified in approved storm water management plan and in applicable NPDES permit." Region 2 does not anticipate that the Department's storm water management plan will need to be revised because they believe that the source of bacteria in highway runoff is wildlife.

The TMDL also notes that in 2013, the Water Board will evaluate monitoring results and assess progress towards attaining TMDL targets and load allocations.

Department's Pathogens Contribution (relative contribution to pollutant loading)
The Department's relative contribution to pathogen pollutant loading is not known.

San Pedro and Pacifica State Beach Bacteria TMDL, August 1, 2013

The San Pedro and Pacifica State Beach Bacteria TMDL was developed by the San Francisco Bay Regional Water Quality Control Board and approved by U.S. EPA on August 1, 2013. The TMDL identifies sanitary sewer systems, horse facilities and municipal storm water runoff and dry weather flows as sources that have the potential to discharge bacteria, if not properly managed, to San Pedro Creek and Pacifica State Beach.

Final Bacteria WLA

The TMDL established a desired, or target condition for the water contact recreation use in San Pedro Creek and at Pacifica State Beach based on the water quality objectives for indicator bacteria. The wasteload allocations are based on the water quality objectives shown in the table below:

Bacteriological Water Quality Objectives for San Pedro Creek and Pacifica State Beach		
Indicator Type	Pacifica State Beach (Marine REC-1) MPN/100 mL	San Pedro Creek (Freshwater REC-1) MPN/100 mL¹
	Single Sample Maximum	90th Percentile/No Sample Greater Than
E. coli	NA	235
Fecal Coliform	400	400
Enterococcus	104	NA
Total Coliform	10,000 ²	10,000
	Geometric Mean³	Geometric Mean/Log Mean/Median
E. coli	NA	
Fecal Coliform	200	126
Enterococcus	35	200
Total Coliform	1,000	NA 240
Notes:		
1. Based on a minimum of five consecutive samples equally spaced over a 30-day period.		
2. Total coliform density shall not exceed 1,000/100 ml, if the ratio of fecal-to-total coliform exceeds 0.1.		
3. Calculated based on the five most recent samples from each site during a 30-day period.		
NA: not applicable.		

For this TMDL, a reference system and antidegradation approach has been incorporated the wasteload allocations as an allowable number of times that the water quality objectives can be exceeded. The following table lists the allowable exceedances:

Numeric Targets, TMDLs and Allocations Based on Allowable Exceedances of Single-Sample Objective for San Pedro Creek and Pacifica State Beach					
	San Pedro Creek		Pacifica State Beach		
	Dry Weather	Wet Weather⁵	Summer Dry Weather (Apr. 1 - Oct. 31)	Winter Dry Weather (Nov. 1 - Mar. 31)	Wet Weather⁵
Allowable Exceedances of Single- Sample Objectives (assuming daily sampling is conducted) ^{1,2,3}	4	26	0	2	30
Allowable Exceedances of Single- Sample	1	4	0	1	5

Numeric Targets, TMDLs and Allocations Based on Allowable Exceedances of Single-Sample Objective for San Pedro Creek and Pacifica State Beach					
	San Pedro Creek		Pacifica State Beach		
	Dry Weather	Wet Weather⁵	Summer Dry Weather (Apr. 1 - Oct. 31)	Winter Dry Weather (Nov. 1 - Mar. 31)	Wet Weather⁵
Objectives (assuming weekly sampling is conducted)⁴					
Notes: 1. Allowable exceedances are calculated by multiplying exceedance rates observed in the reference system(s) by the number of days during each respective period in the reference year (1994). 2. To end up with whole numbers, where the fractional remainder for the calculated allowable exceedance days exceeds 0.1, then the number of days is rounded up. 3. The calculated number of exceedance days assumes that daily sampling is conducted. 4. To determine the allowable number of exceedance events given a weekly sampling regime, as practiced for monitoring San Pedro Creek and Pacifica State Beach, the number of exceedance days was adjusted by solving for "X" in the following equation: $X = (\text{exceedance days} \times 52 \text{ weeks}) / 365 \text{ days}$. 5. Wet weather is defined as any day with 0.1 inches of rain or more and the following three days.					

Final Bacteria Deadlines

The TMDLs, load allocations and wasteload allocations for Pacifica State Beach shall be attained within eight years of the effective date of the TMDL (August 1, 2021). The TMDLs, load allocations and wasteload allocations to San Pedro Creek shall be attained within 15 years of the effective Date of the TMDL (August 1, 2028).

Storm water discharges from the Department's stretch of Highway 1 crossing the northwestern edge of the San Pedro Creek watershed are not a significant source of indicator bacteria because that section of the highway does not include any typical bacteria-generating sources such as homeless encampments, restroom facilities, garbage bins, etc. The Department's existing BMPs and storm water NPDES permit requirements, as of the effective date of the TMDL (August 1, 2013), are sufficient to attain and maintain its portion of the wasteload allocation.

Department's Bacteria Contribution (relative contribution to pollutant loading)

The Department's relative contribution to bacteria pollutant loading is not known.

LOS ANGELES REGION BACTERIA TMDLS

Ballona Creek, Ballona Estuary, and Sepulveda Channel Bacteria TMDL, March 26, 2007

Final Bacteria WLA

The Department is noted as a source of storm water runoff. The Department and municipal storm water permittees and co-permittees are assigned waste load allocations (WLAs) expressed as the number of daily or weekly sample days that may exceed the single sample targets equal to the TMDLs established for the impaired reaches and WLA assigned to waters tributary to impaired reaches. The County of Los Angeles, the Department, and the Cities of Los Angeles, Culver City, Beverly Hills, Inglewood, West Hollywood, and Santa Monica are the responsible jurisdictions and responsible agencies for the Ballona Creek Watershed.

For the single sample objectives of the impaired REC-1 and LREC-1 reaches, the proposed WLA for summer dry-weather is zero (0) days of allowable exceedances, and those for winter dry-weather and wet-weather are three (3) days and seventeen (17) days of exceedance, respectively. In the instances where more than one single sample objective applies, exceedance of any one of the limits constitutes an exceedance day. The proposed waste load allocation for the rolling 30-day geometric mean for the responsible agencies and jurisdictions is zero (0) days of allowable exceedances.

For the single sample objectives of the impaired REC-2 reach, the proposed WLA for all periods is a 10 percent exceedance frequency of the REC-2 single sample water quality objectives. The proposed waste load allocation for the rolling 30-day geometric mean for the responsible agencies and jurisdictions is zero (0) days of allowable exceedances.

In addition to assigning TMDLs for the impaired reaches, Waste Load Allocations and Load Allocations are assigned to the tributaries to these impaired reaches. These WLAs and LAs are to be met at the confluence of each tributary and its downstream reach (see Table 7.21.2b of Attachment A to Resolution No. 2006-011). See Chapter 3 of Region 4's Basin Plan for bacteriological objectives for Water Contact Recreation for Marine and Fresh Waters, for Limited Water Contact Recreation and for Non-contact Water Recreation.

Final Bacteria WLA Specific to the Department

There is no specific WLA assigned to the Department. The responsible jurisdictions and responsible agencies within the watershed are jointly responsible for complying with the waste load allocation in each reach.

Final Bacteria Deadlines

See Final WLA above.

Department's Bacteria Contribution (relative contribution to pollutant loading)

The Department's jurisdiction within the cities and unincorporated areas in the Ballona Creek Watershed totals 1206 acres. This equals 1.5 percent of the watershed.

Long Beach City Beaches Indicator Bacteria TMDL, March 26, 2012

The TMDL identifies storm water runoff from the Department's properties such as the highway system, park and ride facilities, and maintenance yards as a potential source of bacteria. The Department has jurisdiction of some areas in the Los Angeles River (LAR) Estuary direct drainage, but not in the Long Beach City beaches direct drainage.

Final Bacteria WLA

To implement the single sample bacteria water quality objectives (total coliform, fecal coliform, enterococcus, and fecal-to-total coliform ratio) for waters designated REC-1, an allowable number of exceedance days for three seasons (summer dry, winter dry and winter wet) is set for marine waters using a reference system/anti-degradation approach. This approach ensures that bacteriological water quality is at least as good as that of a reference system and that no degradation of the existing bacteriological water quality is permitted where the existing condition is better than that of the selected reference system(s). The exceedance days are used to set load allocations (LA) and waste load allocations (WLAs) in these TMDLs.

Storm water systems covered under the City of Long Beach, Los Angeles County and the Department's MS4 permits are assigned WLAs in the form of exceedance days. During summer dry conditions, reductions in exceedance days are estimated to be 13-120 days during a 120 day period (11 percent to 100 percent of the time), depending on the location of the monitoring site. During winter wet conditions, reductions in exceedance days are estimated to be 11-45 days during a 75-day period (15 percent to 60 percent of the time) depending on the location of the monitoring site. During winter dry conditions, reductions in exceedance days are estimated to be 0-11 days during an 80 day period (zero (0) percent to 14 percent of the time) depending on the location of the monitoring site.

Final Bacteria WLA Specific to the Department

See Final WLA above.

Final Bacteria Deadlines

As this TMDL was established by U.S. EPA, U.S. EPA only described recommendations to the Regional Board that could be used. No timelines were noted.

Department's Bacteria Contribution (relative contribution to pollutant loading)

The loading of bacteria specifically from the Department's properties has not been determined in the LAR Estuary direct drainage. However a conservative estimate of 128 acres or approximately two percent of the LAR Estuary drainage area is noted in the TMDL.

Los Angeles River Watershed Bacteria, March 23, 2012

Final Bacteria WLA

The Los Angeles River Watershed Bacteria TMDL was developed by the Los Angeles Regional Water Quality Control Board and approved by U.S. EPA. The TMDL identifies storm water from the MS4 Permittees (the Department along with the County of Los Angeles and the Incorporated Cities therein and the City of Long Beach) as the principal source of bacteria in both dry weather and wet weather.

Final Bacteria WLA Specific to the Department

This TMDL uses a “reference system/anti-degradation approach” to implement the water quality objectives per the implementation provisions in Chapter 3 of the Basin Plan. On the basis of the historical exceedance frequency at Southern California reference reaches, a certain number of daily exceedances of the single sample bacteria objectives are permitted. The allowable number of exceedance days is set such that (1) bacteriological water quality at any site is at least as good as at the reference site(s) and (2) there is no degradation of existing bacteriological water quality. This approach recognizes that there are natural sources of bacteria that may cause or contribute to exceedances of the single sample objectives and that it is not the intent of the Regional Board to require treatment or diversion of natural coastal creeks or to require treatment of natural sources of bacteria from undeveloped areas.

For MS4 dischargers, the final dry-weather WLAs and wet-weather WLA for the single sample targets are listed below:

Allowable Number of Exceedance Days	Daily Sampling	Weekly Sampling
Dry Weather	5	1
Non-High Flow Suspension (HFS) Waterbodies Wet Weather	15	2
HFS Waterbodies Wet Weather	10 (not including HFS days)	2 (not including HFS days)

The final WLAs for the geometric mean target during any time at any river segment and tributary in the Los Angeles River Watershed is zero (0) days of allowable exceedances.

Final Bacteria Deadlines

The Department has from 8.5 to 25 years (September 23, 2020 to March 23, 2037) to achieve final WLAs depending on the segment of the waterbody. Table 7-39.3 in Attachment A to Resolution No. R10-007 lists other interim implementation compliance dates.

Department's Bacteria Contribution (relative contribution to pollutant loading)
 The Department's MS4 permit covers approximately 6,950 acres, which is equivalent to around one percent of the urban watershed.

Malibu Creek and Lagoon Bacteria TMDL, June 7, 2012

The TMDL identifies on-site wastewater treatment plants, storm water runoff, dry weather runoff and wildlife (birds) as possible sources of bacterial contamination.

Final WLA

Malibu Creek and Lagoon Bacteria TMDL: Final Annual Allowable Exceedance Days for Single Sample Limits by Sampling Location

Compliance Deadline		January 24, 2012		July 15, 2021	
Station ID	Location Name	Dry Weather ^		Wet Weather ^	
		Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling
LA RWQCB	Triunfo Creek	5	1	15	2
LA RWQCB	Lower Las Virgenes Creek	5	1	15	2
LA RWQCB	Lower Medea Creek	5	1	15	2
LVMWD (R-9)	Upper Malibu Creek, above Las Virgenes Creek	5	1	15	2
LVMWD (R-2)	Middle Malibu Creek, below Tapia discharge 001	5	1	15	2
LVMWD (R-3)	Lower Malibu Creek, 3 mi below Tapia	5	1	15	2
LVMWD (R-4)	Malibu Lagoon, above PCH	5	1	15	2
LVMWD (R-11)	Malibu Lagoon, below PCH	9*	2*	17	3
	Other sampling stations as identified in the Compliance Monitoring Plan as approved by the Executive Officer including at least one sampling station in each subwatershed, and areas where frequent REC-1 use is known to occur.	5	1	15	2

Compliance Deadline		January 24, 2012		July 15, 2021	
Station ID	Location Name	Dry Weather ^		Wet Weather ^	
		Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling
Notes: The number of allowable exceedances is based on the lesser of (1) the reference system or (2) existing levels of exceedance based on historical monitoring data. The allowable number of exceedance days is calculated based on the 90th percentile storm year in terms of wet days at the LAX meteorological station. ^ A dry day is defined as a non-wet day. A wet day is defined as a day with a 0.1 inch or more of rain and the three days following the rain event. * The number of allowable exceedance days is for the winter dry-weather period. No exceedance days are allowed for the summer dry-weather period.					

Final Bacteria WLA Specific to the Department

No exceedances are allowed for the geometric mean limits. The allowable days of exceedance for the single sample limits differ depending on season, dry weather or wet weather, and by sampling locations as described in the Table above (Malibu Creek and Lagoon Bacteria TMDL: Final Annual Allowable Exceedance Days for Single Sample Limits by Sampling Location)

Final Bacteria Deadlines

This TMDL will be implemented in two phases as outlined in the TMDL. By January 24, 2012, compliance with the allowable number of dry-weather exceedance days must be achieved. By July 15, 2021, compliance with the allowable number of wet-weather exceedance days and the geometric mean targets must be achieved.

Department's Bacteria Contribution (relative contribution to pollutant loading)

The Department's relative contribution to bacteria pollutant loading is not known.

Marina del Rey Harbor (MdRH) Mother's Beach and Back Basin Bacteria TMDL, March 18, 2004, revised November 7, 2013

The TMDL identifies dry-weather urban runoff and storm water conveyed by storm drains as the primary sources of elevated bacterial indicator densities to MdRH Mothers' Beach and back basins during dry and wet weather. Potential sources of bacterial contaminations at Mothers' Beach and the back basins of MdRH include marina activities such as waste disposal from boats, boat deck and slip washing, swimmer "wash-off," restaurant washouts and natural sources from birds, waterfowl and other wildlife.

Final Bacteria WLA

Implementation of the bacteria objectives and the associated TMDL numeric targets is achieved using a "reference system/anti-degradation approach" as set forth in Chapter 3 of

the Basin Plan. As required by the Clean Water Act and California Water Code, Basin Plans include beneficial uses of waters, water quality objectives to protect those uses, an anti-degradation policy, collectively referred to as water quality standards, and other plans and policies necessary to implement water quality standards. This TMDL and its associated waste load allocations, which shall be incorporated into relevant permits, and load allocations are the vehicles for implementation of the Region’s standards.

The geometric mean targets may not be exceeded at any time. For purposes of this TMDL, the geometric means shall be calculated weekly as a rolling geometric mean using five or more samples, for six week periods starting all calculation weeks on Sunday. For the single sample targets, each existing monitoring site is assigned an allowable number of exceedance days for three time periods: (1) summer dry-weather (April 1 to October 31), (2) winter dry-weather (November 1 to March 31), and (3) wet-weather (defined as days with 0.1 inch of rain or greater and the three days following the rain event).

The County of Los Angeles, Los Angeles County Flood Control District, City of Los Angeles, and Culver City are the Los Angeles County MS4 permittees identified as the responsible jurisdictions and responsible agencies for the Marina del Rey Watershed. All proposed WLAs for summer dry weather are zero (0) days of allowable exceedances.²⁴ The proposed WLAs for winter dry weather and wet weather vary by monitoring location as identified in the following table:

Marina del Rey Harbor Mothers’ Beach and Back Basins Bacteria TMDL: Final Allowable Exceedance Days by Sampling Location

Compliance Deadline		March 18, 2007		March 18, 2007		July 15, 2021	
		Summer Dry Weather ^		Winter Dry Weather ^		Wet Weather ^	
		Apr 1 – Oct 31		Nov 1 – Mar 31		Nov 1 – Oct 31	
Station ID	Location Name	Daily sampling (No. days)	Weekly sampling (No. Days)	Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling (No. days)
MdRH-1	Mothers’ (Marina) Beach, at playground area	0	0	9	2	17	3

²⁴ In order to fully protect public health, no exceedances are permitted at any monitoring location during summer dry-weather (April 1 to October 31). In addition to being consistent with the two criteria, waste load allocations of zero (0) days of allowable exceedances are further supported by the fact that the California Department of Public Health has established minimum protective bacteriological standards – the same as the numeric targets in this TMDL – which, when exceeded during the period April 1 to October 31, result in posting a beach with a health hazard warning (California Code of Regulations, Title 17, Section 7958).

Compliance Deadline		March 18, 2007		March 18, 2007		July 15, 2021	
		Summer Dry Weather ^		Winter Dry Weather ^		Wet Weather ^	
		Apr 1 – Oct 31		Nov 1 – Mar 31		Nov 1 – Oct 31	
MdRH-2	Mothers' (Marina) Beach, at lifeguard tower	0	0	9	2	17	3
MdRH-3	Mothers' (Marina) Beach, between lifeguard tower and boat dock	0	0	9	2	17	3
MdRH-4	Basin D, near first slips outside swim area	0	0	9	2	17	3
MdRH-5	Basin E, in front of tide-gate from Oxford Basin	0	0	9	2	17	3
MdRH-6	Basin E, center of basin	0	0	9	2	17	3
MdRH-7	Basin E, in front of Boone-Olive Pump Outlet	0	0	9	2	17	3
MdRH-8	Back of Main Channel	0	0	9	2	17	3
MdRH-9	Basin F, center of basin	0	0	9	2	8	1

Compliance Deadline	March 18, 2007	March 18, 2007	July 15, 2021
	Summer Dry Weather ^	Winter Dry Weather ^	Wet Weather ^
	Apr 1 – Oct 31	Nov 1 – Mar 31	Nov 1 – Oct 31
<p>Notes:</p> <p>The number of allowable exceedances is based on the lesser of (1) the reference system or (2) existing levels of exceedance based on historical monitoring data.</p> <p>The allowable number of exceedance days during winter dry-weather is calculated based on the 10th percentile storm year in terms of dry days at the LAX meteorological station.</p> <p>The allowable number of exceedance days during wet-weather is calculated based on the 90th percentile storm year in terms of wet days at the LAX meteorological station.</p> <p>^ A dry day is defined as a non-wet day.</p> <p>A wet day is defined as a day with a 0.1 inch or more of rain and the three days following the rain event.</p>			

Final Bacteria WLA Specific to the Department

See Final WLA above.

Final Bacteria Deadlines

This TMDL will be implemented over an 18-year period. By March 18, 2007, there shall be no allowable exceedances of the single sample limits at any location during summer dry weather (April 1 to October 31) or winter dry weather (November 1 to March 31). By July 15, 2021, compliance with the allowable number of wet weather exceedance days and the geometric mean targets must be achieved.

Department’s Bacteria Contribution (relative contribution to pollutant loading)

The Department’s jurisdiction covers one percent of the watershed.

Santa Clara River Estuary and Reaches 3, 5, 6, and 7 Indicator Bacteria TMDL, January 13, 2012

The TMDL identifies dry- and wet-weather urban runoff discharges from the storm water conveyance systems as significant contributors of bacteria loading to the Santa Clara River and Estuary. Mass emission data collected by MS4 Permittees show elevated levels of bacteria in the river. Data from natural landscapes in the region indicate that open space loading is not a significant source of bacteria.

Final Bacteria WLA

The Statewide Storm Water Permit for Department Activities (CAS000003) are assigned WLAs of zero (0) allowable exceedance days of the single sample targets for both dry and wet weather and no exceedances of the geometric mean targets because they are not expected to be significant source of indicator bacteria. Compliance with an effluent limit based on the bacteria water quality objectives will be used to demonstrate compliance with the WLA.

Final Bacteria WLA Specific to the Department

See Final WLA above.

Final Deadlines

The TMDL states that WLAs assigned to the Department's permit must be attained on the effective date of the TMDL.

Department's Contribution (relative contribution to pollutant loading)

The Department's relative contribution to pollutant loading is unknown.

Santa Monica Bay Beaches Bacteria TMDL June 19, 2003, Revised November 7, 2013

Final WLA

With the exception of isolated sewage spills, dry weather urban runoff and storm water runoff conveyed by storm drains and creeks is the primary source of elevated bacterial indicator densities to Santa Monica Beaches (SMB). Limited natural runoff and groundwater may also potentially contribute to elevated bacterial indicator densities during winter dry weather. Because the bacterial indicators used as targets in the TMDL are not specific to human sewage, storm water runoff from undeveloped areas may also be a source of elevated bacterial indicator densities. For example, storm water runoff from natural areas may convey fecal matter from wildlife and birds or bacteria from soil. This is supported by the finding that, at the reference beach, the probability of exceedance of the single sample targets during wet weather is 0.22.

Implementation of the bacteria objectives in Chapter 3 of the Basin Plan and the associated TMDL numeric targets is achieved using a "reference system/anti-degradation approach" rather than the alternative "natural sources exclusion approach" or strict application of the single sample objectives. As required by the Clean Water Act and Porter-Cologne Water Quality Control Act, Basin Plans include beneficial uses of waters, water quality objectives to protect those uses, an anti-degradation policy, collectively referred to as water quality standards, and other plans and policies necessary to implement water quality standards. This TMDL and its associated waste load allocations, which shall be incorporated into relevant permits, and load allocations are the vehicles for implementation of the Region's standards.

The geometric mean targets may not be exceeded at any time. For the single sample targets, each existing shoreline monitoring site is assigned an allowable number of exceedance days during three time periods as defined in the table below (summer dry weather, winter dry weather, and wet weather [defined as days with 0.1 inch of rain or greater and the three days following the rain event]). The allowable exceedance days for each associated shoreline monitoring site are identified in the following table:

Allowable Number of Days that may Exceed any Single Sample Bacterial Indicator Target for Existing Shoreline Monitoring Stations

Compliance Deadline			15-Jul-06		1-Nov-09		15-Jul-21	
Station ID	Location Name	Subwatershed	Summer Dry Weather [^]		Winter Dry Weather [^]		Wet Weather Year-round	
			Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling (No. days)
SMB 1-1	Leo Carillo Beach (REFERENCE)	Arroyo Sequit	0	0	9	2	17	3
SMB 1-2	El Pescador State Beach	Los Alisos	0	0	1	1	5	1
SMB 1-3	El Matador State Beach	Encinal Canyon	0	0	1	1	3	1
SMB 1-4	Trancas Creek	Trancas Canyon	0	0	9	2	17	3
SMB 1-5	Zuma Creek	Zuma Canyon	0	0	9	2	17	3
SMB 1-6	Walnut Creek	Ramirez Canyon	0	0	9	2	17	3
SMB O-1#	Paradise Cove	Ramirez Canyon	0	0	9	2	15	3
SMB 1-7	Ramirez Creek	Ramirez Canyon	0	0	9	2	17	3
SMB 1-8	Escondido Creek	Escondido Canyon	0	0	9	2	17	3
SMB 1-9	Latigo Canyon Creek	Latigo Canyon	0	0	9	2	17	3
SMB 1-10	Solstice Creek	Solstice Canyon	0	0	5	1	17	3
SMB O-2#	Puerco Canyon storm drain	Corral Canyon	0	0	0	0	6	1
SMB 1-11	Wave wash of unnamed creek on Puerco Beach	Corral Canyon	0	0	9	2	17	3
SMB 1-12	Marie Canyon Storm Drain on	Corral Canyon	0	0	9	2	17	3
SMB 1-13	Sweetwater Creek on Carbon	Carbon Canyon	0	0	9	2	17	3
SMB 1-14	Las Flores Creek	Las Flores	0	0	6	1	17	3
SMB 1-15	Big Rock Beach at 19948 Pacific	Piedra Gorda	0	0	9	2	17	3
SMB 1-16	Pena Creek	Pena Canyon	0	0	3	1	14	2
SMB 1-17	Tuna Canyon Creek	Tuna Canyon	0	0	7	1	12	2
SMB 1-18	Topanga Creek	Topanga Canyon	0	0	9	2	17	3
SMB 4-1	San Nicholas Canyon Creek	Nicholas Canyon	0	0	4	1	14	2
SMB 2-1	Castlerock (Parker Mesa) Storm	Castlerock	0	0	9	2	17	3
SMB 2-2	Santa Ynez Storm Drain	Santa Ynez	0	0	9	2	17	3
SMB 2-3	Will Rogers State Beach at 17200	Santa Ynez	0	0	9	2	17	3
SMB 2-4	Pulga Canyon storm drain	Pulga Canyon	0	0	9	2	17	3
SMB 2-5	Temescal Storm Drain	Pulga Canyon	0	0	9	2	17	3
SMB 2-6	Bay Club Storm Drain	Santa Ynez	0	0	9	2	17	3
SMB 2-7	Santa Monica Canyon, Will	Santa Monica	0	0	9	2	17	3
SMB 2-8	Venice Pier, Venice	Ballona	0	0	9	2	17	3
SMB 2-9	Topsail Street extended	Ballona	0	0	9	2	17	3
SMB 2-10	Dockweiler State Beach at Culver	Dockweiler	0	0	9	2	17	3
SMB 2-11	North Westchester Storm Drain	Dockweiler	0	0	0	0	17	3
SMB 2-12	World Way extended	Dockweiler	0	0	9	2	17	3
SMB 2-13	Imperial Highway storm drain	Dockweiler	0	0	4	1	17	3
SMB 2-14	Opposite Hyperion Plant, 1 mile	Dockweiler	0	0	9	2	17	3
SMB 2-15	Grand Avenue Storm Drain	Dockweiler	0	0	9	2	17	3

Compliance Deadline			15-Jul-06		1-Nov-09		15-Jul-21	
Station ID	Location Name	Subwatershed	Summer Dry Weather [^]		Winter Dry Weather [^]		Wet Weather Year-round	
			Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling (No. days)
SMB 3-1	Montana Ave. Storm Drain	Santa Monica	0	0	9	2	17	3
SMB 3-2	Wilshire Blvd., Santa Monica	Santa Monica	0	0	9	2	17	3
SMB 3-3	Santa Monica Municipal Pier at	Santa Monica	0	0	9	2	17	3
SMB 3-4	Santa Monica Beach at	Santa Monica	0	0	9	2	17	3
SMB 3-5	Ashland Av. storm drain (Venice)	Santa Monica	0	0	9	2	17	3
SMB 3-6	Rose Ave. Storm Drain on	Santa Monica	0	0	6	1	17	3
SMB 3-7	Venice City Beach at Brooks	Ballona	0	0	9	2	17	3
SMB 3-8	Venice Pavilion at projection of	Ballona	0	0	9	2	17	3
SMB 3-9	Strand Street extended	Santa Monica	0	0	9	2	17	3
SMB 5-1	Manhattan State Beach at 40th	Hermosa	0	0	1	1	4	1
SMB 5-2	Terminus of 28th Street Drain in	Hermosa	0	0	9	2	17	3
SMB 5-3	Manhattan Beach Pier	Hermosa	0	0	3	1	6	1
SMB 5-4	Near 26th Street on Hermosa	Hermosa	0	0	3	1	12	2
SMB 5-5	Hermosa Beach Pier	Hermosa	0	0	2	1	8	2
SMB 6-1	Herondo Storm Drain	Redondo	0	0	9	2	17	3
SMB 6-2	Redondo Municipal Pier - 100	Redondo	0	0	3	1	14	2
SMB 6-3	4' x 4' outlet at projection of	Redondo	0	0	5	1	17	3
SMB 6-4	120' north of Topaz groin	Redondo	0	0	9	2	17	3
SMB 6-5	Storm Drain at Projection of	Redondo	0	0	4	1	11	2
SMB 6-6	Malaga Cove, Palos Verdes	Redondo	0	0	1	1	3	1
SMB 7-1	Malaga Cove	Palos Verdes	0	0	1	1	14	2
SMB 7-2	Bluff Cove	Palos Verdes	0	0	1	1	0	0
SMB 7-3	Long Point	Palos Verdes	0	0	1	1	5	1
SMB 7-4	Abalone Cove	Palos Verdes	0	0	0	0	1	1
SMB 7-5	Portuguese Bend Cove	Palos Verdes	0	0	1	1	2	1
SMB 7-6	Royal Palms	Palos Verdes	0	0	1	1	6	1
SMB 7-8	Wilder Annex	Palos Verdes	0	0	1	1	2	1
SMB 7-9	Outer Cabrillo Beach	Palos Verdes	0	0	1	1	3	1
SMB MC-1	Malibu Point, Malibu Colony Dr.	Malibu Canyon	0	0	9	2	17	3
SMB MC-2	Surfrider Beach (breach point of	Malibu Canyon	0	0	9	2	17	3
SMB MC-3	Malibu Pier on Carbon Beach	Malibu Canyon	0	0	9	2	17	3

Notes: The allowable number of exceedance days during winter dry weather is calculated based on the 10th percentile year in terms of non-wet days at the LAX meteorological station.
The number of allowable exceedances during winter dry weather is based on the lesser of (1) the reference system or (2) existing levels of exceedance based on historical shoreline data.
[^]Dry weather days are defined as those with <0.1 inch of rain and those days not less than 3 days after a rain day. Rain days are defined as those with >=0.1 inch of rain.
Detailed descriptions of the sampling locations are provided in the Santa Monica Bay Beaches Bacterial TMDLs Coordinated Shoreline Monitoring Plan.
#Monitoring began in 2010 and data was examined from April 2010 to November 2011

Final Bacteria WLA Specific to the Department

See Final WLA above.

Final Bacteria Deadlines

The final implementation targets in terms of allowable wet-weather exceedance days must be achieved at each individual beach location no later than July 15, 2021.

Department’s Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to bacteria pollutant loading is not known.

COLORADO RIVER REGION BACTERIA TMDL

Coachella Valley Storm Water Channel (CVSC) Bacterial Indicators TMDL, April 27, 2012

The TMDL identifies flows from urban MS4s as violating applicable water quality objectives for REC I and REC II. Birds and other animals are possible sources of bacteria in the CVSC.

Final Bacterial Indicator WLA

Wasteload allocations (WLAs) for bacteria indicator dischargers into CVSC are described below:

Allocation Type	Discharger	E. Coli Allocations
Point Source (WLAs)	Department	A log mean (Geomean) of the MPN of ≤126/100ml (based on a minimum of not less than five samples during a 30-day period), or 400 MPN/100ml for a single sample.

Final Bacterial Indicator WLA Specific to the Department

See Final WLA above.

Final Bacterial Indicator Deadlines

The final implementation targets in terms of allowable wet-weather exceedance days must be achieved at each individual beach location no later than July 15, 2021.

Department’s Bacterial Indicator Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to bacteria pollutant loading is not known.

SAN DIEGO REGION BACTERIA TMDL

Project I – Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek) TMDL, June 22, 2011

The TMDL identifies dry and wet weather runoff as the source of bacterial loading.

Final Indicator Bacteria WLA

In general, controllable point and nonpoint sources generating less than five percent of the total loads (e.g., The Department and/or Agriculture) were assigned WLAs and LAs equal to their existing loads, resulting in no load reduction requirements.

The dry weather mass-load based TMDLs were assigned entirely to discharges from MS4 land uses because the runoff that transports bacteria to surface waters during dry weather is expected to occur in urban areas. The allocation of the dry weather mass-based TMDL assumes that no surface runoff discharge to receiving waters occurs from the Department, Agriculture, or Open Space land use categories (i.e., $WLA_{\text{Caltrans}} = 0$, $LA_{\text{Agriculture}} = 0$, and $LA_{\text{OpenSpace}} = 0$), meaning the entire dry weather mass-based TMDL (i.e., allowable mass load) is allocated to Municipal MS4 land use categories (i.e., $WLA_{\text{MS4}} = \text{TMDL}$).

For the wet weather TMDLs, discharges of surface runoff are expected from all land use types, thus allocations were assigned to each land use category (i.e., Municipal MS4s, the Department, Agriculture, and Open Space). The Department's wet weather WLAs were set equal to existing loads, since the Department's discharges were found to account for less than 1 percent of the wet weather load. Allocations were assigned based on discharges of "existing" bacteria loads predicted with a wet weather watershed model. In general, the Department WLAs, Agriculture LAs (in all but four of the modeled watersheds), and Open Space LAs were set equal to the "existing" bacteria loads predicted by the wet weather watershed model. The remainder of allowable bacteria load that can be discharged to the receiving waters as part of the TMDL was assigned as the Municipal MS4s WLAs (or proportionally divided between the Municipal MS4s and Agriculture land use categories in four of the modeled watersheds).

Final Indicator Bacteria WLA Specific to Department

See Final WLA above.

Final Indicator Bacteria Deadlines

TMDL Compliance Schedule: Full implementation of the TMDLs for indicator bacteria shall be completed within 10 to 20 years (April 4, 2021 to April 4, 2031) from the effective date of the Basin Plan amendment. The compliance schedule for implementing the load and wasteload reductions required to achieve the wet weather and dry weather TMDLs is phased in over time.

The dry weather TMDLs must be achieved in the receiving waters as soon as possible, but no later than 10 years (April 4, 2021) from the effective date of the Basin Plan amendment

that establishes the TMDLs. For dischargers that undertake wet weather load reduction programs only for bacteria, the wet weather TMDLs must be achieved in the receiving waters as soon as possible, but no later than 10 years (April 4, 2021) from the effective date.

For dischargers in watersheds that undertake concurrent wet weather load reduction programs for other pollutant constituents (e.g. metals, pesticides, trash, nutrients, sediment, etc.) together with the bacteria load reduction requirements in these TMDLs, an alternative compliance schedule may be proposed and incorporated by the San Diego Water Board into the implementing orders. The wet weather TMDL compliance schedules may be extended, but no more than a total of 20 years (April 4, 2031) from the effective date of the Basin Plan amendment. The dry weather TMDL compliance schedule cannot be extended to be more than 10 years (April 4, 2021) from the effective date of the Basin Plan amendment.

Department's Indicator Bacteria Contribution (relative contribution to pollutant loading)

The Department's relative contribution to bacteria pollutant loading is unknown.

F. Diazinon TMDL Pollutant Category

General Description of Pollutant Category

Diazinon is an organophosphate insecticide has been banned for residential use; it is still used in agriculture.

Sources of Pollutant & How it Enters the Waterway

It is a broad spectrum contact insecticide. Residential use was for general-purpose gardening use and indoor pest control of ants, fleas, cockroaches, silverfish, mosquitos and spiders in residential, non-food buildings.

Watershed Contribution

The Department does not use Diazinon. The Department is identified as a source of Diazinon because they own and operate storm water conveyance systems in association with roadways and facilities. In some areas the Department's storm water systems are connected to municipal storm water systems.

Control Measures

Attachment IV, Section III.F, prohibits the discharge of Diazinon. This prohibition is consistent with the TMDLs for Diazinon which generally limit the discharge of this pesticide to non-toxic levels. Since the Department does not use Diazinon it is in compliance with the prohibition of discharge. Attachment IV, Part F does not require additional monitoring beyond what is specified in the permit.

SAN FRANCISCO BAY REGION DIAZINON TMDL

San Francisco Bay Urban Creeks Diazinon and Pesticide Toxicity May 16, 2007

The TMDL states that most urban runoff flows through storm drains operated by all storm water entities including the Department. The use of diazinon is prohibited in the Department's NPDES permit, and no additional measures are required.

Final Diazinon WLA

The WLA for each storm water entity is 100 ng/L as a one-hour average.

Final Diazinon WLA Specific to the Department

The Department's level of responsibility is not identified.

Final Diazinon Deadlines

The TMDL does not specify any interim or final compliance dates but states that the requirements included in the permits are inadequate to meet the targets the San Francisco Bay Water Board will require additional control measures or additional actions by others.

Department's Diazinon Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the diazinon pollutant loading is not known.

SAN DIEGO REGION DIAZINON TMDL

Chollas Creek Diazinon TMDL, November 3, 2003

Final Diazinon WLA

The below concentration-based waste load allocations are applied equally to all diazinon discharge sources in the Chollas Creek watershed:

Waterbody	Diazinon (ng/L)	
	Acute (1 hour ave)	Chronic (4 day ave)
Chollas Creek	72	45

Final Diazinon WLA Specific to the Department

The final WLA for the Department is noted above.

Final Diazinon Deadlines

The TMDL states that the phased compliance schedule will apply only to attainment of numeric limitations for diazinon and all other requirements of this TMDL will be immediately effective upon incorporation into applicable NPDES permits.

Department Diazinon Contribution

In the supporting technical documentation, the San Diego Regional Water Board stated that the Department is responsible for the major freeways and roadways making up approximately four percent of the land in the watershed; that the Department reports diazinon is not used; and that the Department has an integrated pest management plan. Since the Department does not use Diazinon it is in compliance with the prohibition of discharge.

G. Selenium TMDL Pollutant Category

General Description of Pollutant Category

Sources of Pollutant & How it Enters the Waterway

Selenium is naturally occurring in geologic formations, soils and aquatic sediments. Storm water runoff, dewatering, ground water seepage, irrigation of high selenium content soils, and oil refineries are identified as sources of selenium to surface waters in southern California. Generally, atmospheric deposition was determined to be a not significant source. Selenium bioaccumulates to levels that cause severe impacts on invertebrates, fish, birds that prey on fish, and humans.

Watershed Contribution

Selenium in soil may be a contributing source, and naturally occurring selenium in groundwater may be a significant source.

Control Measures

As discussed under the individual TMDLs below, the TMDLs in this pollutant category generally establish that the Department is a relatively minor source of selenium since the sources of selenium are not transportation related. The Department is expected to continue its current pollutant control activities in order to remain in compliance with the TMDLs.

LOS ANGELES REGION SELENIUM TMDL

Ballona Creek Metals and Selenium TMDL, December 22, 2005 and reaffirmed on October 29, 2008.

This TMDL addresses dry- and wet-weather discharges of metals and selenium in Ballona Creek and Sepulveda Canyon Channel. There are significant differences in the sources of metals and selenium loadings during dry and wet weather because hardness values and flow conditions in Ballona Creek and Sepulveda Canyon Channel vary between dry and wet weather. A grouped mass-based waste load allocation is developed for the storm water permittees that includes the Department.

Final Selenium WLA

The Department and MS4 storm water NPDES permittees will be found to be effectively meeting the dry-weather WLAs if the instream pollutant concentrations or load at the first downstream monitoring location is equal to or less than the corresponding concentration- or load based WLA.

Selenium Dry-weather Storm Water WLAs Apportioned between Storm Water Permits (grams total recoverable metals/day)

Permittee	Waste Load Allocation (grams/day)
Ballona Creek	
MS4 Permittees	169
Department	2
Sepulveda Channel	
MS4 Permittees	76
General Industrial	1

Selenium Wet-weather Storm Water WLAs Apportioned between Storm Water Permits (total recoverable metals)

Permittee	Waste Load Allocation (grams/day)
MS4 Permittees	4.73E-06 x Daily storm volume (L)
Department	6.59E-08 x Daily Storm Volume (L)
General Construction	1.37E-07 x Daily storm volume (L)
General Industrial	3.44E-08 x Daily storm volume (L)

The Department and MS4 NPDES permittees will be found to be effectively meeting the wet-weather WLAs if the loading at the most downstream monitoring location is equal to or less than the wet-weather WLA.

Final Selenium WLA Specific to the Department

See Tables above for specific Department WLAs.

Final Deadlines

The implementation schedule for the MS4 permittees and the Department consists of a phased approach, with compliance to be achieved in prescribed percentages of the watershed, with total compliance to be achieved within 15 years. The Department shall demonstrate that 100 percent of the total drainage area served by the MS4 system is effectively meeting the dry-weather and wet-weather WLAs.

Whereas the Department is responsible for meeting their mass-based waste load allocations they may choose to work with the MS4 Permittees.

Department’s Selenium Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to the selenium loading is not known.

Calleguas Creek, its Tributaries and Mugu Lagoon Metals and Selenium TMDL, March 26, 2007

Significant sources were identified as urban runoff, agricultural runoff, groundwater seepage and POTW effluent. The Department is a participant in the watershed-wide water monitoring program.

Final Selenium WLA

Dry-weather is defined as days when flows in the stream are less than the 86th percentile flow rate for each reach; wet weather is defined as flows greater than 86th percentile. The daily maximum interim limit is set equal to the 99th percentile of available discharge data, the monthly average interim limit is set equal to the 95th percentile. The interim WLAs for dry-weather in Revolon Slough are 14 µg/L criteria maximum concentration (CMC), and 13 µg/L criteria continuous concentration (CCC) for wet-weather. There is no interim wet-weather WLA because current loads do not exceed the TMDL. In this TMDL interim limits and WLAs are applied to receiving waters.

Final Selenium WLA Specific to the Department

Final WLAs for selenium in Revolon Slough are:

Dry weather: In lbs/day are 0.004 low flow, 0.003 average flow, 0.004 elevated flow.

Wet weather: In lbs/day is $0.027*Q^2+0.47*Q$, where Q equals the daily storm volume.

Current loads do not exceed the loading capacity during wet weather, therefore no additional action by the Department is needed during wet weather.

Final Deadlines

The TMDL states that storm water dischargers are expected to achieve compliance through implementation of BMPs. A group watershed monitoring plan was required and receiving water monitoring compliance points are specified for all dischargers subject to the TMDL. A 25 percent reduction was required by March 2012, and a 50 percent reduction is required by March 2017. Final compliance is required by March 2022. The TMDL states that achievement of required reductions will be evaluated based on progress towards BMP implementation as outlined in the UWQMPs and in consideration of background loading information. The requirements of Attachment IV, Section III.G are consistent with the requirements of the TMDL.

Department's Selenium Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the selenium pollutant loading is not known.

San Gabriel River and Impaired Tributaries Metals and Selenium TMDL, March 26, 2007

The San Gabriel River and impaired tributaries metals and selenium TMDL was established by U.S. EPA (and therefore there are no milestones, compliance schedule, or monitoring requirements) and includes a dry-weather TMDL for selenium in San Jose Creek Reach 1.

The TMDL notes that selenium is present in local marine sedimentary rocks and presumes that much of the selenium in San Jose Creek results from natural soils, and that this assumption is corroborated by the fact that many of the impairments in San Jose Creek occur after the channel becomes soft-bottomed. Other potential sources were identified as mobilization of groundwater, such as by dewatering, irrigation of soils naturally high in selenium, and discharges from petroleum-related activities.

The requirements of Attachment IV, Section III.G are consistent with the requirements of the TMDL.

Final WLA for Selenium

The TMDL sets a dry-weather selenium WLA of five (5) µg/L for all storm water discharges to San Jose Creek. The TMDL states that a review of the storm water permits indicates that the Department discharges entirely to municipal storm water systems.

Final Selenium WLA Specific to the Department

No specific selenium WLAs are assigned to the Department. The dry-weather WLAs for the storm water permittees are shared by the MS4 permittees and the Department because there is not enough data on the relative extent of MS4 and the Department's areas.

Final Deadlines for Selenium

The MS4 permittees and the Department shall demonstrate that 100 percent of the total drainage area served by the storm drain system is effectively meeting both the dry-weather and wet-weather WLAs and attaining water quality standards for metals and selenium.

Department's Selenium Contribution (relative contribution to pollutant loading)

The Department's relative contribution to selenium pollutant loading is not known.

H. Temperature TMDL Pollutant Category

General Description of Pollutant Category

The North Coast Region Basin Plan defines the water quality objective for temperature as follows:

- (1) For estuaries, the Basin Plan incorporates by reference the statewide plan entitled "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California."
- (2) The following temperature objectives apply to surface waters:

The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. At no time or place shall the temperature of any COLD water be increased by more than five degrees Fahrenheit

above natural receiving water temperature. At no time or place shall the temperature of WARM intrastate waters be increased more than five degrees Fahrenheit above natural receiving water temperature.

The designated beneficial uses affected by thermal pollution of receiving waters include: cold freshwater habitat (COLD); rare, threatened, and endangered species (RARE); migration of aquatic organisms (MIGR); and spawning, reproduction, and/or early development of fish (SPWN); commercial and sport fishing (COMM); and contact and non-contact water recreation (REC-1 and REC-2).

Sources of Pollutant & How it Enters the Waterway

Anthropogenic processes that influence water temperature include changes to stream shade, stream flow via changes in groundwater accretion, streamflow via surface water use, changes to local microclimates, and channel geometry. Road construction and maintenance can, for example, involve the removal of some riparian vegetation, thus increasing ambient water temperature along the affected segment of a surface water body unless this impact is minimized via re-planting and/or by reducing the amount of vegetation removed.

Natural sources of sediment which can increase receiving water temperatures include geologically unstable areas that are subject to landslides, as well as smaller sediment sources such as gullies and stream-bank failures. Anthropogenic sources include road-related stream crossing failures, gullies, fill failures, and landslides precipitated by road-related surface erosion and cut bank failures. Road-related activities which can increase sediment discharge to a waterway include the construction and maintenance of paved and unpaved roadways, watercourse crossing construction, reconstruction, maintenance, use, and obliteration, and many activities conducted on unstable slopes. Unstable areas are areas with a naturally high risk of erosion and areas or sites that will not reasonably respond to efforts to prevent, restore or mitigate sediment discharges. Unstable areas are characterized by slide areas, gullies, eroding stream banks, or unstable soils that are capable of delivering sediment to a watercourse. Slide areas include shallow and deep seated landslides, debris flows, debris slides, debris torrents, earthflows, headwall swales, inner gorges and hummocky ground. Unstable soils include unconsolidated, non-cohesive soils and colluvial debris.

Watershed Contribution

The Department is a relatively minor source of pollutants and small percentage of the watershed. The Department will address the highest problem areas soonest and therefore address the problem at the appropriate level for the temperature and sediment TMDLs.

Control Measures

Dischargers responsible for vegetation removal are encouraged (and sometimes required) to preserve and restore such vegetation where possible. This may include planting riparian trees, minimizing the removal of vegetation that provides shade to a water body, and minimizing activities that might suppress the growth of new or existing vegetation. Reductions in sediment loads are expected to increase the number and depth of pools in

streams and rivers, and to reduce wetted channel width/depth ratios. These changes would tend to result in lower stream temperatures overall and in more lower-temperature pool habitat.

The Department is required to implement control measures to prevent erosion and sediment discharge. The measures that control the discharge of sediment can be effective in reducing thermal pollution in receiving waters. This can be achieved by protecting hillsides, intercepting and filtering runoff, avoiding concentrated flows in natural channels and drains, and avoidance of alterations of natural runoff flow patterns.

The sediment control requirements in Attachment IV are intended to reduce the adverse impacts of excessive sediment discharges to sediment-impaired waters, including impacts to the cold water salmonid fishery and the COLD, COMM, RARE, SPWN, and MIGR beneficial uses. The beneficial uses associated with the cold water salmonids fishery are often the most sensitive to sediment discharges.

The Sediment TMDL Implementation Policy also directs staff to develop: (1) the Work Plan, which describes how and when permitting and enforcement tools are to be used; (2) the Guidance Document on Sediment Waste Discharge Control; (3) the Sediment TMDL Implementation Monitoring Strategy; and (4) the Desired Conditions Report. Of these items, the Guidance Document on Sediment Waste Discharge Control and the Sediment TMDL Implementation Monitoring Strategy are still under development by the North Coast Region. At present, the requirements in Attachment IV are generally sufficient to address the sediment/temperature TMDLs in the North Coast Region that originate from a comparatively minor pollutant source, and this is accomplished by focusing on the most problematic areas and activities within this relatively low-volume subset of anthropogenic discharges for this pollutant category.

Attachment IV requires continuation of existing monitoring plans, or monitoring consistent with the TMDLs' requirements as approved by the Regional Water Board Executive Officer. A primary focus of the monitoring required by Attachment IV is management practice effectiveness monitoring and "Adaptive Management" for BMP implementation requirements ensures compliance with the sediment/temperature TMDLs.

The North Coast Regional Water Board is also in the process of amending its basin plan for the control of thermal pollution. These revisions will add a policy for implementing the water quality objective for temperature. The amendment will also add additional action plans to implement total maximum daily loads for temperature in the Navarro, and Eel, and Mattole watersheds.

The proposed revisions to the Basin Plan include changes to Chapter 4 –Implementation Plans. The Regional Water Board directed staff to prepare an amendment incorporating a temperature implementation policy into the Basin Plan by adoption of resolution R1-2012-0013. The proposed Basin Plan amendment will describe the approach to implementing the interstate water quality objective for temperature in one cohesive policy. It will identify the

regulatory mechanisms staff will employ to ensure achievement of the water quality objective for temperature, it will describe the significance of stream shade as a factor determining stream temperatures, and it will direct staff to address temperature concerns through existing authorities and processes.

The proposed Basin Plan amendment will also establish implementation plans for the Navarro, Mattole, Upper Main Eel, Middle Main Eel, Lower Eel, Middle Fork Eel, North Fork Eel, and South Fork Eel River temperature TMDLs.

NORTH COAST REGION TEMPERATURE TMDLS

Eel River (Lower HA) Temperature and Sediment TMDL, U.S. EPA Established on December 18, 2007

Final Temperature WLA

For the diffuse permitted sources, such as municipal and industrial storm water discharges, the Department's facilities, construction sites, and municipalities, as well as for discharges that are subject to NPDES permits but are not currently permitted, the waste load allocation (WLA) is expressed as follows: zero net increase in receiving water temperature.

Final Temperature WLA Specific to the Department

As stated above, U.S. EPA's wasteload allocation for the temperature TMDL assigned to the Department and other point source dischargers is zero net increase in receiving water temperature.

Final Temperature Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Contribution (relative contribution to pollutant loading)

U.S. EPA states that although nonpoint sources are responsible for most heat loading in the watershed, point sources may also discharge some heat in the watershed.

Eel River (Middle-Fork) Eden Valley, and Round Valley HSAs Temperature and Sediment TMDL, U.S. EPA Established on December 2003

Final Temperature WLA

Although U.S. EPA states that because appropriate heat loads, water temperatures and tree heights cannot be generalized on a basin-wide scale, this reduction is best achieved by allowing trees to grow so as to provide the equivalent amount of shade that would be provided under natural conditions. In addition, measures to reduce sediment discharge and promote establishment or protection of additional refugia pool areas will facilitate attainment of water quality standards. In this sense, the temperature and sediment TMDLs overlap to some degree.

Final Temperature WLA Specific to the Department

Please see above discussion of the temperature WLA.

Final Temperature Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Temperature Contribution (relative contribution to pollutant loading)

U.S. EPA states that although nonpoint sources are responsible for most heat loading in the watershed, point sources may also discharge some heat in the watershed.

Eel River (South Fork) HA Temperature and Sediment TMDL, U.S. EPA Established on December 16, 1999

U.S. EPA's source analysis indicates that the sediment loading due to nonpoint erosion from roads and other anthropogenic activities accounts for a substantial portion of the total sediment loading in this watershed.

The waste load allocation for point sources are for sediment only, i.e., they are not directly related to the temperature portion of the TMDL, nor does U.S. EPA set a waste load allocation for point sources under the temperature portion of the TMDL. However, U.S. EPA also states that any improvements in stream temperature from reduced sedimentation contribute to the cumulative benefits of both sediment and temperature load reductions, and this assumption is accommodated in U.S. EPA's calculations for the margin of safety in this TMDL.

Final Temperature WLAs

As stated above, there is no wasteload allocation for point sources.

Final Temperature WLA Specific to the Department

As stated above, there is no specific wasteload allocation for the Department.

Final Temperature Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Temperature Contribution to Thermal Loading (relative contribution to pollutant loading)

U.S. EPA attributes most sediment and thermal pollutant loading in the TMDL to nonpoint sources, and considers the Department's and other point source contributions to be comparatively minor.

Eel River (Upper Main HA) Temperature and Sediment TMDL, U.S. EPA Established on December 29, 2004

Final Temperature WLA

U.S. EPA states that there are no point source discharges included in the temperature TMDL for purposes of attaining temperature reductions via “shade allocation,” so the waste load allocation is set to zero. U.S. EPA states that permitted sources of increased water temperatures and sediment loading, if they occur in the future, will be attributable only to construction-related storm water discharges.

Final Temperature WLA Specific to the Department

As stated above, U.S. EPA stated that there are no point source discharges for thermal pollution, so the wasteload allocation for all point source discharges (including the Department) is set to zero.

Final Temperature Deadlines

U.S. EPA did not specify deadlines for implementation.

Department’s Temperature Contribution (relative contribution to pollutant loading)

U.S. EPA considers all point sources of temperature pollution to be insignificant for purposes of this TMDL.

Klamath River in California Temperature, Dissolved Oxygen, Nutrients, and Microcystin TMDL, December 28, 2010

Final Temperature WLA

The Iron Gate Fish Hatchery was identified as the only point-source heat load in the Klamath River watershed: The interstate water quality objective for temperature prohibits the discharge of thermal waste to the Klamath River, and therefore the waste load allocation for Iron Gate Hatchery is set to zero, as monthly average temperatures. The TMDL addresses elevated temperatures from natural and non-point anthropogenic sources. The non-point sources include: (1) excess solar radiation, expressed as its inverse, shade; (2) heat loads associated with increased sediment loads; (3) heat loading from impoundments; and (4) heat loads from Oregon. The assigned load allocations for temperature are expressed as follows (as adapted from Table 4-15 in the basin plan):

Source	Allocation
Excess Solar Radiation (expressed as effective shade)	The shade provided by topography and full potential vegetation conditions at a site, with an allowance for natural disturbances such as floods, wind throw, disease, landslides, and fire.
Increased Sediment Loads	Zero temperature increase caused by substantial human-caused sediment-related channel alterations.
Impoundment Discharges	Zero temperature increase above natural temperatures ¹
Excess Solar Radiation	The shade provided by topography and full potential

Source	Allocation
(expressed as effective shade)	vegetation conditions at a site, with an allowance for natural disturbances such as floods, wind throw, disease, landslides, and fire.
Increased Sediment Loads	Zero temperature increase caused by substantial human-caused sediment-related channel alterations. ²
Impoundment Discharges	Zero temperature increase above natural temperatures

1. Natural temperatures are those water temperatures that exist in the absence of anthropogenic influences, and are equal to natural background.
2. Substantial human-caused sediment-related channel alteration: “A human-caused alteration of stream channel dimensions that increases channel width, decreases depth, or removes riparian vegetation to a degree that alters stream temperature dynamics and is caused by increased sediment loading.”

Final Temperature WLA Specific to the Department

The Department was not assigned a waste load allocation for temperature.

Final Deadlines

No deadlines were specified.

Department’s Pollutant Contribution (relative contribution to pollutant loading)

The Department is listed as a source of thermal pollution: however, the relative magnitude of the Department’s contribution to thermal pollution was not specified or estimated.

Navarro River Sediment and Temperature TMDL, U.S. EPA Established on December 27, 2000

Final Temperature WLA

U.S. EPA states that there are no known point sources of heat to the Navarro or its tributaries. The source analysis therefore focused on non-point sources. The wasteload allocation any for point sources which might be present is thus presumed to set to zero.

The Navarro River TMDLs for temperature and sediment are based on separate analyses. Reduced sediment loads could be expected to lead to increased frequency and depth of pools and to reduced wetted channel width/depth ratios. These changes would tend to result in lower stream temperatures overall and in more lower-temperature pool habitat.

Improvements in stream temperature that may result from reduced sedimentation were not considered in the analysis.

Final Temperature WLA Specific to the Department

The Department is not specifically mentioned as a source of pollutant loading for temperature, therefore the wasteload allocation for the Department is presumed to be set to zero.

Final Temperature Deadlines

U.S. EPA did not specify deadlines for implementation of this TMDL.

Department's Temperature Contribution (relative contribution to pollutant loading)

As mentioned above, neither the Department nor other point sources are identified as sources of pollutant loading for temperature or sediment, so U.S. EPA has determined that these potential sources are insignificant in this TMDL.

Scott River Sediment and Temperature TMDL, August 11, 2006**Final Temperature WLA**

U.S. EPA states that there are no point sources for temperature related discharges within the area encompassed by this TMDL, so the waste load allocation is set to zero.

Final Temperature WLA Specific to the Department

U.S. EPA directed Regional Water Board staff shall evaluate the effects of the Department's state-wide NPDES permit, storm water permit, and waste discharge requirements (collectively known as the Department's Storm Water Program) by September 8, 2008. The evaluation shall determine the adequacy and effectiveness of the Department's Storm Water Program in preventing, reducing, and controlling sediment waste discharges and elevated water temperatures in the North Coast Region, including the Scott River watershed.

Final Temperature Deadlines

U.S. EPA did not establish specific wasteload allocations for point sources, so the wasteload allocations are set to zero.

Department's Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the temperature pollutant loading is not known.

Shasta River Dissolved Oxygen and Temperature TMDL, U.S. EPA Established on December 26, 2007**Final Temperature WLA**

There are no point source heat loads in the Shasta River watershed, and therefore no waste load allocations apply.

Final Temperature WLA Specific to the Department

The Department was not assigned a waste load allocation for temperature: as stated above, there are no point sources of heat loads in the Shasta River watershed.

Final Deadlines

No deadlines were specified.

Department’s Pollutant Contribution

The Department’s relative contribution to the temperature pollutant loading in Shasta River Watershed is not known.

I. Chloride Pollutant Category**General Description of Pollutant Category**

The Department is named as a responsible party in the Santa Clara River watershed chloride TMDL.

Sources of Pollutant & How it Enters the Waterway

Chloride in the Santa Clara River watershed is principally due to increased salt loadings from imported water and the use of self-regenerating water softeners.

Watershed Contribution

The Department does not import water and does not use self-generating water softeners.

Control Measures

The Department is expected to be in compliance with the chloride WLA without any additional control actions as long as the Department is in compliance with this Order.

LOS ANGELES REGION CHLORIDE TMDLS***Santa Clara River Reach 3 Chloride TMDL, U.S. EPA Established on June 18, 2003***

There are two major sources that discharge into Reach 3, the Santa Paula and Fillmore WRPs, that comprise approximately 80 percent of the total estimated load under flow conditions.

The Department is one of five minor point sources that discharge to Reach 3. Although the Department is a minor source, the minor discharges to the Santa Clara River are typically related to dewatering and construction projects that are covered by other NPDES permits.

Final Chloride WLA**Estimated Chloride Loads to Reach 3 Under Low Flow Conditions**

Point Sources	Waste Load Allocation (mg/L)
Fillmore WRP	80
Santa Paula WRP	80
MS4 Stormwater	80

Point Sources	Waste Load Allocation (mg/L)
Construction General Permit	80
Department	80
Other Minor Permits	80
NonPoint Sources	Load Allocation (mg/L)
Other Tributaries to Reach 3*	80
Sespe Creek	40
Santa Clara Reach 4	100
Total	80
* Although other tributaries to Reach 3 were not included in the linkage analysis above, their contributions to Reach 3 chloride loads and flows are believed to be insignificant.	

Final Chloride WLA Specific to the Department

Specific WLA for the Department is 80 mg/L.

Final Chloride Deadlines

U.S. EPA established this TMDL and it became effective on June 18, 2003. The Department is expected to be in compliance with the Chloride WLA without any additional control actions as long as the Department is in compliance with this Order.

Department's Chloride Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the chloride pollutant loading in the Santa Clara River Reach 3 is not known.

Upper Santa Clara River Chloride TMDL, April 6, 2010

The principal source of chloride in the Upper Santa Clara River is discharges from the Saugus WRP and Valencia WRP, which are estimated to contribute 70 percent. These sources of chloride accumulate and degrade groundwater in the lower area east of Piru Creek in the basin.

Final Chloride WLA

Other minor NPDES discharges receive conditional WLAs shown below.

Reach	Concentration-based Conditional WLA for Chloride (mg/L)
6	150 (12-month Average)
	230 (Daily Maximum)
5	150 (12-month Average)
	230 (Daily Maximum)
4B	117 (3-month Average)
	230 (Daily Maximum)

Final Chloride WLA Specific to the Department

The Department is assigned the above concentration based WLAs.

Final Chloride Deadlines

The interim and final WLAs for TDS and sulfate contained in the Basin Plan Amendment are essentially established for the principal sources. The Department does not import water and does not use self-generating water softeners. The Department is expected to be in compliance with the Chloride WLA without any additional control actions as long as the Department is in compliance with this Order.

Department's Chloride Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the chloride pollutant loading in the Upper Santa Clara River is not known.

Region Specific Requirements

The Regional Water Boards have identified specific areas within their Regions requiring special conditions (Attachment V). These special conditions are needed to account for the unique value of the resource(s) within the Region, special pollutant or pollution control issues within the Region, or storm water management and compliance issues applicable to the Region. These special requirements need not be applied statewide but are applicable only to Department discharges within the Regions as specified in Attachment V. Region specific requirements are included for the North Coast, San Francisco Bay, and Lahontan Regional Water Boards.

North Coast Region

1. Sediment. Region specific requirements addressing sediment discharges in sediment-impaired watersheds in the North Coast Region are based on the "Total Maximum Daily Load Implementation Policy Statement for Sediment-Impaired Receiving Waters in the North Coast Region," as included in the Basin Plan and Resolution No. R1-2004-0087. The Policy requires the use of NPDES permits and waste discharge requirements to achieve compliance with sediment-related water quality standards. The requirements in Attachment V to systematically inventory, prioritize, control, monitor, and adapt, as well as to include a time schedule in the annual District Workplan, are consistent with region-wide excess sediment control regulations.

The sediment requirements are intended to reduce the adverse impacts of excessive sediment discharges to sediment-impaired waters, including impacts to the cold water salmonid fishery and the COLD, COMM, RARE, SPWN, and MIGR beneficial uses. The beneficial uses associated with the cold water salmonid fishery are often the most sensitive to sediment discharges. Risks to salmonids from excessive sediment are well documented in scientific literature and include:

- the filling of pools and subsequent reduction in available in-stream salmonid habitat;
- burial of spawning gravels;
- gill abrasion and death due to extremely high turbidity levels;
- reduction in macroinvertebrate populations available as food for salmonids; and

- alterations in channel geometry to a wider, shallower channel which is subject to increases in solar heating.
2. Riparian Vegetation Requirements. Region specific requirements to protect and restore riparian vegetation are based on the Water Quality Objective for temperature. The temperature objective states, in part, that the natural receiving water temperature shall not be altered unless it can be demonstrated that such alteration does not adversely affect beneficial uses. Removal of riparian vegetation associated with Department activities has the potential to decrease shade, increase solar radiation, and raise water temperatures, and may therefore cause an exceedance of the temperature objective.

The requirements in Attachment V direct the Department to protect and restore riparian vegetation to the greatest extent feasible. In many cases, activities involving the removal of riparian vegetation will require a 401 water quality certification, which will contain more specific conditions regarding the removal and/or establishment of vegetation.

These requirements are intended to prevent alterations to natural receiving water temperature from Department activities. The primary mechanism in which riparian vegetation influences water temperature is through the shade. Loss of riparian vegetation and the shade that it provides can lead to increased solar radiation, hotter water temperatures, and adverse impacts to beneficial uses. The beneficial uses most sensitive to increases in water temperature are often those associated with the cold water salmonid fishery. Risks to salmonids are well documented in scientific literature and include:

- reduced feeding rates and growth rates;
- impaired development of embryos and alevins;
- changes in the timing of life history events, such as upstream migration, spawning, and seaward migration;
- increased disease infection rates and disease mortality; and
- direct mortality.

San Francisco Bay Region

The Urban Runoff Management, Comprehensive Control Program section of the Basin Plan (Chapter 4.14) requires municipalities and local agencies, including the Department, to address existing water quality problems and prevent new problems associated with urban runoff through the development and implementation of a comprehensive control program focused on reducing current levels of pollutant loading to storm drains to the maximum extent practicable.

The Highway Runoff Control Program section of the Basin Plan (Chapter 4.14.2) requires the Department to manage and monitor pollutant sources from its ROW through development and implementation of a highway runoff management plan.

The Basin Plan comprehensive and highway runoff program requirements are designed to be consistent with federal regulations (40 C.F.R., §§ 122-124) and are implemented through issuance of NPDES permits to owners and operators of MS4s. A summary of the regulatory provisions is contained in Title 23 of the California Code of Regulations at section 3912. The Basin Plan identifies beneficial uses and establishes water quality objectives for surface waters in the Region, as well as effluent limitations and discharge prohibitions intended to protect those uses. The region-specific requirements in Attachment V of this Order implement the plans, policies, and provisions of the Regional Water Board's Basin Plan.

1. Trash Load Reduction.

a. Legal Authority. The following legal authorities apply to the trash load reduction requirements specified in Attachment V:

- Clean Water Act sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 Code of Federal Regulations sections 122.26(d)(2)(i)(B, C, D, E, and F) and 40 Code of Federal Regulations section 122.26(d)(2)(iv).
- Federal NPDES regulations 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B) requires, "shall be based on a description of a program, including a schedule, to detect and remove (or require the discharger to the municipal storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer."
- Federal NPDES regulation 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B)(2) requires, "a description of procedures to conduct on-going field screening activities during the life of the permit, including areas or locations that will be evaluated by such field screens."
- Federal NPDES regulation 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B)(3) requires, "a description of procedures to be followed to investigate portions of the separate storm sewer system that, based on the results of the field screen, or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources of non-storm water."
- Federal NPDES regulations 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B)(4) requires, "a description of procedures to prevent, contain, and respond to spills that may discharge into the municipal separate storm sewer."
- San Francisco Bay Basin Plan, Chapter 4 – Implementation, Table 4-1 Prohibitions, Prohibition 7, which is consistent with the State Water Board's Enclosed Bays and Estuaries Policy, Resolution 95-84, prohibits the discharge of rubbish, refuse, bark, sawdust, or other solid wastes into surface waters or at any place where they would contact or where they would be eventually transported to surface waters, including flood plain areas. This prohibition was adopted by the Regional Water Board in the 1975 Basin Plan, primarily to protect recreational uses such as boating.

- b. Extent, Impacts, and Conclusions. Trash²⁵ and litter are a pervasive problem near and in creeks and in San Francisco Bay having major impacts on the environment, including aquatic life and habitat in those waters. Ubiquitous, unacceptable levels of trash in waters of the San Francisco Bay Region warrant a comprehensive and progressive program of education, warning, and enforcement, and certain areas warrant consideration of structural controls and treatment. Trash in urban waterways of coastal areas can become *marine debris*, known to harm fish and wildlife and cause adverse economic impacts.²⁶ It accumulates in streams, rivers, bays, and ocean beaches throughout the San Francisco Bay Region, particularly in urban areas.

Trash adversely affects numerous beneficial uses of waters, particularly recreation and aquatic habitat. Not all litter and debris delivered to streams are of equal concern with regard to water quality. Besides the obvious negative aesthetic effects, most of the harm of trash in surface waters is to wildlife in the form of entanglement or ingestion.^{27,28} Some elements of trash exhibit significant threats to human health, such as discarded medical waste, human or pet waste, and broken glass.²⁹ Also, some household and industrial wastes can contain toxic batteries, pesticide containers, and fluorescent light bulbs containing mercury. Large trash items such as discarded appliances can present physical barriers to natural stream flow, causing physical impacts such as bank erosion. From a management perspective, the persistent accumulation of trash in a waterbody is of particular concern, and signifies a priority for prevention of trash discharges. Also of concern are trash *hotspots* where illegal dumping, littering, and/or accumulation of trash occur.

The narrative water quality objectives applicable to trash are Floating Material (Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses), Settleable Material (Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses), and Suspended Material (Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses).

²⁵ For the purposes of this provision, trash is defined to consist of litter and particles of litter. Man-made litter is defined in California Government Code section 68055.1 (g): *Litter* means all improperly discarded waste material, including, but not limited to, convenience food, beverage, and other product packages or containers constructed of steel, aluminum, glass, paper, plastic, and other natural and synthetic materials, thrown or deposited on the lands and waters of the state, but not including the properly discarded waste of the primary processing of agriculture, mining, logging, sawmilling, or manufacturing.

²⁶ Moore, S.L., and M.J. Allen. 2000. Distribution of anthropogenic and natural debris on the mainland shelf of the Southern California Bight. *Mar. Poll. Bull.* 40:83-88.

²⁷ Laist, D. W. and M. Liffmann. 2000. *Impacts of marine debris: research and management needs*. Issue papers of the International Marine Debris Conference, Aug. 6-11, 2000. Honolulu, HI, pp. 16–29.

²⁸ McCauley, S.J. and K.A. Bjorndahl. 1998. Conservation implications of dietary dilution from debris ingestion: sublethal effects in post-hatchling loggerhead sea turtles. *Conserv. Biol.* 13(4):925-929.

²⁹ Sheavly, S.B. 2004. *Marine Debris: an Overview of a Critical Issue for our Oceans*. 2004 International Coastal Cleanup Conference, San Juan, Puerto Rico. The Ocean Conservancy.

The Regional Water Board, at its February 11, 2009 hearing, adopted a resolution proposing that 26 waterbodies be added to the 303(d) list for trash. The adopted Resolution and supporting documents are contained in Attachment 10.1 – 303(d) Trash Resolution and Staff Report, February 2009.

Data collected by Regional Water Board staff using the SWAMP Rapid Trash Assessment (RTA) Protocol,³⁰ over the 2003–2005 period,³¹ suggest that the current approach to managing trash in waterbodies is not reducing the adverse impact on beneficial uses. The levels of trash in the waters of the San Francisco Bay Region are high, even with the Basin Plan prohibitions and potentially large fines. During dry weather conditions, a significant quantity of trash, particularly plastic, is making its way into storm drains and being transported downstream to San Francisco Bay and the Pacific Ocean. On the basis of 85 surveys conducted at 26 sites throughout the Bay Area, staff have found an average of 2.93 pieces of trash for every foot of stream, and all the trash was removed when it was surveyed, indicating high return rates of trash over the 2003–2005 study period.

A number of key conclusions can be made from the RTA study:

- Lower watershed sites have higher densities of trash.
 - All watersheds studied in the San Francisco Bay Region have high levels of trash.
 - There are trash source hotspots, usually associated with parks, schools, or poorly kept commercial facilities.
 - Dry season deposition of trash, associated with wind and dry season runoff, contributes measurable levels of trash to downstream locations.
 - The majority of trash is plastic at lower watershed sites where trash accumulates in the wet season. This suggests that urban runoff is a major source of floatable plastic found in the ocean and on beaches as marine debris.
 - Parks that have more evident management of trash by city staff and local volunteers, including cleanup within the creek channel, have measurably less trash and higher RTA scores.
- c. Trash Reduction measures shall demonstrate compliance through timely implementation of controls in all high trash generating areas for the prohibition of discharge of trash and include the following:
- Implementation of full capture systems, treatment controls, and/or enhanced maintenance controls for storm drains or catchment that service the significant trash generating areas.
 - Coordinate with neighboring MS4 permittees to construct, operate and maintain those controls listed above.

³⁰ SWAMP Rapid Trash Assessment Protocol, Version 8

³¹ SWAMP S.F. Bay Region Trash Report, January 23, 2007

- Assess for the effectiveness of enhanced maintenance controls implemented in high generating trash areas, as well as coordination with local municipalities.
 - Abate trash from construction and reconstruction projects.
 - Include trash capture devices on the outlets of treatment systems for new and redeveloped highway projects to achieve the full trash capture standard.
 - Report in each Annual Report, as part of the TMDL STATUS REVIEW REPORT a per District summary of trash reduction controls and their effectiveness.
- d. Costs of Trash Control. Costs for either enhanced trash management measure implementation or installation and maintenance of trash capture devices are significant, but when spread over several years, and when viewed on a per-capita basis, are reasonable. To meet Basin Plan and local MS4 requirements, trash capture devices have already been installed by other municipalities in the Bay Area.

Cost information on various trash capture devices is included in the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) BMP Trash Toolbox (July 2007). The Toolbox contains cost information for both trash capture devices and enhanced trash management measure implementation, covers a broad range of options, and also discusses operation and maintenance costs.

2. Storm Water Pump Stations. In late 2005, Regional Water Board staff investigated an occurrence of low salinity and dissolved oxygen conditions in Old Alameda Creek (Alameda County) and Alviso Slough (Santa Clara County). In the case of Old Alameda Creek, discharge of black-colored water from the Alvarado pump station to the slough was observed at the time of the data collection on September 7, 2005, confirming dry weather urban runoff as the source of the violations of the five (5) mg/L dissolved oxygen water quality objective. Such conditions were measured again on September 21, 2005.

On October 17, 2005, waters in Alviso Slough were much less saline than the salt ponds and had the lowest documented dissolved oxygen of the summer, suggesting a dry weather urban runoff source. The dissolved oxygen sag was detected surface to bottom at 2.3 mg/L at a salinity of less than one part per thousand (ppt), mid-day, when oxygen levels should be high at the surface. The sloughs have a typical depth of six feet.

Board staff's investigations of these incidents, documented in a memorandum,³² found that "storm water pump stations, universally operated by automatic float triggers, have been confirmed as the cause in at least one instance, and may represent an overlooked source of controllable pollution to the San Francisco Bay Estuary and its tidal sloughs... [that] discharges of dry weather urban runoff from these pump stations are not being managed to protect water quality, and [that] surveillance monitoring has detected measurable negative water quality consequences of this current state of pump station management."

³² Internal Water Board Memo dated December 2, 2005: "Dry Weather Urban Weather Urban Runoff Causing or Contributing to Water Quality Violations: Low Dissolved Oxygen (DO) in Old Alameda Creek and Alviso Slough."

Pump station discharges of dry weather urban runoff can cause violations of water quality objectives. These discharges are controllable point sources of pollution that are virtually unregulated. The Regional Water Board has determined that the measures included in Attachment V are necessary to address these discharges and water quality problems.

Lahontan Region

1. The Lahontan Basin Plan encourages the infiltration of storm water runoff to treat pollutants in discharges and mitigate the effects of increased runoff to surface waters from the addition of impervious surfaces. The 20-year, one-hour design storm has been historically applied and accepted as an effective requirement to mitigate discharges of storm water to surface waters in the sensitive high mountain watersheds of the Lahontan Region. Water Board staff has estimated that facilities designed to treat or infiltrate the 20-year, one-hour storm event effectively capture approximately 85 percent of the average annual runoff volume in the Lake Tahoe Basin. However, it is recognized that the natural environment provides adequate infiltration and/or treatment in areas where there is little or no connectivity to surface waters. Therefore the Lahontan Water Board encourages the Department to focus implementation of storm water treatment facilities in those areas that discharge directly to surface waters to maximize water quality benefits. This requirement is applicable to existing highways and facilities in the Mammoth Lakes Area Hydrologic Unit.
2. The Natural Environment as Treatment (NEAT) study has helped identify the priority areas within the Lake Tahoe Hydrologic Unit where storm water treatment and control measure implementation has the most benefit for water quality protection. Similarly, the NEAT study has helped identify those areas where there may be limited water quality benefits associated with implementing structural treatment and control measures. The NEAT approach is also applicable in other areas. This provision is needed to focus available resources on the areas where the most water quality benefit can be achieved.
3. The October 15 to May 1 grading prohibition is necessary to reduce erosion and sedimentation from disturbed areas within the sensitive high elevation areas within the Lahontan Region. These are areas where snow fall restricts the ability to control storm water pollution through the winter months. This requirement mitigates winter erosion issues by requiring disturbed soil areas to be winterized prior to the onset of snow, and allows for exceptions where there is a compelling need.

Regional Water Board Authorities

Regional Water Boards and their staff will oversee implementation and compliance with this Order. As appropriate, they will review reports, conduct inspections, and take enforcement actions on violations of this Order.

Cost of Compliance and Other MEP Considerations

General Cost Considerations in Storm Water Regulation and Management

The Department will incur incremental costs in implementing this Order, such as the cost of complying with the Order's storm water treatment BMP, post-construction, hydromodification, Low Impact Development, and monitoring and reporting requirements. The Department will also incur additional costs in following the iterative process as required by the Order. The cost of complying with TMDL waste load allocations is not considered since TMDLs are not subject to the MEP standard.

In adopting Order WQ 2000-11, the State Water Board found that cost is a relevant factor, among others such as feasibility and public acceptance that should be considered in determining MEP. The State Water Board considered the costs in preparing this Order and has determined that the costs reflect the MEP standard. The State Water Board further found in adopting Order WQ 2000-11 that in considering the cost of compliance, it is also important to consider the costs of impairment; that is, the negative impact of pollution on the economy and the positive impact of improved water quality. So, while it is appropriate and necessary to consider the cost of compliance, it is also important to consider the larger economic impacts of implementation of the storm water management program.

Many studies have been undertaken to assess the cost of compliance with storm water permits. Most studies have focused on municipal programs as opposed to "linear MS4s" or Departments of Transportation. A study by the Los Angeles Regional Water Board reported wide variability in the cost of compliance among municipal permit holders which was not easily explained (LARWQCB, 2003).

In 1999, U.S. EPA reported on multiple studies it conducted to determine the cost of urban runoff management programs. A study of Phase II municipalities determined that the annual cost of the Phase II program was expected to be \$9.16 per household. U.S. EPA also studied 35 Phase I municipalities, finding costs to be similar to those anticipated for Phase II municipalities, at \$9.08 per household annually (U.S. EPA, 1999a).

A program cost study was also conducted by the Los Angeles Regional Water Board, where program costs reported in the municipalities' annual reports were assessed. The Water Board estimated the average per household cost to implement the MS4 program in Los Angeles County was \$12.50.

The State Water Board also commissioned a study by California State University, Sacramento to assess costs of the Phase I MS4 program. This study is current and includes an assessment of costs incurred by the City of Encinitas in implementing its program. Annual cost per household ranged from \$18-46, with the City of Encinitas representing the upper end of the range (SWRCB, 2005). The cost of the City of Encinitas' program is understandable, given the city's coastal location, reliance on tourism, and additional costs resulting from a consent decree with environmental groups regarding its program. For these reasons, as well as the general recognition the city receives for implementing a superior program, the city's program cost can be considered as the high end of the spectrum for municipal storm water management program costs.

The California Department of Finance (Finance, 2003) conducted a comprehensive review of the Department's storm water program. Finance noted widely divergent compliance cost estimates produced by regulators and environmental organizations versus consultant's estimates. Finance also had difficulty identifying compliance costs because of the way storm water activities are integrated with other functions and allocated among the different divisions within the Department, and because they are funded from different sources. Finance made three findings related to cost:

- The projected costs of compliance are escalating.
- Storm water compliance costs are integrated into many of the Department's business processes and are not accurately tracked.
- As storm water compliance costs increase, the amount of funding available for highway projects decreases, which reduces the number of projects that can be constructed.

The review concluded that balancing costs and benefits is a difficult policy decision and there should be a recognition of the trade-offs associated with resource allocation decisions given the Department's limited resources.

It is important to note that storm water program costs are not all attributable to compliance with MS4 permits. Many program components and their associated costs existed before any MS4 permits were issued. For example, for the Department, storm drain maintenance, street sweeping and trash/litter collection costs cannot be solely or even principally attributable to MS4 permit compliance since these practices have long been implemented before the MS4 permit was issued. Even many structural BMPs (erosion protection, energy dissipation devices, detention basins etc.) are standard engineering practice for many projects and are not implemented solely to comply with permit provisions. Therefore, the true cost resulting from MS4 permit requirements is some fraction of the cost to operate and maintain the highway system.

The California State University, Sacramento study found that only 38 percent of program costs are new costs fully attributable to MS4 permits. The remainder of program costs was either pre-existing or resulted from enhancement of pre-existing programs (SWRCB, 2005). The County of Orange found that even lesser amounts of program costs are solely attributable to MS4 permit compliance, reporting that the amount attributable to implement its Drainage Area Management Plan is less than 20 percent of the total budget. The remaining 80 percent is attributable to pre-existing programs (County of Orange, 2007). Any increase in cost to the Department by the requirements of this Order will be incremental in nature.

Storm water management programs cannot be considered solely in terms of their costs. The programs must also be viewed in terms of their value to the public. For example, household willingness to pay for improvements in fresh water quality for fishing and boating has been estimated by U.S. EPA to be \$158-210 per household (U.S. EPA, 1999a). This estimate can be considered conservative, since it does not include important considerations such as marine waters benefits, wildlife benefits, or flood control benefits. The California State University, Sacramento study corroborates U.S. EPA's estimates, reporting annual

household willingness to pay for statewide clean water to be \$180 (SWRCB, 2005). Though these costs may be assessed differently at the state level (for the Department) than at the municipal level, the results indicate that there is public support for storm water management programs and that costs incurred by the Department to implement its storm water management program remain reasonable.

It is also important to consider the cost of not implementing a storm water management program. Urban runoff in southern California has been found to cause illness in people bathing near storm drains (Haile et al., 1996). A study of south Huntington Beach and north Newport Beach found that an illness rate of about 0.8 percent among bathers at those beaches resulted in about \$3 million annually in health-related expenses (Lin, 2005). Extrapolation of such numbers to the beaches and other water contact recreation areas in the state would increase these numbers significantly.

Storm water runoff and its impact on receiving waters also impacts the tourism industry. The California Travel and Tourism Commission (2009) estimated that in 2008 direct travel spending in California was \$97.6 billion directly supporting 924,000 jobs, with earnings of \$30.6 billion. Travel spending in 2008 generated \$1.6 billion in local taxes and \$2.8 billion in state taxes. Impacts on tourism from storm water runoff (e.g. beach closures) can have a significant impact on the economy. The experience of Huntington Beach provides an example of the potential economic impact of poor water quality. Approximately eight miles of Huntington Beach were closed for two months in the middle of summer of 1999, impacting beach visitation and the local economy.

Cost Considerations Relative to the Department

In written comments and before the Board, the Department has stated that the requirements of the first public drafts would impose prohibitive costs on the Department at a time of economic difficulty and limited resources. State Water Board staff has carefully considered the Department's comments and revised the draft Tentative Order to continue to address critical water quality problems in consideration of the cost of compliance.

State Water Board staff completed a Draft Tentative Order and submitted it to the Department, U.S. EPA, and the Natural Resources Defense Council for informal stakeholder review in the fall of 2010. Further review was provided by the Regional Water Boards. Staff revised the Draft Tentative Order to address the informal comments received and released it for public review on January 7, 2011 (Draft Tentative Order). Approximately 330 comments from 16 commenters were received on the Draft Tentative Order, and a public hearing was held on July 19, 2011. Staff further revised the Draft Tentative Order and released a Revised Draft Tentative Order on August 18, 2011 (Revised Draft Tentative Order). Approximately 220 comments from 33 commenters were received on the Revised Draft Tentative Order, and a State Water Board workshop was held on September 21, 2011. In each set of comments and before the Board, the Department expressed significant concerns with the cost of compliance with the Tentative Orders.

On October 6, 2011, the California Senate Select Committee on California Job Creation and Retention held a hearing on the economic impacts of the State Water Board's three general or statewide storm water permits that were under renewal: the Phase II Small MS4 permit, the Industrial General Permit, and the Department's MS4 permit. The Executive Director of the State Water Board testified at the hearing that the comments regarding cost of compliance with the permits were being considered carefully and that the three permits required substantial revision to address the comments. State Water Board staff held bi-weekly meetings with the Department in October through December 2011 to discuss their concerns. Revisions resulting from these meetings are contained in the Second Revised Draft Tentative Order which was released for public review on April 27, 2012 (Second Revised Draft Tentative Order).

This section is a general discussion of the cost of compliance with the Second Revised Draft Tentative Order and of current expenditures by the Department to comply with the existing permit (Order 99-06-DWQ) (Existing Permit). It also discusses the more significant changes between the Revised Draft and Second Revised Draft Tentative Orders.

It is very difficult to precisely determine the true cost of implementation of the Department's storm water management program as affected by this Order. Due to the extensive, distributed nature of the Department's MS4, permit requirements that involve an unknown level of implementation or that depend on environmental variables that are as yet undefined, and the difficulty in isolating program costs attributable to permit compliance, only general conclusions can be drawn from this information.

The Department has made a number of estimates of the cost of complying with the Draft and Revised Draft Tentative Orders. Generally, the Department's estimates are based on worst-case scenarios or the most restrictive interpretation of the Tentative Orders. In a presentation to a meeting of the American Association of State Highway and Transportation Officials (AASHTO) on June 22, 2011,³³ the Department's Chief Environmental Engineer, Scott McGowen estimated the annual cost of compliance at \$281million. This estimate was based on the January 7, 2011 Draft Tentative Order. At the July 19, 2011 public hearing, the Department estimated the annual compliance cost at approximately \$450 million, based on the same January 7, 2011 Draft Tentative Order. At the September 21, 2011 State Water Board workshop, the Department estimated an annual compliance cost of \$904 million, based on the requirements of the August 18, 2011 Revised Draft Tentative Order. It should be noted that the August 18 draft removed or modified a number of provisions that were expected to reduce the cost of compliance.

Annual expenditures for the Department's storm water management program under the Existing Permit (DWQ 99-06) are provided in the Department's annual reports. For fiscal years 2007-08 through 2010-11, the Department reported annual personal services and

³³ Caltrans NPDES Tentative Order, Natural Systems and Ecological Communities Subcommittee at the National Planning and Environmental Practitioners Meeting. AASHTO, June 22, 2011.

operating expenses of \$93.8 million, \$93.6 million, \$75.2 million, and \$89.2 million. These figures do not include the cost of capital improvements needed to comply with the permit.

State Water Board staff estimated the capital expenditures for the Existing Permit in two ways. First, the Department provided the number of post-construction storm water treatment BMPs installed in 2009-10 and 2010-11 along with typical unit costs for each BMP. In 2007-08, the Department spent approximately \$74.7 million for 396 treatment BMPs, \$104.5 million in 2009-10 for 667 treatment BMPs, and \$75.7 million in 2010-11 for 506 treatment BMPs. The Department indicated that anomalies in the data for 2008-09 make them unreliable and they are therefore not included. The Department also indicated that the unit cost factors do not include costs for design, ROW and other related elements. The estimates therefore can be considered on the low side.

Second, capital expenditures were estimated from budget appropriations from the Department's State Highway Operation and Protection Program (SHOPP) as reported in the 2008-09 annual report. The SHOPP account is the primary source of funding for storm water-related capital expenses. Storm water compliance costs are not consistently reported in the annual reports; however, the 2008-09 annual report contains sufficient information to make an estimate. The capital value of the SHOPP "storm water mitigation element" for fiscal years 2009-10 through 2012-13 is \$640 million, including capital outlay support, or about \$160 million per year.

Using average personal services and operating expenses for the last four years (\$88 million) and average annual programmed SHOPP funding, the Department's expenditures to comply with the Existing Permit amount to approximately \$248 million.

As stated above, the Department has estimated cost of compliance with the Draft Tentative and Revised Draft Tentative Orders variously at \$281 to \$904 million. These estimates are based on "worst case scenarios" and on the most restrictive interpretations of the Orders' requirements. In preparing the Second Revised Tentative Order, staff worked to provide greater clarity and certainty to the Department on the scope of permit obligations and to eliminate compliance costs that were not expected to yield significant water quality benefits. With the exception of a lowering of the post-construction treatment threshold for non-highway facility projects from 10,000 square feet of new impervious surface to 5,000 square feet³⁴, no requirements have been added to the Second Revised Draft Tentative Order that would materially increase the cost of compliance over the Revised Draft Tentative Order. In contrast, a number of substantive requirements have been removed, replaced or modified from the Revised Draft Tentative Order with the goal of focusing the Department's limited resources on the most significant water quality issues. These changes are expected to result in a lower cost of compliance with the Second Revised Draft Tentative Order as compared to the Revised Tentative Order. These include:

³⁴ The threshold was lowered for consistency with the draft statewide Phase II Small MS4 General Permit and with regional MS4 permits.

1. Water quality monitoring program.
 - a. Replaced random compliance-driven monitoring approach with a tiered approach focusing on ASBS and TMDL watersheds, and deferring to the monitoring requirements specified in the ASBS Special Protections and TMDLs.
 - b. Deleted sampling pool, water quality action levels, and response process flow chart.
 - c. Removed 29 constituents from the monitoring constituent list.
 - d. Limited the monitoring for new constituents to TMDL watersheds.
 - e. For sites with existing monitoring data, limited BMP retrofits to 15 percent of the highest priority sites.
 - f. Deleted the long-term monitoring program.
 - g. Deleted maintenance facility compliance monitoring.
2. Project Planning and Design.
 - a. Raised the treatment threshold for highway projects from 5,000 square feet of new impervious surface to one acre.
 - b. Deleted the requirement for pilot Low Impact Development retrofits and effectiveness evaluations.
3. Hydromodification.
 - a. Removed requirement for programmatic stream stability assessments and a retrofit implementation schedule.
 - b. Raised the risk assessment threshold for non-highway facility projects from 10,000 square feet of new impervious surface to one acre.
4. Region Specific Requirements – removed, modified or scaled back requirements for the San Francisco Bay, Los Angeles, Central Valley, Lahontan, and San Diego Regional Water Boards with the goal of maximizing statewide consistency of requirements for the Department.
5. Construction Program – replaced requirement to inspect contractor operations outside the ROW with a requirement to include compliance language in its construction contracts.
6. TMDLs – Revised Attachment IV to more precisely identify the TMDLs applicable to the Department and shifted responsibility to prepare TMDL implementation plans from the Department to the Regional Water Boards.
7. ASBS – Added Attachment III to identify priority Department ASBS outfalls for installation of controls.
8. Maintenance Program.
 - a. Deleted the requirement to report the amount of waste and debris removed from drainage inlets.
 - b. Replaced the site-by-site characterization of waste management sites with a programmatic characterization.
 - c. Deleted the requirement to prepare and implement a storm drain system survey plan.

- d. Replaced quantitative measurements of trash and litter removal with estimated annual volumes.

9. Non-Storm Water.

- a. Deleted surveillance monitoring of agricultural return flows.
- b. Deleted characterization monitoring of slope lateral drains.

Though no firm conclusions or precise estimates can be drawn from this analysis, it is expected that the revisions to the Revised Draft Tentative Order will significantly reduce the cost of compliance.

ATTACHMENT I Incident Report Form

Type of incident: <input type="checkbox"/> Field <input type="checkbox"/> Administrative	
Name of person completing this form: _____	Person's agency name and address: _____
	Person's phone and e-mail: _____

For Field incidents complete Sections 1 and 3. For Administrative incidents complete Section 2. See Non-Compliance Notification Schedule on Page 2.

SECTION 1: Field incidents

Date(s) and time(s) of incident:	1. Start date / time:
	2. End date / time:
Location of Incident: County: _____	3. Nearest city / town:
	4. Street address / nearest cross street:
	5. Latitude / Longitude:
	6. Additional location detail:
Materials involved in the incident: (use Comments Section below if necessary):	6. Name(s) of material(s) discharged:
	7. Approximate quantity discharged (specify units):
	8. Approximate concentration of material:
Discharge to surface water? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, answer questions 9-11	9. Name of waterbody:
	10. Apparent effects (if any) on waterbody:
	11. Estimated extent of impacts to waterbody:
Was CalEMA notified? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, answer questions 12-14	12. Date and time of notification:
	13. Name of person making the notification:
	14. Phone number of person making the notification:
Was the Regional Water Board (RWB) notified? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, answer questions 15-17	15. Name of RWB contact:
	16. RWB contact's phone / e-mail:
	17. Name of person making the notification:
Were downgradient communities / people notified? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, answer questions 18 - 20	18. Date and time of notification:
	19. Name of person making the notification:
	20. Phone number of person making the notification:
	21. Name of downgradient community/ person:

Field Non-Compliance (check all that apply)

<input type="checkbox"/>	Lack of BMP(s), ineffective implementation of BMP(s), or failure of BMP(s) resulted in a discharge of pollutants to surface water.
<input type="checkbox"/>	Monitoring data indicates an exceedance of a defined standard. Defined standards include TMDL Waste Load Allocations, and water quality standards in the Water Quality Control Plans and promulgated policies and regulations of the State and Regional Water Boards, including California Ocean Plan limitations and prohibitions.
<input type="checkbox"/>	Discharge of prohibited non-storm water.
<input type="checkbox"/>	Failure to comply with Facility Pollution Prevention Plan (FPPP) requirements.
<input type="checkbox"/>	Failure to comply with inspection, monitoring, and reporting requirements and protocols.
<input type="checkbox"/>	Other (describe - use Comments Section below if needed):

SECTION 2: Administrative Non-Compliance (check all that apply)

<input type="checkbox"/>	Failure to submit reports or documents required by the Permit and/or SWMP, failure of timely submittal, and/or failure to submit required information.
<input type="checkbox"/>	Failure to develop and/or maintain a site-specific FPPP or to implement any other procedural requirement of the Permit.
<input type="checkbox"/>	Other (describe - use Comments Section below if needed):

SECTION 3: Description of Incident

Activities in the area prior to the incident (If any):
Initial assessment of any impact caused by the discharge (If any):
Samples collected and analyses requested (If any):
Steps taken to mitigate damage and prevent reoccurrence (If any):
Current Status:
Schedule for proposed mitigation/abatement (If any):
Other Comments:

Non-Compliance Notification Schedule

Type of Incident	Within 5 Working Days (Verbal)	Within 10 Working Days (Written)	Within 30 Calendar Days (Written)	In Annual Report
Emergency Incidents ¹	—	—	—	Chronological summary and status of all incidents
Field ²	Notify RWB Executive Officer	To RWB Executive Officer and copies to Dept. HQ	—	Chronological summary and status of all incidents
Administrative ³	Notify RWB Executive Officer or SWB Contact ³	—	To RWB Executive Officer, SWB Executive Director, and copies to Dept. HQ.	Chronological summary and status of all incidents

¹ Sudden, unexpected, unpreventable incidents that threaten public health, public safety, property, or the environment that pose a clear and imminent danger requiring immediate action to prevent or mitigate the damage or threat, and that result in a discharge or potential discharge.

² Failure to meet any non-administrative requirement of the SWMP or Permit or to meet any applicable water quality standard. This includes failure to install required BMPs or conduct required monitoring or maintenance. It also includes discharges or prohibited non-storm water that do not meet the definition of emergency incidents. It does not include determinations by the Department or a Regional Water Board Executive Officer that a discharge is causing or contributing to an exceedance of an applicable WQS. See provision E.2.c.6)c).

³ Failure to meet any administrative or procedural requirement of the SWMP or Permit including submission of required reports, notifications and certifications. The report of non-compliance shall be submitted to the same organization (State or Regional Water Board) to which the required report was originally due.

<i>Certification – I certify that under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>			
Signature of Contractor (if applicable)	Title	Telephone	Date:
Signature of Department Representative	Title	Telephone	Date:

ATTACHMENT II

Monitoring Constituent List

(Not Applicable to ASBS Discharges)

Constituent	Analytical Method	Reporting Limit ³⁵	Units
<i>WATER COLUMN CHEMISTRY</i>			
Conventional Pollutants			
Hardness as CaCO ₃	SM 2340 B or C	5	mg/L
pH	Calibrated Field Instrument		pH Units
Temperature	Calibrated Field Instrument		C +/-
Flow Rate	Calibrated Field Instrument		ft ³ /s
Total Dissolved Solids	EPA 160.1	1	mg/L
Total Suspended Solids	EPA 160.2	1	mg/L
Hydrocarbons			
Oil & Grease	EPA 1664B	1.4	mg/L
Polycyclic Aromatic Hydrocarbons (Total)	EPA 8310	0.05	µg/L
Nutrients			
Total Kjeldahl Nitrogen (TKN)	EPA 351.3	100	µg/L
Nitrate as Nitrogen (NO ₃ -N)	EPA 300.0	100	µg/L
Phosphorous (Total)	EPA 365.2	30	µg/L
Metals			
Aluminum (Total)	EPA 200.8	25	µg/L
Chromium (Total)	EPA 200.8	1	µg/L
Copper (Total)	EPA 200.8	1	µg/L
Iron (Total)	EPA 200.8	1	µg/L
Lead (Total)	EPA 200.8	1	µg/L
Zinc (Total)	EPA 200.8	5	µg/L
Microbiological			
Fecal Coliform	SM 9221 C E	2	MPN/100 mL
Enterococcus ³⁶	EPA 1600	2	CFU/100 mL
<i>WATER COLUMN TOXICITY</i>			
Chronic ³⁷	EPA 821-R-02-013	Pass/Fail	

³⁵ Reporting limits should be sufficient enough to detect the presence of a constituent based on the applicable Regional Water Board Basin Plan. If no limit is specified in the Basin Plan, the reporting limit specified in this table will be used. If no limit is specified in this table, then the Regional Boards shall be consulted.

³⁶ Only applicable for direct discharges to marine waters. See definition of direct discharges and indirect discharges in Attachment VIII (glossary).

³⁷ To calculate either a Pass or Fail of the effluent concentration chronic toxicity test at the IWC, the instructions in Appendix A in the National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA/833-R-10-003) shall be used.

ATTACHMENT II

ASBS Monitoring

TABLE A
Monitoring Constituent List
(excerpted from California Ocean Plan dated 2009)

Constituent	Units
Grease and Oil	mg/L
Suspended Solids	mg/L
Settleable Solids	mL/L
Turbidity	NTU
PH	

TABLE B
Monitoring Constituent List
(excerpted from California Ocean Plan dated 2009)

Constituent	Units
Arsenic	µg/L
Cadmium	µg/L
Chromium	µg/L
Copper	µg/L
Lead	µg/L
Mercury	µg/L
Nickel	µg/L
Selenium	µg/L
Silver	µg/L
Zinc	µg/L
Cyanide	µg/L
Total Chlorine Residual	µg/L
Ammonia (as N)	µg/L
Acute Toxicity	TUa
Chronic Toxicity	TUc
Phenolic Compounds (non-chlorinated)	µg/L
Chlorinated Phenolics	µg/L
Endosulfan	µg/L
Endrin	µg/L
HCH	µg/L

Analytical Chemistry Methods: All constituents shall be analyzed using the lowest minimum detection limits comparable to the Ocean Plan water quality objectives. For metal analysis, all samples, including storm water effluent, reference samples, and ocean receiving water samples, shall be analyzed by the approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry) described in the Ocean Plan.

ATTACHMENT III

ASBS PRIORITY DISCHARGE LOCATIONS

Sample ID	Regional Board	ASBS Name	Longitude	Latitude
SAU020A	1	Saunders Reef	-123.65273	38.85916
SAU019A	1	Saunders Reef	-123.6528	38.86067
SAU016A	1	Saunders Reef	-123.65237	38.85849
SAU015	1	Saunders Reef	-123.65178	38.85612
SAU013A	1	Saunders Reef	-123.6514	38.85451
SAU014	1	Saunders Reef	-123.6517	38.8551
SAU011A	1	Saunders Reef	-123.64853	38.8527
SAU008	1	Saunders Reef	-123.6478	38.8521
SAU006A	1	Saunders Reef	-123.64777	38.85186
SAU009A	1	Saunders Reef	-123.64809	38.85254
RED023	1	Redwoods National Park	-124.1017	41.60527
RED027	1	Redwoods National Park	-124.10126	41.59657
RED028	1	Redwoods National Park	-124.10101	41.59729
RED018A	1	Redwoods National Park	-124.1061	41.613
RED015	1	Redwoods National Park	-124.11257	41.62928
RED014	1	Redwoods National Park	-124.11296	41.63059
RED017A	1	Redwoods National Park	-124.10571	41.61195
FIT012	2	James V. Fitzgerald	-122.516861	37.531406
ANO030	3	Ano Nuevo	-122.30121	37.11334
ANO033	3	Ano Nuevo	-122.29881	37.11202
ANO001	3	Ano Nuevo	-122.306364	37.121672
ANO002	3	Ano Nuevo	-122.30534	37.11987
ANO035	3	Ano Nuevo	-122.29297	37.10714
ALT004	4	Laguna Point to Latigo Point	-119.059097	34.08609
MUG005	4	Laguna Point to Latigo Point	-119.03821	34.083896
ALT005	4	Laguna Point to Latigo Point	-119.054291	34.085415
ALT006	4	Laguna Point to Latigo Point	-119.048653	34.085361
MUG008	4	Laguna Point to Latigo Point	-119.036389	34.083644
MUG010	4	Laguna Point to Latigo Point	-119.014826	34.070804
MUG013	4	Laguna Point to Latigo Point	-118.993551	34.065445
MUG016	4	Laguna Point to Latigo Point	-118.987069	34.062852
ALT008	4	Laguna Point to Latigo Point	-118.985931	34.062325

ATTACHMENT III

Sample ID	Regional Board	ASBS Name	Longitude	Latitude
MUG028	4	Laguna Point to Latigo Point	-118.974165	34.058928
ALT009	4	Laguna Point to Latigo Point	-118.975975	34.059978
MUG031	4	Laguna Point to Latigo Point	-118.968706	34.056265
MUG041	4	Laguna Point to Latigo Point	-118.964271	34.053461
MUG046	4	Laguna Point to Latigo Point	-118.960862	34.052112
MUG048	4	Laguna Point to Latigo Point	-118.9594833	34.05172
MUG049	4	Laguna Point to Latigo Point	-118.9594333	34.05165
MUG051	4	Laguna Point to Latigo Point	-118.957316	34.050937
ALT011	4	Laguna Point to Latigo Point	-118.939404	34.045355
MUG053	4	Laguna Point to Latigo Point	-118.95539	34.050248
MUG059	4	Laguna Point to Latigo Point	-118.9515	34.048835
MUG058	4	Laguna Point to Latigo Point	-118.95042	34.048355
ALT010	4	Laguna Point to Latigo Point	-118.948184	34.047873
MUG061	4	Laguna Point to Latigo Point	-118.94834	34.047675
MUG077	4	Laguna Point to Latigo Point	-118.9345833	34.04513
MUG078	4	Laguna Point to Latigo Point	-118.934358	34.045431
MUG070	4	Laguna Point to Latigo Point	-118.9320000	34.04600
MUG066	4	Laguna Point to Latigo Point	-118.924654	34.04714
MUG073	4	Laguna Point to Latigo Point	-118.922723	34.046418
MUG135	4	Laguna Point to Latigo Point	-118.897426	34.041983
MUG147	4	Laguna Point to Latigo Point	-118.894154	34.041553
MUG150	4	Laguna Point to Latigo Point	-118.889212	34.040872
MUG187	4	Laguna Point to Latigo Point	-118.869505	34.039285
SAD0950	4	Laguna Point to Latigo Point	-118.8385500	34.02699
SAD0960	4	Laguna Point to Latigo Point	-118.8375000	34.02619
SAD0970	4	Laguna Point to Latigo Point	-118.8364600	34.02535
SAD0980	4	Laguna Point to Latigo Point	-118.8348600	34.02435
MUG318	4	Laguna Point to Latigo Point	-118.834316	34.023879
SAD0990	4	Laguna Point to Latigo Point	-118.8326600	34.02302
SAD1000	4	Laguna Point to Latigo Point	-118.8303400	34.02123
MUG355	4	Laguna Point to Latigo Point	-118.829258	34.02122

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Sample ID	Regional Board	ASBS Name	Longitude	Latitude
SAD1030	4	Laguna Point to Latigo Point	-118.827049	34.018711
SAD1040	4	Laguna Point to Latigo Point	-118.8256600	34.01748
SAD1050	4	Laguna Point to Latigo Point	-118.8249200	34.01700
SAD1060	4	Laguna Point to Latigo Point	-118.8225400	34.01559
ALT017	4	Laguna Point to Latigo Point	-118.777059	34.025805
MUG346	4	Laguna Point to Latigo Point	-118.783588	34.02508
MUG283	4	Laguna Point to Latigo Point	-118.765915	34.02589
IRV020	8	Irvine Coast	-117.840190	33.576001
IRV009	8	Irvine Coast	-117.830393	33.566251
IRV007	8	Irvine Coast	-117.828078	33.565343
IRV001	8	Irvine Coast	-117.81858	33.558
IRV002	8	Irvine Coast	-117.821484	33.560705
CAR007B	3	Carmel Bay	-121.923798	36.52499
CAR006	3	Carmel Bay	-121.92457	36.52469

ATTACHMENT IV

Total Maximum Daily Load Requirements

Attachment IV prescribes the implementation requirements for the Total Maximum Daily Loads (TMDLs) in which the Department of Transportation (Department) has been identified as a responsible party. The TMDLs in this attachment have been (1) adopted by the Regional Water Quality Control Boards (Regional Water Boards) and approved by the State Water Resources Control Board (State Water Board) and the Office of Administrative Law or the United States Environmental Protection Agency (U.S. EPA), or (2) established by U.S. EPA.

Section I of this attachment provides directions and general guidance on development of a prioritized list of reaches for implementation actions. Section II identifies the applicable TMDLs and implementation requirements. Section II also contains TMDL-specific permit requirements for the Lake Tahoe Sediment/Nutrients TMDL, Napa River Sediment TMDL, Sonoma Creek Sediment TMDL, and the Lake Elsinore and Canyon Lake Nutrients TMDL. Section III prescribes the general implementation requirements applicable to all TMDLs, and the specific requirements applicable to each pollutant category.

The TMDLs addressed in this attachment were developed by numerous parties over many years, and vary widely in their implementation requirements. As explained in further detail in the Fact Sheet for this Order, Attachment IV establishes consistent implementation requirements among the TMDLs by separating them into one of eight categories by pollutant type, based upon the common treatment and control actions associated with each pollutant type. Each impaired waterbody will be prioritized for implementation by reach, with a fixed number of “compliance units” that must be achieved each year so that all TMDLs are addressed in 20 years. Effectiveness monitoring of the treatment and control actions is required to inform an adaptive management process.

The following eight TMDL pollutant categories have been established for TMDL implementation³⁸:

1. Sediment/Nutrients/Mercury/Siltation/Turbidity
2. Metals/Toxics/Pesticides
3. Trash
4. Bacteria
5. Diazinon
6. Selenium
7. Temperature
8. Chloride

The Department shall comply with the requirements of Attachment IV. These requirements are directly enforceable through Order 2012-0011-DWQ (Order).

³⁸ Some TMDLs containing multiple pollutants have been separated according to the categories that best address the individual pollutants.

ATTACHMENT IV

Section I. TMDL Prioritization and Implementation

A. Reach Prioritization for Pollutant Categories

The Department shall prioritize all TMDLs for implementation of source control measures and best management practices (BMPs). Prioritization shall be consistent with the final TMDL deadlines to the extent feasible. Prioritization shall be conducted separately for each pollutant category and shall be based on an evaluation of each reach of applicable receiving waters within the watershed with a TMDL. The Department shall conduct the prioritization using the following five steps:

1. Complete an inventory of reaches. If reaches are defined in a TMDL, the Department may use that delineation for developing the inventory. If no reaches are specified in the TMDL, the Department shall delineate the receiving water into reaches.
2. Segregate the inventory of reaches according to the pollutant categories listed below in Section III, B through I (Categorical Inventories of Reaches). Individual reaches may be present in multiple pollutant categories.
3. Rank the reaches in each TMDL category in accordance with a procedure similar to that presented in Table IV.1. below.
4. Submit the prioritized Categorical Inventories of Reaches to the State Water Board **by October 1, 2014**, for Regional Water Board and State Water Board consideration. The State Water Board will provide public notice of the submission and the submission will be subject to a 30-day public comment period.
5. The Department shall collaborate with the State Water Board and Regional Water Boards on a final prioritization for each of the Categorical Inventories of Reaches. Factors that may be considered in the final prioritization will include, but not be limited to:
 - a. Opportunities for synergistic benefits with existing or anticipated projects or activities within the reach, e.g., cooperative efforts with other dischargers or projects within an ASBS,
 - b. Multiple TMDLs that can be addressed by a single BMP or a suite of BMPs within a reach,
 - c. TMDL deadlines specified in a Basin Plan,
 - d. Regional Water Board and State Water Board priorities,
 - e. Accessibility for construction and/or maintenance (e.g., safety considerations), and
 - f. Multi-benefit projects that provide benefits in addition to water quality improvement, such as groundwater recharge or habitat enhancement.

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B. Implementation

Following completion of the process described in Section I.A, the State Water Board Executive Director will approve, with any changes, the final prioritized Categorical Inventories of Reaches. The Department shall then select and begin implementation actions, as specified in Sections II and III, within the highest priority reaches to achieve at least the minimum number of compliance units as described below.

1. The Department shall include the following information regarding implementation of control measures in the selected reaches for the upcoming reporting period in the **TMDL STATUS REVIEW REPORT**, as required in Section E.4.b. of the Order:
 - a. Name of the waterbody,
 - b. Associated TMDL(s),
 - c. Proposed control measures,
 - d. Proposed number of compliance units per control measure, and
 - e. Projected schedule for installation of control measures with anticipated beginning and ending dates.

2. The Department shall also include in the **TMDL STATUS REVIEW REPORT**³⁹ a discussion of previous years' activities including:
 - a. The status of implementation activities,
 - b. The location of the control measures,
 - c. The size and type of BMPs that were installed,
 - d. The effectiveness of the BMPs installed, including any pertinent monitoring data (e.g., influent vs. effluent data),
 - e. A summary update of any cooperative implementation agreements (see Attachment IV, section II.B.1), including those that are solely for each TMDL,
 - f. A summary update of activities and/or actions that have been completed for any cooperative implementation agreement for each TMDL,
 - g. A summary update of projects initiated under the cooperative implementation grant program (see Attachment IV, section II.B.2),
 - h. A summary update of activities and/or actions that have been completed for any projects under the cooperative implementation grant program,
 - i. A summary of institutional control measures implemented to comply with Attachment IV,
 - j. A summary of TMDLs adopted during the past year where the Department is assigned a WLA or the Department is identified as a responsible party in the implementation plan,
 - k. A discussion, supported by data and analysis, of whether the Department considers work in the reach complete because it has met WLAs and other TMDL performance criteria, and

³⁹ Per section III.A.3.a of this attachment, by January 1, 2015, the Department shall submit the required information regarding planned implementation of control measures for the first upcoming reporting period (after permit amendment per Order WQ 2014-0077-DWQ) of January 1, 2015 – October 1, 2015.

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- I. Any other information requested by the State Water Board Executive Director or designee.

Control measures and implementation schedules proposed for the upcoming year are subject to the approval of the Executive Director of the State Water Board or designee.

3. Each year the Department shall select and begin implementation activities within the highest priority reaches to achieve a minimum of 1650 compliance units. A compliance unit is defined as one acre of the Department's Right-of-Way (ROW) from which the runoff is retained, treated, and/or otherwise controlled prior to discharge to the relevant reach. Compliance units may be credited to the Department for the following actions:
 - stand-alone BMP retrofits,
 - cooperative implementation,
 - monitoring program-related retrofits,
 - post-construction treatment beyond permit requirements, and
 - other pollution reduction practices necessary to comply with the TMDL.

Compliance units, unless specifically stated below, are credited only when the Department begins implementation of an action listed above.⁴⁰ Once compliance units have been credited for a site, the Department may not receive credit for additional compliance units at that location for additional activities or corrective measures needed to bring the site into compliance. See Section III.A.2. Credit may be received, however, for new activities within the same reach that do not treat the runoff from a site that has already received treatment.

4. The Department may receive credit for compliance units by contributing funds to Cooperative Implementation Agreements and/or the Cooperative Implementation Grant Program (see Section II.B. below). The Department may receive credit for one compliance unit for each \$88,000 that it contributes. For Cooperative Implementation Agreements, the credit will be received when the Department transfers the funds to a responsible party. For the Cooperative Implementation Grant Program, the credit will be received when the Department transfers the funds to the State Water Board.
5. No credit will be given to post-construction BMPs that only meet the minimum requirements of this Order (Section E.2.d.2)a)). Other projects within a TMDL watershed where treatment is provided above and beyond the post-construction requirements in this Order, may receive compliance units according to the following formula:

⁴⁰ For purposes of Section I.B of this attachment, implementation means that a project has entered the Project Initiation Document (PID) phase, the process used by the Department to explain the scope, funding commitment, and approval of a transportation project (<http://www.dot.ca.gov/hq/oppd/pdpm/other/PDPM-Chapters.pdf>).

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$[(V_t - V_o) / p_{85}] * 12 = \text{acres treated (compliance units calculated to the nearest 0.1)}$

Where, V_t = Planned volume of runoff to be treated (acre-ft.),

V_o = Volume of runoff from 85th percentile, 24-hour storm event (acre-ft.),

p_{85} = depth of the 85th percentile, 24-hour storm event (inches).

Table IV.1 – Reach Prioritization Scoring Matrix

The rating factors in this table are intended as guidance. Each pollutant category will be ranked separately.

Rating Factor	Criteria		
	<u>High</u>	<u>Medium</u>	<u>Low</u>
Impairment Status: Percent reduction needed	Over 75%	25% - 75%	Below 25%
Department's Drainage Area Contributing to the Reach	Over 5% of drainage area	Between 1% and 5% of drainage area	Less than 1% of drainage area
Proximity to Receiving Waters	Over 75% of ROW within 0.25 miles of reach	Between 25% and 75% of ROW within 0.25 miles of reach	Less than 25% of ROW within 0.25 miles of reach
Community Environmental Health Impact	Top 3 categories	Middle 4 categories	Lower 3 categories

Impairment Status

The degree of impairment of the waterbody, measured by the percent pollution reduction needed to achieve the WLA. Reaches with higher degrees of impairment will be given higher priority. Consider all sources of impairment when making this determination.

Department's Contributing Drainage Area

The contributing drainage area from the Department's ROW is relative to the watershed draining to the reach.

Proximity to Receiving Waters

This rating factor measures the relative proximity of the Department's ROW to the reach of the water that receives runoff from the Department's ROW. Sites discharging through conveyances within 0.25 miles of the pertinent reach are considered to have greater potential to contribute pollutants and receive a higher rating.

Community Environmental Health Impact

This rating factor requires use of the California Office of Health Hazard Assessment (OEHHA) evaluation tool "Enviroscreen" which can be found at <http://oehha.ca.gov/ej/ces11.html>. This tool should be used to assess environmental justice issues. Outcomes are segregated into 10 categories ranging from low to high environmental justice scores. Higher scores indicate that there is a higher potential for environmental justice issues to be present at a site.

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Section II. Applicable TMDLs and Implementation Requirements

A. For each reach for which the Department has committed to begin implementation actions in accordance with Section I of this attachment, the Department shall do one of the following:

1. Implement the requirements in Table IV.2 applicable to that reach ensuring that all BMPs installed meet the minimum requirements specified in the following permit sections:
 - E.2.d.1) (Design Pollution Prevention Best Management Practices),
 - E.2.d.2)b) (Numeric Sizing Criteria for Storm Water Treatment Control BMPs),
 - E.2.e.1) (BMP Development and Implementation, Vector Control),
 - E.2.e.2) (BMP Development and Implementation , Storm Water Treatment BMPs),
 - E.2.e.3) (BMP Development and Implementation, Wildlife), and
 - E.2.e.4) (BMP Development and Implementation, Biodegradable Materials) of this Order.

In addition, the Department shall ensure that all BMPs installed do not cause a decrease in lateral (bank) or vertical (channel bed) stability in receiving stream channels.

2. Demonstrate that it has entered into or intends to enter into a Cooperative Implementation Agreement with other parties having responsibility for the TMDL, as specified below under Cooperative Implementation Agreements.

3. Identify cooperative implementation grants that have been awarded to other parties having responsibility for the TMDL, as specified below under Cooperative Implementation Grant Program.

B. Cooperative Implementation

1. Cooperative Implementation Agreements

- a. The Department is encouraged to establish agreements for cooperative implementation efforts, such as joint implementation actions and/or special implementation studies with other parties that have responsibility for the TMDL, except where precluded by a TMDL or where specific implementation requirements are prescribed in Table IV.2. Cooperative agreements that only involve monitoring are not eligible for compliance units.
- b. Where the Department has existing cooperative implementation agreements with other responsible parties, it shall fulfill the commitments and requirements of those agreements.
- c. Where the Department has not yet committed to cooperative implementation efforts, but intends to do so, the Department must provide written notification,

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including the anticipated date of commitment, to the State Water Board in its ***TMDL STATUS REVIEW REPORT***.

- d. Cooperative agreements relative to the TMDL implementation activity are subject to approval by the applicable Regional Water Board Executive Officer. Cooperative agreements shall describe the terms of the mutually agreed activities to be performed, and at a minimum shall include:
 - i. The date the cooperative agreement was approved by the Regional Water Board,
 - ii. A map showing the location of work to be performed in the reach,
 - iii. Any monitoring program parameters and responsibilities,
 - iv. Any implementation responsibilities, including BMP Operation and Maintenance,
 - v. Any funding commitments that correspond with the implementation responsibilities, and
 - vi. A termination clause upon failure to comply with the terms and conditions of the agreement, as applicable.
- e. The Department shall submit sufficient information to document the progress in achieving the requirements of the TMDL for each cooperative implementation agreement in its annual ***TMDL STATUS REVIEW REPORT***. (See Section I.B.2.)
- f. If the Department is not participating or has not given notice of its intent to participate in cooperative implementation efforts, or the Department is not fulfilling its cooperative implementation responsibilities under an agreement, it shall immediately comply with applicable TMDL Control Requirements listed in Table IV-2 below and report the corresponding status in the ***TMDL STATUS REVIEW REPORT***.

2. Cooperative Implementation Grant Program

- a. The Department may establish a cooperative implementation grant program to be administered by the State Water Board for TMDL watersheds.
- b. If the Department elects to establish a grant program, the Department and State Water Board will prepare an agreement specifying the terms of the grant program and the commitments and responsibilities of the parties. The Department will be responsible for paying the State Water Boards' cost of administering the grant program.
- c. Cooperative implementation grants will be used to fund capital projects undertaken by other responsible parties in impaired watersheds in which the Department has been assigned a WLA or otherwise has responsibility for implementation of the TMDL. Cooperative implementation grant applications that are consistent with the final prioritized Categorical Inventories of Reaches

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(Section I.A.5) will be given a higher priority for funding. Cooperative implementation grants will not be awarded for projects that only involve monitoring, where precluded by a TMDL, or where specific implementation requirements are prescribed in Table IV.2.

C. Consideration for Factors Affecting Implementation

Implementation may require environmental approvals and permitting from local, State, and/or federal resource agencies (e.g., California Coastal Commission, California Department of Fish and Wildlife, U.S. Army Corps of Engineers, local Flood Control agencies, local County, etc.). Other factors such as safety concerns and technical infeasibility may affect project implementation. Delays or cancellations due to environmental or permitting factors beyond the Department's control must be reported in its annual ***TMDL STATUS REVIEW REPORT***.

The State Water Board will revoke compliance units for projects not completed within the implementation schedule approved under Section I.B.1 of this attachment, unless the delay in the implementation schedule is additionally approved by the Executive Director. Partial credit may be allowed if a portion of the project is completed and functioning.

The State Water Board will revoke compliance units for unrecovered grant funds for projects that are not completed under Section II.B.2 of this attachment. Partial credit may be allowed if a portion of the project is completed and functioning. If the grant program is discontinued, any unexpended funds will be returned to the Department and the corresponding compliance units will be revoked.

Compliance units revoked shall be added to the total number of the required compliance units in following years. For example, if a project which claimed 20 compliance units is cancelled, 1670 compliance units (1650 + 20) are required to be implemented in the following year. If the grant program is discontinued, additional time may be allowed for the Department to implement the corresponding compliance units.

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Table IV.2. TMDL Summary Table and Control Requirements

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
R1 - North Coast Regional Water Board			
Albion River	Sediment	<i>U.S. EPA Established TMDL</i> Effective Date: December 2001 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Big River	Sediment	<i>U.S. EPA Established TMDL</i> Effective Date: December 2001 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Lower Eel River	Temperature and Sediment	<i>U.S. EPA Established TMDL</i> Effective Date: December 18, 2007 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.H.
Middle Fork Eel River	Temperature and Sediment	<i>U.S. EPA Established TMDL</i> Effective Date: December 2003 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.H.
South Fork Eel River	Sediment and Temperature	<i>U.S. EPA Established TMDL</i> Effective Date: December 16, 1999 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.H.
Upper Main Eel River and Tributaries (including Tomki Creek, Outlet Creek and Lake Pillsbury)	Temperature and Sediment	<i>U.S. EPA Established TMDL</i> Effective Date: December 29, 2004 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.H.
Garcia River	Sediment	Effective Date: March 16, 1998 BPA: 4-37.00 Action Plan for the Garcia River Watershed Resolution:	Implement Section III.A. and Section III.B.
Gualala River	Sediment	<i>U.S. EPA Established TMDL</i> Effective Date: November 29, 2004 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Klamath River in California	Temperature, Dissolved Oxygen, Nutrients, and Microcystin	Effective Date: December 28, 2010 BPA: Action Plan for Klamath River TMDLs Resolution: R1-2010-0026	Implement, Section III.A., Section III.B., Section III.H. In addition, the Department shall refer to the Section E.2.d.4) of this Order for locating, assessing, and remediating barriers to fish passage.
Lost River	Nitrogen, Biochemical Oxygen Demand to address Dissolved Oxygen and pH Impairments	Effective Date: December 30, 2008 BPA: Action Plan for Lost River TMDL Resolution: R1-2010-0026	Implement Section III.A. and Section III.B.
Mad River	Sediment and Turbidity	<i>U.S. EPA Established TMDL</i> Effective Date: December 21, 2007 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Navarro River	Sediment and Temperature	<i>U.S. EPA Established TMDL</i> Effective Date: December 27, 2000 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.H.
Noyo River	Sediment	<i>U.S. EPA Established TMDL</i> Effective Date: December 16, 1999 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Redwood Creek	Sediment	<i>U.S. EPA Established TMDL</i> Effective Date: December 30, 1998 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Scott River	Sediment and Temperature	Effective Date: August 11, 2006 BPA: Action Plan for Scott River. Resolutions: R1-2005-0113 & R-2010-0026	Implement Section III.A., Section III.B., and Section III.H.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Shasta River	Dissolved Oxygen and Temperature	Effective Date: January 26, 2007 BPA: Action Plan for the Shasta River Watershed Resolution: R1-2006-0052	Implement Section III.A., Section III.B., and Section III.H.
Ten Mile River	Sediment	U.S. EPA Established TMDL Effective Date: December 2000 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Trinity River	Sediment	U.S. EPA Established TMDL Effective Date: December 20, 2001 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
South Fork Trinity River and Hayfork Creek	Sediment	U.S. EPA Established TMDL Effective Date: December 1998 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Van Duzen River and Yager Creek	Sediment	U.S. EPA Established TMDL Effective Date: December 16, 1999 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
R2 - San Francisco Bay Regional Water Board			
Napa River	Sediment	Effective Date: January 20, 2011 BPA: Chapter 7, Water Quality Attainment Strategies including TMDLs Resolution: R2-2009-0064	Implement Section III.A., Section III.B., and the following: <ul style="list-style-type: none"> • Conduct a survey of stream crossings associated with Department roadways, and develop a prioritized implementation plan and schedule for repair and/or replacement of high priority crossings/culverts. • Submit plan and schedule for conducting stream crossings surveys with

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
			<p>TMDL STATUS REVIEW REPORT in accordance with Section I.B. above.</p> <ul style="list-style-type: none"> • Submit implementation plan and schedule for repair and/or replacement of high priority crossings/culverts with TMDL STATUS REVIEW REPORT in accordance with Section I.B. above.
Richardson Bay	Pathogens	Effective Date: December 18, 2009 BPA: Pathogens in Richardson Bay Resolution: R2-2008-0061	Implement Section III.A. and Section III.E.
San Francisco Bay	PCBs	Effective Date: March 29, 2010 BPA: Exhibit A & TMDL & Implementation Plan for PCBs Resolution: R1-2008-0012	Implement Section III.A. and Section III.C.
San Francisco Bay	Mercury	Effective Date: February 12, 2008 BPA : Chapter 7, SF Bay Mercury TMDL Resolution: R2-2006-0052	Implement Section III.A, Section III.B., and the following: The Department shall work out an equitable mercury WLA scheme in consultation with the San Francisco Bay Area Urban Runoff Management Agencies.
San Pedro and Pacifica State Beach	Bacteria	Effective Date: August 1, 2013 BPA – Chapter 3, Section 3.3.1 Bacteria Resolution: R2-2012-0089	Implement Section III.A. and Section III.E.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Sonoma Creek	Sediment	Effective Date: September 8, 2010 BPA: Exhibit A & Implementation Plan Resolution: R2-2008-0103	Implement Section III.A., Section III.B, and the following: <ul style="list-style-type: none"> • Conduct a survey of stream crossings associated with Department roadways, and develop a prioritized implementation plan and schedule for repair and/or replacement of high priority crossings/culverts. • Submit plan and schedule for conducting stream crossings surveys with TMDL STATUS REVIEW REPORT in accordance with Section I.B. above. • Submit implementation plan and schedule for repair and/or replacement of high priority crossings/culverts with TMDL STATUS REVIEW REPORT in accordance with Section I.B. above.
San Francisco Bay Urban Creeks	Diazinon & Pesticide-Related Toxicity	Effective Date: May 16, 2007 BPA: Chapter 3, Toxicity Resolution: R2-2005-0063	Implement Section III.A., Section III.C., and Section III.F.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
R3 - Central Coast Regional Water Board			
San Lorenzo River (includes Carbonera Lompico, and Shingle Mill Creeks)	Sediment	Effective Date: February 19, 2004 BPA: Attachment to R3-2002-0063 Resolution: R3-2002-0063	Implement Section III.A. and Section III.B.
Morro Bay (includes Chorro Creek, Los Osos Creek, and the Morro Bay Estuary)	Sediment	Effective Date: January 20, 2004 BPA: Attachment A to R3-2002-0051 Resolution: R3-2003-0051	Implement Section III.A. and Section III.B.
R4 - Los Angeles Regional Water Board			
Ballona Creek	Metals (Ag, Cd, Cu, Pb, & Zn) and Selenium	Effective Date: December 22, 2005 and reaffirmed on October 29, 2008 BPA: Attachment A, Chapter 7-12 Resolution: R2007-015	Implement Section III.A., Section III.C., and Section III.G.
Ballona Creek	Trash	Effective Date: August 1, 2002 & February 8, 2005 BPA: Attachment A, Chapter 7-3. Resolution: 2004-0023	Implement Section III.A. and Waste Load Allocation requirements and schedule as set forth in the Ballona Creek Trash TMDL.
Ballona Creek Estuary	Toxic Pollutants (Ag, Cd, Cu, Pb, Zn, Chlordane, DDTs, Total PCBs, & Total PAHs)	Effective Date: December 22, 2005 BPA: Attachment A, Chapter 7-14 Resolution: R4-2005-008	Implement Section III.A. and Section III.C.
Ballona Creek, Ballona Estuary, and Sepulveda Channel	Bacteria	Effective Date: March 26, 2007 and November 18, 2013 BPA: Attachment A, Chapter 7-21 Resolution: R4-2006-011	Implement Section III.A. and Section III.E.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Ballona Creek Wetlands	Sediment and Invasive Exotic Vegetation	U.S. EPA Established Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Calleguas Creeks, its Tributaries and Mugu Lagoon	Metals and Selenium	Effective Date: March 26, 2007 BPA: Attachment A, Chapter 7-19 Resolution: R4-2006-012	Implement Section III.A., Section III.C., and Section III.G.
Calleguas Creeks its Tributaries and Mugu Lagoon	Organochlorine Pesticides, Polychlorinated Biphenyls, and Siltation	Effective Date: March 14, 2006 BPA: Attachment A, Chapter 7-17 Resolution: R4-2005-010	Implement Section III.A., Section III.B, and Section III.C.
Colorado Lagoon	Organochlorine Pesticides, PCBs, Sediment Toxicity, PAHs, and Metals (Pb & Zn)	Effective Date: June 14, 2011 BPA: Attachment K, Chapter 7-38 Resolution: R09-005	Implement Section III.A. and Section III.C.
Dominguez Channel & Greater Los Angeles & Long Beach Harbor Waters	Toxic Pollutants: Metals (Cu, Pb, Zn), DDT, PAHs, and PCBs	Effective Date: March 23, 2012 BPA: Attachment A, Chapter 7-40 Resolution: R11-008	Implement Section III.A. and Section III.C.
Legg Lake	Trash	Effective Date: February 27, 2008 BPA: Attachment A, Chapter 7-27 Resolution: R4-2007-10	Implement Section III.A. and Section III.D.
Long Beach City Beaches and Los Angeles River Estuary	Indicator Bacteria	U.S. EPA Established Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A., and Section III.E.
Los Angeles Area (Echo Park Lake)	Nitrogen, Phosphorus, Chlordane, Dieldrin, PCBs, & Trash	U.S. EPA Established Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., Section III.C., and Section III.D.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Los Angeles Area (Lake Sherwood)	Mercury	<i>U.S. EPA Established</i> Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Los Angeles Area (North, Center, & Legg Lakes)	Nitrogen & Phosphorus	<i>U.S. EPA Established</i> Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Los Angeles Area (Peck Road Park Lake)	Nitrogen, Phosphorus, Chlordane, DDT, Dieldrin, PCBs, and Trash	<i>U.S. EPA Established</i> Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., Section III.C, and Section III.D.
Los Angeles Area (Puddingstone Reservoir)	Nitrogen, Phosphorus, Chlordane, DDT, PCBs, Hg, and Dieldrin	<i>U.S. EPA Established</i> Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.C.
Los Angeles River and Tributaries	Metals	Effective Date: December 22, 2005, October 29, 2008, & Reopened and Modified on November 3, 2011 BPA: Attachment A, Chapter 7-13 to 7-13 and Attachment B Resolution: R2007-014 & R10-003	Implement Section III.A. and Section III.C.
Los Angeles River	Trash	Effective Date: December 24, 2008 BPA: Attachment A, Chapter 7-2 Resolution: R4-2007-012	Implement Section III.A. and Waste Load Allocation requirements and schedule as set forth in the Los Angeles River Watershed Trash TMDL.
Los Angeles River Watershed	Bacteria	Effective Date: March 23, 2012 BPA: Attachment A, Chapter 7-39 Resolution: R10- 007	Implement Section III.A and Section III.E.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Los Cerritos	Metals	<i>U.S. EPA Established</i> Effective Date: March 17, 2010 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.C.
Machado Lake	Eutrophic, Algae, Ammonia, and Odors (Nutrients)	Effective Date: March 11, 2009 BPA: Attachment A, to R09-006 Resolution: R08-006	Implement Section III.A. and Section III.B.
Machado Lake	Pesticides and PCBs	Effective Date: March 20, 2012 BPA: Attachment A, Chapter 7-38 Resolution: R10-008	Implement Section III.A. and Section III.C.
Machado Lake	Trash	Effective Date: February 27, 2008 BPA: Attachment A, Chapter 7-26 Resolution: R4-2007-06	Implement Section III.A. and Section III.D.
Malibu Creek Watershed	Bacteria	Effective Date: January 10, 2006, Revised on November 8, 2013 ** BPA: Attachment A, Chapter 7-10 Resolution: 2004-019R & R12-009	Implement Section III.A. and Section III.E.
Malibu Creek and Lagoon	Sedimentation and Nutrients to address Benthic Community Impairments	<i>U.S. EPA Established TMDL</i> Effective Date: July 2, 2013 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Malibu Creek Watershed	Trash	Effective Date: June 26, 2009 BPA: Attachment A, Chapter 7-31 Resolution: R4-2008-007	Implement Section III.A. and Section III.D.
Marina del Rey Harbor	Toxic Pollutants (Cu, Pb, Zn, Chlordane, and Total PCBs)	Effective Date: March 16, 2006 BPA: Attachment A, Chapter 7-18 Resolution: R4-2005-012	Implement Section III.A. and Section III.C.
Marina del Rey Harbor Mothers' Beach and Back Basins	Bacteria	Effective Date: March 18, 2004, Revised on November 7, 2013 ** BPA: Attachment A, Chapter 7-5 Resolution: 2003-012, R12-007	Implement Section III.A. and Section III.E.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Revolon Slough and Beardsley Wash	Trash	Effective Date: August 1, 2002 & February 8, 2005 BPA: Attachment A, Chapter 7-3 Resolution: 2004-0023	Implement Section III.A. and Section III.D.
San Gabriel River	Metals (Cu, Pb, Zn) and Selenium	<i>U.S. EPA Established TMDL</i> Effective Date: March 26, 2007 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.C., and Section III.G.
Santa Clara River Estuary and Reaches 3, 5, 6, and 7	Coliform	Effective Date: January 13, 2012 BPA: Attachment A, Chapter 7-36 Resolution: R10-006	Implement Section III.A. and Section III.E.
Santa Clara River Reach 3	Chloride	Effective Date: December 11, 2008 BPA: Attachment B to Resolution No. R4-2008-012 & R4-2008-012	Implement Section III.A. and Section III.I.
Santa Monica Bay Beaches	Bacteria	Effective Date: June 19, 2003, Revised November 7, 2013 ** BPA: Attachment A, Revised in Chapter 7-4 Resolution: 2003-012, R12-007	Implement Section III.A. and Section III.E.
Santa Monica Bay	DDTs and PCBs	<i>U.S. EPA Established TMDL</i> Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.C.
Santa Monica Bay Nearshore & Offshore	Debris (trash & plastic pellets)	Effective Date: March 20, 2012 BPA: Attachment A, Chapter 7 Resolution:	Implement Section III.A. and Section III.D.
Upper Santa Clara River	Chloride	Effective Date: April 6, 2010 BPA: Attachment B. Chapter 7-6 Resolution: R4-2008-012	Implement Section III.A. and Section III.I.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Ventura River Estuary	Trash	Effective Date: February 27, 2008 BPA: Attachment A, Chapter 7-25 Resolution: R4-2007-008	Implement Section III.A. and Section III.D.
Ventura River and its Tributaries	Algae, Eutrophic Conditions, and Nutrients	Effective Date: June 28, 2013 BPA: Attachment A, Chapter 7-35 Resolution: R12-011	Implement Section III.A. and Section III.B.
R5 - Central Valley Regional Water Board			
Clear Lake	Nutrients	Effective Date: September 21, 2007 BPA: Attachment 1 to R5-2006-0060 Resolution No.: R5-2006-0060	Implement Section III.A. and Section III.B.
Cache Creek, Bear Creek, Sulphur Creek and Harley Gulch	Mercury	Effective Date: February 7, 2007 BPA: Attachment 1 to R5-2005-0146 Resolution: R5-2005-0146	Implement Section III.A. and Section III.B.
Sacramento-San Joaquin River Delta Estuary	Methyl mercury	Effective Date: October 20, 2011 BPA: Sacramento River and San Joaquin River Basins for the Control of Methylmercury and Total Mercury in the Sacramento – San Joaquin River Delta Estuary Resolution: R5-2010-0043.	Implement Section III.A. and Section III.B.
R6 - Lahontan Regional Water Board			
<p>Lake Tahoe Sediment and Nutrients TMDL Effective Date: August 16, 2011 BPA: WQ Amendment May 2008 Resolution: 2009-0028</p> <p>Lake Tahoe Sediment Requirements A. Pollutant Load Reduction Requirements The Department must reduce fine sediment particle (FSP), total phosphorus (TP), and total nitrogen (TN) loads by 10%, 7%, and 8%, respectively, by September 30, 2016.</p>			

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
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Pollutant load reductions shall be measured in accordance with the processes outlined in the most recent version of Lake Clarity Crediting Program Handbook. To demonstrate compliance with the average annual fine sediment particle pollutant load reduction requirements, the Department must earn and maintain 298 Lake Clarity Credits for the water year October 1, 2015 to September 30, 2016, and for subsequent water years.

B. Pollutant Load Reduction Plans

The Department shall prepare a Pollutant Load Reduction Plan (PLRP) describing how it expects to meet the pollutant load reduction requirements described in Section A above. The Department shall submit a plan no later than July 15, 2014 that shall include, at a minimum, the following elements:

1. *Catchment registration schedule*

The PLRP shall include a list of catchments that the Department plans to register pursuant to the approved Lake Clarity Crediting Program to meet load reduction requirements. The list shall include catchments where capital improvement projects have been constructed since May 1, 2004 that the Department expects to claim credit for, and catchments where projects will be constructed and other load reduction activities (capital improvements, institutional controls, and other measures/practices implement) taken during the term of this Order.

2. *Proposed pollutant control measures*

The PLRP shall generally describe storm water program activities to reduce fine sediment particle, total phosphorus, and total nitrogen loading that the Department will implement in identified catchments.

3. *Pollutant load reduction estimates*

The Department shall conduct pollutant load reduction analyses on a representative catchment subset to demonstrate that proposed implementation actions are expected to achieve the pollutant load reduction requirements specified in Section A. above. For representative catchments, the analysis shall include detailed estimates of both baseline pollutant loading and expected pollutant loading resulting from implementation actions and provide justification why the conducted load reduction analysis is adequate for extrapolation to other catchments.

The pollutant loading estimates shall differentiate between estimates of pollutant load reductions achieved since May 1, 2004 and pollutant load reductions from actions not yet taken.

4. *Load reduction schedule*

The PLRP shall describe a schedule for achieving the pollutant load reduction requirements described in the

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
<p>Lake Tahoe Sediment TMDL Section A above. The schedule shall include an estimate of expected pollutant load reductions for each year of this Permit term based on preliminary numeric modeling results. The schedule shall also describe which catchments the Department anticipates it will register for each year of this Permit term.</p> <p>5. <i>Annual adaptive management</i> The PLRP shall include a description of the processes and procedures to annually assess storm water management activities and associated load reduction progress. The plan shall describe how the Department will use information from the monitoring and implementation or other efforts to improve operational effectiveness and for achieving the pollutant load reduction requirements specified in Section A.</p> <p>6. <i>Pollutant Load Reduction Plan Update</i> By March 15, 2017, the Department shall update its Pollutant Load Reduction Plan to describe how it will achieve the pollutant load reduction requirements for the second five-year TMDL implementation period, defined as the ten-year load reduction milestone in the Lake Tahoe TMDL. Specifically, the updated Pollutant Load Reduction Plan shall demonstrate how the Department will reduce baseline fine sediment particle, total nitrogen, and total phosphorus loads by 21 percent, 14 percent, and 14 percent, respectively, by water year 2021.</p> <p>C. <i>Pollutant Load Reduction Progress</i> To demonstrate pollutant load reduction progress, the Department shall submit a Progress Report by July 15, 2014 documenting pollutant load reductions accomplished between May 1, 2004 (baseline year) and October 15, 2011.</p> <p>D. <i>Pollutant Load Reduction Monitoring and Water Quality Monitoring Requirements</i> The Department shall prepare and submit a Storm water Monitoring Plan for review and approval by the Regional Water Board by July 15, 2013 and implement the approved plan.</p>			
Truckee River	Sediment	Effective Date: September 16, 2009 BPA: WQ Amendment May 2008 Resolution: 2009-0028	Implement Sections III.A. and Section III.B.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
R7 - Colorado River Regional Water Board			
Coachella Valley Storm Water Channel	Bacterial Indicators	Effective Date: April 27, 2012 BPA: Attachment 1: Final CVSC Bacteria TMDL Resolution: R7-2010-0028	Implement Section III.A. and Section III.E.
R8 - Santa Ana Regional Water Board			
Big Bear Lake	Nutrients for Dry Hydrological Conditions	Effective Date: September 25, 2007 BPA: Attachment to R8-2006-0023 Resolutions: R8-2006-0023, and R8-2008-0070	Implement Section III.A. and Section III.B.
<p>Lake Elsinore and Canyon Lake Nutrients TMDL Effective Date: September 30, 2005 BPA: Attachment to R8-2004-0037 & R8-2006-0031 Resolution: R8-2007-0083 Implement Section III.A., Section III.B., and the following:</p> <p>Lake Elsinore/Canyon Lake Nutrient TMDL Joint Responsibility Options</p> <ol style="list-style-type: none"> a. The Department has already committed to cooperative implementation actions, monitoring actions, special studies and implementation actions jointly with other responsible agencies as an active paying member of the Lake Elsinore/Canyon Lake TMDL Task Force. The Department shall continue with those actions and remain an active paying Task Force member. b. If the State Water Board is notified that the Department is not fulfilling its Lake Elsinore/Canyon Lake Task Force obligations or if Department chooses to opt out of the cooperative approach with the TMDL Task Force for implementation actions, monitoring actions, and/or special studies the Department shall make a formal decision six months after the adoption of the Permit Amendment. These decisions must be approved/adopted by the State Board. The Department will then be required to conduct the following activities: <ol style="list-style-type: none"> 1) Within 30 days of such notification, implement a Lake Elsinore and Canyon Lake in-lake monitoring consistent with the TMDL Task Force monitoring program. 2) Within 30 days of such notification, submit a proposed Department facilities monitoring program to evaluate nutrient discharges from the Department’s facilities in the Lake Elsinore/Canyon Lake watershed. 			

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
<p>3) Within 30 days of notification, develop and implement a Lake Elsinore in-lake sediment nutrient reduction program to mitigate Department facilities in-lake nutrient sediment load. Develop and implement a monitoring program to evaluate the success of in-lake sediment reduction strategies that will be implemented.</p> <p>4) Within 60 days of notification, develop and implement a Canyon Lake in-lake sediment nutrient reduction program to mitigate Department facilities in-lake nutrient sediment load. Develop and implement a monitoring program to evaluate the success of in-lake sediment reduction strategies that will be implemented.</p> <p>5) Within 60 days of notification, submit an annual monitoring report by August 15th of each year.</p> <p>6) Submit an annual in-lake nutrient reduction program status report by August 15th of each year</p>			
Rhine Channel Area of Lower Newport Bay	Chromium and Mercury	<i>U.S. EPA Established TMDL</i> Effective Date: June 14, 2002 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.C.
San Diego Creek and Newport Bay, including Rhine Channel	Metals (Copper, Lead, & Zinc)	<i>U.S. EPA Established TMDL</i> Effective Date: June 14, 2002 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.C.
San Diego Creek and Upper Newport Bay	Cadmium	<i>U.S. EPA Established TMDL</i> Effective Date: June 14, 2002 BPA: N/A	Implement Section III.A. and Section III.C
San Diego Creek Watershed	Organochlorine Compounds (DDT, Chlordane, PCBs, & Toxaphene)	Effective Date: November 12, 2013 BPA: Attachment 2 Resolution: R8-2011-0037	Implement Section III.A. and Section III.C.
Upper & Lower Newport Bay	Organochlorine Compounds (DDT, Chlordane & PCBs)	Effective Date: November 12, 2013 BPA: Attachment 2 Resolution: R8-2011-0037	Implement Section III.A. and Section III.C.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
R9 - San Diego Regional Water Board			
Chollas Creek	Diazinon	Effective Date: November 3, 2003 BPA: Attachment A to Resolution: R9-2002-0123	Implement Section III.A. and Section III.F.
Chollas Creek	Dissolved Copper, Lead and Zinc	Effective Date: December 18, 2008 BPA: Attachment A Resolution: R9-2007-0043	Implement Section III.A and Section III.C.
Rainbow Creek	Total Nitrogen and Total Phosphorus	Effective Date: March 22, 2006 BPA: Attachment A Resolution: R9-2005-0036	Implement Section III.A. and Section III.B.
Project 1- Revised Twenty Beaches & Creeks in the San Diego Region (including Tecolote Creek)	Indicator Bacteria	Effective Date: June 22, 2011 BPA: Attachment A Resolution: R9-2010-001	Implement Section III.A. and Section III.E.
** OAL Approved, U.S. EPA Approval Pending			

Section III. General and Categorical Requirements

A. General Requirements for All TMDLs:

1. Comprehensive TMDL Monitoring Plan

- a. The Department shall continue to implement existing TMDL water quality monitoring plans, including cooperative water quality monitoring plans that the Department is party to that have already received approval from the Regional Water Board Executive Officer.
- b. The Department shall develop and implement a comprehensive TMDL monitoring plan to be submitted to the State Water Board by January 1, 2015. The comprehensive TMDL monitoring plan shall include existing approved water quality monitoring plans as described in Section III.A.1.a. above, and shall also include monitoring for all TMDLs that do not have existing approved

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water quality monitoring plans. The proposed comprehensive TMDL monitoring plan shall be designed to inform selection of BMPs, to inform future reach prioritization submittals, and to assess the effectiveness of BMP implementation. The Department may propose monitoring by pollutant category and may rely on representative monitoring for BMP effectiveness assessment. The comprehensive TMDL monitoring plan shall include a time-schedule for the implementation of the monitoring plan. The comprehensive TMDL monitoring plan is subject to approval by the Executive Director of the State Water Board.

2. Adaptive Management

The Department shall use monitoring data to conduct an on-going assessment of the performance and effectiveness of BMPs. The assessment shall include necessary modifications to control measures to achieve WLAs and other applicable performance standards. Where an assessment indicates that control measures are inadequate to achieve WLAs and other performance standards in a reach, the Department must implement improved control measures/BMPs.

3. Reporting

- a. By January 1, 2015, the Department shall submit the required information in section I.B. of this attachment regarding planned implementation of control measures for the upcoming reporting period (January 1, 2015 – October 1, 2015).
- b. The Department shall summarize the previous year's TMDL monitoring results, deliverables and other actions as specified in its annual **TMDL STATUS REVIEW REPORT**.
- c. The Department shall prepare and submit a **TMDL PROGRESS REPORT** by January 1, 2018, to the State Water Board as part of its report of waste discharge under Provision E.13.c. The **TMDL PROGRESS REPORT** shall be presented to the State Water Board as an informational item and include the following information:
 - i. A summary of the effectiveness of the control measures installed for each reach that has been addressed, as a result of the BMP effectiveness assessment,
 - ii. A determination as to whether the control measures have been or will be sufficient to achieve WLAs and other performance standards by the final compliance deadlines,
 - iii. Where the control measures are determined not to be sufficient to achieve WLAs or other performance standards by the final compliance deadlines, a proposal for improved control measures to address the relevant pollutants,
 - iv. A summary of the estimated quantified amount of pollutants prevented from entering into the receiving waters as a result of BMPs, cooperative agreements, or other source control measures taken, and

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- v. An analysis demonstrating that the level of effort (1650 compliance units/year) during the present permit cycle will be sufficient to achieve WLAs and other performance standards for all TMDLs listed in Table IV.2 by 2034. The analysis must utilize monitoring data if available, pertinent analytical tools, including modeling where appropriate, and provide a reasonable assurance that applicable WLAs and performance criteria will be met.

The **TMDL PROGRESS REPORT** will be subject to public review and comment and will be used in the development of the reissued permit.

B. Sediment/Nutrients/Mercury/Siltation/Turbidity TMDL Control Requirements

Sediment, nutrient and mercury TMDLs identify sediment from roads as a significant or primary source of these pollutants. Measures that control the discharge of sediment can be effective in controlling releases of nutrients and mercury. Therefore, the Department shall implement control measures to prevent or minimize erosion and sediment discharge. This can be achieved by protecting hillsides, intercepting and filtering runoff, avoiding concentrated flows in natural channels and drains, and not modifying natural runoff flow patterns.

C. Metals/Toxics/Pesticides TMDL Control Requirements

1. Fine Particulates

Toxic pollutants and/or heavy metals have a high affinity for adherence to fine sediment, such as particles from tires, brake parts, and the road surfaces. Therefore, the appropriate control measures for metals and toxics are to control erosion and prevent or minimize the discharge of fine sediment. The Department shall implement control measures to prevent the discharge of fine sediment. This can be achieved by intercepting and filtering runoff, avoiding concentrated flows in natural channels and drains, and not modifying runoff flow patterns.

2. Dissolved Fraction Metals

The fraction of metals that are not bound to particulates exists in a dissolved state as free metal ions, as inorganic complexes, or bound to dissolved organic chemicals. Although fine particulate removal also reduces dissolved fraction metals, additional control measures may be necessary for the control of dissolved metals. Typically, treatment for dissolved fraction metals requires physical structures that prevent contaminated runoff from reaching receiving waters, such as infiltration systems that allow runoff water to percolate into soil.

The Department shall propose and implement appropriate control measures to reduce the discharge of dissolved fraction metals to comply with this Order.

3. Pesticides

The Department shall comply with Provision E.2.h.3)b) of this Order which specifies practices for the safe handling and use of pesticides, including

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compliance with federal, State and local regulations, and label directions. This provision also requires site assessments, applicator training, and implementation of integrated pest and vegetation management practices in its vegetation control program.

D. Trash TMDL Control Requirements

Trash in waterbodies reduces habitat for aquatic life, directly impacts wildlife from ingestion or entanglement, impacts human health from pathogens, and impacts the aesthetics of waterbodies.

1. The discharge of trash to receiving waters is prohibited. The Department shall comply with this prohibition in all significant trash generating areas in the watersheds subject to trash TMDL controls, identified as the following:
 - a. Highway on-ramps and off-ramps in high density residential, commercial, and industrial land use areas.
 - b. Rest area and park-and-ride facilities.
 - c. State highways in commercial and industrial land use areas.
 - d. Mainline highway segments identified through pilot studies and/or surveys.
2. The Department shall comply with the discharge prohibition of trash through one of the following control measures:
 - a. Install, operate, and maintain a full capture system, treatment controls, and/or institutional controls for storm drains that service the significant trash generating areas; or
 - b. Coordinate with neighboring municipalities that have jurisdiction over significant trash generating areas and/or priority land use areas (high density residential, industrial, commercial, mixed urban, and public transportation stations) to implement Section III.D.2.a above.
3. The Department shall submit as part of its **TMDL STATUS REVIEW REPORT** a determination of the highway characteristics that may qualify as significant trash generating areas by October 1, 2015, and
4. The Department shall submit as part of its **TMDL STATUS REVIEW REPORT** the status of each of the applicable control measures specified in Section III.D.2 above.

The constituents of Attachment II are not applicable for this pollutant category; therefore the Department is exempted from monitoring for the constituents listed in Attachment II for the waterbodies listed only for trash impairments.

E. Bacteria TMDL Control Requirements

The constituents of Attachment II are not applicable for this pollutant category; therefore the Department is exempted from monitoring for the constituents listed in Attachment II for the waterbodies listed only for bacteria impairments.

1. Dry-Weather Flows

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Dry weather non-storm water discharges may significantly increase bacteria loading to receiving waters. Therefore, the Department shall implement control measures to ensure that the effective prohibition of non-storm water discharges (Provision B.2. of this Order) is implemented according to the prioritized work schedule specified in Section I of this attachment. The prohibition of non-storm water discharges can be achieved through infiltration, diversion, or other methods.

2. Wet-Weather Flows

Wet weather storm water discharges also contribute significant bacteria loads to receiving waters. The principal impact is to the water contact recreation beneficial use (REC-1). The Department shall implement control measures/BMPs to prevent or eliminate the discharge of bacteria from its ROW. Source control and preemptive activities such as street sweeping, clean-up of illegal dumping, public education on littering; and BMPs such as retention/detention, infiltration, diversion of storm water prevent or eliminate the discharge of bacteria to receiving waters.

F. Diazinon TMDL Control Requirements

Diazinon is an organophosphate pesticide used in agriculture. It is no longer registered by the California Department of Pesticide Regulation for non-agricultural uses. The Department does not use diazinon on its ROW. The discharge of diazinon is prohibited.

G. Selenium TMDL Control Requirements

Selenium is naturally occurring in geologic formations, soils and aquatic sediments. Storm water runoff, dewatering, ground water seepage, irrigation of high selenium content soils, and oil refineries are identified as significant sources of selenium. The Department shall implement control measures to control the discharge of selenium, unless the Department can demonstrate one of the following:

1. There is no exceedance of an applicable receiving water limitation for selenium in the receiving water(s) at, or immediately downstream of, the Department's outfall(s), or
2. There is no direct or indirect discharge from the Department's outfall(s) to the receiving water during the time period subject to the WLA.

The Department does not have to comply with the monitoring requirements of Attachment II in demonstrating non-exceedance or no discharge of selenium.

H. Temperature TMDL Control Requirements

Maintenance activities may increase receiving water temperatures as a result of vegetation removal and/or erosion and sedimentation. Sedimentation and erosion control measures for temperature impairments are being required in accordance with Section III.B. Therefore, the Department shall:

1. Preserve existing riparian biotic conditions immediately adjacent to receiving waters susceptible to temperature increases,

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2. Provide effective shade near receiving waters susceptible to temperature increases, and
3. Maintain site potential effective shade near receiving waters susceptible to temperature increases.

Alteration of riparian biotic conditions that may increase sedimentation or reduce effective shade shall receive prior written authorization by the applicable Regional Water Board Executive Officer or designee.

Site-specific Potential Effective Shade is defined as the shade equivalent to that provided by topography and potential vegetation conditions at a site. Effective shade is the percentage of direct beam solar radiation that attenuated and scattered before reaching the ground or stream surface from topographic and vegetation conditions. The term "site-specific potential" is defined as the vegetation conditions possible at a location, considering the vegetation species present, and any natural factors that limit vegetation size and density.

I. Chloride TMDL Control Requirements

Elevated levels of chloride in receiving waters affect their beneficial use for agricultural irrigation. Chloride in the Santa Clara River watershed is principally due to increased salt loadings from imported water and the use of self-regenerating water softeners. The Department does not discharge significant amounts of chloride and any minimal discharges are expected to be addressed under the requirements of this Order. No additional TMDL implementation actions for control of chloride are required in this attachment.

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REGIONAL WATER BOARD SPECIFIC REQUIREMENTS

PART 1 NORTH COAST REGION

1. North Coast Regional Water Board Resolution R1-2004-0087 directs its staff to utilize existing regulatory programs to address sources of sediment within sediment impaired watersheds. The Department owns road right-of-way and other property within watersheds that are listed as impaired for sediment. Some of these facilities have sources of sediment (eroding shoulders, failed culverts, unstabilized cut and fill slopes, etc) that discharge into sediment impaired waterbodies. Consistent with Resolution R1-2004-0087 and the Water Quality Control Plan for the North Coast Region, the Department shall take the following steps in watersheds listed for sediment to identify, prioritize and control sources of sediment that discharge anthropogenic amounts of sediment into impaired waters. These requirements are in addition to any watershed-specific TMDL implementation requirements listed in Attachment IV of this Order. Steps to be taken include:
 - a. Inventory: Identify sources of excess sediment or threatened discharge, and quantify the discharge or threatened discharges from the source(s).
 - b. Prioritize: Prioritize efforts to control discharge of excess sediment based on, but not limited to, severity of threat to water quality and beneficial uses, the feasibility of source control, and source site accessibility. The inventory and prioritized steps shall be completed within two (2) years of the adoption of this Order and updated annually. This step is not required if the Department is implementing the requirements of Attachment IV for sediment TMDLs as the given reaches have already been prioritized within the context of statewide implementation.
 - c. Implement: Develop and implement feasible sediment control practices to prevent, minimize, and control the discharge.
 - d. Monitor and Adapt: Use monitoring results to direct adaptive management measures in order to refine and adjust erosion control practices and implementation schedules, until sediment discharge is reduced and no longer causes a violation of any sediment related narrative or numeric objective.

Each District within the North Coast Region shall include a time schedule for the above-referenced activities within the District Workplan for Regional Water Board approval. The time schedule shall implement the required activities as quickly as feasible. An annual update on activities and compliance with the projected time schedule shall be included in each subsequent annual report.

2. Removal of riparian vegetation may result in a threatened discharge or an exceedance of a water quality objective. The North Coast Region has many

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watersheds that are impaired for excess sediment and temperature. Riparian vegetation shall be protected and restored to the greatest extent feasible and removal may require permitting by the Regional Water Board.

PART 2 SAN FRANCISCO BAY REGION

1. High Trash Generation Areas

The Department shall demonstrate compliance with Discharge Prohibition 7, Table 4-1 of the San Francisco Bay Regional Water Board Basin Plan through the timely implementation of control measures in all high trash generating areas in the San Francisco Bay Region, identified as the following:

- a. Freeway on- and off-ramps in high density residential, commercial and industrial land uses.
- b. Rest areas and park-and-rides.
- c. State highways in commercial and industrial land use areas.
- d. Other freeway segments as identified by maintenance staff and/or trash surveys.

2. Control Measures

The Department shall comply with the prohibition of discharge for trash through implementation of the following control measures:

- a. Install, operate, and maintain full trash capture systems, treatment controls, and/or enhanced maintenance controls for storm drains or catchments that service the significant trash generating areas.
- b. Coordinate with neighboring MS4 permittees to construct, operate, and maintain full trash capture systems, treatment controls, and/or enhanced maintenance controls in high trash generating areas and/or priority land use areas (high density residential, industrial, commercial, and public transportation stations).

All installed devices that meet the full trash capture definition (See "Full Capture System", Attachment VIII) may be counted toward this requirement regardless of date of installation.

3. Coordination with Local Entities

The Department may choose to establish a municipal coordination plan to design, build, operate, and/or maintain controls in conjunction with other watershed stakeholders. The Minimum Full Trash Capture requirement may be met with the Department specific activities and devices, or from load reduction resulting from municipal coordination implementation, or any combination thereof, so long as the municipal coordination activities meet the full trash capture standard.

4. Assessment

The Department shall assess the effectiveness of enhanced maintenance controls implemented in high trash generation areas. This assessment will include controls implemented in coordination with local municipalities.

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5. Additional

- a. Abate trash from construction and reconstruction projects.
- b. Include trash capture devices on the outlets of treatment systems for new and redeveloped highway projects to achieve the full trash capture standard.

6. Reporting

In each Annual Report, as part of the **TMDL STATUS REVIEW REPORT**, the Department shall provide a per District summary of the following:

- a. Trash load reduction actions.
- b. Full trash capture installation and maintenance.
- c. Implementation of enhanced maintenance controls.
- d. A map and list of high trash generation areas and the installed controls addressing each area.
- e. The reporting of trash load shall be in a manner approved by the Executive Officer.
- f. Municipal coordination implementation.

7. Storm Water Pump Stations

The Department shall comply with the following implementation measures to reduce polluted water discharges from its pump stations:

- a. Complete an inventory of pump stations within the Department's jurisdiction in the San Francisco Bay Region, including locations and key characteristics⁴¹ and submit to the Regional Water Board by October 1, 2015.
- b. Inspect and collect dissolved oxygen (DO) data from 20 percent of the pump stations once a year (100 percent in five years) after a minimum of a two week antecedent period with no precipitation. DO monitoring is exempted where all discharge from a pump station remains in the storm water collection system or infiltrates into a dry creek immediately downstream.
- c. If DO levels are at or below three milligrams per liter (3 mg/L), apply corrective actions, such as continuous pumping at a low flow rate, aeration, or other appropriate methods to maintain DO concentrations of the discharge above 3 mg/L.
- d. Report inspection and monitoring results in the Annual Report.

⁴¹ Characteristics include name of pump station, latitude and longitude in NAD83, number of pumps, drainage area in acres, dominant land use(s), first receiving water body, maximum pumping capacity of station in gallons per minute (gpm), flow measurement capability (Y or N), flow measurement method, average wet season discharge rate in gpm, dry season discharge (Y, N, or unknown), nearest municipal wastewater treatment plant, wet well storage capacity in gallons, trash control (Y or N), trash control measure, and date built or last updated.

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PART 3 LAHONTAN REGION

The Water Quality Control Plan for the Lahontan Region (Basin Plan) has additional requirements which have been historically applied to the Department's permits and which apply to this NPDES Permit in the Lahontan Region. These requirements include:

1. For projects meeting the criteria specified in Provision E.2.d.of the permit (Project Planning and Design), the following numeric sizing criteria for storm water treatment control BMPs apply:

Where storm water runoff is determined to have connectivity to surface waters and/or is not adequately infiltrated or treated by the natural environment, storm water/urban runoff collection, treatment, and/or infiltration disposal facilities shall be designed, installed, and maintained for the discharge of storm water runoff from all impervious surfaces generated by the 20-year, one-hour design storm (1) within the Truckee River Hydrologic Unit (3/4- inch of rain), (2) within the East Fork Carson River and West Fork Carson River Hydrologic Units (one inch of rain), and (3) within the Mammoth Creek Hydrologic Unit above 7,000-foot elevation (one inch of rain). Hydrologic evaluations may be required or may be conducted consistent with the NEAT study described in item No. 2 below to help determine areas where infiltration of the 20-year, one-hour storm is required.

2. In 2009, the Department completed the Natural Environment as Treatment (NEAT) study and report for 38 miles of roadway within the Lake Tahoe Hydrologic Unit. The NEAT approach is consistent with the strategic approach required by this permit. Projects developed within the NEAT study area shall be designed and constructed based on the priority areas identified by the study.
3. Unless granted a variance by the Lahontan Regional Water Board Executive Officer, there shall be neither removal of vegetation nor disturbance of existing ground surface conditions between October 15 of any year and May 1 of the following year, except when there is an emergency situation that threatens the public health or welfare. This prohibition period applies to the Lake Tahoe, Truckee River, East Fork Carson River, and West Fork Carson River Hydrologic Units and above the 5,000-foot elevation in the portions of Mono and Inyo Counties within the Lahontan Region.
4. Project Review Requirements
 - a. The Department shall participate in early project design consultation for all projects within the Lake Tahoe, Truckee River, East and West Forks Carson River and Mammoth Creek Hydrologic Units.
 - b. The Department must solicit Lahontan Regional Water Board staff review when project development/design is at the 20 to 30 percent design level (prior to Project "Approval" and Environmental Document), 60 percent design level, and 90 percent design level (Plans, "Specifications" and Estimates).

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ATTACHMENT VI — STANDARD PROVISIONS

1. **Duty to Comply.** The Department shall comply with all of the conditions of this Order. Any permit noncompliance constitutes a violation of the CWA and the Porter-Cologne Water Quality Control Act, which may be grounds for enforcement action or denial of permit coverage. [40 C.F.R. § 122.41(a)]

The Department shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. [40 C.F.R. § 122.41(a)(1)]

2. **Modification, Revocation and Reissuance, or Termination.** This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Department for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any General Permit condition.

3. **Enforcement**

- a. The provision contained in this enforcement section shall not act as a limitation on the statutory or regulatory authority of the State and Regional Water Board.
- b. Any violation of the Order constitutes violation of the California Water Code and regulations adopted hereunder and the provisions of the Clean Water Act, and is the basis for enforcement action, permit termination, permit revocation and reissuance, denial of an application for permit reissuance; or a combination thereof.
- c. The State and Regional Water Boards may impose administrative civil liability may refer a discharger to the State Attorney General to seek civil monetary penalties, may seek injunctive relief or take other appropriate enforcement action as provided in the California Water Code or federal law.
- d. All applications, reports, or information submitted to the State Water Board or Regional Water Boards shall be signed and certified. The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Order including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both. [40 C.F.R. § 122.41(k)]

4. **Need to Halt or Reduce Activity not a Defense.** It shall not be a defense for the Department in an enforcement action that it would have been necessary to halt or

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reduce the permitted activity in order to maintain compliance with the conditions of this Order. [40 C.F.R. § 122.41(c)]

5. **Duty to Mitigate.** The Department shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. [40 C.F.R. § 122.41(d)]
6. **Proper Operation and Maintenance.** The Department at all times shall properly operate and maintain any facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Department to achieve compliance with the conditions of this Order. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems installed by the Department only when necessary to achieve compliance with the conditions of this Order. [40 C.F.R. § 122.41(e)]
7. **Property Rights.** This Order does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, State, or local laws or regulations. [40 C.F.R. § 122.41(g)]
8. **Duty to Provide Information.** Within a reasonable time specified by the State Water Board, Regional Water Boards, or U.S. EPA, the Department shall furnish records, reports, or information required to be kept by this Order, and shall furnish any information requested to determine whether cause exists for modifying, revoking, and reissuing, or terminating this Order or to determine compliance with this Order. [40 C.F.R. § 122.41(h)]
9. **Inspection and Entry.** [40 C.F.R. § 122.41(i)] Upon the presentation of credentials and other documents as may be required by law, the Department shall allow the State and Regional Water Boards, or U.S. EPA to:
 - a. Enter upon the Department's premises where a regulated facility or activity is located or conducted or where records are required to be kept under the conditions of this Order;
 - b. Have access to and copy at reasonable times any records that must be kept under the conditions of this Order;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
 - d. Sample or monitor at reasonable times for the purposes of assuring ensuring permit compliance, or as otherwise authorized by the Clean Water Act.

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10. **Monitoring and Records.** [40 C.F.R. § 122.41(j)]
- a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
 - b. The Department shall retain records of all monitoring information for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the State Water Board's Executive Director or Regional Water Board's Executive Officer at any time.
 - c. Records of monitoring information shall include:
 - i. The date, exact place, and time of sampling or measurements;
 - ii. The individual(s) who performed the sampling or measurements;
 - iii. The date(s) analyses were performed;
 - iv. The individual(s) who performed the analyses;
 - v. The analytical techniques or methods used; and
 - vi. The results of such analyses.
 - d. Monitoring must be conducted according to test procedures approved under 40 C.F.R. § 136 unless another method is required under 40 C.F.R. subchapters N or O.
 - e. The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Order shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than four years, or both.
11. **Signatory Requirements.** All reports, certifications, and records required by this Order or requested by the State Water Board and Regional Water Boards or U.S. EPA shall be signed by either a principal executive officer or by a duly authorized representative. A person is a duly authorized representative only if [40 C.F.R. §§ 122.22 & 122.41(k)]:
- a. The authorization is made in writing by the principal executive officer; and
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the Department. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

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If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, the Department shall provide a new authorization prior to submittal of any reports, certifications, or records signed by the newly authorized representative.

12. **Certification.** Any person signing documents under Provision 11 above shall make the following certification [40 C.F.R. § 122.22(d)]:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

13. **Reporting Requirements.**

- a. *Planned changes.* The Department shall give advance notice to the State Water Board and the appropriate Regional Water Board of any planned physical alteration or additions to the permitted facility. Notice is required under this provision only when the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged; [40 C.F.R. § 122.41(l)(1)]
- b. *Anticipated noncompliance.* The Department shall give advance notice to the appropriate Regional Water Board of any planned changes at the permitted facility or activity which may result in noncompliance with Permit requirements; [40 C.F.R. § 122.41(l)(2)]
- c. *Compliance Schedules.* Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order shall be submitted no later than 14 days following each scheduled date; [40 C.F.R. § 122.41(l)(5)]
- d. *Other Information.* Where the Department becomes aware that it failed to submit any relevant facts, or submitted incorrect information in a permit application or in any required report, it shall promptly submit such facts or information [40 C.F.R. § 122.41(l)(8)].
- e. The Department shall submit, except for the Annual Report, one copy of each report required by the permit to the State Water Board. The Department shall also submit one copy to each of the appropriate Regional Water Boards. The Department may choose to submit its properly signed reports electronically

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into SMARTS in the Portable Document Format (PDF) and submit hard copies only upon request of the State or Regional Water Board staff.

14. **Oil and Hazardous Substance Liability.** Nothing in this Order shall be construed to preclude the institution of any legal action or relieve the Department from any responsibilities, liabilities, or penalties to which the Department is or may be subject to under Section 311 of the CWA.
15. **Severability.** The provisions of this Order are severable; and if any provision of this Order or the application of any provision of this Order to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Order shall not be affected thereby.
16. **Availability.** A copy of this Order shall be maintained at the facility and be available at all times to the appropriate facility personnel and to representatives of the Regional Water Boards, State Water Board, or U.S. EPA.
17. **Education.** The Department shall ensure that all personnel whose decisions or activities could affect storm water quality are familiar with the requirements of this NPDES Permit.

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ATTACHMENT VII — LIST OF ACRONYMS & ABBREVIATIONS

ASBS	Areas of Special Biological Significance
BAT	Best Available Technology Economically Achievable
Basin Plans	Regional Water Quality Control Plans
BCT	Best Conventional Pollutant Control Technology
BMPs	Best Management Practices
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGP	Construction General Permit - NPDES General Permit for Storm Water Discharges Associated with Construction Activities
CTR	California Toxics Rule
CWA	Clean Water Act
CWC	California Water Code
Department	California Department of Transportation (Caltrans)
EC	Electrical Conductivity
EMA	Emergency Management Agency
ESA	Environmentally Sensitive Area
FPPP	Facility Pollution Prevention Plan
GPS	Global Positioning System
Hydromodification	Hydrograph Modification
IC/ID	Illegal Connection/ Illicit Discharge
IGP	Industrial General Permit - NPDES General Permit for Discharges Associated with Industrial Activities Excluding Construction Activities
LA	Load Allocation
LID	Low Impact Development
MEP	Maximum Extent Practicable
MRP	Monitoring and Reporting Program
MS4	Municipal Separate Storm Sewer System
NCIR	Non-Compliance Incident Report
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
Ocean Plan	California Ocean Plan
PAHs	Polycyclic Aromatic Hydrocarbons
POTW	Publicly Owned Treatment Works
Regional Water Board	Regional Water Quality Control Board
ROW	Department Right-of-Way
State Water Board	State Water Resources Control Board
SUSMP	Standard Urban Storm Water Mitigation Plan
SWAMP	Surface Water Ambient Monitoring Program
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
TCGP	Tahoe Construction General Permit
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TPH	Total Petroleum Hydrocarbon
TSS	Total Suspended Solids
U.S. EPA	United States Environmental Protection Agency
WDRs	Waste Discharge Requirements
WLA	Waste Load Allocation
WQBEL	Water Quality-Based Effluent Limitation
WQO	Water Quality Objective
WQS	Water Quality Standard
Workplans	District Workplans

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ATTACHMENT VIII - GLOSSARY

Acute Toxicity. A chemical stimulus severe enough to rapidly induce an effect; in aquatic toxicity tests, an effect observed within 96 hours or less is considered acute. When expressed as toxic units acute (TUa), $TUa=100/96\text{-hour LC } 50 \text{ percent}$. Acute toxicity can also be expressed as lethal concentration 50 percent (LC 50).

Administrative Noncompliance. Failure to comply with the procedural requirements of this Order. Examples include but are not limited to: failure to submit required reports or documents required by the Permit and/or SWMP, missed deadlines or late submittal, and/or failure to submit required information, failure to develop and/or maintain site-specific FPPP or to implement any other procedural requirement of the Permit.

Areas of Special Biological Significance (ASBS). Ocean or estuarine areas designated by the State Water Board that require special protection of species or biological communities to the extent where alteration of natural water quality is undesirable. The California Ocean Plan describes ASBSs as "those areas containing biological communities of such extraordinary value that no risk of change in their environment as the result of man's activities can be entertained". ASBSs are a subset of State Water Quality Protection Areas.

Basin Plans. Basin Plans (regional water quality control plans) are the principal regulatory mechanisms for protection of water quality in California. Basin plans describe the beneficial uses that each water body supports, e.g. drinking, swimming, fishing, and agricultural irrigation; the water quality objectives necessary to protect those uses; and the program implementation needed to achieve the objectives, such as waste discharge permits and enforcement actions.

Batch Plant. A processing plant where concrete or asphalt is mixed before transport to a construction site. Batch plants are considered to be industrial activities as defined in 40 CFR 122.26(b)(14) (iii) and are regulated under the Industrial General Permit.

Beneficial Uses. The uses of the water protected against degradation including, but not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

Best Available Technology Economically Achievable (BAT). Technology-based compliance standard established by the Clean Water Act. BAT is based on consideration of the age of the equipment and facilities involved, the processes employed, the engineering aspects of the application of various types of control techniques, process changes, non-water quality environmental impact (including energy requirements) and other factors as deemed appropriate. BAT effluent

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limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

Best Conventional Pollutant Control Technology (BCT). Technology-based compliance standard for the discharge from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, oil and grease. BCT is established by a two-part “cost reasonableness” test, which compares the cost for an industry to reduce its pollutant discharge with the cost to a POTW for similar levels of reduction of a pollutant loading. The second test examines the cost-effectiveness of additional industrial treatment beyond BCT. Limits must be reasonable under both tests.

Best Management Practices (BMPs). Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of “waters of the United States.” BMPs include structural and nonstructural controls, treatment requirements, operation and maintenance procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Non-Approved BMP. Any BMP for maintenance, construction, design pollution prevention, and treatment that are not in the Department’s SWMP (CTSW-RT-02-008) or Statewide Storm Water Quality Practice Guidelines (CTSW-RT-02-009) approved for statewide use.

Post-Construction BMPs. Any structural or non-structural controls that detain, retain, or filter storm water to prevent the release of pollutants to receiving waters after final site stabilization is attained.

Structural BMPs. Any structural facility designed and constructed to mitigate the adverse impacts of storm water runoff (e.g. canopy, structural enclosure). The category may include both Treatment Control BMPs and Source Control BMPs.

Source Control BMPs. Any schedules of activities, prohibitions of practices, maintenance procedures, managerial practices or operational practices that aim to prevent storm water pollution by reducing the potential for contamination at the source. Examples include treatment techniques that use natural measures to reduce pollution levels, do not require extensive construction efforts, and/or promote pollutant reduction by controlling the pollutant source.

Treatment Control BMPs. Any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media absorption or any other physical, biological, or chemical process.

California Ocean Plan (Ocean Plan). The water quality control plan for California near-coastal waters, first adopted by the State Water Resources Control Board in 1972.

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The purpose of the Ocean Plan is to protect the beneficial uses of the State's ocean waters by identifying water quality objectives, setting general waste discharge requirements, and listing discharge prohibitions. In addition, the Ocean Plan is used to develop and update statewide water quality control plans, policies, and standards involving marine waters.

California Toxics Rule. The Federal regulation, found at 40 CFR § 131.38. Establishes water quality criteria (limits) for heavy metals and other toxic compounds for the protection of beneficial uses of surface waters in California.

Catch Basins. A storm drain inlet having a sump below the outlet to capture settled solids, debris, sediment, and prevent clogging.

Chronic Toxicity. The ability of a substance or a mixture of substances to cause harmful effects over an extended period of time. Expressed as toxic units chronic (TUc), $TUc=100/NOEL$, where NOEL is the No Observed Effect Level.

Construction Activity. Any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that results in a land disturbance. Construction does not include emergency construction activities required to immediately protect public health and safety or routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility.

Cut and Fill. The process of moving earth by excavating part of an area and using the excavated material for adjacent embankment of fill areas.

Department Airspaces. Any area within the Department's operating right-of-way that can safely accommodate a privately managed use such as: parking lots, self storage units, commercial businesses, light industry, and cellular telephone towers. The Department executes airspace leases with third parties for these uses.

Department Facility. A Maintenance Facility, Non-maintenance Facility, Highway Facility, Industrial Facility, or Vehicle Maintenance.

Maintenance Facility. A facility under Department ownership or control that contains fueling areas, maintenance stations/yards, waste storage or disposal facilities, wash racks, equipment or vehicle storage and materials storage areas.

Non-maintenance Facility. Laboratories or office buildings used exclusively for administrative functions.

Highway Facility. Highways are linear facilities designed to carry vehicular and pedestrian traffic. These include freeways, highways, and expressways as designated by the California Streets and Highway Code and the California legislature. These facilities also include all support infrastructure associated with these freeways, including bridges, toll plazas, inspection and weigh stations, sound walls, retaining

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walls, culverts, vegetated slopes, shoulders, intersections, off ramps, on ramps, over passes, lights, signal lights, gutter, guard rail, and other support

facilities. The support infrastructure is considered a Highway Facility only when accompanied by an increase in highway impervious surface. Otherwise, it is considered a non-highway .

Industrial Facility. A collection of industrial processes discharging storm water associated with industrial activity within the property boundary or operational unit.

Non-Highway Facility. For purposes of this permit, a Non-Highway Facility is any facility not meeting the definition of a Highway Facility, including but not limited to rest stops, park and ride facilities, maintenance stations, vista points, warehouses, laboratories, and office buildings.

Discharge. When used without qualification means the discharge of a pollutant.

Direct Discharge. Any discharge from the MS4 that does not meet the definition of an indirect discharge.

Indirect Discharge. Any discharge from the MS4 that is conveyed to the receiving water through 300 feet or more of an unlined ditch or channel as measured between the discharge point from the MS4 and the receiving water.

Discharge of a Pollutant. The addition of any pollutant or combination of pollutants to waters of the United States from any point source, or any addition of any pollutant or combination of pollutants to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. The term includes additions of pollutants to waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

District Workplans (DWPs). Annual workplans prepared by each District containing descriptions of all activities and projects to be undertaken in the District that are necessary to implement the SWMP and comply with the requirements of this Order. DWPs are submitted annually with the Annual Report. Formerly known as the Regional Work Plans.

Drainage Inlet. A location where water runoff enters a storm water drainage system that includes streets, gutters, conduits, natural or artificial drains, channels and watercourses, or other facilities that are owned, operated, maintained and used for the purpose of collecting, storing, transporting or disposing of storm water

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Effluent. Any discharge from the MS4.

Emergency. Any sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services. "Emergency" includes such occurrences as fire, flood, earthquake, or other soil or geologic movements, as well as such occurrences as riot, accident, or sabotage.

Erosion. The diminishing or wearing away of land due to wind, or water. Often the eroded material (silt or sediment) becomes a pollutant via stormwater runoff.

Erosion occurs naturally, but can be intensified by land disturbing and grading activities such as farming, development, road building, and timber harvesting.

Facility Pollution Prevention Plan (FPPP). A plan that identifies the functional activities specific to the maintenance facility and the applicable BMPs and other procedures utilized by facility personnel to control the discharge of pollutants in storm water. Facilities subject to FPPPs include: maintenance yards/stations; material storage facilities/permanent stockpile locations (if not totally enclosed); equipment storage and repair facilities, roadside rest areas, agricultural and highway patrol weigh stations, decant storage or disposal locations, and permanent and temporary solid and liquid waste management sites.

FPPPs are not required for temporary stockpile locations (in continuous use for less than one year). All temporary stockpile locations shall implement the applicable best management practices defined in the Caltrans Stormwater Quality Handbook Maintenance Staff guide. Any stockpile location in continuous use for more than one year is deemed permanent and requires a Facility Pollution Prevention Plan.

Full Capture System. A full capture system is any single device or series of devices that traps all particles retained by a five (5) mm mesh screen and has a design treatment capacity of not less than the peak flow rate Q resulting from a one-year, one-hour, storm in the subdrainage area.

Rational equation is used to compute the peak flow rate: $Q = C \times I \times A$

Where Q = design flow rate (cubic feet per second, cfs);

C = runoff coefficient (dimensionless);

I = design rainfall intensity (inches per hour, as determined per a rainfall isohyetal map), and

A = subdrainage area (acres).

Hydrograph Modification (Hydromodification). The alteration of the hydrologic characteristics of surface waters through watershed development. Under past practices, new and re-development construction activities resulted in urbanization, which in turn modified natural watershed and stream processes. The impacts of hydromodification include, but are not limited to, increased bed and bank erosion,

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loss of habitat, increased sediment transport and deposition, and increased flooding. Urbanization does this by altering the terrain, modifying the vegetation and soil characteristics, introducing impervious surfaces such as pavement and buildings, and altering the condition of stream channels through straightening, deepening, and armoring. These changes affect hydrologic characteristics in the watershed and affect the supply and transport of sediment in the stream system.

Hydromodification Management Plan. A plan to control and reduce the impacts of hydrograph modification from development activities in a watershed.

Illegal Connection/Illicit Discharge (IC/ID).

Illegal Connection. An engineered conveyance that is connected to an MS4 without authorization by local, state, or federal statutes, ordinances, codes, or regulations.

Illicit Discharge. Any discharge to an MS4 that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations. It includes all non-storm water discharges except conditionally exempt non-storm water discharges.

Illegal Dumping. Discarding or disposal within the Department's right-of-way, properties or facilities, either intentionally or unintentionally, of trash and other wastes in non-designated areas that may contribute to storm water pollution.

Impervious Cover. Any surface in the landscape that cannot effectively absorb or infiltrate rainfall; for example, sidewalks, rooftops, roads, and parking lots.

Incidental Runoff. Unintended small amounts (volume) of runoff from landscape irrigation, such as minimal over-spray from sprinklers that escapes the irrigated area. Water leaving an irrigated area is not considered incidental if it is due to improper (e.g. during a precipitation event) or excessive application, if it is due to intentional overflow or application, or if it is due to negligence. Leaks and other discharges (e.g. broken sprinkler heads) are not considered incidental if not corrected within 72 hours of learning of the discharge or if the discharge exceeds 1000 gallons.

Land Use. How land is managed or used by humans (e.g., residential and industrial development, roads, mining, timber harvesting, agriculture, grazing, etc.). Land use is generally regulated at the local level in the U.S. based on zoning and other regulations. Land use mapping differs from land cover mapping in that it is not always obvious what the land use is from visual inspection.

Load Allocation. The portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources. Load allocations are best estimates of the loading, which can range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading (40 CFR 130.2(g)).

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Low Impact Development (LID). An approach to land development with the goal of mimicking or replicating the pre-project hydrologic regime through the use of design techniques to create a functionally equivalent hydrologic site design. Hydrologic functions of storage, infiltration and ground water recharge, as well as the volume and frequency of discharges are maintained through the use of integrated and distributed micro-scale storm water retention and detention areas, reduction of impervious surfaces, and the lengthening of runoff flow paths and flow time. Other strategies include the preservation/protection of environmentally sensitive site features such as riparian buffers, wetlands, steep slopes, mature trees, flood plains, woodlands, and highly permeable soils.

Maximum Extent Practicable (MEP). The minimum required performance standard for implementation of municipal storm water management programs to reduce pollutants in storm water. Clean Water Act § 402(p)(3)(B)(iii) requires that municipal permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." MEP is the cumulative effect of implementing, evaluating, and making corresponding changes to a variety of technically appropriate and economically feasible BMPs, ensuring that the most appropriate controls are implemented in the most effective manner. To achieve the MEP standard, municipalities must employ whatever BMPs are technically feasible and are not cost-prohibitive. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the costs would be prohibitive. A final determination of whether a municipality has reduced pollutants to the MEP can only be made by the State or Regional Water Boards.

Municipal Separate Storm Sewer System (MS4). A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that is: (1) Owned or operated by a state, city, town, village, or other public entity that discharges to waters of the U.S.; (2) Designed or used to collect or convey storm water; (3) Not a combined sewer; and (4) Not part of a Publicly Owned Treatment Works.

Natural Ocean Water Quality. The water quality (based on selected physical, chemical and biological characteristics) that is required to sustain marine ecosystems, and which is without apparent human influence, i.e., an absence of significant amounts of: (a) man-made constituents (e.g., DDT); (b) other chemical (e.g., trace metals), physical (temperature/thermal pollution, sediment burial), and biological (e.g., bacteria) constituents at concentrations that have been elevated due to man's activities above those resulting from the naturally occurring processes that affect the area in question; and (c) non-indigenous biota (e.g., invasive algal bloom species) that have been introduced either deliberately or accidentally by man. Discharges "shall not alter natural ocean water quality" as determined by a comparison to the range of constituent concentrations in reference areas agreed upon via the regional

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monitoring program(s). If monitoring information indicates that natural ocean water quality is not maintained, but there is sufficient evidence that a discharge is not contributing to the alteration of natural water quality, then the Regional Water Board may make that determination. In this case, sufficient information must include runoff sample data that has equal or lower concentrations for the range of constituents at the applicable reference area(s).

New Development. Any newly constructed facility, street, road, highway or contiguous road surface installed as part of a street, road or highway project within the Department's right-of-way.

Non-Department Activities. Third party activities that are primarily controlled by encroachment permits, leases, and rental agreements. They include both construction activities and non-construction activities.

Non-Department Projects. Same as Non-Department Activities.

Non-storm Water. Discharges that are not induced by precipitation events and are not composed entirely of storm water. These discharges include, but are not limited to, discharges of process water, air conditioner condensate, non-contact cooling water, vehicle wash water, concrete washout water, paint wash water, irrigation water, pipe testing water, lawn watering overspray, hydrant flushing, and fire fighting activities.

Nonpoint Source. Pollution that is not released through a discrete conveyance but rather originates from multiple sources over a relatively large area. Nonpoint sources can be divided into source activities related to either land or water use, including failing septic tanks, animal agriculture, forest practices, and urban and rural runoff.

Nuisance. Anything that meets all of the following requirements: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal; (3) occurs during, or as a result of, the treatment or disposal of wastes.

Perennial Stream. Any stream shown as a solid blue line on the latest version of the U.S. Geological Survey (USGS) 7.5 minute series quadrangle map (sometimes referred to as a blue-line stream). Where 7.5 minute series maps have not been prepared by USGS, 15 minute series maps are used.

Pesticide. Substances intended to repel, kill, or control any species designated a "pest" including weeds, insects, rodents, fungi, bacteria, or other organisms. The family of pesticides includes [herbicides](#), [insecticides](#), [rodenticides](#), [fungicides](#), algicides, and [bactericides](#).

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Algicide. A pesticide that controls algae in swimming pools and water tanks.

Herbicide. A pesticide designed to control or kill plants, weeds, or grasses.

Insecticide. A pesticide compound specifically used to kill or prevent the growth of insects.

Rodenticide. A pesticide or other agent used to kill rats and other rodents or to prevent them from damaging food, crops, or forage.

Fungicide. A pesticide used to control or destroy fungi on food or grain crops.

Bactericide. A pesticide used to control or destroy bacteria, typically in the home, schools, or on hospital equipment.

pH. A measure of the degree of acidity or alkalinity in a water sample. The pH of natural waters tends to range between six (6) and nine (9), with neutral being seven (7). Extremes of pH can have deleterious effects on aquatic systems.

Point source. Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged.

Pollutant. Dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 *et seq.*)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

Pollutants of Concern. Pollutants in a discharge with potential to cause a condition of pollution or nuisance due to the discharge of excessive amounts, proximity to receiving waters, or the properties of the pollutant. Pollutants that impair waterbodies listed under CWA section 303(d) are also Pollutants of Concern. Pollutants in the Department's discharge that may be Pollutants of Concern include, but are not limited to, total suspended solids; sediment; pathogens (e.g., bacteria, viruses, protozoa); heavy metals (e.g., copper, lead, zinc, and cadmium); petroleum products and polynuclear aromatic hydrocarbons; synthetic organics (e.g., pesticides, herbicides, and PCBs); nutrients (e.g., nitrogen and phosphorus fertilizers); oxygen-demanding substances (e.g., decaying vegetation and animal waste), and litter and trash.

Pollution. An alteration of the quality of the waters of the state by waste to a degree which unreasonably affects the beneficial uses of the water or facilities which serve those beneficial uses (Porter-Cologne Water Quality Control Act, section 13050(l)(1)).

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Redevelopment. The creation, addition, and/or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that removes impervious materials and exposes the underlying soil or pervious subgrade. Redevelopment does not include trenching and resurfacing associated with utility work; pavement grinding and resurfacing of existing roadways; construction of new sidewalks, pedestrian ramps, or bike lanes on existing roadways; or routine replacement of damaged pavement such as pothole repair or replacement of short, non-contiguous sections of roadway. Redevelopment does include replacement of existing roadway surfaces where the underlying soil or pervious subgrade is exposed during construction. Replaced impervious surfaces of this type shall be considered "new impervious surfaces" for purposes of determining the applicability of post-construction treatment controls as provided in provision E.2.d.2).

Roadway. Any road within the Department's right-of-way.

Routine Maintenance. Activities intended to maintain the original line and grade, hydraulic capacity, or original purpose of a facility. Routine maintenance does not include replacement of existing roadway surfaces where the underlying soil or pervious subgrade is exposed.

Right-of-Way (ROW). Real property that is either owned or controlled by the Department or subject to a property right of the Department. Right-of-way that is in current use is referred to as operating ROW.

Sediment. Soil, sand, and minerals washed from land into water, usually after rain.

Slope Lateral Drainage. Horizontal drains placed in hillside embankments to intercept groundwater and direct it away from slopes to provide stability.

Spill. The sudden release of a potential pollutant to the environment.

Storm Water. Storm water runoff, snowmelt runoff, and surface runoff and drainage, as defined in 40 CFR 122.26 (b)(13).

Storm Water Runoff. The portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, channels or pipes.

Standard Urban Storm Water Mitigation Plan (SUSMP). Plans designating the Best Management Practices that must be used in specified categories of development and redevelopment. The State Water Board adopted a precedential decision (Order WQ 2000-11) upholding a SUSMP requirement imposed under a Phase I MS4 permit and requiring SUSMPs in all MS4 permits.

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Storm Water Management Plan (SWMP). Description of the procedures and practices used to reduce or eliminate the discharge of pollutants to storm drain systems and receiving waters.

Surface Water Ambient Monitoring Program (SWAMP). The State Water Board's monitoring, assessment, and reporting program for ambient surface water.

Threshold Drainage Area (TDA). The area draining to a location 20 channel widths downstream (representative reach) of a stream crossing (pipe, swale, culvert, or bridge) within Project Limits.

Threatened Non-compliance. Any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

Total Dissolved Solids (TDS). A quantitative measure of the residual minerals dissolved in water that remain after evaporation of a solution and used to evaluate the quality of freshwater systems.

Total Kjeldahl Nitrogen (TKN). The sum of organic nitrogen and total ammonia nitrogen.

Total Maximum Daily Load (TMDL). The sum of the individual WLAs for point sources and LAs for nonpoint sources and natural background. If a receiving water has only one point source discharger, the TMDL is the sum of that point source WLA plus the LAs for any nonpoint sources of pollution and natural background sources, tributaries, or adjacent segments. TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure. If Best Management Practices (BMPs) or other nonpoint source pollution controls make more stringent load allocations practicable, then wasteload allocations can be made less stringent. Thus, the TMDL process provides for nonpoint source control tradeoffs (40 CFR 130.2(i)).

Total Petroleum Hydrocarbon (TPH). A measure of the concentration or mass of petroleum hydrocarbons in a given amount of soil or water. TPH is a mixture of different compounds from different sources.

Total Suspended Solids (TSS). Suspended particulate matter: Fine material or soil particles that remain suspended by the water column. They create turbidity and, when deposited, can smother fish eggs or alevins.

Toxicity. The adverse response(s) of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies.

Trash. All improperly discarded waste material associated with human habitation, of human origin; or from any producing, manufacturing, or processing operation including, but not limited to, product packaging or containers constructed of steel,

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aluminum, glass, paper, plastic, and other natural and synthetic materials that are thrown or deposited in waters or where it could be transported, as floating, suspended, and/or settleable materials, to waters of the State, including watersheds. (SWRCB Trash Policy).

Turbidity. Murkiness or cloudiness of water, indicating the presence of suspended solids.

United States Environmental Protection Agency (U.S. EPA). U.S. EPA works to develop and enforce regulations that implement environmental laws enacted by the United States Congress. U.S. EPA is responsible for researching and setting national standards for the Storm Water Program.

Waste. Includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal.

Wasteload Allocation (WLA). The portion of a receiving water's total maximum daily load that is allocated to one of its existing or future point sources of pollution. Waste load allocations constitute a type of water quality-based effluent limitation.

Water Quality Objectives (WQO). The limits or levels of water quality elements or biological characteristics established to reasonably protect the beneficial uses of water or to prevent nuisance within a specific area. Water quality objectives may be numeric or narrative.

Water Quality Standards (WQS). State-adopted and U.S. EPA-approved water quality standards for surface water bodies. The standards prescribe the beneficial uses (swimmable, fishable, drinkable, etc.) of the water body and establish the WQOs that must be met to protect designated uses.

Waters of the State. Any surface water or groundwater, including saline waters, within boundaries of the state, as defined in CWC 13050(e). This Order contains requirements to protect the beneficial uses of waters of the State.

Waters of the United States. All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide. Waters of the United States [as defined in 40 CFR 230.3(s)] include all interstate waters and intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use of which would affect or could affect interstate or foreign commerce. The definition also applies to tributaries of the aforementioned waters. See 40 CFR 122.2 for the complete definition, which is hereby incorporated by reference.

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Watershed. A drainage area or basin in which all water drains or flows toward a central collector such as a stream, river, or lake at a lower elevation.

Wetlands. Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Workplans. See District Workplans.

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Attachment IX: Reporting Requirements

Reporting Requirement	Permit Section	Due Date	Frequency
Annual Report	E.3.	October 1, 2013	Annually
Draft ASBS Compliance Plan	E.5.c.2)	September 20, 2013	18 months after the General Exception effective date
Final ASBS Compliance Plan	E.5.c.2)	September 20, 2015	30 months after the General Exception effective date
Budget Analysis	E.2.b.3)c)	October 1, 2017	Year 4 of Permit Cycle
Certification of the Adequacy of Legal Authority	E.2.b.2)b)	October 1, 2013	Annually as part of the Annual Report
District Workplans	E.3.b.	October 1, 2013	Annually as part of the Annual Report
Facility Pollution Prevention Plan (FPPP)	E.2.h.2)	October 1, 2013	Annually as part of the Annual Report and as required by the Regional Water Board
Fiscal Analysis	E.2.b.3)b)	October 1, 2013	Annually as part of the Annual Report
IC/ID & Illegal Dumping Response Plan	E.2.h.4)b)ii)	December 31, 2013	Update as needed annually
Incident Report Form	E.2.b.6)and Attachment I	October 1, 2013	As Needed
Landslide Management Plan	E.2.h.3)d)	October 1, 2013	Year 1 Annual Report
Monitoring Results Report (MRR)	E.2.c.5)	October 1, 2013	Annually
Monitoring Site Prioritization (Tier 2)	E.2.c.1)	March 1, 2014	Within 8 months of the effective date
Municipal Coordination Plan	E.2.b.1)b)	October 1, 2013	To be Included in the SWMP and Progress Report as part of the Annual Report
Overall Program Effectiveness Evaluation	E.2.m.3)	October 1, 2013	Annually as part of the Annual Report
Public Education Program Progress Report	E.2.l.2)	October 1, 2013	Annually as part of the Annual Report
Self-Audit - (includes construction activities)	E.2.m.2)	October 1, 2013	Annually as part of the Annual Report
Stormwater Monitoring & BMP Development Status Report	E.2.e.	October 1, 2013	Annually as part of the Annual Report
Stormwater Treatment BMP Technology Report	E.2.e.	October 1, 2013	Annually as part of the Annual Report
TMDL Status Review Report	E.4.b.	October 1, 2015	Annually as part of the Annual Report
Updated Stormwater Management Plan (SWMP)	E.1.a.	October 1, 2013	Revisions as part of the Annual Report
Waste Management Plan	E.2.h.3)c)iii)	July 1, 2014	Within 1 year of the Effective Date

Note: This table is a partial list of reporting requirements. The Department shall submit all required reports as provided in the Order. Any discrepancy between the text of the NPDES Permit and this table will be resolved in favor of the Permit.

Effective Date of this Order is July 1, 2013

Effective Date of the ASBS Special Protections (General Exception) is March 20, 2012

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ATTACHMENT

21

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

GENERAL PERMIT FOR
STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES

ORDER
NPDES NO. CAS000001

This Order was adopted by the State Water Resources Control Board on:	April 1, 2014
This Order shall become effective on:	July 1, 2015
This Order shall expire on:	June 30, 2020

IT IS HEREBY ORDERED that as of July 1, 2015 this Order supersedes Order 97-03-DWQ except for Order 97-03-DWQ's requirement to submit annual reports by July 1, 2015 and except for enforcement purposes. As of July 1, 2015, a Discharger shall comply with the requirements in this Order to meet the provisions contained in Division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act and regulations and guidelines adopted thereunder.

CERTIFICATION

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order, including its fact sheet, attachments, and appendices is a full, true, and correct copy of an Order adopted by the State Water Resources Control Board, on April 1, 2014.

AYE: Chair Felicia Marcus
Vice Chair Frances Spivy-Weber
Board Member Tam M. Doduc
Board Member Steven Moore

NAY: None

ABSENT: Board Member Dorene D'Adamo

ABSTAIN: None



Jeanine Townsend
Clerk to the Board

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I. FINDINGS

A. General Findings

The State Water Resources Control Board (State Water Board) finds that:

1. The Federal Clean Water Act (Clean Water Act) prohibits certain discharges of storm water containing pollutants except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. (33 U.S.C. §§ 1311, 1342 (also referred to as Clean Water Act §§ 301, 402).) The United States Environmental Protection Agency (U.S. EPA) promulgates federal regulations to implement the Clean Water Act's mandate to control pollutants in storm water discharges. (40 C.F.R. § 122, et seq.) The NPDES permit must require implementation of Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges (NSWDs). The NPDES permit must also include additional requirements necessary to implement applicable water quality objectives or water quality standards (water quality standards, collectively).
2. On November 16, 1990, U.S. EPA promulgated Phase I storm water regulations in compliance with section 402(p) of the Clean Water Act. (55 Fed. Reg. 47990, codified at 40 C.F.R. § 122.26.) These regulations require operators of facilities subject to storm water permitting (Dischargers), that discharge storm water associated with industrial activity (industrial storm water discharges), to obtain an NPDES permit. Section 402(p)(3)(A) of the Clean Water Act also requires that permits for discharges associated with industrial activity include requirements necessary to meet water quality standards.
3. Phase II storm water regulations¹ require permitting for storm water discharges from facilities owned and operated by a municipality with a population of less than 100,000. The previous exemption from the Phase I permitting requirements under section 1068 of the Intermodal Surface Transportation Efficiency Act of 1991 was eliminated.
4. This Order (General Permit) is an NPDES General Permit issued in compliance with section 402 of the Clean Water Act and shall take effect on July 1, 2015, provided that the Regional Administrator of U.S. EPA has no objection. If the U.S. EPA Regional Administrator has an objection, this General Permit will not become effective until the objection is withdrawn.
5. This action to adopt an NPDES General Permit is exempt from the provisions of the California Environmental Quality Act (Pub. Resources Code, § 21000, et seq.) in accordance with section 13389 of the Water Code. (See *County of*

¹ U.S. EPA. Final NPDES Phase II Rule. <<http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm>>. [as of February 4, 2014]

Los Angeles v. California State Water Resources Control Bd. (2006) 143 Cal.App.4th 985.)

6. State Water Board Order 97-03-DWQ is rescinded as of the effective date of this General Permit (July 1, 2015) except for Order 97-03-DWQ's requirement that annual reports be submitted by July 1, 2015 and except for enforcement purposes.
7. Effective July 1, 2015, the State Water Board and the Regional Water Quality Control Boards (Regional Water Boards) (Water Boards, collectively) will enforce the provisions herein.
8. This General Permit authorizes discharges of industrial storm water to waters of the United States, so long as those discharges comply with all requirements, provisions, limitations, and prohibitions in this General Permit.
9. Industrial activities covered under this General Permit are described in Attachment A.
10. The Fact Sheet for this Order is incorporated as findings of this General Permit.
11. Acronyms are defined in Attachment B and terms used in this General Permit are defined in Attachment C.
12. This General Permit regulates industrial storm water discharges and authorized NSWDS from specific categories of industrial facilities identified in Attachment A hereto, and industrial storm water discharges and authorized NSWDS from facilities designated by the Regional Water Boards to obtain coverage under this General Permit. This General Permit does not apply to industrial storm water discharges and NSWDS that are regulated by other individual or general NPDES permits
13. This General Permit does not preempt or supersede the authority of municipal agencies to prohibit, restrict, or control industrial storm water discharges and authorized NSWDS that may discharge to storm water conveyance systems or other watercourses within their jurisdictions as allowed by state and federal law.
14. All terms defined in the Clean Water Act, U.S. EPA regulations, and the Porter-Cologne Water Quality Control Act (Wat. Code, § 13000, et seq.) will have the same definition in this General Permit unless otherwise stated.
15. Pursuant to 40 Code of Federal Regulations section 131.12 and State Water Board Resolution 68-16, which incorporates the requirements of 40 Code of Federal Regulations section 131.12 where applicable, the State Water Board finds that discharges in compliance with this General Permit will not result in the lowering of water quality to a level that does not achieve water quality objectives and protect beneficial uses. Any degradation of water quality from existing high quality water to a level that achieves water quality objectives and

protects beneficial uses is appropriate to support economic development. This General Permit's requirements constitute best practicable treatment or control for discharges of industrial storm water and authorized non-storm water discharges, and are therefore consistent with those provisions.

16. Compliance with any specific limits or requirements contained in this General Permit does not constitute compliance with any other applicable permits.
17. This General Permit requires that the Discharger certify and submit all Permit Registration Documents (PRDs) for Notice of Intent (NOI) and No Exposure Certification (NEC) coverage via the State Water Board's Storm Water Multiple Application and Report Tracking System (SMARTS) website. (See Attachment D for an example of the information required to be submitted in the PRDs via SMARTS.) All other documents required by this General Permit to be electronically certified and submitted via SMARTS can be submitted by the Discharger or by a designated Duly Authorized Representative on behalf of the Discharger. Electronic reporting is required to reduce the state's reliance on paper, to improve efficiency, and to make such General Permit documents more easily accessible to the public and the Water Boards.
18. All information provided to the Water Boards shall comply with the Homeland Security Act and all other federal law that concerns security in the United States, as applicable.

B. Industrial Activities Not Covered Under this General Permit

19. Discharges of storm water from areas on tribal lands are not covered under this General Permit. Storm water discharges from industrial facilities on tribal lands are regulated by a separate NPDES permit issued by U.S. EPA.
20. Discharges of storm water regulated under another individual or general NPDES permit adopted by the State Water Board or Regional Water Board are not covered under this General Permit, including the State Water Board NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities.
21. Storm water discharges to combined sewer systems are not covered under this General Permit. These discharges must be covered by an individual permit. (40 C.F.R. § 122.26(a)(7).)
22. Conveyances that discharge storm water runoff combined with municipal sewage are not covered under this General Permit.
23. Discharges of storm water identified in Clean Water Act section 402(l) (33 U.S.C. § 1342(l)) are not covered under this General Permit.
24. Facilities otherwise subject to this General Permit but for which a valid Notice of Non-Applicability (NONA) has been certified and submitted via SMARTS, by the Entity are not covered under this General Permit. Entities (See Section XX.C.1 of this General Permit) who are claiming "No Discharge"

through the NONA shall meet the eligibility requirements and provide a No Discharge Technical Report in accordance with Section XX.C.

25. This General Permit does not authorize discharges of dredged or fill material regulated by the US Army Corps of Engineers under section 404 of the Clean Water Act and does not constitute a water quality certification under section 401 of the Clean Water Act.

C. Discharge Prohibitions

26. Pursuant to section 13243 of the Water Code, the State Water Board may specify certain conditions or areas where the discharge of waste, or certain types of waste, is prohibited.
27. With the exception of certain authorized NSWDS as defined in Section IV, this General Permit prohibits NSWDS. The State Water Board recognizes that certain NSWDS should be authorized because they are not generated by industrial activity, are not significant sources of pollutants when managed appropriately, and are generally unavoidable because they are related to safety or would occur regardless of industrial activity. Prohibited NSWDS may be authorized under other individual or general NPDES permits, or waste discharge requirements issued by the Water Boards.
28. Prohibited NSWDS are referred to as unauthorized NSWDS in this General Permit. Unauthorized NSWDS shall be either eliminated or permitted by a separate NPDES permit. Unauthorized NSWDS may contribute significant pollutant loads to receiving waters. Measures to control sources of unauthorized NSWDS such as spills, leakage, and dumping, must be addressed through the implementation of Best Management Practices (BMPs).
29. This General Permit incorporates discharge prohibitions contained in water quality control plans, as implemented by the Water Boards.
30. Direct discharges of waste, including industrial storm water discharges, to Areas of Special Biological Significance (ASBS) are prohibited unless the Discharger has applied for and the State Water Board has granted an exception to the State Water Board's 2009 Water Quality Control Plan for Ocean Waters of California as amended by State Water Board Resolution 2012-0056 (California Ocean Plan)² allowing the discharge.

² State Water Resources Control Board. Ocean Standards Web Page.

<http://www.waterboards.ca.gov/water_issues/programs/ocean/>. [as of February 4, 2014].

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State Water Resources Control Board. Resolution 2012-0056.

<http://www.swrcb.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0056.pdf>. [as of February 4, 2014].

D. Effluent Limitations

31. Section 301(b) of the Clean Water Act and 40 Code of Federal Regulations section require NPDES permits to include technology-based requirements at a minimum, and any more stringent effluent limitations necessary for receiving waters to meet applicable water quality standards. Clean Water Act section 402(p)(3)(A) requires that discharges of storm water runoff from industrial facilities comply with Clean Water Act section 301.
32. This General Permit requires control of pollutant discharges using BAT and BCT to reduce and prevent discharges of pollutants, and any more stringent effluent limitations necessary for receiving waters to meet applicable water quality standards.
33. It is not feasible for the State Water Board to establish numeric technology based effluent limitations for discharges authorized by this General Permit at this time. The rationale for this determination is discussed in detail in the Fact Sheet of this General Permit. Therefore, this General Permit requires Dischargers to implement minimum BMPs and applicable advanced BMPs as defined in Section X.H (collectively, BMPs) to comply with the requirements of this General Permit. This approach is consistent with U.S. EPA's 2008 Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (2008 MSGP).
34. 40 Code of Federal Regulations section 122.44(d) requires that NPDES permits include Water Quality Based Effluent Limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality standards for receiving waters.
35. Where numeric water quality criteria have not been established, 40 Code of Federal Regulations section 122.44(d)(1)(vi) provides that WQBELs may be established using U.S. EPA criteria guidance under section 304(a) of the Clean Water Act, a proposed state criteria or policy interpreting narrative criteria supplemented with other relevant information, and/or an indicator parameter.
36. This General Permit requires Dischargers to implement BMPs when necessary, in order to support attainment of water quality standards. The use of BMPs to control or abate the discharge of pollutants is authorized by 40 Code of Federal Regulations section 122.44(k)(3) because numeric effluent limitations are infeasible and implementation of BMPs is reasonably necessary to achieve effluent limitations and water quality standards, and to carry out the purposes and intent of the Clean Water Act. (40 C.F.R. § 122.44(k)(4).)

E. Receiving Water Limitations

37. This General Permit requires compliance with receiving water limitations based on water quality standards. The primary receiving water limitation requires that industrial storm water discharges and authorized NSWDS not

cause or contribute to an exceedance of applicable water quality standards. Water quality standards apply to the quality of the receiving water, not the quality of the industrial storm water discharge. Therefore, compliance with the receiving water limitations generally cannot be determined solely by the effluent water quality characteristics. If any Discharger's storm water discharge causes or contributes to an exceedance of a water quality standard, that Discharger must implement additional BMPs or other control measures in order to attain compliance with the receiving water limitation. Compliance with water quality standards may, in some cases, require Dischargers to implement controls that are more protective than controls implemented solely to comply with the technology-based requirements in this General Permit.

F. Total Maximum Daily Loads (TMDLs)

38. TMDLs relate to the maximum amount of a pollutant that a water body can receive and still attain water quality standards. A TMDL is defined as the sum of the allowable loads of a single pollutant from all contributing point sources (the waste load allocations) and non-point sources (load allocations), plus the contribution from background sources. (40 C.F.R. § 130.2(i).) Discharges addressed by this General Permit are considered to be point source discharges, and therefore must comply with effluent limitations that are "consistent with the assumptions and requirements of any available waste load allocation for the discharge prepared by the state and approved by U.S. EPA pursuant to 40 Code of Federal Regulations section 130.7. (40 C.F.R. § 122.44 (d)(1)(vii).) In addition, Water Code section 13263, subdivision (a), requires that waste discharge requirements implement any relevant water quality control plans. Many TMDLs contained in water quality control plans include implementation requirements in addition to waste load allocations. Attachment E of this General Permit lists the watersheds with U.S. EPA-approved and U.S. EPA-established TMDLs that include requirements, including waste load allocations, for Dischargers covered by this General Permit.

39. The State Water Board recognizes that it is appropriate to develop TMDL-specific permit requirements derived from each TMDL's waste load allocation and implementation requirements, in order to provide clarity to Dischargers regarding their responsibilities for compliance with applicable TMDLs. The development of TMDL-specific permit requirements is subject to public noticing requirements and a corresponding public comment period. Due to the number and variety of Dischargers subject to a wide range of TMDLs, development of TMDL-specific permit requirements for each TMDL listed in Attachment E will severely delay the reissuance of this General Permit. Because most of the TMDLs were established by the Regional Water Boards, and because some of the waste load allocations and/or implementation requirements may be shared by multiple Dischargers, the development of TMDL-specific permit requirements is best coordinated at the Regional Water Board level.

40. State and Regional Water Board staff will develop proposed TMDL-specific permit requirements (including monitoring and reporting requirements) for each of the TMDLs listed in Attachment E. After conducting a 30-day public comment period, the Regional Water Boards will submit to the State Water Board proposed TMDL-specific permit requirements for adoption by the State Water Board into this General Permit by July 1, 2016. The Regional Water Boards may also include proposed TMDL-specific monitoring requirements for inclusion in this General Permit, or may issue Regional Water Board orders pursuant to Water Code section 13383 requiring TMDL-specific monitoring. The proposed TMDL-specific permit requirements shall have no force or effect until adopted, with or without modification, by the State Water Board. Consistent with the 2008 MSGP, Dischargers are not required to take any additional actions to comply with the TMDLs listed in Attachment E until the State Water Board reopens this General Permit and includes TMDL-specific permit requirements, unless notified otherwise by a Regional Water Board.
41. The Regional Water Boards shall submit to the State Water Board the following information for each of the TMDLs listed in Attachment E:
- a. Proposed TMDL-specific permit, monitoring and reporting requirements applicable to industrial storm water discharges and NSWDS authorized under this General Permit, including compliance schedules and deliverables consistent with the TMDLs. TMDL-specific permit requirements are not limited by the BAT/BCT technology-based standards;
 - b. An explanation of how the proposed TMDL-specific permit requirements, compliance schedules, and deliverables are consistent with the assumptions and requirements of any applicable waste load allocation and implement each TMDL; and,
 - c. Where a BMP-based approach is proposed, an explanation of how the proposed BMPs will be sufficient to implement applicable waste load allocations.
42. Upon receipt of the information described in Finding 40, and no later than July 1, 2016, the State Water Board will issue a public notice and conduct a public comment period for the reopening of this General Permit to amend Attachment E, the Fact Sheet, and other provisions as necessary for incorporation of TMDL-specific permit requirements into this General Permit. Attachment E may also be subsequently reopened during the term of this General Permit to incorporate additional TMDL-specific permit requirements.

G. Discharges Subject to the California Ocean Plan

43. On October 16, 2012 the State Water Board amended the California Ocean Plan. The amended California Ocean Plan requires industrial storm water dischargers with outfalls discharging to ocean waters to comply with the

California Ocean Plan's model monitoring provisions. These provisions require Dischargers to: (a) monitor runoff for specific parameters at all outfalls from two storm events per year, and collect at least one representative receiving water sample per year, (b) conduct specified toxicity monitoring at certain types of outfalls at a minimum of once per year, and (c) conduct marine sediment monitoring for toxicity under specific circumstances. The California Ocean Plan provides conditions under which some of the above monitoring provisions may be waived by the Water Boards.

44. This General Permit requires Dischargers with outfalls discharging to ocean waters that are subject to the model monitoring provisions of the California Ocean Plan to develop and implement a monitoring plan in compliance with those provisions and any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers that have not developed and implemented a monitoring program in compliance with the California Ocean Plan's model monitoring provisions by July 1, 2015 (the effective date of this General Permit), or seven (7) days prior to commencing operations, whichever is later, are ineligible to obtain coverage under this General Permit.
45. The California Ocean Plan prohibits the direct discharge of waste to ASBS. ASBS are defined in California Ocean Plan as "those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable."
46. The California Ocean Plan authorizes the State Water Board to grant an exception to Ocean Plan provisions where the board determines that the exception will not compromise protection of ocean waters for beneficial uses and the public interest will be served.
47. On March 20, 2012, the State Water Board adopted Resolution 2012-0012 which contains exceptions to the California Ocean Plan for specific discharges of storm water and non-point sources. This resolution also contains the special protections that are to be implemented for those discharges to ASBS.
48. This General Permit requires Dischargers who have been granted an exception to the Ocean Plan authorizing the discharges to ASBS by the State Water Board to comply with the requirements contained in Section VIII.B of this General Permit.

H. Training

49. To improve compliance and maintain consistent implementation of this General Permit, Dischargers are required to designate a Qualified Industrial Storm Water Practitioner (QISP) for each facility the Discharger operates that has entered Level 1 status in the Exceedance Response Action (ERA) process as described in Section XII of this General Permit. A QISP may be assigned to more than one facility. In order to qualify as a QISP, a State

Water Board-sponsored or approved training course must be completed. A competency exam may be required by the State Water Board to demonstrate sufficient knowledge of the QISP course material.

50. A QISP must assist the Discharger in completing the Level 1 status and Level 2 status ERA requirements as specified in Section XII of this General Permit. A QISP is also responsible for assisting New Dischargers that will be discharging to an impaired water body with a 303(d) listed impairment, demonstrate eligibility for coverage through preparing the data and/or information required in Section VII.B.
51. A Compliance Group Leader, as defined in Section XIV of this General Order must complete a State Water Board sponsored or approved training program for Compliance Group Leaders.
52. All engineering work subject to the Professional Engineers Act (Bus. & Prof. Code § 6700, et seq.) and required by this General Permit shall be performed by a California licensed professional engineer.
53. California licensed professional civil, industrial, chemical, and mechanical engineers and geologists have licenses that have professional overlap with the topics of this General Permit. The California Department of Consumer Affairs, Board for Professional Engineers, Land Surveyors and Geologists (CBPELSG) provides the licensure and regulation of professional civil, industrial, chemical, and mechanical engineers and professional geologists in California. The State Water Board is developing a specialized self-guided State Water Board-sponsored registration and training program specifically for these CPBELSG licensed engineers and geologists in good standing with CBPELSG.

I. Storm Water Pollution Prevention Plan (SWPPP) Requirements

54. This General Permit requires the development of a site-specific SWPPP in accordance with Section X of this General Permit. The SWPPP must include the information needed to demonstrate compliance with the requirements of this General Permit. The SWPPP must be submitted electronically via SMARTS, and a copy be kept at the facility. SWPPP revisions shall be completed in accordance with Section X.B of this General Permit

J. Sampling, Visual Observations, Reporting and Record Keeping

55. This General Permit complies with 40 Code of Federal Regulations section 122.44(i), which establishes monitoring requirements that must be included in storm water permits. Under this General Permit, Dischargers are required to:
 - (a) conduct an Annual Comprehensive Facility Compliance Evaluation (Annual Evaluation) to identify areas of the facility contributing pollutants to industrial storm water discharges, (b) evaluate whether measures to reduce or prevent industrial pollutant loads identified in the Discharger's SWPPP are adequate and properly implemented in accordance with the terms of this

General Permit, and (c) determine whether additional control measures are needed.

56. This General Permit contains monitoring requirements that are necessary to determine whether pollutants are being discharged, and whether response actions are necessary. Data and information resulting from the monitoring will assist in Dischargers' evaluations of BMP effectiveness and compliance with this General Permit. Visual observations are one form of monitoring. This General Permit requires Dischargers to perform a variety of visual observations designed to identify pollutants in industrial storm water discharges and their sources. To comply with this General Permit Dischargers shall: (1) electronically self-report any violations via SMARTS, (2) comply with the Level 1 status and Level 2 status ERA requirements, when applicable, and (3) adequately address and respond to any Regional Water Board comments on the Discharger's compliance reports.

57. Dischargers that meet the requirements of the No Exposure Certification (NEC) Conditional Exclusion set forth in Section XVII of this General Permit are exempt from the SWPPP requirements, sampling requirements, and visual observation requirements in this General Permit.

K. Facilities Subject to Federal Storm Water Effluent Limitation Guidelines (ELGs)

58. U.S. EPA regulations at 40 Code of Federal Regulations Chapter I Subchapter N (Subchapter N) establish technology-based Effluent Limitation Guidelines and New Source Performance Standards (ELGs) for industrial storm water discharges from facilities in specific industrial categories. For these facilities, compliance with the BAT/BCT and ELG requirements constitutes compliance with technology-based requirements of this General Permit.

59. 40 Code of Federal Regulations section 122.44(i)(3) and (4) require storm water permits to require at least one Annual Evaluation and any monitoring requirements for applicable ELGs in Subchapter N. This General Permit requires Dischargers to comply with all applicable ELG requirements found in Subchapter N.

L. Sampling and Analysis Reduction

60. This General Permit reduces the number of qualifying sampling events required to be sampled each year when the Discharger demonstrates: (1) consistent compliance with this General Permit, (2) consistent effluent water quality sampling, and (3) analysis results that do not exceed numerical action levels.

M. Role of Numeric Action Levels (NALs) and Exceedance Response Actions (ERAs)

61. This General Permit incorporates a multiple objective performance measurement system that includes NALs, new comprehensive training requirements, Level 1 ERA Reports, Level 2 ERA Technical Reports, and Level 2 ERA Action Plans. Two objectives of the performance measurement system are to inform Dischargers, the public and the Water Boards on: (1) the overall pollutant control performance at any given facility, and (2) the overall performance of the industrial statewide storm water program. Additionally, the State Water Board expects that this information and assessment process will provide information necessary to determine the feasibility of numeric effluent limitations for industrial dischargers in the next reissuance of this General Permit, consistent with the State Water Board Storm Water Panel of Experts' June 2006 Recommendations.³
62. This General Permit contains annual and instantaneous maximum NALs. The annual NALs are established as the 2008 MSGP benchmark values, and are applicable for all parameters listed in Table 2. The instantaneous maximum NALs are calculated from a Water Board dataset, and are only applicable for Total Suspended Solids (TSS), Oil and Grease (O&G), and pH. An NAL exceedance is determined as follows:
- a. For annual NALs, an exceedance occurs when the average of all analytical results from all samples taken at a facility during a reporting year for a given parameter exceeds an annual NAL value listed in Table 2 of this General Permit; or,
 - b. For the instantaneous maximum NALs, an exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the instantaneous maximum NAL value (for Total Suspended Solids, and Oil and Grease), or are outside of the instantaneous maximum NAL range (for pH) listed in Table 2 of this General Permit. For the purposes of this General Permit, the reporting year is July 1 through June 30.
63. The NALs are not intended to serve as technology-based or water quality-based numeric effluent limitations. The NALs are not derived directly from either BAT/BCT requirements or receiving water objectives. NAL exceedances defined in this General Permit are not, in and of themselves, violations of this General Permit. A Discharger that does not fully comply with the Level 1 status and/or Level 2 status ERA requirements, when required by the terms of this General Permit, is in violation of this General Permit.
64. ERAs are designed to assist Dischargers in complying with this General Permit. Dischargers subject to ERAs must evaluate the effectiveness of their

³ State Water Board Storm Water Panel of Experts, The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities (June 19, 2006) <http://www.swrcb.ca.gov/water_issues/programs/stormwater/docs/numeric/swpanel_final_report.pdf> [as of February 4, 2014].

BMPs being implemented to ensure they are adequate to achieve compliance with this General Permit.

65. U.S. EPA regulations at Subchapter N establish ELGs for storm water discharges from facilities in 11 industrial categories. Dischargers subject to these ELGs are required to comply with the applicable requirements.
66. Exceedances of the NALs that are attributable solely to pollutants originating from non-industrial pollutant sources (such as run-on from adjacent facilities, non-industrial portions of the Discharger's property, or aerial deposition) are not a violation of this General Permit because the NALs are designed to provide feedback on industrial sources of pollutants. Dischargers may submit a Non-Industrial Source Pollutant Demonstration as part of their Level 2 ERA Technical Report to demonstrate that the presence of a pollutant causing an NAL exceedance is attributable solely to pollutants originating from non-industrial pollutant sources.
67. A Discharger who has designed, installed, and implemented BMPs to reduce or prevent pollutants in industrial storm water discharges in compliance with this General Permit may submit an Industrial Activity BMPs Demonstration, as part of their Level 2 ERA Technical Report.
68. This General Permit establishes design storm standards for all treatment control BMPs. These design standards are directly based on the standards in State Water Board Order 2000-0011 regarding Standard Urban Storm Water Mitigation Plans (SUSMPs). These design standards are generally expected to be consistent with BAT/BCT, to be protective of water quality, and to be effective for most pollutants. The standards are intended to eliminate the need for most Dischargers to further treat/control industrial storm water discharges that are unlikely to contain pollutant loadings that exceed the NALs set forth in this General Permit.

N. Compliance Groups

69. Compliance Groups are groups of Dischargers (Compliance Group Participants) that share common types of pollutant sources and industrial activity characteristics. Compliance Groups provide an opportunity for the Compliance Group Participants to combine resources and develop consolidated Level 1 ERA Reports for Level 1 NAL exceedances and appropriate BMPs for implementation in response to Level 2 status ERA requirements that are representative of the entire Compliance Group. Compliance Groups also provide the Water Boards and the public with valuable information as to how industrial storm water discharges are affected by non-industrial background pollutant sources (including natural background) and geographic locations. When developing the next reissuance of this General Permit, the State Water Board expects to have a better understanding of the feasibility and benefits of sector-specific and watershed-based permitting alternatives, which may include technology- or water quality-based numeric effluent limitations. The effluent data, BMP performance data

and other information provided from Compliance Groups' consolidated reporting will further assist the State Water Board in addressing sector-specific and watershed-based permitting alternatives.

O. Conditional Exclusion – No Exposure Certification (NEC)

70. Pursuant to U.S. EPA Phase II regulations, all Dischargers subject to this General Permit may qualify for a conditional exclusion from specific requirements if they submit a NEC demonstrating that their facilities have no exposure of industrial activities and materials to storm water discharges.
71. This General Permit requires Dischargers who seek the NEC conditional exclusion to obtain coverage in accordance with Section XVII of this General Permit. Dischargers that meet the requirements of the NEC are exempt from the SWPPP, sampling requirements, and monitoring requirements in this General Permit.
72. Dischargers seeking NEC coverage are required to certify and submit the applicable permit registration documents. Annual inspections, re-certifications, and fees are required in subsequent years. Light industry facility Dischargers excluded from coverage under the previous permit (Order 97-03-DWQ) must obtain the appropriate coverage under this General Permit. Failure to comply with the Conditional Exclusion conditions listed in this General Permit may lead to enforcement for discharging without a permit pursuant to sections 13385 or 13399.25, et seq., of the Water Code. A Discharger with NEC coverage that anticipates a change (or changes) in circumstances that would lead to exposure should register for permit coverage prior to the anticipated changes.

P. Special Requirements for Facilities Handling Plastic Materials

73. Section 13367 of the Water Code requires facilities handling preproduction plastic to implement specific BMPs aimed at minimizing discharges of such materials. The definition of Plastic Materials for the purposes of this General Permit includes the following types of sources of Plastic Materials: virgin and recycled plastic resin pellets, powders, flakes, powdered additives, regrind, dust, and other types of preproduction plastics with the potential to discharge or migrate off-site.

Q. Regional Water Board Authorities

74. Regional Water Boards are primarily responsible for enforcement of this General Permit. This General Permit recognizes that Regional Water Boards have the authority to protect the beneficial uses of receiving waters and prevent degradation of water quality in their region. As such, Regional Water Boards may modify monitoring requirements and review, comment, approve or disapprove certain Discharger submittals required under this General Permit.

IT IS HEREBY ORDERED that all Dischargers subject to this General Permit shall comply with the following conditions and requirements.

II. RECEIVING GENERAL PERMIT COVERAGE

A. Certification

1. For Storm Water Multiple Application and Report Tracking System (SMARTS) electronic account management and security reasons, as well as enforceability of this General Permit, the Discharger's Legally Responsible Person (LRP) of an industrial facility seeking coverage under this General Permit shall certify and submit all Permit Registration Documents (PRDs) for Notice of Intent (NOI) or No Exposure Certification (NEC) coverage. All other documents shall be certified and submitted via SMARTS by the Discharger's (LRP) or by their Duly Authorized Representative in accordance with the Electronic Signature and Certification Requirements in Section XXI.K. All documents required by this General Permit that are certified and submitted via SMARTS shall be in accordance with Section XXI.K.
2. Hereinafter references to certifications and submittals by the Discharger refer to the Discharger's LRP and their Duly Authorized Representative.

B. Coverages

This General Permit includes requirements for two (2) types of permit coverage, NOI coverage and NEC coverage. State Water Board Order 97-03-DWQ (previous permit) remains in effect until July 1, 2015. When PRDs are certified and submitted and the annual fee is received, the State Water Board will assign the Discharger a Waste Discharger Identification (WDID) number.

1. General Permit Coverage (NOI Coverage)
 - a. Dischargers that discharge storm water associated with industrial activity to waters of the United States are required to meet all applicable requirements of this General Permit.
 - b. The Discharger shall register for coverage under this General Permit by certifying and submitting PRDs via SMARTS (<http://smarts.waterboards.ca.gov>), which consist of:
 - i. A completed NOI and signed certification statement;
 - ii. A copy of a current Site Map from the Storm Water Pollution Prevention Plan (SWPPP) in Section X.E;
 - iii. A SWPPP (see Section X); and,

- c. The Discharger shall pay the appropriate Annual Fee in accordance with California Code of Regulations, title 23, section 2200 et seq.⁴
2. General Permit Coverage (NEC Coverage)
 - a. Dischargers that certify their facility has no exposure of industrial activities or materials to storm water in accordance with Section XVII qualify for NEC coverage and are not required to comply with the SWPPP or monitoring requirements of this General Permit.
 - b. Dischargers who qualify for NEC coverage shall conduct one Annual Facility Comprehensive Compliance Evaluation (Annual Evaluation) as described in Section XV, pay an annual fee, and certify annually that their facilities continue to meet the NEC requirements.
 - c. The Discharger shall submit the following PRDs on or before October 1, 2015 for NEC coverage via SMARTS:
 - i. A completed NEC Form (Section XVII.F.1) and signed certification statement (Section XVII.H);
 - ii. A completed NEC Checklist (Section XVII.F.2); and
 - iii. A current Site Map consistent with requirements in Section X.E.;
 - d. The Discharger shall pay the appropriate annual fee in accordance with California Code of Regulations, title 23, section 2200 et seq.⁵
 3. General PRD Requirements
 - a. Site Maps

Dischargers registering for NOI or NEC coverage shall prepare a site map(s) as part of their PRDs in accordance with Section X.E. A separate copy of the site map(s) is required to be in the SWPPP. If there is a significant change in the facility layout (e.g., new building, change in storage locations, boundary change, etc.) a revision to the site map is required and shall be certified and submitted via SMARTS.
 - b. A Discharger shall submit a single set of PRDs for coverage under this General Permit for multiple industrial activities occurring at the same facility.
 - c. Any information provided to the Water Boards by the Discharger shall comply with the Homeland Security Act and other federal law that

⁴ Annual fees must be mailed or sent electronically using the State Water Boards' Electronic Funds Transfer (EFT) system in SMARTS.

⁵ See footnote 4.

addresses security in the United States; any information that does not comply should not be submitted in the PRDs. The Discharger must provide justification to the Regional Water Board regarding redacted information within any submittal.

- d. Dischargers may redact trade secrets from information that is submitted via SMARTS. Dischargers who certify and submit redacted information via SMARTS must include a general description of the redacted information and the basis for the redaction in the version that is submitted via SMARTS. Dischargers must submit complete and un-redacted versions of the information that are clearly labeled "CONFIDENTIAL" to the Regional Water Board within 30 days of the submittal of the redacted information. All information labeled "CONFIDENTIAL" will be maintained by the Water Boards in a separate, confidential file.
4. Schedule for Submitting PRDs - Existing Dischargers Under the Previous Permit.
- a. Existing Dischargers⁶ with coverage under the previous permit shall continue coverage under the previous permit until July 1, 2015. All waste discharge requirements and conditions of the previous permit are in effect until July 1, 2015.
 - b. Existing Dischargers with coverage under the previous permit shall register for NOI coverage by July 1, 2015 or for NEC coverage by October 1, 2015. Existing Dischargers previously listed in Category 10 (Light Industry) of the previous permit, and continue to have no exposure to industrial activities and materials, have until October 1, 2015 to register for NEC coverage.
 - c. Existing Dischargers with coverage under the previous permit, that do not register for NOI coverage by July 1, 2015, may have their permit coverage administratively terminated as soon as July 1, 2015.
 - d. Existing Dischargers with coverage under the previous permit that are eligible for NEC coverage but do not register for NEC coverage by October 1, 2015 may have their permit coverage administratively terminated as soon as October 1, 2015.
 - e. Existing Dischargers shall continue to comply with the SWPPP requirements in State Water Board Order 97-03-DWQ up to, but no later than, June 30, 2015.

⁶ Existing Dischargers are Dischargers with an active Notice of Intent (permit coverage) under the previous permit (97-03-DWQ) prior to the effective date of this General Permit.

- f. Existing Dischargers shall implement an updated SWPPP in accordance with Section X by July 1, 2015.
 - g. Existing Dischargers that submit a Notice of Termination (NOT) under the previous permit prior to July 1, 2015 and that receive NOT approval from the Regional Water Board are not subject to this General Permit unless they subsequently submitted new PRDs.
5. Schedule for Submitting PRDs - New Dischargers Obtaining Coverage On or After July 1, 2015
- New Dischargers registering for NOI coverage on or after July 1, 2015 shall certify and submit PRDs via SMARTS at least seven (7) days prior to commencement of industrial activities or on July 1, 2015, whichever comes later.
- a. New Dischargers registering for NEC coverage shall electronically certify and submit PRDs via SMARTS by October 1, 2015, or at least seven (7) days prior to commencement of industrial activities, whichever is later.

C. Termination and Changes to General Permit Coverage

1. Dischargers with NOI or NEC coverage shall request termination of coverage under this General Permit when either (a) operation of the facility has been transferred to another entity, (b) the facility has ceased operations, completed closure activities, and removed all industrial related pollutants, or (c) the facility's operations have changed and are no longer subject to the General Permit. Dischargers shall certify and submit a Notice of Termination via SMARTS. Until a valid NOT is received, the Discharger remains responsible for compliance with this General Permit and payment of accrued annual fees.
2. Whenever there is a change to the facility location, the Discharger shall certify and submit new PRDs via SMARTS. When ownership changes, the prior Discharger (seller) must inform the new Discharger (buyer) of the General Permit applications and regulatory coverage requirements. The new Discharger must certify and submit new PRDs via SMARTS to obtain coverage under this General Permit.
3. Dischargers with NOI coverage where the facility qualifies for NEC coverage in accordance with Section XVII of this General Permit, may register for NEC coverage via SMARTS. Such Dischargers are not required to submit an NOT to cancel NOI coverage.
4. Dischargers with NEC coverage, where changes in the facility and/or facility operations occur, which result in NOI coverage instead of NEC coverage, shall register for NOI coverage via SMARTS. Such Dischargers are not required to submit an NOT to cancel NEC coverage.

5. Dischargers shall provide additional information supporting an NOT, or revise their PRDs via SMARTS, upon request by the Regional Water Board.
6. Dischargers that are denied approval of a submitted NOT or registration for NEC coverage by the Regional Water Board, shall continue compliance with this General Permit under their existing NOI coverage.
7. New Dischargers (Dischargers with no previous NOI or NEC coverage) shall register for NOI coverage if the Regional Water Board denies NEC coverage.

D. Preparation Requirements

1. The following documents shall be certified and submitted by the Discharger via SMARTS:
 - a. Annual Reports (Section XVI) and SWPPPs (Section X);
 - b. NOTs;
 - c. Sampling Frequency Reduction Certification (Section XI.C.7);
 - d. Level 1 ERA Reports (Section XII.C) prepared by a QISP;
 - e. Level 2 ERA Technical Reports and Level 2 ERA Action Plans (Sections XII.D.1-2) prepared by a QISP; and,
 - f. SWPPPs for inactive mining operations as described in Section XIII, signed (wet signature and license number) by a California licensed professional engineer.
2. The following documents shall be signed (wet signature and license number) by a California licensed professional engineer:
 - a. Calculations for Dischargers subject to Subchapter N in accordance with Section XI.D;
 - b. Notice of Non-Applicability (NONA) Technical Reports described in Section XX.C for facilities that are engineered and constructed to have contained the maximum historic precipitation event (or series of events) using the precipitation data collected from the National Oceanic and Atmospheric Agency's website;
 - c. NONA Technical Reports described in Section XX.C for facilities located in basins or other physical locations that are not tributaries or hydrologically connected to waters of the United States; and,
 - d. SWPPPs for inactive mines described in Section XIII.

III. DISCHARGE PROHIBITIONS

- A. All discharges of storm water to waters of the United States are prohibited except as specifically authorized by this General Permit or another NPDES permit.
- B. Except for non-storm water discharges (NSWDs) authorized in Section IV, discharges of liquids or materials other than storm water, either directly or indirectly to waters of the United States, are prohibited unless authorized by another NPDES permit. Unauthorized NSWDs must be either eliminated or authorized by a separate NPDES permit.
- C. Industrial storm water discharges and authorized NSWDs that contain pollutants that cause or threaten to cause pollution, contamination, or nuisance as defined in section 13050 of the Water Code, are prohibited.
- D. Discharges that violate any discharge prohibitions contained in applicable Regional Water Board Water Quality Control Plans (Basin Plans), or statewide water quality control plans and policies are prohibited.
- E. Discharges to ASBS are prohibited in accordance with the California Ocean Plan, unless granted an exception by the State Water Board and in compliance with the Special Protections contained in Resolution 2012-0012.
- F. Industrial storm water discharges and NSWDs authorized by this General Permit that contain hazardous substances equal to or in excess of a reportable quantity listed in 40 Code of Federal Regulations sections 110.6, 117.21, or 302.6 are prohibited.

IV. AUTHORIZED NON-STORM WATER DISCHARGES (NSWDs)

- A. The following NSWDs are authorized provided they meet the conditions of Section IV.B:
 - 1. Fire-hydrant and fire prevention or response system flushing;
 - 2. Potable water sources including potable water related to the operation, maintenance, or testing of potable water systems;
 - 3. Drinking fountain water and atmospheric condensate including refrigeration, air conditioning, and compressor condensate;
 - 4. Irrigation drainage and landscape watering provided all pesticides, herbicides and fertilizers have been applied in accordance with the manufacturer's label;
 - 5. Uncontaminated natural springs, groundwater, foundation drainage, footing drainage;

6. Seawater infiltration where the seawater is discharged back into the source:
and,
 7. Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of your facility, but not intentional discharges from the cooling tower (e.g., “piped” cooling tower blowdown or drains).
- B.** The NSWDs identified in Section IV.A are authorized by this General Permit if the following conditions are met:
1. The authorized NSWDs are not in violation of any Regional Water Board Water Quality Control Plans (Basin Plans) or other requirements, or statewide water quality control plans or policies requirement;
 2. The authorized NSWDs are not in violation of any municipal agency ordinance or requirements;
 3. BMPs are included in the SWPPP and implemented to:
 - a. Reduce or prevent the contact of authorized NSWDs with materials or equipment that are potential sources of pollutants;
 - b. Reduce, to the extent practicable, the flow or volume of authorized NSWDs;
 - c. Ensure that authorized NSWDs do not contain quantities of pollutants that cause or contribute to an exceedance of a water quality standards;
and,
 - d. Reduce or prevent discharges of pollutants in authorized NSWDs in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.
 4. The Discharger conducts monthly visual observations (Section XI.A.1) of NSWDs and sources to ensure adequate BMP implementation and effectiveness; and,
 5. The Discharger reports and describes all authorized NSWDs in the Annual Report.
- C.** Firefighting related discharges are not subject to this General Permit and are not subject to the conditions of Section IV.B. These discharges, however, may be subject to Regional Water Board enforcement actions under other sections of the Water Code. Firefighting related discharges that are contained and are later discharged may be subject to municipal agency ordinances and/or Regional Water Board requirements.

V. EFFLUENT LIMITATIONS

- A. Dischargers shall implement BMPs that comply with the BAT/BCT requirements of this General Permit to reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.
- B. Industrial storm water discharges from facilities subject to storm water ELGs in Subchapter N shall not exceed those storm water ELGs. The ELGs for industrial storm water discharges subject to Subchapter N are in Attachment F of this General Permit.
- C. Dischargers located within a watershed for which a Total Maximum Daily Load (TMDL) has been approved by U.S. EPA, shall comply with any applicable TMDL-specific permit requirements that have been incorporated into this General Permit in accordance with Section VII.A. Attachment E contains a reference list of potential TMDLs that may apply to Dischargers subject to this General Permit.

VI. RECEIVING WATER LIMITATIONS

- A. Dischargers shall ensure that industrial storm water discharges and authorized NSWDS do not cause or contribute to an exceedance of any applicable water quality standards in any affected receiving water.
- B. Dischargers shall ensure that industrial storm water discharges and authorized NSWDS do not adversely affect human health or the environment.
- C. Dischargers shall ensure that industrial storm water discharges and authorized NSWDS do not contain pollutants in quantities that threaten to cause pollution or a public nuisance.

VII. TOTAL MAXIMUM DAILY LOADS (TMDLs)

A. Implementation

1. The State Water Board shall reopen and amend this General Permit, including Attachment E, the Fact Sheet and other applicable Permit provisions as necessary, in order to incorporate TMDL-specific permit requirements, as described in Findings 38 through 42. Once this General Permit is amended, Dischargers shall comply with the incorporated TMDL-specific permit requirements in accordance with any specified compliance schedule(s). TMDL-specific compliance dates that exceed the term of this General Permit may be included for reference, and are enforceable in the event that this General Permit is administratively extended or reissued.
2. The State Water Board may, at its discretion, reopen this General Permit to add TMDL-specific permit requirements to Attachment E, or to incorporate new TMDLs adopted during the term of this General Permit that include requirements applicable to Dischargers covered by this General Permit.

- B.** New Dischargers applying for NOI coverage under this General Permit that will be discharging to a water body with a 303(d) listed impairment are ineligible for coverage unless the Discharger submits data and/or information, prepared by a QISP, demonstrating that:
1. The Discharger has eliminated all exposure to storm water of the pollutant(s) for which the water body is impaired, has documented the procedures taken to prevent exposure onsite, and has retained such documentation with the SWPPP at the facility;
 2. The pollutant for which the water body is impaired is not present at the Discharger's facility, and the Discharger has retained documentation of this finding with the SWPPP at the facility; or,
 3. The discharge of any listed pollutant will not cause or contribute to an exceedance of a water quality standard. This is demonstrated if: (1) the discharge complies with water quality standard at the point of discharge, or (2) if there are sufficient remaining waste load allocations in an approved TMDL and the discharge is controlled at least as stringently as similar discharges subject to that TMDL.

VIII. DISCHARGES SUBJECT TO THE CALIFORNIA OCEAN PLAN

A. Discharges to Ocean Waters

1. Dischargers with outfalls discharging to ocean waters that are subject to the model monitoring provisions of the California Ocean Plan shall develop and implement a monitoring plan in compliance with those provisions and any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers who have not developed and implemented a monitoring program in compliance with the California Ocean Plan's model monitoring provisions by July 1, 2015, or seven (7) days prior to commencing of operations, whichever is later, are ineligible to obtain coverage under this General Permit.
2. Dischargers are ineligible for the methods and exceptions provided in Section XI.C of this General permit for any of the outfalls discharging to ocean waters subject to the model monitoring provisions of the California Ocean Plan.

B. Discharge Granted an Exceptions for Areas of Special Biological Significance (ASBS)

Dischargers who were granted an exception to the California Ocean Plan prohibition against direct discharges of waste to an ASBS pursuant to Resolution 2012-0012⁷ amended by Resolution 2012-0031⁸ shall comply with the conditions and requirements set forth in Attachment G of this General Permit. Any Discharger that applies for and is granted an exception to the California Ocean Plan prohibition after July 1, 2013 shall comply with the conditions and requirements set forth in the granted exception.

IX. TRAINING QUALIFICATIONS

A. General

1. A Qualified Industrial Storm Water Practitioner (QISP) is a person (either the Discharger or a person designated by the Discharger) who has completed a State Water Board-sponsored or approved QISP training course⁹, and has registered as a QISP via SMARTS. Upon completed registration the State Water Board will issue a QISP identification number.
2. The Executive Director of the State Water Board or an Executive Officer of a Regional Water Board may rescind any QISP's registration if it is found that the QISP has repeatedly demonstrated an inadequate level of performance in completing the QISP requirements in this General Permit. An individual whose QISP registration has been rescinded may request that the State Water Board review the rescission. Any request for review must be received by the State Water Board no later than 30 days of the date that the individual received written notice of the rescission.
3. Dischargers with Level 1 status shall:
 - a. Designate a person to be the facility's QISP and ensure that this person has attended and satisfactorily completed the State Water Board-sponsored or approved QISP training course.
 - b. Ensure that the facility's designated QISP provides sufficient training to the appropriate team members assigned to perform activities required by this General Permit.

⁷ State Water Resources Control Board. Resolution 2012-0012. <http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0012.pdf>. [as of February 4, 2014].

⁸ State Water Resources Control Board. Resolution 2012-0031. <http://www.swrcb.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0031.pdf>. [as of February 4, 2014].

⁹ A specialized self-guided State Water Board-sponsored registration and training program will be available as an option for CPBELSG licensed professional civil, mechanical, industrial, and chemical engineers and professional geologists by the effective date of this General Permit.

X. Storm Water Pollution Prevention Plan (SWPPP)**A. SWPPP Elements**

Dischargers shall develop and implement a site-specific SWPPP for each industrial facility covered by this General Permit that shall contain the following elements, as described further in this Section¹⁰:

1. Facility Name and Contact Information;
2. Site Map;
3. List of Industrial Materials;
4. Description of Potential Pollution Sources;
5. Assessment of Potential Pollutant Sources;
6. Minimum BMPs;
7. Advanced BMPs, if applicable;
8. Monitoring Implementation Plan;
9. Annual Comprehensive Facility Compliance Evaluation (Annual Evaluation); and,
10. Date that SWPPP was Initially Prepared and the Date of Each SWPPP Amendment, if Applicable.

B. SWPPP Implementation and Revisions

All Dischargers are required to implement their SWPPP by July 1, 2015 or upon commencement of industrial activity. The Discharger shall:

1. Revise their on-site SWPPP whenever necessary;
2. Certify and submit via SMARTS their SWPPP within 30 days whenever the SWPPP contains significant revision(s); and,
3. With the exception of significant revisions, the Discharger is not required to certify and submit via SMARTS their SWPPP revisions more than once every three (3) months in the reporting year.

¹⁰ Appendix 1 (SWPPP Checklist) of this General Permit is provided to assist the Discharger in including information required in the SWPPP. This checklist is not required to be used.

C. SWPPP Performance Standards

1. The Discharger shall ensure a SWPPP is prepared to:
 - a. Identify and evaluate all sources of pollutants that may affect the quality of industrial storm water discharges and authorized NSWDDs;
 - b. Identify and describe the minimum BMPs (Section X.H.1) and any advanced BMPs (Section X.H.2) implemented to reduce or prevent pollutants in industrial storm water discharges and authorized NSWDDs. BMPs shall be selected to achieve compliance with this General Permit; and,
 - c. Identify and describe conditions or circumstances which may require future revisions to be made to the SWPPP.
2. The Discharger shall prepare a SWPPP in accordance with all applicable SWPPP requirements of this Section. A copy of the SWPPP shall be maintained at the facility.

D. Planning and Organization

1. Pollution Prevention Team

Each facility must have a Pollution Prevention Team established and responsible for assisting with the implementation of the requirements in this General Permit. The Discharger shall include in the SWPPP detailed information about its Pollution Prevention Team including:

- a. The positions within the facility organization (collectively, team members) who assist in implementing the SWPPP and conducting all monitoring requirements in this General Permit;
- b. The responsibilities, duties, and activities of each of the team members; and,
- c. The procedures to identify alternate team members to implement the SWPPP and conduct required monitoring when the regularly assigned team members are temporarily unavailable (due to vacation, illness, out of town business, or other absences).

2. Other Requirements and Existing Facility Plans

- a. The Discharger shall ensure its SWPPP is developed, implemented, and revised as necessary to be consistent with any applicable municipal, state, and federal requirements that pertain to the requirements in this General Permit.
- b. The Discharger may include in their SWPPP the specific elements of existing plans, procedures, or regulatory compliance documents that

contain storm water-related BMPs or otherwise relate to the requirements of this General Permit.

- c. The Discharger shall properly reference the original sources for any elements of existing plans, procedures, or regulatory compliance documents included as part of their SWPPP and shall maintain a copy of the documents at the facility as part of the SWPPP.
- d. The Discharger shall document in their SWPPP the facility's scheduled operating hours as defined in Attachment C. Scheduled facility operating hours that would be considered irregular (temporary, intermittent, seasonal, weather dependent, etc.) shall also be documented in the SWPPP.

E. Site Map

1. The Discharger shall prepare a site map that includes notes, legends, a north arrow, and other data as appropriate to ensure the map is clear, legible and understandable.
2. The Discharger may provide the required information on multiple site maps.
3. The Discharger shall include the following information on the site map:
 - a. The facility boundary, storm water drainage areas within the facility boundary, and portions of any drainage area impacted by discharges from surrounding areas. Include the flow direction of each drainage area, on-facility surface water bodies, areas of soil erosion, and location(s) of nearby water bodies (such as rivers, lakes, wetlands, etc.) or municipal storm drain inlets that may receive the facility's industrial storm water discharges and authorized NSWDS;
 - b. Locations of storm water collection and conveyance systems, associated discharge locations, and direction of flow. Include any sample locations if different than the identified discharge locations;
 - c. Locations and descriptions of structural control measures¹¹ that affect industrial storm water discharges, authorized NSWDS, and/or run-on;
 - d. Identification of all impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures;

¹¹ Examples of structural control measures are catch basins, berms, detention ponds, secondary containment, oil/water separators, diversion barriers, etc.

- e. Locations where materials are directly exposed to precipitation and the locations where identified significant spills or leaks (Section X.G.1.d) have occurred; and
- f. Areas of industrial activity subject to this General Permit. Identify all industrial storage areas and storage tanks, shipping and receiving areas, fueling areas, vehicle and equipment storage/maintenance areas, material handling and processing areas, waste treatment and disposal areas, dust or particulate generating areas, cleaning and material reuse areas, and other areas of industrial activity that may have potential pollutant sources.

F. List of Industrial Materials

The Discharger shall ensure the SWPPP includes a list of industrial materials handled at the facility, and the locations where each material is stored, received, shipped, and handled, as well as the typical quantities and handling frequency.

G. Potential Pollutant Sources

1. Description of Potential Pollutant Sources

a. Industrial Processes

The Discharger shall ensure the SWPPP describes each industrial process including: manufacturing, cleaning, maintenance, recycling, disposal, and any other activities related to the process. The type, characteristics, and approximate quantity of industrial materials used in or resulting from the process shall be included. Areas protected by containment structures and the corresponding containment capacity shall be identified and described.

b. Material Handling and Storage Areas

The Discharger shall ensure the SWPPP describes each material handling and storage area, including: the type, characteristics, and quantity of industrial materials handled or stored; the shipping, receiving, and loading procedures; the spill or leak prevention and response procedures; and the areas protected by containment structures and the corresponding containment capacity.

c. Dust and Particulate Generating Activities

The Discharger shall ensure the SWPPP describes all industrial activities that generate a significant amount of dust or particulate that may be deposited within the facility boundaries. The SWPPP shall describe such industrial activities, including the discharge locations, the source type, and the characteristics of the dust or particulate pollutant.

d. Significant Spills and Leaks

The Discharger shall:

- i. Evaluate the facility for areas where spills and leaks can likely occur;
- ii. Ensure the SWPPP includes:
 - a) A list of any industrial materials that have spilled or leaked in significant quantities and have discharged from the facility's storm water conveyance system within the previous five-year period;
 - b) A list of any toxic chemicals identified in 40 Code of Federal Regulations section 302 that have been discharged from the facilities' storm water conveyance system as reported on U.S. EPA Form R, as well as oil and hazardous substances in excess of reportable quantities (40 C.F.R. §§ 110, 117, and 302) that have discharged from the facility's storm water conveyance system within the previous five-year period;
 - c) A list of any industrial materials that have spilled or leaked in significant quantities and had the potential to be discharged from the facility's storm water conveyance system within the previous five-year period; and,
- iii. Ensure that for each discharge or potential discharge listed above the SWPPP includes the location, characteristics, and approximate quantity of the materials spilled or leaked; approximate quantity of the materials discharged from the facility's storm water conveyance system; the cleanup or remedial actions that have occurred or are planned; the approximate remaining quantity of materials that have the potential to be discharged; and the preventive measures taken to ensure spills or leaks of the material do not reoccur.

e. NSWDS

The Discharger shall:

- i. Ensure the SWPPP includes an evaluation of the facility that identifies all NSWDS, sources, and drainage areas;
- ii. Ensure the SWPPP includes an evaluation of all drains (inlets and outlets) that identifies connections to the storm water conveyance system;
- iii. Ensure the SWPPP includes a description of how all unauthorized NSWDS have been eliminated; and,

- iv. Ensure all NSWs are described in the SWPPP. This description shall include the source, quantity, frequency, and characteristics of the NSWs, associated drainage area, and whether it is an authorized or unauthorized NSW in accordance with Section IV.
- f. Erodible Surfaces

The Discharger shall ensure the SWPPP includes a description of the facility locations where soil erosion may be caused by industrial activity, contact with storm water, authorized and unauthorized NSWs, or run-on from areas surrounding the facility.

2. Assessment of Potential Pollutant Sources

- a. The Discharger shall ensure that the SWPPP includes a narrative assessment of all areas of industrial activity with potential industrial pollutant sources. At a minimum, the assessment shall include:
 - i. The areas of the facility with likely sources of pollutants in industrial storm water discharges and authorized NSWs;
 - ii. The pollutants likely to be present in industrial storm water discharges and authorized NSWs;
 - iii. The approximate quantity, physical characteristics (e.g., liquid, powder, solid, etc.), and locations of each industrial material handled, produced, stored, recycled, or disposed;
 - iv. The degree to which the pollutants associated with those materials may be exposed to, and mobilized by contact with, storm water;
 - v. The direct and indirect pathways by which pollutants may be exposed to storm water or authorized NSWs;
 - vi. All sampling, visual observation, and inspection records;
 - vii. The effectiveness of existing BMPs to reduce or prevent pollutants in industrial storm water discharges and authorized NSWs;
 - viii. The estimated effectiveness of implementing, to the extent feasible, minimum BMPs to reduce or prevent pollutants in industrial storm water discharges and authorized NSWs; and,
 - ix. The identification of the industrial pollutants related to the receiving waters with 303(d) listed impairments identified in Appendix 3 or approved TMDLs that may be causing or contributing to an exceedance of a water quality standard in the receiving waters.
- b. Based upon the assessment above, Dischargers shall identify in the SWPPP any areas of the facility where the minimum BMPs described in

subsection H.1 below will not adequately reduce or prevent pollutants in storm water discharges in compliance with Section V.A. Dischargers shall identify any advanced BMPs, as described in subsection H.2 below, for those areas.

- c. Based upon the assessment above, Dischargers shall identify any drainage areas with no exposure to industrial activities and materials in accordance with the definitions in Section XVII.
- d. Based upon the assessment above, Dischargers shall identify any additional parameters, beyond the required parameters in Section XI.B.6 that indicate the presence of pollutants in industrial storm water discharges.

H. Best Management Practices (BMPs)

1. Minimum BMPs

The Discharger shall, to the extent feasible, implement and maintain all of the following minimum BMPs to reduce or prevent pollutants in industrial storm water discharges.¹²

a. Good Housekeeping

The Discharger shall:

- i. Observe all outdoor areas associated with industrial activity; including storm water discharge locations, drainage areas, conveyance systems, waste handling/disposal areas, and perimeter areas impacted by off-facility materials or storm water run-on to determine housekeeping needs. Any identified debris, waste, spills, tracked materials, or leaked materials shall be cleaned and disposed of properly;
- ii. Minimize or prevent material tracking;
- iii. Minimize dust generated from industrial materials or activities;
- iv. Ensure that all facility areas impacted by rinse/wash waters are cleaned as soon as possible;
- v. Cover all stored industrial materials that can be readily mobilized by contact with storm water;

¹² For the purposes of this General Permit, the requirement to implement BMPs “to the extent feasible” requires Dischargers to select, design, install and implement BMPs that reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.

- vi. Contain all stored non-solid industrial materials or wastes (e.g., particulates, powders, shredded paper, etc.) that can be transported or dispersed by the wind or contact with storm water;
 - vii. Prevent disposal of any rinse/wash waters or industrial materials into the storm water conveyance system;
 - viii. Minimize storm water discharges from non-industrial areas (e.g., storm water flows from employee parking area) that contact industrial areas of the facility; and,
 - ix. Minimize authorized NSWDS from non-industrial areas (e.g., potable water, fire hydrant testing, etc.) that contact industrial areas of the facility.
- b. Preventive Maintenance
- The Discharger shall:
- i. Identify all equipment and systems used outdoors that may spill or leak pollutants;
 - ii. Observe the identified equipment and systems to detect leaks, or identify conditions that may result in the development of leaks;
 - iii. Establish an appropriate schedule for maintenance of identified equipment and systems; and,
 - iv. Establish procedures for prompt maintenance and repair of equipment, and maintenance of systems when conditions exist that may result in the development of spills or leaks.
- c. Spill and Leak Prevention and Response
- The Discharger shall:
- i. Establish procedures and/or controls to minimize spills and leaks;
 - ii. Develop and implement spill and leak response procedures to prevent industrial materials from discharging through the storm water conveyance system. Spilled or leaked industrial materials shall be cleaned promptly and disposed of properly;
 - iii. Identify and describe all necessary and appropriate spill and leak response equipment, location(s) of spill and leak response equipment, and spill or leak response equipment maintenance procedures; and,
 - iv. Identify and train appropriate spill and leak response personnel.
- d. Material Handling and Waste Management

The Discharger shall:

- i. Prevent or minimize handling of industrial materials or wastes that can be readily mobilized by contact with storm water during a storm event;
- ii. Contain all stored non-solid industrial materials or wastes (e.g., particulates, powders, shredded paper, etc.) that can be transported or dispersed by the wind or contact with storm water;
- iii. Cover industrial waste disposal containers and industrial material storage containers that contain industrial materials when not in use;
- iv. Divert run-on and storm water generated from within the facility away from all stockpiled materials;
- v. Clean all spills of industrial materials or wastes that occur during handling in accordance with the spill response procedures (Section X.H.1.c); and,
- vi. Observe and clean as appropriate, any outdoor material or waste handling equipment or containers that can be contaminated by contact with industrial materials or wastes.

e. Erosion and Sediment Controls

For each erodible surface facility location identified in the SWPPP (Section X.G.1.f), the Discharger shall:

- i. Implement effective wind erosion controls;
- ii. Provide effective stabilization for inactive areas, finished slopes, and other erodible areas prior to a forecasted storm event;
- iii. Maintain effective perimeter controls and stabilize all site entrances and exits to sufficiently control discharges of erodible materials from discharging or being tracked off the site;
- iv. Divert run-on and storm water generated from within the facility away from all erodible materials; and,
- v. If sediment basins are implemented, ensure compliance with the design storm standards in Section X.H.6.

f. Employee Training Program

The Discharger shall:

- i. Ensure that all team members implementing the various compliance activities of this General Permit are properly trained to implement the requirements of this General Permit, including but not limited to: BMP implementation, BMP effectiveness evaluations, visual observations,

and monitoring activities. If a Discharger enters Level 1 status, appropriate team members shall be trained by a QISP;

- ii. Prepare or acquire appropriate training manuals or training materials;
 - iii. Identify which personnel need to be trained, their responsibilities, and the type of training they shall receive;
 - iv. Provide a training schedule; and,
 - v. Maintain documentation of all completed training classes and the personnel that received training in the SWPPP.
- g. Quality Assurance and Record Keeping

The Discharger shall:

- i. Develop and implement management procedures to ensure that appropriate staff implements all elements of the SWPPP, including the Monitoring Implementation Plan;
- ii. Develop a method of tracking and recording the implementation of BMPs identified in the SWPPP; and
- iii. Maintain the BMP implementation records, training records, and records related to any spills and clean-up related response activities for a minimum of five (5) years (Section XXI.J.4).

2. Advanced BMPs

- a. In addition to the minimum BMPs described in Section X.H.1, the Discharger shall, to the extent feasible, implement and maintain any advanced BMPs identified in Section X.G.2.b, necessary to reduce or prevent discharges of pollutants in its storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.
- b. Advanced BMPs may include one or more of the following BMPs:
 - i. Exposure Minimization BMPs

These include storm resistant shelters (either permanent or temporary) that prevent the contact of storm water with the identified industrial materials or area(s) of industrial activity.
 - ii. Storm Water Containment and Discharge Reduction BMPs

These include BMPs that divert, infiltrate, reuse, contain, retain, or reduce the volume of storm water runoff. Dischargers are

encouraged to utilize BMPs that infiltrate or reuse storm water where feasible.

iii. Treatment Control BMPs

This is the implementation of one or more mechanical, chemical, biologic, or any other treatment technology that will meet the treatment design standard.

iv. Other Advanced BMPs

Any additional BMPs not described in subsections b.i through iii above that are necessary to meet the effluent limitations of this General Permit.

3. Temporary Suspension of Industrial Activities

For facilities that plan to temporarily suspend industrial activities for ten (10) or more consecutive calendar days during a reporting year, the Discharger may also suspend monitoring if it is infeasible to conduct monitoring while industrial activities are suspended (e.g., the facility is not staffed, or the facility is remote or inaccessible) and the facility has been stabilized. The Discharger shall include in the SWPPP the BMPs necessary to achieve compliance with this General Permit during the temporary suspension of the industrial activity. Once all necessary BMPs have been implemented to stabilize the facility, the Discharger is not required to:

- a. Perform monthly visual observations (Section XI.A.1.a.); or,
- b. Perform sampling and analysis (Section XI.B.) if it is infeasible to do so (e.g. facility is remotely located).

The Discharger shall upload via SMARTS (7) seven calendar days prior to the planned temporary suspension of industrial activities:

- a. SWPPP revisions specifically addressing the facility stabilization BMPs;
- b. The justification for why monitoring is infeasible at the facility during the period of temporary suspension of industrial activities;
- c. The date the facility is fully stabilized for temporary suspension of industrial activities; and,
- d. The projected date that industrial activities will resume at the facility.

Upon resumption of industrial activities at the facility, the Discharger shall, via SMARTS, confirm and/or update the date the facility's industrial activities have resumed. At this time, the Discharger is required to resume all compliance activities under this General Permit.

The Regional Water Boards may review the submitted information pertaining to the temporary suspension of industrial activities. Upon review, the Regional Water Board may request revisions or reject the Discharger's request to temporarily suspend monitoring.

4. BMP Descriptions

- a. The Discharger shall ensure that the SWPPP identifies each BMP being implemented at the facility, including:
 - i. The pollutant(s) that the BMP is designed to reduce or prevent in industrial storm water discharges;
 - ii. The frequency, time(s) of day, or conditions when the BMP is scheduled for implementation;
 - iii. The locations within each area of industrial activity or industrial pollutant source where the BMP shall be implemented;
 - iv. The individual and/or position responsible for implementing the BMP;
 - v. The procedures, including maintenance procedures, and/or instructions to implement the BMP effectively;
 - vi. The equipment and tools necessary to implement the BMP effectively; and,
 - vii. The BMPs that may require more frequent visual observations beyond the monthly visual observations as described in Section XI.A.1.
- b. The Discharger shall ensure that the SWPPP identifies and justifies each minimum BMP or applicable advanced BMP not being implemented at the facility because they do not reflect best industry practice considering technological availability and economic practicability and achievability.
- c. The Discharger shall identify any BMPs described in subsection a above that are implemented in lieu of any of the minimum or applicable advanced BMPs.

5. BMP Summary Table

The Discharger shall prepare a table summarizing each identified area of industrial activity, the associated industrial pollutant sources, the industrial pollutants, and the BMPs being implemented.

6. Design Storm Standards for Treatment Control BMPs

All new treatment control BMPs employed by the Discharger to comply with Section X.H.2 Advanced BMPs and new sediment basins installed after the effective date of this order shall be designed to comply with design storm standards in this Section, except as provided in an Industrial Activity BMP Demonstration (Section XII.D.2.a). A Factor of Safety shall be incorporated into the design of all treatment control BMPs to ensure that storm water is sufficiently treated throughout the life of the treatment control BMPs. The design storm standards for treatment control BMPs are as follows:

- a. Volume-based BMPs: The Discharger, at a minimum, shall calculate¹³ the volume to be treated using one of the following methods:
 - i. The volume of runoff produced from an 85th percentile 24-hour storm event, as determined from local, historical rainfall records;
 - ii. The volume of runoff produced by the 85th percentile 24-hour storm event, determined as the maximized capture runoff volume for the facility, from the formula recommended in the Water Environment Federation's Manual of Practice;¹⁴ or,
 - iii. The volume of annual runoff required to achieve 80% or more treatment, determined in accordance with the methodology set forth in the latest edition of California Stormwater Best Management Practices Handbook¹⁵, using local, historical rainfall records.
- b. Flow-based BMPs: The Discharger shall calculate the flow needed to be treated using one of the following methods:
 - i. The maximum flow rate of runoff produced from a rainfall intensity of at least 0.2 inches per hour for each hour of a storm event;
 - ii. The maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity, as determined from local historical rainfall records, multiplied by a factor of two; or,
 - iii. The maximum flow rate of runoff, as determined using local historical rainfall records, that achieves approximately the same reduction in total pollutant loads as would be achieved by treatment of the 85th percentile hourly rainfall intensity multiplied by a factor of two.

¹³ All hydrologic calculations shall be certified by a California licensed professional engineer in accordance with the Professional Engineers Act (Bus. & Prof. Code § 6700, et seq).

¹⁴ Water Environment Federation (WEF). Manual of Practice No. 23/ ASCE Manual of Practice No. 87, cited in chapter 5 (1998 Edition) and Cited in Chapter 3 (2012 Edition) .

¹⁵ California Stormwater Quality Association. Stormwater Best Management Practice New Development and Redevelopment Handbook. < <http://www.casqa.org/> >. [as of July 3, 2013].

I. MONITORING IMPLEMENTATION PLAN

The Discharger shall prepare a Monitoring Implementation Plan in accordance with the requirements of this General Permit. The Monitoring Implementation Plan shall be included in the SWPPP and shall include the following items:

1. An identification of team members assigned to conduct the monitoring requirements;
2. A description of the following in accordance with Attachment H:
 - a. Discharge locations;
 - b. Visual observation procedures; and,
 - c. Visual observation response procedures related to monthly visual observations and sampling event visual observations.
3. Justifications for any of the following that are applicable to the facility:
 - a. Alternative discharge locations in accordance with Section XI.C.3;
 - b. Representative Sampling Reduction in accordance with Section XI.C.4; or,
 - c. Qualified Combined Samples in accordance with Section XI.C.5.
4. Procedures for field instrument calibration instructions, including calibration intervals specified by the manufacturer; and,
5. An example Chain of Custody form used when handling and shipping water quality samples to the lab.

XI. MONITORING

A. Visual Observations

1. Monthly Visual Observations
 - a. At least once per calendar month, the Discharger shall visually observe each drainage area for the following:
 - i. The presence or indications of prior, current, or potential unauthorized NSWDS and their sources;
 - ii. Authorized NSWDS, sources, and associated BMPs to ensure compliance with Section IV.B.3; and,

- iii. Outdoor industrial equipment and storage areas, outdoor industrial activities areas, BMPs, and all other potential source of industrial pollutants.
- b. The monthly visual observations shall be conducted during daylight hours of scheduled facility operating hours and on days without precipitation.
- c. The Discharger shall provide an explanation in the Annual Report for uncompleted monthly visual observations.

2. Sampling Event Visual Observations

Sampling event visual observations shall be conducted at the same time sampling occurs at a discharge location. At each discharge location where a sample is obtained, the Discharger shall observe the discharge of storm water associated with industrial activity.

- a. The Discharger shall ensure that visual observations of storm water discharged from containment sources (e.g. secondary containment or storage ponds) are conducted at the time that the discharge is sampled.
- b. Any Discharger employing volume-based or flow-based treatment BMPs shall sample any bypass that occurs while the visual observations and sampling of storm water discharges are conducted.
- c. The Discharger shall visually observe and record the presence or absence of floating and suspended materials, oil and grease, discolorations, turbidity, odors, trash/debris, and source(s) of any discharged pollutants.
- d. In the event that a discharge location is not visually observed during the sampling event, the Discharger shall record which discharge locations were not observed during sampling or that there was no discharge from the discharge location.
- e. The Discharger shall provide an explanation in the Annual Report for uncompleted sampling event visual observations.

3. Visual Observation Records

The Discharger shall maintain records of all visual observations. Records shall include the date, approximate time, locations observed, presence and probable source of any observed pollutants, name of person(s) that conducted the observations, and any response actions and/or additional SWPPP revisions necessary in response to the visual observations.

4. The Discharger shall revise BMPs as necessary when the visual observations indicate pollutant sources have not been adequately addressed in the SWPPP.

B. Sampling and Analysis

1. A Qualifying Storm Event (QSE) is a precipitation event that:
 - a. Produces a discharge for at least one drainage area; and,
 - b. Is preceded by 48 hours with no discharge from any drainage area.
2. The Discharger shall collect and analyze storm water samples from two (2) QSEs within the first half of each reporting year (July 1 to December 31), and two (2) QSEs within the second half of each reporting year (January 1 to June 30).
3. Compliance Group Participants are only required to collect and analyze storm water samples from one (1) QSE within the first half of each reporting year (July 1 to December 31) and one (1) QSE within the second half of the reporting year (January 1 to June 30).
4. Except as provided in Section XI.C.4 (Representative Sampling Reduction), samples shall be collected from each drainage area at all discharge locations. The samples must be:
 - a. Representative of storm water associated with industrial activities and any commingled authorized NSWDS; or,
 - b. Associated with the discharge of contained storm water.
5. Samples from each discharge location shall be collected within four (4) hours of:
 - a. The start of the discharge; or,
 - b. The start of facility operations if the QSE occurs within the previous 12-hour period (e.g., for storms with discharges that begin during the night for facilities with day-time operating hours). Sample collection is required during scheduled facility operating hours and when sampling conditions are safe in accordance with Section XI.C.6.a.ii.
6. The Discharger shall analyze all collected samples for the following parameters:
 - a. Total suspended solids (TSS) and oil and grease (O&G);
 - b. pH (see Section XI.C.2);

- c. Additional parameters identified by the Discharger on a facility-specific basis that serve as indicators of the presence of all industrial pollutants identified in the pollutant source assessment (Section X.G.2). These additional parameters may be modified (added or removed) in accordance with any updated SWPPP pollutant source assessment;
 - d. Additional applicable parameters listed in Table 1 below. These parameters are dependent on the facility Standard Industrial Classification (SIC) code(s);
 - e. Additional applicable industrial parameters related to receiving waters with 303(d) listed impairments or approved TMDLs based on the assessment in Section X.G.2.a.ix. Test methods with lower detection limits may be necessary when discharging to receiving waters with 303(d) listed impairments or TMDLs;
 - f. Additional parameters required by the Regional Water Board. The Discharger shall contact its Regional Water Board to determine appropriate analytical test methods for parameters not listed in Table 2 below. These analytical test methods will be added to SMARTS; and
 - g. For discharges subject to Subchapter N, additional parameters specifically required by Subchapter N. If the discharge is subject to ELGs, the Dischargers shall contact the Regional Water Board to determine appropriate analytical methods for parameters not listed in Table 2 below.
7. The Discharger shall select corresponding NALs, analytical test methods,, and reporting units from the list provided in Table 2 below. SMARTS will be updated over time to add additional acceptable analytical test methods. Dischargers may propose an analytical test method for any parameter or pollutant that does not have an analytical test method specified in Table 2 or in SMARTS. Dischargers may also propose analytical test methods with substantially similar or more stringent method detection limits than existing approved analytical test methods. Upon approval, the analytical test method will be added to SMARTS.
 8. The Discharger shall ensure that the collection, preservation and handling of all storm water samples are in accordance with Attachment H, Storm Water Sample Collection and Handling Instructions.
 9. Samples from different discharge locations shall not be combined or composited except as allowed in Section XI.C.5 (Qualified Combined Samples).
 10. The Discharger shall ensure that all laboratory analyses are conducted according to test procedures under 40 Code of Federal Regulations part 136, including the observation of holding times, unless other test procedures have been specified in this General Permit or by the Regional Water Board.

11. Sampling Analysis Reporting

- a. The Discharger shall submit all sampling and analytical results for all individual or Qualified Combined Samples via SMARTS within 30 days of obtaining all results for each sampling event.
- b. The Discharger shall provide the method detection limit when an analytical result from samples taken is reported by the laboratory as a “non-detect” or less than the method detection limit. A value of zero shall not be reported.
- c. The Discharger shall provide the analytical result from samples taken that is reported by the laboratory as below the minimum level (often referred to as the reporting limit) but above the method detection limit.

Reported analytical results will be averaged automatically by SMARTS. For any calculations required by this General Permit, SMARTS will assign a value of zero (0) for all results less than the minimum level as reported by the laboratory.

TABLE 1: Additional Analytical Parameters

SIC code	SIC code Description	Parameters*
102X	Copper Ores	COD; N+N
12XX	Coal Mines	Al; Fe
144X	Sand and Gravel	N+N
207X	Fats and Oils	BOD; COD; N+N
2421	Sawmills & Planning Mills	COD; Zn
2426	Hardwood Dimension	COD
2429	Special Product Sawmills	COD
243X	Millwork, Veneer, Plywood	COD
244X	Wood Containers	COD
245X	Wood Buildings & Mobile Homes	COD
2491	Wood Preserving	As; Cu
2493	Reconstituted Wood Products	COD
263X	Paperboard Mills	COD
281X	Industrial Inorganic Chemicals	Al; Fe; N+N
282X	Plastic Materials, Synthetics	Zn
284X	Soaps, Detergents, Cosmetics	N+N; Zn
287X	Fertilizers, Pesticides, etc.	Fe; N+N; Pb; Zn; P
301X	Tires, Inner Tubes	Zn
302X	Rubber and Plastic Footwear	Zn
305X	Rubber & Plastic Sealers & Hoses	Zn
306X	Misc. Fabricated Rubber Products	Zn
325X	Structural Clay Products	Al
326X	Pottery & Related Products	Al
3297	Non-Clay Refractories	Al
327X	Concrete, Gypsum, Plaster Products (Except 3274)	Fe
3295	Minerals & Earths	Fe
331X	Steel Works, Blast Furnaces, Rolling and Finishing Mills	Al; Zn
332X	Iron and Steel Foundries	Al; Cu; Fe; Zn
335X	Metal Rolling, Drawing, Extruding	Cu; Zn

336X	Nonferrous Foundries (Castings)	Cu; Zn
34XX	Fabricated Metal Products (Except 3479)	Zn; N+N; Fe; Al
3479	Coating and Engraving	Zn; N+N
4953	Hazardous Waste Facilities	NH ₃ ; Mg; COD; As; Cn; Pb; HG; Se; Ag
44XX	Water Transportation	Al; Fe; Pb; Zn
45XX	Air Transportation Facilities ¹⁶	BOD; COD; NH ₃
4911	Steam Electric Power Generating Facilities	Fe
4953	Landfills and Land Application Facilities	Fe
5015	Dismantling or Wrecking Yards	Fe; Pb; Al
5093	Scrap and Waste Materials (not including source-separated recycling)	Fe; Pb; Al; Zn; COD

*Table 1 Parameter Reference	
Ag – Silver	Mg – Magnesium
Al – Aluminum	N+N - Nitrate & Nitrite Nitrogen
As – Arsenic	NH – Ammonia
BOD – Biochemical Oxygen Demand	Ni – Nickel
Cd - Cadmium	P – Phosphorus
Cn – Cyanide	Se – Selenium
COD – Chemical Oxygen Demand	TSS – Total Suspended Solids
Cu – Copper	Zn – Zinc
Fe – Iron	Pb – Lead
Hg – Mercury	

¹⁶ Only airports (SIC 4512-4581) where a single Discharger, or a combination of permitted facilities use more than 100,000 gallons of glycol-based deicing chemicals and/or 100 tons or more of urea on an average annual basis, are required to monitor these parameters for those outfalls that collect runoff from areas where deicing activities occur.

TABLE 2: Parameter NAL Values, Test Methods, and Reporting Units

PARAMETER	TEST METHOD	REPORTING UNITS	ANNUAL NAL	INSTANTANEOUS MAXIMUM NAL
pH*	See Section XI.C.2	pH units	N/A	Less than 6.0 Greater than 9.0
Suspended Solids (TSS)*, Total	SM 2540-D	mg/L	100	400
Oil & Grease (O&G)*, Total	EPA 1664A	mg/L	15	25
Zinc, Total (H)	EPA 200.8	mg/L	0.26**	
Copper, Total (H)	EPA 200.8	mg/L	0.0332**	
Cyanide, Total	SM 4500–CN C, D, or E	mg/L	0.022	
Lead, Total (H)	EPA 200.8	mg/L	0.262**	
Chemical Oxygen Demand (COD)	SM 5220C	mg/L	120	
Aluminum, Total	EPA 200.8	mg/L	0.75	
Iron, Total	EPA 200.7	mg/L	1.0	
Nitrate + Nitrite Nitrogen	SM 4500-NO3- E	mg/L as N	0.68	
Total Phosphorus	SM 4500-P B+E	mg/L as P	2.0	
Ammonia (as N)	SM 4500-NH3 B+ C or E	mg/L	2.14	
Magnesium, total	EPA 200.7	mg/L	0.064	
Arsenic, Total (c)	EPA 200.8	mg/L	0.15	
Cadmium, Total (H)	EPA 200.8	mg/L	0.0053**	
Nickel, Total (H)	EPA 200.8	mg/l	1.02**	
Mercury, Total	EPA 245.1	mg/L	0.0014	
Selenium, Total	EPA 200.8	mg/L	0.005	
Silver, Total (H)	EPA 200.8	mg/L	0.0183**	
Biochemical Oxygen Demand (BOD)	SM 5210B	mg/L	30	

SM – Standard Methods for the Examination of Water and Wastewater, 18th edition

EPA – U.S. EPA test methods

(H) – Hardness dependent

* Minimum parameters required by this General Permit

**The NAL is the highest value used by U.S. EPA based on their hardness table in the 2008 MSGP.

C. Methods and Exceptions

1. The Discharger shall comply with the monitoring methods in this General Permit and Attachment H.
2. pH Methods
 - a. Dischargers that are not subject to Subchapter N ELGs mandating pH analysis related to acidic or alkaline sources and have never entered Level 1 status for pH, are eligible to screen for pH using wide range litmus pH paper or other equivalent pH test kits. The pH screen shall be performed as soon as practicable, but no later than 15 minutes after the sample is collected.
 - b. Dischargers subject to Subchapter N ELGs shall either analyze samples for pH using methods in accordance with 40 Code of Federal Regulations 136 for testing storm water or use a calibrated portable instrument for pH.
 - c. Dischargers that enter Level 1 status (see Section XII.C) for pH shall, in the subsequent reporting years, analyze for pH using methods in accordance with 40 Code of Federal Regulations 136 or use a calibrated portable instrument for pH.
 - d. Dischargers using a calibrated portable instrument for pH shall ensure that all field measurements are conducted in accordance with the accompanying manufacturer's instructions.
3. Alternative Discharge Locations
 - a. The Discharger is required to identify, when practicable, alternative discharge locations for any discharge locations identified in accordance with Section XI.B.4 if the facility's discharge locations are:
 - i. Affected by storm water run-on from surrounding areas that cannot be controlled; and/or,
 - ii. Difficult to observe or sample (e.g. submerged discharge outlets, dangerous discharge location accessibility).
 - b. The Discharger shall submit and certify via SMARTS any alternative discharge location or revisions to the alternative discharge locations in the Monitoring Implementation Plan.
4. Representative Sampling Reduction
 - a. The Discharger may reduce the number of locations to be sampled in each drainage area (e.g., roofs with multiple downspouts, loading/unloading areas with multiple storm drains) if the industrial

activities, BMPs, and physical characteristics (grade, surface materials, etc.) of the drainage area for each location to be sampled are substantially similar to one another. To qualify for the Representative Sampling Reduction, the Discharger shall provide a Representative Sampling Reduction justification in the Monitoring Implementation Plan section of the SWPPP.

- b. The Representative Sampling Reduction justification shall include:
 - i. Identification and description of each drainage area and corresponding discharge location(s);
 - ii. A description of the industrial activities that occur throughout the drainage area;
 - iii. A description of the BMPs implemented in the drainage area;
 - iv. A description of the physical characteristics of the drainage area;
 - v. A rationale that demonstrates that the industrial activities and physical characteristics of the drainage area(s) are substantially similar; and,
 - vi. An identification of the discharge location(s) selected for representative sampling, and rationale demonstrating that the selected location(s) to be sampled are representative of the discharge from the entire drainage area.
- c. A Discharger that satisfies the conditions of subsection 4.b.i through v above shall submit and certify via SMARTS the revisions to the Monitoring Implementation Plan that includes the Representative Sampling Reduction justification.
- d. Upon submittal of the Representative Sampling Reduction justification, the Discharger may reduce the number of locations to be sampled in accordance with the Representative Sampling Reduction justification. The Regional Water Board may reject the Representative Sampling Reduction justification and/or request additional supporting documentation. In such instances, the Discharger is ineligible for the Representative Sampling Reduction until the Regional Water Board approves the Representative Sampling Reduction justification.

5. Qualified Combined Samples

- a. The Discharger may authorize an analytical laboratory to combine samples of equal volume from as many as four (4) discharge locations if the industrial activities, BMPs, and physical characteristics (grade, surface materials, etc.) within each of the drainage areas are substantially similar to one another.

- b. The Qualified Combined Samples justification shall include:
 - i. Identification and description of each drainage area and corresponding discharge locations;
 - ii. A description of the BMPs implemented in the drainage area;
 - iii. A description of the industrial activities that occur throughout the drainage area;
 - iv. A description of the physical characteristics of the drainage area; and,
 - v. A rationale that demonstrates that the industrial activities and physical characteristics of the drainage area(s) are substantially similar.
 - c. A Discharger that satisfies the conditions of subsection 5.b.i through iv above shall submit and certify via SMARTS the revisions to the Monitoring Implementation Plan that includes the Qualified Combined Samples justification.
 - d. Upon submittal of the Qualified Combined Samples justification revisions in the Monitoring Implementation Plan, the Discharger may authorize the lab to combine samples of equal volume from as many as four (4) drainage areas. The Regional Water Board may reject the Qualified Combined Samples justification and/or request additional supporting documentation. In such instances, the Discharger is ineligible for the Qualified Combined Samples justification until the Regional Water Board approves the Qualified Combined Samples justification.
 - e. Regional Water Board approval is necessary to combine samples from more than four (4) discharge locations.
6. Sample Collection and Visual Observation Exceptions
- a. Sample collection and visual observations are not required under the following conditions:
 - i. During dangerous weather conditions such as flooding or electrical storms; or,
 - ii. Outside of scheduled facility operating hours. The Discharger is not precluded from collecting samples or conducting visual observations outside of scheduled facility operating hours.
 - b. In the event that samples are not collected, or visual observations are not conducted in accordance with Section XI.B.5 due to these exceptions, an explanation shall be included in the Annual Report.

- c. Sample collection is not required for drainage areas with no exposure to industrial activities and materials in accordance with the definitions in Section XVII.
7. Sampling Frequency Reduction Certification
- a. Dischargers are eligible to reduce the number of QSEs sampled each reporting year in accordance with the following requirements:
 - i. Results from four (4) consecutive QSEs that were sampled (QSEs may be from different reporting years) did not exceed any NALs as defined in Section XII.A; and
 - ii. The Discharger is in full compliance with the requirements of this General Permit and has updated, certified and submitted via SMARTS all documents, data, and reports required by this General Permit during the time period in which samples were collected.
 - b. The Regional Water Board may notify a Discharger that it may not reduce the number of QSEs sampled each reporting year if the Discharger is subject to an enforcement action.
 - c. An eligible Discharger shall certify via SMARTS that it meets the conditions in subsection 7.a above.
 - d. Upon Sampling Frequency Reduction certification, the Discharger shall collect and analyze samples from one (1) QSE within the first half of each reporting year (July 1 to December 31), and one (1) QSE within the second half of each reporting year (January 1 to June 30). All other monitoring, sampling, and reporting requirements remain in effect.
 - e. Dischargers who participate in a Compliance Group and certify a Sampling Frequency Reduction are only required to collect and analyze storm water samples from one (1) QSE within each reporting year.
 - f. A Discharger may reduce sampling per the Sampling Frequency Reduction certification unless notified by the Regional Water Board that: (1) the Sampling Frequency Reduction certification has been rejected or (2) additional supporting documentation must be submitted. In such instances, a Discharger is ineligible for the Sampling Frequency Reduction until the Regional Water Board provides Sampling Frequency Reduction certification approval. Revised Sampling Frequency Reduction certifications shall be certified and submitted via SMARTS by the Discharger.
 - g. A Discharger loses its Sampling Frequency Reduction certification if an NAL exceedance occurs (Section XII.A).

D. Facilities Subject to Federal Storm Water Effluent Limitation Guidelines (ELGs)

1. In addition to the other requirements in this General Permit, Dischargers with facilities subject to storm water ELGs in Subchapter N shall:
 - a. Collect and analyze samples from QSEs for each regulated pollutant specified in the appropriate category in Subchapter N as specified in Section XI.B;
 - b. For Dischargers with facilities subject to 40 Code of Federal Regulations parts 419¹⁷ and 443¹⁸, estimate or calculate the volume of industrial storm water discharges from each drainage area subject to the ELGs and the mass of each regulated pollutant as defined in parts 419 and 443; and,
 - c. Ensure that the volume/mass estimates or calculations required in subsection b are completed by a California licensed professional engineer.
2. Dischargers subject to Subchapter N shall submit the information in Section XI.D.1.a through c in their Annual Report.
3. Dischargers with facilities subject to storm water ELGs in Subchapter N are ineligible for the Representative Sampling Reduction in Section XI.C.4.

XII. EXCEEDANCE RESPONSE ACTIONS (ERAs)

A. NALs and NAL Exceedances

The Discharger shall perform sampling, analysis and reporting in accordance with the requirements of this General Permit and shall compare the results to the two types of NAL values in Table 2 to determine whether either type of NAL has been exceeded for each applicable parameter. The two types of potential NAL exceedances are as follows:

1. Annual NAL exceedance: The Discharger shall determine the average concentration for each parameter using the results of all the sampling and analytical results for the entire facility for the reporting year (i.e., all "effluent" data). The Discharger shall compare the average concentration for each parameter to the corresponding annual NAL values in Table 2. For Dischargers using composite sampling or flow-weighted measurements in accordance with standard practices, the average concentrations shall be calculated in accordance with the U.S. EPA's NPDES Storm Water

¹⁷ Part 419 - Petroleum refining point source category

¹⁸ Part 443 - Effluent limitations guidelines for existing sources and standards of performance and pretreatment standards for new sources for the paving and roofing materials (tars and asphalt) point source category

Sampling Guidance Document.¹⁹ An annual NAL exceedance occurs when the average of all the analytical results for a parameter from samples taken within a reporting year exceeds the annual NAL value for that parameter listed in Table 2; and,

2. Instantaneous maximum NAL exceedance: The Discharger shall compare all sampling and analytical results from each distinct sample (individual or combined as authorized by XI.C.5) to the corresponding instantaneous maximum NAL values in Table 2. An instantaneous maximum NAL exceedance occurs when two (2) or more analytical results from samples taken for any single parameter within a reporting year exceed the instantaneous maximum NAL value (for TSS and O&G) or are outside of the instantaneous maximum NAL range for pH.

B. Baseline Status

At the beginning of a Discharger's NOI Coverage, all Dischargers have Baseline status for all parameters.

C. Level 1 Status

A Discharger's Baseline status for any given parameter shall change to Level 1 status if sampling results indicate an NAL exceedance for that same parameter. Level 1 status will commence on July 1 following the reporting year during which the exceedance(s) occurred.²⁰

1. Level 1 ERA Evaluation

- a. By October 1 following commencement of Level 1 status for any parameter with sampling results indicating an NAL exceedance, the Discharger shall:
 - b. Complete an evaluation, with the assistance of a QISP, of the industrial pollutant sources at the facility that are or may be related to the NAL exceedance(s); and,
 - c. Identify in the evaluation the corresponding BMPs in the SWPPP and any additional BMPs and SWPPP revisions necessary to prevent future NAL exceedances and to comply with the requirements of this General Permit. Although the evaluation may focus on the drainage areas where the NAL exceedance(s) occurred, all drainage areas shall be evaluated.

2. Level 1 ERA Report

¹⁹ U.S. EPA. NPDES Storm Water Sampling Guidance Document. <<http://www.epa.gov/npdes/pubs/owm0093.pdf>>. [as of February 4, 2014]

²⁰ For all sampling results reported before June 30th of the preceding reporting year. If sample results indicating an NAL exceedance are submitted after June 30th, the Discharger will change status once those results have been reported.

- a. Based upon the above evaluation, the Discharger shall, as soon as practicable but no later than January 1 following commencement of Level 1 status :
 - i. Revise the SWPPP as necessary and implement any additional BMPs identified in the evaluation;
 - ii. Certify and submit via SMARTS a Level 1 ERA Report prepared by a QISP that includes the following:
 - 1) A summary of the Level 1 ERA Evaluation required in subsection C.1 above; and,
 - 2) A detailed description of the SWPPP revisions and any additional BMPs for each parameter that exceeded an NAL.
 - iii. Certify and submit via SMARTS the QISP's identification number, name, and contact information (telephone number, e-mail address).
 - b. A Discharger's Level 1 status for a parameter will return to Baseline status once a Level 1 ERA report has been completed, all identified additional BMPs have been implemented, and results from four (4) consecutive QSEs that were sampled subsequent to BMP implementation indicate no additional NAL exceedances for that parameter.
3. NAL Exceedances Prior to Implementation of Level 1 Status BMPs.

Prior to the implementation of an additional BMP identified in the Level 1 ERA Evaluation or October 1, whichever comes first, sampling results for any parameter(s) being addressed by that additional BMP will not be included in the calculations of annual average or instantaneous NAL exceedances in SMARTS.

D. Level 2 Status

A Discharger's Level 1 status for any given parameter shall change to Level 2 status if sampling results indicate an NAL exceedance for that same parameter while the Discharger is in Level 1. Level 2 status will commence on July 1 following the reporting year during which the NAL exceedance(s) occurred.²¹

1. Level 2 ERA Action Plan

²¹ For all sampling results reported before June 30th of the preceding reporting year. If sample results indicating an NAL exceedance are submitted after June 30th, the Discharger will change status upon the date those results have been reported into SMARTS.

- a. Dischargers with Level 2 status shall certify and submit via SMARTS a Level 2 ERA Action Plan prepared by a QISP that addresses each new Level 2 NAL exceedance by January 1 following the reporting year during which the NAL exceedance(s) occurred. For each new Level 2 NAL exceedance, the Level 2 Action Plan will identify which of the demonstrations in subsection D.2.a through c the Discharger has selected to perform. A new Level 2 NAL exceedance is any Level 2 NAL exceedance for 1) a new parameter in any drainage area, or 2) the same parameter that is being addressed in an existing Level 2 ERA Action Plan in a different drainage area.
- b. The Discharger shall certify and submit via SMARTS the QISP's identification number, name, and contact information (telephone number, e-mail address) if this information has changed since previous certifications.
- c. The Level 2 ERA Action Plan shall at a minimum address the drainage areas with corresponding Level 2 NAL exceedances.
- d. All elements of the Level 2 ERA Action Plan shall be implemented as soon as practicable and completed no later than 1 year after submitting the Level 2 ERA Action Plan.
- e. The Level 2 ERA Action Plan shall include a schedule and a detailed description of the tasks required to complete the Discharger's selected demonstration(s) as described below in Section D.2.a through c.

2. Level 2 ERA Technical Report

On January 1 of the reporting year following the submittal of the Level 2 ERA Action Plan, a Discharger with Level 2 status shall certify and submit a Level 2 ERA Technical Report prepared by a QISP that includes one or more of the following demonstrations:

a. Industrial Activity BMPs Demonstration

This shall include the following requirements, as applicable:

- i. Shall include a description of the industrial pollutant sources and corresponding industrial pollutants that are or may be related to the NAL exceedance(s);
- ii. Shall include an evaluation of all pollutant sources associated with industrial activity that are or may be related to the NAL exceedance(s);
- iii. Where all of the Discharger's implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve

compliance with the effluent limitations of this General Permit and are expected to eliminate future NAL exceedance(s), the Discharger shall provide a description and analysis of all implemented BMPs;

- iv. In cases where all of the Discharger's implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve compliance with the effluent limitations of this General Permit but are not expected to eliminate future NAL exceedance(s), the Discharger shall provide, in addition to a description and analysis of all implemented BMPs:
 - 1) An evaluation of any additional BMPs that would reduce or prevent NAL exceedances;
 - 2) Estimated costs of the additional BMPs evaluated; and,
 - 3) An analysis describing the basis for the selection of BMPs implemented in lieu of the additional BMPs evaluated but not implemented.
 - v. The description and analysis of BMPs required in subsection a.iii above shall specifically address the drainage areas where the NAL exceedance(s) responsible for the Discharger's Level 2 status occurred, although any additional Level 2 ERA Action Plan BMPs may be implemented for all drainage areas; and,
 - vi. If an alternative design storm standard for treatment control BMPs (in lieu of the design storm standard for treatment control BMPs in Section X.H.6 in this General Permit) will achieve compliance with the effluent limitations of this General Permit, the Discharger shall provide an analysis describing the basis for the selection of the alternative design storm standard.
- b. Non-Industrial Pollutant Source Demonstration

This shall include:

- i. A statement that the Discharger has determined that the exceedance of the NAL is attributable solely to the presence of non-industrial pollutant sources. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance.) The sources shall be identified as either run-on from adjacent properties, aerial deposition from man-made sources, or as generated by on-site non-industrial sources;

- ii. A statement that the Discharger has identified and evaluated all potential pollutant sources that may have commingled with storm water associated with the Discharger's industrial activity and may be contributing to the NAL exceedance;
 - iii. A description of any on-site industrial pollutant sources and corresponding industrial pollutants that are contributing to the NAL exceedance;
 - iv. An assessment of the relative contributions of the pollutant from (1) storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition and (2) the storm water associated with the Discharger's industrial activity;
 - v. A summary of all existing BMPs for that parameter; and,
 - vi. An evaluation of all on-site/off-site analytical monitoring data demonstrating that the NAL exceedances are caused by pollutants in storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition.
- c. Natural Background Pollutant Source Demonstration

This shall include:

- i. A statement that the Discharger has determined that the NAL exceedance is attributable solely to the presence of the pollutant in the natural background that has not been disturbed by industrial activities. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance);
- ii. A summary of all data previously collected by the Discharger, or other identified data collectors, that describes the levels of natural background pollutants in the storm water discharge;
- iii. A summary of any research and published literature that relates the pollutants evaluated at the facility as part of the Natural Background Source Demonstration;
- iv. Map showing the reference site location in relation to facility along with available land cover information;
- v. Reference site and test site elevation;

- vi. Available geology and soil information for reference and test sites;
- vii. Photographs showing site vegetation;
- viii. Site reconnaissance survey data regarding presence of roads, outfalls, or other human-made structures; and,
- ix. Records from relevant state or federal agencies indicating no known mining, forestry, or other human activities upstream of the proposed reference site.

3. Level 2 ERA Technical Report Submittal

- a. The Discharger shall certify and submit via SMARTS the Level 2 ERA Technical Report described in Section D.2 above.
- b. The State Water Board and Regional Boards (Water Boards) may review the submitted Level 2 ERA Technical Reports. Upon review of a Level 2 ERA Technical Report, the Water Boards may reject the Level 2 ERA Technical Report and direct the Discharger to take further action(s) to comply with this General Permit.
- c. Dischargers with Level 2 status who have submitted the Level 2 ERA Technical Report are only required to annually update the Level 2 ERA Technical Report based upon additional NAL exceedances of the same parameter and same drainage area (if the original Level 2 ERA Technical Report contained an Industrial Activity BMP Demonstration and the implemented BMPs were expected to eliminate future NAL exceedances in accordance with Section XII.D.2.a.ii), facility operational changes, pollutant source(s) changes, and/or information that becomes available via compliance activities (monthly visual observations, sampling results, annual evaluation, etc.). The Level 2 ERA Technical Report shall be prepared by a QISP and be certified and submitted via SMARTS by the Discharger with each Annual Report. If there are no changes prompting an update of the Level 2 ERA Technical Report, as specified above, the Discharger will provide this certification in the Annual Report that there have been no changes warranting re-submittal of the Level 2 ERA Technical Report.
- d. Dischargers are not precluded from submitting a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status if information is available to adequately prepare the report and perform the demonstrations described above. A Discharger who chooses to submit a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status will automatically be placed in Level 2 in accordance to the Level 2 ERA schedule.

4. Eligibility for Returning to Baseline Status

- a. Dischargers with Level 2 status who submit an Industrial Activity BMPs Demonstration in accordance with subsection 2.a.i through iii above and have implemented BMPs to prevent future NAL exceedance(s) for the Level 2 parameter(s) shall return to baseline status for that parameter, if results from four (4) subsequent consecutive QSEs sampled indicate no additional NAL exceedance(s) for that parameter(s). If future NAL exceedances occur for the same parameter(s), the Discharger's Baseline status will return to Level 2 status on July 1 in the subsequent reporting year during which the NAL exceedance(s) occurred. These Dischargers shall update the Level 2 ERA Technical Report as required above in Section D.3.c.
- b. Dischargers are ineligible to return to baseline status if they submit any of the following:
 - i. A industrial activity BMP demonstration in accordance with subsection 2.a.iv above;
 - ii. An non-industrial pollutant source demonstration; or,
 - iii. A natural background pollutant source demonstration.

5. Level 2 ERA Implementation Extension

- a. Dischargers that need additional time to submit the Level 2 ERA Technical Report shall be automatically granted a single time extension for up to six (6) months upon submitting the following items into SMARTS, as applicable:
 - i. Reasons for the time extension;
 - ii. A revised Level 2 ERA Action Plan including a schedule and a detailed description of the necessary tasks still to be performed to complete the Level 2 ERA Technical Report; and
 - iii. A description of any additional temporary BMPs that will be implemented while permanent BMPs are being constructed.
- b. The Regional Water Boards will review Level 2 ERA Implementation Extensions for completeness and adequacy. Requests for extensions that total more than six (6) months are not granted unless approved in writing by the Water Boards. The Water Boards may (1) reject or revise the time allowed to complete Level 2 ERA Implementation Extensions, (2) identify additional tasks necessary to complete the Level 2 ERA Technical Report, and/or (3) require the Discharger to implement additional temporary BMPs.

XIII. INACTIVE MINING OPERATION CERTIFICATION

- A.** Inactive mining operations are defined in Part 3 of Attachment A of this General Permit. The Discharger may, in lieu of complying with the General Permit requirements described in subsection B below, certify and submit via SMARTS that their inactive mining operation meets the following conditions:
1. The Discharger has determined and justified in the SWPPP that it is impracticable to implement the monitoring requirements in this General Permit for the inactive mining operation;
 2. A SWPPP has been signed (wet signature and license number) by a California licensed professional engineer and is being implemented in accordance with the requirements of this General Permit; and,
 3. The facility is in compliance with this General Permit, except as provided in subsection B below.
- B.** The Discharger who has certified and submitted that they meet the conditions in subsection A above, are not subject to the following General Permit requirements:
1. Monitoring Implementation Plan in Section X.I;
 2. Monitoring Requirements in Section XI;
 3. Exceedance Response Actions (ERAs) in Section XII; and,
 4. Annual Report Requirements in Section XVI.
- C.** Inactive Mining Operation Certification Submittal Schedule
1. The Discharger shall certify and submit via SMARTS NOI coverage PRDs listed in Section II.B.1 and meet the conditions in subsection A above.
 2. The Discharger shall annually inspect the inactive mining site and certify via SMARTS no later than July 15th of each reporting year, that their inactive mining operation continues to meet the conditions in subsection A above.
 3. The Discharger shall have a California licensed professional engineer review and update the SWPPP if there are changes to their inactive mining operation or additional BMPs are needed to comply with this General Permit. Any significant updates to the SWPPP shall be signed (wet signature and license number) by a California license professional engineer.
 4. The Discharger shall certify and submit via SMARTS any significantly revised SWPPP within 30 days of the revision(s).

XIV. COMPLIANCE GROUPS AND COMPLIANCE GROUP LEADERS

A. Compliance Group Qualification Requirements

1. Any group of Dischargers of the same industry type or any QISP representing Dischargers of the same industry type may form a Compliance Group. A Compliance Group shall consist of Dischargers that operate facilities with similar types of industrial activities, pollutant sources, and pollutant characteristics (e.g., scrap metals recyclers would join a different group than paper recyclers, truck vehicle maintenance facilities would join a different group than airplane vehicle maintenance facilities, etc.). A Discharger participating in a Compliance Group is termed a Compliance Group Participant. Participation in a Compliance Group is not required. Compliance Groups may be formed at any time.
2. Each Compliance Group shall have a Compliance Group Leader.
3. To establish a Compliance Group, the Compliance Group Leader shall register as a Compliance Group Leader via SMARTS. The registration shall include documentation demonstrating compliance with the Compliance Group qualification requirements above and a list of the Compliance Group Participants.
4. Each Compliance Group Participant shall register as a member of an established Compliance Group via SMARTS.
5. The Executive Director of the State Water Board may review Compliance Group registrations and/or activities for compliance with the requirements of this General Permit. The Executive Director may reject the Compliance Group, the Compliance Group Leader, or individual Compliance Group Participants within the Compliance Group.

B. Compliance Group Leader Responsibilities

1. A Compliance Group Leader must complete a State Water Board sponsored or approved training program for Compliance Group Leaders.
2. The Compliance Group Leader shall assist Compliance Group Participants with all compliance activities required by this General Permit.
3. A Compliance Group Leader shall prepare a Consolidated Level 1 ERA Report for all Compliance Group Participants with Level 1 status for the same parameter. Compliance Group Participants who certify and submit these Consolidated Level 1 ERA Reports are subject to the same provisions as individual Dischargers with Level 1 status, as described in Section XII.C. A Consolidated Level 1 ERA Report is equivalent to a Level 1 ERA Report.

4. The Compliance Group Leader shall update the Consolidated Level 1 ERA Report as needed to address additional Compliance Group Participants with ERA Level 1 status.
5. A Compliance Group Leader shall prepare a Level 2 ERA Action Plan specific to each Compliance Group Participant with Level 2 status. Compliance Group Participants who certify and submit these Level 2 ERA Action Plans are subject to the same provisions as individual Dischargers with Level 2 status, as described in Section XII.D.
6. A Compliance Group Leader shall prepare a Level 2 ERA Technical Report specific to each Compliance Group Participant with Level 2 status. Compliance Group Participants who certify and submit these Level 2 ERA Technical Reports are subject to the same provisions as individual Dischargers with Level 2 status, as described in Section XII.D.
7. The Compliance Group Leader shall inspect all the facilities of the Compliance Group Participants that have entered Level 2 status prior to preparing the individual Level 2 ERA Technical Report.
8. The Compliance Group Leader shall revise the Consolidated Level 1 ERA Report, individual Level 2 ERA Action Plans, or individual Level 2 Technical Reports in accordance with any comments received from the Water Boards.
9. The Compliance Group Leader shall inspect all the facilities of the Compliance Group Participants at a minimum of once per reporting year (July 1 to June 30).

C. Compliance Group Participant Responsibilities

1. Each Compliance Group Participant is responsible for permit compliance for the Compliance Group Participant's facility and for ensuring that the Compliance Group Leader's activities related to the Compliance Group Participant's facility comply with this General Permit.
2. Compliance Group Participants with Level 1 status shall certify and submit via SMARTS the Consolidated Level 1 ERA Report. The Compliance Group Participants shall certify that they have reviewed the Consolidated Level 1 ERA Report and have implemented any required additional BMPs. Alternatively, the Compliance Group Participant may submit an individual Level 1 ERA Report in accordance with the provisions in Section XII.C.2.
3. Compliance Group Participants with Level 2 status shall certify and submit via SMARTS their individual Level 2 ERA Action Plan and Technical Report prepared by their Compliance Group Leader. Each Compliance Group Participant shall certify that they have reviewed the Level 2 ERA Action Plan and Technical Report and will implement any required additional BMPs.

4. Compliance Group Participants can at any time discontinue their participation in their associated Compliance Group via SMARTS. Upon discontinuation, the former Compliance Group Participant is immediately subject to the sampling and analysis requirements described in Section XI.B.2.

XV. ANNUAL COMPREHENSIVE FACILITY COMPLIANCE EVALUATION (ANNUAL EVALUATION)

The Discharger shall conduct one Annual Evaluation for each reporting year (July 1 to June 30). If the Discharger conducts an Annual Evaluation fewer than eight (8) months, or more than sixteen (16) months, after it conducts the previous Annual Evaluation, it shall document the justification for doing so. The Discharger shall revise the SWPPP, as appropriate, and implement the revisions within 90 days of the Annual Evaluation. At a minimum, Annual Evaluations shall consist of:

- A. A review of all sampling, visual observation, and inspection records conducted during the previous reporting year;
- B. An inspection of all areas of industrial activity and associated potential pollutant sources for evidence of, or the potential for, pollutants entering the storm water conveyance system;
- C. An inspection of all drainage areas previously identified as having no exposure to industrial activities and materials in accordance with the definitions in Section XVII;
- D. An inspection of equipment needed to implement the BMPs;
- E. An inspection of any BMPs;
- F. A review and effectiveness assessment of all BMPs for each area of industrial activity and associated potential pollutant sources to determine if the BMPs are properly designed, implemented, and are effective in reducing and preventing pollutants in industrial storm water discharges and authorized NSWDS; and,
- G. An assessment of any other factors needed to comply with the requirements in Section XVI.B.

XVI. ANNUAL REPORT

- A. The Discharger shall certify and submit via SMARTS an Annual Report no later than July 15th following each reporting year using the standardized format and checklists in SMARTS.
- B. The Discharger shall include in the Annual Report:
 1. A Compliance Checklist that indicates whether a Discharger complies with, and has addressed all applicable requirements of this General Permit;

2. An explanation for any non-compliance of requirements within the reporting year, as indicated in the Compliance Checklist;
3. An identification, including page numbers and/or sections, of all revisions made to the SWPPP within the reporting year; and,
4. The date(s) of the Annual Evaluation.

XVII. CONDITIONAL EXCLUSION - NO EXPOSURE CERTIFICATION (NEC)

A. Discharges composed entirely of storm water that has not been exposed to industrial activity are not industrial storm water discharges. Dischargers are conditionally excluded from complying with the SWPPP and monitoring requirements of this General Permit if all of the following conditions are met:

1. There is no exposure of Industrial Materials and Activities to rain, snow, snowmelt, and/or runoff;
2. All unauthorized NSWDS have been eliminated and all authorized NSWDS meet the conditions of Section IV;
3. The Discharger has certified and submitted via SMARTS PRDs for NEC coverage pursuant to the instructions in Section II.B.2; and,
4. The Discharger has satisfied all other requirements of this Section.

B. NEC Specific Definitions

1. No Exposure - all Industrial Materials and Activities are protected by a Storm-Resistant Shelter to prevent all exposure to rain, snow, snowmelt, and/or runoff.
2. Industrial Materials and Activities - includes, but is not limited to, industrial material handling activities or equipment, machinery, raw materials, intermediate products, by-products, final products, and waste products.
3. Material Handling Activities - includes the storage, loading and unloading, transportation, or conveyance of any industrial raw material, intermediate product, final product, or waste product.
4. Sealed - banded or otherwise secured, and without operational taps or valves.
5. Storm-Resistant Shelters - includes completely roofed and walled buildings or structures. Also includes structures with only a top cover supported by permanent supports but with no side coverings, provided material within the structure is not subject to wind dispersion (sawdust, powders, etc.), or track-out, and there is no storm water discharged from within the structure that comes into contact with any materials.

C. NEC Qualifications

To qualify for an NEC, a Discharger shall:

1. Except as provided in subsection D below, provide a Storm-Resistant Shelter to protect Industrial Materials and Activities from exposure to rain, snow, snowmelt, run-on, and runoff;
2. Inspect and evaluate the facility annually to determine that storm water exposed to industrial materials or equipment has not and will not be discharged to waters of the United States. Evaluation records shall be maintained for five (5) years in accordance with Section XXI.J.4;
3. Register for NEC coverage by certifying that there are no discharges of storm water contaminated by exposure to Industrial Materials and Activities from areas of the facility subject to this General Permit, and certify that all unauthorized NSWDS have been eliminated and all authorized NSWDS meet the conditions of Section IV (Authorized NSWDS). NEC coverage and annual renewal requires payment of an annual fee in accordance with California Code of Regulations, title 23, section 2200 et seq.; and,
4. Submit PRDs for NEC coverage shall be prepared and submitted in accordance with the:
 - a. Certification requirements in Section XXI.K; and,
 - b. Submittal schedule in accordance with Section II.B.2.

D. NEC Industrial Materials and Activities - Storm-Resistant Shelter Not Required

To qualify for NEC coverage, a Storm-Resistant Shelter is not required for the following:

1. Drums, barrels, tanks, and similar containers that are tightly Sealed, provided those containers are not deteriorated, do not contain residual industrial materials on the outside surfaces, and do not leak;
2. Adequately maintained vehicles used in material handling;
3. Final products, other than products that would be mobilized in storm water discharge (e.g., rock salt);
4. Any Industrial Materials and Activities that are protected by a temporary shelter for a period of no more than ninety (90) days due to facility construction or remodeling; and,
5. Any Industrial Materials and Activities that are protected within a secondary containment structure that will not discharge storm water to waters of the United States.

E. NEC Limitations

1. NEC coverage is available on a facility-wide basis only, not for individual outfalls. If a facility has industrial storm water discharges from one or more drainage areas that require NOI coverage, Dischargers shall register for NOI coverage for the entire facility through SMARTS in accordance with Section II.B.2. Any drainage areas on that facility that would otherwise qualify for NEC coverage may be specially addressed in the facility SWPPP by including an NEC Checklist and a certification statement demonstrating that those drainage areas of the facility have been evaluated; and that none of the Industrial Materials or Activities listed in subsection C above are, or will be in the foreseeable future, exposed to precipitation.
2. If circumstances change and Industrial Materials and Activities become exposed to rain, snow, snowmelt, and/or runoff, the conditions for this exclusion shall no longer apply. In such cases, the Discharger may be subject to enforcement for discharging without a permit. A Discharger with NEC coverage that anticipates changes in circumstances should register for NOI coverage at least seven (7) days before anticipated exposure.
3. The Regional Water Board may deny NEC coverage and require NOI coverage upon determining that:
 - a. Storm water is exposed to Industrial Materials and Activities; and/or
 - b. The discharge has a reasonable potential to cause or contribute to an exceedance of an applicable water quality standards.

F. NEC Permit Registration Documents Required for Initial NEC Coverage

A Discharger shall submit via SMARTS the following PRDs for NEC coverage to document the applicability of the conditional exclusion:

1. The NEC form, which includes:
 - a. The legal name, postal address, telephone number, and e-mail address of the Discharger;
 - b. The facility business name and physical mailing address, the county name, and a description of the facility location if the facility does not have a physical mailing address; and,
 - c. Certification by the Discharger that all PRDs submitted are correct and true and the conditions of no exposure have been met.
2. An NEC Checklist prepared by the Discharger demonstrating that the facility has been evaluated; and that none of the following industrial materials or activities are, or will be in the foreseeable future, exposed to precipitation:

- a. Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed;
- b. Materials or residuals on the ground or in storm water inlets from spills/leaks;
- c. Materials or products from past industrial activity;
- d. Material handling equipment (except adequately maintained vehicles);
- e. Materials or products during loading/unloading or transporting activities;
- f. Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants);
- g. Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;
- h. Materials or products handled/stored on roads or railways owned or maintained by the Discharger;
- i. Waste material (except waste in covered, non-leaking containers, e.g., dumpsters);
- j. Application or disposal of processed wastewater (unless already covered by an NPDES permit); and,
- k. Particulate matter or visible deposits of residuals from roof stacks/vents evident in the storm water outflow.

3. Site Map (see Section X.E).

G. Requirements for Annual NEC Coverage Recertification

By October 1 of each reporting year beginning in 2015, any Discharger who has previously registered for NEC coverage shall either submit and certify an NEC demonstrating that the facility has been evaluated, and that none of the Industrial Materials or Activities listed above are, or will be in the foreseeable future, exposed to precipitation, or apply for NOI coverage.

H. NEC Certification Statement

All NEC certifications and re-certifications shall include the following certification statement:

I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of 'no exposure' and obtaining an exclusion from NPDES storm water permitting; and that there are no discharges of storm water contaminated by exposure to industrial activities

or materials from the industrial facility identified in this document (except as allowed in subsection C above). I understand that I am obligated to submit a no exposure certification form annually to the State Water Board and, if requested, to the operator of the local Municipal Separate Storm Sewer System (MS4) into which this facility discharges (where applicable). I understand that I must allow the Water Board staff, or MS4 operator where the discharge is into the local MS4, to perform inspections to confirm the condition of no exposure and to make such inspection reports publicly available upon request. I understand that I must obtain coverage under an NPDES permit prior to any point source discharge of storm water from the facility. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly involved in gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

XVIII. SPECIAL REQUIREMENTS - PLASTIC MATERIALS

- A.** Facilities covered under this General Permit that handle Plastic Materials are required to implement BMPs to eliminate discharges of plastic in storm water in addition to the other requirements of this General Permit that are applicable to all other Industrial Materials and Activities. Plastic Materials are virgin and recycled plastic resin pellets, powders, flakes, powdered additives, regrind, dust, and other similar types of preproduction plastics with the potential to discharge or migrate off-site. Any Dischargers' facility handling Plastic Materials will be referred to as Plastics Facilities in this General Permit. Any Plastics Facility covered under this General Permit that manufactures, transports, stores, or consumes these materials shall submit information to the State Water Board in their PRDs, including the type and form of plastics, and which BMPs are implemented at the facility to prevent illicit discharges. Pursuant to Water Code section 13367, Plastics Facilities are subject to mandatory, minimum BMPs.
1. At a minimum, Plastics Facilities shall implement and include in the SWPPP:
 - a. Containment systems at each on-site storm drain discharge location down gradient of areas containing plastic material. The containment system shall be designed to trap all particles retained by a 1mm mesh screen, with a treatment capacity of no less than the peak flow rate from a one-year, one-hour storm.
 - b. When a containment system is infeasible, or poses the potential to cause an illicit discharge, the facility may propose a technically feasible

alternative BMP or suite of BMPs. The alternative BMPs shall be designed to achieve the same or better performance standard as a 1mm mesh screen with a treatment capacity of the peak flow rate from a one-year, one-hour storm. Alternative BMPs shall be submitted to the Regional Water Board for approval.

- c. Plastics Facilities shall use durable sealed containers designed not to rupture under typical loading and unloading activities at all points of plastic transfer and storage.
 - d. Plastics Facilities shall use capture devices as a form of secondary containment during transfers, loading, or unloading Plastic Materials. Examples of capture devices for secondary containment include, but are not limited to catch pans, tarps, berms or any other device that collects errant material.
 - e. Plastics Facilities shall have a vacuum or vacuum-type system for quick cleanup of fugitive plastic material available for employees.
 - f. Pursuant to Water Code section 13367(e)(1), Plastics Facilities that handle Plastic Materials smaller than 1mm in size shall develop a containment system designed to trap the smallest plastic material handled at the facility with a treatment capacity of at least the peak flow rate from a one-year, one-hour storm, or develop a feasible alternative BMP or suite of BMPs that are designed to achieve a similar or better performance standard that shall be submitted to the Regional Water Board for approval.
2. Plastics Facilities are exempt from the Water Code requirement to install a containment system under section 13367 of the Water Code if they meet one of the following requirements that are determined to be equal to, or exceed the performance requirements of a containment system:
- a. The Discharger has certified and submitted via SMARTS a valid No Exposure Certification (NEC) in accordance with Section XVII; or
 - b. Plastics Facilities are exempt from installing a containment system, if the following suite of eight (8) BMPs is implemented. This combination of BMPs is considered to reduce or prevent the discharge of plastics at a performance level equivalent to or better than the 1mm mesh and flow standard in Water Code section 13367(e)(1).
 - i. Plastics Facilities shall annually train employees handling Plastic Materials. Training shall include environmental hazards of plastic discharges, employee responsibility for corrective actions to prevent errant Plastic Materials, and standard procedures for containing, cleaning, and disposing of errant Plastic Materials.

- ii. Plastics Facilities shall immediately fix any Plastic Materials containers that are punctured or leaking and shall clean up any errant material in a timely manner.
- iii. Plastics Facilities shall manage outdoor waste disposal of Plastic Materials in a manner that prevents the materials from leaking from waste disposal containers or during waste hauling.
- iv. Plastics Facilities that operate outdoor conveyance systems for Plastic Materials shall maintain the system in good operating condition. The system shall be sealed or filtered in such a way as to prevent the escape of materials when in operation. When not in operation, all connection points shall be sealed, capped, or filtered so as to not allow material to escape. Employees operating the conveyance system shall be trained how to operate in a manner that prevents the loss of materials such as secondary containment, immediate spill response, and checks to ensure the system is empty during connection changes.
- v. Plastics Facilities that maintain outdoor storage of Plastic Materials shall do so in a durable, permanent structure that prevents exposure to weather that could cause the material to migrate or discharge in storm water.
- vi. Plastics Facilities shall maintain a schedule for regular housekeeping and routine inspection for errant Plastic Materials. The Plastics Facility shall ensure that their employees follow the schedule.
- vii. PRDs shall include the housekeeping and routine inspection schedule, spill response and prevention procedures, and employee training materials regarding plastic material handling.
- viii. Plastics Facilities shall correct any deficiencies in the employment of the above BMPs that result in errant Plastic Materials that may discharge or migrate off-site in a timely manner. Any Plastic Materials that are discharged or that migrate off-site constitute an illicit discharge in violation of this General Permit.

XIX. REGIONAL WATER BOARD AUTHORITIES

- A.** The Regional Water Boards may review a Discharger’s PRDs for NOI or NEC coverage and administratively reject General Permit coverage if the PRDs are deemed incomplete. The Regional Water Boards may take actions that include rescinding General Permit coverage, requiring a Discharger to revise and re-submit their PRDs (certified and submitted by the Discharger) within a specified time period, requiring the Discharger to apply for different General Permit coverage or a different individual or general permit, or taking no action.
- B.** The Regional Water Boards have the authority to enforce the provisions and requirements of this General Permit. This includes, but is not limited to,

reviewing SWPPPs, Monitoring Implementation Plans, ERA Reports, and Annual Reports, conducting compliance inspections, and taking enforcement actions.

- C. As appropriate, the Regional Water Boards may issue NPDES storm water general or individual permits to a Discharger, categories of Dischargers, or Dischargers within a watershed or geographic area. Upon issuance of such NPDES permits, this General Permit shall no longer regulate the affected Discharger(s).
- D. The Regional Water Boards may require a Discharger to revise its SWPPP, ERA Reports, or monitoring programs to achieve compliance with this General Permit. In this case, the Discharger shall implement these revisions in accordance with a schedule provided by the Regional Water Board.
- E. The Regional Water Boards may approve requests from a Discharger to include co-located, but discontinuous, industrial activities within the same facility under a single NOI or NEC coverage.
- F. Consistent with 40 Code of Federal Regulations section 122.26(a)(9)(i)(D), the Regional Water Boards may require any discharge that is not regulated by this General Permit, that is determined to contribute to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States, to be covered under this General Permit as appropriate. Upon designation, the Discharger responsible for the discharge shall obtain coverage under this General Permit.
- G. The Regional Water Boards may review a Discharger's Inactive Mining Operation Certification and reject it at any time if the Regional Water Board determines that access to the facility for monitoring purposes is practicable or that the facility is not in compliance with the applicable requirements of this General Permit.
- H. All Regional Water Board actions that modify a Discharger's obligations under this General Permit must be in writing and should also be submitted in SMARTS.

XX. SPECIAL CONDITIONS

A. Reopener Clause

This General Permit may be reopened and amended to incorporate TMDL-related provisions. This General Permit may also be modified, revoked and reissued, or terminated for cause due to promulgation of amended regulations, water quality control plans or water quality control policies, receipt of U.S. EPA guidance concerning regulated activities, judicial decision, or in accordance with 40 Code of Federal Regulations sections 122.62, 122.63, 122.64, and 124.5.

B. Water Quality Based Corrective Actions

1. Upon determination by the Discharger or written notification by the Regional Water Board that industrial storm water discharges and/or authorized NSWDS contain pollutants that are in violation of Receiving Water Limitations (Section VI), the Discharger shall:
 - a. Conduct a facility evaluation to identify pollutant source(s) within the facility that are associated with industrial activity and whether the BMPs described in the SWPPP have been properly implemented;
 - b. Assess the facility's SWPPP and its implementation to determine whether additional BMPs or SWPPP implementation measures are necessary to reduce or prevent pollutants in industrial storm water discharges to meet the Receiving Water Limitations (Section VI); and,
 - c. Certify and submit via SMARTS documentation based upon the above facility evaluation and assessment that:
 - i. Additional BMPs and/or SWPPP implementation measures have been identified and included in the SWPPP to meet the Receiving Water Limitations (Section VI); or
 - ii. No additional BMPs or SWPPP implementation measures are required to reduce or prevent pollutants in industrial storm water discharges to meet the Receiving Water Limitations (Section VI).
2. The Regional Water Board may reject the Dischargers water quality based corrective actions and/or request additional supporting documentation.

C. Requirements for Dischargers Claiming “No Discharge” through the Notice of Non-Applicability (NONA)

1. For the purpose of the NONA, the Entity (Entities) is referring to the person(s) defined in section 13399.30 of the Water Code.
2. Entities who are claiming “No Discharge” through the NONA shall meet the following eligibility requirements:
 - a. The facility is engineered and constructed to have contained the maximum historic precipitation event (or series of events) using the precipitation data collected from the National Oceanic and Atmospheric Agency's website (or other nearby precipitation data available from other government agencies) so that there will be no discharge of industrial storm water to waters of the United States; or,
 - b. The facility is located in basins or other physical locations that are not hydrologically connected to waters of the United States.
3. When claiming the “No Discharge” option, Entities shall submit and certify via SMARTS both the NONA and a No Discharge Technical Report. The No

Discharge Technical Report shall demonstrate the facility meets the eligibility requirements described above.

4. The No Discharge Technical Report shall be signed (wet signature and license number) by a California licensed professional engineer.

XXI. STANDARD CONDITIONS

A. Duty to Comply

Dischargers shall comply with all standard conditions in this General Permit. Permit noncompliance constitutes a violation of the Clean Water Act and the Water Code and is grounds for enforcement action and/or removal from General Permit coverage.

Dischargers shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions.

B. Duty to Reapply

Dischargers that wish to continue an activity regulated under this General Permit after the expiration date of this General Permit shall apply for and obtain authorization from the Water Boards as required by the new general permit once it is issued.

C. General Permit Actions

1. This General Permit may be modified, revoked and reissued, or terminated for cause. Submittal of a request by the Discharger for General Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not annul any General Permit condition.
2. If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge, and that standard or prohibition is more stringent than any limitation on the pollutant in this General Permit, this General Permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition.

D. Need to Halt or Reduce Activity Not a Defense

In an enforcement action, it shall not be a defense for a Discharger that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this General Permit.

E. Duty to Mitigate

Dischargers shall take all responsible steps to reduce or prevent any discharge that has a reasonable likelihood of adversely affecting human health or the environment.

F. Proper Operation and Maintenance

Dischargers shall at all times properly operate and maintain any facilities and systems of treatment and control (and related equipment and apparatuses) which are installed or used by the Discharger to achieve compliance with the conditions of this General Permit. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance may require the operation of backup or auxiliary facilities or similar systems installed by a Discharger when necessary to achieve compliance with the conditions of this General Permit.

G. Property Rights

This General Permit does not convey any property rights of any sort or any exclusive privileges. It also does not authorize any injury to private property or any invasion of personal rights, nor does it authorize any infringement of federal, state, or local laws and regulations.

H. Duty to Provide Information

Upon request by the relevant agency, Dischargers shall provide information to determine compliance with this General Permit to the Water Boards, U.S. EPA, or local Municipal Separate Storm Sewer System (MS4) within a reasonable time. Dischargers shall also furnish, upon request by the relevant agency, copies of records that are required to be kept by this General Permit.

I. Inspection and Entry

Dischargers shall allow the Water Boards, U.S. EPA, and local MS4 (including any authorized contractor acting as their representative), to:

1. Enter upon the premises at reasonable times where a regulated industrial activity is being conducted or where records are kept under the conditions of this General Permit;
2. Access and copy at reasonable times any records that must be kept under the conditions of this General Permit;
3. Inspect the facility at reasonable times; and,
4. Sample or monitor at reasonable times for the purpose of ensuring General Permit compliance.

J. Monitoring and Records

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
2. If Dischargers monitor any pollutant more frequently than required, the results of such monitoring shall be included in the calculation and reporting of the data submitted.
3. Records of monitoring information shall include:
 - a. The date, exact location, and time of sampling or measurement;
 - b. The date(s) analyses were performed;
 - c. The individual(s) that performed the analyses;
 - d. The analytical techniques or methods used; and,
 - e. The results of such analyses.
4. Dischargers shall retain, for a period of at least five (5) years, either a paper or electronic copy of all storm water monitoring information, records, data, and reports required by this General Permit. Copies shall be available for review by the Water Board's staff at the facility during scheduled facility operating hours.
5. Upon written request by U.S. EPA or the local MS4, Dischargers shall provide paper or electronic copies of Annual Reports or other requested records to the Water Boards, U.S. EPA, or local MS4 within ten (10) days from receipt of the request.

K. Electronic Signature and Certification Requirements

1. All Permit Registration Documents (PRDs) for NOI and NEC coverage shall be certified and submitted via SMARTS by the Discharger's Legally Responsible Person (LRP). All other documents may be certified and submitted via SMARTS by the LRP or by their designated Duly Authorized Representative.
2. When a new LRP or Duly Authorized Representative is designated, the Discharger shall ensure that the appropriate revisions are made via SMARTS. In unexpected or emergency situations, it may be necessary for the Discharger to directly contact the State Water Board's Storm Water Section to register for SMARTS account access in order to designate a new LRP.
3. Documents certified and submitted via SMARTS by an unauthorized or ineligible LRP or Duly Authorized Representative are invalid.

4. LRP eligibility is as follows:
 - a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
 - i. A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function; or
 - ii. The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
 - c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. This includes the chief executive officer of the agency or the senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA).
5. Duly Authorized Representative eligibility is as follows:
 - a. The Discharger must authorize via SMARTS any person designated as a Duly Authorized Representative;
 - b. The authorization shall specify that a person designated as a Duly Authorized Representative has responsibility for the overall operation of the regulated facility or activity, such as a person that is a manager, operator, superintendent, or another position of equivalent responsibility, or is an individual who has overall responsibility for environmental matters for the company; and,
 - c. The authorization must be current (it has been updated to reflect a different individual or position) prior to any report submittals, certifications, or records certified by the Duly Authorized Representative.

L. Certification

Any person signing, certifying, and submitting documents under Section XXI.K above shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

M. Anticipated Noncompliance

Dischargers shall give advance notice to the Regional Water Board and local MS4 of any planned changes in the industrial activity that may result in noncompliance with this General Permit.

N. Penalties for Falsification of Reports

Clean Water Act section 309(c)(4) provides that any person that knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this General Permit, including reports of compliance or noncompliance shall upon conviction, be punished by a fine of not more than \$10,000 or by imprisonment for not more than two years or by both.

O. Oil and Hazardous Substance Liability

Nothing in this General Permit shall be construed to preclude the initiation of any legal action or relieve the Discharger from any responsibilities, liabilities, or penalties to which the Discharger is or may be subject to under section 311 of the Clean Water Act.

P. Severability

The provisions of this General Permit are severable; if any provision of this General Permit or the application of any provision of this General Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this General Permit shall not be affected thereby.

Q. Penalties for Violations of Permit Conditions

1. Clean Water Act section 309 provides significant penalties for any person that violates a permit condition implementing sections 301, 302, 306, 307, 308, 318, or 405 of the Clean Water Act or any permit condition or limitation implementing any such section in a permit issued under section 402. Any

person that violates any permit condition of this General Permit is subject to a civil penalty not to exceed \$37,500²² per calendar day of such violation, as well as any other appropriate sanction provided by section 309 of the Clean Water Act.

2. The Porter-Cologne Water Quality Control Act also provides for civil and criminal penalties, which may be greater than penalties under the Clean Water Act.

R. Transfers

Coverage under this General Permit is non-transferrable. When operation of the facility has been transferred to another entity, or a facility is relocated, new PRDs for NOI and NEC coverage must be certified and submitted via SMARTS prior to the transfer, or at least seven (7) days prior to the first day of operations for a relocated facility.

S. Continuation of Expired General Permit

If this General Permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with 40 Code of Federal Regulations 122.6 and remain in full force and effect.

²² May be further adjusted in accordance with the Federal Civil Penalties Inflation Adjustment Act.

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FACT SHEET FOR
STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
NPDES NO. CAS000001**

*The factsheet to the IGP was updated in January 2015 to correct typographical errors. The deadline listed in Section I.D.13 (page 8) and Section II.G.1 (page 27) of the factsheet for dischargers with outfalls to ocean waters to develop and implement a monitoring program in compliance with the California Ocean Plan model monitoring provisions was corrected to July 1, 2015, which is the deadline listed in finding 44 in the general order.

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I. BACKGROUND

A. Purpose

The purpose of this Fact Sheet is to explain the legal requirements and technical rationale that serve as the basis for the requirements of this Order 2014-0057-DWQ (General Permit), adopted by the State Water Resources Control Board (State Water Board) on April 1, 2014. This General Permit regulates operators of facilities subject to storm water permitting (Dischargers), that discharge storm water associated with industrial activity (industrial storm water discharges). This General Permit replaces Water Quality Order 97-03-DWQ. This Fact Sheet does not contain any independently-enforceable requirements; the General Permit contains all of the actual requirements applicable to Dischargers. In case of any conflict between the Fact Sheet and the General Permit, the terms of the General Permit govern.

B. History

The Federal Clean Water Act (CWA)¹ prohibits discharges from point sources to waters of the United States, unless the discharges are in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. (CWA § 301(a).) In 1987, the CWA was amended to establish a framework for regulating municipal storm water discharges and discharges of storm water associated with industrial activity (industrial storm water discharges) under the NPDES program. (CWA § 402(p).) In 1990, the United States Environmental Protection Agency (U.S. EPA) promulgated regulations, commonly known as Phase I, establishing application requirements for storm water permits for specified categories of industries. (40 C.F.R. § 122.26.) In 1992, U.S. EPA revised the monitoring requirements for industrial storm water discharges. (40 C.F.R. § 122.44(i)(2), (4), (5).) In 1999, U.S. EPA adopted additional storm water regulations, known as Phase II. (64 Fed. Reg. 68722.) The Phase II regulations provide for, among other things, a conditional exclusion from NPDES permitting requirements for industrial activities that have no exposure to storm water.

Industrial storm water discharges are regulated pursuant to CWA section 402(p)(3)(A). This provision requires NPDES permits for industrial storm water discharges to implement CWA section 301, which includes requirements for Dischargers to comply with technology-based effluent limitations, and any more stringent water quality-based limitations necessary to meet water quality standards. Technology-based effluent limitations applicable to industrial activities are based on best conventional pollutant control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants. (CWA § 301(b)(1)(A) and (2)(A).) To ensure compliance with water quality standards, NPDES permits may also require a Discharger to implement best management practices (BMPs). 40 Code of Federal Regulations section 122.44(k)(4) requires the use of BMPs to control or abate the discharge of pollutants when numeric effluent limitations (NELs) are infeasible. The State Water Board has concluded that it is infeasible to establish

¹ Federal Water Pollution Control Act of 1970 (also referred to as the Clean Water Act or CWA), 33 U.S.C. § 1201 et seq. All further statutory references herein are to the CWA unless otherwise indicated.

NELs for storm water discharges associated with industrial activity due to insufficient information at the time of adoption of this General Permit.

On April 17, 1997, the State Water Board issued NPDES General Permit for Industrial Storm Water Discharges, Excluding Construction Activities, Water Quality Order 97-03-DWQ (previous permit). This General Permit, Order 2014-0057-DWQ rescinds the previous permit and serves as the statewide general permit for industrial storm water discharges. The State Water Board concludes that significant revisions to the previous permit requirements are necessary for implementation, consistency and objective enforcement. As discussed in this Fact Sheet, this General Permit requires Dischargers to:

- Eliminate unauthorized non-storm water discharges (NSWDs);
- Develop and implement storm water pollution prevention plans (SWPPPs) that include best management practices (BMPs);
- Implement minimum BMPs, and advanced BMPs as necessary, to achieve compliance with the effluent and receiving water limitations of this General Permit;
- Conduct monitoring, including visual observations and analytical storm water monitoring for indicator parameters;
- Compare monitoring results for monitored parameters to applicable numeric action levels (NALs) derived from the U.S. EPA 2008 Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity (2008 MSGP) and other industrial storm water discharge monitoring data collected in California;
- Perform the appropriate Exceedance Response Actions (ERAs) when there are exceedances of the NALs; and,
- Certify and submit all permit-related compliance documents via the Storm Water Multiple Application and Report Tracking System (SMARTS). Dischargers shall certify and submit these documents which include, but are not limited to, Permit Registration Documents (PRDs) including Notices of Intent (NOIs), No Exposure Certifications (NECs), and Storm Water Pollution Prevention Plans (SWPPPs), as well as Annual Reports, Notices of Termination (NOTs), Level 1 ERA Reports, and Level 2 ERA Technical Reports.

C. Blue Ribbon Panel of Experts (Panel)

In 2005 and 2006, the State Water Board convened a Blue Ribbon Panel of Experts (Panel) to address the feasibility of NELs in California's storm water permits. Specifically, the Panel was charged with answering the following questions:

Is it technically feasible to establish numeric effluent limitations, or some other quantifiable limit, for inclusion in storm water permits?

How would such limitations or criteria be established, and what information and data would be required?²

The Panel was directed to answer these questions for industrial storm water discharge general permits, construction storm water discharge general permits, and area-wide municipal storm water discharge permits. The Panel was also directed to address both technology-based and water quality based limitations and criteria.

In evaluating the establishment of numeric limitations and criteria, the Panel was directed to consider all of the following:

- The ability of the State Water Board to establish appropriate objective limitations or criteria;
- How compliance is to be determined;
- The ability of Dischargers and inspectors to monitor for compliance; and
- The technical and financial ability of Dischargers to comply with the limitations or criteria.

Following an opportunity for public comment, the Panel identified several water quality concerns, public process and program effectiveness issues. A summary of the Panel's recommendations regarding industrial storm water discharges follows:³

- Current data are inadequate; accordingly, the State Water Board should improve monitoring requirements to collect useful data for establishing NALs and NELs.
- Required parameters for further monitoring should be consistent with the type of industrial activity (i.e., monitor for heavy metals when there is a reasonable expectation that the industrial activity will contribute to increased heavy metals concentrations in storm water).
- Insofar as possible, the use of California data (or national data applicable to California) is preferred when setting NELs and NALs.
- Industrial facilities that do not discharge to Municipal Separate Storm Sewer Systems (MS4s) should implement BMPs for their non-industrial exposure (e.g., parking lots, roof runoff) similar to BMPs implemented by commercial facilities in MS4 jurisdictions.

² State Water Board Storm Water Panel of Experts, The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities (June 19, 2006). http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/numeric/swpanel_final_report.pdf. [as of February 4, 2014].

³ See footnote 2.

- In all cases, Dischargers should implement a suite of minimum BMPs, including, but not limited to, good housekeeping practices, employee training, and preventing exposure of materials to rain.
- Standard Industrial Classification (SIC) code categories are not a satisfactory way of identifying industrial activities at any given site. The State Water Board should develop an improved method of characterizing industrial activities that will improve water quality in storm water.
- Recognizing that implementing the Panel’s suggested changes is a large task, the State Water Board should set priorities for implementation of the Panel’s suggested approach in order to achieve the greatest reduction of pollutants statewide.
- Recognizing that an increasing number of industries have moved industrial activities indoors to prevent storm water pollution, such facilities should be granted regulatory relief from NALs and/or NELs , but should still be required to comply with any applicable MS4 permit requirements.
- Recognizing the need for improved monitoring and reduction of pollutants in industrial storm water discharges, the State Water Board should consider the total economic impact of its requirements to not economically penalize California industries when compared to industries outside of California.

With regard to the industrial activities component of its charge, the Panel limited its focus to the question of whether sampling data can be used to derive technology-based NELs. The Panel did not address other factors or approaches that may relate to the task of determining technology- and water quality-based NELs consistent with the regulations and law. Examples of these other factors are discussed in more detail in this Fact Sheet. Additionally, in its final report the Panel did not clearly differentiate between the role of numeric and non-numeric effluent limitations, nor did it consider U.S. EPA procedures used to promulgate effluent limitation guidelines (ELGs) in 40 Code of Federal Regulations, Chapter I, Subchapter N (Subchapter N).

D. Summary of Significant Changes in this General Permit

The previous permit issued by the State Water Board on April 17, 1997, had been administratively extended since 2002 until the adoption of this General Permit. Significant revisions to the previous permit were necessary to update permit requirements consistent with recent regulatory changes pertaining to industrial storm water under the CWA. This General Permit differs from the previous permit in the following areas:

1. Minimum Best Management Practices (BMPs)

This General Permit requires Dischargers to implement a set of minimum BMPs. Implementation of the minimum BMPs, in combination with any advanced BMPs (BMPs, collectively,) necessary to reduce or prevent pollutants in industrial storm water discharges, serve as the basis for compliance with this General Permit’s

technology-based effluent limitations and water quality based receiving water limitations. Although there is great variation in industrial activities and pollutant sources between industrial sectors and, in some cases between operations within the same industrial sector, the minimum BMPs specified in this General Permit represent common practices that can be implemented by most facilities.

The previous permit did not require a minimum set of BMPs but rather allowed Dischargers to consider which non-structural BMPs should be implemented and which structural BMPs should be considered for implementation when non-structural BMPs are ineffective.

This General Permit requires Dischargers to implement minimum BMPs (which are mostly non-structural BMPs), and advanced BMPs (which are mostly structural BMPs) when implementation of the minimum BMPs do not meet the requirements of the General Permit. Advanced BMPs consists of treatment control BMPs, exposure reduction BMPs, and storm water containment and discharge reduction BMPs. BMPs that exceed the performance expectation of minimum BMPs are considered advanced BMPs. Dischargers are encouraged to utilize advanced BMPs that infiltrate or reuse storm water where feasible.

The minimum and advanced BMPs required in this General Permit are consistent with U.S. EPA's 2008 Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (2008 MSGP), guidance developed by the California Stormwater Quality Association, and recommendations by Regional Water Quality Control Board (Regional Water Board) inspectors. Dischargers are required to evaluate BMPs being implemented and determine an appropriate interval for the implementation and inspection of these BMPs.

2. Conditional Exclusion - No Exposure Certification (NEC)

This General Permit applies U.S. EPA Phase II regulations regarding a conditional exclusion for facilities that have no exposure of industrial activities and materials to storm water. (40 C.F.R. § 122.26(g).) (The previous permit required light industries to obtain coverage only if their activities were exposed to storm water.) This General Permit implements current U.S. EPA rules allowing any type of industry to claim a conditional exclusion. The NEC requires enrollment for coverage prior to conditionally excluding a Discharger from a majority of this General Permit's requirements.

3. Electronic Reporting Requirements

This General Permit requires Dischargers to submit and certify all reports electronically via SMARTS. The previous permit used a paper reporting process with electronic reporting as an option.

4. Training Expectations and Roles

This General Permit requires that Dischargers arrange to have appropriately trained personnel implementing this General Permit's requirements at each facility. In

addition, if a Discharger's facility enters Level 1 status, the Level 1 ERA Report must be prepared by a Qualified Industrial Storm Water Practitioner (QISP). All Action Plans and Technical Reports required in Level 2 status must also be prepared by a QISP.

Dischargers may appoint a staff person to complete the QISP training or may contract with an outside QISP. QISP training is tailored to persons with a high degree of technical knowledge and environmental experience. Although QISPs do not need to be California licensed professional engineers, it may be necessary to involve a California licensed professional engineer to perform certain aspects of the Technical Reports.

5. Numeric Action Levels (NALs) and NAL Exceedances

This General Permit contains two types of NAL exceedances. An annual NAL exceedance occurs when the average of all sampling results within a reporting year for a single parameter (except pH) exceeds the applicable annual NAL. The annual NALs are derived from, and function similarly to, the benchmark values provided in the 2008 MSGP. Instantaneous maximum NALs target hot spots or episodic discharges of pollutants. An instantaneous maximum NAL exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the applicable instantaneous maximum NAL value. Instantaneous maximum NALs for Total Suspended Solids (TSS) and Oil and Grease (O&G) are based on previously gathered California industrial storm water discharge monitoring data. The instantaneous maximum NAL for pH is derived from the benchmark value provided in the 2008 MSGP.

6. Exceedance Response Actions (ERA)

This General Permit requires Dischargers to develop and implement ERAs, when an annual NAL or instantaneous maximum NAL exceedance occurs during a reporting year. The first time an annual NAL or instantaneous maximum NAL exceedance occurs for any one parameter, a Discharger's status is changed from Baseline to Level 1 status, and the Discharger is required to evaluate and revise, as necessary, its BMPs (with the assistance of a QISP) and submit a report prepared by a QISP. The second time an annual NAL or instantaneous maximum NAL exceedance occurs for the same parameter in a subsequent reporting year, the Discharger's status is changed from Level 1 to Level 2 status, and Dischargers are required to submit a Level 2 ERA Action Plan and a Level 2 ERA Technical Report. Unless the demonstration is not accepted by the State Water Board or a Regional Water Board, the Discharger is not required to perform additional ERA requirements for the parameter(s) involved if the Discharger demonstrates that:

- a. Additional BMPs required to eliminate NAL exceedances are not technologically available or economically practicable and achievable; or,
- b. NAL exceedances are solely caused by non-industrial pollutant sources; or,

- c. NAL exceedances are solely attributable to pollutants from natural background sources.

Information supporting the above demonstrations must be included in QISP-prepared Level 2 ERA Technical Reports.

7. CWA section 303(d) Impairment

This General Permit requires a Discharger to monitor additional parameters if the discharge(s) from its facility contributes pollutants to receiving waters that are listed as impaired for those pollutants (CWA section 303(d) listings). This General Permit lists the receiving waters that are 303(d) listed as impaired for pollutants that are likely to be associated with industrial storm water in Appendix 3. For example, if a Discharger discharges to a water body that is listed as impaired for copper, and the discharge(s) from its facility has the potential sources of copper, the Discharger must add copper to the list of parameters to monitor in its storm water discharge.

8. Design Storm Standards for Treatment Control BMPs

This General Permit includes design storm standards for Dischargers implementing treatment control BMPs. The design storm standards include both volume- and flow-based criteria. Dischargers are not required to retrofit existing treatment control BMPs unless required to meet the technology-based effluent limitations and receiving water limitations in this General Permit.

9. Qualifying Storm Event (QSE)

This General Permit defines a QSE as a precipitation event that:

- a. Produces a discharge for at least one drainage area; and,
- b. Is preceded by 48 hours with no discharge from any drainage area.

The definition above differs from the definition in the previous permit, resulting in an increase number of QSEs eligible for sample collection. Therefore, most Dischargers will be able to collect the required number of samples, regardless of their facility location.

10. Sampling Protocols

This General Permit requires Dischargers to collect samples during scheduled facility operating hours from each drainage location within four hours of: (1) the start of the discharge from a QSE occurring during scheduled facility operating hours, or (2) the start of scheduled facility operating hours if the QSE occurred in the previous twelve (12) hours. The benefits of this sampling protocol: (a) allows a more reasonable amount of time to collect samples, (b) increases the likelihood for samples collected at discharge locations to be representative of the drainage area discharge characteristics, (c) increases the number of QSEs eligible for sample collection, and, (d) reduces the likelihood of Dischargers collecting samples with short-term concentration spikes.

The previous permit required that Dischargers collect grab samples during the first hour of discharge that commenced during scheduled facility operating hours. These sample collection requirements were widely considered to be too rigid and out of step with other states' sample collection requirements. Since many storm events begin in the evening or early morning hours, numerous opportunities to collect samples were lost because Dischargers could not obtain samples during the first hour of discharge. Dischargers with facilities that have multiple discharge locations had difficulties collecting samples within such a short timeframe therefore affecting data quality.

11. Sampling Frequency

This General Permit increases the sampling frequency by requiring the Discharger to collect and analyze storm water samples from each discharge location for two (2) QSEs within the first half of each reporting year (July 1 to December 31), and two (2) QSEs within the second half of each reporting year (January 1 to June 30). The increased sampling, compared to the previous permit's two samples during the wet season, is consistent with the 2008 MSGP and other states' permit requirements and will improve compliance determination with this General Permit. The State Water Board expects that the elimination of the wet season sampling requirements will increase the number of possible QSEs eligible for monitoring.

12. Compliance Groups

To allow industrial facilities to efficiently share knowledge, skills and resources towards achieving General Permit compliance, this General Permit allows the formation of Compliance Groups and Compliance Group Leaders. Dischargers participating in a Compliance Group (Compliance Group Participants) are collectively required to sample twice a year. Compliance Group Leaders are required to be approved through the State Water Board-approved training program process, inspect each facility once within each reporting year, and prepare Level 1 and Level 2 ERA reports as necessary. The Compliance Group option is described in more detail in General Permit section XIV and in this Fact Sheet in the Section titled "Compliance Groups."

13. Discharges to Ocean Waters

This General Permit requires Dischargers with ocean-discharging outfalls subject to model monitoring provisions of the California Ocean Plan to develop and implement a monitoring plan in compliance with those provisions and any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers who have not developed and implemented a monitoring program in compliance with the California Ocean Plan model monitoring provisions by July 1, 2015 or seven (7) days prior to commencing operations, whichever is later, are ineligible to obtain coverage under this General Permit.

II. TECHNICAL RATIONALE FOR REQUIREMENTS IN THIS GENERAL PERMIT

A. Receiving General Permit Coverage

1. This General Permit provides regulatory coverage for new and existing industrial storm water discharges and authorized NSWDS from:
 - a. Facilities required by federal regulations to obtain an NPDES permit;
 - b. Facilities designated by the Regional Water Boards to obtain an NPDES permit; and,
 - c. Facilities directed by the Regional Water Boards to obtain coverage specifically under this General Permit. The Regional Water Board typically directs a Discharger to change General Permit coverage under two circumstances:
 - (1) switch from an individual NPDES permit to this General Permit, or
 - (2) switch from the NPDES General Permit for Storm Water Discharges Associated with Construction And Land Disturbance Activities, (Order 2009-0009-DWQ, NPDES No CAS000002) to this General Permit for long-term construction related activities that are similar to industrial activities (e.g. concrete batch plants).

40 Code of Federal Regulations section 122.26(b)(14) defines "storm water discharge associated with industrial activity" and describes the types of facilities subject to permitting (primarily by Standard Industrial Classification (SIC) code). This General Permit provides regulatory coverage for all facilities with industrial activities described in Attachment A where the covered industrial activity is the Discharger's primary industrial activity. In some instances, a Discharger may have more than one primary industrial activity occurring at a facility.

The 1987 SIC manual uses the term "establishment" to determine the primary economic activity of a facility. The manual instructs that where distinct and separate economic activities are performed at a single location, each activity should be treated as a separate establishment (and, therefore, separate primary activity). For example, the United States Navy (primary SIC code 9711) may conduct industrial activities subject to permitting under this General Permit, such as landfill operations (SIC code 4953), ship and boat building and repair (SIC code 3731, and flying field operations (SIC code 4581).

The SIC manual also discusses "auxiliary" functions of establishments. Auxiliary functions provide management or support services to the establishment. Examples of auxiliary functions are warehouses and storage facilities for the establishment's own materials, maintenance and repair shops of the establishment's own machinery, automotive repair shops or storage garages of the establishment's own vehicles, administrative offices, research, development, field engineering support, and testing conducted for the establishment. When auxiliary functions are performed at physically separate facilities from the establishment they serve, they generally are not subject to General Permit coverage. If

auxiliary functions are performed at the same physical location as the establishment, then they are subject to General Permit coverage if they are associated with industrial activities.

This clarification does not change the scope of which facilities are subject to permitting relative to the 1997 IGP. The 1997 IGP Fact Sheet had used the term “auxiliary” to describe a facility’s separate primary activities, which has caused confusion.

In 1997, the North American Industrial Classification System (NAICS) was published, replacing the SIC code system. The U.S. EPA has indicated that it intends to incorporate the NAICS codes into the federal storm water regulations but has not done so yet. The State Water Board recognizes that many Dischargers in newer industries were not included in the 1987 SIC code manual and may have difficulty determining their SIC code information. To address this transition, SMARTS has been modified to accept both SIC codes and NAICS codes, and NAICS codes are automatically translated into SIC codes. There may be instances of conflict between SIC and NAICS codes. The use of NAICS codes shall not expand or reduce the types of industries subject to this General Permit as compared to the SIC codes listed in the General Permit. State Water Board staff will work closely with the applicant to resolve these conflicts in SMARTS as they are identified. Dischargers should be aware that the use of an NAICS code which results in failure to submit any of the required PRDs under this General Permit remains a violation of the terms of this General Permit.

The facilities included in category one of Attachment A (facilities subject to Subchapter N) are subject to storm water ELGs that are incorporated into the requirements of this General Permit. Dischargers whose facilities are included in this category must examine the appropriate federal ELGs to determine the applicability of those guidelines. This General Permit contains additional requirements (Section XI.D) that apply only to facilities with storm water ELGs.

2. Types of Discharges Not Covered by this General Permit
 - a. Discharges from construction and land disturbance activities that are subject to the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit).
 - b. Discharges covered by an individual or general storm water NPDES permit. Some industrial storm water discharges may be regulated by other individual or general NPDES permits issued by the State Water Board or the Regional Water Boards (Water Boards, collectively,). This General Permit shall not regulate these discharges. When the individual or general NPDES permits for such discharges expire, the Water Boards may authorize coverage under this General Permit or another general NPDES permit, or may issue a new individual NPDES permit consistent with the federal and state storm water regulations. Interested parties may request that the State Water Board or appropriate Regional Water Board issue individual or general NPDES permits for specific discharges that, in their view are not properly regulated through this General Permit. General permits may be issued for a particular industrial group or watershed area which

would supersede this General Permit. To date, two Regional Water Board have issued such permits:

- i. The Lahontan Regional Water Board has adopted an NPDES permit and general Waste Discharge Requirements to regulate discharges from marinas and maintenance dredging (Regional Water Board Order R6T-2005-0015 - NPDES Permit No. CAG616003) in the Lake Tahoe Hydrologic Unit.
 - ii. The Santa Ana Regional Water Board adopted the Sector Specific General Permit for Stormwater Runoff Associated with Industrial Activities from Scrap Metal Recycling Facilities within the Santa Ana Region, Order R8-2012-0012, NPDES Permit No. CAG 618001 (Scrap Metal Recycling Permit). The Scrap Metal Recycling Permit is applicable to facilities within the Santa Ana Region that are listed under Standard Industrial Classification (SIC) Code 5093 and engaged in the following types of activities: (1) automotive wrecking for scrap-wholesale (this category does not include facilities engaged in automobile dismantling for the primary purpose of selling second hand parts); (2) iron and steel scrap - wholesale; (3) junk and scrap metal - wholesale; (4) metal waste and scrap - wholesale; and (5) non-ferrous metals scrap - wholesale. Other types of facilities listed under SIC Code 5093 and engaged in waste recycling are not required to get coverage under the Scrap Metal Recycling Permit. A list of covered facilities as of February 8, 2011 was included in Attachment A of the Scrap Metal Recycling Permit.
- c. Discharges that the Regional Water Boards determine to be ineligible for coverage under this General Permit. In such cases, a Regional Water Board will require the discharges be covered by another individual or general NPDES permit. The applicability of this General Permit to such discharges is terminated when the discharge is subject to another individual or general NPDES permit.
- d. Discharges that do not enter waters of the United States. These include:
- i. Discharges to municipal separate sanitary sewer systems;
 - ii. Discharges to evaporation ponds, discharges to percolation ponds, and/or any other methods used to retain and prevent industrial storm water discharges from entering waters of the United States;
 - iii. Discharges to combined sewer systems. In California, the only major combined sewer systems are located in San Francisco and downtown Sacramento. Dischargers who believe they discharge into a combined sewer system should contact the local Regional Water Board to verify discharge location; and,
 - iv. Dischargers Claiming the “No Discharge” Option in the Notice of Non-Applicability (NONA) (Fact Sheet Section II.S).
- e. Discharges from mining operations or oil and gas facilities composed entirely of flows that are from conveyances or systems of conveyances used for collecting and conveying precipitation runoff and do not come into contact with any overburden, raw materials, intermediate products, finished products, by-products, or waste products located at the facility. (33 U.S.C. § 1342(l)(2).)
- f. Discharges from facilities on Tribal Lands regulated by U.S. EPA.

3. Obtaining General Permit Coverage (Section II of this General Permit)

The State Water Board has developed the SMARTS online database system to handle registration and reporting under this General Permit. More information regarding SMARTS and access to the database is available online at <https://smarts.waterboards.ca.gov>. The State Water Board has determined that all documents related to general storm water enrollment and compliance must be certified and submitted via SMARTS by Dischargers.

This General Permit requires all Dischargers to electronically certify and submit PRDs via SMARTS to obtain: (1) regulatory coverage, or (2) to certify that there are no industrial activities exposed to storm water at the facility and obtain regulatory coverage under the NEC provision of this General Permit. Facilities that were eligible to self-certify no exposure under the previous permit (see category 10 in Attachment 1 of the previous permit) are required to certify and submit via SMARTS PRDs for NOI coverage under this General Permit by July 1, 2015 or for NEC coverage by October 1, 2015. The Water Board is estimating that 10,000 – 30,000 Dischargers may be registering for NOI or NEC coverage under this General Permit. Separate registration deadlines, one for NOI coverage and one for NEC coverage, provides Dischargers better assistance from Storm Water Helpdesk and staff.

Dischargers shall electronically certify and submit the PRDs via SMARTS for each individual facility. This requirement is intended to establish a clear accounting of the name, address, and contact information for each Discharger, as well as a description of each Discharger's facility.

The Water Boards recognize that certain information pertaining to an industrial facility may be confidential. Many Stakeholders were asking for clarification on the process the Water Boards would use to manage confidential information or the process Dischargers could use to redact such information. Dischargers may redact trade secrets information from required submittals (Section II.B.3.d). Dischargers are required to include a general description of the redacted information and the basis for the redaction. Dischargers are still required to submit complete and un-redacted versions of the information to the Water Boards within 30 days, however these versions should be clearly labeled "CONFIDENTIAL" so that the confidentiality of these documents is clear to Regional Water Board staff, even when there is a change in staff. This General Permit requires that all information provided to the Water Boards by the Discharger comply with the Homeland Security Act and other federal law that addresses security in the United States.

All Dischargers who certify and submit PRDs via SMARTS for NOI coverage on or after July 1, 2015 or for NEC coverage on or after October 1, 2015, shall immediately comply with the provisions in this General Permit.

4. General Permit Coverage for Landfills

This General Permit covers storm water discharges from landfills, land application sites, and open dumps that receive or have received industrial waste from any facility covered by this General Permit. Industrial storm water discharges from these

facilities must be covered by this General Permit unless (1) they are already covered by another NPDES permit, or (2) the Regional Water Board has determined that an NPDES permit is not required because the site has been stabilized or required closure activities have been completed.

In most cases, it is appropriate for new landfill construction or final closure to be covered by the Construction General Permit, rather than this General Permit. Questions have arisen as to what constitutes new landfill construction at an existing landfill versus the normal planned expansion of a landfill. Similarly, questions have arisen about the type of closure activities that may be subject to the Construction General Permit versus the normal closure of “cells” that occurs during continued landfill operations and are not subject to the Construction General Permit. Other questions such as whether temporary or permanent newly graded/paved roads disturbing greater than one acre at a landfill are subject to the Construction General Permit. Landfill Dischargers have asked for clarity regarding these questions. The previous permit required Dischargers to contact the Regional Water Boards to determine permit appropriateness. Site specific circumstances continue to require Dischargers to contact Regional Water Boards for final determinations.

Based upon the State Water Board’s storm water program history, there are only a handful of instances where an operating landfill has been simultaneously subject to both the construction and industrial permitting requirements. Typically a landfill is subject to the construction permitting requirements during the time the landfill is initially constructed and prior to operation. A landfill is subject to the industrial permitting requirements during landfill operations, and subject to the construction permitting requirements during final landfill closure activities.

Once a landfill begins operations, continued expansion or closure of incremental landfill cells is authorized under the industrial permitting requirements since these are normal aspects of landfill operations. These expansion/closure activities occur within a limited timeframe (often taking less than 90 days from beginning to end) and are not separately subject to additional local approval (e.g., a new building permit). Any construction or demolition of temporary non-impervious roads directly related to landfill operations are subject to the industrial permitting requirements.

Construction or closure of a separate section of the landfill that is either subject to additional permitting by the local authorities and/or lasts more than 90 days requires coverage under the Construction General Permit. Construction of permanent facility structures such as buildings and impervious parking lots or roads that disturb greater than one acre are also subject to the Construction General Permit. (Permanent facility structures are defined as any structural improvements designed to remain until the landfill is closed.)

Site specific circumstances such as proximity to nearby waterways, extent of activities, pollutants of concern, and other considerations can impact any decision as to whether a particular activity is to be regulated under this General Permit or the Construction General Permit. Regional Water Boards will continue to exercise their discretion as necessary to protect the beneficial uses of the receiving water(s).

5. General Permit Coverage for Small Municipal Separate Storm Sewer Systems (MS4s)

Section 1068 of the Intermodal Surface Transportation Efficiency Act of 1991 exempted municipal agencies serving populations of less than 100,000 from Phase I permit requirements other than sanitary landfills, power plants, and airports facilities. U.S. EPA's Phase II regulations eliminated the above exemption as of March 10, 2003. All facilities in Attachment A of this General Permit that are operated by a small municipal agency are subject to NPDES storm water permitting requirements and this General Permit.

6. Changes to General Permit Coverage

Dischargers who no longer operate a facility required to be covered under this General Permit (either NOI or NEC coverage) are required to electronically certify and submit via SMARTS a Notice of Termination (NOT). An NOT is required when there is a change in ownership of the industrial activities subject to permitting or when industrial activities subject to permitting are permanently discontinued by the Discharger at the site. When terminating NOI coverage, Dischargers may only submit an NOT once all exposure of industrial materials and equipment have been eliminated. Dischargers may not submit NOTs for temporary or seasonal facility closures. The General Permit requires Dischargers to implement appropriate BMPs to reduce or prevent pollutants in storm water discharges during the temporary facility closure.

This General Permit allows Dischargers to change General Permit coverage, as appropriate, from NOI coverage to NEC coverage or from NEC coverage to NOI coverage.

B. Discharge Prohibitions

This General Permit covers industrial storm water discharges and authorized NSWDS from industrial facilities and prohibits any discharge of materials other than storm water and authorized NSWDS (Section III and Section IV of this General Permit). It is a violation of this General Permit to discharge hazardous substances in storm water in excess of the reportable quantities established in 40 Code of Federal Regulations sections 117.3 and 302.4.

The State Water Board is authorized, under Water Code section 13377, to issue NPDES permits which apply and ensure compliance with all applicable provisions of the CWA, and any more stringent limitations necessary to implement water quality control plans, protect beneficial uses, and prevent nuisance.

C. Non-Storm Water Discharges (NSWDs)

Unauthorized NSWDS can be generated from various pollutant sources. Depending upon their quantity and location where generated, unauthorized NSWDS can discharge to the storm drain system during dry weather as well as during a storm event (comingled with storm water discharge). These NSWDS can consist of, but are not limited to; (1) waters generated by the rinsing or washing of vehicles, equipment,

buildings, or pavement, or (2) fluid, particulate or solid materials that have spilled, leaked, or been disposed of improperly.

Some NSWDs are not directly related to industrial activities and normally discharge minimal pollutants when properly managed. Section IV of this General Permit provides a limited list of NSWDs that are authorized if Dischargers implement BMPs to prevent contact with industrial materials prior to discharge. The list in Section IV is similar to the list provided in the 2008 MSGP but does not include pavement and external building surfaces washing without detergents. These two items are not included because the Discharger is responsible to reduce or prevent pollutants in storm water discharges from paved areas and buildings associated with industrial activities. Since industrial materials and non-industrial material likely co-exist, the washing of paved areas and external building surfaces may result in discharges of pollutants associated with industrial activities. In addition, washing activities generally occur during dry-weather periods when receiving water flows are lower than wet-weather periods. Wash waters are likely to discharge in higher concentrations than would occur if these pollutants were naturally discharged during a storm event. The discharge of high concentration wash water during a time of dry-weather flows is inconsistent with the goal of protecting receiving waters. These discharges are, therefore, considered unauthorized NSWDs. Similar to the 2008 MSGP, firefighting related discharges are not subject to this General Permit.

A major required element of the SWPPP is the identification and measures for elimination of unauthorized NSWDs. Unauthorized NSWDs can contribute a significant pollutant load to receiving waters. Measures to control spills, leakage, and dumping can often be addressed through BMPs. This General Permit's BMP requirements for NSWDs remain essentially unchanged from the previous permit other than the increased frequency of required visual observations from quarterly to monthly. See Section XI.A.1 of this General Permit.

D. Effluent Limitations

1. Technology-Based and Water Quality-Based Effluent Limitations

CWA Section 301(b)(1)(C) requires that discharges from existing facilities must, at a minimum, comply with technology-based effluent limitations based on the technological capability of Dischargers to control pollutants in their discharges. Discharges must also comply with any more stringent water quality-based limitations necessary to meet water quality standards in accordance with CWA Section 301(b)(1)(C). Water quality-based limitations are discussed in Section E of this Fact Sheet titled "Receiving Water Limitations." Both technology-based effluent limitations and water quality-based limitations are implemented through NPDES permits. (CWA sections 301(a) and (b).)

2. Types of Technology-Based Effluent Limitations

All NPDES permits are required to contain technology-based effluent limitations (TBELs). (40 C.F.R. §§122.44(a)(1) and 125.3.) TBELs may consist of effluent limitations guidelines (ELGs) established by U.S. EPA through regulation, or may be developed using best professional judgment on a case-by-case basis.

The CWA sets forth standards for TBELs based on the type of pollutant or the type of facility/source involved. The CWA establishes two levels of pollution control for existing sources. For the first level, existing sources that discharge pollutants directly to receiving waters were initially subject to effluent limitations based on the “best practicable control technology currently available” (BPT). (33 U.S.C. § 1314(b)(1)(B).) BPT applies to all pollutants. For the second level, existing sources that discharge conventional pollutants are subject to effluent limitations based on the “best conventional pollutant control technology” (BCT). (33 U.S.C. §1314(b)(4)(A); see also 40 C.F.R. §401.16 (list of conventional pollutants).) Also for the second level, other existing sources that discharge toxic pollutants or “nonconventional” pollutants (“nonconventional” pollutants are pollutants that are neither “toxic” nor “conventional”) are subject to effluent limitations based on “best available technology economically achievable” (BAT). (33 U.S.C. §1311(b)(2)(A); see also 40 C.F.R. §401.15 (list of toxic pollutants).) The factors to be considered in establishing the levels of these control technologies are specified in section 304(b) of the CWA and in U.S. EPA’s regulations at 40 C.F.R. §125.3.

When establishing ELGs for an industrial category, U.S. EPA evaluates a wide variety of technical factors to determine BPT, BCT, and BAT. U.S. EPA considers the specific factors of an industry such as pollutant sources, industrial processes, and the size and scale of operations. U.S. EPA evaluates the specific treatment, structural, and operational source control BMPs available to reduce or prevent pollutants in the discharges. The costs of implementing BMPs to address these factors are weighed against their effectiveness and ability to protect water quality. Factors such as industry economic viability, economies of scale, and retrofit costs are also considered.

To date, U.S. EPA has: (1) not promulgated storm water ELGs for most industrial categories, (2) not established NELs within all ELGs that have been promulgated, and (3) exempted certain types of facilities within an industrial category from complying with established ELGs. The feedlot category (40 Code of Federal Regulations part 412) provides an example of several of these points. In that instance, U.S. EPA did not establish numeric effluent limitations but instead: (1) established a narrative effluent limitation requiring retention of all feedlot-related runoff from a 25-year, 24-hour storm, and (2) limited application of the ELG to feedlots with a minimum number of animals. U.S. EPA also recently promulgated ELGs for the "Construction and Development (C&D)" industry, which included, among many other limitations, conditional numeric effluent limitations. Though the NELs in these ELGs were later stayed by U.S. EPA, the ELGs exempted construction sites of less than 30 acres from complying with the established numeric effluent limitations.

40 Code of Federal Regulations, Chapter I, Subchapter N (“Subchapter N”), includes over 40 separate industrial categories where the U.S. EPA has established ELGs for new and existing industrial wastewater discharges to surface waters, discharges to publicly owned treatment works (pre-treatment standards), and storm water discharges to surface waters. Generally, U.S. EPA has focused its efforts on the development of ELGs for larger industries and those industries with the greatest potential to pollute. In total, the 40 categories for which ELGs have been

established (not including construction) represent less than 10 percent of the types of facilities subject to this General Permit. Additionally, most ELGs focus on industrial process wastewater discharges and pre-treatment standards, and only 11 of the 40 categories establish numeric or narrative ELGs for industrial storm water discharges. Those that do include ELGs for industrial storm water discharges generally address storm water discharges that are generated from direct contact with primary pollutant sources at the subject facilities, and not the totality of the industrial storm water discharge from the facility, as the term “storm water discharge associated with industrial activity” for this General Order is defined in the CWA. (40 C.F.R. § 122.26(b)(14).) Where U.S. EPA has not issued effluent limitation guidelines for an industry, the State Water Board is required to establish effluent limitations for NPDES permits on a case-by-case basis based on best professional judgment (BPJ). (33 U.S.C. § 1342(a)(1); 40 C.F.R. § 125.3(c)(2).) In this General Permit, most of the TBELs are based on BPJ decision-making because no ELG applies.

The TBELs in this General Permit represent the BPT (for conventional, toxic, and non-conventional pollutants), BCT (for conventional pollutants), and BAT (for toxic pollutants and non-conventional pollutants) levels of control for the applicable pollutants. If U.S. EPA has not promulgated ELGs for an industry, or if a Discharger is discharging a pollutant not covered by the otherwise applicable ELG, the State Water Board is required to establish effluent limitations in NPDES permit limitations based on best professional judgment. (33 U.S.C. § 1342(a)(1); 40 C.F.R. 125.3(c).) This General Permit includes TBELs established on best professional judgment and limitations based on storm water-specific ELGs listed in Attachment F of this General Permit, where applicable.

3. Authority to Include Non-Numeric Technology-Based Limits in NPDES Permits

TBELs in this General Permit are based on best professional judgment and are non-numeric (“narrative”) technology-based effluent limitations expressed as requirements for implementation of effective BMPs. Federal regulations provide that permits must include BMPs to control or abate the discharge of pollutants when where “[n]umeric effluent limitations are infeasible.” 40 C.F.R. 122.44(k)(3).

Since 1977, courts have recognized that there are circumstances when numeric effluent limitations are infeasible and have held that EPA may issue permits with conditions (e.g., BMPs) designed to reduce the level of effluent discharges to acceptable levels. *Natural Res. Def. Council, Inc. v. Costle*, 568 F.2d 1369 (D.C.Cir.1977).

U.S. EPA has also interpreted the CWA to allow BMPs to take the place of numeric effluent limitations under certain circumstances. 40 C.F.R. §122.44(k), titled “Establishing limitations, standards, and other permit conditions (applicable to State NPDES programs ...),” provides that permits may include BMPs to control or abate the discharge of pollutants when: (1) “[a]uthorized under section 402(p) of the CWA for the control of stormwater discharges”; or (2) “[n]umeric effluent limitations are infeasible.” 40 C.F.R. § 122.44(k).

In 2006, The U.S. Court of Appeals for the Sixth Circuit held that the CWA does not require U.S. EPA to set numeric limits where such limits are infeasible. (*Citizens Coal Council v. United States Environmental Protection Agency*, 447 F.3d 879, 895-96 (6th Cir. 2006)). The *Citizens Coal* court cited to the statement in *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 502 (2d Cir. 2005) that “site-specific BMPs are effluent limitations under the CWA” in concluding that “the EPA’s inclusion of numeric and non-numeric limitations in the guideline for the coal remaining subcategory was a reasonable exercise of its authority under the CWA.” (447 F.3d at 896.) Additionally, the *Citizen’s Coal* court cited to *Natural Res. Def. Council, Inc. v. EPA*, 673 F.2d 400, 403 (D.C.Cir.1982) noting that “section 502(11) [of the CWA] defines ‘effluent limitation’ as ‘any restriction’ on the amounts of pollutants discharged, not just a numerical restriction.” NPDES permit writers have substantial discretion to impose non-quantitative permit requirements pursuant to section 402(a)(1)), especially when the use of numeric limits is infeasible. (*NRDC v. EPA*, 822 F.2d 104, 122-24 (D.C. Cir. 1987); 40 C.F.R. 122.44(k)(3).)

4. Decision to Include Non-Numeric Technology-Based Effluent Limits in This General Permit

It is infeasible for the State Water Board to develop numeric effluent limitations using the best professional judgment approach due to lack of sufficient information. Previous versions of this General Permit required Dischargers to sample their industrial storm water discharges and report the results to the Regional Water Boards. Dischargers were not required to submit this data online into a statewide database; as a result, much of this data is not available for analysis. Moreover, much of the data that are available for analysis are not of sufficient quality to make conclusions or perform basic statistical tests.

The Blue Ribbon Panel of Experts, State Water Board staff, and many stakeholders evaluated the available storm water data set and concluded that the information provides limited value due to the limited pool of industrial facilities submitting data, poor overall data quality, and extreme variance within the dataset, as described below.

The poor quality of the existing data set is attributable a number of factors. For example, the previous permits have required Dischargers to sample during the first hour of discharge from two storm events a year. This sampling schedule was designed to catch what was considered to represent the higher end of storm water discharge concentrations for most parameters. The results from this type of sampling were thought to be an indicator of whether or not additional BMPs would be necessary. The sampling schedule was not designed, however, to estimate pollutant discharge loading, or to characterize the impact of the discharge on the receiving water. Doing so would normally require the use of more advanced sampling protocols such as flow meters, continuous automatic sampling devices, certified/trained sampling personnel, and other facility-specific considerations.

Furthermore, there is currently no data which details the relationship between the BMPs implemented at each facility and the facility’s sampling results. The SWPPPs required by the previous permits were not submitted to the Water Boards, but were

kept onsite by Dischargers. Due to the limited availability of quality sampling data and "level of effort" information contained in SWPPPs, the State Water Board is unable to exercise best professional judgment to make the connection between effluent quality (sampling results) and the level of effort, costs, and performance of the various technologies that is needed in order to express the TBELs in this General Permit numerically, as NELs.

Some stakeholders have suggested that separating the data sets by industry type would lead to more reliable data with which to develop NELs. Advocates of this approach suggest that the variability of the data may be caused in part by the mixing of data from different industrial categories. The State Water Board believes that the variation is primarily due to storm intensity, duration, time of year, soil saturation or some other factors. It is necessary to collect information related to those factors and BMPs implemented in order to evaluate the variability attributable to those factors. There is currently too large of an information gap to begin the process of developing NELs for all industrial sectors not currently subject to ELGs.

The State Water Board has proposed NELs in past drafts of this General Permit. In comments, many stakeholders have highlighted the difficulty of developing statewide NELs that are applicable to all industry sectors, or even NELs that cover any specific industry sectors. For example, stakeholders have commented that:

- a. Background/ambient conditions in some hydrogeologic zones may contribute pollutant loadings that would significantly contribute to, if not exceed, the NEL values;
- b. Some advanced treatment technologies have flow/volume limitations as well as economy of scale issues for smaller facilities;
- c. Treatment technologies that require that sheet flows be captured and conveyed via discrete channels or basins may not only result in significant retrofit costs, but may conflict with local ordinances that prohibit such practices, as they can cause damage or erosion to down gradient property owners, or cause other environmental problems;
- d. There is insufficient regulatory guidance and procedures to allow permit writers to properly specify monitoring frequency and sampling protocols (e.g., instantaneous maximum, 1-day average, 3-day average, etc.), and for Dischargers to obtain representative samples to compare to NELs for the purpose of strict compliance; and,
- e. NELs must be developed with consideration of what is economically achievable for each industrial sector. These stakeholders point out that the U.S. EPA goes to great lengths evaluating the various BMP technologies available for a particular pollutant, the costs and efficiency of each BMP, and the applicability of the BMPs to the industry as a whole or to a limited number of industrial sites based upon the size of the facility, the quantity of material, and other considerations.

The State Water Board does not have the information (including monitoring data, industry specific information, BMP performance analyses, water quality information, monitoring guidelines, and information on costs and overall effectiveness of control technologies) necessary to promulgate NELs at the time of adoption of this General Permit. Therefore, it is infeasible to include NELs in this statewide General Permit.

Many of the new requirements in this General Permit have been designed to address the shortcomings of previous permits and the existing storm water data set. Under this General Permit, sampling results must be certified and submitted into SMARTS by Dischargers, along with SWPPPs which outline the technologies and BMPs used to control pollutants at each facility. The ERA process will also collect information on costs and the engineering aspects of the various control technologies employed by each facility. Previous permit versions did not have a mechanism for receiving this site specific information electronically, and only a small percentage of Dischargers submitted their Annual Reports via SMARTS. This General Permit will make this information more accessible, allowing the Water Boards to evaluate the relationship between BMPs and the ability of facilities to meet the NALs set forth in this General Permit. Finally, the new Qualified Industrial Storm Water Practitioner (QISP) training requirements of this General Permit have been designed in part to improve the quality of the data submitted.

5. Narrative Technology-Based Effluent Limitations (TBELs) and Best Management Practices (BMPs)

The primary TBEL in this General Permit requires Dischargers to “implement BMPs that comply with the BAT/BCT requirements of this General Permit to reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.” (Section V.A of this General Permit). This TBEL is a restatement of the BAT/BCT standard, as articulated by U.S. EPA in the 2008 MSGP and accompanying Fact Sheet. In order to comply with this TBEL, Dischargers must implement BMPs that meet or exceed the BAT/BCT technology-based standard. The requirement to “reduce or prevent” is equivalent to the requirement in the federal regulations that BMPs be used in lieu of NELs to “control or abate” the discharge of pollutants. (40 C.F.R. § 122.44(k).)

BMPs are defined as the “scheduling of activities, prohibitions of practices, maintenance procedures, and other management practices to reduce or prevent the discharge of pollutants... includ[ing] treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.” (40 C.F.R. § 122.2.)

This General Permit (Sections X.H.1 and X.H.2) requires all Dischargers to implement minimum BMPs, as well as any advanced BMPs that are necessary to adequately reduce or prevent pollutants in discharges consistent with the TBELs. The minimum BMPs specified in this General Permit represent common practices that can be implemented by most facilities. This General Permit generally does not mandate the specific mode of design, installation or implementation for the minimum BMPs at a Discharger’s facility. It is up to the Discharger, in the first instance, to

determine what must be done to meet the applicable effluent limits. For example, Section X.H.1.a.vi of this General Permit requires Dischargers to contain all stored non-solid industrial materials that can be transported or dispersed via wind or contact with storm water. How this is achieved will vary by facility: for some facilities, all activities may be moved indoors, while for others this will not be feasible. However, even for the latter, many activities may be moved indoors, others may be contained using tarps or a containment system, while still other activities may be limited to times when exposure to precipitation is not likely. Each of these control measures is acceptable and appropriate depending upon the facility-specific circumstances.

BMPs can be actions (including processes, procedures, schedules of activities, prohibitions on practices and other management practices), or structural or installed devices to reduce or prevent water pollution. (40 C.F.R. § 122.2.) They can be just about anything that is effective at preventing pollutants from entering the environment, and for meeting applicable limits of this General Permit. In this General Permit, Dischargers are required to select, design, install, and implement facility-specific control measures to meet these limits. Many industrial facilities already have such control measures in place for product loss prevention, accident and fire prevention, worker health and safety or to comply with other environmental regulations. Dischargers must tailor the BMPs detailed in this General Permit to their facilities, as well as improve upon them as necessary to meet permit limits. The examples detailed in this Fact Sheet emphasize prevention over treatment. However, sometimes more traditional end-of-pipe treatment may be necessary, particularly where a facility might otherwise cause or contribute to an exceedance of water quality standards.

This General Permit requires Dischargers to implement BMPs “to the extent feasible.” Consistent with the control level requirements of the CWA, for the purposes of this General Permit, the requirement to implement BMPs “to the extent feasible” means to reduce and/or prevent discharges of pollutants using BMPs that represent BAT and BPT in light of best industry practice.⁴ In other words, Dischargers are required to select, design, install and implement BMPs that reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering their technological availability and economic practicability and achievability.

To determine technological availability and economic practicability and achievability, Dischargers need to consider what control measures are considered “best” for their industry, and then select and design control measures for their site that are viable in terms of cost and technology. The State Water Board believes that for many facilities minimization of pollutants in storm water discharges can be achieved without using highly engineered, complex treatment systems. The BMPs included in

⁴ Because toxic and nonconventional pollutants are controlled in the first step by BPT and in the second step by BAT, and the second level of control is “increasingly stringent” (EPA v. National Crushed Stone, 449 U.S. 64, 69 (1980), for simplicity of discussion, the rest of this discussion will focus on BAT. Similarly, because the BAT levels of control in this General Permit are expressed as BMPs and pollution prevention measures, they will also control conventional pollutants. Therefore this discussion will focus on BAT rather than BCT or BPT for conventional pollutants.

this General Permit emphasize effective “low-tech” controls, such as regular cleaning of outdoor areas where industrial activities may take place, proper maintenance of equipment, diversion of storm water around areas where pollutants may be picked up, and effective advanced planning and training (e.g., for spill prevention and response).

E. Receiving Water Limitations and Water Quality Standards

Pursuant to CWA section 301(b)(1)(C) and Water Code section 13377, this General Permit requires compliance with receiving water limitations based on water quality standards. The primary receiving water limitation requires that industrial storm water discharges not cause or contribute to an exceedance of applicable water quality standards. Implementation of the BMPs as required by the technology-based effluent limitation in Section V of this General Permit will typically result in compliance with the receiving water limitations. The discussion of BMPs in this General Permit generally focuses on requiring implementation of BMPs to the extent necessary to achieve compliance with the technology-based effluent limitations, because the technology-based limitations apply similarly to all facilities. In addition, however, this General Permit also makes it clear that, if any individual facility's storm water discharge causes or contributes to an exceedance of a water quality standard, that Discharger must implement additional BMPs or other control measures that are tailored to that facility in order to attain compliance with the receiving water limitation. A Discharger that is notified by a Regional Water Board or who determines the discharge is causing or contributing to an exceedance of a water quality standard must comply with the Water Quality Based Corrective Actions found in Section XX.B of this General Permit.

Water Quality Based Corrective Actions are different from the Level 1 and Level 2 ERAs that result from effluent-based monitoring. It is possible for a Discharger to be engaged in Level 1 or Level 2 ERAs for one or more pollutants and simultaneously be required to perform Water Quality Based Corrective Actions for one or more other pollutants.

Failure to comply with these additional Water Quality Based Corrective Action requirements is a violation of this General Permit. If additional operational source control measures do not adequately reduce the pollutants, Dischargers must implement additional measures such as the construction of treatment systems and/or overhead coverage. Overhead coverage is any structure or temporary shelter that prevents the vertical contact of precipitation with industrial materials or activities. If the Regional Water Board determines that the Discharger's selected BMPs are inadequate, the Regional Water Board may require implementation of additional BMPs and/or may take enforcement against Dischargers for failure to comply with this General Permit.

F. Total Maximum Daily Loads (TMDLs)

TMDLs are regulatory tools that provide the maximum amount of a pollutant from potential source in the watershed that a water body can receive while attaining water quality standards. A TMDL is defined as the sum of the allowable loads of a single pollutant from all contributing point sources (the waste load allocations) and non-point sources (load allocations), plus the contribution from background sources. (40 C.F.R. § 130.2, subd. (i).) Discharges covered by this General Permit are considered to be point

source discharges, and therefore must comply with effluent limitations that are “consistent with the assumptions and requirements of any available waste load allocation for the discharge prepared by the State and approved by EPA pursuant to 40 Code of Federal Regulations section 130.7.” (40 C.F.R. § 122.44, subd. (d)(1)(vii).) In addition, Water Code section 13263, subdivision (a), requires that waste discharge requirements implement relevant water quality control plans. Many TMDLs in existing water quality control plans include both waste load allocations and implementation requirements. Attachment E of this General Permit lists the watersheds with U.S. EPA-approved and U.S. EPA-established TMDLs that include TMDL requirements for Dischargers covered by this General Permit.

NPDES-regulated storm water discharges (which include industrial storm water) must be addressed by waste load allocations in TMDLs. (40 C.F.R. § 130.2(h).) NPDES permits must contain effluent limits and conditions consistent with the requirements and assumptions of the waste load allocations in TMDLs. (40 C.F.R. § 122.44(d)(1)(vii)(B).) To date, the relevant waste load allocations assigned to industrial storm water discharges are not directly translatable to effluent limitations. Many of the TMDLs lack sufficient facility specific information, discharge characterization data, implementation requirements, and compliance monitoring requirements. Accordingly, an analysis of each TMDL applicable to industrial storm water discharges must be performed to determine if it is appropriate to translate the waste load allocation into a numeric effluent limit, or if the effluent limit is to be expressed narratively using a BMP approach. U.S. EPA recognizes that because storm water discharges are highly variable in frequency and duration and are not easily characterized, it is often not feasible or appropriate to establish numeric limits. Variability and the lack of data available make it difficult to determine with precision or certainty actual and projected loadings for individual Dischargers or groups of Dischargers.

Regardless of whether the effluent limit is to be numeric or narrative, the existing waste load allocations must be carefully analyzed, and in many cases translated, to determine the appropriate effluent limitations. Issues of interpretation exist with all of the waste load allocations applicable to Dischargers, and these issues vary based on the TMDL. Below is an example of one of the simpler issues:

FIGURE 1: Example Waste Load Allocations Proposed Translation: Ballona Creek Estuary – Toxic Pollutants

Metals per Acre Waste Load Allocations for Individual General Construction or Industrial Storm Water Permittees (grams/year/acre)				
Cadmium	Copper	Lead	Silver	Zinc
0.1	3	4	0.1	13
Metals per Acre Waste Load Allocations for Individual General Construction or Industrial Storm Water Permittees (milligrams/year/acre)				
Chlordane	DDTs	Total Polychlorinated biphenyl (PCBs)	Total Polycyclic aromatic hydrocarbons (PAHs)	
0.04	0.14	2	350	

In order for the above waste load allocations to effectively be implemented as effluent limits under the General Permit, the Water Boards must (1) identify which discharges the waste load allocations apply to, (2) identify the acreages of the individual facilities, (3) convert the waste load allocations from grams/year/acre (or milligrams/year/acre) to grams/year (or milligrams/year) based on the acreage at each identified facility, (4) assign the effluent limits to the identified Dischargers, (5) determine appropriate monitoring to assess compliance with the effluent limits, and (6) develop a tracking mechanism for each identified facility and their individual effluent limits. A similar stepwise process is necessary for each TMDL with waste load allocations assigned to industrial storm water discharges. For TMDLs where effluent limits will be expressed as BMPs, analysis must be performed to determine the appropriate BMPs and the corresponding effectiveness to comply with the assigned waste load allocations.

Some waste load allocations are already expressed as concentration based numbers. It may appear simple to incorporate these values into this General Permit as effluent limits, but the questions still remain regarding how to determine compliance. The monitoring requirements in this General Permit are not designed to measure compliance with a numeric effluent limit or to measure the effect of a discharge on a receiving water body. (See the discussion on monitoring requirements in Fact Sheet Section II.J.) This General Permit requires sampling of four (4) storm events a year, with certain limitations as to when a discharge may be sampled. This method of monitoring may not appropriately serve as TMDL compliance sampling since grab samples are only representative of the particular moment in time when the sample was taken. Since storm water is highly variable, four grab samples per year may not provide sufficient confidence that the effluent limit is being met. An alternative monitoring scheme may be necessary to determine the facility's impact on the receiving water and to determine compliance with any assigned effluent limits. Questions concerning whether sampling results should be grab samples, composite samples, flow-weighted averaged over all drainage areas, etc. cannot be determined for each concentration-based TMDL without a more thorough analysis.

Additionally, monitoring and assessment requirements must be developed for all of the TMDLs to determine compliance with or progress towards meeting TMDL requirements. The proposed monitoring requirements in this General Permit are not designed to assess pollutant loading or determine compliance with TMDL-specific effluent limits.

Due to the large number and variety of discharges subject to a wide range of TMDLs statewide, to prevent a severe delay in the adoption of this General Permit, TMDL-specific permit requirements for the TMDLs listed in Attachment E will be proposed by the Regional Water Boards. Since the waste load allocations and/or implementation requirements apply to multiple discharges in the region(s) the TMDL were developed, the development of TMDL-specific permit requirements is best coordinated at the Regional Water Board level. The development of TMDL-specific permit requirements is subject to notice and a public comment period prior to incorporation into this General Permit.

Regional Water Board staff, with the assistance of State Water Board staff, will develop and submit the proposed TMDL-specific permit requirements for each of the TMDLs listed in Attachment E by July 1, 2016.⁵ After conducting a 30-day public comment period, the Regional Water Boards will propose TMDL-specific permit requirements to the State Water Board for adoption into this General Permit. The Regional Water Boards may also include TMDL-specific monitoring requirements for inclusion in this General Permit, or may issue Regional Water Board orders pursuant to Water Code section 13383 requiring TMDL-specific monitoring. The Regional Water Boards or their Executive Officers may complete these tasks, and the proposed TMDL-specific permit requirements shall have no force or effect until adopted, with or without modification, by the State Water Board. Unless directed to do so by the Regional Water Board, Dischargers are not required to take any additional actions to comply with the TMDLs listed in Attachment E until the State Water Board reopens this General Permit and includes TMDL-specific permit requirements. This approach is consistent with the 2008 MSGP. TMDL-specific permit requirements are not limited by the BAT/BCT technology-based standards.

The Regional Water Boards will submit to the State Water Board the following information for each of the TMDLs listed in Attachment E:

- Proposed TMDL-specific permit requirements, including any applicable effluent limitations, implementation timelines, additional monitoring requirements, reporting requirements, an explanation of how an exceedance of an effluent limitation or a violation of the TMDL will be determined, and required deliverables consistent with the TMDL(s);
- An explanation of how the proposed TMDL-specific permit requirements, timelines, and deliverables are consistent with the assumptions and requirements of applicable waste load allocation(s) to implement the TMDL(s);
- Where a BMP-based approach is proposed, an explanation of how the proposed BMPs will be sufficient to implement applicable waste load allocations; and
- Where concentration-based monitoring is required, an explanation of how the required monitoring, reporting and calculation methodology for an exceedance of an effluent limitation or a violation of the TMDL(s) will be sufficient to demonstrate compliance with the TMDL(s).

Upon receipt of the information described above, the State Water Board will conduct a public comment period and reopen this General Permit to populate Attachment E, the Fact Sheet, and other provisions as necessary in order to incorporate these TMDL-specific permit requirements into this General Permit. Attachment E may also be reopened during the term of this General Permit to add additional TMDLs and corresponding implementation requirements.

This General Permit (Section X.G.2.a.ix) requires a Discharger to identify any additional industrial parameters that may be discharged to a waterbody with a 303(d) impairment identified in Appendix 3 as likely to be associated with industrial storm water.

⁵ Due to the workload associated with the implementation of this General Permit (e.g., training program development, NEC outreach, electronic enrollment and reporting via SMARTS) it is believed that two years is necessary for Staff to complete a comprehensive analysis and stakeholder process for TMDLs applicable to Dischargers under this General Permit.

Dischargers may need to implement additional monitoring for any applicable parameters (Section XI.B.6.e). Appendix 3 of this General Permit includes the water bodies with 303(d) impairments or TMDLs for pollutants that are likely to be associated with industrial storm water in black font, and those that are not likely to be associated with industrial storm water in red font. This determination is based on the pollutant or pollutants that are causing each impairment, and the State Water Board's general experience regarding the types of pollutants that are typically found in industrial storm water discharges. The list of waterbodies is from the State Water Boards statewide 2010 Integrated CWA Section 303(d) List / Section 305(b) Report.

Some of the water bodies with 303(d) impairments or TMDLs listed in Appendix 3 of this General Permit are not applicable to Dischargers covered under this General Permit. Appendix 3 indicates these water bodies Dischargers are not required to include in their pollutant source assessment (unless directed to do so by the Regional Water Board).

New Dischargers (as defined in Attachment C) applying for NOI coverage under this General Permit that will be discharging to an impaired water body with a 303(d) listed impairment are ineligible for coverage unless the Discharger submits data and/or information, prepared by a QISP, demonstrating that the facility will not cause or contribute to the impairment. Section VII.B of this General Permit describes the three different options New Dischargers have for making this determination. This General Permit requires a QISP to assist the New Discharger with this determination because individuals making this determination will need expertise in industrial storm water pollutant sources, BMPs and a thorough understanding of complying with U.S. EPA's storm water regulations and this General Permit's requirements. Not requiring New Dischargers to have a QISP assist in this demonstration would possibly lead to costly retrofits or closure of a new facility that has not demonstrated that the facility will not cause or contribute to the impairment.

G. Discharges Subject to the California Ocean Plan

1. Discharges to Ocean Waters

On October 16, 2012 the State Water Board amended the California Ocean Plan (California Ocean Plan) to require industrial storm water Dischargers with outfalls discharging to ocean waters to comply with the California Ocean Plan's model monitoring provisions. The amended California Ocean Plan requires industrial storm water dischargers with outfalls discharging to ocean waters to comply with the California Ocean Plan's model monitoring provisions. These provisions require Dischargers to: (a) monitor runoff for specific parameters at all outfalls from two storm events per year, and collect at least one representative receiving water sample per year, (b) conduct specified toxicity monitoring at certain types of outfalls at a minimum of once per year, and (c) conduct marine sediment monitoring for toxicity under specific circumstances (California Ocean Plan, Appendix III). The California Ocean Plan provides conditions under which some of the above monitoring provisions may be waived by the Water Boards.

This General Permit requires dischargers with outfalls that discharge to ocean waters to comply with the California Ocean Plan's model monitoring provisions and

any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers who have not developed and implemented a monitoring program in compliance with the California Ocean Plan's model monitoring provisions by July 1, 2015 or seven (7) days prior to commencing operations, whichever is later, are ineligible to obtain coverage under this General Permit.

2. Areas of Special Biological Significance (ASBS) Exception

The State Water Board adopted the California Ocean Plan (California Ocean Plan) in 1972, and has subsequently amended the Plan. The California Ocean Plan prohibits the discharge of waste to designated ASBS. ASBS are ocean areas designated by the State Water Board as requiring special protection through the maintenance of natural water quality. The California Ocean Plan states that the State Water Board may grant an exception to California Ocean Plan provisions where the State Water Board determines that the exception will not compromise protection of ocean waters for beneficial uses and the public interest will be served.

On March 20, 2012, the State Water Board adopted Resolution 2012-0012 (ASBS Exception), which grants an exception to the California Ocean Plan prohibition on discharges to ASBS for a limited number of industrial storm water Discharger applicants. The ASBS Exception contains "Special Protections" to maintain natural water quality and protect the beneficial uses of the ASBS. In order to legally discharge into an ASBS, these Dischargers must comply with the terms of the ASBS Exception and obtain coverage under this General Permit. This General Permit incorporates the terms of the ASBS Exception and includes the applicable monitoring requirements for all Dischargers discharging to an ASBS under the ASBS Exception.

H. Training Qualifications

This General Permit and the previous permit both require Dischargers to ensure that personnel responsible for permit compliance have an acceptable level of knowledge. Stakeholders have observed that the previous permit did not adequately specify how to comply with various elements of the permit, such as selecting discharge locations representative of the facility storm water discharge and evaluating potential pollutant sources, nor did it provide a clearly outlined Discharger training program. Guidance that is available from outside sources can be complicated to understand or costly to obtain, which can result in many Dischargers developing and implementing deficient SWPPPs and conducting inadequate monitoring activities. Some Dischargers under the previous permit had the resources to hire professional environmental staff or environmental consultants to assist in compliance. Even in those cases, however, there was little certainty that Dischargers received training regarding implementation of the various BMPs being implemented and required monitoring activities under the previous permit. Through this General Permit, the State Water Board seeks to improve compliance and monitoring data quality, and expand each Discharger's understanding of this General Permit's requirements.

This General Permit establishes the Qualified Industrial Storm Water Practitioner (QISP) role. A QISP is someone who has completed a State Water Board sponsored or

approved QISP training course and has registered in SMARTS. A QISP is required to implement certain General Permit requirements at the facility once it has entered Level 1 status in the ERA process as described in Section XII of this General Permit. In some instances it may be advisable for a facility employee to take the training, or for a facility to hire a QISP prior to entering Level 1 status as the training will contain information on the new permit requirements and how to perform certain tasks such as selecting discharge locations representative of the facility storm water discharge, evaluating potential pollutant sources, and identifying inadequate SWPPP elements.

Some industry stakeholders have claimed that their staff is already adequately trained. These employees may continue to perform the basic permit functions (e.g. prepare SWPPPs, perform monitoring requirements, and prepare Annual Reports) without receiving any additional training if the facility's sampling and analysis results do not exceed the NALs. This requirement is structured in a manner to reduce the costs of compliance for facilities that may not negatively impact receiving water quality.

California licensed professional civil, industrial, chemical, and mechanical engineers and geologists have licenses that have professional overlap with the topics of this General Permit. The California Department of Consumer Affairs, Board for Professional Engineers, Land Surveyors and Geologists (CBPELSG) provides the licensure and regulation of professional civil, industrial, chemical, and mechanical engineers and professional geologists in California. The State Water Board is developing a specialized self-guided State Water Board-sponsored registration and training program specifically for these CPBELSG licensed engineers and geologists in good standing with CBPELSG. The CBPELSG has staff and resources dedicated to investigate and take appropriate enforcement actions in instances where a licensed professional engineer or geologist is alleged to be noncompliant with CBPELSG's laws and regulations. Actions that result in noncompliance with this General Permit may constitute a potential violation of the CBPELSG requirements and may subject a licensee to investigation by the CBPELSG.

A QISP may represent one or more facilities but must be able to perform the functions required by this General Permit at all times. It is advisable that this individual be limited to a specific geographic region due to the difficulty of performing the needed tasks before, during, and after qualifying storm events may be difficult or impossible if extensive travel is required. Dischargers are required to ensure that the designated QISP has completed the appropriate QISP training course.

This General Permit contains a mechanism that allows for the Water Boards' Executive Director or Executive Officer to rescind the registration of any QISPs who are found to be inadequately performing their duties as a QISP will no longer be able to do so. A QISP may ask the State Water Board to review any decision to revoke his or her QISP registration. Table 1 of this Fact Sheet below describes the different roles that the QISP and California licensed professional engineers have in this General Permit.

TABLE 1: Role-Specific Permit Requirements

Qualifications	Task
QISP	Assist New Dischargers determine coverage eligibility for Discharges to an impaired water body, Level 1 ERA Evaluation and report, Level 2 ERA Action Plan, and Technical Report, and the Level 2 ERA extension
California licensed professional engineer	Inactive Mining Operation Certification, SWPPPs for inactive mining, and annual re-certification of Inactive Mining Operation Certification, NONA Technical Reports, and Subchapter N calculations

I. Storm Water Pollution Prevention Plan (SWPPP)

1. General

This General Permit requires that all Dischargers develop, implement, and retain onsite a site-specific SWPPP. The SWPPP requirements generally follow U.S. EPA’s five-phase approach to developing SWPPPs, which has been adapted to reflect the requirements of this General Permit in Figure 2 of this Fact Sheet. This approach provides the flexibility necessary to establish appropriate BMPs for different industrial activities and pollutant sources. This General Permit requires a Discharger to include in its SWPPP (Section X of this General Permit) a site map, authorized NSWDs at the facility, and an identification and assessment of potential pollutants sources resulting from exposure of industrial activities to storm water.

This General Permit requires that Dischargers clearly describe the BMPs that are being implemented in the SWPPP. In addition to providing descriptions, Dischargers must also describe who is responsible for the BMPs, where the BMPs will be installed, how often and when the BMPs will be implemented, and identify any pollutants of concern. Table 2 of this Fact Sheet provides an example of how a Discharger could assess potential pollution sources and provide a corresponding BMPs summary.

This General Permit requires that Dischargers select an appropriate facility inspection frequency beyond the required monthly inspections if necessary, and to determine if SWPPP revisions are necessary to address any physical or operational changes at the facility or make changes to the existing BMPs (Section X.H.4.a.vii and Section XI.A.4 of this General Permit). Facilities that are subject to multi-phased physical expansion or significant seasonal operational changes may require more frequent SWPPP updates and facility inspections. Facilities with very stable operations may require fewer SWPPP updates and facility inspections.

Failure to develop or implement an adequate SWPPP, or update or revise an existing SWPPP as required, is a violation of this General Permit. Failure to maintain the SWPPP on-site and have it available for inspection is also a violation of this General Permit.

Dischargers are also required to submit their SWPPPs and any SWPPP revisions via SMARTS; accordingly, BMP revisions made in response to observed compliance problems will be included in the revised SWPPP electronically submitted via SMARTS. Not all SWPPP revisions are significant and it is up to the Dischargers to distinguish between revisions that are significant and those that are not significant. If no changes are made at all to the SWPPP, the Discharger is not required to resubmit the SWPPP on any specific frequency.

- **Significant SWPPP Revisions:** Dischargers are required to certify and submit via SMARTS their SWPPP within 30 days of the significant revision(s). While it is not easy to draw a line generally between revisions that are significant and those that are not significant, Dischargers are not required to certify and submit via SMARTS any SWPPP revisions that are comprised of only typographical fixes or minor clarifications.
- **All Other SWPPP Revisions:** Dischargers are required to submit revisions to the SWPPP that are determined to not be significant every three (3) months in the reporting year.

FIGURE 2: Five Phases for Developing and Implementing an Industrial Storm Water Pollution Prevention Plan (SWPPP)

PLANNING AND ORGANIZATION

- *Form Pollution Prevention Team
- *Review other facility plans

ASSESSMENT

- *Develop a site map
- *Identify potential pollutant sources
- *Inventory of materials and chemicals
- *List significant spills and leaks
- *Identify Non-Storm Water Discharges
- *Assess pollutant risk

Best Management Practice (BMP) IDENTIFICATION

- *Identify minimum required BMPs
- *Identify any advanced BMPs

IMPLEMENTATION

- *Train employees for the Pollution Prevention Team
- *Implement BMPs
- *Collect and review records

EVALUATION / MONITORING

- *Conduct annual facility evaluation (Annual Evaluation)
- *Review monitoring information
- *Evaluate BMPs
- *Review and revise SWPPP

TABLE 2: Example - Assessment of Potential Industrial Pollution Sources and Corresponding BMPs Summary

Area	Activity	Pollutant Source	Industrial Pollutant	BMPs
Vehicle and Equipment Fueling	Fueling	Spills and leaks during delivery	Fuel oil	-Use spill and overflow protection
		Spills caused by topping off fuel tanks	Fuel oil	-Train employees on proper fueling, cleanup, and spill response techniques
		Hosing or washing down fuel area	Fuel oil	-Use dry cleanup methods rather than hosing down area -Implement proper spill prevention control program
		Leaking storage tanks	Fuel oil	-Inspect fueling areas regularly to detect problems
		Rainfall running off fueling area, and rainfall running onto and off fueling area	Fuel oil	-Minimize run-on of storm water into the fueling area, cover fueling area

2. Minimum and Advanced BMPs

Section V of this General Permit requires the Discharger to comply with technology-based effluent limitations (TBELs). In this General Permit, TBELs rely on implementation of BMPs for Dischargers to reduce and prevent pollutants in their discharge. The BMP effluent limitations have been integrated into the Section X.H of this General Permit and are divided into two categories – minimum BMPs which are generally non-structural BMPs that all Dischargers must implement to the extent feasible, and advanced BMPs which are generally structural BMPs that must be implemented if the minimum BMPs are inadequate to achieve compliance with the TBELs. Section X of this General Permit includes both substantive control requirements in the form of the BMPs listed in Section X.H, as well as various reporting and recordkeeping requirements. The requirement to implement BMPs “to the extent feasible” allows Dischargers flexibility when implementing BMPs, by not requiring the implementation of BMPs that are not technologically available and economically practicable and achievable in light of best industry practices.

The 2008 MSGP requires Dischargers to comply with 12 non-numeric technology-based effluent limits in Section 2.1.2 of the permit through the implementation of “control measures.” This requirement is an expansion of the general considerations outlined in the MSGP adopted in 2000. The control measures specified by the U.S. EPA in the 2008 MSGP are as follows (in order as listed in the 2008 MSGP):

1. Minimize Exposure
2. Good Housekeeping
3. Maintenance
4. Spill Prevention and Response Procedures
5. Erosion and Sediment Controls
6. Management of Runoff
7. Salt Storage Piles or Piles Containing Salt
8. Sector Specific Non-Numeric Effluent Limits
9. Employee Training
10. Non-Storm Water Discharges (NSWDs)
11. Waste, Garbage and Floatable Debris
12. Dust Generation and Vehicle Tracking of Industrial Materials

This General Permit addresses eleven of the above twelve control measures from the 2008 MSGP Section 2.1.2 Non-Numeric Technology-Based Effluent Limits (BPT/BAT/BCT). Eleven of the control measures are addressed as minimum BMPs that the State Water Board has determined to be most applicable to California’s Dischargers. Two of those eleven control measures (1- Minimize Exposure, 6 – Management of Runoff) are also identified as advanced BMPs (Section X.H.2 of this General Permit). This General Permit is not a sector-specific permit and therefore does not contain limitations to address control measure number 8 (Sector Specific Non-Numeric Effluent Limits).

The non-structural elements of the control measure to minimize exposure are addressed in the minimum BMP Section X.H.1 of this General Permit while structural control elements are addressed in the advanced BMP Section X.H.2 of this General Permit. The on-site diversion elements of the control measure to minimize exposure are addressed as minimum BMPs.

The runoff reduction elements of the control measure to minimize exposure are included as advanced BMPs. Advanced BMPs that are required to be implemented when a Discharger has implemented the minimum BMPs to the extent feasible and they are not adequate to comply with the TBELs. The advanced BMP categories are: (1) exposure minimization BMPs, (2) storm water containment and discharge reduction BMPs, (3) treatment control BMPs, and (4) additional advanced BMPs needed to meet the effluent limitations of this General Permit. Advanced BMPs are generally structural control measures and can include any BMPs that exceed the minimum BMPs. The control measure for Non-Storm Water Discharges (NSWDs) is addressed in both the discharge prohibitions (Section III) and authorized non-storm water discharges (Section IV) of this General Permit and essentially represents a minimum BMP.

This General Permit encourages Dischargers to utilize BMPs that infiltrate or reuse storm water where feasible. The State Water Board expects that these types of BMPs will not be appropriate for all industrial facilities, but recognizes the many possible benefits (e.g. increased aquifer recharge, reduces flooding, improvements to water quality) associated with the infiltration and reuse of storm water. Encouraging the use of storm water infiltration and reuse BMPs is consistent with the statewide approach to managing storm water with lower impact methods.

The BMPs in this General Permit that coincide with the control measures in the 2008 MSGP are as follows (in order as listed in the 2008 MSGP):

a. Minimization of Exposure to Storm Water

Section 2.1.2.1 of the 2008 MSGP requires Dischargers to minimize the exposure of industrial materials and areas of industrial activity to rain, snow, snowmelt, and runoff. The 2008 MSGP mixes both structural and nonstructural BMPs and specifies particular BMPs to consider when minimizing exposure such as grading/berming areas to minimize runoff, locating materials indoors, spill clean up, contain vehicle fluid leaks or drain fluids before storing vehicles on-site, secondary containment of materials, conduct cleaning activities undercover, indoors or in bermed areas, and drain all wash water to a proper collection system.

This General Permit requires the evaluation of BMPs in the potential pollutant source assessment in the SWPPP (Section X.G.2). When the minimum BMPs are not adequate to comply with the TBELs, Dischargers are required to implement advanced BMPs (Section X.H.2.a). These advanced BMPs may include additional exposure minimization BMPs (Section X.H.2.b.1).

b. Good Housekeeping

Section 2.1.2.2 of the 2008 MSGP requires that Dischargers keep all exposed areas that may be a potential source of pollutants clean and orderly. This General Permit (Section X.H.1.a) seeks to define “clean and orderly” by specifying a required set of nine (9) minimum good housekeeping BMPs, which include: observations of outdoor/exposed areas, BMPs for controlling material tracking, BMPs for dust generated from industrial materials or activities, BMPs for rinse/wash water activities, covering stored industrial materials/waste, containing all stored non-solid industrial materials, preventing discharge of rinse/wash waters/industrial materials, prevent non-industrial area discharges from contact with industrial areas of the facility, and prevent authorized NSWDS from non-industrial areas from contact with industrial areas of the facility.

c. Preventative Maintenance

Section 2.1.2.3 of the 2008 MSGP requires that Dischargers regularly inspect, test, maintain, and repair all industrial equipment to prevent leaks, spills and releases of pollutants that may be exposed to storm water discharged to receiving waters. This General Permit (Section X.H.1.b) incorporates this

concept by requiring four (4) nonstructural BMPs which include: identification and inspection of equipment, observations of potential leaks in identified equipment, an equipment maintenance schedule, and equipment maintenance procedures.

d. Spill and Leak Prevention and Response

Section 2.1.2.4 of the 2008 MSGP requires that Dischargers minimize the potential for leaks, spills and other releases that may be exposed to storm water. Dischargers are also required to develop a spill response plan which includes procedures such as labeling of containers that are susceptible to a spill or a leakage, establishing containment measures for such industrial materials, procedures for stopping leaks/spills, and provisions for notification of the appropriate personnel about any occurrence. This General Permit (Section X.H.1.c) requires implementation of four (4) BMPs to address spills. These BMPs include: developing a set of spill response procedures to minimize spills/leaks, develop procedures to minimize the discharge of industrial materials generated through spill/leaks, identifying/describing the equipment needed and where it will be located at the facility, and identify/training appropriate spill response personnel.

e. Erosion and Sediment Controls

Section 2.1.2.5 of the 2008 MSGP requires the use of structural and/or non-structural control measures to stabilize exposed areas and contain runoff. Also required is the use of a flow velocity dissipation device(s) in outfall channels where necessary to reduce erosion and/or settle out pollutants. This General Permit (Section X.H.1.e) requires the implementation of (5) BMPs to prevent erosion and sediment discharges. The erosion and sediment control BMPs include: implementing effective wind erosion controls, providing for effective stabilization of erodible areas prior to a forecasted storm event, site entrance stabilization/prevent material tracking offsite and implement perimeter controls, diversion of run-on and storm water generated from within the facility away from all erodible materials, and ensuring compliance with the design storm standards in Section X.H.6. U.S. EPA has developed online resources for erosion and sediment controls.⁶

f. Management of Runoff

Section 2.1.2.6 of the 2008 MSGP requires the diversion, infiltration, reuse, containment, or otherwise reduction of storm water runoff, to minimize pollutants in discharges. This General Permit (Sections X.H.1.a.viii, X.H.1.d.iv., and

⁶ U.S. EPA. 2008 MSGP. <<http://cfpub.epa.gov/npdes/stormwater/msgp.cfm>> [as of February 4, 2014].
U.S. EPA. National Menu of BMPs. <<http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm>>.
[as of February 4, 2014].
U.S. EPA. National Management Measures to Control Nonpoint Source Pollution from Urban Areas
<<http://water.epa.gov/polwaste/nps/urban/index.cfm>>. [as of February 4, 2014].

X.H.1.e.iv) requires Dischargers to divert run-on from non-industrial sources and manage storm water generated within the facility away from industrial materials and erodible surfaces. Runoff reduction is required as an advanced BMP when minimum BMPs are not adequate to comply with the TBELs. The 2008 MSGP encouraged Dischargers to consult with EPA's internet-based resources relating to runoff management.⁷

g. Salt Storage Piles or Piles Containing Salt

Section 2.1.2.7 of the 2008 MSGP requires salt storage piles/piles containing salt that may be discharged to be enclosed or covered and to use BMPs when the salt is being used. This General Permit does not have a minimum BMP specifically for salt storage, however it does require all stockpiled/stored industrial materials be managed in a way to reduce or prevent industrial storm water discharges of the stored/stockpiled pollutants. The good housekeeping (Section X.H.1.a) and material handling and waste management (Section X.H.1.d) minimum BMPs in this General Permit require that all materials readily mobilized by storm water be covered, the minimization of handling of industrial materials or wastes that can be readily mobilized by contact with storm water during a storm event, and the diversion of run-on from stock piled materials.

h. Sector Specific Non-Numeric Effluent Limits

Section 2.1.2.8 of the 2008 MSGP requires Dischargers to achieve any additional non-numeric limits stipulated in the relevant sector-specific section(s) of Part 8 of the 2008 MSGP. This General Permit is not a sector-specific permit and does not contain sector-specific non-numeric effluent limitations like the 2008 MSGP. While this General Permit does not specify sector-specific BMPs, Dischargers are required to select and implement BMPs for their specific facility to reduce or prevent industrial storm water discharges of pollutants to comply with the technology-based effluent limitations. In addition, sectors with applicable ELGs must comply with those ELGs.

i. Employee Training Program

Section 2.1.2.9 of the 2008 MSGP requires all employees engaged in industrial activities or the handling of industrial materials that may affect storm water to obtain training covering implementation of this General Permit. This General Permit (Section X.D.1 and X.H.1.f) requires a facility to establish a Pollution Prevention Team (team members, collectively) responsible for implementing permit requirements such as the SWPPP, monitoring requirements, or BMPs.

⁷ U.S. EPA. Sector-Specific Industrial Stormwater Fact Sheet Series <www.epa.gov/npdes/stormwater/msgp>. [as of February 4, 2014].
U.S. EPA. National Menu of Stormwater BMPs <www.epa.gov/npdes/stormwater/menuofbmps> [as of February 4, 2014].
U.S. EPA. National Management Measures to Control Nonpoint Source Pollution from Urban Areas (and any similar State or Tribal publications) <www.epa.gov/owow/nps/urbanmm/index.html>. [as of February 4, 2014].

The five (5) minimum training BMPs include: ensuring that all team members are properly trained, preparing the proper training materials and manuals, identifying which individuals need to be trained, providing a training schedule, and maintaining documentation on the training courses and which individuals received the training.

This General Permit also requires a QISP to be assigned to each facility that reaches Level 1 status. One purpose of a QISP is to have an individual available who can provide compliance assistance with these training requirements. The QISP is responsible for training the appropriate team members. Appropriate team members are any team members involved in implementing this General Permit for drainage areas causing NAL exceedances, and any other team members identified by the QISP that need additional training to implement this General Permit.

j. NSWDs

Section 2.1.2.10 of the 2008 MSGP requires that unauthorized NSWDs are eliminated (Part 1.2.3 of the 2008 MSGP lists the NSWDs authorized by the 2008 MSGP). The good housekeeping minimum BMP (Section X.H.1.a.ix of this General Permit) requires that contact between authorized NSWDs and industrial areas of the facility be minimized. This General Permit (Section IV) also includes separate requirements for authorized NSWDs and (Section III) prohibits unauthorized NSWDs.

k. Material Handling and Waste Management

Section 2.1.2.11 of the 2008 MSGP requires that Dischargers ensure waste, garbage, and floatable debris are not discharged into receiving waters. The 2008 MSGP identifies keeping areas clean and intercepting such materials as ways to minimize such discharges. This General Permit (Section X.H.1.d) requires Dischargers to implement six (6) general BMPs that address material handling and waste management. These BMPs include: preventing or minimizing handling of waste or materials during a storm event that could potentially result in a discharge, containing industrial materials susceptible to being dispersed by the wind, covering industrial waste disposal containers when not in use to contain industrial materials, diversion of run-on and storm water generated from within the facility away from all stock piled materials, cleaning and managing spills of such wastes or materials (in accordance with Section X.H.1.e of this General Permit), and conducting observations of outdoor areas and equipment that may come into contact with such materials or waste and become contaminated.

l. Waste, Garbage and Floatable Debris

Section 2.1.2.11 of the 2008 MSGP requires that waste, garbage, and floatable debris are not discharged to receiving waters by keeping exposed areas free of such materials or by intercepting them before they are discharged. Material handling and waste management BMPs are included in Section X.H.1.d of this General Permit. Dischargers are required to: prevent handling of waste materials during a storm event that could result in a discharge, contain waste disposal

containers when not in use, clean and manage spills from waste, and observe outdoor areas and equipment that may come into contact with waste and become contaminated.

m. Dust Generation and Vehicle Tracking of Industrial Materials

Section 2.1.2.12 of the 2008 MSGP requires that generation of dust and off-site tracking of raw, final, or waste materials is minimized. This General Permit does not require minimization of dust generation and vehicle tracking of industrial materials as a minimum BMP directly. Dust generation and vehicle tracking of industrial materials BMPs are included in Section X.H.1.a (“good housekeeping”) of this General Permit where Dischargers must prevent dust generation from industrial materials or activities and contain all stored non-solid industrial materials that can be transported or dispersed via wind or come in contact with storm water, and Section X.H.1.d. (“material handling and waste management”) of this General Permit, which requires Dischargers to contain non-solid industrial materials or wastes that can be dispersed via wind erosion or come into contact with storm water during handling.

n. Quality Assurance and Record Keeping

Section 2.1.2 of the 2008 MSGP does not directly designate record keeping as a control measure. This General Permit (Section X.H.1.g) includes quality assurance and record keeping as a minimum BMP and requires Dischargers to implement three (3) general BMPs. These BMPs include: developing and implementing procedures to ensure that all elements of the SWPPP are implemented, develop a method of tracking and recording the implementation of all BMPs identified in the SWPPP, and a requirement to keep and maintain those records. This ensures that management procedures are designed and permit requirements are implemented by appropriate staff.

o. Implementation of BMPs in the SWPPP

Like the previous permit, this General Permit does not assign Dischargers a schedule to implement BMPs. Instead, this General Permit requires Dischargers to select the appropriate schedule to implement the minimum BMPs. In addition, this General Permit requires Dischargers to identify, as necessary, any BMPs that should be implemented prior to precipitation events. Although Dischargers are required to maintain internal procedures to ensure the BMPs are implemented according to schedule or prior to precipitation events, Dischargers are only required to certify in the Annual Report whether they complied with the BMP implementation requirements.

Dischargers are required to implement an effective suite of BMPs that meet the technology and water-quality based limitations of this General Permit. Based upon Regional Water Board staff inspections, there is significant variation between Dischargers’ interpretations of what BMPs were necessary to comply with the previous permit. This General Permit establishes a new requirement that Dischargers must implement, to the extent feasible, specific minimum BMPs

to reduce or prevent the presence of pollutants in their industrial storm water discharge. In addition, due to the wide variety of facilities conducting numerous and differing industrial activities throughout the state, this General Permit retains the requirement from the previous permit that Dischargers establish and implement additional BMPs beyond the minimum. Implementation of this General Permit's minimum BMPs, together with any necessary advanced BMPs, will result in compliance with the effluent limitations of this General Permit (Section V.A). All Dischargers must evaluate their facilities and determine the best practices within their industry considering technological availability and economic practicability and achievability to implement these minimum BMPs and any advanced BMPs.

The State Water Board has selected minimum BMPs that are generally applicable at all facilities. The minimum BMPs are consistent with the types of BMPs normally found in properly developed SWPPPs and, in most cases, should represent a significant portion of the effort required for a Discharger to achieve compliance. Due to the diverse industries covered by this General Permit, the development of a more comprehensive list of minimum BMPs is not currently feasible. The selection, applicability, and effectiveness of a given BMP is often related to industrial activity type and to facility-specific facts and circumstances. Advanced BMPs must be selected and implemented by Dischargers, based on the type of industry and facility-specific conditions, to the extent necessary to comply with the technology-based effluent limitation requirements of this General Permit.

Failure to implement all of the minimum BMPs to the extent feasible is a violation of this General Permit. (Section X.H.1.) Dischargers must justify any determination that it is infeasible to implement a minimum BMP in the SWPPP (Section X.H.4.b). Failure to implement advanced BMPs necessary to achieve compliance with either the technology or water quality standards requirements in this General Permit is a violation of this General Permit.

p. Temporary Suspension of Industrial Activities

The exception for inactive and unstaffed sites in section 6.2.1.3 of the 2008 MSGP does not require a Discharger with a facility that is inactive and unstaffed with no industrial materials or activities exposed to storm water (in accordance with the substantive requirements in 40 Code of Federal Regulations section 122.26(g)) to complete benchmark monitoring. The Discharger is required to sign and certify a statement in the SWPPP verifying that the site is inactive and unstaffed. If circumstances change and industrial materials or activities become exposed to storm water or the facility becomes active and/or staffed, this exception no longer applies and the Discharger is required to begin complying immediately with the applicable benchmark monitoring requirements under part 6.2 of the 2008 MSGP.

This General Permit allows Dischargers to temporarily suspend monitoring at facilities where industrial activities have been suspended in accordance with Section X.H.3. This is only intended for Dischargers with facilities where it is

infeasible to comply with this General Permit's monitoring while activities are suspended (e.g. remote, unstaffed, or inaccessible facilities during the time of such a suspension). Dischargers are required to update the facility's SWPPP with the BMPs being used to stabilize the site and submit the suspension dates and a justification for the suspension of monitoring via SMARTS.

3. Design Storm Standards for Treatment Control BMPs

It is the State Water Board's intent to minimize the regulatory uncertainty and costs concerning treatment control BMPs in order to encourage the implementation of treatment control BMPs when appropriate. Section X.H.6 of this General Permit specifies a design storm standard for use when treatment controls BMPs are installed. There is both a volume-based and flow-based design storm standard in this General Permit. Both are based on the 85th percentile 24-hour storm event. Without a design storm standard, Dischargers have installed treatment controls using a wide variety of designs that were sometimes either unnecessarily stringent/expensive, or deficient in complying with the requirements of the relevant permit. Some Dischargers have been hesitant to consider treatment options because of the uncertainty concerning acceptable treatment design. The design storm standards are generally expected to:

- Be consistent with the effluent limitations of this General Permit;
- Be protective of water quality;
- Be achievable for most pollutants and their associated treatment technologies; and,
- Reduce the costs associated with treating industrial storm water discharges beyond the levels necessary to achieve compliance with this General Permit.

In lieu of complying with the design storm standards for treatment control BMPs, Dischargers may certify and submit a Level 2 ERA Technical Report, including an Industrial Activity BMPs Demonstration (Section XII.D.2.a of this General Permit). The Level 2 ERA Technical Report requirement is based upon NAL exceedances. Under this option, a Discharger with Level 2 status must either implement BMPs to eliminate future NAL exceedances, or justify what BMPs must be implemented to comply with this General Permit even if the BMPs will not eliminate future exceedances of NALs. Dischargers who implement treatment control BMPs that vary from the design storm standards in Section X.H.6 must include an analysis showing that their treatment control BMPs comply with this General Permit's effluent limitations in the Industrial Activity BMP Demonstration.

This General Permit does not require Dischargers to retrofit existing treatment controls that do not meet the design storm standard, unless the Discharger determines that the existing treatment controls are not adequate to comply with this General Permit. In addition, once TMDL-specific implementation requirements are added to this General Permit, those Dischargers subject to TMDLs may need to add

new or retrofitted treatment control BMPs to meet the TMDL implementation requirements.

To arrive at these design storm standards, the State Water Board has relied heavily on previous Water Board decisions concerning treatment efficacy for municipalities, published documents, stakeholder comments, and reasonableness. In 2000, the State Water Board issued State Water Board Order WQ 2000-11, which upheld Los Angeles Regional Water Board's permit requirements which mandated that all new development and redevelopment exceeding certain size criteria design treatment BMPs based on a specific storm volume: the 85th percentile 24-hour storm event. This design storm standard was based on research demonstrating that the standard represents the maximized treatment volume cut-off at the point of diminishing returns for rainfall/runoff frequency.⁸ On the basis of this equation, the maximized runoff volume for 85 percent treatment of annual runoff volumes in California can range from 0.08 to 0.86 inch depending on the imperviousness of the watershed area and the mean amount of rainfall. This design storm standard is referred to as the Standard Urban Storm Water Mitigation Plan's volumetric criterion and there are multiple acceptable methods of calculating this volume. For more information, see the California Stormwater Best Management Practices Handbook.⁹

The San Diego Regional Water Board first established both volumetric and flow-based design storm criteria for NPDES MS4 permits. It is generally accepted by civil engineers doing hydrology work to use twice the peak hourly flow of a specific storm event to use as the basis for flow-based design of BMPs. This General Permit therefore establishes the flow-based design storm standard to be twice the peak hourly flow of the 85th percentile 24-hour storm event.

The primary objective of specifying a design storm standard is to properly size BMPs to, at a minimum, effectively treat the first flush of run-off from all storm events. The economic impacts of treating all storm water from a facility versus the minimal environmental benefit of complete treatment justify the design storm approach. It is unrealistic to require each facility to do a cost benefit analysis of their treatment structures. To simplify the requirements for design, the State Water Board reviewed research from the City of Portland¹⁰ and the City of San Jose¹¹ to determine the volume of each rain event compared to the amount of events that occur for that volume. The results of their findings show an inflection point that is typically found at approximately the 80 to 85 percentile of recorded storm events.

⁸ California Regional Water Quality Control Board Los Angeles Region, Standard Urban Storm Water Mitigation Plans and Numerical Design Standards for Best Management Practices - Staff Report and Record of Decision (Jan. 18, 2000) <http://www.swrcb.ca.gov/rwqcb4/water_issues/programs/stormwater/susmp/susmp_final_staff_report.pdf>. [as of February 4, 2014].

⁹ California Stormwater Quality Association, Stormwater Best Management Practice New Development and Redevelopment Handbook (2003) <<http://www.casqa.org/>>. [as of February 4, 2014].

¹⁰ City of Portland Oregon. Portland Stormwater Management Manual Appendix E.1: Pollution Reduction Methodology E.1-1 (August 1, 2008). <<http://www.portlandoregon.gov/bes/article/202909>>. [as of February 4, 2014].

¹¹ California Stormwater Quality Association (CASQA). CASQA BMP Handbook (January 2003) New Development and Redevelopment (Errata 9-04) <<http://www.casqa.org/>>. [as of February 4, 2014].

Dischargers should be aware of the potential unintended public health concerns associated with treatment control BMPs. Extensive monitoring studies conducted by the California Department of Public Health (CDPH) have documented that mosquitoes opportunistically breed in structural BMPs, particularly those that hold standing water for over 96 hours. BMPs that produce mosquitoes create potential public health concerns and increase the burden on local vector control agencies that are mandated to inspect for and abate mosquitoes and other vectors within their jurisdictional boundaries. These unintended consequences can be lessened when BMPs incorporate design, construction, and maintenance principles developed specifically to minimize standing water available to mosquitoes¹² while having negligible effects on the capacity of the structures to provide water quality improvements. The California Health and Safety Code prohibits landowners from knowingly providing habitat for or allowing the production of mosquitoes and other vectors, and gives local vector control agencies broad inspection and abatement powers.¹³

Dischargers who install any type of volume-based treatment device are encouraged to consider the BMPs in the California Department of Public Health's guidance manual published July 2012, "Best Management Practices for Mosquito Control in California" at <http://www.cdph.ca.gov/HealthInfo/discond/Documents/BMPforMosquitoControl07-12.pdf>.

4. Monitoring Implementation Plan

Dischargers are required to prepare and implement a Monitoring Implementation Plan (Section X.I of this General Permit). The Monitoring Implementation Plan requirements are designed to assist the Discharger in developing a comprehensive plan for the monitoring requirements in this General Permit and to assess their monitoring program. The Monitoring Implementation Plan includes a description of visual observation procedures and locations, as well as sampling procedures, locations, and methods. The Monitoring Implementation Plan shall be included in the SWPPP.

J. Monitoring and Reporting Requirements

1. General Monitoring Provisions

This General Permit requires Dischargers to develop and implement a facility-specific monitoring program. Monitoring is defined as visual observations, sampling and analysis. The monitoring data will be used to determine:

¹² California Department of Public Health. (2012). Best Management Practices for Mosquito Control in California. <<http://www.westnile.ca.gov/resources.php>>. [as of February 4, 2014]

¹³ California Health & Safety Code, Division 3, Section 2060 and following.

- a. Whether BMPs addressing pollutants in industrial storm water discharges and authorized NSWDS are effective for compliance with the effluent and receiving water limitations of this General Permit,
- b. The presence of pollutants in industrial storm water discharges and authorized NSWDS (and their sources) that may trigger the implementation of additional BMPs and/or SWPPP revisions; and,
- c. The effectiveness of BMPs in reducing or preventing pollutants in industrial storm water discharges and authorized NSWDS.

Effluent sampling and analysis information may be useful to Dischargers when evaluating the need for improved BMPs. The monitoring requirements in this General Permit recognize the 2008 MSGP approach to visual observations as an effective monitoring method for evaluating the effectiveness of BMPs at most facilities. Section 6.2 of the 2008 MSGP limits its monitoring sampling requirements to certain industrial categories. Similar to the previous permit, this General Permit requires all Dischargers to sample unless they have obtained NEC coverage or have an inactive mining operation(s) certified as allowed under this General Permit Section XIII.

This General Permit defines a Qualifying Storm Event (QSE) to provide clarity to Dischargers of when sampling is required. The previous permit (Section B.5.a) specified that sampling was required within the first hour of discharge, however, this General Permit requires Dischargers to sample within four hours of the start of Discharge. Many Dischargers were not able to get samples of their discharge locations within one (1) hour under the previous permit so this general permit has expanded the timeframe allowed to provide enough time to sample all discharge locations. The previous permit required three working dry days before sampling and this General Permit defines this period as 48 hours, this timeframe was decreased to provide more opportunities for Dischargers to obtain samples. This General Permit does not specify a volume for sampling due to the complexity of using rain gauges and the limited access of rain gauge station data.

Dischargers are only required to obtain samples required during scheduled facility operating hours and when sampling conditions are safe in accordance with Section XI.C.6.a.ii of this General Permit. If a storm event occurs during unscheduled facility operating hours (e.g. during the weekend or night) and during the 12 hours preceding the scheduled facility operating hours, the Dischargers is still responsible for obtaining samples at discharge locations that are still producing a discharge at the start of facility operations. Under the previous permit, many Dischargers were unable to obtain samples due to rainfall beginning at night.

The State Water Board recognizes that it may not be feasible for all facilities to obtain four QSEs in a reporting year because there may not be enough qualifying storm events to do so. Therefore, a Discharger that is unable to collect and analyze storm water samples from two QSEs in each half of a reporting year due to a lack of QSEs is not in violation of Section XI.B.2. Dischargers that miss four QSEs during

a reporting year due to the fact that four QSEs did not occur are not required to make up these sampling events in subsequent reporting years.

The State Water Board recognizes that each facility has unique physical characteristics, industrial activities, and/or variations in BMP implementation and performance which warrants the requirement that each facility demonstrate its compliance. Figure 3 of this Fact Sheet provides a summary of all the monitoring-related requirements of this General Permit. This General Permit's monitoring requirements include sampling and analysis requirements for specific indicator parameters that indicate the presence of pollutants in industrial storm water discharges. The "indicator parameters" are oil and grease (for petroleum hydrocarbons), total suspended solids (for sediment and sediment bound pollutants) and pH (for acidic and alkaline pollutants). Additionally, Dischargers are required to evaluate their facilities and analyze samples for additional facility-specific parameters. These monitoring program requirements are designed to provide useful, cost-effective, timely, and easily obtained information to assist Dischargers as they identify their facility's pollutant sources and implement corrective actions and revise BMPs as necessary (Section XI.A.4 of this General Permit).

This General Permit requires a combination of visual observations and analytical monitoring. Visual observations provide Dischargers with immediate information indicating the presence of many pollutants and their sources. Dischargers must implement timely actions and revise BMPs as necessary (Section XI.A.4) when the visual observations indicate pollutant sources have not been adequately addressed in the SWPPP. Analytical monitoring provides an additional indication of the presence and concentrations of pollutants in storm water discharge. Dischargers are required to evaluate potential pollutant sources and corresponding BMPs and revise the SWPPP appropriately when specific types of NAL exceedances occur as described below.

The previous permit required monthly storm water visual observations. This required Dischargers to conduct visual observations for QSEs that were not being sampled since only two QSEs were required to be sampled in the previous permit. As discussed below, the sampling requirement has been increased to four QSEs within each reporting year with two QSEs required in each half of the reporting year. We expect that this will result in more samples being collected and analyzed, since most of California experiences, on average, at least two QSEs per half year. This General Permit streamlines the storm water visual observation requirement by linking the visual observations to the time of sampling.

3. Sampling and Analysis

a. General

As part of the process for developing previous drafts of this General Permit, the State Water Board considered comments from numerous stakeholders concerning sampling and analysis. Sampling and analysis issues were the most dominant of all issues raised in the comments.

The State Water Board received stakeholder comments that fall into three primary categories concerning this General Permit's sampling and analysis approach:

- i. Comments supporting an intensive water quality sampling and analysis approach (with the goal of producing more accurate discharge-characterizing and pollutant concentration data) as the primary method of determining compliance with effluent limitations and receiving water limitations. Since this approach requires large amounts of high quality data to accurately quantify the characteristics of the discharges, it is referred to as the quantitative monitoring approach. Stakeholders supporting the quantitative approach generally also support the use of stringent NELs to evaluate compliance with this General Permit;
- ii. Comments supporting only visual observations as the primary method of determining compliance: These stakeholders generally assert that storm water sampling is an incomplete and not very cost effective means of determining water quality impacts on the receiving waters; and,
- iii. Comments supporting a combination of visual observations and cost-effective water quality sampling and analysis approach (sampling and analysis that would produce data indicating the presence of pollutants) to determine compliance (similar to the previous permit's approach). Since this approach uses more qualitative information to describe the quality and characteristics of the discharges, it is referred to as the qualitative monitoring approach.

Within each of the three categories, there are various recommendations and rationales as to the exact monitoring frequencies, procedures and methods, required to implement the approach. Stakeholders in favor of the quantitative monitoring approach commented that it is the only reliable and meaningful

method of assuring that: (1) BMPs are effective in reducing or preventing pollutants in storm water discharge in compliance with BAT/BCT, and (2) the discharge is not causing or contributing to an exceedance of a water quality standards. The stakeholders state that visual observations are not effective in measuring pollutant concentrations nor is it effective in determining the presence of colorless and/or odorless pollutants. The stakeholders state that qualitative monitoring (and the use of indicator parameters) will not provide results useful for calculating pollutant loading nor will it accurately characterize the discharge.

Stakeholders in favor of requiring only visual observations state that sampling and analysis is unnecessary because (1) the previous permit did not include NELs so the usefulness of sampling and analysis data is limited, (2) a significant majority of Dischargers should be able to develop appropriate BMPs without sampling and analysis data, (3) most pollutant sources and pollutants can be detected and mitigated through visual observations, (4) the costs associated with quantitative monitoring are excessive and disproportionate to any benefits, (5) U.S. EPA's storm water regulations do not require sampling, (6) The 2008 MSGP relies heavily on visual observations and requires only a limited number of specific industries to conduct sampling and analysis, and (7) the majority of Dischargers are small businesses and do not have sufficient training or understanding to perform accurate sampling and analysis.

Stakeholders in favor of requiring both visual observations and a cost-effective qualitative monitoring program state that (1) both are within the means and understanding of most Dischargers, and (2) monitoring results are useful for evaluating a Discharger's compliance without unnecessarily increasing the burden on the Discharger and without subjecting Dischargers to non-technical enforcement actions.

The State Water Board finds that it is feasible for the majority of Dischargers to develop appropriate BMPs without having to perform large amounts of quantitative monitoring, which can be very costly. In the absence of implementing NELs, the State Water Board has determined that the infeasibility and costs associated with developing quantitative monitoring programs at each of thousands industrial facilities currently permitted would outweigh the limited benefits. The primary difficulty associated with requiring intensive quantitative monitoring lies with the cost and the difficulty of accurately sampling industrial storm water discharges.

Stakeholders that support quantitative monitoring believe the data is necessary to determine pollutant loading, concentration, or contribution to water quality violations. In order to derive data necessary to support those goals, however, the data must be of high quality, meaning it must be accurate, precise and have an intact chain of custody. Many industrial facilities do not have well-defined storm water conveyance systems for sample collection. Storm water frequently discharges from multiple locations through sheet flow into nearby streets and adjoining properties. Sample collection from a portion of the sheet flow is an inexact measurement since not all of the flow is sampled. Requiring every Discharger to construct well-defined storm water conveyances may cost

anywhere from thousands to hundreds of thousands of dollars per facility depending on the size and nature of each industrial facility. At many facilities, the construction of such conveyances may also violate local building codes, create safety hazards, cause flooding, or increase erosion. In addition, eliminating sheet flow at some facilities could result in increased pollutant concentrations.

The State Water Board has considered the complexity and costs associated with quantitative monitoring. Unlike continuous point source discharges (e.g., publicly owned treatment works), storm water discharges are variable in intensity and duration. The concentration of pollutants discharged at any one time is dependent on many complex variables. The largest concentration of pollutants would be expected to discharge earlier in the storm event and taper off as discharges continue. Therefore, effective quantitative monitoring of storm water discharges would require that storm water discharges be collected and sampled until most or all of the pollutants have been discharged. Multiple samples would need to be collected over many hours. To determine the pollutant mass loading, the storm water discharge flow must also be measured each time a sample is collected.

For a quantitative monitoring approach to yield useful pollutant loading information, the installation of automatic sampling devices and flow meters at each discharge location would usually be necessary. In addition, qualified individuals would be needed to conduct the monitoring procedures, and to handle and maintain flow meters and automatic samplers are needed. A significant majority of storm water Dischargers under this General Permit do not possess the skills to manage such an effort. Dischargers will bear the cost of employing and/or training on-site staff to do this work, or the cost of contracting with environmental consultants and acquiring the required flow meters and automatic samplers. The cost to Dischargers to conduct quantitative monitoring varies depending on the number of outfalls, the number of storms, the length of each storm, the amount of staff training, and other variables.

To address these concerns, this General Permit includes a number of new items that bridge the gap between the previous permit's qualitative monitoring and the quantitative approach recommended by many commenters. This General Permit includes a requirement for all Dischargers to designate a QISP when they enter Level 1 status due to NAL exceedances. The QISP is required to be trained to: (1) more accurately identify discharge locations representative of the facility storm water discharge (2) select and implement appropriate sampling procedures (3) evaluate and develop additional BMPs to reduce or prevent pollutants in the industrial storm water discharges.

Dischargers that fail to develop and implement an adequate Monitoring Implementation Plan that includes both visual observations and sampling and analysis, are in violation of this General Permit. Dischargers that fail to comply with Level 1 status and Level 2 status ERA requirements, triggered by NAL exceedances, are in violation of this General Permit.

Water Code section 13383.5 requires that the State Water Board include (1) standardized methods for collection of storm water samples, (2) standardized methods for analysis of storm water samples, (3) a requirement that every sample analysis be completed by a State certified laboratory or in the field in accordance with Quality Assurance and Quality Control (QA/QC) protocols, (4) a standardized reporting format, (5) standardized sampling and analysis programs for QA/QC, and (6) minimum detection limits. The monitoring requirements in this General Permit (Section XI), as supplemented by SMARTS, address these requirements.

Under the previous permit, many Dischargers did not developed adequate sample collection and handling procedures, decreasing the quality of analytical results. In addition, Dischargers often selected inappropriate test methods, method detection limits, or reporting units. This General Permit requires all Dischargers to identify discharge locations that are representative of industrial storm water discharges and develop and implement reasonable sampling procedures to ensure that samples are not mishandled or contaminated.

It is infeasible for the State Water Board to provide a single comprehensive set of sample collection and handling procedures/instructions due to the wide variation in storm water conveyance and collection systems in use at facilities around the state. As an alternative, Attachment H of this General Permit provides minimum storm water sample collection and handling instructions that pertain to all facilities. Dischargers are required to develop facility-specific sample collection and handling procedures based upon these minimum requirements. Table 2 in this General Permit provides the minimum test methods that shall be used for a variety of common pollutants. Dischargers must be aware that use of more sensitive test methods (e.g., U.S. EPA Method 1631 for Mercury) may be necessary if they discharge to an impaired water body or are otherwise required to do so by the Regional Water Board. This General Permit allows Dischargers to propose an analytical test method for any parameter or pollutant that does not have an analytical test method specified in Table 2 or in SMARTS. Dischargers may also propose analytical test methods with substantially similar or more stringent method detection limits than existing approved analytical test methods. Upon approval, SMARTS will be updated over time to add additional acceptable analytical test methods.

The previous permit allowed Dischargers to reduce sampling analysis requirements for substantially similar drainage areas by either (1) combining samples for an unspecified maximum number of substantially similar drainage areas, or (2) sampling a reduced number of substantially similar drainage areas. The State Water Board provided this procedure to reduce analytical costs. The complexity associated with determining substantially similar drainage areas has led Dischargers to produce various, and sometimes questionable, analytical schemes. In addition, the previous permit did not establish a maximum number of samples that could be combined.

To standardize sample collection and analysis as required by Water Code section 13383.5, while continuing to offer a reduced analytic cost option, these

requirements have been revised. Section XI.B.4 of this General Permit requires Dischargers to collect samples from all discharge locations regardless of whether the discharges are substantially similar or not. Dischargers may analyze each sample collected, or may analyze a combined sample consisting of equal volumes, collected from as many as four (4) substantially similar discharge locations. A minimum of one combined sample shall be analyzed for every one (1) to four (4) discharge locations, and the samples shall be combined in the lab in accordance with Section XI.C.5 of this General Permit.

Representative sampling is only allowed for sheet flow discharges or discharges from drainage areas with multiple discharge locations. Dischargers shall select the appropriate location(s) to be sampled and intervals necessary to obtain samples representative of storm water associated with industrial activities generated within the corresponding drainage area. Dischargers are not required to sample discharge locations that have no exposure of industrial activities or materials as defined in Section XVII of this General Permit within the corresponding drainage area. However, Dischargers are required to conduct the monthly visual observations regardless of the selected locations to be sampled.

This General Permit defines a QSE as a precipitation event that produces a discharge from any drainage area that is preceded by 48 consecutive hours without a discharge from any drainage area. The previous permit did not include a QSE definition; instead, it utilized a different approach to defining the storm events that were required to be sampled. Under the previous permit, eligible storm events were storm events that occurred after three consecutive working days of dry weather. The three consecutive working days of dry weather definition in the previous permit led Dischargers to miss many opportunities to sample. Some Dischargers were unable to collect samples from two storm events in certain years under the previous definition. To resolve this difficulty, this General Permit increases the sampling requirements to four (4) QSEs per year, while decreasing the number of days without a discharge, resulting in additional opportunities for Dischargers to sample. Additionally, by eliminating the previous permit's reference to "dry weather," this General Permit allows some precipitation to occur between QSEs so long as there is no discharge from any drainage area. This change will result in more QSE sampling opportunities.

To improve clarity and consistency, the definitions contained in other storm water permits were considered with the goal of developing a standard definition for 'dry weather' for this General Permit. The 2008 MSGP sets a "measurable storm event" as one that produces at least 0.1 inches of precipitation and results in an actual discharge after 72 hours (three days) of dry weather. The State of Washington defines a "qualifying storm event" as a storm with at least 0.1 inches of precipitation preceded by at least 24 hours of no measurable precipitation, mirroring the definition found in the previous MSGP (2000 version). The State of Oregon requires that samples be taken in the first 12 hours of discharge and no less than 14 days apart. Review of other permits concludes that there is not a single commonly used approach to triggering sampling in industrial general permits. Therefore an enforceable sampling trigger is included in this General

permit that requires Dischargers to sample four storm events within each reporting year.

b. Effluent Water Quality Sampling and Analysis Parameters

Dischargers are required to sample and analyze their effluent for certain parameters. "Parameter" is a term used in laboratory analysis circles to represent a distinct, reportable measure of a particular type. For example, ammonia, hexavalent chromium, total nitrogen and chemical oxygen demand are all parameters that a laboratory can analyze storm water effluent for and report a quantity back. A parameter is also an indicator of pollution. In this General Permit, pH, total suspended solids and chemical oxygen demand are examples of indicator parameters. They are not direct measures of a water quality problem or condition of pollution but can be used to indicate a problem or condition of pollution. Indicator parameters can also be used to indicate practices and/or the presence of materials at a facility to bring forth information for compliance evaluation processes, like annual report review and inspection. For example, chemical oxygen demand concentrations can indicate the presence of dissolved organic compounds, like residual food from collected recycling materials.

Minimum parameter-specific monitoring is required for Dischargers, regardless of whether additional facility-specific parameters are selected. This General Permit requires some parameters to be analyzed and reported for the duration of permit coverage to develop comparable sampling data over time and over many storm events and to demonstrate compliance. The Regional Water Boards may use such data to evaluate individual facility compliance and assess the differences between various industries. Accordingly, the parameters selected correspond to a broad range of industrial facilities, are inexpensive to sample and analyze, and have sampling and analysis methods which are easy to understand and implement. Some analytical methods for field measurements of some parameters, such as pH, may be performed using relatively inexpensive field instruments and provides an immediate alert to possible pollutant sources.

The following three selected minimum parameters are considered indicator parameters, regardless of facility type. These parameters typically provide indication and/or the correlation of whether other pollutants are present in storm water discharge. These parameters were selected for the following reasons:

- i. pH is a numeric measurement of the hydrogen-ion concentration. Many industrial facilities handle materials that can affect pH. A sample is considered to have a neutral pH if it has a value of 7. At values less than 7, water is considered acidic; above 7 it is considered alkaline or basic. Pure rain water in California typically has a pH value of approximately 7.
- ii. Total Suspended Solids (TSS) is an indicator of the un-dissolved solids that are present in storm water discharge. Sources of TSS include sediment from erosion, and dirt from impervious (i.e., paved) areas. Many pollutants adhere to sediment particles; therefore, reducing sediment will reduce the amount of these pollutants in storm water discharge.

- iii. Oil and Grease (O&G) is a measure of the amount of O&G present in storm water discharge. At very low concentrations, O&G can cause sheen on the surface of water. O&G can adversely affect aquatic life, create unsightly floating material, and make water undrinkable. Sources of O&G include, but are not limited to, maintenance shops, vehicles, machines and roadways.

The previous permit allowed Dischargers to analyze samples for either O&G or Total Organic Carbon (TOC). This General Permit requires all Dischargers analyze samples for O&G since almost all Dischargers with outdoor activities operate equipment and vehicles can potentially generate insoluble oils and greases. Dischargers with water soluble-based organic oils may be required to also test for TOC. The TOC and O&G tests are not synonymous, duplicative or interchangeable.

This General Permit removes the requirement to analyze for specific conductance as part of the minimum analytic parameters. Specific conductance is not required by U.S. EPA for any industry type. Additionally, stakeholder comments indicate that there are many non-industrial sources that may cause high specific conductance and interfere with the efficacy of the test. For example, salty air deposition that occurs at facilities in coastal areas may raise the specific conductance in water over 500 micro-ohms per centimeter ($\mu\text{hos/cm}$). Dischargers are not prevented from performing a specific conductance test as a screening tool if it is useful to detect a particular pollutant of concern as required (e.g. salinity).

This General Permit requires Dischargers subject to Subchapter N ELGs for pH to analyze for pH using approved test methods in accordance with 40 Code of Federal Regulations part 136. These federal regulations specify that analysis of pH must take place within 15 minutes of sample collection. All other Dischargers may screen for pH using wide range litmus pH paper or other equivalent pH test kits within 15 minutes of sample collection. If in any reporting year a Discharger has two or more pH results outside of the range of 6.0 – 9.0 pH units, that Discharger is required to comply with the approved test methods in 40 Code of Federal Regulations part 136 in subsequent reporting years.

For almost all Dischargers, obtaining laboratory analysis within 15 minutes is logistically impossible. For many Dischargers, maintaining a calibrated pH meter is difficult, labor intensive, and error prone. Screening for pH will limit the number of additional Dischargers required to comply with 40 Code of Federal Regulations part 136 methods to those that have pH measures outside the range of 6.0-9.0 pH units. The use of wide range litmus pH paper or other equivalent pH test kits is not as accurate as a calibrated pH meter, however litmus paper is allowed in the 2008 MSGP, and when used properly it can provide an accurate screening measure to determine if further more-accurate pH sampling is necessary to determine compliance.

Review of available monitoring data shows that storm water discharges from most types of industrial facilities comply with the pH range of 6.0 to 9.0 pH units. There are specific types of industries, like cement or concrete manufacturers that

have shown a trend of higher pH values very close to 9.0 pH units. Rather than require all industries as a whole to monitor with the more costly 40 Code of Federal Regulations part 136 methods, this General Permit establishes a triggering mechanism for these more advanced pH test methods. The Regional Water Boards retain their authority to require more accurate test methods. Once a Discharger triggers the requirement to use the more accurate testing methods in 40 Code of Federal Regulations part 136, the Discharger may not revert back to screening for pH for the duration of coverage under this General Permit.

In the early 1990s, U.S. EPA, through its group application program, evaluated nationwide monitoring data and developed the listed parameters and SIC associations shown in Table 1 of this General Permit. The 2008 MSGP requires that Dischargers analyze storm water effluent for the listed parameters under certain conditions. In addition to the parameters in Table 1 of this General Permit, Dischargers are required to select additional facility-specific analytical parameters to be monitored, based upon the types of materials that are both exposed to and mobilized by contact with storm water. Dischargers must, at a minimum, understand how to identify industrial materials that are handled outdoors and which of those materials can easily dissolve or be otherwise transported via storm water.

The Regional Water Boards have the authority to revise the monitoring requirements for an individual facility or group of facilities based on site-specific factors including geographic location, industry type, and potential to pollute. For example, the Los Angeles Regional Water Board required all dismantlers (SIC Code 5015) within their jurisdiction to monitor for copper and zinc instead of aluminum and iron during the term of the previous permit. SMARTS will be programmed to incorporate any monitoring revisions required by the Regional Water Boards. Dischargers will receive email notification of the monitoring requirement revision and their SMARTS analytical reporting input screen will display the corresponding revisions. Dischargers may add, but not otherwise modify, the sampling parameters on their SMARTS input screen.

Dischargers are also required to identify pollutants that may cause or contribute to an existing exceedance of any applicable water quality standards for the receiving water. This General Permit requires Dischargers to control its discharge as necessary to meet the receiving water limitations, and to select additional monitoring parameters that are representative of industrial materials handled at the facility (regardless of the degree of storm water contact or relative mobility) that may be related to pollutants causing a water body to be impaired.

4. Methods and Exceptions

a. Storm Water Discharge Locations

Dischargers are required to visually observe and collect samples of industrial storm water discharges from each drainage area at all discharge locations. These samples must be representative of the storm water discharge leaving each drainage area. This is a change from the previous permit which allowed a

Discharger to reduce the number of discharge locations sampled if two or more discharge locations were substantially similar.

Dischargers are required to identify, when practicable, alternate discharge locations if: (1) the facility's industrial drainage areas are affected by storm water run-on from surrounding areas that cannot be controlled, or (2) discharge locations are difficult to observe or sample (e.g. submerged discharge outlets, dangerous discharge location accessibility).

b. Representative Sampling Reduction

Some stakeholders have indicated that there are unique circumstances where sampling a subset of representative discharge locations fully characterizes the full set of storm water discharges. Stakeholders provided examples related to drainage areas with multiple discharge locations where sampling only a subset of these discharge locations produces results that are representative of the drainage areas' storm water discharges. In such situations, this General Permit allows Dischargers to reduce the number of discharge locations. For each drainage area with multiple discharge locations (e.g. roofs with multiple downspouts, loading/unloading areas with multiple storm drain inlets), the Discharger may reduce the number of discharge locations to be sampled if the conditions in Section XI.C.4 of this General Permit are met.

c. Qualified Combined Samples

Dischargers may combine samples from up to four (4) discharge locations if the industrial activities within each drainage area and each drainage area's physical characteristics (i.e. grade, surface materials) are substantially similar.

Dischargers are required to provide documentation in the Monitoring Implementation Plan supporting that the above conditions have been evaluated and fulfilled. A Discharger may combine samples from more than four (4) discharge locations only with approval from the appropriate Regional Water Board.

d. Sample Collection and Visual Observation Exceptions

Dischargers are not required to collect samples or conduct visual observations during dangerous weather conditions such as flooding or electrical storms, or outside of scheduled facility operating hours. A Discharger is not precluded from conducting sample collection activities or visual observations outside of scheduled facility operating hours.

In the event that a Discharger is unable to collect the required samples or conduct visual observations due to the above exceptions, the Discharger must include an explanation of the conditions obstructing safe monitoring in its Annual Report. If access to a discharge location is dangerous on a routine basis, a Discharger must choose an alternative discharge location in accordance with General Permit Section XI.C.3.

e. Sampling Frequency Reduction

Facilities that do not have NAL exceedances for four (4) consecutive QSEs are unlikely to pose a significant threat to water quality. If the storm water from these facilities is also in full compliance with this General Permit, the Discharger is eligible for a reduction in sampling frequency. The Sampling Frequency Reduction allows a Discharger to decrease its monitoring from four (4) samples within each reporting year to one (1) QSE within the first half of each reporting year (July 1 to December 31) and one (1) QSE within the second half of each reporting year (January 1 to June 30). If a Discharger has a subsequent NAL exceedance after the Sampling Frequency Reduction, it must comply with the original sampling requirements of this General Permit. Only Dischargers that have baseline status or that have satisfied the Level 1 requirements are eligible for this sampling and analysis reduction.

A Discharger requesting to reduce its sampling frequency shall certify and submit a Sampling Frequency Reduction certification via SMARTS. The Sampling Frequency Reduction certification shall include documentation that the General Permit conditions for the Sampling Frequency Reduction have been satisfied.

Dischargers participating in a Compliance Group and certifying a Sampling Frequency Reduction are only required to collect and analyze storm water samples from one (1) QSE within each reporting year. These Dischargers must receive year-round compliance assistance from their Compliance Group Leader and must comply with all requirements of this General Permit.

5. Facilities Subject to Federal Storm Water Effluent Limitation Guidelines (ELGs)

Federal regulations at Subchapter N establish ELGs for industrial storm water discharges from facilities in eleven industrial sectors. For these facilities, compliance with the ELGs constitutes compliance with the technology standard of BPT, BAT, BCT, or New Source Performance Standards provided in the ELG for the specified pollutants, and compliance with the technology-based requirements in this General Permit for the specified pollutant.

K. Exceedance Response Actions (ERAs)

1. General

The previous permit did not incorporate the benchmarks from any of the MSGPs or NALs for Dischargers to evaluate sampling results. Unlike the requirements for industrial storm water discharges that cause or contribute to an exceedance of a water quality standards, the previous permit did not provide definitions, procedures or guidelines to assess sampling results. Many Regional Water Boards have formally or informally notified Dischargers that exceedances of the MSGP benchmarks should be used to determine whether additional BMPs are necessary. However, there was considerable confusion as to the extent to which a Discharger would be expected to implement actions in response to exceedances of these values, and the timelines that had to be met to prevent an enforcement action. The lack of specificity with regards to what constituted an exceedance, and what actions

are required in response to an exceedance, have been identified as a problem by the Water Boards, industry and environmental stakeholders.

This General Permit contains two (2) types of NALs. Annual NALs function similarly to, and are based upon, the values provided in the 2008 MSGP. Instantaneous maximum NALs target hot spots or episodic discharges of pollutants and are established based on California industrial storm water discharge monitoring data. When a Discharger exceeds an NAL it is required to perform ERAs. The ERAs are divided into two levels of responses and can generally be differentiated by the number of years in which a facility's discharge exceeds an NAL trigger. These two levels are explained further in Section XII of this General Permit. This ERA process provides Dischargers with an adaptive management-based process to develop and implement cost-effective BMPs that are protective of water quality and compliant with this General Permit. This process is also designed to provide Dischargers with a more defined pathway towards full compliance.

The ERA requirements in this General Permit were developed using best professional judgment and Water Board experience with the shortcomings of the previous permit's compliance procedures. Public comments received during State Water Board hearings on the 2002, 2005, 2011, 2012 and 2013 draft permits, and NPDES industrial storm water discharge permits from other states with well-defined ERA requirements were also considered by the State Water Board.

The State Water Board presumes that one single NAL exceedance for a particular parameter is not a clear indicator that a facility's discharge is out of compliance with the technology-based effluent limitations or receiving water limitations. This presumption recognizes the highly variable nature of storm water discharge and the limited value of a single quarterly grab sample to represent the quality of a facility's storm water discharge for an entire storm event and all other non-sampled storm events. With this presumption, the State Water Board is addressing costly monitoring requirements that do not bring forth valuable compliance and/or water quality information.

2. NALs and NAL Exceedances

a. This General Permit contains two types of NAL exceedances as follows:

Annual NAL exceedance - the Discharger is required to calculate the average annual concentration for each parameter using the results of all sampling and analytical results for the entire facility for the reporting year (i.e., all "effluent" data), and compare the annual average concentration to the corresponding Annual NAL values in Table 2 of this General Permit. An annual NAL exceedance occurs when the annual average of all the sampling results for a parameter taken within a reporting year exceeds the annual NAL value for that parameter listed in Table 2 of this General Permit.

For the purposes of calculating the annual average concentration for each parameter, this General Permit considers any sampling result that are a "non-detect" or less than the method detection limit as a zero (0) value. The reason to use zero (0) values instead of the detected but not quantifiable

value (minimum level or reporting limit) is that these values are very low and are unlikely to contribute to an NAL exceedance. There are statistical methods to include low values when calculations are for numeric criteria and limitations, however, the NALs in this General Permit are approximate values used to provide feedback to the Discharger on site performance, and are not numeric criteria or limitations. Therefore, it is not necessary to include these insignificant values in the calculations for the NALs. For Dischargers using composite sampling or flow measurement in accordance with standard practices, the average concentrations shall be calculated in accordance with the U.S. EPA Guidance Manual for the Monitoring and Reporting Requirements of the NPDES Multi-Sector Storm Water General Permit.¹⁴

- i. Instantaneous maximum NAL exceedance - the Discharger is required to compare all sampling and analytical results from each distinct sample (individual or combined) to the corresponding instantaneous maximum NAL values in Table 2 of this General Permit. An instantaneous maximum NAL exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the instantaneous maximum NAL value (for TSS and O&G), or are outside of the instantaneous maximum NAL range (for pH).

b. Instantaneous maximum NAL analysis

In its June 19, 2006 report, the Blue Ribbon Panel of Experts (Panel) made several specific recommendations for how to set numeric limitations in future industrial storm water general permit(s). For sites not subject to TMDLs, the Panel suggested that the numeric values be based upon industry types or categories, with the recognition that each industry has its own specific water quality issues and financial viability. Furthermore, the Panel concluded:

To establish Numeric Limits for industrial sites requires a reliable database, describing current emissions by industry types or categories, and performance of existing BMPs. The current industrial permit has not produced such a database for most industrial categories because of inconsistencies in monitoring or compliance with monitoring requirements. The Board needs to reexamine the existing data sources, collect new data as required and for additional water quality parameters (the current permit requires only pH, conductivity, total suspended solids, and either total organic carbon or oil and grease) to establish practical and achievable Numeric Limits.

The Panel suggested an alternative method that would allow the use of the existing Water Board dataset to establish action levels, referred to as the “ranked percentile” method. The Panel recommended:

¹⁴ U.S. EPA. NPDES Storm Water Sampling Guidance Document. Web. July 1992. <<http://www.epa.gov/npdes/pubs/owm0093.pdf>>. [as of February 4, 2014].

The ranked percentile approach (also a statistical approach) relies on the average cumulative distribution of water quality data for each constituent developed from many water quality samples taken for many events at many locations. The Action Level would then be defined as those concentrations that consistently exceed some percentage of all water quality events (i.e. the 90th percentile). In this case, action would be required at those locations that were consistently in the outer limit (i.e. uppermost 10th percentile) of the distribution of observed effluent qualities from urban runoff.

After performing various data analysis exercises with the Water Board dataset, State Water Board staff concluded that the Water Board dataset is not adequate to calculate instantaneous NAL values using the Panel's recommended method for all of parameters that have annual NAL values based on the U.S. EPA benchmarks. Additionally, public comments on the January 2011 draft of this General Permit suggest that it is problematic to calculate NAL values based on the existing data. Therefore, the Water Board dataset was not used to calculate instantaneous NAL values for all parameters.

However, since all Dischargers regulated under the previous permit were required to sample for TSS and O&G/TOC, State Water Board staff found that the existing dataset for these parameters is of sufficient quality to calculate instantaneous NAL values. State Water Board staff also found that this data was less prone to what appear to be data input errors. The final dataset used to calculate the instantaneous NALs in this General Permit had outlier values that were eliminated from the dataset by using approved test method detection limits ranges. The methods and corresponding method detection limit ranges used to screen outliers are as follows:

- O&G - EPA 413.1 Applicable Range: 5-1,000 mg/L
- O&G - EPA 1664 Applicable Range: 5-1,000 mg/L
- TSS - EPA 160.2 Applicable Range: 4-20,000 mg/L

The intent of the instantaneous maximum NAL is to identify specific drainage areas of concern or episodic sources of pollution in industrial storm water that may indicate inadequate storm water controls and/or water quality impacts. In the effort to add instantaneous NAL exceedances to the ERA process, the State Water Board explored different options for the development of an appropriate value (i.e. percentile approach, benchmarks times a multiplier, confidence intervals). The California Stormwater Quality Association's comments on the previous draft permit included a proposed method for calculating NAL values using a percentile approach. The State Water Board researched and evaluated this methodology and determined it is the most appropriate way to directly compare available electronic sampling data from Dischargers regulated under the previous permit. This percentile approach was used to establish the instantaneous maximum NALs in this General Permit, for discharges to directly compare with sampling results and identify drainage areas of water quality concern.

The percentile approach is a non-parametric approach identified in many statistical textbooks for determining highly suspect values. Highly suspect values are defined as values that exceed the limits of the outer fences of a box plot. Upper limits of the outer fence are calculated by adding three times the inter-quartile range (25th to 75th percentiles) to the upper-end of the inter-quartile range (the 75th percentile). The California Stormwater Quality Association calculated an NAL value of 401 mg/L for TSS using the percentile approach using the Water Board dataset. The State Water Board performed the same analysis with the same Water Board dataset and calculated a slightly different value of 396 mg/L; therefore, the instantaneous maximum NAL value for TSS of 400 mg/L was established. Applying the percentile approach to the existing O&G data results in the instantaneous maximum NAL value for O&G of 25 mg/L.

The State Water Board compared existing sampling data to the instantaneous maximum NAL values and concluded that seven (7) percent of the total samples exceeded the highly suspected value for TSS and 7.8 percent of the total samples exceeded the highly suspected value for O&G. These results suggest that the instantaneous maximum NAL values are adequate to identify drainage areas of concern statewide since they are not regularly exceeded. Using best professional judgment, the State Water Board concludes that an exceedance of these values twice within a reporting year is unlikely to be the result of storm event variability or random BMP implementation problems, and the use of the percentile approach is therefore appropriate.

Due to issues with the ranges of concentrations and the logarithmic nature of pH, statistical methods cannot be applied to pH in the same ways as other parameters. Review of storm water sampling data by the State Water Board and other stakeholders has shown that pH is not typically a parameter of concern for most industrial facilities. Accordingly, a range of pH limits established in Regional Water Board Basin Plans is implemented in this General Permit for the instantaneous maximum NAL values. Most Basin Plans set a water quality objective of 6.0 - 9.0 pH units for water bodies, an exceedance outside the range of 6.0 - 9.0 pH units is consistent with the water quality concerns for pH among Regional Water Boards. An industrial facility with proper BMP implementation is expected to have industrial storm water discharges within the range of 6.0 - 9.0 pH units.

High concentrations of TSS and O&G, or pH values outside the range of 6.0 – 9.0 pH units, in a discharge may be an indicator of potential BMP implementation or receiving water quality concerns with other pollutants with parameters that do not have an instantaneous maximum NAL value. The State Water Board may consider instantaneous maximum NAL values for other parameters in a subsequent reissuance of this General Permit, based on data collected during this General Permit term.

The percentile approach is considered by many stakeholders to be the best method to evaluate BMP performance and general effluent quality in a community or population where the vast majority of the industrial facilities are implementing sufficient pollutant control measures. The Water Board's current

dataset does not provide a way of evaluating actual BMP implementation at each facility when analyzing the data; therefore the monitoring information reported during the previous permit term cannot be linked to compliance with technology-based standards. The State Water Board intends to use data collected during this General Permit term to evaluate the percentile approach, improve the quality of collected data for other parameters, and further develop an understanding of how reported data relates to implemented BMP-control technologies.

Under this General Permit, a Discharger enters Level 1 status and must fulfill the Level 1 status ERA requirements following its first occurrence of any NAL exceedance. Level 2 status ERA requirements follow the second occurrence of an NAL exceedance for the same parameter in a subsequent reporting year. This ERA process provides Dischargers with an adaptive management-based process to develop and implement cost-effective BMPs that are protective of water quality and compliant with this General Permit. This General Permit's ERA process is designed to have a well-defined compliance end-point. It is not a violation of this General Permit to exceed the NAL values; it is a violation of the permit, however, to fail to comply with the Level 1 status and Level 2 status ERA requirements in the event of NAL exceedances.

The State Water Board acknowledges that storm water discharge concentrations are often highly variable and dependent upon numerous circumstances such as storm size, the time elapsed since the last storm, seasonal activities, and the time of sample collection. Since there are potential enforcement consequences for failure to comply with this General Permit's ERA process, the State Water Board's intention is to use NAL exceedances to solely require Dischargers with recurring annual NAL exceedances or drainage areas that produce recurring instantaneous maximum NAL exceedances to be subject to the follow-up ERA requirements.

If NALs exceedances do not occur, the State Water Board generally expects that the Discharger has implemented sufficient BMPs to control storm water pollution. When NAL exceedances do occur, however, the potential that the Discharger may not have implemented appropriate and/or sufficient BMPs increases, and the Discharger is required to implement escalating levels of ERAs. If NAL exceedances occur, this General Permit requires Dischargers to evaluate and potentially install additional BMPs, or re-evaluate and improve existing BMPs to be in compliance with this General Permit.

3. Baseline Status

At the beginning of a Discharger's NOI coverage under this General Permit, the Discharger has Baseline status. A Discharger demonstrating compliance with all NALs will remain at Baseline status and is not required to complete Level 1 status and Level 2 status ERA requirements.

If a Discharger has returned to Baseline status (from Level 2 status) and additional NAL exceedances occur, the Discharger goes into Level 1 status, then potentially

Level 2 status. Dischargers do not go directly into Level 2 status from Baseline status.

4. Level 1 Status

Regardless of when an NAL exceedance occurs during Baseline status, a Discharger's status changes from Baseline status to Level 1 status on July 1 of the subsequent reporting year. By October 1 following the commencement of Level 1 status, the Discharger is required to appoint a QISP to assist with the completion of the Level 1 Evaluation. The Level 1 Evaluation must include a review of the facility's SWPPP for compliance with the effluent and receiving water limitations of this General Permit, an evaluation of the industrial pollutant sources at the facility that are or may be related to the NAL exceedance(s), and identification of any additional BMPs that will eliminate future exceedances. When conducting the Level 1 Evaluation, a Discharger must ensure that all potential pollutant sources that could be causing or contributing to the NAL exceedance(s) are fully characterized, that the current BMPs are adequately described, that employees responsible for implementing BMPs are appropriately trained, and that internal procedures are in place to track that BMPs are being implemented as designed in the SWPPP. A Discharger is additionally required to evaluate the need for additional BMPs. Level 1 ERAs are designed to provide the Discharger the opportunity to improve existing BMPs or add additional BMPs to comply with the requirements of this General Permit.

By January 1 following commencement of Level 1 status, a Discharger is required to certify and submit via SMARTS a Level 1 ERA Report prepared by a QISP. The Level 1 ERA Report must contain a summary of the Level 1 Evaluation, all new or revised BMPs added to the SWPPP.

In most cases, the State Water Board believes that Level 1 status BMPs will be operationally related rather than structural and, therefore can be implemented without delay. Recognizing that a Discharger should not be penalized for sampling results obtained before implementing BMPs, sampling results for parameters and their corresponding drainage areas that caused the NAL exceedance up to October 1 or the date the BMPs were implemented, whichever is sooner, will not be used for calculating NAL exceedances. Although this General Permit allows up to January 1 to implement Level 1 status BMPs, the State Board has chosen an interim date of October 1 to encourage more timely Level 1 BMP implementation. Dischargers who implement Level 1 BMPs after October 1 may risk obtaining subsequent sampling results that may cause them to go into Level 2 status.

5. Level 2 Status

Level 2 ERAs are required during any subsequent reporting year in which the same parameter(s) has an NAL exceedance (annual average or instantaneous maximum), if this occurs, a Discharger's status changes from Level 1 status to Level 2 status on July 1 of the subsequent reporting year. Dischargers with Level 2 status must further evaluate BMP options for their facility. Dischargers may have to implement additional BMPs, which may include physical, structural, or mechanical devices that

are intended to prevent pollutants from contacting storm water. Examples of such controls include, but are not limited to:

- Enclosing and/or covering outdoor pollutant sources within a building or under a roofed or tarped outdoor area.
- Physically separating the pollutant sources from contact with run-on of uncontaminated storm water.
- Devices that direct contaminated storm water to appropriate treatment BMPs (e.g., discharge to sanitary sewer as allowed by local sewer authority).
- Treatment BMPs including, but not limited to, detention ponds, oil/water separators, sand filters, sediment removal controls, and constructed wetlands.

Dischargers may select the most cost-effective BMPs to control the discharge of pollutants in industrial storm water discharges. Where appropriate, BMPs can be designed and targeted for various pollutant sources (e.g., providing overhead coverage for one potential pollutant while discharging to a detention basin for another source may be the most cost-effective solution).

a. Level 2 ERA Action Plans

The State Water Board acknowledges that there may be circumstances that make it difficult, if not impossible, for a Discharger to immediately implement additional BMPs. For example, it may take time to get a contract for construction in place, obtain necessary building permits, and design and construct the BMPs. Dischargers may also suspect that pollutants are from a non-industrial or natural background source and need time to study their site. A Discharger is required to certify and submit an Action Plan prepared by a QISP via SMARTS by January 1 following the reporting year in which the NAL exceedance that resulted in the Discharger entering Level 2 occurred. The Level 2 ERA Action Plan requires a Discharger to propose actions necessary to complete the Level 2 ERA Technical Report, the demonstrations the Discharger has selected, and propose a time frame for implementation.

If a Discharger changes the QISP assisting with the Level 2 ERA requirements this General Permit requires the Discharger to update the QISP information via SMARTS. Current information on individuals assisting Dischargers with compliance of this General Permit provides the Water Boards with the necessary contact information if there are questions on the submitted documents, and for possible verification of a QISP's certification.

Dischargers are required to address each Level 2 NAL exceedance in an Action Plan. The State Water Board recognizes that Dischargers with Level 2 status may have multiple parameters or facility areas that have Level 2 NAL exceedances and the timing of the exceedances may make it very difficult to address all Level 2 NAL exceedances in one Action Plan. When Level 2 ERA exceedances occur in subsequent reporting years, after an Action Plan is

certified and submitted, a Discharger will need to develop an Action Plan for this new Level 2 NAL exceedance. This General Permit defines new Level 2 NAL exceedances as an exceedance for a new parameter in any drainage area at the facility, or an exceedance for the same parameter being addressed in an existing Action Plan, but where the exceedance occurred in a different drainage area than identified in the existing Action Plan.

b. Level 2 ERA Technical Reports

The Level 2 ERA Technical Report contains three different options that require a Discharger to submit demonstrations showing the cause of the NAL exceedance(s). This General Permit requires a Discharger to appoint a QISP to prepare the Level 2 ERA Technical Reports. The State Water Board acknowledges that there may be cases where a combination of the demonstrations may be appropriate; therefore a Discharger may combine any of the following three demonstration options in their Level 2 ERA Technical Report when appropriate. A Discharger is only required to annually update its Level 2 ERA Technical Report when necessary as defined in Section XII.D.3.c of this General Permit, and is not required to annually re-certify and re-submit the entire Level 2 ERA Technical Report. If there are no changes prompting an update of the Level 2 ERA Technical Report, as specified in Section XII.D.3.c of this General Permit, the Discharger will provide this certification in the Annual Report that there have been no changes warranting re-submittal of the Level 2 ERA Technical Report.

i. Industrial Activity BMPs Demonstration

The Industrial Activity BMPs Demonstration is for the following:

- Dischargers who decided to implement additional BMPs that are expected to eliminate future NAL exceedance(s) and that have been implemented in order to achieve compliance with the technology-based effluent limitations of this General Permit, and
- Dischargers who decided to implement additional BMPs that may not eliminate future NAL exceedance(s) and that have been implemented in order to achieve compliance with the technology-based effluent limitations of this General Permit.

When preparing the Industrial Activity BMPs Demonstration, the QISP shall identify and evaluate all individual pollutant source(s) associated with industrial activity that are or may be related to an NAL exceedance and all designed, information on the drainage areas associated with the Level 2 NAL exceedances, and installed BMPs that are implemented to reduce or prevent pollutants in industrial storm water discharges in compliance with this General Permit.

If an Industrial Activity BMPs Demonstration is submitted as the Level 2 ERA Technical Report and the Discharger is able to show reductions in pollutant concentrations below the NALs for four (4) subsequent consecutive QSEs, the Discharger returns to Baseline Status. A Discharger that submits an Industrial Activity BMPs Demonstration but has not installed additional BMPs that are expected to eliminate future NAL exceedance(s) will remain with Level 2 status but is not subject to additional ERAs unless directed by the Regional Water Board.

ii. Non-Industrial Pollutant Source Demonstration

A Non-Industrial Pollutant Source Demonstration is for a Discharger to demonstrate that the pollutants causing the NAL exceedances are not related to industrial activities conducted at the facility, and additional BMPs at the facility will not contribute to the reduction of pollutant concentrations.

Dischargers including the Non-Industrial Pollutant Demonstration in their Level 2 ERA Technical Report shall have a QISP determine that the sources of non-industrial pollutants in storm water discharges are not from industrial activity or natural background sources within the facility.

Sources of non-industrial pollutants that are discharged separately and are not comingled with storm water associated with industrial activity are not considered subject to this General Permit's requirements. When pollutants from non-industrial sources are comingled with storm water associated with industrial activity, the Discharger is responsible for all the pollutants in the combined discharge unless the technical report clearly demonstrates that the NAL exceedances due to the combined discharge are solely attributable to the non-industrial sources. The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance. In most cases, the Non-Industrial Pollutant Source Demonstration will contain sampling data and analysis distinguishing the pollutants from non-industrial sources from the pollutants generated by industrial activity.

Once the Level 2 ERA Technical Report, including this demonstration is certified and submitted via SMARTS, the Discharger has satisfied all the requirements necessary for that pollutant for ERA purposes. A Discharger that submits a Non-Industrial Pollutant Demonstration remains with Level 2 status but is not subject to additional ERAs unless directed by the Regional Water Board.

iii. Natural Background Pollutant Source Demonstration

The benchmark monitoring schedule in section 6.2.1.2 of the 2008 MSGP allows a Discharger to determine that the exceedance of the benchmark is attributable solely to the presence of that pollutant in the natural background. A Discharger making this determination is not required to perform corrective

action or additional benchmark monitoring providing that the other 2008 MSGP requirements are met. The 2008 MSGP Fact Sheet requires Dischargers to include in the following in the SWPPP: 1) map(s) showing the reference site location, facility, available land cover information, reference site and test site elevation, available geology and soil information for reference and test sites, photographs showing site vegetation, site reconnaissance survey data and records. This General Permit requires this information to be included in the Natural Background Pollutant Source Demonstration in Section XII.D.2.c.

The Natural Background Pollutant Source Demonstration in this General Permit is for a Discharger that can demonstrate that pollutants causing the NAL exceedances are not related to industrial activities conducted at the facility, and are solely attributable to the presence of those pollutants in natural background. The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance. Natural background pollutants include those substances that are naturally occurring in soils or groundwater that have not been disturbed by industrial activities. Natural background pollutants do not include legacy pollutants from earlier activity on a site, or pollutants in run-on from neighboring sources which are not naturally occurring. Dischargers are not required to reduce concentrations for pollutants in the effluent caused by natural background sources if these pollutants concentrations are not increased by industrial activity.

The 2008 MSGP Fact Sheet states that the background concentration of a pollutant in runoff from a non-human impacted reference site in the same watershed must be determined by evaluation of ambient monitoring data or by using information from a peer-reviewed publication or a local, state, or federal government publication specific to runoff or storm water in the immediate region. Studies that are in other geographic areas, or are clearly based on different topographies or soils, are not sufficient to meet this requirement. When such data is not available, and there are no known sources of the pollutant, the background concentration should be assumed to be zero.

In cases where historic monitoring data from a site are used for generating a natural background concentration, and the site is no longer accessible or able to meet reference site acceptability criteria, the Discharger must submit documentation (e.g., historic land use maps) indicating the site did meet reference site criteria (such as indicating the absence of human activity) during the time data collection occurred.

Once the Level 2 ERA Technical Report, including a Natural Background Demonstration meeting the conditions in Section XII.D.2.c of this General Permit is certified and submitted via SMARTS, the Discharger is no longer responsible for the identified background parameters(s) in the corresponding drainage area(s). A Discharger that submits this type of demonstration will

remain with Level 2 status but is not subject to additional ERAs unless directed by the Regional Water Board.

c. **Level 2 ERA Implementation Extension**

The State Water Board recognizes that there may be circumstances that make implementation of all necessary actions required in the Level 2 ERAs by the permitted due dates infeasible. In such circumstances a Discharger may request additional time by submitting a Level 2 ERA Implementation Extension. The Level 2 ERA Implementation Extension will automatically allow Dischargers up to an additional six (6) months to complete the tasks identified in the Level 2 ERA Action Plans while remaining in compliance with this General Permit. The Level 2 ERA Implementation Extension is subject to Regional Water Board review. If additional time is needed beyond the initial six (6) month extension, a second Level 2 ERA Implementation Extension may be submitted but is not effective unless it is approved by the Water Board.

L. Inactive Mining Operations

Inactive mining sites may need coverage under this General Permit. Inactive mining operations are mining sites, or portions of sites, where mineral mining and/or dressing occurred in the past with an identifiable Discharger (owner or operator), but are no longer actively operating. Inactive mining sites do not include sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined materials. A Discharger has the option to certify and submit via SMARTS that its inactive mining operations meet the conditions for an Inactive Mining Operation Certification in Section XIII of this General Permit. The Discharger must have a SWPPP for an inactive mine signed (wet signature with license number) by a California licensed professional engineer. The Inactive Mining Operation Certification in this General Permit is in lieu of performing certain identified permit requirements. This General Permit requires an annual inspection of an inactive mining site and an annual re-certification of the SWPPP. Any significant updates to the SWPPP shall be signed (wet signature and license number) by a California license professional engineer. The Discharger must certify and submit via SMARTS any significantly revised SWPPP within 30 days of the revision(s)

M. Compliance Groups and Compliance Group Leaders

Group Monitoring, as defined in the previous permit, has been eliminated in this General Permit and replaced with a new compliance option called Compliance Groups. The Compliance Group option differs from Group Monitoring as it requires (1) all Dischargers participating in a Compliance Group (Compliance Group Participants) sample two QSEs each year, (2) the Compliance Group Leader to inspect each Participant's facility within each reporting year, (3) the Compliance Group Leader must complete a State Water Board sponsored or approved training program for Compliance Group Leaders, and (4) the Compliance Group Leader to prepare Consolidated Level 1 ERA Reports, and individual Level 2 ERA Action Plans and Technical Reports. The Compliance Group option is similar to Group Monitoring as it retains a mechanism that

allows Dischargers of the same industry type to comply with this General Permit through shared resources in a cost saving manner.

This General Permit emphasizes sampling and analysis as a means to evaluate BMP performance and overall compliance, and the significantly reduced sampling requirements previously afforded to Group Monitoring Participants (two samples within a five-year period) does not provide the necessary information to achieve these goals. However, a moderate reduction in sampling requirements is included as an incentive for Compliance Group Participants while concurrently requiring sufficient individual facility sampling data to determine compliance. A Compliance Group Leader is required to provide the necessary sampling training and guidance to the Compliance Group Participants. This additional training requirement will increase sampling data quality that will offset the reduced sampling frequency for Compliance Groups.

Participation in Compliance Groups will provide additional cost savings for Dischargers in the preparation of the Consolidated Level 1 ERA Reports, and for Compliance Group Leader assistance in preparing the Level 2 ERA Action Plans and the individual Level 2 ERA Technical Reports. It is likely that many of the pollutant sources causing NAL exceedances, and the corresponding BMP cost evaluation and selection, when appropriate, will overlap for groups of facilities in a similar industry type. When these overlaps occur, a Compliance Group Leader should be able to more efficiently evaluate the pollutant sources and BMP options, and prepare the necessary reports.

The State Water Board believes that it is necessary for Compliance Group Leaders to have a higher level of industrial storm water compliance and training experience than the expectations of a QISP. Many stakeholder comments on this General Permit suggested various certifications to provide this higher level of experience; however, the State Water Board believes a process similar to the Trainer of Record process for the Construction General Permit training program will develop Compliance Group Leaders with the appropriate level of experience to fulfill the necessary qualifications.

The intent of the Compliance Groups is to have only one or a small number of Compliance Groups per industrial sector. The process for becoming a QISP trainer and/or a Compliance Group Leader is purposely similar to the Construction General Permit trainer of record process for consistency within storm water regulatory leaders. The formal process to qualify to conduct trainings for QISPs and/or to be a Compliance Group Leader will include the submittal of a statement of qualifications for review, a review fee, completion of an exam and training specific to this role. For more information see the Construction General Permit trainer of record process: <http://www.casqa.org/TrainingandEducation/ConstructionGeneralPermitTrainingQSDQSPToR/tabid/205/Default.aspx>

After the initial Compliance Group registration, Compliance Group Leaders are required to submit and maintain their list of Compliance Group Participants via SMARTS. There are no additional administrative documents required. The previous permit required group leaders to provide annual group evaluation reports and a letter of intent to continue group monitoring. The State Water Board found these items to be resource intensive and placed an unnecessary administrative burden on group leaders. The

Compliance Group requirements in this General Permit reduces the administrative burden on both the Compliance Group Leaders and Water Board staff.

The State Water Board's intent for the effluent data, BMP selection, cost, and performance information, and other industry specific information provided in Compliance Group reports is for evaluation of sector-specific permitting approaches and the use of NALs in the next reissuance of this General Permit.

N. Annual Evaluation

Federal regulations require NPDES industrial storm water Dischargers to evaluate their facility and SWPPP annually. Typically this requires an inspection of the facility to ensure: (1) the SWPPP site map is up to date, (2) control of all potential pollutant sources is included in the SWPPP, and (3) sampling data and visual observation records are used to evaluate if the proper BMPs are being implemented. As Dischargers are required to conduct monthly visual observation that partially overlap with the actions required by the annual evaluation requirements, Dischargers may perform the annual evaluation inspection concurrent with a monthly visual observation.

O. Annual Report

All Dischargers shall certify and submit via SMARTS an Annual Report no later than July 15 following each reporting year. The reporting requirements for this General Permit's Annual Report are streamlined in comparison to the previous permit. The Annual Report now consists of two primary parts: (1) a compliance checklist indicating which permit requirements were completed and which were not (e.g., a Discharger who completes the required sampling of four QSEs during the reporting year, versus a Discharger who is only able to sample two QSEs during the reporting year), and (2) an explanation for items on the compliance checklist that were determined incomplete by the Discharger. Unlike the previous permit, the Annual Report does not require Dischargers to provide the details of each visual observation (such as name of observer, time of observation, observation summary, corrective actions, etc.) or provide the details of the Annual Comprehensive Site Evaluation. Dischargers, however, continue to be required to retain those records and have them available upon request. The Annual Report is further simplified through the immediate electronic reporting via SMARTS of sampling data and copies of the original laboratory reports instead of such information being included in the Annual Report.

P. Conditional Exclusion - No Exposure Certification (NEC) Requirements

This General Permit's conditional exclusion requirements are similar to the requirements provided in 40 C.F.R. section 122.26(g)(3). Clarifications were added in this General Permit, however, to the types of "storm resistant shelters" and the periods when "temporary shelters" may be used in order to avert regulatory confusion. California does not have operating coal power plants, which are a major contributor to acid rain elsewhere in the United States. California does have nonpoint sources or atmospheric deposition that may locally impact the pH of the rain water, however this is

not categorized as acid rain as referred to by the U.S. EPA for the NEC coverage requirements. The No Exposure Guidance Document¹⁵ developed by the U.S. EPA mentions acid rain as a potential source of contaminants to consider for NEC coverage. The acid rain leachate language was not included in this General Permit's Appendix 2 to clarify that Dischargers may qualify for NEC coverage, even if the facility has metal buildings or structures.

The Discharger shall certify and submit complete PRDs for NEC coverage via SMARTS. Based upon the State Water Board's experience with reissuing and implementing the 2009 Construction General Permit, the transition for existing Dischargers to register under this new General Permit is staff resource intensive. The State Water Board staff is available to assist Dischargers requiring assistance with enrolling under this General Permit, both for NOI coverage and NEC coverage. The State Water Board has also experienced that more time is needed for its staff to assist Dischargers registering for NEC coverage. To provide better customer service to all Dischargers, three months have been added to the NEC coverage PRD submittal schedule for new and existing Dischargers (Section II.B.4 of this General Permit, extending the NEC coverage registration date to October 1, 2015).

Dischargers must annually inspect their facility to ensure continued compliance with NEC requirements, and annually re-certify and submit an NEC via SMARTS. Based on its regulatory experience, the State Water Board has determined that a five-year NEC re-certification period is inadequate. A significant percentage of facilities may revise, expand, or relocate their operations in any given year. Furthermore, a significant percentage of facilities experience turnover of staff knowledgeable of the NEC requirements and limitations. Accordingly, the State Water Board believes that annual NEC evaluation and re-certification requirements are appropriate to continually assure adequate program compliance.

Q. Special Requirements - Plastic Materials

Water Code section 13367 requires the Water Boards to implement measures that control discharges of preproduction plastic from point and nonpoint sources. The State Water Board intends to use this General Permit to regulate discharges of preproduction plastics from areas of facilities that are subject to this General Permit. A Regional Water Board may designate facilities, or areas of facilities, that are not otherwise subject to this General Permit, pursuant to Section XIX.F. For example, a Regional Water Board may designate Plastic Materials handling areas of a transportation facility that are not associated with vehicle maintenance as requiring coverage under this General Permit.

Preproduction plastics used by the plastic manufacturing industry are small in size and have the potential to mobilize in storm water. Preproduction plastic washed into storm water drains can move to waters of the United States where it contributes to the growing problem of plastic debris in inland and coastal waters. Water Code section 13367

¹⁵ U.S. EPA. Guidance Manual for Conditional Exclusion from Storm Water Permitting Based On "No Exposure" of Industrial Activities to Storm Water. Web. June 2000. < <http://www.epa.gov/npdes/pubs/noxguide.pdf>>. [as of January 31, 2014].

outlines five mandatory BMPs that are required for all facilities that handle preproduction plastic. These mandatory BMPs are included in this General Permit.

The State Water Board has received comments regarding the Water Code requirements for Plastics Facilities to install a containment system for on-site storm drain locations that meet 1mm capture and 1-year 1-hour storm flow requirement standards. As a result, this General Permit includes the option under Water Code section 13367 that allows a plastics facility to propose an alternative BMP or suite of BMPs that can meet the same performance and flow requirements as a 1mm capture and 1-year 1-hour storm flow containment system standards. These alternative BMPs are to be submitted to the Regional Water Board for approval. This alternative is intended to allow the facility to develop BMPs that focus on pollution prevention measures that can perform as well as, or better than, the containment system otherwise required by the statute.

The State Water Board also includes two additional containment system alternatives in this General Permit that are considered to be equivalent to, or better than, the 1mm capture and 1-year 1-hour storm flow requirements:

- An alternative allowing plastic facilities to implement a suite of eight BMPs addressing the majority of potential sources of plastic discharges. This suite of BMPs is based on industry and U.S. EPA recommendations and Water Board experience with storm water inspections, violations, and enforcement cases throughout California.
- An alternative allowing a facility to operate in a manner such that all preproduction plastic materials are used indoors and pose no potential threat for discharge off-site. The facility is required to notify the Regional Water Board of the intent to seek this exemption and of any changes to the facility or operations that may disqualify the facility for the exemption. The exemption may be revoked by the Regional Water Board at any time.

Plastics facilities may use preproduction plastic materials that are less than 1mm in size, or produce materials, byproducts, or waste that is smaller than 1mm in size. These small size materials will pass through the 1mm capture containment system required by Water Code section 13367. Plastics facilities with sub-1mm materials must design a containment system to capture the smallest size material onsite with a 1-year 1-hour storm flow requirement, or propose alternative BMPs for Regional Water Board approval that meet the same requirements.

The remaining BMPs required by Water Code section 13367 are consistent with recommendations for handling and clean-up of preproduction plastics in the American Chemistry Council publication, *Operation Clean Sweep* and U.S. EPA's publication *Plastic Pellets in the Aquatic Environment: Sources and Recommendations*. The State Water Board believes that the entire approach in this General Permit for plastic materials is consistent with Water Code section 13367.

R. Regional Water Board Authorities

The Regional Water Boards retain discretionary authority over many issues that may arise from industrial discharges within their respective regions. This General Permit

emphasizes the authority of the Regional Water Boards over specific requirements of this General Permit that do not meet region-specific water quality protection regulatory needs.

S. Special Conditions: Requirements for Dischargers Claiming the “No Discharge” Option in the Notice of Non-Applicability

1. General

Entities that operate facilities generating storm water associated with industrial activities that is not discharged to waters of the United States are not required to obtain General Permit coverage. Entities that have contacted the Water Boards to inquire what is necessary to avoid permit coverage have received inconsistent guidance. This has resulted in regulatory inconsistency and uncertainty as to whether they are in compliance if their industry operates without General Permit coverage. Depending upon how each Regional Water Board handles “No Discharge” claims, some facilities with advanced containment design may be required to obtain General Permit coverage while other facilities with less advanced containment design may be allowed to operate without General Permit coverage. Some stakeholders have complained that this type of regulatory inconsistency puts some facilities at an economically-competitive disadvantage given the costs associated with permit compliance.

U.S. EPA regulations do not provide a design standard, definition, or guidance as to what constitutes “No Discharge.” Unlike Conditional Exclusion requirements, U.S. EPA regulations do not require an entity to submit technical justification or certification that a facility does not discharge to waters of the United States (U.S.). Therefore entities have previously been allowed to self-determine that their facility does not discharge to water of the U.S. when using any containment design standard. The State Water Board does not have available information showing that most entities have adequately performed hydraulic calculations to determine the frequency of discharge corresponding to their containment controls or have had these hydraulic calculations reviewed or completed by a California licensed professional engineer. Although U.S. EPA makes clear that an unpermitted discharge to waters of the U.S. is a violation of the CWA, this leaves regulatory agencies with the very difficult task of knowing when any given facility discharges in order to carry-out enforcement actions.

In 1998, the Water Code was amended to require entities who are requested by the Water Boards to obtain General Permit coverage, but that have a valid reason to not obtain General Permit coverage, to submit a Notice of Non-Applicability (NONA). (Wat. Code, § 13399.30, subd. (a)(2)). The NONA covers multiple reasons why an entity is not required to be permitted including (1) facility closure, (2) not the legal owner, (3) incorrect SIC code, (4) eligibility for the Conditional Exclusion (No Exposure Certification), and (5) the facility not discharging to water of the U.S. (“No Discharge”). The previous permit contained definitions, requirements, and guidance that entities may reference to determine whether they are eligible to select any of the first four NONA reasons for not obtaining General Permit coverage. However, neither the previous permit nor the Water Code provide definitions, requirements,

and guidance for entities to determine whether they are eligible to indicate “No Discharge” on the NONA as a reason for not obtaining General Permit coverage.

This General Permit addresses and resolves the issues discussed above by establishing consistent, statewide eligibility requirements in Section XX.C for entities submitting NONAs indicating “No Discharge.” When requested by the Water Boards to obtain General Permit coverage, entities must meet these “No Discharge” eligibility requirements or obtain General Permit coverage. The Water Boards retain enforcement authority if a facility subsequently discharges.

2. “No Discharge” Eligibility Requirements

The entity must certify submit in SMARTS a NONA Technical Report signed (wet signature and license number) by a California licensed professional engineer that contains the analysis and details of the containment design supporting the “No Discharge” eligibility determination. Because containment design will require hydraulic calculations, soil permeability analysis, soil stability calculations, appropriate safety factor consideration, and the application of other general engineering principles, state law requires the technical report to be signed (wet signature and license number) by a California licensed professional engineer.

The State Water Board has selected a containment design target that, as properly applied will result in few, if any, discharges. The facility must either be:

- a. Engineered and constructed to contain all storm water associated with industrial activities from discharging to waters of the United States. (The determination of what is a water of the United States can be complicated, and in certain circumstances, a discharge to groundwater that has a direct hydrologic connection to waters of the United States may constitute a discharge to a water of the United States.) Dischargers must base their information upon maximum historic precipitation event data (or series of events) from the nearest rain gauges as provided by the National Oceanic and Atmospheric Administration’s (NOAA) website, or other nearby precipitation data available from other government agencies. At a minimum, Dischargers must ensure that the containment design addresses maximum 1-hour, 24-hour, weekly, monthly, and annual precipitation data for the duration of the exclusion.

Design storm events are generally specified as a one-time expected hydraulic failure over a reoccurrence of years for a specified storm event. For example, if a design storm standard is a 100 year 24-hour event, then a facility’s containment system designed to contain the maximum volume of water would be expected to fall in 24 hours once every 100 years. Design standards vary dependent upon the regulatory program and the level of protection needed. Since California has considerable variations in climate/topography/soil conditions across the state, the “No Discharge” NONA eligibility requirements have been created so that each facility’s containment design can incorporate unique site specific circumstances to meet the requirement that discharges will not occur based upon past historical precipitation data. Facilities that are not designed to not meet the “No Discharge” eligibility requirements must obtain General Permit coverage.

- b. Located in basins or other physical locations that are not hydrologically connected to waters of the United States.

The State Water Board considered allowing Entities to review United States Army Corp of Engineer maps to determine, without a California licensed professional engineer, whether their facility location is within a basin and/or other physical location that is not hydrologically connected to waters of the United States. The State Water Board believes that this determination can be difficult in some cases, or is likely to be performed incorrectly. In addition, there may be areas of the state that are not hydrologically connected to waters of the United States, but are not on United States Army Corps of Engineer maps. Therefore, all “No Discharge” Technical Reports must be signed (wet signature and license number) by a California licensed professional engineer.

3. Additional Considerations

The “No Discharge” determination does not cover storm water containment systems that transfer industrial pollutants to groundwater. Entities must determine whether designs that incorporate infiltration may discharge to and contaminate groundwater. If there is a threat to groundwater, Entities must contact the Regional Water Boards prior to construction of infiltration design elements.

Entities that have not eliminated all discharges that are subject to General Permit coverage (NOI Coverage or NEC Coverage) are ineligible to submit NONAs indicating “No Discharge.”

ATTACHMENT A

FACILITIES COVERED BY NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (GENERAL PERMIT)

1. Facilities Subject To Storm Water Effluent Limitations Guidelines, New Source Performance Standards, or Toxic Pollutant Effluent Standards Found in 40 Code of Federal Regulations, Chapter I, Subchapter N (Subchapter N):

Cement Manufacturing (40 C.F.R. Part 411); Feedlots (40 C.F.R. Part 412); Fertilizer Manufacturing (40 C.F.R. Part 418); Petroleum Refining (40 C.F.R. Part 419), Phosphate Manufacturing (40 C.F.R. Part 422), Steam Electric (40 C.F.R. Part 423), Coal Mining (40 C.F.R. Part 434), Mineral Mining and Processing (40 C.F.R. Part 436), Ore Mining and Dressing (40 C.F.R. Part 440), Asphalt Emulsion (40 C.F.R. Part 443), Landfills (40 C.F.R. Part 445), and Airport Deicing (40 C.F.R. Part 449).
2. Manufacturing Facilities:

Facilities with Standard Industrial Classifications (SICs) 20XX through 39XX, 4221 through 4225. (This category combines categories 2 and 10 of the previous general permit.)
3. Oil and Gas/Mining Facilities:

Facilities classified as SICs 10XX through 14XX, including active or inactive mining operations (except for areas of coal mining operations no longer meeting the definition of a reclamation area under 40 Code of Federal Regulations. 434.11(1) because the performance bond issued to the facility by the appropriate Surface Mining Control and Reclamation Acts authority has been released, or except for areas of non-coal mining operations which have been released from applicable State or Federal reclamation requirements after December 17, 1990) and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with any overburden, raw material, intermediate products, finished products, by-products, or waste products located on the site of such operations. Inactive mining operations are mining sites that are not being actively mined, but which have an identifiable owner/operator. Inactive mining sites do not include sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined material; or sites where minimal activities are undertaken for the sole purpose of maintaining a mining claim.
4. Hazardous Waste Treatment, Storage, or Disposal Facilities:

Hazardous waste treatment, storage, or disposal facilities, including any facility operating under interim status or a general permit under Subtitle C of the Federal Resource, Conservation, and Recovery Act.
5. Landfills, Land Application Sites, and Open Dumps:

Landfills, land application sites, and open dumps that receive or have received industrial waste from any facility within any other category of this Attachment; including facilities subject to regulation under Subtitle D of the Federal Resource, Conservation, and Recovery Act, and facilities that have accepted wastes from construction activities (construction activities include any clearing, grading, or excavation that results in disturbance).
6. Recycling Facilities:

Facilities involved in the recycling of materials, including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards, including but limited to those classified as Standard Industrial Classification 5015 and 5093.
7. Steam Electric Power Generating Facilities:

Any facility that generates steam for electric power through the combustion of coal, oil, wood, etc.
8. Transportation Facilities:

Facilities with SICs 40XX through 45XX (except 4221-25) and 5171 with vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication) or other operations identified under this Permit as associated with industrial activity.
9. Sewage or Wastewater Treatment Works:

Facilities used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge, that are located within the confines of the facility, with a design flow of one million gallons per day or more, or required to have an approved pretreatment program under 40 Code of Federal Regulations part 403. Not included are farm lands, domestic gardens, or lands used for sludge management where sludge is beneficially reused and are not physically located in the confines of the facility, or areas that are in compliance with Section 405 of the Clean Water Act.

ATTACHMENT B

ACRONYM LIST

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

ASBS	Areas of Special Biological Significance
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practices
BOD	Biochemical Oxygen Demand
BPT	Best Practicable Control Technology Currently Available
CBPELSG	California Board for Professional Engineers, Land Surveyors and Geologists
DWQ	Division of Water Quality
ELGs	Effluent Limitations Guidelines and New Source Performance Standards
ERA	Exceedance Response Action
MS4	Municipal Separate Storm Sewer System
MSGP	Multi Sector General Permit
NAL	Numeric Action Level
NAICS	North American Industrial Classification System
NEC	No Exposure Certification
NEL	Numeric Effluent Limitation
NOI	Notice of Intent
NONA	Notice of Non Applicability
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
NSWD	Non Storm Water Discharges
O&G	Oil and Grease
PRDs	Permit Registration Documents
QA/QC	Quality Assurance/Quality Control
QISP	Qualified Industrial Storm water Practitioner
QSE	Qualifying Storm Event
SIC	Standard Industrial Classification
SMARTS	Storm Water Multiple Application and Report Tracking System
SWPPP	Storm Water Pollution Prevention Plan
TBEL	Technology Based Effluent Limitation
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TSS	Total Suspended Solids
U.S. EPA	United States Environmental Protection Agency
WDID	Waste Discharge Identification Number
WQBEL	Water Quality Based Effluent Limitation

ATTACHMENT C

GLOSSARY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

Adoption Date April 1, 2014

Aerial Deposition

Total suspended particulate matter found in the atmosphere as solid particles or liquid droplets. Chemical composition of particulates varies widely, depending on location and time of year. Sources of airborne particulates include but are not limited to: dust, emissions from industrial processes, combustion products from the burning of wood and coal, combustion products associated with motor vehicle or non-road engine exhausts, and reactions to gases in the atmosphere. Deposition is the act of these materials being added to a landform.

Beneficial Uses

As defined in the California Water Code, beneficial uses of the waters of the state that may be protected against quality degradation, include but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

Best Available Technology Economically Achievable (BAT)

As defined by United States Environmental Protection Agency (U.S. EPA), BAT is a technology-based standard established by the Clean Water Act (CWA) as the most appropriate means available on a national basis for controlling the direct discharge of toxic and nonconventional pollutants to navigable waters. The BAT effluent limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

Best Conventional Pollutant Control Technology (BCT)

As defined by U.S. EPA, BCT is a technology-based standard for the discharge from existing industrial point sources of conventional pollutants including biochemical oxygen demand (BOD), total suspended sediment (TSS), fecal coliform, pH, oil and grease.

Best Professional Judgment (BPJ)

The method used by permit writers to develop technology-based NPDES permits conditions on a case-by-case basis using all reasonably available and relevant data.

GLOSSARY

Best Management Practices (BMPs)

Scheduling of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Chain of Custody

Form used to track sample handling as samples progress from sample collection to the laboratory. The chain of custody is also used to track the resulting analytical data from the laboratory to the client. Chain of custody forms can be obtained from an analytical laboratory upon request.

Debris

Litter, rubble, discarded refuse, and remains of destroyed inorganic anthropogenic waste.

Detected Not Quantifiable

A sample result that is between the Method Detection Limit (MDL) and the Minimum Level (ML).

Discharger

A person, company, agency, or other entity that is the operator of the industrial facility covered by this General Permit.

Drainage Area

The area of land that drains water, sediment, pollutants, and dissolved materials to a common discharge location.

Effective Date

The date, set by the State Water Resources Control Board (State Water Board), when at least one or more of the General Permit requirements take effect and the previous permit expires. This General Permit requires most of the requirements (such as SMARTs submittals, minimum BMPs, sampling and analysis requirements) to take effect on July 15, 2015.

Effluent

Any discharge of water either to the receiving water or beyond the property boundary controlled by the Discharger.

Effluent Limitation

Any numeric or narrative restriction imposed on quantities, discharge rates, and concentrations of pollutants that are discharged from point sources into waters of the United States, waters of the contiguous zone, or the ocean.

GLOSSARY

Erosion

The process by which soil particles are detached and transported by the actions of wind, water or gravity.

Erosion Control BMPs

Vegetation, such as grasses and wildflowers, and other materials, such as straw, fiber, stabilizing emulsion, protective blankets, etc., placed to stabilize areas of disturbed soils, reduce loss of soil due to the action of water or wind, and prevent water pollution.

Facility

A collection of industrial processes discharging storm water associated with industrial activity within the property boundary or operational unit.

Field Measurements

Testing procedures performed in the field with portable field-testing kits or meters.

Good Housekeeping BMPs

BMPs designed to reduce or eliminate the addition of pollutants through analysis of pollutant sources, implementation of proper handling/disposal practices, employee education, and other actions.

Industrial Materials

Includes, but is not limited to: raw materials, recyclable materials, intermediate products, final products, by product, waste products, fuels, materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); any chemical the facility is required to report pursuant to Section 313 of Title III of Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag, and sludge and that are used, handled, stored, or disposed in relation to a facility's industrial activity.

Method Detection Limit

The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.

Minimum Level

The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that all method-specified sample weights, volumes, and cleanup procedures have been employed.

Monitoring Implementation Plan

Planning document included in the Storm Water Pollution Prevention Plan (SWPPP). Dischargers are required to record information on the implementation of the monitoring requirements in this General Permit. The MIP should include relevant information on:

GLOSSARY

the Monthly Visual Observation schedule, Sampling Parameters, Representative Sampling Reduction, Sample Frequency Reduction, and Qualified Combined Samples.

Monitoring Requirements

Includes sampling and analysis activities as well as visual observations.

Natural Background

Pollutants including substances that are naturally occurring in soils or groundwater. Natural background pollutants do not include legacy pollutants from previous activity at a facility, or pollutants in run-on from neighboring sources which are not naturally occurring.

New Discharge(r)

A facility from which there is a discharge, that did not commence the discharge at a particular site prior to August 13, 1979, which is not a new source as defined in 40 Code of Federal Regulations 122.29, and which has never received a finally effective NPDES permit for discharges at that site. See 40 Code of Federal Regulations 122.2.

Numeric Action Level (NAL) Exceedance

Annual NAL exceedance - the Discharger shall determine the average concentration for each parameter using the results of all the sampling and analytical results for the entire facility for the reporting year (i.e., all "effluent" data) and compare this to the corresponding Annual NAL values in Table 2. For Dischargers using composite sampling or flow measurement in accordance with standard practices, the average concentrations shall be calculated in accordance with the U.S. EPA Guidance Manual for the Monitoring and Reporting Requirements of the NPDES Multi-Sector Storm Water General Permit.¹ An annual NAL exceedance occurs when the average of all the analytical results for a parameter from samples taken within a reporting year exceeds an annual NAL value for that parameter listed in Table 2 (or is outside the NAL pH range);

Instantaneous maximum NAL exceedance - the Discharger shall compare all sampling and analytical results from each distinct sample (individual or composite) to the corresponding Instantaneous maximum NAL values in Table 2. An instantaneous maximum NAL exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the instantaneous maximum NAL value (for TSS and O&G), or are outside of the instantaneous maximum NAL range (for pH).

Non Detect

Sample result is less than Method Detection Limit; Analyte being tested cannot be detected by the equipment or method.

¹ U.S. EPA. NPDES Storm Water Sampling Guidance Document. <<http://www.epa.gov/npdes/pubs/owm0093.pdf>>. [as of July 3, 2013]

GLOSSARY

Non-Storm Water Discharges (NSWDs)

Discharges that do not originate from precipitation events. Including but not limited to, discharges of process water, air conditioner condensate, non-contact cooling water, vehicle wash water, sanitary wastes, concrete washout water, paint wash water, irrigation water, or pipe testing water.

Numeric Action Level (NAL)

Pollutant concentration levels used to evaluate if best management practices are effective and if additional measures are necessary to control pollutants. NALs are not effluent limits. The exceedance of an NAL is not a permit violation.

Operator

In the context of storm water associated with industrial activity, any party associated with an industrial facility that meets either of the following two criteria:

- a. The party has operational control over the industrial SWPPP and SWPPP specifications, including the ability to make modifications to those plans and specifications
- b. The party has day-to-day operational control of activities at the facility which are necessary to ensure compliance with a SWPPP for the facility or other permit conditions (e.g., authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions).

pH

Unit universally used to express the intensity of the acid or alkaline condition of a water sample. The pH of natural waters tends to range between 6.0 and 9.0, with neutral being 7.0.

Plastic Materials

Plastic Materials are virgin and recycled plastic resin pellets, powders, flakes, powdered additives, regrind, dust, and other similar types of preproduction plastics with the potential to discharge or migrate off-site.

Qualified Industrial Storm Water Practitioner (QISP)

Only required once a Discharger reaches Level 1 status, a QISP is the individual assigned to ensure compliance with this General Permit or to assist New Dischargers with determining coverage eligibility for discharges to an impaired water body. A QISP's responsibilities include implementing the SWPPP, performing the Annual Comprehensive Facility Compliance Evaluation (Annual Evaluation), assisting in the preparation of Annual Reports, performing ERAs, and training appropriate Pollution Prevention Team members. The individual must take the appropriate state approved or sponsored training to be qualified. Dischargers shall ensure that the designated QISP is geographically located in an area where they will be able to adequately perform the permit requirements at all of the facilities they represent.

GLOSSARY

Qualifying Storm Event (QSE)

A precipitation event that:

- a. Produces a discharge for at least one drainage area; and
- b. Is preceded by 48 hours with no discharge from any drainage area.

Regional Water Board

Includes the Executive Officer and delegated Regional Water Board staff.

Runoff Control BMPs

Measures used to divert run-on from offsite and runoff within the site.

Run-on

Discharges that originate offsite and flow onto the property of a separate facility or property or, discharges that originate onsite from areas not related to industrial activities and flow onto areas on the property with industrial activity.

Scheduled Facility Operating Hours

The time periods when the facility is staffed to conduct any function related to industrial activity, but excluding time periods where only routine maintenance, emergency response, security, and/or janitorial services are performed.

Sediment

Solid particulate matter, both mineral and organic, that is in suspension, is being transported, or has been moved from its origin by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level.

Sedimentation

Process of deposition of suspended matter carried by water, wastewater, or other liquids that flow by gravity. Control of sedimentation is accomplished by reducing the velocity of the liquid below the point at which it can transport the suspended material.

Sediment Control BMPs

Practices that trap soil particles after they have been eroded by rain, flowing water, or wind. Includes those practices that intercept and slow or detain the flow of storm water to allow sediment to settle and be trapped (i.e., silt fence, sediment basin, fiber rolls, etc.).

Sheet Flow

Flow of water that occurs overland in areas where there are no defined channels and where the water spreads out over a large area at a uniform depth.

Source

Any facility or building, property, road, or area that causes or contributes to pollutants in storm water.

GLOSSARY

Storm Water

Storm water runoff, snowmelt runoff, and storm water surface runoff and drainage.

Storm Water Discharge Associated With Industrial Activity

The discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant as identified in Attachment A of this General Permit. The term does not include discharges from facilities or activities excluded from the NPDES program. The term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials; manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process wastewaters (as defined at 40 C.F.R. section 401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. The term does not include discharges from facilities or activities excluded from the NPDES program under 40 C.F.R. section 122.

Material handling activities include the: storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product, or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are federally, State, or municipally owned or operated that meet the description of the facilities listed in this paragraph) include those facilities designated under 40 C.F.R. section 122.26(a)(1)(v).

Structural Controls

Any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution.

Total Suspended Solids (TSS)

The measure of the suspended solids in a water sample including inorganic substances such as soil particles, organic substances such as algae, aquatic plant/animal waste, and particles related to industrial/sewage waste, etc. The TSS test measures the concentration of suspended solids in water by measuring the dry weight of a solid material contained in a known volume of a sub-sample of a collected water sample. Results are reported in mg/L.

GLOSSARY

Toxicity

The adverse response(s) of organisms to chemicals or physical agents ranging from mortality to physiological responses, such as impaired reproduction or growth anomalies.

Trade Secret

Information, including a formula, pattern, compilation, program, device, method, technique, or process, that: (1) derives independent economic value, actual or potential, from not being generally known to the public or to other persons who can obtain economic value from its disclosure or use; and (2) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

Turbidity

The cloudiness of water quantified by the degree to which light traveling through a water column is scattered by the suspended organic and inorganic particles it contains. The turbidity test is reported in Nephelometric Turbidity Units (NTU) or Jackson Turbidity Units (JTU).

Waters of the United States

Generally refers to surface waters, as defined for the purposes of the federal Clean Water Act.

Water Quality Objectives

Defined in the California Water Code as limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.

Water Quality Standards

Consists of beneficial uses, water quality objectives to protect those uses, an antidegradation policy, and policies for implementation. Water quality standards are established in Regional Water Quality Control Plans (Basin Plans) and statewide Water Quality Control Plans. U.S. EPA has also adopted water quality criteria (the same as objectives) for California in the National Toxics Rule and California Toxics Rule.

ATTACHMENT D

PERMIT REGISTRATION DOCUMENTS (PRDs)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (GENERAL PERMIT)

This Attachment provides an example of the information Dischargers are required to submit in the PRDs via the Storm Water Multiple Application and Report Tracking System (SMARTS). The actual PRD requirements are in Section II of this General Permit.

A. Who Must Submit PRDs

All Dischargers that operate facilities as described in Attachment A of this General Permit are subject to either Notice of Intent (NOI) or No Exposure Certification (NEC) Coverage and shall comply with the PRD requirements in this General Permit.

B. Who Is Not Required to Submit PRDs

Dischargers that operate facilities described below are not required to submit PRDs:

1. Facilities that are not described in Attachment A;
2. Facilities that are described in Attachment A but do not have discharges of storm water associated with industrial activity to waters of the United States; or,
3. Facilities that are already covered by an NPDES permit for discharges of storm water associated with industrial activity.

C. Annual Fees for NOI and NEC Coverage

Annual Fees for NOI and NEC coverage are established through regulations adopted by the State Water Board and are subject to change (see California Code of Regulations, title 23, section 2200 et seq.).

D. When and How to Apply

Dischargers proposing to conduct industrial activities subject to this General Permit must electronically certify and submit PRDs via the Storm Water Multiple Application

PERMIT REGISTRATION DOCUMENTS (PRDS)

Reporting and Tracking System (SMARTS)¹ no less than seven (7) days prior to the commencement of industrial activity. Existing Dischargers must submit PRDs for NOI coverage by July 1, 2015 or for NEC coverage by October 1, 2015.

E. PRD Requirements for NOI Coverage

1. Notice of Intent (NOI) and Signed Electronic Authorization Form.
2. Site Map (Section X.E of this General Permit).
3. Storm Water Pollution Prevention Plan (see Section X of this General Permit).

F. Description of PRDs for NOI Coverage

1. The Notice of Intent (NOI) requires the following information:

- a. Operator/Owner Information

Operator/Owner Company or Organization Name
 Contact First Name
 Contact Last Name
 Title
 Street Address
 Address Line 2
 City/State/Zip
 Phone (e.g. 999-999-9999)
 E-mail (e.g. abc@xyz.com)
 Federal Tax ID

- b. Facility Information

Facility Name
 WDID Number (if applicable)
 Contact First Name
 Contact Last Name
 Title
 Street Address
 Address Line 2
 City
 County
 Phone (e.g. 999-999-9999)

¹ The State Water Board has developed the SMARTS online database system to handle registration and reporting under this General Permit. More information regarding SMARTS and access to the database is available online at <<https://smarts.waterboards.ca.gov>>. [as of June 26, 2013].

PERMIT REGISTRATION DOCUMENTS (PRDS)

Emergency Phone (e.g. 999-999-9999)
 E-mail (abc@xyz.com)
 State/Zip CA
 Total Site Size (Acres)
 Latitude (Decimal degrees only, minimum 5 significant digits, e.g. 99.99999)
 Longitude (Decimal degrees only, minimum 5 significant digits, e.g. 99.99999)
 Total Percentage Site Imperviousness Area of Facility (Acres)
 Total Areas of Industrial Activities and Materials Exposed to Precipitation
 Primary SIC Code
 Secondary SIC Code
 Tertiary SIC Code
 Regional Water Board

c. Billing Information

Billing Name
 Contact First Name
 Contact Last Name
 Title
 Street Address
 Address Line 2
 City/State/Zip
 Phone (e.g. 999-999-9999)
 E-mail (e.g. abc@xyz.com)

d. Receiving Water Information

Does your facility's storm water flow directly or indirectly into waters of the US such as river, lake, ocean, etc. (check box for directly or indirectly)

- i. Indirectly to waters of the US
- ii. Storm drain system - Enter owner's name:
- iii. Directly to waters of the US (e.g., river, lake, creek, stream, bay, ocean, etc.)
- iv. Name of the receiving water: _____

PERMIT REGISTRATION DOCUMENTS (PRDS)

2. The Site Map(s) shall include the following Information:
 - a. The facility boundary;
 - b. Storm water drainage areas within the facility boundary;
 - c. Portions of any drainage area impacted by discharges from surrounding areas and flow direction of each drainage area;
 - d. On-facility surface water bodies;
 - e. Areas of soil erosion;
 - f. Location(s) of nearby water bodies (such as rivers, lakes, wetlands, etc.);
 - g. Location(s) of municipal storm drain inlets that may receive the facility's industrial storm water discharges and authorized Non-Storm Water Discharges (NSWDs);
 - h. Locations of storm water collection and conveyance systems and associated points of discharge, and direction of flow;
 - i. Any structural control measures (that affect industrial storm water discharges, authorized NSWDs, and run-on);
 - j. All impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures;
 - k. Locations where materials are directly exposed to precipitation;
 - l. Locations where significant spills or leaks identified (Section X.G.1.d of this General Permit) have occurred;
 - m. Areas of industrial activity subject to this General Permit;
 - n. All storage areas and storage tanks;
 - o. Shipping and receiving areas;
 - p. Fueling areas;

PERMIT REGISTRATION DOCUMENTS (PRDS)

- q. Vehicle and equipment storage/maintenance areas;
 - r. Material handling and processing areas;
 - s. Waste treatment and disposal areas;
 - t. Dust or particulate generating areas;
 - u. Cleaning and material reuse areas; and,
 - v. Any other areas of industrial activity which may have potential pollutant sources.
3. The Storm Water Pollution Prevention Plan (SWPPP) must be prepared in accordance with Section X of this General Permit.
 4. A NOI Certification by the Discharger that all PRDs submitted are correct and true.
 5. SMARTS Electronic Authorization Form (Signed by any user authorized to certify and submit data electronically).

G. PRD Requirements for NEC Coverage

1. No Exposure Certification and Signed Electronic Authorization Form.
2. No Exposure Certification Checklist Consistent with Requirements in Section XVII.F.2 of this General Permit.
3. Current Site Map Consistent with Requirements in Section X.E of this General Permit.

H. Description of PRDs for NEC Coverage

1. The No Exposure Certification requires the following information:
 - a. Operator/Owner Information
 - Operator/Owner Name
 - Contact First Name
 - Contact Last Name
 - Title

PERMIT REGISTRATION DOCUMENTS (PRDS)

Street Address
 Address Line 2
 City/State/Zip
 Phone Ex (999-999-9999)
 E-mail (abc@xyz.com)
 Federal Tax ID

b. Facility Information

Facility Name
 Contact First Name
 Contact Last Name
 Title
 Street Address
 Address Line 2
 City
 County
 Phone Ex (999-999-9999)
 Emergency Phone Ex (999-999-9999)
 E-mail (abc@xyz.com)
 State/Zip CA
 Total Site Size (Acres)
 Latitude (Decimal degrees only, minimum 5 significant digits, Ex 99.99999)
 Longitude (Decimal degrees only, minimum 5 significant digits, Ex 99.99999)
 Percent of Site Imperviousness (%)
 Primary SIC Code
 Secondary SIC Code
 Tertiary SIC Code
 Regional Water Board

c. Billing Information

Billing Name (if different than Operator/Owner)
 Contact First Name
 Contact Last Name
 Title
 Street Address
 Address Line 2
 City/State/Zip
 Phone E.g. (999-999-9999)
 E-mail (e.g. abc@xyz.com)

d. SMARTS Electronic Authorization Form - Signed by any user authorized to certify and submit data electronically.

PERMIT REGISTRATION DOCUMENTS (PRDS)

- e. Certification by the Discharger that all PRDs submitted are correct and true and that the conditions of no-exposure have been met.
2. The NEC Checklist (Section XVII.F.2 of this General Permit) must be prepared to demonstrate that, based upon a facility inspection and evaluation, none of the following industrial materials or activities are, or will be in the foreseeable future, exposed to precipitation:
 - a. Activities such as using, storing, or cleaning industrial machinery or equipment, and areas with materials or residuals from these activities;
 - b. Materials or residuals on the ground or in storm water inlets from spills/leaks;
 - c. Materials or products from past industrial activity;
 - d. Material handling equipment (except adequately maintained vehicles);
 - e. Materials or products during loading/unloading or transporting activities;
 - f. Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants);
 - g. Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;
 - h. Materials or products handled/stored on roads or railways owned or maintained by the Discharger;
 - i. Waste material (except waste in covered, non-leaking containers, e.g., dumpsters). Application or disposal of processed wastewater (unless already covered by an NPDES permit); and,
 - j. Particulate matter or visible deposits of residuals from roof stacks/vents evident in the storm water outflow.
 3. The Site Map(s) shall include the following information (see Section X.E of this General Permit):
 - a. The facility boundary;
 - b. Storm water drainage areas within the facility boundary;
 - c. Portions of any drainage area impacted by discharges from surrounding areas and flow direction of each drainage area;

PERMIT REGISTRATION DOCUMENTS (PRDS)

- d. On-facility surface water bodies;
- e. Areas of soil erosion;
- f. Location(s) of nearby water bodies (such as rivers, lakes, wetlands, etc.);
- g. Location(s) of municipal storm drain inlets that may receive the facility's industrial storm water discharges and authorized NSWDS;
- h. Locations of storm water collection and conveyance systems and associated points of discharge, and direction of flow;
- i. Any structural control measures (that affect industrial storm water discharges, authorized NSWDS, and run-on);
- j. All impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures;
- k. Locations where materials are directly exposed to precipitation and the locations where significant spills or leaks identified (Section X.G.1.d of this General Permit) have occurred;
- l. Areas of industrial activity subject to this General Permit;
- m. All storage areas and storage tanks;
- n. Shipping and receiving areas;
- o. Fueling areas;
- p. Vehicle and equipment storage/maintenance areas;
- q. Material handling and processing areas;
- r. Waste treatment and disposal areas;
- s. Dust or particulate generating areas;
- t. Cleaning and material reuse areas; and,
- u. Any other areas of industrial activity which may have potential pollutant sources.

PERMIT REGISTRATION DOCUMENTS (PRDS)**I. Obtaining Coverage**

To obtain coverage under this General Permit PRDs must be included and completed. If any of the required items are missing, the PRD submittal is considered incomplete and will be rejected. Upon receipt of a complete PRD submittal, the State Water Board will process the application package in the order received and assign a (WDID) number.

J. Additional Information

The Water Board may require the submittal of additional information in SMARTS if required to determine the appropriate fee for the facility as specified by the fee regulations.

K. Questions

If you have any questions on completing the PRDs or about SMARTS, please email stormwater@waterboards.ca.gov or call (866) 563-3107.

ATTACHMENT E

LIST OF TOTAL MAXIMUM DAILY LOADS (TMDLS) APPLICABLE TO INDUSTRIAL STORM WATER DISCHARGERS

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (GENERAL PERMIT)

The following table contains a list of Regional Water Board adopted and/or U.S. EPA established/approved TMDLs, as of the adoption date of this General Permit, that are applicable to industrial storm water Dischargers. TMDLs adopted/established after the effective date of the General Permit may, at the Water Boards discretion, be included in this General Permit. This General Permit may be reopened to amend TMDL-specific permit requirements in this Attachment E, or to incorporate new TMDLs adopted during the term of this General Permit that include requirements applicable to Dischargers covered by this General Permit.

Water Body	Pollutant
<u>San Francisco Bay Regional Water Quality Control Board</u>	
Napa River	Sediment
Sonoma Creek	Sediment
<u>Los Angeles Regional Water Quality Control Board</u>	
Santa Clara River Reach 3	Chloride
Santa Clara River	Nutrients
Los Angeles River	Metals
Los Angeles River	Nutrients
San Gabriel River	Metals and Selenium
Santa Monica Bay	Nearshore Debris
Machado Lake	Nutrient
Harbor Beaches of Ventura	Bacteria
Ballona Creek	Metals
Ballona Creek Estuary	Toxic Pollutants
Los Angeles Harbor	Bacteria
Marina del Rey Back Basins	Bacteria
Santa Clara River	Bacteria
Walker Creek,	Mercury
Oxnard Drain No. 3	Pesticides, PCBs ¹ and Sediment Toxicity
Long Beach City Beaches and Los Angeles River Estuary	Indicator Bacteria
Los Angeles and Long Beach Harbors	Toxic and Metals

¹ Polychlorinated biphenyls

**LIST OF TOTAL MAXIMUM DAILY LOADS (TMDLS) APPLICABLE TO
INDUSTRIAL STORM WATER DISCHARGERS**

Los Angeles Area Lakes	Nitrogen, Phosphorus, Mercury, Trash, Organochlorine Pesticides and PCBs
Santa Monica Bay	DDTs and PCBs
Machado Lake	Toxics
Colorado Lagoon	Pesticides, Polycyclic aromatic hydrocarbons, PCBs, and Metals
Calleguas Creek Watershed	Salts
Calleguas Creek Watershed	Metals and Selenium
Ballona Creek, Ballona Estuary, and Sepulveda Channel	Bacteria
Marina Del Rey Harbor-Back Basins	Copper, Lead, Zinc, and Chlordane, and Total PCBs
Los Cerritos Channel	Metals
<u>Santa Ana Regional Water Quality Control Board</u>	
San Diego Creek and Newport Bay	Toxic Pollutants
<u>San Diego Regional Water Quality Control Board</u>	
Chollas Creek	Diazinon
Chollas Creek	Copper, Lead, and Zinc
Los Peñasquitos Lagoon	Sediment
Rainbow Creek	Total Nitrogen and Total Phosphorus
Shelter Island Yacht Basin	Dissolved Copper
Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in SD Bay	Indicator Bacteria
Twenty Beaches and Creeks	Indicator Bacteria

ATTACHMENT F

EFFLUENT LIMITATION GUIDELINES (ELGs)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

The following Parts of federal regulations at 40 Code of Federal Regulations Chapter I Subchapter N (Subchapter N) contain ELGs approved by US EPA for specific categories of industrial storm water discharges:

Point Source Category	ELGs ¹
Part 411 - Cement Manufacturing	 411.pdf
Part 418 - Fertilizer Manufacturing	 418.pdf
Part 419 - Petroleum Refining	 419.pdf
Part 422 - Phosphate Manufacturing	 422.pdf
Part 423 - Steam Electric Power Generating	 423.pdf

¹ The applicable ELGs are attached to this Attachment F. To view the attachments from an electronic (pdf) version of this Attachment F, left-click on the paper clip icon to the left of this pdf file to make the attachment window appear, then double-click on the icons of the attached pdf files. The attachments are also available on the Industrial Storm Water program pages of the State Water Resources Control Board's website (www.waterboards.ca.gov).

EFFLUENT LIMITATION GUIDELINES (ELGs)

Point Source Category	ELGs ²
Part 429 - Wetting of logs at wet deck storage areas	 429.pdf
Part 434 - Coal Mining	 434.pdf
Part 436 - Mineral Mining And Processing	 436.pdf
Part 440 - Ore Mining And Dressing	 440.pdf
Part 443 - Paving And Roofing Materials (Tars And Asphalt)	 443.pdf
Part 445 - Landfills	 445.pdf
Part 449 - Airport Deicing	 449.pdf

² The applicable ELGs are attached to this Attachment F. To view the attachments from an electronic (pdf) version of this Attachment F, left-click on the paper clip icon to the left of this pdf file to make the attachment window appear, then double-click on the icons of the attached pdf files. The attachments are also available on the Industrial Storm Water program pages of the State Water Resources Control Board's website (www.waterboards.ca.gov).

EFFLUENT LIMITATION GUIDELINES (ELGs)

New Source Performance Standards

New source performance standards (NSPS) represent the best available demonstrated control technology standards. US EPA has established NSPS guidelines for the industries found in the Table below. The intent of NSPS guidelines is to set effluent limitations that represent state-of-the-art treatment technology for new sources.³

Table 1 - Storm Water Specific NSPS Effluent Limitation Guidelines

Regulated Discharge	40 CFR Section	Multi Sector General Permit Sector	NSPS	Date New Source Data Established
Discharge resulting from spray down or intentional wetting of logs as wet deck storage areas	Part 429, Subpart I	A	Yes	1/26/81
Runoff from phosphate fertilizer manufacturing facilities that comes into contact with any raw materials, finished products, by-products or waste products (SIC 2874)	Part 418, Subpart A	C	Yes	4/8/74
Runoff from asphalt emulsion facilities	Part 443, Subpart A	D	Yes	7/28/75
Runoff from materials storage piles at cement manufacturing facilities	Part 411, Subpart C	E	Yes	2/20/74
Mine dewatering discharges at crushed stone, construction sand and gravel, or industrial sand mining facilities	Part 436, Subparts B, C, D	J	No	N/A
Runoff from hazardous waste and non-hazardous waste landfills	Part 445, Subparts A and B	K, L	Yes	2/2/00
Runoff from coal storage piles at steam electric generating facilities	Part 423	O	Yes	11/19/82 & 10/8/74
Discharges from primary airports with over 1,000 annual jet departures that conduct deicing operations.	Part 449, Subpart A	S	Yes	NA

³ New source means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants," the construction of which commenced: (1) After promulgation of standards of performance under section 306 of CWA which are applicable to such source, or (2) After proposal of standards of performance in accordance with section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal as defined in 40 C.F.R section 122.26.

ATTACHMENT G

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (GENERAL PERMIT)

A. Areas of Special Biological Significance (ASBS)

1. ASBS are defined in the California Ocean Plan as “those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable.”
2. The California Ocean Plan prohibits the discharge of waste to ASBS.
3. The California Ocean Plan authorizes the State Water Board to grant an exception to Ocean Plan provisions where the board determines that the exception will not compromise protection of ocean waters for beneficial uses and the public interest will be served.
4. On March 20, 2012, the State Water Board adopted Resolution 2012-0012 (amended by Resolution 2012-0031 on June 19, 2012) which contained a general exception to the California Ocean Plan for discharges of storm water and non-point sources (ASBS Exception). This resolution also contains the Special Protections that are to be implemented for direct discharges to ASBS. Resolution 2012-0012 is hereby incorporated by reference and its requirements must be complied with by industrial storm water Dischargers discharging directly to ASBS.
5. This General Permit requires Dischargers who have been granted an Ocean Plan exception for discharges to ASBS to comply with the requirements contained in the Special Protections. These requirements are contained below.

B. ASBS Non-Storm Water Discharges

1. The term “ASBS Non-Storm Water Discharges” means any waste discharges from a municipal separate storm sewer system (MS4) or other NPDES permitted storm drain system to an ASBS that are not comprised entirely of storm water.
2. Only the following ASBS Non-Storm Water Discharges are allowed, provided that the discharges are essential for emergency response purposes, structural stability, slope stability or occur naturally:

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

- a. Discharges associated with emergency fire fighting operations.
 - b. Foundation and footing drains.
 - c. Water from crawl space or basement pumps.
 - d. Hillside dewatering.
 - e. Naturally occurring groundwater seepage via a storm drain.
 - f. Non-anthropogenic flows from a naturally occurring stream via a culvert or storm drain, as long as there are no contributions of anthropogenic runoff.
3. Authorized ASBS Non- Storm Water Discharges shall not cause or contribute to a violation of the water quality objectives in Chapter II of the Ocean Plan nor alter natural ocean water quality in an ASBS.
 4. At the San Clemente Island ASBS, discharges incidental to military training and research, development, test, and evaluation operations are allowed. Discharges incidental to underwater demolition and other in-water explosions are not allowed in the two military closure areas in the vicinity of Wilson Cove and Castle Rock. Discharges must not result in a violation of the water quality objectives, including the protection of the marine aquatic life beneficial use, anywhere in the ASBS.
 5. At the San Nicolas Island and Begg Rock ASBS, discharges incidental to military research, development, testing, and evaluation of, and training with, guided missile and other weapons systems, fleet training exercises, small-scale amphibious warfare training, and special warfare training are allowed. Discharges incidental to underwater demolition and other in-water explosions are not allowed. Discharges must not result in a violation of the water quality objectives, including the protection of the marine aquatic life beneficial use, anywhere in the ASBS.

C. ASBS Compliance Plan

1. State Water Board Resolution 2012-0012 grants an exception to the Ocean Plan's prohibition on discharges to ASBS (ASBS Exception) to applicants who were identified as Dischargers of industrial storm water to ASBS (ASBS Dischargers). Each ASBS Discharger shall specifically address the prohibition of ASBS Non-Storm Water Discharges and the requirement to maintain natural water quality for industrial storm water discharges to an ASBS in an ASBS Compliance Plan to be included in the ASBS Discharger's SWPPP. The ASBS Compliance Plan is subject to approval by the Executive Director of the State Water Board. The ASBS Compliance Plan shall include:

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN
OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

- a. A map of surface drainage of storm water runoff, showing areas of sheet runoff and priority discharges, and a description of any structural Best Management Practices (BMPs) already employed and/or BMPs to be employed in the future. Priority discharges are those that pose the greatest water quality threat and which are identified as requiring installation of structural BMPs. The map shall also show the storm water conveyances in relation to other features such as service areas, sewage conveyances and treatment facilities, landslides, areas prone to erosion, and waste and hazardous material storage areas, if applicable. The SWPPP shall also include a procedure for updating the map and plan when changes are made to the storm water conveyance facilities.
- b. A description of the measures by which all unauthorized ASBS Non-Storm Water Discharges (e.g., dry weather flows) has been eliminated, how these measures will be maintained over time, and how these measures are monitored and documented.
- c. A description of how pollutant reductions in storm water runoff, that are necessary to comply with these special conditions, will be achieved through BMPs. Structural BMPs need not be installed if the Discharger can document to the satisfaction of the Executive Director that such installation would pose a threat to health or safety. BMPs to control storm water runoff discharges (at the end-of-pipe) during a design storm shall be designed to achieve on average the following target levels:
 - 1) Table B Instantaneous Maximum Water Quality Objectives in Chapter II of the Ocean Plan; or
 - 2) A 90% reduction in pollutant loading during storm events, for the applicant's total discharges.

The baseline date for the reduction is March 20, 2012 (the effective date of the ASBS Exception), except for those structural BMPs installed between January 1, 2005 and the adoption of these special protections. The reductions must be achieved and documented by March 20, 2018.
- d. A description of how the ASBS Discharger will address erosion and the prevention of anthropogenic sedimentation in the ASBS. The natural habitat conditions in the ASBS shall not be altered as a result of anthropogenic sedimentation.
- e. A description of the non-structural BMPs currently employed and planned in the future (including those for construction activities), and include an implementation schedule. The ASBS Compliance Plan shall also describe the structural BMPs, including any low impact development (LID) measures, currently employed and planned for higher threat discharges and include an

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

implementation schedule. To control storm water runoff discharges (at the end-of-pipe) during a design storm, ASBS Dischargers must first consider using LID practices to infiltrate, use, or evapotranspiration storm water runoff on-site. The BMPs and implementation schedule shall be designed to ensure that natural water quality conditions in the receiving water are achieved and maintained by either reducing flows from impervious surfaces or reducing pollutant loading, or some combination thereof.

D. Reporting

If the results of the receiving water monitoring described in Section F. below (Sampling and Analysis Requirements) indicate that the storm water runoff is causing or contributing to an alteration of natural ocean water quality in the ASBS, the ASBS Discharger shall submit a report to the State Water Board within 30 days of receiving the results.

1. The report shall identify the constituents in storm water runoff that alter natural ocean water quality and the sources of these constituents.
2. The report shall describe BMPs that are currently being implemented, BMPs that are identified in the SWPPP for future implementation, and any additional BMPs that may be added to the SWPPP to address the alteration of natural water quality. The report shall include a new or modified implementation schedule for the BMPs.
3. Within 30 days of the approval of the report by the Executive Director, the ASBS Discharger shall revise its ASBS Compliance Plan to incorporate any new or modified BMPs that have been or will be implemented, the implementation schedule, and any additional monitoring required.
4. As long as the ASBS Discharger has complied with the procedures described above and is implementing the revised SWPPP, the Discharger does not have to repeat the same procedure for continuing or recurring exceedances of natural ocean water quality conditions due to the same constituent.
5. Compliance with this section does not excuse violations of any term, prohibition, or special condition contained in the Special Protections of the ASBS Exception.

E. Compliance Schedule

1. As of March 20, 2012, all unauthorized ASBS Non-Storm Water Discharges (e.g., dry weather flow) were effectively prohibited.
2. By September 20, 2013, the Discharger shall submit a draft written ASBS Compliance Plan to the Executive Director that describes its strategy to comply with these special conditions, including the requirement to maintain natural water

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

quality in the affected ASBS. The ASBS Compliance Plan shall include a description of appropriate non-structural controls and a time schedule to implement structural controls (implementation schedule) to comply with these special conditions for inclusion in the Discharger's SWPPP.

3. By September 20, 2014, the Discharger shall submit the final ASBS Compliance Plan, including a description and final schedule for structural controls based on the results of runoff and receiving water monitoring.
4. By September 20, 2013, any non-structural controls that are necessary to comply with these special conditions shall be implemented.
5. By March 20, 2018, any structural controls identified in the ASBS Compliance Plan that are necessary to comply with these special conditions shall be operational.
6. By March 20, 2018, all Dischargers must comply with the requirement that their discharges into the affected ASBS maintain natural ocean water quality. If the initial results of post-storm receiving water quality testing indicate levels higher than the 85th percentile threshold of reference water quality data and the pre-storm receiving water levels, then the Discharger must re-sample the receiving water, pre- and post-storm. If after re-sampling the post-storm levels are still higher than the 85th percentile threshold of reference water quality data, and the pre-storm receiving water levels, for any constituent, then natural ocean water quality is exceeded. See Flowchart at the end of this Attachment.
7. The Executive Director may only authorize additional time to comply with the special conditions 5 and 6, above if good cause exists to do so. Good cause means a physical impossibility or lack of funding

If a Discharger claims physical impossibility, it shall notify the Board in writing within thirty (30) days of the date that the Discharger first knew of the event or circumstance that caused or would cause it to fail to meet the deadline in 5. or 6. The notice shall describe the reason for the noncompliance or anticipated noncompliance and specifically refer to this Section of these requirements. It shall describe the anticipated length of time the delay in compliance may persist, the cause or causes of the delay as well as measures to minimize the impact of the delay on water quality, the measures taken or to be taken by the Discharger to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The Discharger shall adopt all reasonable measures to avoid and minimize such delays and their impact on water quality.

The Discharger may request an extension of time for compliance based on lack of funding. The request for an extension shall require:

**REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN
OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS**

- a. for municipalities, a demonstration of significant hardship to Discharger ratepayers, by showing the relationship of storm water fees to annual household income for residents within the Discharger's jurisdictional area, and the Discharger has made timely and complete applications for all available bond and grant funding, and either no bond or grant funding is available, or bond and/or grant funding is inadequate; or
- b. for other governmental agencies, a demonstration and documentation of a good faith effort to acquire funding through that agency's budgetary process, and a demonstration that funding was unavailable or inadequate.

F. Additional Requirements – Waterfront and Marine Operations

In addition to the above provisions, a Discharger with waterfront and marine operations shall comply with the following:

- 1. For discharges related to waterfront and marine operations, the Discharger shall develop a Waterfront and Marine Operations Management Plan (Waterfront Plan). This plan shall contain appropriate Management Measures/Practices to address nonpoint source pollutant discharges to the affected ASBS.
 - a. The Waterfront Plan shall contain appropriate Management Measures/Practices for any waste discharges associated with the operation and maintenance of vessels, moorings, piers, launch ramps, and cleaning stations in order to ensure that beneficial uses are protected and natural water quality is maintained in the affected ASBS.
 - b. For discharges from marinas and recreational boating activities, the Waterfront Plan shall include appropriate Management Measures, described in The Plan for California's Nonpoint Source Pollution Control Program, for marinas and recreational boating, or equivalent practices, to ensure that nonpoint source pollutant discharges do not alter natural water quality in the affected ASBS.
 - c. The Waterfront Plan shall include Management Practices to address public education and outreach to ensure that the public is adequately informed that waste discharges to the affected ASBS are prohibited or limited by special conditions in these Special Protections. The management practices shall include appropriate signage, or similar measures, to inform the public of the ASBS restrictions and to identify the ASBS boundaries.
 - d. The Waterfront Plan shall include Management Practices to address the prohibition against trash discharges to ASBS. The Management Practices shall include the provision of adequate trash receptacles for marine recreation areas, including parking areas, launch ramps, and docks. The plan shall also include appropriate Management Practices to ensure that the receptacles are

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- adequately maintained and secured in order to prevent trash discharges into the ASBS. Appropriate Management Practices include covering the trash receptacles to prevent trash from being windblown, staking or securing the trash receptacles so they don't tip over, and periodically emptying the receptacles to prevent overflow.
- e. The Discharger shall submit its Waterfront Plan to the State Water Board Executive Director by September 20, 2012. The Waterfront Plan is subject to approval by the State Water Board Executive Director. The plan must be fully implemented within by September 20, 2013.
2. The discharge of chlorine, soaps, petroleum, other chemical contaminants, trash, fish offal, or human sewage to ASBS is prohibited. Sinks and fish cleaning stations are point source discharges of wastes and are prohibited from discharging into ASBS. Anthropogenic accumulations of discarded fouling organisms on the sea floor must be minimized.
 3. Limited-term activities, such as the repair, renovation, or maintenance of waterfront facilities, including, but not limited to, piers, docks, moorings, and breakwaters, are authorized only in accordance with Chapter III.E.2 of the Ocean Plan.
 4. If the Discharger anticipates that the Discharger will fail to fully implement the approved Waterfront Plan within the 18 month deadline, the Discharger shall submit a technical report as soon as practicable to the Executive Director. The technical report shall contain reasons for failing to meet the deadline and propose a revised schedule to fully implement the plan.
 5. The State Water Board may, for good cause, authorize additional time to comply with the Waterfront Plan. Good cause means a physical impossibility or lack of funding.

If a Discharger claims physical impossibility, it shall notify the Board in writing within thirty (30) days of the date that the Discharger first knew of the event or circumstance that caused or would cause it to fail to meet the deadline in Section F.1.e above. The notice shall describe the reason for the noncompliance or anticipated noncompliance and specifically refer to this Section of this Attachment. It shall describe the anticipated length of time the delay in compliance may persist, the cause or causes of the delay as well as measures to minimize the impact of the delay on water quality, the measures taken or to be taken by the Discharger to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The Discharger shall adopt all reasonable measures to avoid and minimize such delays and their impact on water quality. The Discharger may request an extension of time for compliance based on lack of funding. The request for an extension shall require:

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

- a. a demonstration of significant hardship by showing that the Discharger has made timely and complete applications for all available bond and grant funding, and either no bond or grant funding is available, or bond and/or grant funding is inadequate.
- b. for governmental agencies, a demonstration and documentation of a good faith effort to acquire funding through that agency's budgetary process, and a demonstration that funding was unavailable or inadequate.

G. Sampling and Analysis Requirements

1. Monitoring is mandatory for all ASBS Dischargers to assure compliance with the Ocean Plan. Monitoring requirements include both: (1) Core Discharge Monitoring and (2) Ocean Receiving Water Monitoring (see Sections H. and I. below). The State and Regional Water Boards must approve sampling site locations and any adjustments to the monitoring programs. All ocean receiving water and reference area monitoring must be comparable with the Water Boards' Surface Water Ambient Monitoring Program (SWAMP).
2. Safety concerns: Sample locations and sampling periods must be determined considering safety issues. Sampling may be postponed upon notifying the Executive Director that hazardous conditions prevail.
3. Analytical Chemistry Methods: All constituents must be analyzed using the lowest minimum detection limits comparable to the Ocean Plan water quality objectives. For metal analysis, all samples, including storm water effluent, reference samples, and ocean receiving water samples, must be analyzed by the approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry) described in the Ocean Plan.

H. Core Discharge Monitoring Program

1. General sampling requirements for timing and storm size:

Runoff must be collected during a storm event that is greater than 0.1 inch and generates runoff, and at least 72 hours from the previously measurable storm event. Runoff samples shall be collected during the same storm and at approximately the same time when post-storm receiving water is sampled, and analyzed for the same constituents as receiving water and reference site samples as described in Section I. below.

2. Runoff flow measurements

- a. For industrial storm water outfalls in existence as of December 31, 2007, 18 inches (457mm) or greater in diameter/width (including multiple outfall pipes in combination having a width of 18 inches, runoff flows must be

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- measured or calculated, using a method acceptable to and approved by the Executive Director.
- b. This will be reported annually for each precipitation season to the Executive Director.
3. Runoff samples – storm events
- a. For outfalls equal to or greater than 18 inches (0.46m) in diameter or width:
 - 1) samples of storm water runoff shall be collected during the same storm as receiving water samples and analyzed for oil and grease, total suspended solids, and, if within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination; and 2) samples of storm water runoff shall be collected and analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS.
 - b. For outfalls equal to or greater than 36 inches (0.91m) in diameter or width:
 - 1) samples of storm water runoff shall be collected during the same storm as receiving water samples and analyzed for oil and grease, total suspended solids, and, if within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination; and
 - 2) samples of storm water runoff shall be further collected during the same storm as receiving water samples and analyzed for Ocean Plan Table B metals (provided at the end of this Attachment) for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and phosphates); and
 - 3) samples of storm water runoff shall be collected and analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS.
 - 4) if an ASBS Discharger has no outfall greater than 36 inches, then storm water runoff from the applicant's largest outfall shall be further collected during the same storm as receiving water samples and analyzed for Ocean Plan Table B metals (provided at the end of this Attachment) for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and phosphates).
 - c. For an applicant not participating in a regional integrated monitoring program [see below in Section I.3.] in addition to the sampling requirements in Section H.3.a. and b. above, a minimum of the two largest outfalls or 20 percent of the

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

larger outfalls, whichever is greater, shall be sampled (flow weighted composite samples) at least three times annually during wet weather (storm event) and analyzed for all Ocean Plan Table A constituents, Table B constituents (Table A and B constituents are provided at the end of this Attachment) for marine aquatic life protection (except for toxicity, only chronic toxicity for three species shall be required), DDT, PCBs, Ocean Plan PAHs, OP pesticides, pyrethroids, nitrates, phosphates, and Ocean Plan indicator bacteria. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one (the largest) such discharge shall be sampled annually in each Region.

- d. The Executive Director may reduce or suspend core monitoring once the storm runoff is fully characterized. This determination may be made at any point after the discharge is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.

I. Ocean Receiving Water and Reference Area Monitoring Program

1. In addition to performing the Core Discharge Monitoring Program in Section H. above, all ASBS Dischargers must perform ocean receiving water monitoring. In order to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within their ASBS, ASBS Dischargers may choose either (1) an individual monitoring program, or (2) participation in a regional integrated monitoring program.
2. Individual Monitoring Program: The requirements listed below are for those ASBS Dischargers who elect to perform an individual monitoring program to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within the affected ASBS. In addition to Core Discharge Monitoring, the following additional monitoring requirements shall be met:
 - a. Three times annually, during wet weather (storm events), the receiving water at the point of discharge from the outfalls described in Section H.3. above shall be sampled and analyzed for Ocean Plan Table A constituents, Table B constituents (Table A and B constituents are provided at the end of this Attachment) for marine aquatic life, DDT, PCBs, Ocean Plan PAHs, OP pesticides, pyrethroids, nitrates, phosphates, salinity, chronic toxicity (three species), and Ocean Plan indicator bacteria.

The sample location for the ocean receiving water shall be in the surf zone at the point of discharges; this must be at the same location where storm water runoff is sampled. Receiving water shall be sampled prior to (pre-storm), and during (or immediately after) the same storm (post-storm). Post-storm sampling shall be during the same storm and at approximately the same time as when the runoff is sampled. Reference water quality shall also be

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

- sampled three times annually and analyzed for the same constituents pre-storm and post-storm, during the same storm seasons when receiving water is sampled. Reference stations will be determined by the State Water Board's Division of Water Quality and the applicable Regional Water Board(s).
- b. Sediment sampling shall occur at least three times during every five (5) year period. The subtidal sediment (sand or finer, if present) at the discharge shall be sampled and analyzed for Ocean Plan Table B constituents (provided at the end of this Attachment) for marine aquatic life, DDT, PCBs, PAHs, pyrethroids, and OP pesticides. For sediment toxicity testing, only an acute toxicity test using the amphipod *Eohaustorius estuarius* must be performed.
 - c. A quantitative survey of intertidal benthic marine life shall be performed at the discharge and at a reference site. The survey shall be performed at least once every five (5) year period. The survey design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The results of the survey shall be completed and submitted to the State Water Board and Regional Water Board at least six months prior to the end of the permit cycle.
 - d. Once during each five (5) year period, a bioaccumulation study shall be conducted to determine the concentrations of metals and synthetic organic pollutants at representative discharge sites and at representative reference sites. The study design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The bioaccumulation study may include California mussels (*Mytilus californianus*) and/or sand crabs (*Emerita analoga* or *Blepharipoda occidentalis*). Based on the study results, the Regional Water Board and the State Water Board's Division of Water Quality, may adjust the study design in subsequent permits, or add or modify additional test organisms (such as shore crabs or fish), or modify the study design appropriate for the area and best available sensitive measures of contaminant exposure.
 - e. Marine Debris: Representative quantitative observations for trash by type and source shall be performed along the coast of the ASBS within the influence of the ASBS Discharger's outfalls. The design, including locations and frequency, of the marine debris observations is subject to approval by the Regional Water Board and State Water Board's Division of Water Quality.
 - f. The monitoring requirements of the Individual Monitoring Program in this Section are minimum requirements. After a minimum of one (1) year of continuous water quality monitoring of the discharges and ocean receiving waters, the Executive Director of the State Water Board may require additional monitoring, or adjust, reduce or suspend receiving water and reference station monitoring. This determination may be made at any point

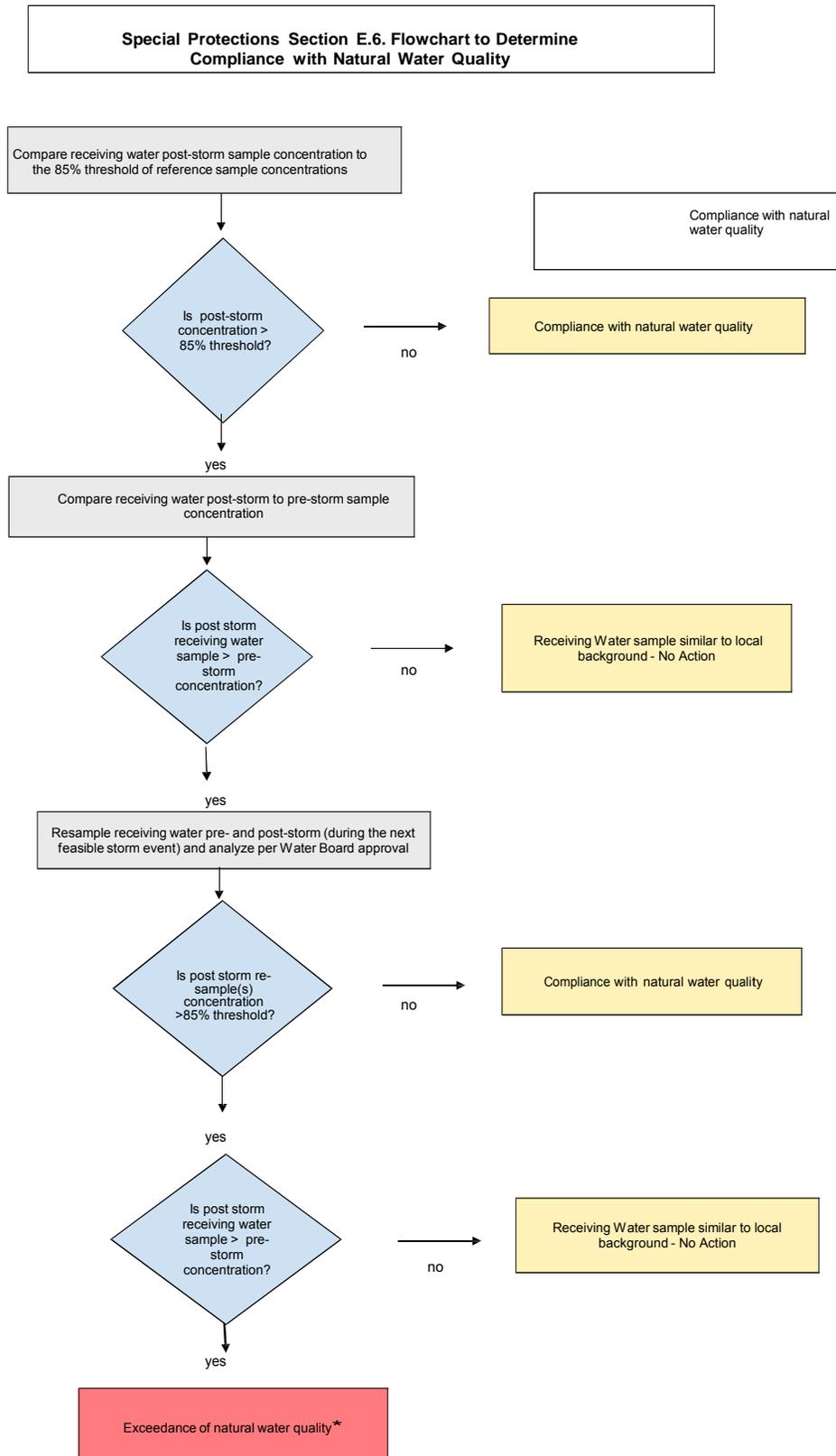
REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

- after the discharge and receiving water is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.
3. Regional Integrated Monitoring Program: ASBS Dischargers may elect to participate in a regional integrated monitoring program, in lieu of an individual monitoring program, to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within their ASBS. This regional approach shall characterize natural water quality, pre- and post-storm, in ocean reference areas near the mouths of identified open space watersheds and the effects of the discharges on natural water quality (physical, chemical, and toxicity) in the ASBS receiving waters, and should include benthic marine aquatic life and bioaccumulation components. The design of the ASBS stratum of a regional integrated monitoring program may deviate from the otherwise prescribed individual monitoring approach (in Section I.2.) if approved by the State Water Board's Division of Water Quality and the Regional Water Boards.
 - a. Ocean reference areas shall be located at the drainages of flowing watersheds with minimal development (in no instance more than 10% development), and shall not be located in CWA Section 303(d) listed waterbodies or have tributaries that are 303(d) listed. Reference areas shall be free of wastewater discharges and anthropogenic non-storm water runoff. A minimum of low threat storm runoff discharges (e.g. stream highway overpasses and campgrounds) may be allowed on a case-by-case basis. Reference areas shall be located in the same region as the ASBS receiving water monitoring occurs. The reference areas for each Region are subject to approval by the participants in the regional integrated monitoring program, the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean reference water samples must be collected from each station, each from a separate storm during the same storm season that receiving water is sampled. A minimum of one reference location shall be sampled for each ASBS receiving water site sampled per responsible party. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one reference station and one receiving water station shall be sampled in each region.
 - b. ASBS ocean receiving water must be sampled in the surf zone at the location where the runoff makes contact with ocean water (i.e. at "point zero"). Ocean receiving water stations must be representative of worst-case discharge conditions (i.e. co-located at a large drain greater than 36 inches, or if drains greater than 36 inches are not present in the ASBS then the largest drain greater than 18 inches.) Ocean receiving water stations are subject to approval by the participants in the regional monitoring program and the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean receiving water samples must be collected during each storm season from each station, each from a separate

**REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN
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- storm. A minimum of one receiving water location shall be sampled in each ASBS per responsible party in that ASBS. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one reference station and one receiving water station shall be sampled in each region.
- c. Reference and receiving water sampling shall commence during the first full storm season following the adoption of these special conditions, and post-storm samples shall be collected during the same storm event when storm water runoff is sampled. Sampling shall occur in a minimum of two storm seasons. For those ASBS Dischargers that have already participated in the Southern California Bight 2008 ASBS regional monitoring effort, sampling may be limited to only one storm season.
 - d. Receiving water and reference samples shall be analyzed for the same constituents as storm water runoff samples. At a minimum, constituents to be sampled and analyzed in reference and discharge receiving waters must include oil and grease, total suspended solids, Ocean Plan Table B metals (provided at the end of this Attachment) for protection of marine life, Ocean Plan PAHs, pyrethroids, OP pesticides, ammonia, nitrate, phosphates, and critical life stage chronic toxicity for three species. In addition, within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination shall be analyzed.

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS



* When an exceedance of natural water quality occurs, the Discharger must comply with Section D. Note, when sampling data is available, end-of-pipe effluent concentrations will be considered by the Water Boards in making this determination.

ASBS Monitoring

TABLE A
Monitoring Constituent List
(excerpted from California Ocean Plan dated 2009)

Constituent	Units
Grease and Oil	mg/L
Suspended Solids	Mg/L
Settleable Solids	mL/L
Turbidity	NTU
PH	

TABLE B
Monitoring Constituent List
(Excerpted from California Ocean Plan dated 2009)

Constituent	Units
Arsenic	µg/L
Cadmium	µg/L
Chromium	µg/L
Copper	µg/L
Lead	µg/L
Mercury	µg/L
Nickel	µg/L
Selenium	µg/L
Silver	µg/L
Zinc	µg/L
Cyanide	µg/L
Total Chlorine Residual	µg/L
Ammonia (as N)	µg/L
Acute Toxicity	TUa
Chronic Toxicity	TUc
Phenolic Compounds (non-chlorinated)	µg/L
Chlorinated Phenolics	µg/L
Endosulfan	µg/L
Endrin	µg/L
HCH	µg/L

Analytical Chemistry Methods: All constituents shall be analyzed using the lowest minimum detection limits comparable to the Ocean Plan water quality objectives. For metal analysis, all samples, including storm water effluent, reference samples, and ocean receiving water samples, shall be analyzed by the approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry) described in the Ocean Plan.

ATTACHMENT H

SAMPLE COLLECTION AND HANDLING INSTRUCTIONS

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

For more detailed guidance, Dischargers should refer to the U.S. EPA's "Industrial Stormwater Monitoring and Sampling Guide," dated March 2009, available at: http://www.epa.gov/npdes/pubs/msgp_monitoring_guide.pdf and the "NPDES Storm Water Sampling Guidance Document," dated July 1992, available at: <http://www.epa.gov/npdes/pubs/owm0093.pdf>.

1. Identify the sampling parameters required to be tested and the number of storm water discharge points that will be sampled. Request the analytical testing laboratory to provide the appropriate number and type of sample containers, sample container labels, blank chain of custody forms, and sample preservation instructions.
2. Determine how samples will be transported to the laboratory. The testing laboratory should receive samples within 48 hours of the physical sampling (unless otherwise required by the laboratory). The Discharger may either deliver the samples to the laboratory, arrange for the laboratory to pick up the samples, or overnight ship the samples to the laboratory. All sample analysis shall be done in accordance with 40 Code of Federal Regulations part 136. Samples for pH have a holding time of 15 minutes.¹
3. Qualified Combined Samples shall be combined by the laboratory and not by the Discharger. Sample bottles must be appropriately labeled to instruct the laboratory on which samples to combine.
4. Unless the Discharger can provide flow weighted information, all combined samples shall be volume weighted.
5. For grab samples, use only the sample containers provided by the laboratory to collect and store samples. Use of any other type of containers may contaminate samples.
6. For automatic samplers that are not compatible with bottles provided by the laboratory, the Discharger is required to send the sample container included with the automatic sampler to the laboratory for analysis.

¹ 40 C.F.R. section 136.3, Table II - Required Containers, Preservation Techniques, and Holding Times.

SAMPLE COLLECTION AND HANDLING INSTRUCTIONS

7. The Discharger can only use automatic sampling device to sample parameters that the device is designed to. For pH, Dischargers can only use automatic sampling devices with the ability to read pH within 15 minutes of sample collection.
8. The Discharger is prohibited from using an automatic sampling device for Oil and Grease, unless the automatic sampling device is specifically designed to sample for Oil and Grease.
9. To prevent contamination, do not touch inside of sample container or cap or put anything into the sample containers before collecting storm water samples.
10. Do not overfill sample containers. Overfilling can change the analytical results.
11. Tightly screw on the cap of each sample container without stripping the threads of the cap.
12. Complete and attach a label for each sample container. The label shall identify the date and time of sample collection, the person taking the sample, and the sample collection location or discharge point. The label should also identify any sample containers that have been preserved.
13. Carefully pack sample containers into an ice chest or refrigerator to prevent breakage and maintain temperature during shipment. Remember to place frozen ice packs into shipping containers. Samples should be kept as close to 4 degrees Celsius (39 degrees Fahrenheit) as possible until arriving to the laboratory. Do not freeze samples.
14. Complete a Chain of Custody form for each set of samples. The Chain of Custody form shall include the Discharger's name, address, and phone number, identification of each sample container and sample collection point, person collecting the samples, the date and time each sample container was filled, and the analysis that is required for each sample container.
15. Upon shipping/delivering the sample containers, obtain both the signatures of the persons relinquishing and receiving the sample containers.
16. Dischargers shall designate and train personnel to collect, maintain, and ship samples in accordance with the sample protocols and laboratory practices.
17. Refer to Table 1 in the General Permit for test methods, detection limits, and reporting units.
18. All sampling and sample preservation shall be in accordance with 40 Code of Federal Regulations part 136 and the current edition of "Standard Methods for

SAMPLE COLLECTION AND HANDLING INSTRUCTIONS

the Examination of Water and Wastewater” (American Public Health Association). All monitoring instruments and equipment (including Discharger field instruments for measuring pH or specific conductance if identified as an additional sampling parameter) shall be calibrated and maintained in accordance with manufacturers’ specifications to ensure accurate measurements. All laboratory analyses shall be conducted according to approved test procedures under 40 Code of Federal Regulations part 136, unless other test procedures have been specified by the Regional Water Quality Control Board. All metals shall be reported as total metals. Dischargers may conduct their own field analysis of pH (or specific conductance if identified as an additional sampling parameter) if the Discharger has sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform the field analysis. With the exception of field analysis conducted by Dischargers for pH (or specific conductance if identified as an additional sampling parameter), all analyses shall be sent to and conducted at a laboratory certified for such analyses by the California Department of Public Health. Dischargers are required to report to the Water Board any sampling data collected more frequently than required in this General Permit (Section XXI.J.2)

APPENDIX 1

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) CHECKLIST

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

FACILITY NAME: _____

Waste Discharge Identification (WDID) #: _____

	FACILITY CONTACT	Consultant/Qualified Industrial Storm Water Practitioner (QISP)
Name		
Title		
Company		
Street Address		
City, State		
Zip		

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Signed Certification (Section II.A)			
Pollution Prevention Team (Section X.D.1)			
Existing Facility Plans (Section X.D.2)			
Site Map(s) (Section X.E)			
Facility boundaries (Section X.E.3.a)			
Drainage areas (Section X.E.3.a)			
Direction of flow (Section X.E.3.a)			
On-facility water bodies (Section X.E.3.a)			

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
CHECKLIST**

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Areas of soil erosion (Section X.E.3.a)			
Nearby water bodies (Section X.E.3.a)			
Municipal storm drain inlets (Section X.E.3.a)			
Points of discharge (Section X.E.3.b)			
Sampling Locations (Section X.E.3.b)			
Structural control measures (Section X.E.3.c)			
Impervious areas (Section X.E.3.d)			
Location of Directly Exposed Materials (Section X.E.3.e)			
Locations of significant spills and leaks (Section X.E.3.e)			
Areas of Industrial Activity (Section X.E.3.f)			
Areas of industrial activity (Section X.E.3.f)			
Storage areas/storage tanks (Section X.E.3.f)			
Shipping and receiving areas (Section X.E.3.f)			
Fueling areas (Section X.E.3.f)			
Vehicle and equipment storage/maintenance (Section X.E.3.f)			
Material handling/processing (Section X.E.3.f)			
Waste treatment/disposal (Section X.E.3.f)			
Dust or particulate generation (Section X.E.3.f)			
Cleaning and material reuse (Section X.E.3.f)			

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
CHECKLIST**

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Other areas of industrial activities (Section X.E.3.f)			
List of Industrial Materials (Section X.F)			
Storage location			
Quantity			
Frequency			
Receiving and shipping location			
Quantity			
Frequency			
Handling location			
Quantity			
Frequency			
Potential Pollution Sources (Section X.G)			
Description of Potential Pollution Sources (Section X.G.1)			
Industrial processes (Section X.G.1.a)			
Material handling and storage areas (Section X.G.1.b)			
Dust & particulate generating activities (Section X.G.1.c)			
Significant spills and leaks (Section X.G.1.d)			
Non-storm water discharges (Section X.G.1.e)			
Erodible surfaces (Section X.G.1.f)			
Assessment of Potential Pollutant Sources (Section X.G.2)			
Narrative assessment of likely sources of pollutants (Section X.G.2.a)			
Narrative assessment of likely pollutants present in storm water discharges (Section X.G.2.a)			
Identification of additional BMPs Section X.G.2.b)			

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
CHECKLIST**

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Identification of drainage areas with no exposure (Section X.G.2.c)			
Identification of additional parameters (Section X.G.2.d)			
Storm Water Best Management Practices (Section X.H)			
Minimum BMPs (Section X.H.1)			
Good housekeeping (Section X.H.1.a)			
Preventative maintenance (Section X.H.1.b)			
Spill response (Section X.H.1.c)			
Material handling and waste management (Section X.H.1.d)			
Erosion and sediment controls (Section X.H.1.e)			
Employee training program (Section X.H.1.f)			
Quality assurance and record keeping (Section X.H.1.g)			
Advanced BMPs (Section X.H.2)			
Implement advanced BMPs at the facility (Section X.H.2.a)			
Exposure Minimization BMPs (Section X.H.2.b.i)			
Storm Water containment and discharge reduction BMPS (Section X.H.2.b.ii)			
Treatment Control BMPs (Section X.H.2.b.iii)			
Other advance BMPs (Section X.H.2.b.iv)			
Temporary Suspension of Activities (Section X.H.3)			
BMPs necessary for stabilization of the facility (Section X.H.3)			

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
CHECKLIST**

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
BMP Descriptions (Section X.H.4)			
Pollutant that a BMP reduces or prevents (Section X.H.4.a.i)			
Frequency of BMP implementation (Section X.H.4.a.ii)			
Location of BMP (Section X.H.4.a.iii)			
Person implementing BMP (Section X.H.4.a.iv)			
Procedures/maintenance/ instructions for BMP implementation (Section X.H.4.a.v)			
Equipment and tools for BMP implementation (Section X.H.4.a.vi)			
BMPs needing more frequent inspections (Section X.H.4.a.vii)			
Minimum BMP/applicable advanced BMPs not implemented at the facility (Section X.H.4.b)			
BMPs implemented in lieu of minimum or applicable advanced BMPs (Section X.H.4.c)			
BMP Summary Table (Section X.H.5)			
Monitoring Implementation Plan (Section X.I)			
Team members assisting in developing the MIP (Section X.I.1)			
Summary of visual observation procedures, locations, and details (Section X.I.2)			
Justifications if applicable for: Alternative discharge locations, Representative Sampling Reduction or, Qualified Combined Samples (Section X.I.3)			
Procedures for field instrument calibration (Section X.I.4)			

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
CHECKLIST**

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Example of Chain of Custody (Section X.I.5)			
Annual Comprehensive Facility Compliance Evaluation (Section XV)			
Review of all visual inspection and monitoring records and sampling and analysis results conducted during the previous reporting year (Section XV.A)			
Visual inspection of all areas of industrial activity and associated potential pollutant sources (Section XV.B)			
Visual inspection of all drainage areas previously identified as having no-exposure to industrial activities and materials in accordance with the definitions in Section XVII (Section XV.C)			
Visual inspection of equipment needed to implement the BMPs (Section XV.D)			
Visual inspection of any structural and/or treatment control BMPs (Section XV.E)			
Review and assessment of all BMPs for each area of industrial activity and associated potential pollutant sources (Section XV.F)			
Assessment of other factors needed to complete the information described in Section XVI.B (Section XV.G)			

APPENDIX 2

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (GENERAL PERMIT)

This Attachment provides general guidance instructions and guidance for obtaining NEC coverage. The actual NEC requirements are primarily contained in Section XVII of this General Permit.

A. INSTRUCTIONS:

Who May File for NEC Coverage

Sections 301 and 402(p) of the Clean Water Act (CWA), and Sections 1311 and 1342(p) of 33 United States Code prohibit the discharge of storm water associated with industrial activity to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit. However, NPDES permit coverage is “conditionally excluded” for discharges of storm water associated with industrial activities (industrial storm water discharges) if the Discharger can certify that a condition of “No Exposure” exists at the industrial facility. A condition of “No Exposure” means that a Discharger’s industrial activities and materials are not exposed to storm water. Industrial storm water discharges from construction and land disturbance activities are ineligible for the NEC coverage. Dischargers who file valid NECs in accordance with these instructions are not required to implement Best Available Technology Economically Achievable /Best Conventional Pollutant Control Technology and comply with the Storm Water Pollution Prevention Plan (SWPPP) and monitoring requirements of this General Permit.

Obtaining and Maintaining NEC Coverage

A Discharger must electronically certify and submit NEC Permit Registration Documents (PRDs) via State Water Resources Control Board’s (State Water Board’s) Storm Water Multi-Application and Report Tracking System (SMARTS) to obtain NEC coverage. This conditional exclusion does not become effective until the PRDs are submitted and the annual fee is paid. Upon receipt of the annual fee, the Discharger will electronically receive an NEC acceptance notification via SMARTS, which will include a Waste Discharge Identification (WDID) number. A Discharger must maintain a condition of “No Exposure” at the facility for the conditional exclusion to remain applicable. The Discharger must annually electronically re-certify the NEC via SMARTS to confirm that the conditions of “no exposure” are being maintained. If conditions change resulting in the exposure of materials and activities to storm water, the Discharger must electronically certify and submit PRDs via SMARTS for Notice of Intent (NOI) coverage under the General Permit for Storm Water Discharges Associated with Industrial Activities (General Permit).

Fees

First time NEC coverage PRDs and the annual re-certification require a fee. Fees may be changed by State Water Board regulation, independent of this General Permit.

How to Prepare and Submit PRDs for NEC Coverage

A Discharger must electronically certify and submit PRDs for NEC coverage in accordance with the instructions provided at the State Water Board web site for SMARTS:

<https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp>

A Discharger with multiple facilities that satisfy the conditions of “No Exposure” must certify and submit PRDs for each facility. The Discharger is required to inspect and evaluate each individual facility to determine the condition of No-Exposure. The Discharger must retain an electronic or paper copy of the NEC coverage acceptance notification for their records.

The following information is required in the PRDs:

Discharger Information

1. The legal business name of the business entity, public organization, or any other entity that operates the facility described in the certification. The name of the operator may or may not be the same as the name of the facility. The operator is the legal entity that controls the facility operations, not the plant or site manager.
2. The mailing address of the facility operator, including the city, state, and zip code.
3. The facility operator contact person, telephone number and e-mail address.

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

Facility Information

4. The legal business name of the facility.
5. The total acreage of the facility associated with industrial activity. (Facility size in acres is calculated by taking the square feet and dividing by 43,560.)
6. The complete physical street address (e.g. the street address used for express deliveries), including the city, State, and zip code. Do not use a P.O. Box number. If a physical street address does not exist, describe the location or provide the latitude and longitude of a point within the facility boundary. Latitude and longitude are available from United States Geological Survey quadrangle or topographic maps, or may be found using a mapping site on the internet.
7. The facility contact person, telephone number, and e-mail address.
8. The 4-digit Standard Industrial Classification (SIC) code that represents the facility primary industrial activity. Provide a brief description of the primary industrial activity. If applicable, enter other significant SIC codes and descriptions. To obtain these codes, see the 1987 SIC Manual or the Occupational Health and Safety Administration's site:

<http://www.osha.gov/pls/imis/sicsearch.html>
9. If the facility is currently covered under the General Permit, include the WDID number. The WDID number will be used at a later date to terminate the facility's coverage under the General Permit as necessary.

Facility Mailing or Billing Address

Completion of this item is required the facility mailing address or billing address differs from the physical facility address provided above. The Discharger must indicate which address the annual fee invoice must be sent to if the State Water Board is unable to transmit the invoice electronically.

Site Maps

Site maps must be prepared and submitted in accordance with the requirements in Section X.E of this General Permit.

NEC Checklist

The Discharger must evaluate the eleven major areas that storm water exposure may occur, per the listing at the end of this appendix. The Discharger must be able to certify

that none of these major areas have potential for exposure. If the Discharger cannot certify that every one of the eleven major areas do not have exposure, a potential for exposure exists at the facility and the facility is not eligible for NEC coverage. The Discharger must obtain (or continue) NOI coverage under this General Permit if the facility is not eligible for NEC coverage. After obtaining NOI coverage, the Discharger may implement facility modifications to eliminate the potential for a discharge of storm water exposed to industrial activity, and then change their NOI coverage to NEC coverage by certifying the conditions of "No Exposure" are met.

Certification

Federal and state statutes provide for severe penalties for Dischargers that submit false information on the PRDs. Dischargers shall certify and submit PRDs via SMARTS for NEC coverage in accordance with Electronic Signature and Certification Requirements in Section XXI.K of this General Permit.

B. GUIDANCE:

Contact your local Regional Water Quality Control Board (Regional Water Board) office with questions regarding this guidance.

1. Who is Eligible to Qualify for the No Exposure Certification (NEC) - Conditional Exclusion?

All industrial categories listed in Attachment A of this General Permit (excluding construction) are eligible to apply for the NEC coverage.

2. Limitations on Eligibility for NEC coverage

In addition to construction projects not being eligible, the following situations limit the applicability of NEC coverage:

- a. NEC coverage is available on a facility-wide basis only, not for individual drainage areas or discharge locations. Generally, if any exposed industrial materials or activities exist, or have a potential to exist, anywhere at a facility, NEC coverage is not applicable to the facility. If the Regional Water Board determines that a facility does have exposure or the facility's storm water discharges have a reasonable potential to cause or contribute to an exceedance of applicable water quality objectives/standards, the Regional Water Board can deny NEC coverage.
- b. If changes at a facility result in potential exposure of industrial activities or materials, the facility is no longer eligible for NEC coverage. Dischargers

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

shall register for NOI coverage under this General Permit prior to a planned facility change that will cause exposure, or within seven (7) calendar days after unplanned exposure occurs. If an unplanned exposure occurs due to an emergency response or one-time event that is unlikely to re-occur, a Discharger may contact the Regional Water Board to discuss whether the requirement to obtain NOI coverage can be waived. Unless the Discharger receives a written waiver from the Regional Water Board, the Discharger shall electronically certify and submit PRDs to obtain NOI coverage.

- c. Current contamination resulting from historic industrial practices at the facility (e.g., soil contamination, groundwater contamination, etc.) represents a condition of exposure to waters of the United State; therefore a facility with historic contamination is not eligible for NEC coverage.

3. What is the Definition of No Exposure?

- a. No Exposure means all industrial materials and activities are protected by a storm-resistant shelter to prevent exposure to rain, snow, snowmelt and/or runoff.
- b. Industrial materials and activities include, but are not limited to, material-handling equipment or activities; industrial machinery; raw materials, intermediate products, by-products, and final products; or waste products.
- c. Material handling activities include storage, loading and unloading, transport, or conveyance of any raw material, intermediate product, by-product, final product, or waste product.
- d. Final products intended to be used outdoors (e.g., automobiles) typically pose little risk of polluting storm water since not typically contaminated with pollutants that become mobilized by contact with storm water. Final products are exempt from the requirement for protection by a storm-resistant shelter to qualify for no exposure. Similarly, containers, racks, and other transport platforms (e.g., wooden pallets) used for the storage or conveyance of final products may also be stored outside if pollutant-free or pollutants do not mobilize via contact with storm water.
- e. Storm-resistant shelters include: (1) completely roofed and walled buildings or structures, (2) structures with only a top cover (no side coverings) supported by permanent supports, provided material within the structure is not subject to wind dispersion (sawdust, powders, etc.) or being

tracked out of the facility, and is not a source of pollutants in the industrial storm water discharges.

4. Industrial Materials/Activities Not Requiring a Storm-Resistant Shelter

The intent of the “No Exposure” exclusion is to maintain a condition of permanent “No Exposure”. A storm-resistant shelter is not required for the following industrial materials and activities:

- a. Drums, Barrels, Tanks, and Similar Containers that are sealed (“sealed” means banded or otherwise secured and without operational taps or valves), are not exposed provided those containers are not deteriorated, do not contain residual materials on the outside surfaces, and do not leak. Drums, barrels, etc., that are not opened while outdoors, or are not deteriorated or leaking, and that do not pose a risk of contaminating storm water runoff. Consider the following when making a “No Exposure” determination:
 - i. Materials shall not be added or withdrawn to/from containers while outdoors
 - ii. Simply moving containers while outside does not create exposure unless exposure occurs when pollutants are “tracked out” by the container handling equipment or vehicles.
 - iii. All outdoor containers shall be inspected to ensure they are not open, deteriorated, or leaking. When an outdoor container is observed as opened, deteriorated, or leaking, the container must immediately be closed, replaced, or sheltered. Frequent detection of open, deteriorated, or leaking containers, or failure to immediately close, replace, or shelter opened, deteriorated or leaking containers will cause a condition of exposure.
 - iv. Containers, racks, and other transport platforms (e.g., wooden pallets) used with drums, barrels, etc., can be stored outside providing they are contaminant-free and in good repair.
- b. Above Ground Storage Tanks (ASTs) In addition to generally being considered as not exposed, ASTs may also be exempt from the prohibition against adding or withdrawing material to/from external containers. ASTs typically use transfer valves to dispense materials that support facility operations (e.g., heating oil, propane, butane, chemical feedstock) or fuel for delivery vehicles (gasoline, diesel, compressed natural gas). For operational

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

ASTs to qualify for “No Exposure”, the following must be satisfied:

- i. The tank(s) shall be physically separated from and not associated with vehicle maintenance operations.
 - ii. There shall be no leaks from piping, pumps, or other equipment that has the potential to come in contact with storm water.
 - iii. Wherever feasible, the tank(s) shall have secondary containment (e.g., an impervious dike, berm or concrete retaining structure) to prevent runoff in the event of a structural failure or leaking transfer valve. Note: any resulting unpermitted discharge is in violation of the CWA.
- c. Lidded Dumpsters. Lidded dumpsters containing waste materials, providing the containers are completely covered and nothing can drain out holes in the bottom, spilled when loaded into the dumpster, or spilled in loading into a garbage truck. Industrial waste materials and trash that is stored uncovered is considered exposed.
- d. Adequately maintained vehicles, such as trucks, automobiles, forklifts, trailers or other general-purpose vehicles found onsite - but not industrial machinery that are not leaking, are in good repair or are not otherwise a potential source of contaminants:
- i. Vehicles passing between buildings may be exposed to storm water, however if the vehicles are adequately maintained, a condition of exposure may not exist. Similarly, non-leaking vehicles awaiting maintenance at vehicle maintenance facilities are not considered as potential exposure. However, vehicles that have been washed or rinsed that are not completely dry prior to outside exposure have the potential to cause a condition of exposure. Vehicles that track materials out of the facility are considered to be mobilizing pollutants. Vehicles that exit maintenance bays are also considered to cause exposure.
 - ii. The mere conveyance between buildings of materials / products that are otherwise not allowed to be stored outdoors, does not create a condition of exposure, provided the materials/products are adequately protected from storm water and do not have the potential to be released as a result of a leak or spill.
- e. Final products built and intended for use outdoors (e.g., new cars), provided the final products have not deteriorated, are not contaminated, or are not otherwise potential sources of contaminants.
- Types of final products not qualifying for a certification of “No Exposure”:
- i. Products that may be mobilized in storm water discharges (e.g., rock salt).
 - ii. Products, which may, when exposed, oxidize, deteriorate, leak, or otherwise be a potential source of contaminants (e.g., junk cars, stockpiled train rails).
 - iii. “Final” products that are, in actuality, “intermediate” products. Intermediate products are those used in the composition of yet another product (i.e., sheet metal, tubing, and paint used in making tractors).
 - iv. Even if the intermediate product is “final” for a manufacturer and destined for incorporation in a “final product intended for use outdoors,” the product is not allowed to be exposed because they may be chemically treated or are insufficiently impervious to weathering.
- f. Special Conditions for Construction Activities
Permanent, uninterrupted sheltering of industrial activities or materials may not always be possible during facility renovation or construction. When such circumstances exist, the Discharger is not required to obtain coverage under an NPDES permit as long as the following conditions are met:
- i. Materials and activities are protected with temporary covers or shelters (i.e. tarpaulins);
 - ii. Temporary covers or shelters prevent the contact of storm water to materials and activities;
 - iii. Materials are subject to wind dispersion are not stored under temporary sheltering;
 - iv. Temporary shelters are only used when necessary during facility renovation or construction and until permanent storm-resistant shelters as described above are available; and,
 - v. Temporary shelters are only used for a single period of ninety days or less. (Facilities with construction and renovation projects that will need the use of temporary shelters beyond 90 days, or that will require multiple periods of ninety

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days or less, are required to be covered by an NPDES permit.)

5. Other Potential Sources of Contaminants

- a. Particulate Emissions from Roof Stacks and/or Vents: Deposits of particles or residuals from roof stacks/vents that have the potential to be mobilized by storm water runoff are considered exposed.
- b. Pollutants Potentially Mobilized by Wind Windblown materials cause a condition of exposure. Materials sheltered from precipitation are be deemed exposed if the materials has a potential to be mobilized by wind.

6. Certifying a Condition of “No Exposure”

To obtain the NEC coverage, the Discharger must electronically certify and submit PRDs via SMARTS that the facility meets the definition of “No Exposure” and pay an annual fee. The Discharger must **submit PRDs for NEC coverage even if the Discharger was not previously required to file for NEC coverage under the previous General Permit**. These PRDs include a checklist requiring the Discharger to evaluate eleven major areas to determine whether there is exposure of industrial activities and materials at the facility. To qualify for NEC coverage the Discharger must satisfy all the NEC coverage conditions in this General Permit and certify that there is “No Exposure”. The checklist: 1) aids the Discharger in determining if its facility is eligible for NEC coverage, and 2) furnishes the necessary documentation supporting relief from the General Permit’s requirement of NOI coverage. Additionally, Dischargers with NEC coverage are not required to develop and implement SWPPPs or comply with the monitoring requirements.

If a Discharger cannot certify that there is “No Exposure” at the facility, the Discharger must make appropriate changes at the facility to eliminate exposure prior to registering for future NEC coverage. Facility changes must remove all potential for pollutant exposure to storm water.

An annual inspection and evaluation, re-certification and fee are required thereafter.

7. Other NEC coverage Facts:

- a. NEC coverage is only valid if the condition of “No Exposure” exists and is reasonably expected to continue to exist. Dischargers shall electronically certify and submit PRDs for NOI coverage when the condition of “No Exposure” is no longer expected to exist.
- b. Dischargers must file PRDs for NEC coverage for each qualifying facility.
- c. An NEC must be submitted for each separate facility qualifying for the “No Exposure” conditional exclusion.
- d. An NEC is non-transferable. If a new operator takes over facility operations, the new operator shall electronically certify and submit PRDs and applicable fees for new NEC coverage via SMARTS prior to the operations transfer. NEC coverage cannot be transferred from one physical location to another regardless of ownership.

8. Operators May Be Required to Obtain NOI Coverage Based on the Protection Of Water Quality?

Operators who certified that their facilities qualify for NEC coverage may, nonetheless, be required by the Regional Water Board to obtain NOI coverage if the Regional Water Board determines that the facility’s discharge has the potential to cause or contribute to an exceedance of applicable water quality objectives/standards or determines that exposure exists at the facility. The Regional Water Board may request information and/or inspect the facility to assess potential water quality impacts and to determine if NOI coverage is required. The Discharger shall take appropriate actions to ensure compliance with the General Permit.

9. Steps to Obtain NEC coverage

This section will walk you through the process of obtaining NEC coverage.

Step 1: Determine if your facility is subject to this General Permit (refer to Attachment A of this General Permit). If yes, proceed to Step 2. If not, stop here.

If your facility is included in Attachment A and conducts industrial activities, you are required to **either** register for NOI coverage or NEC coverage.

Step 2: Determine if your regulated industrial activity meets the definition of “No Exposure” and qualifies for the exclusion from permitting. If yes, proceed to Step 3. If no, stop here and obtain NOI coverage. An

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

evaluation of the facility must be conducted by facility personnel familiar with the facility and its operations. Inspect all facility areas and potential pollutant sources to determine whether the facility satisfies the “No Exposure” conditions.

Step 3: Electronically certify and submit the PRDs for NEC coverage via SMARTS and mail the annual fee to the State Water Board at the following address:

SWRCB
Surface Water Permitting Section
PO Box 1977
Sacramento, CA 95812-1977

To maintain NEC coverage, the NEC must re-certify and pay a fee annually. This may only be done if the condition of “No Exposure” continues to exist at the facility.

Step 4: If requested, staff from the Water Boards, local Municipal Separate Storm Sewer System (MS4), or United States Environmental Protection Agency must be allowed to inspect your facility. All inspection reports will be made publicly available.

Step 5: Maintain a condition of “No Exposure”.

- NEC coverage is not a blanket exemption. Therefore, if facility physical or operational changes occur which cause exposure of industrial activities or materials to storm water, the Discharger must then immediately comply with all the requirements of this General Permit, including obtaining NOI coverage as applicable.
- To maintain the condition of “No Exposure”, the Discharger shall annually evaluate the facility to assure that the conditions of “No Exposure” still exist. More frequent evaluations may be necessary in circumstances when facility operations are rapidly changing.
- Failure to maintain the condition of “No Exposure” or otherwise obtain NOI coverage may lead to the unauthorized discharge of storm water associated with industrial activity to waters of the United States, resulting in penalties under the CWA and Water Code.

C. Frequently Asked Questions:

Q1. Who is eligible for NEC Coverage?

- A. Any Discharger operating a facility described in Attachment A may register for NEC coverage if their facility has a condition of “No Exposure”.

Q2. How does an eligible Discharger file for NEC coverage and where is the annual fee sent?

- A. The PRDs for NEC coverage shall be electronically certified and submitted in accordance with the instructions provided in SMARTS at the State Water Board website at: <https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp>. The fee is currently \$242, but may be changed by regulation. Once NEC coverage is accepted, an invoice will be electronically sent to the Discharger. The annual fee and invoice shall be sent to:
- State Water Resources Control Board
Division of Water Quality
Attention: Industrial Storm Water Unit
P.O. Box 1977
Sacramento, CA 95812-1977

Q3. If my facility’s storm water discharges are covered by an individual permit, can I file for NEC coverage?

- A. Yes. Storm water discharges covered by an individual permit are eligible for NEC coverage if the conditions at the facility satisfy the definition of “No Exposure” and you obtain approval to terminate individual permit coverage from the local Regional Water Board prior to PRD submittal. Approval from the Regional Water Board is mandatory. Many individual permits, for example, contain numeric storm water effluent limitations (“antibacksliding” provisions may prevent these facilities from qualifying for the “No Exposure” conditional exclusion).

Q4. My facility was originally excluded from the Phase I regulations because it was classified as a "light industrial facility". The facility has never had any exposure to storm water runoff. Do I now need to certify that the facility meets the No Exposure Exclusion from NPDES Storm Water Permitting?

- A. Yes. See answer provided to question number 9, “What is the exclusion “conditional” upon?”

Q5. Do I have to file a Notice of Termination (NOT) and a register for NEC coverage if my facility has NOI coverage and qualifies for NEC coverage?

- A. No. You are only required to register for NEC coverage. You must provide the WDID# in your NEC coverage PRDs in order for the State Water Board to change permit coverage status.

Q6. When and how often is a NEC coverage re-certification required?

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

- A.** Re-certification of NEC coverage is required annually (assuming the facility maintains its “No Exposure” status). The State Water Board will electronically transmit an NEC re-certification and annual fee notification to each facility operator who has filed for NEC coverage.

public documents and will be available for public review via SMARTS.

Q10. Can secondary containment around an outdoor exposed area qualify for a condition of “No Exposure”?

- A.** If secondary containment is engineered to always prevent a discharge of collected rainfall (based on the historical rainfall record) and a simultaneous spill of any other industrial materials or liquids, the “No Exposure” condition may be claimed. Note that there must be proper disposal of any water or liquids collected from the containment (i.e., discharged in compliance with another NPDES permit, treated and discharged to the sanitary sewer, or trucked offsite to an appropriate disposal/treatment facility).

D. NEC Checklist

An NEC Checklist must be prepared by the Discharger demonstrating that: (1) the facility has been evaluated, (2) none of the following materials or activities are, or will be in the foreseeable future, exposed to precipitation, and (3) all unauthorized NSWDS have been eliminated:

1. Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed;
2. Materials or residuals on the ground or in storm water inlets from spills/leaks;
3. Materials or products from past industrial activity;
4. Material handling equipment (except adequately maintained vehicles);
5. Materials or products during loading/unloading or transporting activities;
6. Materials or products stored outdoors (except final products intended for outside use, i.e., new cars, where exposure to storm water does not result in the discharge of pollutants);
7. Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;
8. Materials or products handled/stored on roads or railways owned or maintained by the Discharger;
9. Waste material (except waste in covered, non-leaking containers, i.e., dumpsters);

New Dischargers must register for NEC coverage before the commencement of facility operations. Dischargers that fail to file for NEC coverage or apply for NOI coverage before the commencement of facility operations will be out of compliance and subject to enforcement.

Existing Dischargers have two options for submitting NECs:

1. Facility operators of “light industrial” facilities who have been operating under their original, no-certification-required permitting exemption must submit the NEC at any time prior to October 1, 2015. Dischargers who have not submitted an NEC or applied for permit coverage by this due date will be considered out of compliance and subject to Water Board enforcement.
2. Dischargers who have NOI coverage may register for NEC coverage at any time following completion of facility changes that result in the condition of “No Exposure”.

Q7. What happens if I know of changes that may cause exposure?

- A.** If exposure has the potential to occur in the near future due to some anticipated change at the facility, the Discharger must obtain NOI coverage to avoid potential enforcement for violations of this General Permit.

Q8. Is the NEC coverage transferable to a new Discharger?

- A.** No. If a new operator takes over your facility, the new operator must register for new NEC coverage prior to the transfer. A new application fee is required.

Q9. What is the exclusion “conditional” upon?

- A.** The exclusion from permit coverage requirements is “conditional” upon the certification of the Discharger that the facility does not have exposure of materials or activities to storm water. PRDs for NEC coverage shall be electronically submitted to the State Water Board and will not be accepted if incomplete. The Regional Water Board may review the information, contact and/or inspect the facility, and invalidate the NEC and require the Discharger to obtain NOI coverage. PRDs are

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10. Application or disposal of processed wastewater (unless already covered by an NPDES permit); and
11. Particulate matter or visible deposits of residuals from roof stacks/vents evident in the storm water outflow.

APPENDIX 3

WATERBODIES WITH CLEAN WATER ACT SECTION 303(D) LISTED IMPAIRMENTS

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (GENERAL PERMIT)

The 303(d) impairments below are sourced from the 2010 Integrated Report. The rows in red are impairments for which industrial storm water Dischargers subject to this General Permit are not required to analyze for additional parameters unless directed by the Regional Water Board, because these parameters are typically not associated with industrial storm water. Test methods with substantially similar or more stringent method detection limits may be used if approved by the staff of the State Water Board prior to sampling and analysis and upon approval, will be added into SMARTS. The rows that are not in red are impairments for which Dischargers in the 303(d) impaired watershed are required to analyze for additional parameters, if applicable, because these parameters are more likely to be associated with industrial storm water. See General Permit Section XI.B.6.e. In the event that any of the impairments in this appendix are subsequently delisted, the Dischargers with discharges to that watershed are no longer required to analyze for the additional parameters for those impairments, and the provisions for new Dischargers with discharges to 303(d) impaired water bodies contained in Section VII.B of this General Permit no longer apply for those impairments.

The Excel spreadsheet containing the water bodies with 303(d) impairments is an attachment to this Appendix 3. To view the attachment from an electronic (pdf) version of this Appendix 3, left-click on the paper clip icon to the left of this pdf file to make the attachment window appear, then double-click on the icon of an Excel spreadsheet. The Excel spreadsheet is also available on the Industrial Storm Water program pages of the State Water Resources Control Board's website (<http://www.waterboards.ca.gov/>).

ATTACHMENT

22

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

RESOLUTION NO. R9-2010-0001

**A RESOLUTION AMENDING
THE WATER QUALITY CONTROL PLAN
FOR THE SAN DIEGO BASIN (9) TO INCORPORATE
REVISED TOTAL MAXIMUM DAILY LOADS FOR INDICATOR BACTERIA,
PROJECT I - TWENTY BEACHES AND CREEKS IN THE SAN DIEGO REGION
(INCLUDING TECOLOTE CREEK)**

WHEREAS, The California Regional Water Quality Control Board, San Diego Region (hereinafter, San Diego Water Board), finds that:

1. **Water Quality Control Plan:** The federal Clean Water Act¹ and state Porter-Cologne Water Quality Control Act² requires the San Diego Water Board to establish water quality standards for each waterbody within its region. The water quality standards for the inland and coastal waters in the San Diego Region are established in the *Water Quality Control Plan for the San Diego Basin (9)* (Basin Plan) and in the *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan). Water quality standards include beneficial uses, water quality objectives (WQOs) that are established at levels sufficient to protect those beneficial uses, and an antidegradation policy to prevent degrading waters that are better than the quality established as WQOs. Waterbodies that do not meet water quality standards are considered impaired.

2. **Clean Water Act Section 303(d) List of Water Quality Limited Segments:** Pursuant to Section 303(d) of the Clean Water Act, each state is required to identify waters within its boundaries that do not meet water quality standards. Specifically, the states must identify those waters for which technology-based effluent limitations are not stringent enough to implement any water quality standard applicable to such waters and establish a priority ranking for such waters.³ For those waters identified as not meeting water quality standards, each state must establish the total maximum daily load (TMDL) at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety.⁴ Each state is required to develop a list that identifies and establishes a priority ranking for those waters requiring TMDLs.⁵ The list is known as the Clean Water Act Section 303(d) List of Water Quality Limited Segments or more commonly, the 303(d) List. For the specific purpose of developing information, states are also required to estimate TMDLs for all other waters that are not identified on the 303(d) List.⁶

¹ Clean Water Act section 303; U.S. Code section 1313

² California Water Code section 13240

³ Clean Water Act section 303(d)(1)(A); U.S. Code section 1313(d)(1)(A)

⁴ Clean Water Act section 303(d)(1)(C); U.S. Code section 1313(d)(1)(C)

⁵ Code of Federal Regulations Title 40 section 130.7(b)(1)

⁶ Clean Water Act section 303(d)(3) states that “For the specific purpose of developing information, each State shall identify all waters within its boundaries, which is has not identified under paragraph (1)(A) and (1)(B) of this subsection and estimate for such waters the total maximum daily load with seasonal variations and margin of safety...”

For TMDLs that are developed, USEPA regulations require states to incorporate TMDLs into the Basin Plans along with adequate implementation measures to implement all aspects of the plan.⁷ TMDLs that are incorporated into the Basin Plan are required to include implementation plans under State law. Basin Plans must have a program of implementation to achieve WQOs.⁸ The implementation plan must include a description of actions that are necessary to achieve the objectives, a time schedule for these actions, and a description of surveillance to determine compliance with the WQOs.⁹

3. **Definition of Total Maximum Daily Load (TMDL):** A TMDL is defined as the sum of the individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background.¹⁰ TMDLs must be established at levels necessary to attain and maintain the applicable narrative and numerical water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge between effluent limitations and water quality.¹¹ TMDLs must be established for waterbodies identified on the 303(d) List.¹² For the purpose of developing information for all waters not identified on the 303(d) List, states are also required to estimate the TMDLs with seasonal variations and margin of safety.¹³
4. **Water Quality Standards Interpreted in TMDLs with Numeric Targets:** One or more numeric targets are typically required to calculate TMDLs at levels necessary to attain and maintain applicable narrative and numerical water quality standards. Numeric targets interpret the existing water quality standards (i.e., beneficial uses and the WQOs established at levels sufficient to support those uses). In California, numeric targets are often based on the WQOs in the Basin Plan. The Basin Plan contains numeric and narrative WQOs. If applicable WQOs are numeric, the numeric WQOs can be used as numeric targets. If applicable WQOs are narrative, one or more quantifiable target values or measurable indicators must be selected to measure progress and evaluate final attainment and maintenance of the narrative WQOs. In impaired waters requiring TMDLs, when numeric targets are met in the waterbody, the water quality standards should be attained and restored. While numeric targets and TMDLs interpret water quality standards, *numeric targets and TMDLs are not water quality standards*. The water quality standards, TMDLs, WLAs, LAs, receiving water limits, numeric targets, and/or WQBELs developed in this project become enforceable requirements after they have been incorporated into the regulatory orders issued by the San Diego Water Board and/or State Water Board (e.g., waste discharge requirements, conditional waivers, etc.).
5. **TMDL Basin Plan Amendment:** Upon establishment of TMDLs by the state or U.S. Environmental Protection Agency (USEPA), the state is required to incorporate TMDLs into

⁷ Code of Federal Regulations Title 40 section 130.6 [40CFR130.6]

⁸ See Water Code section 13050(j). A “Water Quality Control Plan” or “Basin Plan” consists of a designation or establishment for the waters within a specified area of all of the following: (1) Beneficial uses to be protected, (2) Water quality objectives and (3) A program of implementation needed for achieving water quality objectives.

⁹ See Water Code section 13242.

¹⁰ Code of Federal Regulations Title 40 section 130.2(i)

¹¹ Code of Federal Regulations Title 40 section 130.7(c)(1)

¹² Clean Water Act section 303(d)(1)(C); U.S. Code section 1313(d)(1)(c)

¹³ Clean Water Act section 303(d)(3); U.S. Code section 1313(d)(3)

the state water quality management plan.¹⁴ The Basin Plan and applicable statewide plans serve as the water quality management plan for the watersheds under the jurisdiction of the San Diego Water Board. Incorporating TMDLs into the Basin Plan requires an amendment to the Basin Plan.¹⁵ Because TMDLs are established based on numeric targets that interpret existing water quality standards (i.e., beneficial uses and WQOs), and do not constitute the establishment of new water quality objectives, an amendment to the Basin Plan to incorporate TMDLs is not subject to the requirements of Water Code section 13241, which only apply when “establishing water quality objectives”. Instead, TMDLs are programs for the implementation of existing water quality standards, and are established in the Basin Plan subject to the requirements of Water Code section 13242, which requires a description of the actions necessary to achieve the objectives, a time schedule for the actions to be taken, and a description of the surveillance to be undertaken to determine compliance with objectives.

6. **Waterbodies with Bacteria Impairments Made Highest Regional Priority for TMDLs:** In late 2003, when this TMDL project was first initiated, the 2002 303(d) List indicated that the greatest cause of waterbody impairments in the San Diego Region was due to elevated bacteria levels. Postings and closures of local beaches due to elevated bacteria levels were regularly making headlines; the State Water Resources Control Board (State Water Board) was convening the Southern California Beach Water Quality Task Force to address the problem; Assembly Bill 411 (focused on beach contamination and monitoring) was making its way through the legislature; and the voters had just approved millions of dollars in grant funding for beach cleanups. For all of these reasons, the San Diego Water Board prioritized waterbodies with bacteria impairments as one of its highest regional priorities for the development of TMDLs. The initial bacteria TMDL project attempted to develop a single region-wide set of TMDLs to address all of the bacteria impaired waters in the San Diego Region. As the project developed, however, it became necessary to separate the project by waterbody types due to modeling and resource constraints. The first bacteria TMDL project was developed to address the beaches and creeks listed on the 2002 303(d) List, known as Total Maximum Daily Loads for Indicator Bacteria, Project I – Beaches and Creeks in the San Diego Region, or Bacteria TMDLs Project I.
7. **Relationship Between Bacteria and Pathogens:** Fecal indicator bacteria originate from the intestinal biota of warm-blooded animals, including humans, and their presence in surface water is used as an indicator of the possible presence of human sewage and associated pathogens (i.e., organisms that cause illness, including protozoans, bacteria, and viruses). Humans may be exposed to these waterborne pathogens through recreational water use or by harvesting and consuming filter-feeding shellfish. Bacteria have been historically used as indicators of human sewage and associated pathogens because 1) the presence of pathogens and the probability of disease are directly correlated with the density of indicator bacteria in waters used for recreation or shellfish harvesting,¹⁶ and 2) these indicator bacteria are easier and less costly to measure than the pathogens themselves. When TMDLs for indicator bacteria are attained, the health risks associated with pathogens are expected to be minimal.

¹⁴ Code of Federal Regulations Title 40 section 130.6(c)(1)

¹⁵ Pursuant to the requirements of Article 3, commencing with section 13240, of Chapter 4 of the Porter-Cologne Water Quality Control Act, as amended, codified in Division 7, commencing with section 13000, of the Water Code

¹⁶ BEACH Act Rule (USEPA 2004); Health effects criteria for fresh recreational waters (USEPA 1984)

8. **Exceedances of the Contact Water Recreation (REC-1) WQOs:**¹⁷ The REC-1 beneficial use is particularly sensitive to, and subject to impairment by, pathogens when elevated densities of indicator bacteria exist in the water. REC-1 is a beneficial use of the Pacific Ocean beaches and in creeks that discharge to those beaches, where several of these waterbodies are listed as impaired by bacteria. Several available studies support the finding that amongst southern California beaches, the highest number of exceedances of the bacteria REC-1 WQOs occurs during wet weather and in the vicinity of major storm water outlets and creek mouths. Persons who ingest water during recreational activities in waters containing indicator bacteria at densities in excess of REC-1 WQOs are significantly more likely to incur infections or illness caused by waterborne pathogens than when indicator bacteria occur at densities consistent with the applicable WQOs.
9. **Adoption of Bacteria TMDLs Project I Basin Plan Amendment (Resolution No. R9-2007-0044):** On December 12, 2007, the San Diego Water Board adopted Resolution No. R9-2007-0044 to amend the Basin Plan to incorporate Bacteria TMDLs Project I. Bacteria TMDLs Project I was developed to establish TMDLs and restore the REC-1 beneficial use for nineteen (19) bacteria impaired beaches and creeks in the San Diego Region that were listed on the 2002 303(d) List. The Administrative Record for Resolution No. R9-2007-0044 was transmitted to the State Water Board on March 21, 2008 to begin the State Water Board, Office of Administrative Law (OAL), and USEPA approval processes.
10. **Adoption of Bacteria TMDLs Project I Basin Plan Amendment Contingent Upon Adoption of Reference System Approach Basin Plan Amendment:** The bacteria TMDLs adopted under Resolution No. R9-2007-0044 included “interim” and “final” wet weather TMDLs. The “interim” wet weather TMDLs were calculated to include an allowance for exceedances of REC-1 WQOs due to bacteria loads from natural sources based on the exceedances in a reference system.¹⁸ The “final” wet weather TMDLs that were calculated did not allow for exceedances of REC-1 WQOs due to bacteria loads from natural sources. At the time Resolution No. R9-2007-0044 was adopted, allowing exceedances of the REC-1 WQOs during wet weather was not authorized by the Basin Plan. The San Diego Water Board, however, recognized that exceedances of the REC-1 WQOs during either wet or dry weather was likely, and may be partially due to bacteria loads contributed from natural sources. Therefore, the San Diego Water Board agreed to develop a Reference System Approach Basin Plan Amendment, which would authorize an allowance for exceedances of the REC-1 WQOs based on the exceedance frequencies observed in a reference system.

For this reason, adoption of the Bacteria TMDLs Project I Basin Plan amendment was made contingent upon the future consideration of a separate Reference System Approach Basin Plan amendment by the San Diego Water Board. It was assumed that upon the subsequent adoption

¹⁷ The Ocean Plan and Basin Plan also contain Shellfish Harvesting (SHELL) and Non-contact Water Recreation (REC-2) water quality objectives. Waterbodies with SHELL beneficial use impaired by bacteria will be addressed in a separate TMDL project and/or standards action. Water quality objectives for REC-2 are less stringent than the water quality objectives for REC-1, therefore, attainment of REC-1 objectives through the implementation of TMDLs will, *a fortiori*, provide the requisite water quality for REC-2.

¹⁸ A reference system is a watershed and the beach to which the watershed discharges that is minimally impacted by anthropogenic activities that can affect bacterial densities in the waterbody.

of the Reference System Approach Basin Plan amendment, Bacteria TMDLs Project I would be appropriately revised and brought back to the San Diego Water Board for re-adoption. The key revision would include incorporation of the reference system approach into the final wet weather TMDLs. Specifically, the previously established “interim” wet weather TMDLs, which were calculated based on the reference system approach, would become the only wet weather TMDLs. The previously established “final” TMDLs, which did not use the reference system approach, would be removed.

11. **Adoption and Approval of Reference System Approach Basin Plan Amendment (Resolution No. R9-2008-0028):** On May 14, 2008, the San Diego Water Board adopted Resolution No. R9-2008-0028, *Implementation Provisions for Indicator Bacteria Water Quality Objectives to Account for Loading from Natural Uncontrollable Sources Within the Context of a TMDL*. This Basin Plan Amendment contains “implementation provisions” which provide the San Diego Water Board with flexibility in implementing its bacteria WQOs in the context of certain TMDLs. Specifically, it authorizes the San Diego Water Board to develop bacteria TMDLs that allows exceedances of the WQOs for the purpose of accounting for natural, uncontrollable sources of bacteria (e.g., birds, wildlife, soil, etc.). Such sources, by themselves and in the absence of human activities, have been found to cause exceedances of the WQOs. The Administrative Record for Resolution No. R9-2008-0028 was transmitted to the State Water Board on July 25, 2008. Resolution No. R9-2008-0028 was approved by the State Water Board on March 17, 2009, approved by OAL on June 25, 2009, and approved by USEPA on September 16, 2009. Approval of Resolution No. R9-2008-0028 allows the San Diego Water Board to revise the Bacteria TMDLs Project I Basin Plan amendment adopted under Resolution No. R9-2007-0044.
12. **Request to Withdraw Bacteria TMDLs Project I Basin Plan Amendment (Resolution No. R9-2007-0044):** By letter dated December 17, 2008, the San Diego Water Board submitted a request to withdraw the Bacteria TMDLs Project I Basin Plan amendment adopted under Resolution No. R9-2007-0044 from State Water Board consideration for approval. The withdrawal request was made in order to address concerns expressed by the State Water Board that 1) the adoption of Bacteria TMDLs Project I was contingent upon the adoption of a subsequent Basin Plan amendment, and 2) Bacteria TMDLs Project I did not include sufficient guidance on how compliance with the TMDLs, WLAs, and LAs would be evaluated. Additionally, the San Diego Water Board needed to make the revisions that had been committed to upon adoption of the Reference System Approach Basin Plan amendment, as described in finding 10.
13. **Establishment of Bacteria TMDLs for Tecolote Creek:** Bacteria TMDLs were also being developed for Tecolote Creek a part of a separate TMDL project. Bacteria TMDLs Project I and the Bacteria TMDLs for Tecolote Creek are based on the same modeling approaches. Because the same modeling approaches are used, and the resources available for the development of TMDLs have been greatly reduced, the bacteria TMDLs for Tecolote Creek have been included in the revisions to the Bacteria TMDLs Project I Basin Plan amendment.
14. **Revisions Made to the Bacteria TMDLs Project I Basin Plan Amendment:** Revisions to the original Bacteria TMDLs Project I Basin Plan amendment include: 1) finalizing the

TMDLs to include allowable exceedances of the REC-1 WQOs using the reference system approach authorized by the Basin Plan amendment adopted under Resolution No. R9-2008-0028 (see finding 11), 2) providing specific guidance on how compliance with the TMDLs, WLAs, and LAs will be evaluated, and 3) establishing TMDLs for Tecolote Creek. None of the revisions have changed the scientific basis or approach used to calculate the TMDLs, WLAs, and LAs. This TMDL project and its Basin Plan amendment have been revised to establish bacteria TMDLs for a total of twenty (20) bacteria impaired beaches and creeks in the San Diego Region that were listed on the 2002 303(d) List, and will be referred to hereafter as Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creek in the San Diego Region (Including Tecolote Creek), or Revised Bacteria TMDLs Project I.

15. **Bacteria Impaired Waters Included in Revised Bacteria TMDLs Project I**: Twenty (20) waterbodies (12 segments of the Pacific Ocean shoreline,¹⁹ 2 creek mouths, and 6 creeks) in the San Diego Region were placed on the 2002 303(d) List because levels of total coliform, fecal coliform, and/or enterococci at those locations exceeded the REC-1 WQOs.²⁰ The bacteria impaired waters listed on the 2002 303(d) List included in Revised Bacteria TMDLs Project I are specified below.

Watershed	Type of Listing	Waterbody Name ^{a,c}	Number of Listings
San Joaquin Hills HSA (901.11)/ Laguna Beach HSA (901.12)	Shoreline	Pacific Ocean Shoreline, San Joaquin Hills HSA ^b	2
	Shoreline	Pacific Ocean Shoreline, Laguna Beach HSA ^b	
Aliso HSA (901.13)	Creek	Aliso Creek	3
	Estuary	Aliso Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Aliso HSA ^b	
Dana Point HSA (901.14)	Shoreline	Pacific Ocean Shoreline, Dana Point HSA ^b	1
Lower San Juan HSA (901.27)	Creek	San Juan Creek	3
	Estuary	San Juan Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Lower San Juan HSA ^b	
San Clemente HA (901.30)	Shoreline	Pacific Ocean Shoreline, San Clemente HA ^b	1
San Luis Rey HU (903.00)	Shoreline	Pacific Ocean Shoreline, San Luis Rey HU ^b	1
San Marcos HA (904.50)	Shoreline	Pacific Ocean Shoreline, San Marcos HA ^b	1
San Dieguito HU (905.00)	Shoreline	Pacific Ocean Shoreline, San Dieguito HU ^b	1
Miramar Reservoir HA (906.10)	Shoreline	Pacific Ocean Shoreline, Miramar Reservoir HA ^b	1
Scripps HA (906.30)	Shoreline	Pacific Ocean Shoreline, Scripps HA ^b	1
Tecolote HA (906.50)	Creek	Tecolote Creek	1
Mission San Diego HSA (907.11)/ Santee HSA (907.12)	Creek	Forester Creek	3
	Creek	San Diego River (Lower)	
	Shoreline	Pacific Ocean Shoreline, San Diego HU ^b	
Chollas HSA (908.22)	Creek	Chollas Creek	1

¹⁹ The Pacific Ocean shoreline consists of a zone extending seaward from the shoreline a distance of 1,000 feet or to the 30-foot depth contour, whichever is further from the shoreline.

²⁰ The Basin Plan and Ocean Plan also contains SHELL objectives for total coliform. SHELL impairments for total coliform are being developed in a separate TMDL and/or standards action.

Watershed	Type of Listing	Waterbody Name ^{a,c}	Number of Listings
Total Number of Listings on 2002 303(d) LIST in Revised Bacteria TMDLs Project I			20

Note: HSA = hydrologic subarea; HA = hydrologic area; HU = hydrologic unit

^a Listed as impaired due to exceedances of REC-1 WQOs for fecal coliform, and/or total coliform, and/or enterococci.

^b On the 2002 303(d) List, the Pacific Ocean Shoreline for a HSA, HA, or HU is listed, and specific beaches are noted under the listing. Beginning with the 2008 303(d) List, specific beaches are listed.

^c Listings on the 2006 and 2008 303(d) List compared to listing shown above are provided in Appendix T to the Technical Report.

Beginning with the 2008 303(d) List, specific beach segments of the Pacific Ocean shoreline are listed individually. The TMDLs that have been developed for the Pacific Ocean shorelines are assumed to be applicable to all the beaches located on the shorelines of the hydrologic subareas (HSAs), hydrologic areas (HAs), and hydrologic units (HUs) listed above.

16. **Bacteria Water Quality Objectives for REC-1 Beneficial Use:**²¹ Water quality objectives (WQOs) for bacteria in the waters of the Pacific Ocean shoreline, expressed as the most probable number of bacteria colonies per 100 mL of water sample (MPN/100 mL), are contained in the Ocean Plan. The water quality objectives for bacteria in the inland surface waters are contained in the Basin Plan.

(a) The WQOs, as established in the Ocean Plan,²² for indicator bacteria in waters of the Pacific Ocean shoreline designated as having REC-1 beneficial use are as follows:

Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Regional Board (i.e., areas designated as REC-1), but including all kelp beds, the following bacterial objectives shall be maintained throughout the water column:

30-day Geometric Mean – The following standards are based on the geometric mean of the five most recent samples from each site:

- i. Total coliform density shall not exceed 1,000 per 100 mL
- ii. Fecal coliform density shall not exceed 200 per 100mL; and
- iii. Enterococcus density shall not exceed 35 per 100 ml.

Single Sample Maximum:

- i. Total coliform density shall not exceed 10,000 per 100 mL
- ii. Fecal coliform density shall not exceed 400 per 100mL;
- iii. Enterococcus density shall not exceed 104 per 100 mL; and

²¹ Water quality objectives for indicator bacteria in waters with non-water-contact recreation (REC-2) are less stringent than the water quality objectives for REC-1, therefore, attainment of REC-1 objectives through the implementation of TMDLs will, *a fortiori*, provide the requisite water quality for REC-2.

²² As adopted by the State Water Board on January 20, 2005 and April 21, 2005, approved by OAL on October 12, 2005, and approved by USEPA on February 14, 2006.

- iv. Total coliform density shall not exceed 1,000 per 100 mL when the fecal coliform/total coliform ratio exceeds 0.1.
- (b) The WQOs, as established in the Basin Plan,²³ for indicator bacteria in inland surface waters, enclosed bays and estuaries, and coastal lagoons designated as having the REC-1 beneficial use are as follows:

Fecal Coliform Water Quality Objective for Contact Recreation:

The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 organisms per 100 ml.

In addition, the fecal coliform concentration shall not exceed 400 organisms per 100 ml for more than 10 percent of the total samples during any 30-day period.

Enterococci and E. Coli Water Quality Objectives for Contact Recreation:

The USEPA published E. coli and enterococci bacteriological criteria applicable to waters designated for contact recreation (REC-1) in the Federal Register, Vol. 51, No. 45, Friday, March 7, 1986, 8012-8016.

USEPA BACTERIOLOGICAL CRITERIA FOR WATER CONTACT RECREATION
(in colonies per 100 ml)

	Freshwater		Saltwater
	Enterococci	E. coli	Enterococci
Steady State			
(all areas)	33	126	35
Maximum			
(designated beach)	61	235	104
(moderately or lightly used area)	108	406	276
(infrequently used area)	151	576	500

Total Coliform Water Quality Objective for Contact Recreation for Bays and Estuaries:

In bays and estuaries, the most probable number of total coliform organisms in the upper 60 feet of the water column shall be less than 1,000 organisms per 100 ml (10 organisms per ml); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 organisms per 100 ml (10 per ml); and provided further that no single sample as described below is exceeded.

²³ As amended in Resolution No. R9-2008-0028, *Implementation Provisions for Indicator Bacteria Water Quality Objectives to Account for Loading from Natural Uncontrollable Sources Within the Context of a TMDL*, adopted by the San Diego Water Board on May 14, 2008, approved by the State Water Board on March 17, 2009, approved by OAL on June 25, 2009, and approved by USEPA on September 16, 2009.

The most probable number of total coliform organisms in the upper 60 feet of the water column in no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 organisms per 100 ml (100 organisms per ml).

- 17. Allowable Exceedances of REC-1 Water Quality Objectives:** It is not the intent of these bacteria TMDLs to require treatment or diversion of natural waterbodies or to require treatment of natural sources of indicator bacteria. A Basin Plan amendment was adopted by the San Diego Water Board authorizing the development of indicator bacteria TMDLs that account for exceedances of bacteria REC-1 WQOs due to bacteria loads from natural uncontrollable sources.²⁴ Exceedances of bacteria REC-1 WQOs may be allowed within the context of bacteria TMDLs using a reference system approach or natural sources exclusion approach.
- 18. Numeric Targets Selected for Bacteria TMDLs:** One or more quantitative numeric targets are required to calculate a TMDL. Numeric targets are selected based on the water quality standards (i.e., beneficial uses, WQOs, and the antidegradation policy) that are applicable to the waterbody. The selected numeric target(s) must be able to interpret and implement the water quality standards. When the numeric targets are met in the impaired waterbody, the WQOs will be met and the water quality standards should be restored. The numeric targets selected for these bacteria TMDLs are based primarily on the REC-1 WQOs for indicator bacteria contained in the Ocean Plan and/or Basin Plan (finding 16), and allowable exceedance frequencies using a reference system approach (findings 11 and 17). Because the REC-1 WQOs are numeric, the numeric WQOs were used in the numeric targets. Different numeric targets (i.e., numeric WQOs and allowable exceedance frequencies) were used to calculate dry weather TMDLs and wet weather TMDLs. The numeric targets were selected based on the applicability of the Ocean Plan and/or Basin Plan REC-1 WQOs (i.e., Pacific Ocean shoreline or inland surface water) and the allowable exceedance frequencies of the REC-1 WQOs in available reference systems for the different weather conditions (i.e. wet weather²⁵ or dry weather²⁶).
- 19. Sources of Bacteria:** Bacteria build up on the land surface as a result of various anthropogenic land uses (e.g., urban development and agriculture) and natural processes (e.g., birds and wildlife). In urban areas, bacteria are washed off the land surface by dry weather and wet weather flows and transported through pipes and conveyance channels of the municipal separate storm sewer systems (MS4s) to surface waters. Other significant point sources of bacteria include municipal wastewater treatment plants and industrial waste treatment facilities. In rural and undeveloped areas, bacteria are washed off the land surface primarily by wet weather flows directly to surface waters. These diffuse nonpoint sources (e.g., undeveloped land, agriculture, livestock, and horse ranch facilities) have multiple routes of entry into surface waters.

²⁴ Resolution No. R9-2008-0028, *Implementation Provisions for Indicator Bacteria Water Quality Objectives to Account for Loading from Natural Uncontrollable Sources Within the Context of a TMDL*, was adopted by the San Diego Water Board on May 14, 2008, approved by the State Water Board on March 17, 2009, approved by OAL on June 25, 2009, and approved by USEPA on September 16, 2009.

²⁵ Wet weather days defined as days with rainfall events of 0.2 inches or greater and the following 72 hours

²⁶ Dry weather days defined as days with less than 0.2 inch of rainfall observed on each of the previous 3 days.

In order to quantify bacteria loading from these various sources and transport mechanisms, 13 land-use types were identified in the technical TMDL analysis: Low Density Residential, High Density Residential, Commercial/Institutional, Industrial/Transportation, Military, Parks/Recreation, Open Recreation, Agriculture, Dairy/Intensive Livestock, Horse Ranches, Open Space, Water, and Transitional (Construction Activities). In the technical TMDL analysis for this project, the 13 land use types were grouped into the following four land use categories: 1) owners/operators of municipal separate storm sewers (Municipal MS4s); 2) Caltrans (separated from other Municipal MS4s); 3) Agriculture; and 4) Open Space. Land uses associated with the Municipal MS4s and Caltrans have discharges that are considered point sources. Agriculture and Open Space land uses have discharges that are considered nonpoint sources. Discharges of bacteria from the Municipal MS4s, Caltrans, and Agriculture land use categories are assumed to be anthropogenic in origin and considered controllable. Discharges of bacteria from the Open Space land use category are assumed to be natural, and hence are considered uncontrollable. Quantification of the bacteria loads from these land use categories is used to identify controllable bacteria sources that need to reduce their bacteria loads so the TMDLs can be attained in the receiving waters.

20. **Calculation of Total Maximum Daily Loads (TMDLs):** These TMDLs for bacteria are equal to the total assimilative or loading capacities of the waterbodies for total coliform, fecal coliform, and enterococci bacteria and represent the maximum amount of each indicator bacteria that each waterbody can receive and still protect the REC-1 beneficial use. As required, each TMDL accounts for all known sources of bacteria (point, nonpoint, and natural background), includes a margin of safety, accounts for seasonal variations, is calculated at critical conditions (worst loading scenario), and was developed in a manner consistent with the guidelines published by USEPA. Separate dry weather and wet weather TMDLs were calculated for each indicator bacteria.
21. **Technical TMDL Analysis:** A Technical Report entitled “Revised Total Maximum Daily Loads for Indicator Bacteria Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)” was prepared with the details of the technical TMDL analysis. The technical TMDL analysis includes a description of the bacteria impairments, selection of numeric targets (interpretation of the existing numeric water quality objectives used to calculate the TMDLs), source analysis, linkage analysis (calculation of “existing” bacteria loads and “allowable” bacteria loads [or TMDLs]), method for allocating the TMDLs to the identified point sources and nonpoint sources, and calculation of load reductions required from identified controllable sources (difference between “existing” and “allowable” bacteria loads for each source).
22. **Allocation of TMDLs to Point Sources and Nonpoint Sources:** A TMDL is divided, or allocated, among the sources that contribute or may contribute pollutant loads to a waterbody. If there are point sources that contribute or may contribute pollutant loads to a waterbody, they are assigned portions of the TMDL as wasteload allocations (WLAs). For nonpoint sources and natural background sources that contribute or may contribute pollutant loads to a waterbody, they are assigned portions of the TMDL as load allocations (LAs). The TMDL is expressed mathematically as the sum of all the WLAs and LAs and margin of safety (i.e., $TMDL = \sum WLAs + \sum LAs + MOS$). For these bacteria TMDLs, the Municipal MS4s and

Caltrans land use categories are assigned WLAs, and the Agriculture and Open Space land use categories are assigned LAs. Sources that are not identified cannot be assigned a WLA or LA and are assumed to have a zero allowable load (i.e., WLA = 0 or LA = 0). Identified sources may also be assigned a zero allowable load (i.e., WLA = 0 or LA = 0). Sources that are assigned a zero allowable load are not expected or allowed to discharge the specific pollutant to the waterbody as part of the TMDL.

For the dry weather TMDLs, a major underlying assumption is that there is no discharge of surface runoff, thus no discharge of bacteria, expected from land uses associated with the Caltrans, Agriculture, and Open Space land use categories during dry weather. Because no discharge is expected from these land use categories during dry weather, they were assigned dry weather WLAs and LAs of zero. The dry weather TMDLs were assigned entirely to the Municipal MS4s land use category as dry weather WLAs, meaning only discharges of bacteria loads to the receiving waters are expected or allowed from the Municipal MS4s land use category during dry weather.

For the wet weather TMDLs, discharges of surface runoff are expected from all land use types, thus allocations were assigned to each land use category (i.e., Municipal MS4s, Caltrans, Agriculture, Open Space). Allocations were assigned based on discharges of “existing” bacteria loads predicted with a wet weather watershed model. In general, the Caltrans WLAs, Agriculture LAs (in all but 4 of the modeled watersheds), and Open Space LAs were set equal to the “existing” bacteria loads predicted by the wet weather watershed model. The remainder of allowable bacteria load that can be discharged to the receiving waters as part of the TMDL was assigned as the Municipal MS4s WLAs (or proportionally divided between the Municipal MS4s and Agriculture land use categories in 4 of the modeled watersheds).

23. **Load Reductions Required to Attain Dry Weather TMDLs:** According to the dry weather TMDLs, the Municipal MS4s land use category is the only source of bacteria that has been assigned a WLA or LA. Discharges of bacteria loads from any other controllable sources must be reduced to zero. Thus, only Municipal MS4s are expected or allowed to discharge bacteria to the impaired receiving waters. Based on the technical TMDL analysis, bacteria load reductions are required in the discharges from the Municipal MS4s land use category to attain the dry weather TMDLs in the receiving waters.
24. **Load Reductions Required to Attain Wet Weather TMDLs:** According to the wet weather TMDLs, allowable bacteria loads have been assigned to the Municipal MS4s and Caltrans land use categories as WLAs, and the Agriculture and Open Space land use categories as LAs. Based on the technical TMDL analysis, bacteria load reductions are required in the discharges from the Municipal MS4s land use category (and Agriculture land use category in 4 watersheds) to attain the wet weather TMDLs in the receiving waters.
25. **TMDL Implementation Plan:** TMDLs are not self-implementing or directly enforceable for sources in the watershed. Instead, TMDLs must be implemented through the programs or authorities of the San Diego Water Board and/or other entities to compel dischargers responsible for controllable sources to achieve the pollutant load reductions identified by a TMDL analysis to restore and protect the designated beneficial uses of a waterbody. Federal

regulations require TMDLs to be incorporated into the Basin Plan.²⁷ Because TMDLs must be incorporated into the Basin Plan, and are developed to implement previously established water quality standards (i.e., beneficial uses and WQOs), state statute requires the Basin Plan amendment to include a program of implementation (or Implementation Plan) for achieving water quality objectives.²⁸

The amendment of the Basin Plan, in Attachment A, to establish and implement TMDLs for the waters of the beaches and creeks listed in finding 15, includes a TMDL Implementation Plan that contains (1) the actions that the San Diego Water Board and/or other entities can take to implement the TMDLs, (2) a compliance schedule by which the TMDLs, and thereby the restoration of the recreational beneficial uses in the receiving waters, are to be achieved, and (3) a description of the minimum components for a monitoring program that is required to assess compliance with the TMDLs, WLAs, and LAs.

26. Implementation of TMDLs: Because the Phase I MS4s are located at the base of the watersheds and have been identified as the most significant controllable source of bacteria discharging to the receiving waters, these TMDLs will be implemented primarily through the revision of the National Pollutant Discharge Elimination System (NPDES) discharge requirements regulating discharges from the Phase I MS4s. The Caltrans NPDES requirements will also be revised. Federal regulations require that NPDES requirements incorporate water quality based effluent limitations (WQBELs) that must be consistent with the requirements and assumptions of any available WLAs.²⁹ WQBELs may be expressed as numeric effluent limitations, when feasible, and/or as a best management practice (BMP) program of expanded or better-tailored BMPs.³⁰ The WQBELs will likely need to include a BMP program to achieve the load reductions required to attain the TMDLs in the receiving waters. The Phase I MS4s and Caltrans will be required to submit Bacteria or Comprehensive Load Reduction Plans outlining a proposed BMP program that will be capable of achieving the necessary load reductions required to attain the TMDLs in the receiving water. The Phase I MS4s and Caltrans will be responsible for reducing their bacteria loads and/or demonstrating that their discharges are not causing exceedances of the numeric WQOs and allowable exceedance frequencies in the receiving waters. Other dischargers identified as significant sources of bacteria will also be responsible for reducing their bacteria loads and/or demonstrating that their discharges are not causing exceedances of the numeric WQOs and allowable exceedance frequencies in the receiving waters.

27. TMDL Compliance Schedule: Full implementation of the TMDLs for indicator bacteria shall be completed within 10 to 20 years from the effective date³¹ of the Basin Plan amendment. The compliance schedule for implementing the load and wasteload reductions required to achieve the wet weather and dry weather TMDLs is phased in over time.

²⁷ Code of Federal Regulations Title 40 section 130.6(c)(1)

²⁸ Water Code section 13242

²⁹ Code of Federal Regulations Title 40 section 122.44(d)(1)(vii)(B)

³⁰ Code of Federal Regulations Title 40 section 122.44(k)(2)&(3)

³¹ The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.

The dry weather TMDLs must be achieved in the receiving waters as soon as possible, but no later than 10 years from the effective date of the Basin Plan amendment that establishes the TMDLs. For dischargers that undertake wet weather load reduction programs only for bacteria, the wet weather TMDLs must be achieved in the receiving waters as soon as possible, but no later than 10 years from the effective date.

For dischargers in watersheds that undertake concurrent wet weather load reduction programs for other pollutant constituents (e.g. metals, pesticides, trash, nutrients, sediment, etc.) together with the bacteria load reduction requirements in these TMDLs, an alternative compliance schedule may be proposed and incorporated by the San Diego Water Board into the implementing orders. The wet weather TMDL compliance schedules may be extended, but no more than a total of 20 years from the effective date of the Basin Plan amendment. The dry weather TMDL compliance schedule cannot be extended to be more than 10 years from the effective date of the Basin Plan amendment.

28. **TMDL Compliance Monitoring:** An essential component of implementation is water quality monitoring. Monitoring is needed to evaluate the progress toward attainment of the TMDLs and restoring the beneficial uses in the receiving waters. When all discharges from controllable sources meet their assigned WLAs and LAs, and the numeric targets (i.e., numeric WQOs and allowable exceedance frequencies) are also met in the receiving waters, compliance with the TMDLs will be achieved. Compliance with the TMDLs will be assessed by monitoring the receiving waters and comparing the results to the numeric WQOs and allowable exceedance frequencies. At the end of the dry weather TMDL compliance schedule, the 30-day geometric mean REC-1 WQOs for dry weather days must be met 100 percent of the time in the receiving waters. At the end of the wet weather TMDL compliance schedule, the single sample maximum and 30-day geometric mean REC-1 WQOs must not be exceeded in the receiving waters more frequently than the allowable exceedance frequencies.
29. **Compliance with WLAs and LAs:** Ultimately, the TMDLs in the receiving waters will be met when the dischargers responsible for controllable sources meet their assigned WLAs and LAs. When all discharges from controllable sources meet their assigned WLAs and LAs, the beneficial uses in the receiving waters should be restored and compliance with the TMDLs should be achieved. The TMDLs are calculated based on numeric targets consisting of the numeric bacteria REC-1 WQOs and allowable exceedance frequencies. Discharges from controllable sources that can meet the numeric bacteria REC-1 WQOs and allowable exceedance frequencies in their effluent are not expected to cause exceedances of the numeric targets in the receiving waters. If the TMDLs are attained in the receiving waters, the assumption will be that the controllable sources are in compliance with their assigned WLAs and LAs. Otherwise, the dischargers responsible for controllable sources of bacteria must provide evidence and demonstrate to the San Diego Water Board that their discharges are not causing exceedances of the numeric WQOs and allowable exceedance frequencies in the receiving waters.
30. **Scientific Peer Review:** The scientific basis for these TMDLs has undergone external peer review pursuant to Health and Safety Code section 57004. The San Diego Water Board has considered and responded to all comments submitted by the peer review panel, and has

enhanced the Technical Report appropriately. Because the same modeling approaches are used in calculating the bacteria TMDLs for Tecolote Creek, the original Bacteria TMDLs Project I external peer review comments are also applicable. No change to the fundamental approach to TMDL calculation was necessary as a result of this process.

31. **CEQA Requirements:** Pursuant to Public Resources Code section 21080.5, the Resources Agency has approved the Regional Water Boards' basin planning process as a "certified regulatory program" that adequately satisfies the California Environmental Quality Act (CEQA)³² requirements for preparing environmental documents.³³ As such, the documents supporting the San Diego Water Board's proposed basin planning action contain the required environmental documentation under CEQA and serve as "substitute documents".³⁴ The substitute documents for this project include the environmental checklist, the detailed Technical Report, responses to comments submitted during the public participation phase in the development of the TMDLs, and this resolution to adopt Basin Plan amendment. The project itself is the establishment of TMDLs for indicator bacteria at beaches and creeks where water quality has been listed as "impaired" by the State Water Board pursuant to Clean Water Act section 303(d), as required by that section. While the San Diego Water Board has no discretion to not establish the TMDLs (the TMDLs are required by federal law), the Board does exercise discretion in assigning WLAs and LAs, and determining the program of implementation, which includes setting monitoring requirements and a compliance schedule with various milestones for restoring the beneficial uses at the affected beaches and creeks.
32. **Project Impacts:** The accompanying CEQA substitute documents satisfy the requirements of substitute documents for a Tier 1 environmental review under CEQA.³⁵ Nearly all of the compliance measures anticipated to be necessary to implement the TMDLs for indicator bacteria will be undertaken by public agencies that will have their own obligations under CEQA for implementation projects that could have significant environmental impacts (*e.g.*, installation and operation of structural BMPs). Project level impacts will need to be considered in any subsequent environmental analysis performed by other public agencies.³⁶

If not properly mitigated at the project level, implementation and compliance measures undertaken have the potential to result in significant adverse environmental impacts. The substitute documents for this TMDL, and in particular the environmental checklist and responses to comments, identify broad mitigation approaches that should be considered at the project level. The San Diego Water Board does not engage in speculation or conjecture regarding the projects that may be used to implement the TMDLs and only considers the reasonably foreseeable alternative methods of compliance, the reasonably foreseeable feasible environmental impacts of these methods of compliance, and the reasonably foreseeable mitigation measures which would avoid or eliminate the identified impacts, all from a broad general perspective consistent with the uncertainty regarding how the TMDLs, ultimately, will be implemented. The lengthy implementation period allowed by the TMDLs will allow

³² Public Resources Code, section 21000 et seq.

³³ California Code of Regulations Title 14 section 15251(g); California Code of Regulations Title 23 section 3782

³⁴ California Code of Regulations Title 23 section 3777

³⁵ Pursuant to Public Resources Code section 21159 and California Code of Regulations Title 14 section 15187

³⁶ Pursuant to Public Resources Code section 21159.2

persons responsible for compliance with TMDLs, WLAs, or LAs to develop and pursue many compliance approaches and mitigation measures.

33. **Project Mitigation:** The proposed amendment to the Basin Plan to establish TMDLs for indicator bacteria in beaches and creeks has the potential to result in significant adverse effects on the environment. However, there are feasible alternatives, feasible mitigation measures, or both, that should substantially reduce those adverse impacts to less than significant. The public agencies responsible for implementation measures needed to comply with the TMDLs can and should incorporate such alternatives and mitigation into any projects or project approvals that they undertake for the impaired beaches and creeks. Possible alternatives and mitigation are described in the CEQA substitute documents, specifically the Technical Report and the environmental checklist. To the extent the alternatives, mitigation measures, or both, are not deemed feasible by those agencies, the necessity of implementing the TMDLs that is mandated by the federal Clean Water Act and removing the bacteria impairments on beaches and creeks in the San Diego Region (an action required to achieve the express, national policy of the Clean Water Act) outweigh the unavoidable adverse environmental effects identified in the substitute documents.
34. **Department of Fish and Game Filing Fee:** Considering the record as a whole, the Department of Fish and Game determined that for purposes of the assessment of CEQA filing fees³⁷ Bacteria TMDLs Project I adopted under Resolution No. R9-2007-0044 had no potential effect on fish, wildlife, and habitat and the project as described does not require payment of a CEQA filing fee. The environmental analysis and potential project impacts have not changed for the Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creek in the San Diego Region (Including Tecolote Creek).
35. **Economic Analysis:** The San Diego Water Board has considered the costs of the reasonably foreseeable methods of compliance with the load and wasteload allocations specified in these TMDLs. These compliance methods involve implementation of structural and non-structural controls. Surface water monitoring to evaluate the effectiveness of these controls will also be necessary.
36. **Stakeholder & Public Participation:** Interested persons and the public have had reasonable opportunity to participate in review of the proposed bacteria TMDLs. For the bacteria TMDLs adopted under Resolution No. R9-2007-0044, efforts to solicit public review and comment included a public workshop and CEQA scoping meeting in March 2003, a public workshop in March 2004, eleven meetings with the Stakeholder Advisory Group, four public review and comment periods consisting of 62 days, 45 days, 47 days, and 30 days respectively, a public workshop on January 11, 2006, and public hearings on February 8, 2006, April 25, 2007, and December 12, 2007. Notices for all meetings were sent to interested parties including cities and counties with jurisdiction in watersheds draining to the bacteria impaired beaches and creeks. All of the written comments submitted to the San Diego Water Board during the review and comment periods for Resolution No. R9-2007-0044 have been considered were included in Appendix S and Appendix U to the Technical Report.

³⁷ Fish and Game Code section 711.4(c)

Interested persons and the public have also been provided a reasonable opportunity to participate in the review of Revised Bacteria TMDLs Project I. Efforts to solicit public review and comment included a public review and comment period consisting of 78 days, meetings with the Stakeholder Advisory Group in December 2009 and January 2010, and a public hearing on February 10, 2010. Notices for all meetings were sent to interested parties including cities and counties with jurisdiction in watersheds draining to the bacteria impaired beaches and creeks. All of the written comments submitted to the San Diego Water Board up to January 25, 2010 for the revised bacteria TMDLs have been considered responded to in writing in a response to comments document (Responses to Comments Part III), which has been appended to the Technical Report as Appendix V. Written comments and oral testimony received after January 25, 2010 were considered and responded to during the February 10, 2010 public hearing.

37. **Necessity Standard:**³⁸ Amendment of the Basin Plan to establish and implement Total Maximum Daily Loads (TMDLs) for the waters of the beaches and creeks listed in finding 15 is necessary because the existing water quality at the beaches and creeks listed in finding 15 does not meet applicable REC-1 WQOs for total coliform, fecal coliform, and/or enterococci bacteria. Clean Water Act section 303(d) requires the establishment and implementation of TMDLs under the water quality conditions that exist at these beaches and creeks. TMDLs for total coliform, fecal coliform, and/or enterococci bacteria are necessary to restore the water quality needed to support the beneficial uses designated for the beaches and creeks.
38. **Public Notice:** The San Diego Water Board has notified all known interested parties and the public of its intent to consider adoption of this Basin Plan amendment in accordance with Water Code section 13244.

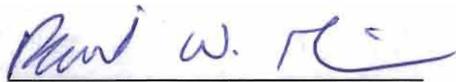
NOW, THEREFORE, BE IT RESOLVED THAT

1. **Environmental Documents Certification:** The substitute environmental documents prepared pursuant to Public Resources Code section 21080.5 are hereby certified, and the Executive Officer is directed to file a Notice of Decision with the Resources Agency after State Water Board and Office of Administrative Law (OAL) approval of the Basin Plan Amendment, in accordance with section 21080.5(d)(2)(E) of the Public Resources Code and the California Code of Regulations, Title 23, section 3781.
2. **Amendment Adoption:** The San Diego Water Board hereby adopts the attached Basin Plan amendment as set forth in Attachment A hereto to establish TMDLs for indicator bacteria at twenty impaired beaches and creeks in the San Diego Region.
3. **Technical Report Approval:** The San Diego Water Board hereby approves the Technical Report entitled *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)*, dated February 10, 2010.

³⁸ Pursuant to Government Code section 11353(b)

4. **Certificate Of Fee Exemption:** The Executive Officer is authorized to request a “No Effect Determination” *in lieu* of payment of the California Department of Fish and Game filing fee, or transmit payment of the applicable filing fee to the California Department of Fish and Game.
5. **Agency Approvals:** The Executive Officer is directed to submit this Basin Plan amendment to the State Water Board in accordance with Water Code section 13245.
6. **Non-Substantive Corrections:** If, during the approval process for this amendment, the San Diego Water Board, the State Water Board, or the OAL determines that minor, non-substantive corrections to the language of the amendment are needed for clarity or consistency, the Executive Officer may make such changes, and shall inform the San Diego Water Board of any such changes.

I, David W. Gibson, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, San Diego Region, on February 10, 2010.



David W. Gibson
Executive Officer

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**ATTACHMENT A
 TO RESOLUTION NO. R9-2010-0001**

**AMENDMENT TO
 THE WATER QUALITY CONTROL PLAN
 FOR THE SAN DIEGO BASIN (9) TO INCORPORATE
 REVISED TOTAL MAXIMUM DAILY LOADS FOR INDICATOR BACTERIA,
 PROJECT I – TWENTY BEACHES AND CREEKS IN THE SAN DIEGO REGION
 (INCLUDING TECOLOTE CREEK)**

This Basin Plan amendment establishes Total Maximum Daily Loads (TMDLs) and associated load and wasteload allocations for total coliform, fecal coliform, and enterococci bacteria in the 20 beach and creek segments listed in the following table.

Watershed	Type of Listing	Waterbody Name ^{a,c}	Number of Listings
San Joaquin Hills HSA (901.11)/ Laguna Beach HSA (901.12)	Shoreline	Pacific Ocean Shoreline, San Joaquin Hills HSA ^b	2
	Shoreline	Pacific Ocean Shoreline, Laguna Beach HSA ^b	
Aliso HSA (901.13)	Creek	Aliso Creek	3
	Estuary	Aliso Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Aliso HSA ^b	
Dana Point HSA (901.14)	Shoreline	Pacific Ocean Shoreline, Dana Point HSA ^b	1
Lower San Juan HSA (901.27)	Creek	San Juan Creek	3
	Estuary	San Juan Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Lower San Juan HSA ^b	
San Clemente HA (901.30)	Shoreline	Pacific Ocean Shoreline, San Clemente HA ^b	1
San Luis Rey HU (903.00)	Shoreline	Pacific Ocean Shoreline, San Luis Rey HU ^b	1
San Marcos HA (904.50)	Shoreline	Pacific Ocean Shoreline, San Marcos HA ^b	1
San Dieguito HU (905.00)	Shoreline	Pacific Ocean Shoreline, San Dieguito HU ^b	1
Miramar Reservoir HA (906.10)	Shoreline	Pacific Ocean Shoreline, Miramar Reservoir HA ^b	1
Scripps HA (906.30)	Shoreline	Pacific Ocean Shoreline, Scripps HA ^b	1
Tecolote HA (906.50)	Creek	Tecolote Creek	1
Mission San Diego HSA (907.11)/ Santee HSA (907.12)	Creek	Forester Creek	3
	Creek	San Diego River (Lower)	
	Shoreline	Pacific Ocean Shoreline, San Diego HU ^b	
Chollas HSA (908.22)	Creek	Chollas Creek	1
Total Number of Listings on 2002 303(d) LIST in Revised Bacteria TMDLs Project I			20

Note: HSA = hydrologic subarea; HA = hydrologic area; HU = hydrologic unit

^a Listed as impaired due to exceedances of REC-1 WQOs for fecal coliform, and/or total coliform, and/or enterococci.

^b On the 2002 303(d) List, the Pacific Ocean Shoreline for a HSA, HA, or HU is listed, and specific beaches are noted under the listing. Beginning with the 2008 303(d) List, specific beaches are listed.

^c Listings on the 2006 and 2008 303(d) List compared to listing shown above are provided in Appendix T to the Technical Report.

The TMDLs that have been developed for the Pacific Ocean shorelines are applicable to all the beaches located on the shorelines of the hydrologic subareas (HSAs), hydrologic areas (HAs), and hydrologic units (HUs) listed above. Beginning with the 2008 303(d) List, specific beach

segments of the Pacific Ocean shoreline are listed individually. Specific beach segments from some of the Pacific Ocean shorelines listed in the above table have been delisted from the 2008 303(d) list that was approved by the San Diego Board on December 16, 2009, and therefore are not subject to any further action as long as monitoring data continues to support compliance with water quality standards.

This amendment also includes the TMDL Implementation Plan, which consists of: (1) the actions that can be taken by the San Diego Water Board and/or other entities to implement the TMDLs, (2) a compliance schedule by which the TMDLs, and thereby the restoration of the recreational beneficial uses in the receiving waters, are to be achieved, and (3) a description of the minimum components for a monitoring program that is required to assess compliance with the TMDLs, WLAs, and LAs.

Chapters 2, 3, 4, 6, and 7 and Appendices E and F of the Basin Plan are amended as follows:

Chapter 2, Beneficial Uses

Table 2-2. Beneficial Uses of Inland Surface Waters

Consecutively number and add the following footnote to Aliso Creek, San Juan Creek, Tecolote Creek, Forrester Creek, San Diego River (lower), and Chollas Creek in Table 2-2:

Aliso Creek, San Juan Creek, Tecolote Creek, Forrester Creek, San Diego River (lower), and Chollas Creek are designated as water quality limited segments for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)*.

Renumber any footnotes in Table 2-2 displaced by this new footnote. Revise any other footnotes in Table 2-2 referring to TMDLs in Chapter 4 and change reference to Chapter 7.

Table 2-3. Beneficial Uses of Coastal Waters.

Consecutively number and add the following footnote to Pacific Ocean in Table 2-3:

Certain Pacific Ocean shoreline segments of the following Hydrological Units, Areas, and Subareas are designated as water quality limited segments for indicator bacteria pursuant to Clean Water Act section 303(d): San Joaquin Hills HSA 901.11 and Laguna Beach HSA 901.12, Aliso Creek HSA 901.13, Dana Point HSA 901.14, Lower San Juan HSA 901.27, San Clemente HA 901.30, San Luis Rey HU 903.00, San Marcos HA 904.50, San Dieguito HU 905.00, Miramar Reservoir HA 906.10, Scripps HA 906.30, and Mission San Diego HSA 907.11 and Santee HSA 907.12. Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)*.

Consecutively number and add the following footnote to Mouth of San Diego River in Table 2-3:

The mouth of San Diego River is designated as a water quality limited segment for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)*.

Consecutively number and add the following footnote to Mouth of San Luis Rey River in Table 2-3:

The mouth of San Luis Rey River is designated as a water quality limited segment for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)*.

Consecutively number and add the following footnote to Mouth of San Juan Creek in Table 2-3:

The mouth of San Juan Creek is designated as a water quality limited segment for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)*.

Consecutively number and add the following footnote to Mouth of Aliso Creek in Table 2-3:

The mouth of Aliso Creek is designated as a water quality limited segment for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)*.

Renumber any footnotes in Table 2-3 displaced by these new footnotes. Revise any other footnotes in Table 2-3 referring to TMDLs in Chapter 4 and change reference to Chapter 7.

Chapter 3, Water Quality Objectives

Ocean Waters; Ocean Plan and Thermal Plan:

Add a second paragraph as follows:

Certain Pacific Ocean shoreline segments of the following Hydrological Units, Areas, and Subareas are designated as water quality limited segments for indicator bacteria pursuant to Clean Water Act section 303(d): San Joaquin Hills HSA 901.11 and Laguna Beach HSA 901.12, Aliso Creek HSA 901.13, Dana Point HSA 901.14, Lower San Juan HSA 901.27, San Clemente HA 901.30, San Luis Rey HU 903.00, San Marcos HA 904.50, San Dieguito HU 905.00, Miramar Reservoir HA 906.10, Scripps HA 906.30, and Mission San Diego HSA 907.11 and Santee HSA 907.12.

Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 2, Table 2-3, *Beneficial uses of Coastal Waters, Footnotes [insert footnote numbers]*, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)*.

Inland Surface Waters, Enclosed Bays and Estuaries, Coastal Lagoons, and Ground Waters; Bacteria – Total and Fecal Coliform:

Add a second paragraph as follows:

Aliso Creek, San Juan Creek, Tecolote Creek, Forrester Creek, San Diego River (lower), and Chollas Creek are designated as water quality limited segments for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 2, Table 2-2, *Beneficial Uses of Inland Surface Waters, Footnote [insert footnote number]* and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)*.

Chapter 4, Implementation

Revise Chapter 4 as follows:

Delete the following sections from Chapter 4:

- California Water Quality Assessment
- Clean Water Act Section 303(d) Requirements for Impaired Waterbodies

Replace the sections deleted above with the following:

TOTAL MAXIMUM DAILY LOADS

A total maximum daily load (TMDL) is the amount of a pollutant that can be discharged into a waterbody and still maintain its water quality standards (i.e., the designated beneficial uses and the adopted water quality objectives that support the beneficial uses). A TMDL must account for seasonal variations and include a margin of safety (MOS) to account for any lack of knowledge concerning the relationship between pollutant loadings and receiving water quality.

Pollutant loadings in excess of the TMDL are expected to have an adverse effect on water quality by causing exceedances of the applicable water quality standards. Allowable pollutant loadings are calculated and assigned to all point source and nonpoint source discharges to ensure that the applicable water quality standards are not exceeded in the receiving water.

A portion of the TMDL may be held explicitly in reserve as the MOS (e.g., MOS = 10 percent of TMDL), or the MOS may be implicitly included (i.e., MOS = 0) by incorporating conservative assumptions in the calculation of the TMDL (i.e., assumptions result in a lower calculated TMDL). The portion of the TMDL not in the MOS is assigned to point sources and nonpoint sources.

Point sources are assigned wasteload allocations (WLAs) and nonpoint sources (including natural and background sources) are assigned load allocations (LAs). The WLAs and LAs may differ for each pollutant source, but the TMDL and MOS do not change. The TMDL for a pollutant in the receiving water, and the WLAs and LAs for a pollutant discharged from different sources into a waterbody are calculated at levels that, when each are met, are expected to result in the attainment of the associated water quality objectives for the pollutant and protection of the applicable beneficial uses in the receiving water.

Establishing TMDLs for waters is required under section 303(d) of the Clean Water Act. Clean Water Act section 303(d) requires that the State establish a priority ranking of waters that do not meet water quality standards after application of technology based controls. The USEPA strongly encourages states to include the priority ranking as part of the Biennial Clean Water Act Sections 303(d), 305(b) and 314 Integrated Report, which is discussed in more detail in Chapter 6.

Waters identified under section 303(d) (a.k.a. the 303(d) List) are designated as Water Quality Limited Segments (WQLSs). In accordance with the priority ranking, TMDLs must be established for pollutants suitable for such calculations. For the purpose of developing information for all waters not identified as WQLSs, states are also required to estimate the TMDLs with seasonal variations and margin of safety.

One or more numeric targets are typically required to calculate TMDLs at levels necessary to attain and maintain applicable narrative and numerical water quality standards in WQLSs. Numeric targets interpret the existing water quality standards (i.e., beneficial uses and the water quality objectives established at levels sufficient to support those uses). After identifying the impaired beneficial uses of a waterbody, the numeric targets are often based on the water quality objectives in Chapter 3. Chapter 3 contains numeric and narrative water quality objectives. If applicable water quality objectives are numeric, the numeric water quality objectives can serve as the basis for the numeric targets. If applicable water quality objectives are narrative, one or more quantifiable target values or measurable indicators must be selected to measure progress and evaluate final attainment and maintenance of the narrative water quality objectives. In WQLSs, when numeric targets are met in the waterbody, the water quality standards should be attained and

restored. While numeric targets and TMDLs interpret water quality standards, *numeric targets and TMDLs are not water quality standards.*

TMDLs are not self-implementing or directly enforceable for sources in the watershed. Instead, TMDLs must be implemented through the programs or authorities of the San Diego Water Board and/or other entities to compel dischargers responsible for controllable sources to achieve the pollutant load reductions identified by a TMDL analysis to attain the water quality objectives that will support the designated beneficial uses of a waterbody.

The authorities that are available to the San Diego Water Board to implement TMDLs are given under the Porter-Cologne Water Quality Control Act (Division 7 of the Water Code). The available regulatory authorities include incorporating discharge prohibitions in to the Basin Plan, issuing individual or general waste discharge requirements (WDRs), or issuing individual or general conditional waivers of WDRs. The San Diego Water Board has the authority to enforce Basin Plan prohibitions, WDRs, or conditional waivers of WDRs through the issuance of enforcements actions (e.g., time schedule orders, cleanup and abatement orders, cease and desist orders, administrative civil liabilities). The San Diego Water Board also has the authority to require monitoring and/or technical reports from dischargers, which may be used to support the development, refinement, and/or implementation of TMDLs, WLAs, and/or LAs.

Additionally, the USEPA has delegated responsibility to the State and Regional Boards for implementation of the federal National Pollutant Discharge Elimination System (NPDES) program, which specifically regulates discharges of "pollutants" from point sources to "waters of the United States." The San Diego Water Board regulates discharges from point sources to surface waters with WDRs that implement federal NPDES regulations (NPDES requirements). Federal regulations require that NPDES requirements incorporate water quality based effluent limitations (WQBELs) that must be consistent with the requirements and assumptions of any available WLAs. WQBELs may be expressed as numeric effluent limitations, when feasible, and/or as a best management practice (BMP) program of expanded or better-tailored BMPs.

Upon establishment of TMDLs by the state or U.S. Environmental Protection Agency (USEPA), the state is required to incorporate TMDLs into the state water quality management plan. This Basin Plan and applicable statewide plans serve as the water quality management plan for the watersheds under the jurisdiction of the Regional Board. TMDLs are programs for the implementation of existing water quality standards, and are established in the Basin Plan subject to the requirements of Water Code section 13242. TMDLs incorporated into the Basin Plan, therefore, are required to include 1) a description of the actions (i.e., programs or authorities) of the Regional Board and/or other entities necessary to achieve the TMDLs, 2) a compliance time schedule by which the TMDLs, and thereby the restoration of the beneficial uses in the receiving waters, are to be achieved, and 3) a description of the monitoring program that is required to determine compliance with TMDLs, WLAs, and LAs in the receiving waters. These elements are referred to as the TMDL Implementation Plan.

TMDLs that have been established for the San Diego Region are provided in Chapter 7.

Delete the following sections from Chapter 4 and move to Chapter 7:

- Total Maximum Daily Load for Diazinon, Chollas Creek Watershed, San Diego County
- Total Maximum Daily Load for Dissolved Copper, Shelter Island Yacht Basin, San Diego Bay
- Total Maximum Daily Loads (TMDLs) for Total Nitrogen and Total Phosphorus in the Rainbow Creek Watershed
- Total Maximum Daily Loads for Copper, Lead, and Zinc in Chollas Creek
- Total Maximum Daily Loads for Indicator Bacteria, Baby Beach and Shelter Island Shoreline Park Shorelines

Delete the following section from Chapter 4:

- Other Programs, San Diego Bay Total Maximum Daily Load Worksheets

Revise the Chapter 4 Table of Contents to reflect the changes above.

Chapter 6, Surveillance, Monitoring, and Assessment

Revise the section titled “Biennial Water Quality Inventory / Water Quality Assessment Report” from Chapter 6 as follows (blue underline indicates added text and red strikethrough indicates deleted text):

BIENNIAL ~~WATER QUALITY INVENTORY / WATER QUALITY ASSESSMENT~~ CLEAN WATER ACT SECTIONS 303(d), 305(b) AND 314 INTEGRATED REPORT

Every two years states are required to provide an assessment of the quality of all their waters and a list of those waters that are impaired or threatened, in accordance with the following sections of the Clean Water Act:

Section 303(d): Requires states to identify waters for which technology based effluent limitation are not stringent enough to meet applicable water quality standards. States must establish a priority ranking for such waters and must establish TMDLs for all such waters in accordance with the priority ranking. Waters identified and prioritized for TMDL development under section 303(d) (a.k.a. the 303(d) List) are designated as Water Quality Limited Segments (WQLSs).

Section 305(b): Requires states to prepare a description of the water quality of all navigable waters of the state; an analysis of the extent to which navigable waters provide protection and propagation of a balanced population of shellfish, fish, and wildlife and allow recreational activities in and on the water; an analysis of the extent to which elimination of the discharge of pollutants has been achieved; an estimate of the environmental impact, the economic, and social costs necessary to achieve the objective of

the Clean Water Act, the economic and social benefits of the achievement, and the date of such achievement; and, a description of the nature and the extent of nonpoint sources of pollutants and recommendations as to the programs which must be taken to control them, with estimates of cost.

Section 314: Requires states to identify and classify all publicly owned lakes in the state according to eutrophic condition. States must list and describe those publicly owned lakes known to be impaired and assess the status and trends of water quality. This information is required to be submitted as part of the section 305(b) report.

~~Section 305(b) of the federal Clean Water Act requires all states to prepare and submit a biennial Water Quality Inventory Report, (commonly referred to as a "305(b) Report"). In California, this report is used by the State Board and the USEPA to prioritize funding for water quality programs. As required by the Clean Water Act, section 305(b), the report must contain:~~

- ~~• A description of the water quality of the major navigable water bodies in the state;~~
- ~~• An analysis of the extent to which significant navigable waters provide for the protection and propagation of a balanced population of shellfish, fish, and wildlife and allow recreational activities in and on the water;~~
- ~~• An analysis of the extent to which elimination of the discharge of pollutants has been achieved;~~
- ~~• An estimate of the environmental impact, the economic, and social costs necessary to achieve the objective of the Clean Water Act, the economic and social benefits of the achievement, and the date of such achievement; and~~
- ~~• A description of the nature and the extent of nonpoint sources of pollutants and recommendations as to the programs which must be taken to control them, with estimates of cost.~~

The USEPA strongly encourages states to submit a single Integrated Report that satisfies the reporting requirements for each of these sections. Each Regional Board prepares a ~~biennial Water Quality Assessment (WQA) Report~~ an Integrated Report for its Region, using data collected by regional planning, permitting, surveillance, and enforcement programs. The regional ~~reports~~ Integrated Reports contain inventories of the major waterbodies in the region, including rivers and streams, lakes and reservoirs, bays and harbors, estuaries, coastal waters, wetlands, and ground water. ~~For each water body, the report identifies the total size and the extent of the water body classified as having "good", "intermediate", "impaired", or "unknown" water quality. The report describes general problems and sources of water quality impairment. Additionally, the data base also indicates if the water body is included on any of the federal "lists". These lists indicate specific types of water quality impairments and are organized by the appropriate sections of the Clean Water Act as follows:~~

~~Section 131.11: Segments which may be affected by toxic pollutants, or segments with concentrations of toxic pollutants that warrant concern.~~

~~Section 303(d): List of Water Quality Limited Segments where objectives or goals of the Clean Water Act are not attainable with the Best Available Treatment/ Best Control Technology (BAT/BCT).~~

~~Section 304(m): So-called "mini list" of waters not meeting State adopted numeric water quality objectives due to toxic point sources after implementation of BAT/BCT.~~

~~Section 304(s): So-called "short list" of waters not achieving water quality standards due to point source discharges of toxic pollutants after implementation of BAT/BCT.~~

~~Section 304(l): So-called "long list" of waters not meeting the water quality goals of the Clean Water Act after implementation of BAT/BCT.~~

~~Section 314: A list of lake priorities for restoration.~~

~~Section 319: A list of impaired surface water bodies from nonpoint source problems due to both toxic and nontoxic pollutants.~~

The regional Integrated Report presents the results of the assessment of the waterbodies in the Region, and the waters are categorized as one or more of the following:

Category 1: All designated uses are supported, no use is threatened.

Category 2: Available data and/or information indicate that some, but not all of the designated uses are supported.

Category 3: There are insufficient available data and/or information to make a use support determination.

Category 4: Available data and/or information indicate that at least one designated use is not being supported or is threatened, but a TMDL is not needed.

Category 5: Available data and/or information indicate that at least one designated use is not being supported or is threatened and a TMDL is needed.

Upon adoption of the ~~Regional WQA Reports~~ regional Integrated Reports by respective Regional Boards, the reports are compiled into a statewide report ~~entitled California Water Quality Assessment Report~~. Upon adoption of this statewide report by the State Board, the report is submitted to the USEPA to satisfy ~~section 305(b)~~ the reporting requirements of ~~the~~ Clean Water Act sections 303(d), 305(b) and 314. Subsequently, the USEPA submits the Integrated Reports from the states to the United States Congress, which serves as the

[primary vehicle for informing Congress and the public about general water quality conditions in the United States.](#)

Chapter 7, Total Maximum Daily Loads

Add Chapter 7, Total Maximum Daily Loads to Basin Plan and include the following.

7. TOTAL MAXIMUM DAILY LOADS

INTRODUCTION

This chapter contains the Total Maximum Daily Loads (TMDLs) that have been adopted by the Regional Water Quality Control Board, San Diego Region (RWQCB), approved by the State Water Resources Control Board (SWRCB) and Office of Administrative Law (OAL), and/or adopted/approved by the United State Environmental Protection Agency (USEPA). Table 7-1 lists the adopted and approved TMDLs that have been incorporated into the Basin Plan.

Table 7-1. Adopted and Approved Total Maximum Daily Loads in the San Diego Region

Total Maximum Daily Load	RWQCB Adoption Date	SWRCB Approval Date	OAL Approval Date	USEPA Approval Date
Total Maximum Daily Load for Diazinon, Chollas Creek Watershed, San Diego County	8/14/02	7/16/03	9/11/03	11/3/03
Total Maximum Daily Load for Dissolved Copper, Shelter Island Yacht Basin, San Diego Bay	2/9/05	9/22/05	12/2/05	2/8/06
Total Maximum Daily Loads for Total Nitrogen and Total Phosphorus in the Rainbow Creek Watershed	2/9/05	11/16/05	2/1/06	3/22/06
Total Maximum Daily Loads for Copper, Lead, and Zinc in Chollas Creek	6/13/07	7/15/08	10/22/08	12/18/08
Total Maximum Daily Loads for Indicator Bacteria, Project I – Beaches and Creeks in the San Diego Region	12/17/07	-- ^a	--	--
Total Maximum Daily Loads for Indicator Bacteria, Baby Beach and Shelter Island Shoreline Park Shorelines	6/11/08	6/16/09	9/15/09	10/26/09
Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)	2/10/10	TBD	TBD	TBD

^a Withdrawn by the RWQCB on December 18, 2008 from SWRCB consideration for revision. See Revised Total Maximum Daily Loads for Indicator Bacteria Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).

The text for the TMDLs removed from Chapter 4, above, as well as all the text deleted from Appendix E and Appendix F will be added to the new Chapter 7, in the following order:

1. Total Maximum Daily Load for Diazinon, Chollas Creek Watershed, San Diego County
2. Total Maximum Daily Load for Dissolved Copper, Shelter Island Yacht Basin, San Diego Bay
3. Append the old Appendix E (Method for Recalculation of the Total Maximum Daily Load for Dissolved Copper in the Shelter Island Yacht Basin, San Diego Bay) to the end of the TMDL above.
4. Total Maximum Daily Loads (TMDLs) for Total Nitrogen and Total Phosphorus in the Rainbow Creek Watershed
5. Append the old Appendix F (Method for Recalculation of the Total Maximum Daily Loads for Nitrogen and Phosphorus in Rainbow Creek) to the end of the TMDL above.
6. Total Maximum Daily Loads for Copper, Lead, and Zinc in Chollas Creek
7. Total Maximum Daily Loads for Indicator Bacteria, Baby Beach and Shelter Island Shoreline Park Shorelines

Number any tables from the text listed above in sequential order following Table 7-1 above.

Future TMDL Basin Plan amendments will be added to the end of Chapter 7, and Table 7-1 will be updated accordingly.

Add the following section to the end of Chapter 7:

Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).

On February 10, 2010, the San Diego Water Board adopted Resolution No. R9-2010-0001, *A Resolution Amending the Water Quality Control Plan for the San Diego Region (9) to Incorporate Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)* (referred to hereafter as Revised Bacteria TMDLs Project I). The TMDL Basin Plan Amendment was subsequently approved by the State Water Resources Control Board (SWRCB) on [Insert date], the Office of Administrative Law on [Insert date], and the USEPA on [Insert date].

Bacteria TMDLs have been established for the following 20 waterbodies listed on the 2002 Clean Water Act Section 303(d) List of Water Quality Limited Segments:

[Insert Table number]. Beaches and Creeks Addressed by Revised Bacteria TMDLs Project I

Watershed	Type of Listing	Waterbody Name ^{a,c}	Number of Listings
San Joaquin Hills HSA (901.11)/ Laguna Beach HSA (901.12)	Shoreline	Pacific Ocean Shoreline, San Joaquin Hills HSA ^b	2
	Shoreline	Pacific Ocean Shoreline, Laguna Beach HSA ^b	
Aliso HSA (901.13)	Creek	Aliso Creek	3
	Estuary	Aliso Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Aliso HSA ^b	
Dana Point HSA (901.14)	Shoreline	Pacific Ocean Shoreline, Dana Point HSA ^b	1
Lower San Juan HSA (901.27)	Creek	San Juan Creek	3
	Estuary	San Juan Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Lower San Juan HSA ^b	
San Clemente HA (901.30)	Shoreline	Pacific Ocean Shoreline, San Clemente HA ^b	1
San Luis Rey HU (903.00)	Shoreline	Pacific Ocean Shoreline, San Luis Rey HU ^b	1
San Marcos HA (904.50)	Shoreline	Pacific Ocean Shoreline, San Marcos HA ^b	1
San Dieguito HU (905.00)	Shoreline	Pacific Ocean Shoreline, San Dieguito HU ^b	1
Miramar Reservoir HA (906.10)	Shoreline	Pacific Ocean Shoreline, Miramar Reservoir HA ^b	1
Scripps HA (906.30)	Shoreline	Pacific Ocean Shoreline, Scripps HA ^b	1
Tecolote HA (906.50)	Creek	Tecolote Creek	1
Mission San Diego HSA (907.11)/ Santee HSA (907.12)	Creek	Forester Creek	3
	Creek	San Diego River (Lower)	
	Shoreline	Pacific Ocean Shoreline, San Diego HU ^b	
Chollas HSA (908.22)	Creek	Chollas Creek.	1
Total Number of Listings on 2002 303(d) List in Revised Bacteria TMDLs Project I			20

Note: HSA = hydrologic subarea; HA = hydrologic area; HU = hydrologic unit

^a Listed as impaired due to exceedances of REC-1 WQOs for fecal coliform, and/or total coliform, and/or enterococci.

^b On the 2002 303(d) List, the Pacific Ocean Shoreline for a HSA, HA, or HU is listed, and specific beaches are noted under the listing. Beginning with the 2008 303(d) List, specific beaches are listed.

^c Listings on the 2006 and 2008 303(d) List compared to listing shown above are provided in Appendix T to the Technical Report.

The TMDLs that have been developed for the Pacific Ocean shorelines are applicable to all the beaches located on the shorelines of the hydrologic subareas (HSAs), hydrologic areas (HAs), and hydrologic units (HUs) listed above. Beginning with the 2008 303(d) List, specific beach segments of the Pacific Ocean shoreline are listed individually. Specific beach segments from some of the Pacific Ocean shorelines listed in the above table have been delisted from the 2008 303(d) list that was approved by the San Diego Board on December 16, 2009, and therefore are not subject to any further action as long as monitoring data continues to support compliance with water quality standards.

(a) Problem Statement

Bacteria densities in the Pacific Ocean at various beach and coastal creek mouth segments (referred to hereafter as “beaches”) exceed water quality objectives (WQOs) for indicator bacteria. Bacteria densities in ocean water at these beaches unreasonably impair and threaten to impair the water quality needed to support the contact water recreation (REC-1)¹ designated beneficial use.

Bacteria densities in the waters of Aliso Creek, San Juan Creek, Tecolote Creek, Forrester Creek, the (lower) San Diego River, and Chollas Creek exceed WQOs for indicator bacteria. Bacteria densities in these creeks unreasonably impair and threaten to impair the water quality needed to support REC-1.

The federal Clean Water Act requires the establishment of Total Maximum Daily Loads (TMDLs) for pollutants that exceed the WQOs needed to support designated beneficial uses, *i.e.*, that cause or contribute to exceedances of state “water quality standards.”

(b) Numeric Target

When calculating TMDLs, one or more numeric targets are required. Numeric targets are typically selected based on water quality standards, which include beneficial uses and the WQOs that are established at levels sufficient to protect those beneficial uses. The numeric targets for these TMDLs are based primarily on the REC-1 WQOs for indicator bacteria contained in the Ocean Plan and/or Basin Plan.

Different REC-1 WQOs were used as the basis for wet weather² and dry weather³ allowable load (*i.e.*, TMDL) calculations because the bacteria transport mechanisms to receiving waters are different under wet and dry weather conditions. Because wet weather conditions, or storm flow, are episodic and short in duration, and characterized by rapid wash-off and transport of high bacteria loads, with short residence times, from all land use types to receiving waters, the single sample maximum WQOs were appropriate for use as wet weather numeric targets. For dry weather conditions, because dry weather runoff is not generated from storm flows, is not uniformly linked to every land use, and is more uniform than stormflow, with lower flows, lower loads, and slower transport, making die-off and/or amplification processes more important, the geometric mean WQOs were appropriate for use as dry weather numeric targets. Wet weather TMDL calculations were based on the REC-1 single sample maximum WQOs while dry weather TMDL calculations were based on REC-1 geometric mean WQOs.

It is not the intent of these TMDLs to require treatment or diversion of natural waterbodies or to require treatment of natural sources of indicator bacteria. The Basin Plan authorizes the use of a reference system and antidegradation approach (RSAA) or natural sources

¹ Water quality objectives for indicator bacteria in waters with non-water-contact recreation (REC-2) are less stringent than the water quality objectives for REC-1, therefore, attainment of REC-1 objectives through the implementation of TMDLs will, *a fortiori*, provide the requisite water quality for REC-2.

² Wet weather days defined as days with rainfall events of 0.2 inches or greater and the following 72 hours.

³ Dry weather days defined as days with less than 0.2 inch of rainfall observed on each of the previous 3 days.

exclusion approach (NSEA) during implementation of indicator bacteria water quality objectives within the context of a TMDL.

For these indicator bacteria TMDLs, the RSAA has been incorporated in the numeric targets as an allowable frequency that the REC-1 WQOs can be exceeded (i.e., allowable exceedance frequency). The purpose of the allowable exceedance frequency is to account for the natural, and largely uncontrollable sources of bacteria (e.g., bird and wildlife feces), which have been shown can, by themselves, cause exceedances of the REC-1 WQOs. The RSAA also incorporates antidegradation principles in that, if water quality is better than that of the reference system in a particular location, no degradation of existing bacteriological water quality is permitted.

Therefore, in addition to the REC-1 WQOs, the numeric targets used to calculate the indicator bacteria TMDLs include an allowable exceedance frequency. The numeric targets used to calculate of the wet weather TMDLs include a 22 percent allowable exceedance frequency of the REC-1 single sample maximum WQOs.⁴ The numeric targets used to calculate dry weather TMDLs include a zero percent allowable exceedance frequency of the REC-1 geometric mean WQOs.⁵

The allowable load (i.e., TMDL) that is calculated based on these numeric targets consists of the sum of two parts: 1) the bacteria load that is calculated with the REC-1 WQOs and, 2) the bacteria load that is associated with the allowable exceedance frequency, calculated using the existing load in exceedance of the REC-1 WQOs on the allowable exceedance days. Allowable exceedance days are calculated based on the allowable exceedance frequency and total number of wet days in a year.

Different enterococci REC-1 WQOs were used to calculate TMDLs in watersheds modeled with the inland freshwater creeks (i.e., San Juan Creek, Aliso Creek, Tecolote Creek, Forrester Creek, (lower) San Diego River, and Chollas Creek) and watersheds modeled only with coastal saltwater beaches. The WQOs applicable to ocean waters are provided in the Ocean Plan. The Ocean Plan is applicable only to ocean waters and does not apply to marine bays, estuaries and lagoons. The WQOs applicable to all other surface waters in the San Diego Region (e.g., marine bays, estuaries and lagoons, and freshwater inland surface waters) are contained in the Basin Plan.

There are different enterococci REC-1 WQOs in the Ocean Plan compared to the Basin Plan. Specifically, the Ocean Plan contains REC-1 single sample maximum and 30-day

⁴ In the calculation of the wet weather TMDLs, the San Diego Regional Board chose to apply the 22 percent allowable exceedance frequency as determined for Leo Carillo Beach in Los Angeles County. At the time the wet weather watershed model was developed, the 22 percent exceedance frequency from Los Angeles County was the only reference beach exceedance frequency available. The 22 percent allowable exceedance frequency used to calculate the wet weather TMDLs is justified because the San Diego Region watersheds' exceedance frequencies will likely be close to the value calculated for Leo Carillo Beach, and is consistent with the exceedance frequency that was applied by the Los Angeles Regional Board.

⁵ Available water quality data from San Diego Region reference systems indicate that exceedances of the single sample WQOs during dry weather conditions are uncommon. Furthermore, if the exceedance of the single sample WQOs during dry weather is unlikely, exceedances of the geometric mean are even more unlikely.

geometric mean WQOs for ocean waters that do not vary. In the Basin Plan, however, the REC-1 single sample maximum WQOs for enterococci are dependent upon the type (e.g., freshwater or saltwater) and usage frequency (e.g., designated beach, moderately or lightly used area, or infrequently used area) of the waterbody, and the REC-1 geometric mean WQOs are dependent of the type (e.g., freshwater or saltwater) of waterbody. The enterococci saltwater REC-1 WQOs in the Basin Plan, for waters designated with “designated beach” usage frequency, are the same as the enterococci REC-1 WQOs in the Ocean Plan.

For the application of the Basin Plan’s enterococci REC-1 WQOs, unless otherwise specified in the Basin Plan, all waterbodies in the San Diego Region designated with REC-1 beneficial use are assumed to have a “designated beach” usage frequency. The “designated beach” usage frequency has the lowest and most stringent enterococci REC-1 WQOs in the Basin Plan. The enterococci REC-1 single sample maximum WQOs in the Basin Plan are more stringent for freshwater (61 MPN/100mL) than for saltwater (104 MPN/100mL) waterbodies. The enterococci REC-1 geometric mean WQOs in the Basin Plan are also more stringent for freshwater (33 MPN/100mL) than for saltwater (35 MPN/100mL) waterbodies. Since coastal saltwater beaches are downstream of inland freshwater creeks, TMDLs for coastal saltwater beaches are calculated using the more conservative enterococci REC-1 WQOs applicable to freshwater creeks (i.e., 61 MPN/100mL and 33 MPN/100mL). The numeric targets used in the calculation of the TMDLs for Tecolote Creek and Chollas Creek are also based on the enterococci REC-1 WQOs applicable to freshwater creeks.

In some cases, the “designated beach” category may be over-protective of water quality because of the infrequent recreational use in the impaired freshwater creeks. The recreational usage frequency in these freshwater creeks may correspond to the “moderately to lightly used areas” category, which has an enterococci freshwater REC-1 single sample maximum WQO of 108 MPN/100mL. In such cases, the “designated beach” enterococci saltwater REC-1 single sample maximum WQO (104 MPN/100mL) would also be protective of the “moderately to lightly used area” freshwater creek.

Before the less stringent enterococci single sample maximum saltwater REC-1 WQO may be applied to a freshwater creek, the Basin Plan must be amended to designate a lower usage frequency (i.e., “moderately to lightly used area”) for each freshwater creek. If information and evidence are provided to justify the “moderately to lightly used area” usage frequency for a freshwater creek, and the designated usage frequency of the freshwater creek is amended to “moderately to lightly used area” in the Basin Plan, the wet weather TMDLs that were calculated in a watershed that was modeled with a freshwater creek using the enterococci saltwater REC-1 WQOs can be implemented instead.

The numeric targets for the scenarios described above are summarized in the following tables.

[Insert table number]. Wet Weather Numeric Targets

Indicator Bacteria	Numeric Target (MPN/100mL)	Allowable Exceedance Frequency ^a
Fecal coliform	400 ^b	22%
Total coliform	10,000 ^c	22%
Enterococci	104 ^d / 61 ^e	22%

- Percent of wet days (i.e., rainfall events of 0.2 inches or greater and the following 72 hours) allowed to exceed the wet weather numeric targets. Exceedance frequency based on reference system in the Los Angeles Region.
- Fecal coliform single sample maximum WQO for REC-1 use in creeks and at beaches.
- Total coliform single sample maximum WQO for REC-1 use at beaches and the point in creeks that discharges to beaches.
- Enterococci single sample maximum WQO for REC-1 use in creeks established and designated as “moderately or lightly used” in the Basin Plan and at beaches downstream of those creeks, as well as all other beaches.
- Enterococci single sample maximum WQO for REC-1 use in creeks not established and designated as “moderately or lightly used” in the Basin Plan and at beaches downstream of those creeks (“designated beach” frequency of use; applicable to San Juan Creek and downstream beach, Aliso Creek and downstream beach, Tecolote Creek, Forrester Creek, San Diego River and downstream beach, and Chollas Creek).

[Insert table number]. Dry Weather Numeric Targets

Indicator Bacteria	Numeric Target (MPN/100mL)	Allowable Exceedance Frequency ^a
Fecal coliform	200 ^b	0%
Total coliform	1,000 ^c	0%
Enterococci	35 ^d / 33 ^e	0%

- Percent of dry days (i.e., days with less than 0.2 inch of rainfall observed on each of the previous 3 days) allowed to exceed the dry weather numeric targets.
- Fecal coliform 30-day geometric mean WQO for REC-1 use in creeks and at beaches.
- Total coliform 30-day geometric mean WQO for REC-1 at beaches and the point in creeks that discharges to beaches.
- Enterococci 30-day geometric mean WQO for REC-1 at beaches.
- Enterococci 30-day geometric mean WQO for REC-1 use in impaired creeks and beaches downstream of those creeks (applicable to San Juan Creek and downstream beach, Aliso Creek and downstream beach, Tecolote Creek, Forrester Creek, San Diego River and downstream beach, and Chollas Creek).

(c) Source Analysis

Sources of bacteria are the same under both wet weather and dry weather conditions. Bacteria build up on the land surface as a result of various anthropogenic land uses (e.g., urban development and agriculture) and natural processes (e.g., birds and wildlife). Bacteria are washed off the land surface by surface runoff. In urban areas, bacteria are washed off the land surface by dry weather and wet weather flows and transported through pipes and conveyance channels of the municipal separate storm sewer systems (MS4s) to surface waters. Other significant point sources of bacteria include municipal wastewater treatment plants and industrial waste treatment facilities. In rural and undeveloped areas, bacteria are washed off the land surface primarily by wet weather flows directly to surface waters. Discharges from rural areas are typically considered nonpoint sources. These diffuse nonpoint sources (e.g., undeveloped land, agriculture, livestock, and horse ranch facilities) have multiple routes of entry into surface waters.

Nonpoint sources were separated into controllable and uncontrollable categories. Controllable nonpoint sources are identified by land use types and coverages. Controllable nonpoint sources include land uses associated with agriculture, dairy/intensive livestock, and horse ranches (collectively referred to as agriculture land uses). These were considered controllable because the land uses are anthropogenic in nature, and load reductions can be reasonably expected with the implementation of suitable management measures. Uncontrollable nonpoint sources include loads from open recreation, open space, and water land uses (collectively referred to as open space land uses). Loads from these areas are considered uncontrollable because they come from mostly natural sources (e.g. bird and wildlife feces).

In order to quantify bacteria loading from these various sources and transport mechanisms, 13 land-use types were identified in the TMDL analysis: Low Density Residential, High Density Residential, Commercial/Institutional, Industrial/Transportation, Military, Parks/Recreation, Open Recreation, Agriculture, Dairy/Intensive Livestock, Horse Ranches, Open Space, Water, and Transitional (Construction Activities). In the technical TMDL analysis, the 13 land use types were grouped into the following four land use categories: 1) owners/operators of municipal separate storm sewers (Municipal MS4s); 2) Caltrans (separated from other Municipal MS4s); 3) Agriculture; and 4) Open Space. Bacteria loads discharged from Low Density Residential, High Density Residential, Commercial/Institutional, Industrial/Transportation, Military, Parks/Recreation, and Transitional land use types are included in the Municipal MS4s category, which is considered a controllable point source. Bacteria loads discharged from the Industrial/Transportation land use type associated with Caltrans were separated into the Caltrans category, which is considered a controllable point source. Bacteria loads discharged from Agriculture, Dairy/Intensive Livestock, and Horse Ranch land use types are included in the Agriculture category, which is considered a controllable nonpoint source. Bacteria loads discharged from Open Recreation, Open Space, and Water land use types are included in the Open Space category, which is associated with natural and undeveloped areas and considered an uncontrollable nonpoint source.

(d) Critical Conditions

The critical conditions are a set of environmental conditions for which controls designed to protect water quality will ensure attainment of the numeric targets for all other conditions. The critical conditions include the location and the period of time in which the waterbody is expected to exhibit the highest vulnerability.

To ensure that numeric targets are met throughout the impaired waterbodies, a critical location consisting of a node at the base of the watershed as it discharges to the ocean or bay was used as the point where the allowable load (i.e., TMDL) is calculated. A critical period associated with extreme rainfall conditions (i.e., critical wet year), and thus the highest potential bacteria load at the critical location, was selected for watershed modeling analysis. The year 1993 was selected as the critical wet period for assessment of extreme wet weather loading conditions because this year was the wettest year of the 12 years of record (1990 through 2002).

(e) Linkage Analysis

The purpose of the linkage analysis is to quantify the “existing” bacteria loads that are currently generated by the pollutant sources in the watershed under the critical conditions, and quantify the maximum allowable bacteria loading to each impaired waterbody that will result in attainment of numeric targets under the same critical conditions. This maximum allowable bacteria loading is, in other words, the TMDL.

The linkage analysis used mathematical modeling approaches to quantify the “existing” and allowable bacteria loadings for each impaired waterbody. Separate modeling approaches were used for the calculation of the wet weather TMDLs and dry weather TMDLs.

For the calculation of the wet weather TMDLs, the wet weather modeling approach chosen for the linkage analysis is based on the application of the USEPA’s Loading Simulation Program in C++ (LSPC) model to estimate bacteria loading from streams and assimilation within the waterbodies. LSPC is a recoded C++ version of the USEPA’s Hydrological Simulation Program–FORTRAN (HSPF) that relies on fundamental (and USEPA-approved) algorithms. In the wet weather linkage analysis, it is assumed that storm water flows wash off bacteria loads from the surface of all 13 land use types into the receiving waters. The LSPC model was used to predict flows and bacteria densities at the critical location during the wet days of the critical wet year, which were used to calculate the mass-based annual existing wet weather bacteria loads. The LSPC model-predicted wet weather flows at the critical location during the wet days of the critical wet year in combination with the numeric targets were used to calculate the mass-based annual allowable wet weather bacteria loads, or mass-based wet weather TMDLs.

For the calculation of the dry weather TMDLs, the dry weather modeling approach chosen for the linkage analysis consists of a steady-state mass balance model that was developed to simulate transport of bacteria in the impaired creeks and the creeks flowing to impaired shorelines. This predictive model represents the streams as a series of plug-flow reactors, with each reactor having a constant, steady-state flow and bacteria load. In the dry weather linkage analysis, it is assumed that dry weather non-storm water flows generated by anthropogenic activities wash off bacteria loads from the surface of specific land use types into the receiving waters. The dry weather steady-state model was used to predict flows and bacteria densities at the critical location during the dry weather days of the critical wet year, which were used to calculate the mass-based monthly existing dry weather bacteria loads. The dry weather steady-state model-predicted flows at the critical location during the dry days of the critical wet year in combination with the dry weather numeric targets were used to calculate the mass-based monthly allowable dry weather bacteria loads, or mass-based dry weather TMDLs.

(f) Total Maximum Daily Loads and Allocations

TMDLs can be expressed as mass per time (i.e., mass-loading basis), or other appropriate measure (e.g., as a concentration).⁶ For these TMDLs, the wet weather and dry weather TMDLs are expressed both in terms of concentration and on a mass loading basis. The

⁶ Code of Federal Regulations Title 40 section 130.2(1) [40CFR130.2(i)]

concentration based TMDLs will be used to determine compliance with the TMDLs in the receiving waters. Mass-load based TMDLs were calculated for the impaired waterbodies in each watershed. The mass-load based TMDLs were allocated to the identified point and nonpoint sources and used to identify the controllable sources that need to reduce their bacteria loads in order for the concentration based TMDLs to be met in the receiving waters. The concentration based TMDLs, mass-load based TMDLs, and allocations are discussed below.

(1) Concentration Based TMDLs

The wet weather and dry weather concentration based TMDLs are based on meeting the numeric targets (i.e., numeric WQOs and allowable exceedance frequencies) in the receiving waters. The numeric WQOs for REC-1 beneficial uses are the basis of the numeric targets used to calculate the TMDLs, expressed as number of bacteria colonies per volume. An allowable exceedance frequency is included as part of the numeric target to allow for exceedances that may be caused by natural sources, based on a reference system. Tables **Insert first two table numbers** summarize the concentration based TMDLs, which are expressed as numeric objectives and allowable exceedance frequencies in the receiving waters for each watershed, for wet weather and dry weather, respectively. Meeting the concentration based TMDLs in the receiving waters will be used to determine compliance with the TMDLs.

(2) Mass-Load Based TMDLs

The numeric targets were used to calculate the TMDLs on a mass loading basis under a set of critical conditions. The TMDLs that were calculated in terms of mass loading were used to identify the bacteria loads from controllable sources that need to be reduced in order for the numeric targets to be met in the receiving waters.

On a mass loading basis, TMDLs are defined as the maximum mass of a pollutant the waterbody can receive and still protect the designated beneficial uses. Separate mass-load based TMDLs were calculated for wet weather and dry weather conditions to account for seasonal variations, and because the transport mechanism, flow, and bacteria loads are different between dry and wet weather conditions.

On a mass-loading basis, the TMDLs are expressed as number of bacteria colonies per unit time. The wet weather mass-load based TMDLs are expressed as “annual loads” in terms of number of bacteria colonies per year (billion MPN/yr). The dry weather mass-load based TMDLs are expressed as “monthly loads” in terms of number of bacteria colonies per month (billion MPN/mth). In order for bacteria loading to be calculated, both flow rates and bacteria densities must be measured at a point in time and location. When multiplied together, these two parameters result in bacteria mass loading, or the number of bacteria colonies measured per unit time.

$$\text{Bacteria Loading} = \text{flow rate (volume / time)} \times \text{bacteria density (number of colonies / volume)}$$

Calibrated models were used to simulate flow and bacteria densities. This information was used to calculate the “existing” mass of bacteria loads to, and allowable mass of bacteria

loads (i.e., mass-load based TMDLs) for, each impaired segment under critical conditions (i.e., worst case loading conditions). The existing mass loads that were calculated represent the worst case flows and bacteria densities that are expected from the watershed during the critical wet year. The mass-load based TMDLs were calculated with the numeric targets and modeled flows expected during the critical wet year. Existing mass loads were compared to the mass-load based TMDLs. The difference between the existing mass loads and the mass-load based TMDLs is the load reduction required to meet the REC-1 WQOs and allowable exceedance frequencies in the receiving water.

Existing mass loads and mass-load based TMDLs were calculated for wet weather and dry weather. The calculation of the mass-load based TMDLs included the use of an allowable exceedance frequency of the REC-1 WQOs. The purpose of the exceedance frequency is to account for the natural, and largely uncontrollable sources of bacteria (e.g., bird and wildlife feces) generated in the watersheds and at the beaches, which can, by themselves, cause exceedances of WQOs.

All of the wet weather mass-load based TMDLs were calculated using a 22 percent allowable exceedance frequency.⁷ All of the dry weather mass-load based TMDLs were calculated using a 0 percent allowable exceedance frequency. These allowable exceedance frequencies were used to calculate the number of wet and dry weather allowable exceedance days during the critical wet year.

The mass-load based TMDLs are calculated as the sum of the allowable load associated with the numeric REC-1 WQO and the allowable load associated with the allowable exceedance frequency during the critical wet year. Tables [Insert first two table numbers] summarize the calculated existing bacteria mass loads, allowable mass loads based on the numeric REC-1 WQOs, allowable exceedance frequencies and days, allowable mass loads based on the allowable exceedance frequencies, and mass-load based TMDLs for each watershed, for wet weather and dry weather, respectively.

(3) Allocation of Mass-Load Based TMDLs

The mass-load based TMDLs were allocated among point sources (WLAs) and nonpoint sources (LAs) in each watershed. WLAs were assigned to discharges originating from urban land use areas (i.e., MS4s and Caltrans), all of which are considered controllable. LAs were assigned to discharges from rural and undeveloped land use areas (i.e., Agriculture and Open Space). Discharges from rural and undeveloped land use areas are separated into controllable and uncontrollable nonpoint sources. Agricultural land uses (e.g., agriculture, horse ranches, and intensive livestock) are considered controllable nonpoint source land use areas. Open space land uses (e.g., open space and open recreation) are considered uncontrollable nonpoint source land use areas.

⁷ In the calculation of the wet weather TMDLs, the San Diego Regional Board chose to apply the 22 percent allowable exceedance frequency as determined for Leo Carillo Beach in Los Angeles County. At the time the wet weather watershed model was developed, the 22 percent exceedance frequency from Los Angeles County was the only reference beach exceedance frequency available. The 22 percent allowable exceedance frequency used to calculate the wet weather TMDLs is justified because the San Diego Region watersheds' exceedance frequencies will likely be close to the value calculated for Leo Carillo Beach, and is consistent with the exceedance frequency that was applied by the Los Angeles Regional Board.

Sources that are not identified are assumed to be assigned a zero allowable load as part of the mass-load based TMDL (i.e., WLA = 0 or LA = 0). In other words, discharges of pollutant loads from these sources are not allowed as part of the TMDLs. Sources that are assigned an allowable mass load equal to the existing mass load (i.e., WLA or LA = existing mass load) are not allowed to increase their pollutant loads over time.

Allocations of the mass-load based TMDLs were different for wet weather TMDLs and dry weather TMDLs, as discussed below.

(A) *Wet Weather TMDL Allocations*

The wet weather mass-load based TMDLs were divided and assigned to point sources as WLAs and nonpoint sources as LAs based on land uses. The portions of the wet weather mass-load based TMDLs assigned to WLAs and LAs were calculated based on the percent of the TMDL mass load generated by the urban, rural, and undeveloped land uses in each watershed as determined by the wet weather models under critical conditions.

The allocation of the wet weather mass-load based TMDLs assumes surface runoff discharge occurs from all land use categories, and allocated according to the following steps:

- 1) Sources are separated in to controllable and uncontrollable sources. Discharges from Municipal MS4, Caltrans, and Agriculture land use categories are assumed to be controllable (i.e., subject to regulation), and discharges from Open Space land use categories are assumed to be uncontrollable (i.e., not subject to regulation).
- 2) Because discharges from Open Space land use categories are uncontrollable (i.e., not subject to regulation), the LAs for Open Space land use categories are set equal to the existing mass loads calculated under the critical conditions.
- 3) For discharges from controllable land use categories that do not contribute more than 5 percent of the total existing mass load for all three indicator bacteria, the WLA or LA is set equal to the existing mass loads from those land uses calculated under the critical conditions.
- 4) After the WLAs and LAs are assigned based on steps 2 and 3, the remaining portion of the mass-load based TMDL is assigned to discharges from controllable land use categories that contribute more than 5 percent of the total existing mass load for all three indicator bacteria. The allowable mass load for each source (WLA or LA) is calculated based on the ratio of the existing mass loads from those sources relative to each other.

The total watershed wet weather existing mass loads and mass-load based TMDLs, point source existing mass loads and mass-load based WLAs, nonpoint source existing mass loads and mass-load based LAs, and load reductions required to achieve the mass-load based TMDLs, WLAs, and LAs are shown below in **Insert third through fifth table numbers**.

In comments, the municipal dischargers pointed out that, for the impaired creeks, the “designated beach” usage frequency WQO for enterococci may be over-protective of water quality because of the infrequent recreational use in the impaired creeks. The dischargers claim that the recreational usage frequency in these inland freshwater creeks more likely corresponds to the “moderately to lightly used area” category in the Basin Plan, which has an enterococci WQO of 108 MPN/100mL. In these cases, using a less stringent numeric target, based on the saltwater enterococci WQO of 104 MPN/100 mL (“designated beaches” usage frequency) would result in wet weather TMDLs protective of REC-1 uses in the inland freshwater creeks and at the downstream coastal saltwater beaches.⁸ Therefore, the “moderately to lightly used area” usage frequency may be appropriate for the six impaired creeks, and the enterococci saltwater REC-1 single sample maximum WQO of 104 MPN/100 mL could be used as basis of the numeric target for the enterococci wet weather TMDLs.

The six creeks included in these TMDLs, however, have not been designated in the Basin Plan as “moderately to lightly used area” waterbodies as of the adoption of these TMDLs. If the Basin Plan does not specify the usage frequency of a waterbody, the most stringent and conservative WQOs are appropriate and applicable. For enterococci, the most stringent and conservative WQOs for the freshwater creeks are associated with the “designated beach” usage frequency and freshwater waterbody type. Thus, the enterococci WQOs associated with the freshwater “designated beach” usage frequency are applicable until sufficient evidence is provided to warrant an amendment to the Basin Plan that designates a lower usage frequency to one or more of the six creeks addressed by these TMDLs (San Juan Creek, Aliso Creek, Tecolote Creek, Forrester Creek, San Diego River, and Chollas Creek).

According to the federal regulations,⁹ usage frequencies are defined as follows:

- Designated Beach Area: those recreation waters that, during the recreation season, are heavily used (based upon a comparison of use within the state) and may have a lifeguard, bathhouse facilities, or public parking for beach access. States may include any other waters in this category even if the waters do not meet these criteria.
- Moderate Full Body Contact Recreation: those recreation waters that are not designated bathing beach waters but typically, during the recreation season, are used by at least half of the number of people as at typical designated bathing

⁸ The enterococci WQOs in the Basin Plan are structured to reflect the frequency of recreational use. The enterococci freshwater REC-1 single sample maximum WQO for a “designated beach” area is 61 MPN/100 mL. For a “moderately or lightly used area,” the REC-1 single sample maximum WQO is 108 MPN/100 mL. The saltwater REC-1 single sample maximum WQO for “designated beach” area is 104 MPN/100 mL. Where the “moderately or lightly used area” designation is appropriate for creeks, the saltwater REC-1 single sample maximum WQO of 104 MPN/100 mL could be used as the numeric target because it is also protective of both the freshwater creek and the downstream marine beach.

⁹ Code of Federal Regulations Title 40 section 131.41 [40CFR131.41]

beach waters within the state. States may also include light use or infrequent use coastal recreation waters in this category.

- **Lightly Used Full Body Contact Recreation:** those recreation waters that are not designated bathing beach waters but typically, during the recreation season, are used by less than half of the number of people as at typical designated bathing beach waters within the state, but are more than infrequently used. States may also include infrequent use coastal recreation waters in this category.
- **Infrequently Used Full Body Contact:** those recreation waters that are rarely or occasionally used.

If sufficient evidence can be provided to the San Diego Water Board that can demonstrate the usage frequency for one or more of the six impaired creeks falls under the “Lightly Used Full Body Contact Recreation” or “Infrequently Used Full Body Contact” usage frequency, the Basin Plan may be amended to designate one or more of the creeks with the “moderately to lightly used area” usage frequency.

If one or more of the six creeks (San Juan Creek, Aliso Creek, Tecolote Creek, Forrester Creek, San Diego River, and/or Chollas Creek) are designated in the Basin Plan with the “moderately to lightly used area” usage frequency, the enterococci wet weather TMDLs, WLAs, and LAs based on the 104 MPN/100mL (Table [Insert sixth table number]) can be implemented. Otherwise, the more stringent and conservative enterococci wet weather TMDLs, WLAs, and LAs based on the freshwater “designated beach” usage frequency WQO of 61 MPN/100mL (Table [Insert fifth table number]) must be implemented.

(B) Dry Weather TMDL Allocations

The dry weather mass-load based TMDLs were assigned entirely to discharges from MS4 land uses because the runoff that transports bacteria loads to surface waters during dry weather are expected to occur only in urban areas. The allocation of the dry weather mass-load based TMDLs assumes that no surface runoff discharge to receiving waters occurs from Caltrans, Agriculture, or Open Space land use categories (i.e., $WLA_{Caltrans} = 0$, $LA_{Agriculture} = 0$, and $LA_{OpenSpace} = 0$), meaning the entire dry weather mass-load based TMDL (i.e., allowable mass load) is allocated to Municipal MS4 land use categories (i.e., $WLA_{MS4} = TMDL$).

The total watershed dry weather existing mass loads and mass-load based TMDLs, point source existing mass loads and mass-load based WLAs, nonpoint source existing mass loads and mass-load based LAs, and load reductions required to achieve the mass-load based TMDLs, WLAs, and LAs are shown below in Tables [Insert seventh through ninth table numbers].

Because the wet weather and dry weather modeling approaches used to calculate the mass-load based TMDLs, WLAs, LAs, and existing mass wasteloads and loads were based on critical conditions (i.e., worst case loading scenario), the mass-loading numbers (i.e.,

existing mass loads, and mass-load based TMDLs, WLAs, and LAs expressed in terms of billion MPN/year for wet weather and billion MPN/month for dry weather) presented in Tables [Insert first through ninth table numbers] represent conservative mass-load estimates expected to be protective of the beneficial uses under extreme conditions. The mass-loading numbers also provide a tool for identifying bacteria sources that need to be controlled and existing bacteria loads that need to be reduced to meet the TMDLs in the receiving waters.

Ultimately, controllable point and nonpoint sources must reduce their anthropogenic loads so the concentration based wet weather and dry weather TMDLs, which are based on the numeric REC-1 WQOs in the Basin Plan and allowable exceedance frequencies, can be met during wet weather and dry weather conditions during each year. Meeting the wet weather and dry weather numeric targets in the discharge and/or receiving water will indicate the TMDLs, WLAs, and/or LAs have been met.

(g) Margin of Safety

The numeric targets used for the mass-load based and concentration based TMDLs are assumed to be conservative by utilizing the most stringent REC-1 WQOs contained in the Ocean Plan and/or Basin Plan. Additionally, the mass-load based TMDLs were calculated under a set of critical conditions that assumed the highest potential mass loading would occur at a critical point during a critical wet year, which is expected to be protective of beneficial uses during extreme conditions. The conservative assumptions that were used result in conservative mass-load based and concentration based TMDLs that are expected to restore and protect the beneficial uses of the receiving waters.

Because bacteria in wet weather runoff and streamflows have a quick travel time, and therefore, a short residence time in the waterbodies, the REC-1 single-sample maximum WQOs were determined to be most appropriate for calculating the wet weather TMDLs. The numeric targets used for the wet weather mass-load based and concentration based TMDLs are assumed to be conservative by utilizing the most stringent REC-1 single sample maximum WQOs contained in the Ocean Plan and/or Basin Plan.

Because dry weather conditions have flows and bacteria loads much smaller in magnitude than wet weather conditions, do not occur from all land use types, and are more uniform than stormflow, the REC-1 30-day geometric mean WQOs were determined to be most appropriate for the dry weather TMDLs. The numeric targets used for the dry weather mass-load based and concentration based TMDLs are assumed to be conservative by utilizing the most stringent REC-1 30 day geometric mean WQOs contained in the Ocean Plan and/or Basin Plan.

Because of the numeric targets and critical conditions that were included in the calculation of the TMDLs, there was no explicit margin of safety included. Instead, the TMDLs include an implicit margin of safety (MOS). The implicit MOS is included via conservative estimates and assumptions (meaning worst-case scenarios were assumed in terms of existing bacteria loading) throughout the calculations and not as a separate, additional factor.

[Insert table number]. Summary of Wet Weather Existing and Allowable Indicator Bacteria Loads

Watershed - Impaired Waterbody	Indicator Bacteria	Existing Bacteria Load (Billion MPN/year)	Single Sample Maximum Objective (MPN/100mL)	Allowable Numeric Objective Load (Billion MPN/year)	Total Wet Days in Critical Year	Allowable Exceedance Frequency	Allowable Wet Exceedance Days in Critical Year	Allowable Exceedance Load (Billion MPN/year)	Total Allowable Load [=TMDL] (Billion MPN/year)
San Joaquin Hills HSA (901.11) and Laguna Hills HSA (901.12) - Pacific Ocean Shoreline	Fecal Coliform	705,015	400	16,043	69	22%	15	648,591	664,634
	Total Coliform	8,221,901	10,000	401,049				7,044,601	7,445,649
	Enterococcus	852,649	104	4,175				778,624	782,799
Aliso HSA (901.13) - Pacific Ocean Shoreline - Aliso Creek - Aliso Creek mouth	Fecal Coliform	1,752,096	400	84,562	69	22%	15	1,494,512	1,579,073
	Total Coliform	23,210,774	10,000	2,109,600				18,081,198	20,190,798
	Enterococcus	2,230,206	104*	22,682				1,929,834	1,952,517
		2,230,206	61	13,644				1,937,321	1,950,964
Dana Point HSA (901.14) - Pacific Ocean Shoreline	Fecal Coliform	403,911	400	14,894	69	22%	15	362,419	377,313
	Total Coliform	6,546,962	10,000	372,328				5,659,144	6,031,472
	Enterococcus	501,526	104	3,875				458,431	462,306
Lower San Juan HSA (901.27) - Pacific Ocean Shoreline - San Juan Creek - San Juan Creek mouth	Fecal Coliform	15,304,790	400	358,410	76	22%	17	14,356,423	14,714,833
	Total Coliform	130,258,863	10,000	8,947,114				113,932,076	122,879,189
	Enterococcus	12,980,098	104*	95,357				12,063,781	12,159,138
		12,980,098	61	56,119				12,096,327	12,152,446
San Clemente HA (901.30) - Pacific Ocean Shoreline	Fecal Coliform	1,441,723	400	36,481	73	22%	16	1,342,450	1,378,931
	Total Coliform	16,236,606	10,000	911,994				14,235,609	15,147,603
	Enterococcus	1,663,100	104	9,491				1,553,696	1,563,187
San Luis Rey HU (903.00) - Pacific Ocean Shoreline	Fecal Coliform	33,120,012	400	640,595	90	22%	20	31,803,647	32,444,242
	Total Coliform	231,598,677	10,000	15,993,384				208,157,151	224,150,535
	Enterococcus	18,439,920	104	167,152				17,296,466	17,463,618
San Marcos HA (904.50) - Pacific Ocean Shoreline	Fecal Coliform	20,886	400	1,559	49	22%	11	15,665	17,224
	Total Coliform	515,278	10,000	38,984				386,099	425,083
	Enterococcus	40,558	104	406				32,559	32,966
San Dieguito HU (905.00) - Pacific Ocean Shoreline	Fecal Coliform	21,286,910	400	425,968	98	22%	22	20,675,680	21,101,649
	Total Coliform	163,541,133	10,000	10,637,225				149,176,959	159,814,184
	Enterococcus	14,796,210	104	113,253				14,193,834	14,307,087
Miramar Reservoir HA (906.10) - Pacific Ocean Shoreline	Fecal Coliform	10,392	400	312	94	22%	21	9,943	10,256
	Total Coliform	212,986	10,000	7,809				202,371	210,180
	Enterococcus	11,564	104	81				11,323	11,405

Insert table number. Summary of Wet Weather Existing and Allowable Indicator Bacteria Loads (Cont'd)

Watershed - Impaired Waterbody	Indicator Bacteria	Existing Bacteria Load (Billion MPN/year)	Single Sample Maximum Objective (MPN/100mL)	Allowable Numeric Objective Load (Billion MPN/year)	Total Wet Days in Critical Year	Allowable Exceedance Frequency	Allowable Wet Exceedance Days in Critical Year	Allowable Exceedance Load (Billion MPN/year)	Total Allowable Load [=TMDL] (Billion MPN/year)
Scripps HA (906.30) - Pacific Ocean Shoreline	Fecal Coliform	204,057	400	10,329	57	22%	13	166,578	176,907
	Total Coliform	5,029,519	10,000	258,228				4,098,745	4,356,973
	Enterococcus	377,839	104	2,686				321,347	324,032
Tecolote HA (906.50) - Tecolote Creek	Fecal Coliform	261,966	400	25,080	57	22%	13	204,241	229,322
	Total Coliform	7,395,789	10,000	626,414				5,753,355	6,379,770
	Enterococcus	708,256	104*	6,522				597,659	604,180
		708,256	61	3,825				599,936	603,761
Mission San Diego HSA (907.11) and Santee HSA (907.12) - Forrester Creek - San Diego River (lower) - Pacific Ocean Shoreline	Fecal Coliform	4,932,380	400	310,820	86	22%	19	4,370,018	4,680,838
	Total Coliform	72,757,569	10,000	7,752,284				58,352,938	66,105,222
	Enterococcus	7,255,759	104*	80,899				6,514,309	6,595,208
		7,255,759	61	47,479				6,543,487	6,590,966
Chollas HSA (908.22) - Chollas Creek	Fecal Coliform	603,863	400	55,516	65	22%	14	464,924	520,440
	Total Coliform	15,390,608	10,000	1,386,037				11,861,589	13,247,626
	Enterococcus	1,371,972	104*	15,008				1,138,590	1,153,599
		1,371,972	61	9,073				1,143,572	1,152,645

* Total Maximum Daily Load calculated using a Enterococcus numeric target of 61 MPN/mL that is conservatively protective of the REC-1 "designated beach" usage frequency for freshwater creeks and downstream beaches. If the usage frequency of the freshwater creeks can be established as "moderately to lightly used" in the Basin Plan, alternative Total Maximum Daily Loads calculated using an Enterococcus numeric target of 104 MPN/ml may be used.

Existing Bacteria Load = Predicted existing bacteria load discharged from the watershed calculated by the Loading Simulation Program in C++ (LSPC) model using modeled flows and bacteria densities for all wet days during the critical year 1993

Single Sample Maximum Objective = Target bacteria densities based on numeric single sample maximum water quality objectives that are protective of REC-1 beneficial uses

Allowable Numeric Objective Load = Allowable load from the watershed calculated by the LSPC model using modeled flows and the numeric single sample maximum water quality objective bacteria densities for all wet days during the critical year 1993

Total Wet Days in Critical Year = Number of wet days (i.e., rainfall events of 0.2 inches or greater and the following 72 hours) in the critical year 1993 (i.e., wettest year between 1990 and 2002)

Allowable Exceedance Frequency = Assumed to be 22 percent exceedance frequency. In the calculation of the wet weather TMDLs, the San Diego Regional Board chose to apply the 22 percent allowable exceedance frequency as determined for Leo Carillo Beach in Los Angeles County. At the time the wet weather watershed model was developed, the 22 percent exceedance frequency from Los Angeles County was the only reference beach exceedance frequency available. The 22 percent allowable exceedance frequency used to calculate the wet weather TMDLs is justified because the San Diego Region watersheds' exceedance frequencies will likely be close to the value calculated for Leo Carillo Beach, and is consistent with the exceedance frequency that was applied by the Los Angeles Regional Board.

Allowable Wet Exceedance Days = (Total Wet days in Critical Year) X (Allowable Exceedance Frequency)

Allowable Exceedance Load = Sum of exceedance loads from the allowable exceedance days with the highest exceedance loads calculated by the LSPC model using modeled flows and bacteria densities for all wet days during the critical year 1993

Total Allowable Load [i.e. TMDL] = (Allowable Numeric Objective Load) + (Allowable Exceedance Load)

[Insert table number]. Summary of Dry Weather Existing and Allowable Indicator Bacteria Loads

Watershed - Impaired Waterbody	Indicator Bacteria	Existing Bacteria Load (Billion MPN/mth)	30-Day Geometric Mean Objective (MPN/100mL)	Allowable Numeric Objective Load (Billion MPN/mth)	Total Dry Days in Critical Year	Allowable Exceedance Frequency	Allowable Dry Exceedance Days in Critical Year	Allowable Exceedance Load (Billion MPN/mth)	Total Allowable Load [=TMDL] (Billion MPN/mth)
San Joaquin Hills HSA (901.11) and Laguna Hills HSA (901.12) - Pacific Ocean Shoreline	Fecal Coliform	2,741	200	227	296	0%	0	0	227
	Total Coliform	13,791	1,000	1,134				0	1,134
	Enterococcus	2,321	35	40				0	40
Aliso HSA (901.13) - Pacific Ocean Shoreline - Aliso Creek - Aliso Creek mouth	Fecal Coliform	5,470	200	242	296	0%	0	0	242
	Total Coliform	26,639	1,000	1,208				0	1,208
	Enterococcus	4,614	33*	40				0	40
Dana Point HSA (901.14) - Pacific Ocean Shoreline	Fecal Coliform	1,851	200	92	296	0%	0	0	92
	Total Coliform	9,315	1,000	462				0	462
	Enterococcus	1,567	35	16				0	16
Lower San Juan HSA (901.27) - Pacific Ocean Shoreline - San Juan Creek - San Juan Creek mouth	Fecal Coliform	6,455	200	1,665	289	0%	0	0	1,665
	Total Coliform	30,846	1,000	8,342				0	8,342
	Enterococcus	5,433	33*	275				0	275
San Clemente HA (901.30) - Pacific Ocean Shoreline	Fecal Coliform	3,327	200	192	292	0%	0	0	192
	Total Coliform	16,743	1,000	958				0	958
	Enterococcus	2,817	35	33				0	33
San Luis Rey HU (903.00) - Pacific Ocean Shoreline	Fecal Coliform	1,737	200	1,058	275	0%	0	0	1,058
	Total Coliform	8,549	1,000	5,289				0	5,289
	Enterococcus	1,466	35	185				0	185
San Marcos HA (904.50) - Pacific Ocean Shoreline	Fecal Coliform	149	200	26	316	0%	0	0	26
	Total Coliform	751	1,000	129				0	129
	Enterococcus	126	35	5				0	5
San Dieguito HU (905.00) - Pacific Ocean Shoreline	Fecal Coliform	1,631	200	1,293	267	0%	0	0	1,293
	Total Coliform	7,555	1,000	6,468				0	6,468
	Enterococcus	1,368	35	226				0	226
Miramar Reservoir HA (906.10) - Pacific Ocean Shoreline	Fecal Coliform	205	200	7	271	0%	0	0	7
	Total Coliform	1,030	1,000	36				0	36
	Enterococcus	173	35	1				0	1

[Insert table number]. Summary of Dry Weather Existing and Allowable Indicator Bacteria Loads (Cont'd)

Watershed - Impaired Waterbody	Indicator Bacteria	Existing Bacteria Load (Billion MPN/mth)	30-Day Geometric Mean Objective (MPN/100mL)	Allowable Numeric Objective Load (Billion MPN/mth)	Total Dry Days in Critical Year	Allowable Exceedance Frequency	Allowable Dry Exceedance Days in Critical Year	Allowable Exceedance Load (Billion MPN/mth)	Total Allowable Load [=TMDL] (Billion MPN/mth)
Scripps HA (906.30) - Pacific Ocean Shoreline	Fecal Coliform	3,320	200	119	308	0%	0	0	119
	Total Coliform	16,707	1,000	594				0	594
	Enterococcus	2,811	35	21				0	21
Tecolote HA (906.50) - Tecolote Creek	Fecal Coliform	4,329	200	234	308	0%	0	0	234
	Total Coliform	21,349	1,000	1,171				0	1,171
	Enterococcus	3,657	33*	39				0	39
Mission San Diego HSA (907.11) and Santee HSA (907.12) - Forrester Creek (lower 1 mile) - San Diego River (lower 6 miles) - Pacific Ocean Shoreline	Fecal Coliform	4,928	200	1,506	279	0%	0	0	1,506
	Total Coliform	28,988	1,000	7,529				0	7,529
	Enterococcus	4,106	33*	248				0	248
Chollas HSA (908.22) - Chollas Creek	Fecal Coliform	5,068	200	398	300	0%	0	0	398
	Total Coliform	25,080	1,000	1,991				0	1,991
	Enterococcus	4,283	33*	66				0	66

* Total Allowable Load [=TMDL] calculated using a Enterococcus numeric target of 33 MPN/mL that is conservatively protective of the REC-1 "designated beach" usage frequency for watersheds with impaired freshwater creeks.

Existing Bacteria Load = Predicted existing bacteria load discharged from the watershed calculated by the plug-flow reactor model using estimated flows and bacteria densities for 30 dry days during the critical year 1993

30-Day Geometric Mean Objective = Target bacteria densities based on numeric 30-day geometric mean water quality objectives that are protective of REC-1 beneficial uses

Allowable Numeric Objective Load = Allowable load from the watershed calculated by the plug-flow reactor model using estimated flows and the numeric 30-day geometric mean water quality objective bacteria densities for 30 dry days during the critical year 1993

Total Dry Days in Critical Year = Number of dry days (i.e., day not including rainfall events of 0.2 inches or greater and the following 72 hours) in the critical year 1993 (i.e., wettest year between 1990 and 2002)

Allowable Exceedance Frequency = Assumed to be zero; data collected from reference systems generally do not show exceedances of REC-1 water quality objectives

Allowable Wet Exceedance Days = (Total Dry Days in Critical Year) X (Allowable Exceedance Frequency)

Allowable Exceedance Load = Sum of exceedance loads from the allowable exceedance days for all dry days during the critical year 1993

Total Allowable Load [i.e. TMDL] = (Allowable Numeric Objective Load) + (Allowable Exceedance Load) for a 30-day period

Insert table number. Wet Weather Fecal Coliform Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Annual Loads (Billion MPN/year)

Watershed	Total Watershed		Point Sources						Nonpoint Sources					
	Existing Load	TMDL*	Municipal MS4			Caltrans			Agriculture			Open		
			Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	705,015	664,634	77,548	37,167	52.07%	179	179	0.00%	7,346	7,346	0.00%	619,942	619,942	0.00%
Aliso HSA (901.13)	1,752,096	1,579,073	650,092	477,069	26.62%	260	260	0.00%	26,508	26,508	0.00%	1,075,237	1,075,237	0.00%
Dana Point HSA (901.14)	403,911	377,313	179,043	152,446	14.86%	13	13	0.00%	0	0	0.00%	224,854	224,854	0.00%
Lower San Juan HSA (901.27)	15,304,790	14,714,833	1,326,469	1,156,419	12.82%	1,713	1,713	0.00%	3,275,477	2,855,570	12.82%	10,701,131	10,701,131	0.00%
San Clemente HA (901.30)	1,441,723	1,378,931	255,445	192,653	24.58%	335	335	0.00%	366	366	0.00%	1,185,577	1,185,577	0.00%
San Luis Rey HU (903.00)	33,120,012	32,444,242	943,501	914,026	3.12%	1,537	1,537	0.00%	20,687,954	20,041,659	3.12%	11,487,019	11,487,019	0.00%
San Marcos HA (904.50_)	20,886	17,224	8,095	6,558	18.98%	8	8	0.00%	11,199	9,073	18.98%	1,585	1,585	0.00%
San Dieguito HU (905.00)	21,286,910	21,101,649	810,008	798,175	1.46%	1,310	1,310	0.00%	11,872,240	11,698,811	1.46%	8,603,352	8,603,352	0.00%
Miramar Reservoir HA (906.10)	10,392	10,256	6,839	6,703	1.99%	0	0	0.00%	0	0	0.00%	3,552	3,552	0.00%
Scripps HA (906.30)	204,057	176,907	128,403	101,253	21.14%	0	0	0.00%	0	0	0.00%	75,654	75,654	0.00%
Tecolote HA (906.5)	261,966	229,322	159,449	126,806	20.47%	553	553	0.00%	0	0	0.00%	101,963	101,963	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	4,932,380 +1,302**	4,680,838 +1,302*	472,660	221,117	53.22%	1,009	1,009	0.00%	414,721	414,721	0.00%	4,043,991	4,043,991	0.00%
Chollas HSA (908.22)	603,863	520,440	335,901	252,479	24.84%	892	892	0.00%	0	0	0.00%	267,070	267,070	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the single sample maximum WQO for fecal coliform (400 MPN/100mL) and a 22 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

** Permitted existing fecal coliform bacteria load from Padre Dam Municipal Water District Water Reclamation Plant (Padre Dam), assigned as a separate point source wasteload allocation for discharges from Padre Dam equal to the permitted existing load

Watershed Existing Load = Predicted existing fecal coliform bacteria loads discharged from all land use categories in the watershed calculated by the Loading Simulation Program in C++ (LSPC) model using modeled flows and bacteria densities for all wet days during the critical year 1993

Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed on an annual basis

MS4 Existing Load = Predicted exiting fecal coliform bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the LSPC model

MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses

MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load – MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Predicted exiting fecal coliform bacteria loads discharged from Caltrans land use areas in the watershed calculated as a fraction of the discharge from industrial/transportation land use category area

Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to Caltrans Existing Load

Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load – Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Predicted exiting fecal coliform bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) calculated by the LSPC model

Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to Agriculture Existing Load in watersheds with existing bacteria load contributions for all three indicator bacteria of less than 5 percent; calculated as a relative load percent of the TMDL minus Caltrans WLA and Open Space LA, based on existing load contributions from MS4 and Agriculture land use categories in watersheds with existing bacteria load contributions for all three indicator bacteria of greater than 5 percent

Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load – Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Predicted exiting fecal coliform bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) calculated by the LSPC model

Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load

Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load – Open Space LA)/(Open Space Existing Load)

Insert table number. Wet Weather Total Coliform Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Annual Loads (Billion MPN/year)

Watershed	Total Watershed		Point Sources						Nonpoint Sources					
	Existing Load	TMDL*	Municipal MS4			Caltrans			Agriculture			Open		
			Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	8,221,901	7,445,649	1,656,904	880,652	46.85%	7,722	7,722	0.00%	50,774	50,774	0.00%	6,506,501	6,506,501	0.00%
Aliso HSA (901.13)	23,210,774	20,190,798	11,943,241	8,923,264	25.29%	11,003	11,003	0.00%	179,828	179,828	0.00%	11,076,702	11,076,702	0.00%
Dana Point HSA (901.14)	6,546,962	6,031,472	3,919,497	3,404,008	13.15%	634	634	0.00%	0	0	0.00%	2,626,830	2,626,830	0.00%
Lower San Juan HSA (901.27)	130,258,863	122,879,189	19,919,322	16,093,160	19.21%	60,480	60,480	0.00%	18,499,884	14,946,372	19.21%	91,779,178	91,779,178	0.00%
San Clemente HA (901.30)	16,236,606	15,147,603	4,566,742	3,477,739	23.85%	13,534	13,534	0.00%	2,370	2,370	0.00%	11,653,960	11,653,960	0.00%
San Luis Rey HU (903.00)	231,598,677	224,150,535	15,229,456	14,373,954	5.62%	54,508	54,508	0.00%	117,360,800	110,768,160	5.62%	98,953,913	98,953,913	0.00%
San Marcos HA (904.50_)	515,278	425,083	366,021	298,430	18.47%	533	533	0.00%	122,414	99,809	18.47%	26,311	26,311	0.00%
San Dieguito HU (905.00)	163,541,133	159,814,184	17,406,569	16,660,538	4.29%	47,969	47,969	0.00%	69,551,416	66,570,499	4.29%	76,535,178	76,535,178	0.00%
Miramar Reservoir HA (906.10)	212,986	210,180	174,243	171,436	1.61%	9	9	0.00%	0	0	0.00%	38,734	38,734	0.00%
Scripps HA (906.30)	5,029,519	4,356,973	4,120,310	3,447,764	16.32%	0	0	0.00%	0	0	0.00%	909,209	909,209	0.00%
Tecolote HA (906.5)	7,395,789	6,379,770	6,152,484	5,136,598	16.51%	27,095	27,095	0.00%	0	0	0.00%	1,216,077	1,216,077	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	72,757,569	66,105,222	17,442,867	10,790,520	38.14%	53,141	53,141	0.00%	3,495,960	3,495,960	0.00%	51,765,601	51,765,601	0.00%
Chollas HSA (908.22)	15,390,608	13,247,626	12,023,766	9,880,784	17.82%	45,652	45,652	0.00%	0	0	0.00%	3,321,191	3,321,191	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the single sample maximum WQO for total coliform (10,000 MPN/100mL) and a 22 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

Watershed Existing Load = Predicted existing total coliform bacteria loads discharged from all land use categories in the watershed calculated by the Loading Simulation Program in C++ (LSPC) model using modeled flows and bacteria densities for all wet days during the critical year 1993

Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed on an annual basis

MS4 Existing Load = Predicted existing total coliform bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the LSPC model

MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses

MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load - MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Predicted existing total coliform bacteria loads discharged from Caltrans land use areas in the watershed calculated as a fraction of the discharge from industrial/transportation land use category area

Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to Caltrans Existing Load

Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load - Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Predicted existing total coliform bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) calculated by the LSPC model

Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to Agriculture Existing Load in watersheds with existing bacteria load contributions for all three indicator bacteria of less than 5 percent; calculated as a relative load percent of the TMDL minus Caltrans WLA and Open Space LA, based on existing load contributions from MS4 and Agriculture land use categories in watersheds with existing bacteria load contributions for all three indicator bacteria of greater than 5 percent

Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load - Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Predicted existing total coliform bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) calculated by the LSPC model

Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load

Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load - Open Space LA)/(Open Space Existing Load)

Insert table number. Wet Weather Enterococcus Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Annual Loads (Billion MPN/year)

Watershed	Total Watershed		Point Sources						Nonpoint Sources					
	Existing Load	TMDL*	Municipal MS4			Caltrans			Agriculture			Open		
			Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	852,649	782,799	136,267	66,417	51.26%	365	365	0.00%	3,201	3,201	0.00%	712,816	712,816	0.00%
Aliso HSA (901.13)	2,230,206	1,950,964**	1,014,732	735,490	27.52%	516	516	0.00%	11,245	11,245	0.00%	1,203,713	1,203,713	0.00%
Dana Point HSA (901.14)	501,526	462,306	258,747	219,528	15.16%	25	25	0.00%	0	0	0.00%	242,753	242,753	0.00%
Lower San Juan HSA (901.27)	12,980,098	12,152,446**	1,900,520	1,385,094	27.12%	2,823	2,823	0.00%	1,151,266	839,040	27.12%	9,925,490	9,925,490	0.00%
San Clemente HA (901.30)	1,663,100	1,563,187	395,581	295,668	25.26%	635	635	0.00%	148	148	0.00%	1,266,736	1,266,736	0.00%
San Luis Rey HU (903.00)	18,439,920	17,463,618	1,472,296	1,300,235	11.69%	2,397	2,397	0.00%	6,881,755	6,077,514	11.69%	10,083,473	10,083,473	0.00%
San Marcos HA (904.50_)	40,558	32,966	29,784	23,771	20.19%	26	26	0.00%	7,825	6,246	20.19%	2,923	2,923	0.00%
San Dieguito HU (905.00)	14,796,210	14,307,087	1,911,170	1,763,603	7.72%	2,288	2,288	0.00%	4,423,566	4,082,010	7.72%	8,459,187	8,459,187	0.00%
Miramar Reservoir HA (906.10)	11,564	11,405	8,269	8,109	1.93%	0	0	0.00%	0	0	0.00%	3,295	3,295	0.00%
Scripps HA (906.30)	377,839	324,032	285,842	232,035	18.82%	0	0	0.00%	0	0	0.00%	91,997	91,997	0.00%
Tecolote HA (906.5)	708,256	603,761**	575,708	471,211	18.15%	1,266	1,266	0.00%	0	0	0.00%	131,284	131,284	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	7,255,759	6,590,966*	1,555,411	890,617	42.74%	2,430	2,430	0.00%	213,149	213,149	0.00%	5,484,770	5,484,770	0.00%
Chollas HSA (908.22)	1,371,972	1,152,645**	1,022,245	802,918	21.46%	2,062	2,062	0.00%	0	0	0.00%	347,665	347,665	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the single sample maximum WQO for enterococcus (104 MPN/100mL or 61 MPN/100mL) and a 22 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

** Total Maximum Daily Load calculated using a Enterococcus numeric target of 61 MPN/mL that is conservatively protective of the REC-1 "designated beach" usage frequency for freshwater creeks and downstream beaches. If the usage frequency of the freshwater creeks can be established as "moderately to lightly used," alternative Total Maximum Daily Loads calculated using an Enterococcus numeric target of 104 MPN/ml presented in Table 9-5 may be used.

Watershed Existing Load = Predicted existing Enterococcus bacteria loads discharged from all land use categories in the watershed calculated by the Loading Simulation Program in C++ (LSPC) model using modeled flows and bacteria densities for all wet days during the critical year 1993

Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed on an annual basis

MS4 Existing Load = Predicted existing Enterococcus bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the LSPC model

MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses

MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load - MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Predicted existing Enterococcus bacteria loads discharged from Caltrans land use areas in the watershed calculated as a fraction of the discharge from industrial/transportation land use category area

Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to Caltrans Existing Load

Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load - Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Predicted existing Enterococcus bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) calculated by the LSPC model

Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to Agriculture Existing Load in watersheds with existing bacteria load contributions for all three indicator bacteria of less than 5 percent; calculated as a relative load percent of the TMDL minus Caltrans WLA and Open Space LA, based on existing load contributions from MS4 and Agriculture land use categories in watersheds with existing bacteria load contributions for all three indicator bacteria of greater than 5 percent

Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load - Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Predicted existing Enterococcus bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) calculated by the LSPC model

Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load

Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load - Open Space LA)/(Open Space Existing Load)

Insert table number. Alternative Wet Weather Enterococcus Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Annual Loads (Billion MPN/year)

Watershed	Total Watershed		Point Sources						Nonpoint Sources					
	Existing Load	TMDL*	Municipal MS4			Caltrans			Agriculture			Open		
			Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
Aliso HSA (901.13)	2,230,206	1,952,517**	1,014,732	737,042	27.37%	516	516	0.00%	11,245	11,245	0.00%	1,203,713	1,203,713	0.00%
Lower San Juan HSA (901.27)	12,980,098	12,159,138**	1,900,520	1,389,261	26.90%	2,823	2,823	0.00%	1,151,266	841,564	26.90%	9,925,490	9,925,490	0.00%
Tecolote HA (906.50)	708,256	604,180**	575,708	471,630	18.08%	1,266	1,266	0.00%	0	0	0.00%	131,284	131,284	0.00%
Mission San Diego/Santee HSAs (907.11 and 907.12)	7,255,759	6,595,208**	1,555,411	894,859	42.47%	2,430	2,430	0.00%	213,149	213,149	0.00%	5,484,770	5,484,770	0.00%
Chollas HSA (908.22)	1,371,972	1,153,599**	1,022,245	803,871	21.36%	2,062	2,062	0.00%	0	0	0.00%	347,665	347,665	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the single sample maximum WQO for enterococcus (104 MPN/100mL) and a 22 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

** Total Maximum Daily Load calculated using a Enterococcus numeric target of 104 MPN/ml protective of the REC-1 "moderately to lightly used area" usage frequency that is protective freshwater creeks and downstream beaches. Acceptable evidence that impaired freshwater creeks can be considered "moderately to lightly used areas" must be provided before these alternative wet weather TMDLs, WLAs, and LAs can be implemented in these watersheds.

Watershed Existing Load Predicted existing Enterococcus bacteria loads discharged from all land use categories in the watershed calculated by the Loading Simulation Program in C++ (LSPC) model using modeled flows and bacteria densities for all wet days during the critical year 1993

Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed on an annual basis

MS4 Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the LSPC model

MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses

MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load – MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Caltrans land use areas in the watershed calculated as a fraction of the discharge from industrial/transportation land use category area

Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to Caltrans Existing Load

Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load – Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) calculated by the LSPC model

Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to Agriculture Existing Load in watersheds with existing bacteria load contributions for all three indicator bacteria of less than 5 percent; calculated as a relative load percent of the TMDL minus Caltrans WLA and Open Space LA, based on existing load contributions from MS4 and Agriculture land use categories in watersheds with existing bacteria load contributions for all three indicator bacteria of greater than 5 percent

Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load – Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) calculated by the LSPC model

Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load

Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load – Open Space LA)/(Open Space Existing Load)

Insert table number. Dry Weather Fecal Coliform Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Monthly Loads (Billion MPN/month)

Watershed	Total Watershed		Point Sources						Nonpoint Sources					
	Existing Load	TMDL*	Municipal MS4			Caltrans			Agriculture			Open		
			Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	2,741	227	2,741	227	91.72%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Aliso HSA (901.13)	5,470	242	5,470	242	95.58%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Dana Point HSA (901.14)	1,851	92	1,851	92	95.03%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Lower San Juan HSA (901.27)	6,455	1,665	6,455	1,665	74.21%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Clemente HA (901.30)	3,327	192	3,327	192	94.23%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Luis Rey HU (903.00)	1,737	1,058	1,737	1,058	39.09%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Marcos HA (904.50_)	149	26	149	26	82.55%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Dieguito HU (905.00)	1,631	1,293	1,631	1,293	20.72%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Miramar Reservoir HA (906.10)	205	7	205	7	96.59%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Scripps HA (906.30)	3,320	119	3,320	119	96.42%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Tecolote HA (906.5)	4,329	234	4,329	234	94.59%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	4,928 +461**	1,506 +461*	4,928	1,506	69.44%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Chollas HSA (908.22)	5,068	398	5,068	398	92.15%	0	0	0.00%	0	0	0.00%	0	0	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the 30-day geometric mean WQO for fecal coliform (200 MPN/100mL) and a 0 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

** Permitted existing fecal coliform bacteria load from Padre Dam Municipal Water District Water Reclamation Plant (Padre Dam), assigned as a separate point source wasteload allocation for discharges from Padre Dam equal to the permitted existing load

Watershed Existing Load = Predicted existing fecal coliform bacteria loads discharged from all land use categories in the watershed calculated by a plug-flow reactor model using estimated flows and bacteria densities for 30 dry days during the critical year 1993

Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed for a 30-day period

MS4 Existing Load = Predicted existing fecal coliform bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the plug-flow reactor model

MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses

MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load - MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Fecal coliform bacteria loads discharged from Caltrans land use areas in the watershed assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather

Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to the Caltrans Existing Load

Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load - Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Fecal coliform bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather

Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to the Open Space Existing Load

Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load - Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Fecal coliform bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather

Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load

Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load - Open Space LA)/(Open Space Existing Load)

Insert table number. Dry Weather Total Coliform Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Monthly Loads (Billion MPN/month)

Watershed	Total Watershed		Point Sources						Nonpoint Sources					
	Existing Load	TMDL*	Municipal MS4			Caltrans			Agriculture			Open		
			Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	13,791	1,134	13,791	1,134	91.78%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Aliso HSA (901.13)	26,639	1,208	26,639	1,208	95.47%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Dana Point HSA (901.14)	9,315	462	9,315	462	95.04%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Lower San Juan HSA (901.27)	30,846	8,342	30,846	8,342	72.96%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Clemente HA (901.30)	16,743	958	16,743	958	94.28%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Luis Rey HU (903.00)	8,549	5,289	8,549	5,289	38.13%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Marcos HA (904.50_)	751	129	751	129	82.82%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Dieguito HU (905.00)	7,555	6,468	7,555	6,468	14.39%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Miramar Reservoir HA (906.10)	1,030	36	1,030	36	96.50%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Scripps HA (906.30)	16,707	594	16,707	594	96.44%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Tecolote HA (906.5)	21,349	1,171	21,349	1,171	94.51%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	28,988	7,529	28,988	7,529	74.03%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Chollas HSA (908.22)	25,080	1,991	25,080	1,991	92.06%	0	0	0.00%	0	0	0.00%	0	0	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the 30-day geometric mean WQO for total coliform (1,000 MPN/100mL) and a 0 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

Watershed Existing Load = Predicted existing total coliform bacteria loads discharged from all land use categories in the watershed calculated by a plug-flow reactor model using estimated flows and bacteria densities for 30 dry days during the critical year 1993

Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed for a 30-day period

MS4 Existing Load = Predicted existing total coliform bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the plug-flow reactor model

MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses

MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load - MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Total coliform bacteria loads discharged from Caltrans land use areas in the watershed assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather

Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to the Caltrans Existing Load

Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load - Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Total coliform bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather

Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to the Open Space Existing Load

Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load - Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Total coliform bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather

Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load

Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load - Open Space LA)/(Open Space Existing Load)

Insert table number. Dry Weather Enterococcus Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Monthly Loads (Billion MPN/month)

Watershed	Total Watershed		Point Sources						Nonpoint Sources					
	Existing Load	TMDL*	Municipal MS4			Caltrans			Agriculture			Open		
			Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	2,321	40	2,321	40	98.28%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Aliso HSA (901.13)	4,614	40**	4,614	40	99.13%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Dana Point HSA (901.14)	1,567	16	1,567	16	98.98%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Lower San Juan HSA (901.27)	5,433	275**	5,433	275	94.94%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Clemente HA (901.30)	2,817	33	2,817	33	98.83%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Luis Rey HU (903.00)	1,466	185	1,466	185	87.38%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Marcos HA (904.50_)	126	5	126	5	96.03%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Dieguito HU (905.00)	1,368	226	1,368	226	83.48%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Miramar Reservoir HA (906.10)	173	1	173	1	99.42%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Scripps HA (906.30)	2,811	21	2,811	21	99.25%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Tecolote HA (906.5)	3,657	39**	3,657	39	98.94%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	4,106	248**	4,106	248	93.96%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Chollas HSA (908.22)	4,283	66**	4,283	66	98.46%	0	0	0.00%	0	0	0.00%	0	0	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the 30-day geometric mean WQO for enterococcus (35 MPN/100mL or 33 MPN/100mL) and a 0 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

** Total Maximum Daily Load calculated using a Enterococcus numeric target of 33 MPN/mL that is conservatively protective of the REC-1 "designated beach" usage frequency for freshwater creeks and downstream beaches.

Watershed Existing Load = Predicted existing Enterococcus bacteria loads discharged from all land use categories in the watershed calculated by a plug-flow reactor model using estimated flows and bacteria densities for 30 dry days during the critical year 1993

Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed for a 30-day period

MS4 Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the plug-flow reactor model

MS4 WLA = Point source wasteload allocation (WLA) for discharges from MS4 land uses

MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load - MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Enterococcus bacteria loads discharged from Caltrans land use areas in the watershed assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather

Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to the Caltrans Existing Load

Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load - Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Enterococcus bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather

Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to the Open Space Existing Load

Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load - Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Enterococcus bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather

Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load

Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load - Open Space LA)/(Open Space Existing Load)

(h) TMDL Implementation Plan

The ultimate goal of the Implementation Plan is to restore the impaired beneficial uses of the waterbodies addressed by these TMDLs. Restoring the impaired beneficial uses will be accomplished by achieving the TMDLs in the receiving waters, and the wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources. The actions taken by the San Diego Water Board depends on the regulatory authority and the source. The regulatory authorities and actions that the San Diego Water Board will use to compel the controllable sources to implement these TMDLs are as follows.

(1) Basin Plan Waste Discharge Prohibitions

The San Diego Water Board may specify certain conditions or areas where the discharge of waste or certain types of waste is not permitted, known as “waste discharge prohibitions,” in the Basin Plan.⁴⁸ Basin Plan waste discharge prohibitions that are applicable to the implementation of these TMDLs include the following:

- The discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in Water Code section 13050, is prohibited.
- The discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives, is prohibited. Allowances for dilution may be made at the discretion of the Regional Board. Consideration would include streamflow data, the degree of treatment provided and safety measures to ensure reliability of facility performance. As an example, discharge of secondary effluent would probably be permitted if streamflow provided 100:1 dilution capability.
- The dumping, deposition, or discharge of waste directly into waters of the state, or adjacent to such waters in any manner which may permit its being transported into the waters, is prohibited unless authorized by the Regional Board.
- Any discharge to a storm water conveyance system that is not composed entirely of "storm water" is prohibited unless authorized by the Regional Board. [The federal regulations, 40 CFR 122.26(b)(13), define storm water as storm water runoff, snow melt runoff, and surface runoff and drainage. 40 CFR 122.26(b)(2) defines an illicit discharge as any discharge to a storm water conveyance system that is not composed entirely of storm water except discharges pursuant to a NPDES permit and discharges resulting from fire fighting activities.] [Section 122.26 amended at 56 FR 56553, November 5, 1991; 57 FR 11412, April 2, 1992].
- The unauthorized discharge of treated or untreated sewage to waters of the state or to a storm water conveyance system is prohibited.

Existing discharges are violating one or more of these of these Basin Plan prohibitions. The existing Basin Plan prohibitions are consistent with the TMDLs, WLAs, and LAs. If

⁴⁸ Authorized pursuant to Water Code section 13243

necessary, the San Diego Water Board may amend the Basin Plan to revise current waste discharge prohibitions or include new waste discharge prohibitions. The controllable sources must comply with the Basin Plan waste discharge prohibitions.

(2) Waste Discharge Requirements

The primary regulatory authority used by the San Diego Water Board to protect water resources and water quality in the San Diego Region is the issuance of waste discharge requirements (WDRs).⁴⁹ The San Diego Water Board will issue, or revise and re-issue WDRs to point sources and/or nonpoint sources in the San Diego Region to be consistent with the TMDLs, WLAs, and LAs. The controllable sources regulated under WDRs must comply with the requirements to be consistent with the TMDLs, WLAs, and LAs. Specific San Diego Water Board actions with regard to WDRs for point sources and nonpoint sources are discussed in the following subsections.

(A) Point Sources

The San Diego Water Board regulates discharges from point sources to surface waters with WDRs that implement federal NPDES regulations (NPDES requirements). NPDES requirements must contain water quality-based effluent limitations (WQBELs) consistent with the assumptions and requirements of the WLAs of any applicable TMDL.⁵⁰

When developing WQBELs to be incorporated in to NPDES requirements, the following summarizes the requirements and assumptions included in the calculation of the TMDLs, WLAs, and LAs that should be considered:

Numeric Targets

- The numeric targets consist of the numeric WQOs from the Basin Plan and/or Ocean Plan and an allowable exceedance frequency.
- The numeric targets for the wet weather TMDLs consist of the REC-1 single sample maximum WQOs and a 22 percent allowable exceedance frequency.
- The numeric targets for dry weather TMDLs consist of the REC-1 30-day geometric metric mean WQOs and a 0 percent allowable exceedance frequency.
- The TMDL calculations are based on either the single sample maximum WQO (for wet weather) or 30-day geometric mean WQOs (for dry weather), but both the single sample maximum and 30-day geometric mean numeric WQOs and allowable exceedance frequencies must be met in the receiving waters.
- The TMDLs, and in turn the WLAs for point sources and LAs for nonpoint sources, are assumed to be met when the numeric targets for all three indicator bacteria (fecal coliform, total coliform, and *Enterococcus*) are met in the receiving waters.

Critical Conditions

- The mass-load based TMDLs were calculated under critical conditions consisting of flows generated during a critical wet year and estimation of existing and allowable loads at a critical location.

⁴⁹ Authorized pursuant to Water Code sections 13263 and 13264

⁵⁰ Code of Federal Regulations Title 40 section 122.44(d)(1)(vii)(B)

- The flow from the critical wet year is a “worst case” annual wet weather flow and loading scenario. Actual annual wet weather flow and loading will vary from year to year.
- The mass-load based TMDLs calculated at the critical location are dependent on the flow, which can vary from year to year, but the numeric targets will not vary. When the numeric targets are met in the receiving water, the TMDLs are assumed to be met.
- The mass-load based TMDLs, WLAs, and LAs are calculated for the critical location, but the appropriate numeric targets (based on freshwater and/or saltwater REC-1 WQOs and allowable exceedance frequencies) must be met throughout the waterbodies addressed by these TMDLs.

Linkage Analysis

- The linkage analysis was performed by utilizing calibrated and validated models to predict flow from surface runoff and predict bacteria densities under the critical conditions (i.e., during the critical wet year at the critical location). Existing mass loads and allowable mass loads (i.e., TMDLs) were calculated for each watershed. The existing mass loads were calculated based on model-predicted flow and model-predicted bacteria densities. The allowable mass loads (i.e., TMDLs) were calculated based on model-predicted flow and the numeric targets (i.e., numeric WQOs and allowable exceedance frequencies).
- The wet weather existing mass loads and allowable mass loads (i.e., wet weather mass-load based TMDLs) are calculated assuming surface runoff is generated by rainfall from storm events and discharged from all land use categories to receiving waters.
- The dry weather existing mass loads and allowable mass loads (i.e., dry weather mass-load based TMDLs) are calculated assuming surface runoff is generated only by anthropogenic activities and discharged from specific land use categories to receiving waters. The possible contribution of subsurface or groundwater flows to bacteria loads in receiving waters during dry weather was not accounted for in any land use category.

Allocations

- Each mass-load based TMDL is allocated to known point sources and nonpoint sources. Wasteload allocations (WLAs) are assigned to point sources, and load allocations (LAs) are assigned to nonpoint sources. WLAs and LAs are the maximum load a source can discharge and still achieve the TMDL in the receiving water.
- The TMDLs, and in turn the WLAs for point sources and LAs for nonpoint sources, are assumed to be met when the numeric targets are met in the receiving waters.
- The sources were identified based on land use and grouped in to Municipal MS4, Caltrans MS4 (Caltrans), Agriculture, and Open Space categories. The Municipal MS4 and Caltrans land use categories are point sources, and the Agriculture and Open Space land use categories are nonpoint sources.
- Sources that are not identified are assumed to be assigned a zero allowable load as part of the mass-load based TMDL (i.e., WLA = 0 or LA = 0). In other words,

discharges of pollutant loads from these sources are not expected or allowed as part of the TMDLs.

- Sources that are assigned an allowable load equal to the existing mass load as part of the mass-load based TMDL (i.e., WLA or LA = existing mass load) are not expected or allowed to increase their mass load in the future. In other words, discharges of pollutant loads (i.e., flows and bacteria densities) from these sources are not allowed to increase.
- The allocation of the dry weather mass-load based TMDLs assumes that no surface runoff discharge to receiving waters occurs from Caltrans, Agriculture, or Open Space land use categories (i.e., $WLA_{\text{Caltrans}} = 0$, $LA_{\text{Agriculture}} = 0$, and $LA_{\text{OpenSpace}} = 0$), meaning the entire dry weather mass-load based TMDL (i.e., allowable mass load) is allocated to Municipal MS4 land use categories (i.e., $WLA_{\text{MS4}} = \text{TMDL}$) (see Tables [Insert seventh through ninth table numbers]).
- The allocation of the wet weather mass-load based TMDLs assumes surface runoff discharge occurs from all land use categories, and allocated according to the following steps (see Tables [Insert third through sixth table numbers]):
 - 1) Sources are separated in to controllable and uncontrollable sources. Discharges from Municipal MS4, Caltrans, and Agriculture land use categories are assumed to be controllable (i.e., subject to regulation), and discharges from Open Space land use categories are assumed to be uncontrollable (i.e., not subject to regulation).
 - 2) Because discharges from Open Space land use categories are uncontrollable (i.e., not subject to regulation), the LAs for Open Space land use categories are set equal to the existing mass loads calculated under the critical conditions.
 - 3) For discharges from controllable land use categories that do not contribute more than 5 percent of the total existing mass load for all three indicator bacteria, the WLA or LA is set equal to the existing mass loads from those land uses calculated under the critical conditions.
 - 4) After the WLAs and LAs are assigned based on steps 2 and 3, the remaining portion of the mass-load based TMDL is assigned to discharges from controllable land use categories that contribute more than 5 percent of the total existing mass load for all three indicator bacteria. The allowable mass load for each source (WLA or LA) is calculated based on the ratio of the existing mass loads from those sources relative to each other.

Load Reductions

- The load reductions required to meet the mass-load based TMDLs, WLAs, and LAs are based on reducing the loads compared to pollutant loads from 2001 to 2002.
- Load reductions for each source are calculated based on the difference between the existing mass load and the mass-load based WLA or LA for each source (see Tables [Insert third through ninth table numbers]).
- WLAs and LAs that are set equal to the existing mass loads do not require load reductions to be calculated, but this also means that existing mass loads from those sources cannot increase over time (i.e., pollutant loads should be less than or equal to pollutant loads relative to 2001 to 2002).

- The load reductions needed to meet the WLAs for point sources and LAs for nonpoint sources are assumed to be achieved when the numeric targets are met in the receiving waters.

The persons identified as responsible for point source discharges causing or contributing to bacteria impairments at the beaches and creeks addressed in these TMDLs include:

- Phase I MS4s,
- Phase II MS4s,
- Caltrans,
- POTWs and wastewater collection systems, and
- CAFOs.

According to Tables [Insert third through ninth table numbers], Municipal (Phase I and Phase II) MS4s and Caltrans are the only point sources that have been assigned WLAs. POTWs,⁵¹ CAFOs, and any other unidentified point sources were not assigned WLAs, which is equivalent to being assigned a WLA of zero. All these identified point sources are subject to NPDES regulations.

In order for the WDRs, NPDES requirements, and discharges from these point sources to be consistent with the TMDLs and WLAs, the San Diego Water Board will issue or revise and re-issue the WDRs for these point sources as follows:

(i) Phase I MS4s

The TMDLs and Municipal MS4 WLAs, with respect to discharges from Phase I MS4s, will be implemented primarily by revising and re-issuing the existing NPDES requirements that have been issued for Phase I MS4 discharges.

The Phase I MS4s subject to these TMDLs are regulated under San Diego Water Board WDRs that implement NPDES requirements.⁵² The NPDES requirements regulating the Phase I MS4s include discharge prohibitions and receiving water limitations that are applicable to the implementation of these TMDLs, as summarized below:

- Discharges from MS4s are subject to all Basin Plan prohibitions.
- Discharges from MS4s that cause or contribute to the violation of water quality standards (designated beneficial uses and water quality objectives developed to protect beneficial uses) are prohibited.

⁵¹ Not including Padre Dam, which has been allocated a fecal coliform TMDL based on the effluent limitations in the WDRs for Padre Dam

⁵² Phase I MS4s in Orange County are regulated under San Diego Water Board Order No. R9-2002-0001 or subsequent orders; Phase I MS4s in San Diego County are regulated under San Diego Water Board Order No. R9-2007-0001 or subsequent orders.

- Discharges into and from MS4s in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance, in waters of the state are prohibited.
- Effectively prohibit all types of non-storm water discharges into the MS4 unless such discharges are either authorized by separate NPDES requirements, or not prohibited (i.e., exempted) by the NPDES requirements regulating the MS4. Exempted non-storm water discharges into the MS4 are not prohibited unless the discharge category is identified as a significant source of pollutants to waters of the United States.

The available data reported by the Phase I MS4s and the results of the technical TMDL analysis indicate that discharges into and from MS4s are in violation of the discharge prohibitions and receiving water limitations above. Enforcement of the current discharge prohibitions and receiving water limitations is an action that the San Diego Water Board can immediately implement to compel the MS4s to reduce discharge of bacteria to the receiving waters.

In addition to the discharge prohibitions and receiving water limitations, WQBELs consistent with the assumptions and requirements of the WLAs of any applicable TMDL must also be incorporated into the NPDES requirements. The San Diego Water Board will revise and re-issue the WDRs and NPDES requirements for Phase I MS4s to incorporate the following:

- WQBELs consistent with the requirements and assumptions of the Municipal MS4 WLAs. WQBELs may be expressed as numeric effluent limitations, when feasible, and/or as a BMP program of expanded or better-tailored BMPs.⁵³
- If the WQBELs include a BMP program, periodic reporting requirements on BMP planning, implementation, and effectiveness in improving water quality at impaired beaches and creeks (i.e., progress reports). Progress reports will also be required to include water quality monitoring results. Progress reports will be required as long as necessary to ensure that the beneficial uses of the impaired waterbodies have been restored and maintained.
- Compliance schedule for Phase I MS4s to attain the MS4 WLAs and TMDLs in the receiving waters.

The WQBELs will likely consist of receiving water limitations (based on the numeric targets) and require the implementation of a BMP program to achieve the TMDLs in the receiving waters. The Phase I MS4s will be required to submit Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) outlining a proposed BMP program that will be capable of achieving the necessary load reductions required to attain the TMDLs in the receiving waters, acceptable to the San

⁵³ Code of Federal Regulations Title 40 section 122.44(k)(2)&(3)

Diego Water Board, within 18 months after the effective date of these TMDLs.⁵⁴ The San Diego Water Board will require the BLRPs or CLRPs to be developed on a watershed or region wide scale. The BLRPs or CLRPs should be developed and incorporated as part of the Watershed Runoff Management Programs required under the Phase I MS4 NPDES requirements. Ideally, the Phase I MS4s and Caltrans will develop and coordinate the elements of their BLRPs or CLRPs together.

If the receiving water limitations (based on the numeric targets) are met in the receiving waters, the assumption will be that the MS4s have met their WLAs. If, however, the receiving water limitations are not being met in the receiving waters, the Phase I MS4s will be responsible for reducing their bacteria loads and/or demonstrating that controllable anthropogenic discharges from the Phase I MS4s are not causing the exceedances, as outlined below in the Monitoring for TMDL Compliance section below.

(ii) Phase II MS4s

The TMDLs and MS4 WLAs, with respect to discharges from Phase II MS4s, will be implemented primarily by requiring compliance with the existing general WDRs and NPDES requirements that have been issued for Phase II MS4 discharges. Phase II MS4s are subject to regulation under State Water Board general WDRs implementing NPDES requirements.⁵⁵

Owners and operators of Phase II MS4s in the watersheds subject to these TMDLs, identified by the San Diego Water Board as significant sources of bacteria discharging to the receiving waters and/or Phase I MS4s, will be required to submit a Notice of Intent⁵⁶ to comply with the NPDES requirements in the State Water Board general WDRs as soon as possible after the effective date of these TMDLs.⁵⁷ Once enrolled under the general WDRs, Phase II MS4 owners and operators are required to comply with the provisions of the State Water Board general WDRs and NPDES requirements to reduce the discharge of bacteria as specified in their Stormwater Management Plans/Programs (SWMPs).

For any individual Phase II MS4s that are identified as a significant source of pollutants, the San Diego Water Board may also issue individual WDRs requiring the implementation of WQBELs that are consistent with the requirements and assumptions of the Municipal MS4 WLAs. Upon issuance of such individual WDRs by the San Diego Water Board, the State Water Board general WDRs for Phase II MS4s shall no longer regulate the affected individual Phase II MS4s.⁵⁸

⁵⁴ The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.

⁵⁵ Phase II MS4s in the San Diego Region are subject to regulation under State Water Board Order No. 2003-0005-DWQ, or subsequent orders.

⁵⁶ The Notice of Intent, or NOI, is attachment 7 to Order No. 2003-0005-DWQ.

⁵⁷ The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.

⁵⁸ As authorized under State Water Board Order No. 2003-0005-DWQ, section G.

Similarly, for any category of Phase II MS4s that are identified as a significant source of pollutants, the San Diego Water Board may issue general WDRs requiring the implementation of WQBELs that are consistent with the requirements and assumptions of the Municipal MS4 WLAs above. Upon issuance of such general WDRs by the San Diego Water Board, the State Water Board general WDRs for Phase II MS4s shall no longer regulate the affected category of Phase II MS4s.⁵⁹

In the event that the San Diego Water Board issues individual or general WDRs for Phase II MS4s in the San Diego Region, the WQBELs will likely consist of receiving water limitations (based on the numeric targets) and require the implementation of a BMP program to achieve the TMDLs in the receiving waters. The Phase II MS4s will likely be required to submit Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) outlining a proposed BMP program that will be capable of achieving the necessary load reductions required to attain the TMDLs in the receiving water, acceptable to the San Diego Water Board. When and where possible, the San Diego Water Board will require the BLRPs or CLRPs to be developed on a watershed or region wide scale and have the Phase II MS4 BMP programs coordinate with the BMPs programs for Phase I MS4s and Caltrans.

If the receiving water limitations (based on the numeric targets) are met in the receiving waters, the assumption will be that the Phase II MS4s have met their WLAs. If, however, the receiving water limitations are not being met in the receiving waters and one or more Phase II MS4 dischargers are identified as sources of bacteria causing exceedances, the specific Phase II MS4s will be responsible for reducing their bacteria loads and/or demonstrating that controllable anthropogenic discharges from those specific Phase II MS4s are not causing the exceedances, as outlined below in the Monitoring for TMDL Compliance section below.

(iii) Caltrans

The TMDLs and Caltrans WLAs will be implemented primarily by revising and re-issuing the existing NPDES requirements that have been issued for Caltrans discharges.

Caltrans is regulated under State Water Board general WDRs that implement NPDES requirements.⁶⁰ The San Diego Water Board will request the State Water Board to revise and re-issue the WDRs and NPDES requirements to incorporate the following for Caltrans discharges in the San Diego Region:

- WQBELs consistent with the requirements and assumptions of the Caltrans WLAs. WQBELs may be expressed as numeric effluent limitations, when feasible, and/or as a BMP program of expanded or better-tailored BMPs.⁶¹
- If the WQBELs include a BMP program, periodic reporting requirements on BMP planning, implementation, and effectiveness in improving water quality at

⁵⁹ Ibid.

⁶⁰ Caltrans is subject to regulation under State Water Board Order No. 99-06-DWQ, and subsequent orders.

⁶¹ Code of Federal Regulations Title 40 section 122.44(k)(2)&(3)

impaired beaches and creeks (i.e., progress reports). Progress reports will also be required to include water quality monitoring results. Progress reports will be required as long as necessary to ensure that the beneficial uses of the impaired waterbodies have been restored and maintained.

- Compliance schedule for Caltrans to attain the Caltrans WLAs and TMDLs in the receiving waters.

The WQBELs will likely consist of receiving water limitations (based on the numeric targets) and require the implementation of a BMP program to achieve TMDLs in the receiving waters. Caltrans will be required to submit Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) outlining a proposed BMP program that will be capable of attaining the TMDLs in the receiving waters, acceptable to the San Diego Water Board, within 18 months after the effective date of these TMDLs.⁶² The San Diego Water Board will require the BLRPs or CLRPs to be developed on a watershed or region wide scale. Ideally, Caltrans and the Phase I MS4s will develop and coordinate the elements of their BLRPs or CLRPs together.

If the receiving water limitations (based on the numeric targets) are met in the receiving waters, the assumption will be that Caltrans has met its WLAs. If, however, the receiving water limitations are not being met in the receiving waters, and Caltrans MS4s are identified as a source of bacteria causing exceedances, Caltrans will be responsible for reducing its bacteria loads and/or demonstrating that controllable anthropogenic discharges from the Caltrans MS4s are not causing the exceedances, as outlined below in the Monitoring for TMDL Compliance section below.

(iv) Publicly Owned Treatment Works and Wastewater Collection Systems

The TMDLs, with respect to discharges from POTWs and wastewater collection systems, will be implemented primarily by requiring compliance with any existing individual and/or general WDRs and NPDES requirements that have been issued. POTWs are subject to regulation under individual WDRs that implement NPDES requirements. Wastewater collection systems are subject to regulation under general WDRs issued by the State Water Board and San Diego Water Board.⁶³

Because POTWs and wastewater collection systems have been assigned WLAs of zero,⁶⁴ no discharges of bacteria are expected or allowed under the wet weather TMDLs or dry weather TMDLs. If discharges of bacteria from POTWs and/or wastewater collection systems do occur as a result of sanitary sewer overflows and result in WQO exceedances, these exceedances will not apply to the compliance status of other dischargers.

⁶² The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.

⁶³ State Water Board Order No. 2006-0003-DWQ and San Diego Water Board Order No. R9-2007-0005

⁶⁴ With the exception of Padre Dam, which has a fecal coliform mass-load based WLA that is calculated based on numeric effluent limitations derived from the REC-1 WQOs in the Basin Plan.

If necessary, individual WDRs for POTWs and/or the San Diego Water Board WDRs for wastewater collection systems can be revised to require more aggressive monitoring, maintenance, and repair schedules to ensure discharges of bacteria wasteloads to surface waters are eliminated.

(v) Concentrated Animal Feeding Operations

The TMDLs, with respect to discharges from CAFOs, will be implemented primarily by requiring compliance with any existing individual and/or general WDRs and NPDES requirements that have been issued. CAFOs that discharge to surface waters are subject to regulation under general WDRs that implement NPDES requirements.

Because CAFOs have been assigned WLAs of zero, no discharges of bacteria are expected or allowed under the wet weather TMDLs or dry weather TMDLs.

If necessary, the general WDRs and NPDES requirements for CAFOs can be revised to require more aggressive monitoring, maintenance, and repair schedules to ensure discharges of bacteria wasteloads to surface waters are minimized and/or eliminated.

(vi) Other Unidentified Point Sources

Unidentified point sources have not been assigned WLAs, which is equivalent to being assigned a WLA of zero. No discharges of bacteria are expected or allowed from unidentified point sources under the wet weather TMDLs or dry weather TMDLs.

Therefore, the TMDLs, with respect to discharges from unidentified point sources to surface waters, will be implemented primarily by issuing WDRs implementing NPDES requirements, or requiring the point sources to cease their discharges.

(B) Nonpoint Sources

The persons identified as responsible for controllable nonpoint source bacteria discharges causing or contributing to bacteria impairments at the beaches and creeks in these watersheds include the owners and operators of the following:

- agricultural facilities,
- nurseries,
- dairy/intensive livestock facilities,
- horse ranches,
- manure composting and soil amendment operations not regulated by NPDES requirements, and
- individual septic systems.

Agriculture (including nurseries), dairy/livestock, and horse ranch land uses (collectively called “agriculture” land uses) are controllable nonpoint sources that have been assigned LAs, as shown in Tables **Insert third through ninth table numbers**. Manure composting operations, soil amendment operations, and individual septic systems that are not part of agriculture land uses, and any other unidentified controllable nonpoint sources were not assigned LAs, which is equivalent to being

assigned a LA of zero. Any controllable nonpoint source that has not been assigned a LA or has a LA of zero is not expected or allowed to discharge a pollutant load as part of the TMDL.

Controllable nonpoint source discharges are present in most watersheds, however, in only four watersheds do these discharges require load reductions to meet the Agriculture LAs. These watersheds are the Lower San Juan HSA, San Luis Rey HU, San Marcos HA, and San Dieguito HU watersheds (see Tables Insert table numbers).

If individual or general WDRs are developed and issued to controllable nonpoint sources, the WDRs should incorporate one or more the following:

- Effluent limitations that are consistent with the requirements and assumptions of the nonpoint source LAs. Effluent limitations should be expressed as numeric effluent limitations, if feasible, and/or as a BMP program.
- Periodic reporting requirements on BMP planning, implementation, and effectiveness in improving the water quality of discharges from the nonpoint source (i.e., progress reports). Progress reports will also be required to include water quality monitoring results. Progress reports will be required as long as necessary to ensure that the beneficial uses of the impaired waterbodies have been restored and maintained.
- Compliance schedule and/or implementation milestones.

The San Diego Water Board will work with the nonpoint source dischargers and/or stakeholders when developing the WDRs. When and where possible, the San Diego Water Board will have the nonpoint source BMP programs coordinate with the BMPs programs for Phase I MS4s and Caltrans.

If the receiving water limitations (based on the numeric targets) are met in the receiving waters, the assumption will be that controllable nonpoint sources have met their LAs. If, however, the receiving water limitations are not being met in the receiving waters, and one or more controllable nonpoint source dischargers are identified as sources of bacteria causing exceedances, the San Diego Water Board may regulate those identified nonpoint sources, as needed, with WDRs or other enforcement actions, and those nonpoint sources will be responsible for reducing their bacteria loads and/or demonstrating that discharges from those nonpoint sources are not causing the exceedances, as outlined below in the Monitoring for TMDL Compliance section below.

(3) Conditional Waivers of Waste Discharge Requirements

There are several types of point source discharges to land, as well as nonpoint source discharges to land and surface waters that may not have an adverse affect on the quality of the waters of the state, and/or are not readily amenable to regulation under WDRs. For

these types of discharge, the San Diego Water Board has the authority to issue conditional waivers of WDRs.⁶⁵

There are controllable nonpoint source land uses (agriculture, horse ranches, and dairies/intensive livestock) that were identified in 8 watersheds that are contributing to the bacteria impairments. Four of the 8 watersheds were identified as requiring load reductions (Lower San Juan HSA, San Luis Rey HU, San Marcos HA, and San Dieguito HU) to meet the assigned wet weather Agriculture LAs.

In general, the San Diego Water Board utilizes conditional waivers of WDRs to address the discharges from controllable nonpoint sources. Development and enforcement of waiver conditions that are protective of water quality will likely be sufficient to implement the Agriculture LAs. The controllable nonpoint sources eligible for conditional waivers must comply with the conditions of the waiver to be consistent with the TMDLs and Agriculture LAs. Controllable nonpoint sources that do not comply with the waiver conditions are no longer eligible for the waiver and must either come into compliance with the waiver conditions, become regulated under WDRs, or cease any discharge of wastes to waters of the state.

Currently, discharges from these controllable nonpoint sources may be eligible for one of the general conditional waivers of WDRs, which are currently provided in the Basin Plan.⁶⁶ Conditional waivers of WDRs may not exceed 5 years in duration, but may be revised and renewed, or may be terminated at any time.⁶⁷ The San Diego Water Board will implement the conditional waivers of WDRs applicable to the Agriculture land uses to be consistent with the TMDLs and Agriculture LAs.

Because the conditional waivers of WDRs that may be utilized to implement the Agriculture LAs are contained in the Basin Plan, any revision of the conditions will require a Basin Plan amendment. If needed, the San Diego Water Board may amend the Basin Plan to remove these conditional waivers of WDRs from the Basin Plan and re-issue the conditional waivers of WDRs as a general order to reduce the administrative requirements for revising waiver conditions.

As required, the effectiveness of the conditional waivers of WDRs must be evaluated at least once every 5 years. If the conditions in the waivers of WDRs are not sufficient to implement the TMDLs and Agriculture LAs, the San Diego Water Board will amend the waiver conditions to include more stringent conditions, including, but not limited to, additional BMP implementation, monitoring, and/or reporting.

⁶⁵ Authorized pursuant to Water Code section 13269

⁶⁶ The current general conditional waivers in the Basin Plan were adopted under San Diego Water Board Resolution No. R9-2007-0104. These waivers will expire December 31, 2012. Conditional Waiver No. 3 (Animal Operations) and Conditional Waiver No. 4 (Agriculture and Nursery Operations) may be utilized to implement the Agriculture LAs. Future iterations of these conditional waivers may be issued in a separate implementing order and removed from the Basin Plan.

⁶⁷ Pursuant to Water Code section 13269(a)(2)

If a conditional waiver of WDRs no longer appears to be effective in protecting water quality from discharges from specific nonpoint source facilities or category of nonpoint source facilities, the waiver may be terminated. For nonpoint source facilities that are no longer eligible for a conditional waiver of WDRs, they will need to be regulated under WDRs, or cease any discharges of waste to waters of the state.

(4) Enforcement Actions

The San Diego Water Board shall consider enforcement actions, as necessary, for any discharger failing to comply with applicable waiver conditions, WDRs, or Basin Plan waste discharge prohibitions.⁶⁸ Enforcement actions can also be taken, as necessary, to control the discharge of bacteria to impaired beaches and creeks, to attain compliance with the assumptions and requirements of the TMDLs, WLAs, and LAs.

In order for implementation of the TMDLs to begin as soon as possible, the San Diego Water Board may issue enforcement actions, in lieu of or before revising and re-issuing general WDRs and NPDES requirements, for Phase I MS4s and Caltrans, directing them to begin implementing additional measures to restore compliance with the bacteria WQOs. Enforcement actions may also be issued to require the submission of Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) to the San Diego Water Board within 18 months after the effective date of these TMDLs,⁶⁹ or sooner. The San Diego Water Board will require the BLRPs or CLRPs to be developed on a watershed or region wide scale.

The San Diego Water Board will also issue enforcement actions, as necessary, to any other discharger that is identified by the San Diego Water Board and/or other parties as a significant source causing or contributing to the bacteria impairments in the waterbodies addressed in these TMDLs.

(5) Investigative Orders

The San Diego Water Board has the authority to require any state or local agency to investigate and report on any technical factors involved in water quality control or to obtain and submit analyses of water.⁷⁰ The San Diego Water Board has the authority to require technical or monitoring program reports from persons who have discharged or are discharging waste that could affect the quality of the waters in the San Diego Region.⁷¹ The San Diego Water Board also has the authority to establish monitoring and recordkeeping requirements for discharges regulated under NPDES requirements.⁷²

Investigative orders may be issued requiring the submission of Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs), acceptable to the San Diego Water Board, within 18 months after the effective date of these TMDLs,⁷³ or sooner.

⁶⁸ Authorized pursuant to Water Code sections 13300-13304, 13308, 13350, 13385, and/or 13399

⁶⁹ The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.

⁷⁰ Authorized pursuant to Water Code section 13225

⁷¹ Authorized pursuant to Water Code section 13267

⁷² Authorized pursuant to Water Code section 13383

⁷³ The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.

The San Diego Water Board will require the BLRPs or CLRPs to be developed on a watershed or region wide scale. The San Diego Water Board may require the Phase I MS4s and Caltrans to develop and coordinate the elements of their BLRPs or CLRPs together. The BLRPs or CLRPs will be incorporated into the WDRs and NPDES requirements.

The San Diego Water Board may issue subsequent investigative orders to confirm items in the BLRPs or CLRPs. The BLRPs or CLRPs must be capable of achieving the WLAs for the bacteria TMDLs. The CLRPs must also be capable of restoring the beneficial uses in receiving waters for other impairing pollutants in the watershed, and achieving the goals and objectives of any other water quality improvement projects included in the CLRPs within the time frame of the compliance schedule.

The San Diego Water Board will also issue investigative orders requiring BLRPs or CLRPs, or other technical or monitoring program reports, as necessary, to any other discharger that is identified by the San Diego Water Board or other parties as a significant source causing or contributing to the bacteria impairments in the waterbodies addressed in these TMDLs.

(6) Basin Plan Amendments

As the implementation of these TMDLs progress, the San Diego Water Board recognizes that revisions to the Basin Plan may be necessary in the future. The San Diego Water Board will initiate a Basin Plan amendment project to revise the requirements and/or provisions for implementing these TMDLs within 5 years from the effective date of this Basin Plan amendment or earlier if all the following conditions are met:

- Sufficient data are collected to provide the basis for the Basin Plan amendment.
- A report is submitted to the San Diego Water Board documenting the findings from the collected data.
- A request is submitted to the San Diego Water Board with specific revisions proposed to the Basin Plan, and the documentation supporting such revisions.

The San Diego Water Board will work with the project proponents to ensure that the data and documentation will be adequate for the initiation of the Basin Plan amendment. The San Diego Water Board staff will be responsible for taking the Basin Plan amendment project through the administrative and regulatory processes for adoption by the San Diego Water Board, and approval by the State Water Board, OAL, and USEPA.

If no Basin Plan amendment has been initiated within 5 years of the effective date of this TMDL Basin Plan amendment, and the Executive Officer determines, with Regional Board concurrence, that insufficient data exist to support the initiation of a Basin Plan amendment, a subsequent Basin Plan amendment to revise the requirements and/or provisions for the implementation of these TMDLs will not be initiated until the Executive Officer determines the conditions specified above are met.

(7) Other Actions

For these TMDLs, the San Diego Water Board shall recommend that the State Water Board assign a high priority to awarding grant funding⁷⁴ for projects to implement the bacteria TMDLs. Special emphasis will be given to projects that can achieve quantifiable bacteria load reductions consistent with the specific bacteria TMDLs, WLAs, and LAs.

Implementation of these TMDLs by the San Diego Water Board should not require any special studies to be conducted by the dischargers or other entities. The San Diego Water Board, however, will encourage and support any special studies proposed and undertaken by the dischargers or other entities that will provide information to refine and improve the implementation of these TMDLs. The San Diego Water Board may develop agreements (e.g., a Memorandum of Understanding) with one or more entities to support and use the findings from any special studies that may be conducted. Proposing a special study project and initiating an agreement with the San Diego Water Board to use the results of the study to modify this TMDL Implementation Plan is the responsibility of the project proponent(s).

(i) Monitoring for TMDL Compliance and Compliance Assessment

An essential component of implementation is water quality monitoring. Monitoring is needed to evaluate the progress toward attainment of the TMDLs and restoring the beneficial uses in the receiving waters. When all discharges from controllable sources meet their assigned WLAs and LAs, and the numeric targets (i.e., numeric WQOs and allowable exceedance frequencies) are also met in the receiving waters, compliance with the TMDLs will be achieved. Additionally, sufficient water quality data are necessary to support the removal of a waterbody from the 303(d) List. Water quality data can also be used to identify additional regulatory actions that may need to be implemented by the San Diego Water Board to restore and protect beneficial uses.

Monitoring for compliance will initially be conducted by the Phase I MS4s and Caltrans. The minimum components for any monitoring program that will be used to evaluate progress toward attainment of the TMDLs should include the following:

- For beaches addressed by these TMDLs, monitoring locations should consist of, at a minimum, the same locations used to collect data required under MS4 NPDES monitoring requirements and beach monitoring for Health and Safety Code section 115880.⁷⁵ If exceedances of the receiving water limitations are observed in the monitoring data, additional monitoring locations and/or other source identification methods must be implemented to identify the sources causing the exceedances. The additional monitoring locations and/or other source identification methods must also

⁷⁴ The State Water Board administers the awarding of grants funded from Proposition 13, Proposition 50, Clean Water Act section 319(h) and other federal appropriations to projects that can result in measurable improvements in water quality, watershed condition, and/or capacity for effective watershed management. Many of these grant fund programs have specific set-asides for expenditures in the areas of watershed management and TMDL project implementation for non-point source pollution.

⁷⁵ Commonly referred to as AB 411 monitoring

be used to demonstrate that the bacteria loads from the identified sources have been addressed and are no longer causing exceedances in the receiving waters.

- For creeks addressed by these TMDLs, monitoring locations should consist of, at a minimum, a location at or near the mouth of the creek (e.g., Mass Loading Station or Mass Emission Station) and one or more locations upstream of the mouth (e.g., Watershed Assessment Stations). If exceedances of the receiving water limitations are observed in the monitoring data, additional monitoring locations and/or other source identification methods must be implemented to identify the sources causing the exceedances. The additional monitoring locations and/or other source identification methods must also be used to demonstrate that the bacteria loads from the identified sources have been addressed and are no longer causing exceedances in the receiving waters.
- Because there are dry weather and wet weather TMDLs, monitoring under both conditions is needed. Wet weather⁷⁶ monitoring should occur at least once within 24 hours of the end of a storm event⁷⁷ that occurs during the rainy season (i.e., October 1 through April 30). Dry weather⁷⁸ monitoring should occur at least on a monthly basis, and may be required more often during the summer months (e.g., weekly) when the REC-1 and REC-2 beneficial uses occur most frequently in the creeks and at the beaches.

Compliance with the TMDLs, WLAs, and LAs will be assessed primarily by comparing receiving water indicator bacteria results from the monitoring locations outlined above with receiving water limitations expressed in terms of the appropriate numeric REC-1 WQOs and allowable exceedance frequencies of the appropriate numeric REC-1 WQOs. The appropriate numeric WQOs and allowable exceedance frequencies are dependent upon the type of receiving water (i.e., beach or creek) and weather conditions (i.e., dry weather or wet weather), as shown in Tables [Insert table numbers].

⁷⁶ Defined as days with a storm with at least 0.2 inches of rainfall and the 72 hour period after the storm event

⁷⁷ The end of a storm event is when there is no more precipitation

⁷⁸ Defined as days with less than 0.2 inches of rainfall on each of the previous three days

[Insert table number]. Receiving Water Limitations for Beaches

Indicator Bacteria	Wet Weather Days ^a		Dry Weather Days ^b	
	Wet Weather Numeric Objective ^c (MPN/100mL)	Wet Weather Allowable Exceedance ^d Frequency	Dry Weather Numeric Objective ^e (MPN/100mL)	Dry Weather Allowable Exceedance Frequency
Fecal Coliform	400	22%	200	0%
Total Coliform	10,000	22%	1,000	0%
Enterococcus	104	22%	35	0%

- a. Wet weather days defined as days with rainfall events of 0.2 inches or greater and the following 72 hours.
- b. Dry weather days defined as days with less than 0.2 inch of rainfall observed on each of the previous 3 days.
- c. Wet weather numeric objectives based on the single sample maximum water quality objectives in the California Ocean Plan (2005). Compliance with the wet weather TMDLs in the receiving water is based on the frequency that the wet weather days in any given year exceed the wet weather numeric objective, but 30-day geometric mean must also be met.
- d. The wet weather allowable exceedance frequency is set at 22%. In the calculation of the wet weather TMDLs, the San Diego Regional Board chose to apply the 22 percent allowable exceedance frequency as determined for Leo Carillo Beach in Los Angeles County. At the time the wet weather watershed model was developed, the 22 percent exceedance frequency from Los Angeles County was the only reference beach exceedance frequency available. The 22 percent allowable exceedance frequency used to calculate the wet weather TMDLs is justified because the San Diego Region watersheds' exceedance frequencies will likely be close to the value calculated for Leo Carillo Beach, and is consistent with the exceedance frequency that was applied by the Los Angeles Regional Board.
- e. Dry weather numeric objectives based on the 30-day geometric mean water quality objectives in the California Ocean Plan (2005). Compliance with the dry weather TMDLs in the receiving water is based on the frequency that the dry weather days in any given year exceed the dry weather numeric objective.

[Insert table number]. Receiving Water Limitations for Creeks

Indicator Bacteria	Wet Weather Days ^a		Dry Weather Days ^b	
	Wet Weather Numeric Objective ^c (MPN/100mL)	Wet Weather Allowable Exceedance ^d Frequency	Dry Weather Numeric Objective ^e (MPN/100mL)	Dry Weather Allowable Exceedance Frequency
Fecal Coliform	400	22%	200	0%
Enterococcus	61 (104) ^f	22%	33	0%

- a. Wet weather days defined as days with rainfall events of 0.2 inches or greater and the following 72 hours.
- b. Dry weather days defined as days with less than 0.2 inch of rainfall observed on each of the previous 3 days.
- c. Wet weather numeric objectives based on the single sample maximum (or equivalent) water quality objectives in the Water Quality Control Plan for the San Diego Basin (1994). Compliance with the wet weather TMDLs in the receiving water is based on the frequency that the wet weather days in any given year exceed the wet weather numeric objective, but 30-day geometric mean must also be met.
- d. The wet weather allowable exceedance frequency is set at 22%. In the calculation of the wet weather TMDLs, the San Diego Regional Board chose to apply the 22 percent allowable exceedance frequency as determined for Leo Carillo Beach in Los Angeles County. At the time the wet weather watershed model was developed, the 22 percent exceedance frequency from Los Angeles County was the only reference beach exceedance frequency available. The 22 percent allowable exceedance frequency used to calculate the wet weather TMDLs is justified because the San Diego Region watersheds' exceedance frequencies will likely be close to the value calculated for Leo Carillo Beach, and is consistent with the exceedance frequency that was applied by the Los Angeles Regional Board.
- e. Dry weather numeric objectives based on the 30-day geometric mean (or equivalent) water quality objectives in Water Quality Control Plan for the San Diego Basin (1994). Compliance with the dry weather TMDLs in the receiving water is based on the frequency that the dry weather days in any given year exceed the dry weather numeric objective.
- f. A wet weather numeric objective for *Enterococcus* of 104 MPN/100mL may be applied as a receiving water limitation for creeks, instead of 61 MPN/100mL, if one or more of the creeks addressed by these TMDLs (San Juan Creek, Aliso Creek, Tecolote Creek, Forrester Creek, San Diego River, and/or Chollas Creek) is designated with a "moderately to lightly used area" or less frequent usage frequency in the Basin Plan. Otherwise, the wet weather numeric objective of 61 MPN/100mL for *Enterococcus* will be used to assess compliance with the wet weather allowable exceedance frequency.

At the end of the TMDL Compliance Schedules, which are given in the following section, the receiving waters must meet the receiving water limitations above to be considered in compliance with these TMDLs, WLAs, and LAs. Determination of compliance with the TMDLs will be assessed differently for dry weather and wet weather as follows:

1. *Compliance with Dry Weather TMDLs:* At the end of the dry weather TMDL compliance schedule, the bacteria densities in the receiving waters for all dry weather days⁷⁹ must be less than or equal to the 30-day geometric mean REC-1 WQOs 100 percent of the time (i.e., dry weather days in a 30-day period shall not exceed the 30-day geometric mean REC-1 WQOs more than 0 percent of the time). In addition, the bacteria densities must be consistent with the single sample maximum REC-1 WQOs in the Ocean Plan for beaches, and the Basin Plan for creeks.

The method and number of samples needed for calculating the 30-day geometric mean should be consistent with the number of samples required by the Ocean Plan for beaches, and the Basin Plan for creeks. Analysis of the monitoring results should also be consistent with the methods given in the Water Quality Control Policy For Developing California's Clean Water Act Section 303(d) List.

Because the dry weather TMDLs are assigned entirely to the Municipal MS4s as WLAs, the Municipal MS4s are assumed to be the only source of bacteria during dry weather (i.e., dry weather TMDL = MS4 WLA). Discharges from other controllable sources (i.e., Caltrans, Agriculture) during dry weather are not expected and/or not allowed (i.e., WLA = 0 or LA = 0). If at the end of the dry weather TMDL compliance schedule the receiving waters exceed the 30-day geometric mean REC-1 WQOs more than 0 percent of the time, the municipal Phase I MS4s are responsible for demonstrating their discharges into the receiving waters are not causing the exceedances, or they will be considered out of compliance. If controllable sources other than the Phase I MS4s are identified as causing the exceedances, and the Phase I MS4s have demonstrated they are not causing or contributing to the exceedances, the Phase I MS4s will not be considered out of compliance.

The Phase I MS4s may demonstrate that their discharges are not causing the exceedances in the receiving waters by providing data from their discharge points to the receiving waters, by providing data collected at jurisdictional boundaries, and/or by using other methods accepted by the San Diego Water Board. Otherwise, at the end of the dry weather TMDL compliance schedule, the municipal Phase I MS4s will be held responsible and considered out of compliance unless other information or evidence indicates another controllable or uncontrollable source is responsible for the exceedances in the receiving waters. If controllable sources other than discharges from the municipal Phase I MS4s are identified before or after the end of the dry weather TMDL Compliance Schedule as causing the exceedances, those controllable sources will be responsible for reducing their bacteria loads and/or demonstrating that discharges from those sources are not causing the exceedances. The San Diego Water Board shall implement additional actions (e.g., issue enforcement actions, amend

⁷⁹ Defined as days with less than 0.2 inches of rainfall on each of the previous three days

- existing NPDES requirements or conditional waivers), as needed, to bring all controllable sources into compliance with the dry weather TMDLs.
2. *Compliance with Wet Weather TMDLs:* At the end of the wet weather TMDL compliance schedule, the bacteria densities in the receiving waters for all wet weather days⁸⁰ cannot exceed the single sample maximum REC-1 WQOs more than the allowable exceedance frequency. In addition, the bacteria densities must be less than or equal to the 30-day geometric mean REC-1 WQOs 100 percent of the time (i.e., both dry and wet weather days in a 30-day period shall not exceed the 30-day geometric mean REC-1 WQOs more than 0 percent of the time).

As described in the minimum monitoring components above, wet weather samples should be collected within 24 hours of the end of a storm event that occurs during the rainy season (i.e., October 1 through April 30). At least one wet weather sample per storm is expected to be collected for each waterbody in each watershed (i.e., Pacific Ocean shoreline, creek mouth, and/or creek). Because of the many issues related to collecting wet weather samples from multiple sites within a short time frame, dischargers are expected to develop a wet weather monitoring and sampling approach in their BLRPs or CLRPs. If only one sample is collected for a storm event, the bacteria density for every wet weather day associated with that storm event shall be equal to the results from that one sample. If more than one sample is collected for a storm event, but not on a daily basis, the bacteria density for all the wet weather days not sampled shall be equal to the highest bacteria density result reported from samples collected. The exceedance frequency shall be calculated by dividing the number of wet weather days that exceed the single sample maximum REC-1 WQOs by the total number of wet weather days during the rainy season. If at the end of the wet weather TMDL Compliance Schedule the receiving waters exceed the single sample maximum REC-1 WQOs more than the allowable exceedance frequency, all controllable sources are responsible for demonstrating their discharges into the receiving waters are not causing the exceedances, or they will be considered out of compliance.

The data collected for compliance with the dry weather TMDLs, described above, shall be used in addition to the data collected for wet weather with the wet weather TMDLs to calculate the wet weather 30-day geometric mean. If at the end of the wet weather TMDL Compliance Schedule the receiving waters exceed the 30-day geometric mean REC-1 WQOs at any time, all controllable sources are responsible for demonstrating their discharges into the receiving waters are not causing the exceedances, or they will be considered out of compliance.

Because the Phase I MS4s are located at the base of the watersheds and have been identified as the most significant controllable source of bacteria, the municipal Phase I MS4s will have the primary responsibility for monitoring the receiving waters. Caltrans will also have monitoring responsibilities. Phase II MS4s, agricultural dischargers, and other sources that are identified as significant sources (i.e., causing

⁸⁰ Defined as days with a storm with at least 0.2 inches of rainfall and the 72 hour period after the storm event

or contributing to exceedances in the receiving waters) will also be responsible for monitoring the receiving waters. The municipal Phase I MS4s and other dischargers are responsible for reducing their bacteria loads and/or demonstrating their discharges into the receiving waters are not causing the exceedances.

The municipal MS4s may demonstrate that their discharges are not causing the exceedances in the receiving waters by providing data from their discharge points to the receiving waters, by providing data collected at jurisdictional boundaries, and/or by using other methods accepted by the San Diego Water Board. Otherwise, at the end of the wet weather TMDL compliance schedule, the municipal Phase I MS4s will be held responsible and considered out of compliance unless other information or evidence indicates another controllable or uncontrollable source is responsible for the exceedances in the receiving waters. If controllable sources other than discharges from the municipal Phase I MS4s are identified before or after the end of the wet weather TMDL Compliance Schedules as causing the exceedances, those controllable sources will be responsible for reducing their bacteria loads and/or demonstrating that discharges from those sources are not causing the exceedances. If controllable sources other than the Phase I MS4s are identified as causing the exceedances, and the Phase I MS4s have demonstrated they are not causing or contributing to the exceedances, the Phase I MS4s will not be considered out of compliance. The San Diego Water Board shall implement additional actions (e.g., issue enforcement actions, amend existing NPDES requirements or conditional waivers), as needed, to bring all those controllable sources into compliance with the wet weather TMDLs.

Between the effective date of these TMDLs and the end of the TMDL Compliance Schedules, monitoring is also required to demonstrate progress toward achieving and complying with the TMDLs, WLAs, and LAs. Progress can be demonstrated with reductions in exceedance frequencies in the receiving waters until the allowable exceedance frequencies ultimately are achieved at the end of the TMDL Compliance Schedules. Demonstrating progress toward attaining the TMDLs in the receiving waters will be assessed differently for dry weather and wet weather as follows:

1. *Measuring Progress Toward Attaining Dry Weather TMDLs:* For the dry weather TMDLs, available historical monitoring data from the years 1996-2002 should be used to calculate the “existing” dry weather exceedance frequency of the 30-day geometric mean REC-1 WQOs for each watershed. “Existing” dry weather exceedance frequencies may be calculated separately for each impaired waterbody listed, or an “existing” dry weather exceedance frequency may be calculated that is applicable to the entire watershed.

The “existing” dry weather exceedance frequencies should be reduced until the final allowable dry weather exceedance frequency is achieved by the end of the dry weather TMDL Compliance Schedule. If the TMDL Compliance Schedules include interim milestones that must be achieved to demonstrate progress toward attaining the dry weather TMDLs, reductions in the exceedance frequencies in the receiving water may be used. For example, if the “existing” dry weather exceedance frequency is 60

percent, the final dry weather exceedance frequency is 0 percent, and an interim milestone requires a 50 percent reduction, the exceedance frequency in the receiving water should be 30 percent or less by the interim milestone date. By the end of the dry weather TMDL Compliance Schedule, the final allowable dry weather exceedance frequency of the 30-day geometric mean REC-1 WQOs is 0 percent in the receiving waters for both beaches and creeks.

2. *Measuring Progress Toward Attaining Wet Weather TMDLs:* For the wet weather TMDLs, the number of wet days and number of wet exceedance days during the critical wet year from the wet weather model were used to calculate the “existing” wet weather exceedance frequency that needs to be reduced to the allowable wet weather exceedance frequency. For example, if a watershed had 69 wet weather days during the critical wet year, and the wet weather model predicted that all the subwatersheds had an average of 41 wet weather exceedance days during the critical wet year, the “existing” wet weather exceedance frequency is 41/69=59%. For the watershed addressed by these TMDLs, the number of wet weather exceedance days for each indicator bacteria predicted by the wet weather model for the critical wet year are summarized below in Table **[Insert Table Number]**:

[Insert table number]. *Modeled Estimate of Critical Year
 “Existing” Wet Weather Exceedance Frequencies by Watershed*

Watershed	Number of Wet Days in Critical Wet Year	“Existing” Wet Weather Exceedance Frequency of Single Sample Maximum REC-1 WQO ^a		
		Fecal Coliform	Total Coliform	Enterococcus
San Joaquin Hills HSA/ Laguna Beach HSA	69	52%	54%	55%
Aliso HSA	69	59%	59%	62% (62%) ^b
Dana Point HSA	69	50%	50%	50%
Lower San Juan HSA	76	66%	66%	74% (72%) ^b
San Clemente HA	73	47%	47%	50%
San Luis Rey HU	90	68%	66%	76%
San Marcos HA	49	57%	57%	59%
San Dieguito HU	98	43%	44%	49%
Miramar Reservoir HA	94	30%	30%	30%
Scripps HA	57	52%	52%	52%
Tecolote HA	57	75%	75%	81% (79%) ^b
Mission San Diego HSA/ Santee HSA	86	70%	63%	79% (76%) ^b
Chollas HSA	65	60%	60%	63% (63%) ^b

a. Calculated by taking the average number of wet days that are predicted by the wet weather model to exceed the single sample maximum REC-1 water quality objective (400 MPN/100mL for fecal coliform, 10,000 MPN/100mL for total coliform, and 61 or 104 MPN/100mL) divided by the total number of wet days in the critical wet year (1993).

b. Allowable exceedance frequency calculated based on an *Enterococcus* single sample maximum REC-1 water quality objective of 61 MPN/100mL. Allowable exceedance frequency in parenthesis calculated based on an *Enterococcus* single sample maximum REC-1 water quality objective of 104 MPN/100mL, which may be applicable if the usage frequency of the creeks in these watersheds are designated as “moderately to lightly used area” or less frequent usage frequency in the Basin Plan.

The “existing” wet weather exceedance frequencies should be reduced until the final allowable wet weather exceedance frequency is achieved by the end of the wet weather TMDL Compliance Schedule. If the TMDL Compliance Schedules include interim milestones that must be achieved to demonstrate progress toward attaining the wet weather TMDLs, reductions in the exceedance frequencies in the receiving water may be used. For example, if the “existing” wet weather exceedance frequency is 59 percent, the final wet weather exceedance frequency is 22 percent, and an interim milestone requires a 50 percent reduction, the exceedance frequency in the receiving water should be 41 percent or less by the interim milestone date. By the end of the wet weather TMDL Compliance Schedule, the allowable wet weather exceedance frequency is 22 percent in the receiving waters for both beaches and creeks.

The specific receiving waters (i.e., specific beaches and creek segments) identified on the 2002 303(d) List are shown in the TMDL Compliance Schedule in the following section. Because the REC-1 WQOs and allowable exceedance frequencies must be met throughout the 20 waterbodies addressed by these bacteria TMDLs, monitoring data from these locations and any other beach segments and/or creek monitoring points in the watersheds addressed by these TMDLs may be used to determine compliance.

Because the municipal MS4s are the most significant controllable sources of bacteria and the Phase I MS4s often discharge directly to the receiving waters addressed by these TMDLs, the municipal Phase I MS4s will be primarily responsible for conducting the monitoring. Caltrans will also have monitoring responsibilities. Phase II MS4s, agricultural dischargers, and other sources that are identified as significant sources (i.e., causing or contributing to exceedances in the receiving waters) will also be responsible for monitoring the receiving waters. Additional monitoring locations and frequency may be required to identify sources that need additional controls to reduce bacteria loads. While this TMDL Implementation Plan recommends monitoring at one or two locations for each waterbody, monitoring only one or two locations in the receiving waters may not provide the data to differentiate between and locate sources of bacteria in the watershed. Therefore, the municipal Phase I MS4s and other dischargers may wish to establish additional monitoring locations at key jurisdictional boundaries as part of their monitoring programs, especially in watersheds where Caltrans and Agriculture have been identified as sources contributing bacteria loads to the receiving waters.

Investigative orders, enforcement actions, WDRs, or conditional waiver of WDRs issued by the San Diego Water Board should require monitoring program plans that include, as applicable, the minimum monitoring locations and frequencies outlined above, but also provide the dischargers an opportunity to propose additional or alternative monitoring locations and frequency of monitoring events. The San Diego Water Board may also issue investigative orders, enforcement actions, WDRs, or conditional waiver of WDRs that specify additional or alternative monitoring, monitoring locations, and/or frequency of monitoring events.

The San Diego Water Board will coordinate, to the extent possible, the monitoring that is required by the dischargers, to minimize the monitoring resources required and maximize the temporal and spatial coverage of the data collection.

(j) TMDL Compliance Schedule

The purpose of these TMDLs is to restore the impaired beneficial uses of the waterbodies addressed through mandated reductions of bacteria from controllable point and nonpoint sources discharging to impaired waters. The requirements of these TMDLs mandate that the San Diego Water Board require dischargers improve water quality conditions in impaired waters by achieving the assigned WLAs and LAs. After the controllable sources achieve their assigned WLAs and LAs, the TMDLs in the receiving waters will be met and beneficial uses restored.

Until the dischargers achieve their assigned WLAs and LAs, the beneficial uses of the waterbodies addressed by this project will likely remain impaired, and the dischargers will continue violating one or more Basin Plan waste discharge prohibitions. The San Diego Water Board recognizes that restoring the beneficial uses of the waterbodies impaired by elevated bacteria levels will require time and multiple approaches to implement. Therefore, the bacteria TMDLs are expected to be implemented in a phased approach with a monitoring component to identify bacteria sources, determine the effectiveness of each phase, and guide the selection of BMPs, as outlined in the BMP programs proposed in the BLRPs or CLRPs that are accepted by the San Diego Water Board.

(1) Prioritization of Waterbodies

“Impaired” waters were prioritized based on several factors, because the waterbodies included in these TMDLs are numerous and diverse in terms of geographic location, swimmer accessibility and use, and degree of contamination.

Dischargers accountable for attaining load reductions in multiple watersheds may have difficulty providing the same level of effort simultaneously in all watersheds. In order to address these concerns a scheme for prioritizing implementation of bacteria reduction strategies in waterbodies within watersheds was developed. The prioritization scheme is largely based on the following criteria:

- Level of beach (marine or freshwater) swimmer usage;
- Frequency of exceedances of WQOs; and
- Existing programs designed to reduce bacteria loading to surface waters.

Dischargers were placed into one of three groups (North, Central, and South), based on geographic location. Group N consists of dischargers located in watersheds within Orange County, the northernmost region watersheds included in these TMDLs. Group C consists of dischargers located in watersheds in northern San Diego County, outside the City of San Diego limits, the central region watersheds included in these TMDLs. Group S consists of dischargers who are located in watersheds within and south of the City of San Diego limits, the southernmost region watersheds included in these TMDLs. Table [Insert table number] shows the dischargers in each of the three groups.

[Insert table number]. *Responsible Municipalities and Lead Jurisdictions*[†]

Watershed	Waterbody***	Segment or Area**	Responsible Municipalities	Group
San Joaquin Hills HSA (901.11) & Laguna Beach HSA (901.12)	Pacific Ocean Shoreline	Cameo Cove at Irvine Cove Dr. - Riviera Way	City of Laguna Beach County of Orange Orange County Flood Control District Caltrans Owners/operators of small MS4s*	N
		at Heisler Park – North		
	Pacific Ocean Shoreline	at Main Laguna Beach	City of Aliso Viejo County of Orange City of Laguna Beach City of Laguna Woods Orange County Flood Control District Caltrans Owners/operators of small MS4s*	
		Laguna Beach at Ocean Avenue		
		Laguna Beach at Laguna Avenue		
		Laguna Beach at Cleo Street		
		Arch Cove at Bluebird Canyon Road		
Laguna Beach at Dumond Drive				
Aliso HSA (901.13)	Pacific Ocean Shoreline	Laguna Beach at Lagunita Place/Blue Lagoon Place at Aliso Beach	City of Aliso Viejo City of Laguna Beach City of Laguna Hills City of Laguna Niguel City of Laguna Woods City of Lake Forest City of Mission Viejo County of Orange Orange County Flood Control District Caltrans Owners/operators of small MS4s*	N
	Aliso Creek	The entire reach (7.2 miles) and associated tributaries Aliso Hills Channel, English Canyon Creek, Dairy Fork Creek, Sulphur Creek, and Wood Canyon Creek		
	Aliso Creek (mouth)	At creek mouth		
Dana Point HSA (901.14)	Pacific Ocean Shoreline	Aliso Beach at West Street	City of Dana Point City of Laguna Beach City of Laguna Niguel County of Orange Orange County Flood Control District Caltrans Owners/operators of small MS4s*	N
		Aliso Beach at Table Rock Drive		
		1000 Steps Beach at Pacific Coast Hwy at Hospital (9th Ave)		
		at Salt Creek (large outlet)		
		Salt Creek Beach at Salt Creek service road		
		Salt Creek Beach at Dana Strand Road		

[Insert table number]. Responsible Municipalities and Lead Jurisdictions[†] (Cont'd)

Watershed	Waterbody***	Segment or Area**	Responsible Municipalities	Group
Lower San Juan HSA (901.27)	Pacific Ocean Shoreline	At San Juan Creek	City of San Juan Capistrano City of Mission Viejo City of Laguna Hills City of Laguna Niguel City of Dana Point City of Rancho Santa Margarita	N
	San Juan Creek	Lower 1 mile	County of Orange Orange County Flood Control District	
	San Juan Creek (mouth)	At creek mouth	Caltrans Owners/operators of small MS4s*	
San Clemente HA (901.30)	Pacific Ocean Shoreline	Poche Beach	City of San Clemente County of Orange Orange County Flood Control District Dana Point Caltrans Owners/operators of small MS4s*	N
		Ole Hanson Beach Club		
		Beach at Pico Drain		
		San Clemente City Beach at El Portal Street Stairs		
		San Clemente City Beach at Mariposa Street		
		San Clemente City Beach at Linda Lane		
		San Clemente City Beach at South Linda Lane		
		San Clemente City Beach at Lifeguard Headquarters		
		Under San Clemente Municipal Pier		
		San Clemente City Beach at Trafalgar Canyon (Trafalgar Lane)		
		San Clemente State Beach at Riviera Beach		
San Clemente State Beach at Cypress Shores				
San Luis Rey HU (903.00)	Pacific Ocean Shoreline	at San Luis Rey River Mouth	City of Oceanside City of Vista County of San Diego Caltrans Owners/operators of small MS4s* Controllable nonpoint sources	C

[Insert table number]. Responsible Municipalities and Lead Jurisdictions[†] (Cont'd)

Watershed	Waterbody***	Segment or Area**	Responsible Municipalities	Group
San Marcos HA (904.50)	Pacific Ocean Shoreline	at Moonlight State Beach	City of Carlsbad City of Encinitas City of Escondido City of San Marcos County of San Diego Caltrans Owners/operators of small MS4s* Controllable nonpoint sources	C
San Dieguito HU (905.00)	Pacific Ocean Shoreline	at San Dieguito Lagoon Mouth	City of Del Mar City of Escondido City of Poway City of San Diego City of Solana Beach County of San Diego Caltrans Owners/operators of small MS4s* Controllable nonpoint sources	C/S
Miramar Reservoir HA (906.10)	Pacific Ocean Shoreline	Torrey Pines State Beach at Del Mar (Anderson Canyon)	City of Del Mar City of Poway City of San Diego County of San Diego Caltrans Owners/operators of small MS4s*	S
Scripps HA (906.30)	Pacific Ocean Shoreline	La Jolla Shores Beach at El Paseo Grande La Jolla Shores Beach at Caminito Del Oro La Jolla Shores Beach at Vallecitos La Jolla Shores Beach at Ave de la Playa at Casa Beach, Children's Pool South Casa Beach at Coast Blvd. Whispering Sands Beach at Ravina Street Windansea Beach at Vista de la Playa Windansea Beach at Bonair Street Windansea Beach at Playa del Norte Windansea Beach at Palomar Ave. at Tourmaline Surf Park Pacific Beach at Grand Ave.	City of San Diego Owners/operators of small MS4s*	S

[Insert table number]. *Responsible Municipalities and Lead Jurisdictions[†] (Cont'd)*

Watershed	Waterbody***	Segment or Area**	Responsible Municipalities	Group
Tecolote HA (906.50)	Tecolote Creek	Tecolote Creek	City of San Diego Owners/operators of small MS4s*	S
Mission San Diego HSA (907.11) & Santee HSA (907.12)	Forrester Creek	Lower 1 mile	City of El Cajon City of Santee County of San Diego Caltrans Owners/operators of small MS4s*	S
	San Diego River, Lower	Lower 6 miles	City of El Cajon City of La Mesa City of San Diego City of Santee County of San Diego Caltrans Owners/operators of small MS4s*	S
	Pacific Ocean Shoreline	At San Diego River Mouth at Dog Beach	Padre Dam Water Treatment Facility	
Chollas HSA (908.22)	Chollas Creek	Lower 1.2 miles	City of La Mesa City of Lemon Grove City of San Diego County of San Diego San Diego Unified Port District Caltrans Owners/operators of small MS4s*	S

[†] Developed based on the 2002 Clean Water Act Section 303(d) List

*Owners/operators of small MS4s are listed in Appendix Q.

** As listed on the 2002 Clean Water Act Section 303(d) List

*** Listings on the 2006 and 2008 303(d) List compared to listing shown above are provided in Appendix T to the Technical Report.

Impaired waters were given a priority number of 1, 2, or 3 with 1 being the highest priority. Priority 1 waters also included waterbodies likely to be removed from the Clean Water Act Section 303(d) List of Water Quality Limited Segments. Priority schemes are designated within watersheds. A prioritized list of impaired beaches and creeks included in this project is shown below in Table [Insert table number].

[Insert table number]. *Prioritized List of Impaired Waters for TMDL Implementation*

Watershed	Waterbody ^b	Segment or Area ^a	Priority
San Joaquin Hills HSA (901.11) & Laguna Beach HSA (901.12)	Pacific Ocean Shoreline	Cameo Cove at Irvine Cove Dr. - Riviera Way	1
		at Heisler Park – North	1
	Pacific Ocean Shoreline	at Main Laguna Beach	1
		Laguna Beach at Ocean Avenue	1
		Laguna Beach at Laguna Avenue	1
		Laguna Beach at Cleo Street	1
		Arch Cove at Bluebird Canyon Road	1
		Laguna Beach at Dumond Drive	1
Aliso HSA (901.13)	Pacific Ocean Shoreline	Laguna Beach at Lagunita Place/Blue Lagoon Place at Aliso Beach	1
	Aliso Creek	The entire reach (7.2 miles) and associated tributaries Aliso Hills Channel, English Canyon Creek, Dairy Fork Creek, Sulphur Creek, and Wood Canyon Creek	3
	Aliso Creek (mouth)	At creek mouth	3
Dana Point HSA (901.14)	Pacific Ocean Shoreline	Aliso Beach at West Street	1
		Aliso Beach at Table Rock Drive	1
		1000 Steps Beach at Pacific Coast Hwy at Hospital (9th Ave)	1
		at Salt Creek (large outlet)	1
		Salt Creek Beach at Salt Creek service road	2
		Salt Creek Beach at Dana Strand Road	2
Lower San Juan HSA (901.27)	Pacific Ocean Shoreline	At San Juan Creek	1
	San Juan Creek	Lower 1 mile	3
	San Juan Creek (mouth)	At creek mouth	1

[Insert table number]. *Prioritized List of Impaired Waters for TMDL Implementation* †
(Cont'd)

Watershed	Waterbody^b	Segment or Area^a	Priority
San Clemente HA (901.30)	Pacific Ocean Shoreline	at Poche Beach (large outlet)	1
		Ole Hanson Beach Club Beach at Pico Drain	1
		San Clemente City Beach at Linda Lane	1
		San Clemente State Beach at Riviera Beach	1
		San Clemente City Beach at Mariposa Street	2
		San Clemente State Beach at Cypress Shores	2
		San Clemente City Beach at Lifeguard Headquarters	2
		Under San Clemente Municipal Pier	2
		San Clemente City Beach at El Portal Street Stairs	2
		San Clemente City Beach at South Linda Lane	3
		San Clemente City Beach at Trafalgar Canyon (Trafalgar Lane)	3
San Luis Rey HU (903.00)	Pacific Ocean Shoreline	at San Luis Rey River Mouth	2
San Marcos HA (904.50)	Pacific Ocean Shoreline	at Moonlight State Beach	1
San Dieguito HU (905.00)	Pacific Ocean Shoreline	at San Dieguito Lagoon Mouth	1
Miramar Reservoir HA (906.10)	Pacific Ocean Shoreline ^a	Torrey Pines State Beach at Del Mar (Anderson Canyon)	1
Scripps HA (906.30)	Pacific Ocean Shoreline	La Jolla Shores Beach at El Paseo Grande	1
		La Jolla Shores Beach at Caminito Del Oro	1
		La Jolla Shores Beach at Vallecitos	1
		La Jolla Shores Beach at Ave de la Playa	1
		at Casa Beach, Children's Pool	1
		South Casa Beach at Coast Blvd.	1
		Whispering Sands Beach at Ravina Street	1
		Windansea Beach at Vista de la Playa	1
		Windansea Beach at Bonair Street	1
		Windansea Beach at Playa del Norte	1
		Windansea Beach at Palomar Ave.	1
		at Tourmaline Surf Park	1
Pacific Beach at Grand Ave.	1		
Tecolote HA (906.10)	Tecolote Creek	The entire reach and associated tributaries	1

[Insert table number]. *Prioritized List of Impaired Waters for TMDL Implementation* †
 (Cont'd)

Watershed	Waterbody ^b	Segment or Area ^a	Priority
Mission San Diego HSA (907.11) & Santee HSA (907.12)	San Diego River, Lower	Lower 6 miles	3
	Pacific Ocean Shoreline	At San Diego River Mouth at Dog Beach	3
	Forrester Creek	Lower 1 mile	3
Chollas HSA (908.22)	Chollas Creek	Bottom 1.2 miles	3

† Developed based on the 2002 Clean Water Act Section 303(d) List

a As listed on the 2002 Clean Water Act Section 303(d) List

b Listings on the 2006 and 2008 303(d) List compared to listing shown above are provided in Appendix T to the Technical Report.

Beginning with the 2008 303(d) List, specific beach segments of the Pacific Ocean shoreline are listed individually, and may not be identified in the same way as those segments listed in the table above. Several of the segments or areas in the list above have been delisted or redefined in the 2008 303(d) List. In addition, other segments or areas have been added to the Pacific Ocean shorelines listed above. The TMDLs that address the Pacific Ocean shorelines identified in the 2002 303(d) List are assumed to be applicable to all the beaches located on the shorelines of the hydrologic subareas (HSAs), hydrologic areas (HAs), and hydrologic units (HUs) listed above, or as listed individually in the 2008 and future 303(d) Lists.

The prioritized list above recognizes that there are segments or areas where bacterial water quality improvements are most likely to occur first (Priority 1), and segments or areas where bacterial water quality improvements are most likely to require more time to achieve (Priority 3). In some cases, receiving water limitations are already being met, resulting in the delisting of those segments or areas from the 2006 and/or 2008 303(d) Lists. The protection of the REC-1 beneficial use of those delisted segments or areas, however, must also be maintained, and those segments or areas must remain off future iterations of the 303(d) List.

The BLRPs or CLRPs that are developed are expected to focus on implementing BMP programs to reduce bacteria loads to those segments or areas where exceedances of the receiving water limitations continue to occur. The BMP programs that are included in the BLRPs or CLRPs should include short-term and long-term implementation strategies. The short-term strategies should be able to result in bacteria load reductions that can result in achieving the TMDLs for Priority 1 segments or areas. The long-term strategies should be able to result in bacteria load reductions that will result in achieving the TMDLs in all segments or areas by the end of the TMDL compliance schedules and maintain the protection of the REC-1 beneficial use after the end of the TMDL compliance schedules.

In the segments or areas where the receiving water limitations are being met, the BLRPs or CLRPs also need to include a monitoring component to ensure that protection of the REC-1 beneficial use is maintained. If receiving water limitations are exceeded in the future in

those locations, the BLRPs or CLRPs must include the implementation of a BMP program that will ensure that the TMDLs will be achieved by the end of the TMDL compliance schedules.

(2) Compliance Schedule

Full implementation of the TMDLs for indicator bacteria shall be completed as soon as possible, but no later than 10 years⁸¹ from the effective date⁸² for both the dry weather and wet weather TMDLs, unless an alternative compliance schedule is approved as part of a Comprehensive Load Reduction Plan, as described in the following section. The effective date of these TMDLs is **[insert date on which OAL approves this Basin Plan amendment]**.

The San Diego Water Board will require the Phase I MS4s to submit Bacteria Load Reduction Plan (BLRPs) outlining a proposed BMP program that will be capable of achieving the necessary load reductions required to attain the bacteria TMDLs in the receiving waters, acceptable to the Regional Board within 18 months after the effective date of these TMDLs. The Phase I MS4 BLRPs should be incorporated into their Watershed Runoff Management Programs. Caltrans will also be required to develop and submit BLRPs outlining a proposed BMP program that will be capable of achieving the necessary load reductions required to attain the TMDLs in the receiving waters, acceptable to the Regional Board, within 18 months after the effective date of these TMDLs. To the extent possible, the Phase I MS4s and Caltrans should develop and coordinate the elements of their BLRPs together. The BLRPs will allow the Phase I MS4s and Caltrans to propose a compliance schedule for WQBELs that implement the bacteria TMDLs. The compliance schedule for the Phase I MS4s and Caltrans to attain their respective WLAs and the TMDLs in the receiving waters will be based on the BMP program proposed in the BLRPs.

For watersheds in **[Insert table number]** where there are no longer any impairments listed on the 2008 303(d) List, the Phase I MS4s and Caltrans are not required to submit a BLRP or CLRP within 18 months of the effective date of these TMDLs. If, however, any segment of a waterbody for the watershed (Pacific Ocean shoreline, creek, or mouth as shown in Table 11-5) is re-listed on a future 303(d) List for any type of indicator bacteria, the Phase I MS4s and Caltrans will be required to submit a BLRP or CLRP within 6 months of the adoption of the 303(d) List by the San Diego Regional Board.

If the Phase I MS4s and Caltrans choose to submit BLRPs that address only bacteria, the proposed schedule for compliance with the wet weather and dry weather TMDLs cannot extend beyond 10 years from the effective date, and must include at least a milestone for achieving a 50 percent exceedance frequency reduction. Additional milestones for achieving exceedance frequency reductions (e.g., 25 and 75 percent) are encouraged, but may also be required by the Regional Board. If the BLRPs do not include a proposed compliance schedule that is acceptable to the Regional Board, the compliance schedule will be as follows.

⁸¹ If a Comprehensive Load Reduction Plan (CLRP) is developed to address several pollutants, including bacteria, the implementation of the wet weather bacteria TMDLs shall be completed as soon as possible, but no later than 20 years from the effective date. See Alternative Compliance Schedules under section (j)(3).

⁸² The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.

The compliance schedule for achieving the dry weather and wet weather bacteria TMDLs (Tables [Insert table numbers], respectively) are structured in a phased manner, with 100 percent of dry weather exceedance frequency reductions, and 100 percent of wet weather exceedance frequency reductions within 10 years from the effective date. At the end of the dry weather TMDL compliance schedule, the receiving waters must not exceed the 30-day geometric mean REC-1 WQOs more than 0 percent of the time. At the end of the wet weather TMDL compliance schedule, the receiving waters must not exceed the single sample maximum REC-1 WQOs more than the wet weather allowable exceedance frequency. All of these reductions are aimed at restoring water quality to a level that supports REC-1 beneficial uses in the ocean shoreline and in impaired creeks. These reductions required by the compliance schedule vary on the timeline based on the priority scheme described in Table [Insert table number]. Intermediate milestone reductions in bacteria wasteloads are required sooner in the higher priority waters.

[Insert Table Number]. *Dry Weather Compliance Schedule and Milestones for Achieving Exceedance Frequency Reductions*

Compliance Year (year after OAL approval)	Required Exceedance Frequency Reduction		
	Priority 1	Priority 2	Priority 3
5	50% (All Dry Weather)		
6		50% (All Dry Weather)	
7			50% (All Dry Weather)
10+	100% (All Dry Weather)	100% (All Dry Weather)	100% (All Dry Weather)

[Insert Table Number]. *Wet Weather Compliance Schedule and Milestones for Achieving Exceedance Frequency Reductions*

Compliance Year (year after OAL approval)	Required Exceedance Frequency Reduction		
	Priority 1	Priority 2	Priority 3
5	50% (All Wet Weather)		
6		50% (All Wet Weather)	
7			50% (All Wet Weather)
10+	100% (All Wet Weather)	100% (All Wet Weather)	100% (All Wet Weather)

The first four years of the compliance schedules above do not require any exceedance frequency reductions from current conditions. These years will provide the dischargers time to identify sources, develop plans and implement enhanced and expanded BMPs capable of achieving the mandated decreases in exceedance frequencies of the REC-1 WQOs in the impaired beaches and creeks. The Regional Board may also include

additional milestones for achieving exceedance frequency reductions (e.g., 25 and 75 percent).

If appropriate and acceptable to the Regional Board, the proposed compliance schedules included in the BLRPs will be incorporated into the various TMDL implementing orders, such as the municipal Phase I MS4 stormwater WDRs and NPDES requirements. Otherwise, the compliance schedules given above will be implemented.

(3) Alternative Compliance Schedules

The dischargers to Chollas Creek in the Chollas HSA watershed will have to address reductions from multiple water quality improvement projects in addition to bacteria, namely TMDLs for copper, lead, zinc, and diazinon,⁸³ and a trash reduction program. Addressing multiple pollutants (in addition to bacteria) will require the development and submittal of a Comprehensive Load Reduction Plan (CLRP) by the Phase I MS4s and Caltrans. The CLRP will allow the Phase I MS4s and Caltrans to propose a compliance schedule to address impairments due to loads from multiple pollutants, including bacteria.

Full implementation of the TMDLs for indicator bacteria included under the CLRP for the Chollas HSA watershed shall be completed as soon as possible, but cannot extend beyond 10 years for the dry weather bacteria TMDLs and 20 years for the wet weather bacteria TMDLs. The proposed compliance schedules for the bacteria TMDLs included under the CLRP must include at least a milestone for achieving a 50 percent exceedance frequency reduction. Additional milestones for achieving exceedance frequency reductions (e.g., 25 and 75 percent) are encouraged. If the CLRP for the Chollas HSA watershed does not include a proposed compliance schedule, specifically for bacteria, the compliance schedule will be as given in Table **[Insert table number]**.

[Insert table number]. *Alternative Compliance Schedule
 Chollas Creek*

Compliance Year*	Exceedance Frequency Reduction Milestone**
7	50% for dry weather
10	100% for dry weather 50% for wet weather
20	100% for wet weather

* Year after effective date for the TMDL that initiated the development of the CLRP.

** The Regional Board may also include additional milestones for achieving exceedance frequency reductions (e.g., 25 and 75 percent).

Likewise, dischargers in other bacteria-impaired watersheds may also find that undertaking concurrent load reduction programs for other pollutant constituents (e.g. metals, pesticides, trash, nutrients, sediment, etc.) together with the bacteria load reduction requirements in these TMDLs, is more cost effective, and has fewer potential environmental impacts from structural BMP construction. In these cases, the dischargers may develop and submit a CLRP for all constituents of concern in lieu of the BLRP, and to

⁸³ As described in *Total Maximum Daily Loads for Dissolved Copper, Lead, and Zinc in Chollas Creek, Tributary to San Diego Bay*, adopted under Resolution No. R9-2007-0043, and *Total Maximum Daily Load for Diazinon in Chollas Creek Watershed, San Diego County*, adopted under Resolution No. R9-2002-0123.

propose an appropriately tailored alternative compliance schedule. Proposed alternative compliance schedules tailored under this provision may not extend beyond 10 years for the dry weather bacteria TMDLs and 20 years for the wet weather bacteria TMDLs from the effective date, and must include at least a milestone for achieving a 50 percent exceedance frequency reduction. Additional milestones for achieving exceedance frequency reductions (e.g., 25 and 75 percent) are encouraged, but may also be required by the Regional Board.

If appropriate and acceptable to the Regional Board, the proposed alternative compliance schedules included in the CLRPs will be incorporated into the various TMDL implementing orders. Otherwise, the alternative compliance schedule given above as an example for Chollas Creek will be implemented for a CLRP that is developed for any other watershed.

(k) TMDL Implementation Milestones

Accomplishing the goals of the implementation plan will be achieved by cooperative participation from all responsible parties, including the San Diego Water Board. Major milestones are described in Table [Insert table number].

[Insert table number]. *TMDL Implementation Milestones*

Item	Implementation Action	Responsible Parties	Date
1	Obtain approval of Beaches and Creeks Indicator Bacteria TMDLs from the State Water Board, OAL, and USEPA.	San Diego Water Board	Effective date ^a [Insert Date of OAL Approval]
2	Issue investigative orders to Phase I MS4s and Caltrans requiring the development and submittal of BLRPs or CLRPs acceptable to the Regional Board within 18 months of effective date	San Diego Water Board	As soon as possible (if necessary)
3	Issue, reissue, or revise general WDRs and NPDES requirements for the Phase I MS4s to incorporate the requirements for complying with the TMDLs and MS4 WLAs.	San Diego Water Board	Within 5 years of effective date ^b
4	Issue, reissue, or revise general WDRs and NPDES requirements for Caltrans to incorporate the requirements for complying with the TMDLs and Caltrans WLAs.	San Diego Water Board, State Water Board	Within 5 years of effective date ^b
5	Issue, reissue, or revise the WDRs and NPDES requirements for POTWs and wastewater collection systems to incorporate new requirements for sewer line surveillance and maintenance, consistent with the zero WLA.	San Diego Water Board	Within 5 years of effective date ^b
6	Meet 50% Dry Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 1 watersheds.	Municipal Dischargers, ^d Caltrans, Agriculture/Livestock Dischargers	5 years after effective date ^b
7	Meet 50% Wet Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 1 watersheds.	Municipal Dischargers, ^d Caltrans, Agriculture/Livestock Dischargers	5 years after effective date ^b
8	Meet 50% Dry Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 2 watersheds.	Municipal Dischargers, ^d Caltrans, Agriculture/Livestock Dischargers	6 years after effective date ^b
9	Meet 50% Wet Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 2 watersheds.	Municipal Dischargers, ^d Caltrans, Agriculture/Livestock Dischargers	6 years after effective date ^b
10	Meet 50% Dry Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 3 watersheds.	Municipal Dischargers, ^d Caltrans, Agriculture/Livestock Dischargers	7 years after effective date ^b
11	Meet 50% Wet Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 3 watersheds.	Municipal Dischargers, ^d Caltrans, Agriculture/Livestock Dischargers	7 years after effective date ^b
12	Meet 100% Dry Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in all watersheds.	Municipal Dischargers, ^d Caltrans, Agriculture/Livestock Dischargers	10 years after effective date ^{b,c}

Item	Implementation Action	Responsible Parties	Date
13	Meet 100% Wet Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in all watersheds.	Municipal Dischargers, ^d Caltrans, Agriculture/Livestock Dischargers	10 to 20 years after effective date ^{b,c}
14	Amend discharge conditions of appropriate waivers to be consistent with the requirements for complying with the TMDLs and Agriculture LAs.	San Diego Water Board	As needed after effective date
15	Issue individual or general WDRs or Basin Plan prohibitions consistent with the TMDLs and LAs for controllable nonpoint source discharges not eligible conditional waivers.	San Diego Water Board	As needed after effective date
16	Submit BLRP or CLRP Progress Reports to San Diego Water Board	Phase I MS4s, Phase II MS4s, Caltrans	In accordance with BLRPs or CLRPs accepted by the Regional Board
17	Enroll Phase II MS4s identified as significant sources of bacteria to receiving waters under State Water Board general WDRs and NPDES requirements.	San Diego Water Board	As needed after effective date
18	Issue individual or general WDRs and NPDES requirements consistent with the TMDLs and WLAs for specific Phase II MS4s or category of Phase II MS4s.	San Diego Water Board	As needed after effective date
19	Take enforcement actions against controllable point sources and nonpoint sources to attain compliance with the WLAs and LAs.	San Diego Water Board	As needed after effective date
20	Recommend TMDL-related projects as high priority for grant funds.	San Diego Water Board	As needed after effective date
21	Amend the Basin Plan and/or provisions of these TMDLs (e.g., usage frequency or creeks or watershed-specific allowable exceedance frequency) based on evidence provided by dischargers and/or other entities	San Diego Water Board, Municipal Dischargers, ^d Caltrans, Agriculture/Livestock Dischargers	Within 5 years after effective date ^e

^a Effective date = date of approval by OAL

^b May defer to alternative compliance schedule proposed in BLRPs or CLRPs that have been incorporated into implementing orders (e.g., WDRs, cleanup and abatement orders)

^c Compliance schedules for dry weather and wet weather TMDLs proposed in BLRPs cannot extend beyond 10 years from the effective date. Compliance schedules proposed in CLRPs for dry weather TMDLs cannot extend beyond 10 years and for wet weather TMDLs cannot extend beyond 20 years from the effective date.

^d Because there are no Phase II MS4s enrolled under the State General Permit for Small MS4s, discharges from Phase II MS4s are not permitted (i.e., WLA = 0) and Municipal Dischargers are only the Phase I MS4s in this Implementation Milestone item. When a Phase II MS4 is enrolled under the State General Permit for Small MS4s or issued an individual NPDES permit, the Municipal Dischargers will be both the Phase I MS4s and Phase II MS4s in this Implementation Milestone item.

^e If no Basin Plan amendment has been initiated within 5 years of the effective date of this TMDL Basin Plan amendment, and the Executive Officer determines, with Regional Board concurrence, that insufficient data exist to support the initiation of a Basin Plan amendment, a subsequent Basin Plan amendment to revise the requirements and/or provisions for the implementation of these TMDLs will not be initiated until the Executive Officer determines the conditions to initiate a Basin Plan amendment are met.

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ATTACHMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Thomas Howard
Executive Director
California State Water Resources Control Board
P.O. Box 100
Sacramento, California 95812-0100

Dear Mr. Howard:

Thank you for submitting the Basin Plan Amendment containing the Total Maximum Daily Load (TMDL) for indicator bacteria in twenty beaches and creeks in the San Diego Region. Based on the U.S. Environmental Protection Agency (EPA) review of the TMDL submittal under Clean Water Act (CWA) section 303(d), I have concluded the TMDL adequately addresses the pollutants of concern and, upon implementation, will result in attainment of the applicable water quality standards for each beach and freshwater creek. All required elements are adequately addressed; therefore, the TMDL is hereby approved pursuant to CWA section 303(d)(2).

EPA received the State Water Resources Control Board's complete TMDL package for approval on May 18, 2011. The TMDL includes load and wasteload allocations as needed, takes into consideration seasonal variation and critical conditions, and provides an adequate margin of safety. The State has provided adequate opportunities for public review and comment on the TMDL, and demonstrated how public comments were considered in the final TMDL.

The TMDL submittal also contains a detailed plan for implementing the TMDL. Current federal regulations do not define TMDLs as containing implementation plans; therefore, EPA is not taking action on the implementation plan provided with this TMDL. However, EPA concurs with the State's proposed implementation approaches.

If you have any questions concerning this approval, please call me at (415) 972-3572 or Cindy Lin at (213) 244-1803.

Sincerely yours,


Alexis Strauss
Director, Water Division

22 June 2011

Enclosure

cc: David Gibson, Executive Officer
California Regional Water Quality Control Board, San Diego Region

ATTACHMENT

24

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

2375 Northside Drive, Suite 100, San Diego, CA 92108
(619) 516-1990 • Fax (619) 516-1994
<http://www.waterboards.ca.gov>

**ORDER R9-2016-0116
NPDES NO. CA0109134**

**WASTE DISCHARGE REQUIREMENTS
FOR GENERAL DYNAMICS
NATIONAL STEEL AND SHIPBUILDING COMPANY (NASSCO)
DISCHARGE TO SAN DIEGO BAY**

The following Discharger is subject to waste discharge requirements (WDRs) set forth in this Order:

Table 1. Discharger Information

Discharger	General Dynamics National Steel and Shipbuilding Company (NASSCO)
Name of Facility	General Dynamics National Steel and Shipbuilding Company (NASSCO)
Facility Address	2798 East Harbor Drive
	San Diego, CA 92113
	San Diego County

Table 2. Discharge Locations

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
IX-1 (Ion Exchange Treatment System)	Hydrostatic Relief and Ways Flood Water	32° 41' 30" N	-117° 8' 26" W	San Diego Bay
M-1 (Floating Dry Dock)	Ballast Water	32° 41' 33" N	-117° 8' 37" W	San Diego Bay
M-2 (Graving Dock Flood Water)	Dewatering Flood Water	32° 41' 27" N	-117° 8' 25" W	San Diego Bay
SW-1 (North Shipyard)	Northwest Storm Water Collection	32° 41' 25" N	-117° 8' 33" W	San Diego Bay
SW-2 (South Shipyard)	Southwest Storm Water Collection	32° 41' 21" N	-117° 8' 20" W	San Diego Bay

Table 3. Administrative Information

This Order was adopted on:	December 14, 2016
This Order shall become effective on:	February 1, 2017
This Order shall expire on:	January 31, 2022
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDRs in accordance with title 23, California Code of Regulations (CCR), and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	180 days prior to the Order expiration date
The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, San Diego Region have classified this discharge as follows:	Major

I, David W. Gibson, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, San Diego Region, on the date indicated above.



David W. Gibson, Executive Officer

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I. FACILITY INFORMATION

The General Dynamics National Steel And Shipbuilding Company (NASSCO or Discharger) provides a full range of ship construction, conversion, and repair capabilities to the U.S. Navy and commercial customers at the General Dynamics NASSCO shipyard facility (Facility). Information describing the Facility is summarized in Table 1 and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Discharger's permit application.

II. FINDINGS

The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), finds:

- A. Legal Authorities.** This Order serves as waste discharge requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (Water Code) (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as a National Pollutant Discharge Elimination System (NPDES) permit authorizing the Discharger to discharge into waters of the U.S. at the discharge locations described in Table 2 subject to the WDRs in this Order.
- B. Background and Rationale for Requirements.** The San Diego Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through E and G through I are also incorporated into this Order.
- C. Provisions and Requirements Implementing State Law.** The provisions/requirements in subsections VI.A.2 are included to implement State law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES permit violations.
- D. Executive Officer Delegation of Authority.** The San Diego Water Board by prior resolution has delegated all matters that may legally be delegated to its Executive Officer to act on its behalf pursuant to Water Code section 13223. Therefore, the Executive Officer is authorized to act on the San Diego Water Board's behalf on any matter within this Order unless such delegation is unlawful under Water Code section 13223 or this Order explicitly states otherwise.
- E. Notification of Interested Parties.** The San Diego Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in section VIII of the Fact Sheet (Attachment F).
- F. Consideration of Public Comment.** The San Diego Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in section VIII of the Fact Sheet (Attachment F).

THEREFORE, IT IS HEREBY ORDERED that this Order supersedes Order No. R9-2009-0099 except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the San Diego Water Board from taking enforcement action for past violations of the previous Order.

III. DISCHARGE PROHIBITIONS

- A.** The Discharger must comply with discharge prohibitions contained in chapter 4 of the San Diego Water Board's *Water Quality Control Plan for the San Diego Basin* (Basin Plan) and other applicable statewide water quality control plans and policies described in Attachment F of this Order. All such prohibitions are incorporated by reference into this Order as if fully set forth herein. The San Diego Water Board's Basin Plan Waste Discharge Prohibitions are summarized in Attachment H as a condition of this Order.
- B.** The dumping, deposition, or discharge of the wastes directly into waters of the U.S. including but not limited to San Diego Bay and Chollas Creek, or adjacent to such waters in any manner which may permit its being transported into the waters is prohibited. The following are the types of wastes that are likely to be generated at the Facility:
1. Paint, including paint chips and overspray.
 2. Blasting materials.
 3. Water contaminated with waste, including abrasive blast materials, paint, oils, fuels, lubricants, solvents, or petroleum.
 4. Hydroblast water.
 5. Treated or untreated sewage.
 6. Tank cleaning water, including water from tank cleaning to remove sludge or dirt.
 7. Clarified water from oil and water separator.
 8. Steam cleaning water.
 9. Pipe and tank hydrostatic test water, unless regulated by an NPDES permit.
 10. Hydraulic oil.
 11. Fuel.
 12. Trash.
 13. Refuse and rubbish including but not limited to cans, bottles, paper, plastics, vegetable matter or dead animals.
 14. Fiberglass dust.
 15. Swept materials.
 16. Ship repair and maintenance activity debris.
 17. Waste zinc plates.
 18. Demineralizer and reverse osmosis brine.
 19. Oily bilge water.
- C.** The discharge of waste to waters of the U.S. including but not limited to San Diego Bay and Chollas Creek, is prohibited except as specifically authorized by this Order or another NPDES permit.
- D.** The discharge of industrial process water (other than shipboard cooling water), including hydroblast water, to waters of the U.S. including but not limited to San Diego Bay and Chollas Creek is prohibited except as specifically authorized by this order or another NPDES permit.
- E.** The discharge of materials of petroleum origin to waters of the U.S. including but not limited to San Diego Bay and Chollas Creek in sufficient quantities to be visible is prohibited.

- F. Discharges to waters of the U.S. including but not limited to San Diego Bay and Chollas Creek, containing a hazardous substance equal to or in excess of a reportable quantity listed in title 40 Code of Federal Regulations (40 CFR) part 117, *Determination of Reportable Quantities for Hazardous Substances*, and/or 40 CFR part 302, *Designation, Reportable Quantities, and Notification*, are prohibited.
- G. The discharge of wastes and pollutants from underwater operations, such as underwater paint and coating removal and underwater hull cleaning, is prohibited. This prohibition does not apply to the discharge of marine fouling organisms removed from unpainted and uncoated surfaces by underwater operations or to discharges that result from the cleaning of floating booms.
- H. The discharge of polychlorinated biphenyls (PCBs) to to waters of the U.S. including but not limited to San Diego Bay and Chollas Creek is prohibited.
- I. The discharge of flood waters from the graving dock (Discharge Point No. M-2) more than 10 times per year is prohibited.
- J. The addition of chlorine or other additive pollutants to the fire protection system, potable water system, steam system, or dry dock ballast tanks is prohibited.
- K. The discharge of the first one (1) inch of storm water runoff from all areas designated as Industrial High Risk areas, as described in section IV.A of this Order, is prohibited, unless pollutants in the discharge are reduced to levels that comply with the effluent limitations in section IV.B.1. Effluent limitations contained in section IV.B.1 are applicable to all discharges of storm water from Industrial High Risk Areas on the Facility.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Storm Water Risk Level Designation Definition

Industrial High Risk Areas. All areas where wastes or pollutants of significant quantities from ship construction, modification, repair, and maintenance activities (including abrasive blast grit material, primer, paint, paint chips, solvents, oils, fuels, sludges, detergents, cleansers, hazardous substances, toxic pollutants, nonconventional pollutants, materials of petroleum origin, or other substances of water quality significance) are subject to precipitation, storm water run-on, and/or storm water runoff. Except non-industrial areas such as administrative areas or parking lots, the entire Facility is designated an Industrial High Risk Area.

B. Effluent Limitations

1. Discharge Point Nos SW-1 and SW-2 – Industrial Storm Water

For discharges of storm water from Industrial High Risk Areas, the Discharger shall maintain compliance with the following effluent limitations:

Table 4. Effluent Limitations for the Industrial Storm Water

Parameter	Units	Effluent Limitations			
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum
Chronic Toxicity	Pass/Fail & % Effect	--	--	¹	--

¹ As specified in section VII.I. of this Order.

2. Discharge Point No. IX-1 – Ion Exchange Treatment System

For discharges from the Ion Exchange Treatment System, the Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. IX-1, with compliance measured at Monitoring Location No. IX-1, as described in the Monitoring and Reporting Program (MRP) (Attachment E):

Table 5. Effluent Limitations for the Ion Exchange Treatment System

Parameter	Units	Effluent Limitations			
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum
Oil and Grease	mg/L	25	40	--	75
Settleable Solids	mL/L	1.0	1.5	--	3.0
Turbidity	NTU	75	100	--	225
pH	pH units	--	--	--	1
Temperature	°F	--	--	--	2
Chronic Toxicity	Pass/Fail	³	--	3	--
Copper, Total Recoverable	µg/L	3.2	--	5.6	--

¹ Within limits of 7.0 – 9.0 at all times.

² At no time shall any discharge be greater than 20°F over the natural temperature of the receiving water.

³ As specified in section VII.I of this Order.

3. Discharge Point No. M-1 –Ballast Water

The Discharger must comply with narrative Best Management Practices (BMPs) based effluent limitations pursuant to section VI.C.3 of this Order.

4. Discharge Point No. M-2 - Graving Dock Flood Water

For discharges of Graving Dock Flood Water, the Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. M-2, with compliance measured at Monitoring Location No. M-2, as described in the attached MRP (Attachment E):

Table 6. Effluent Limitations for Graving Dock Flood Water

Parameter	Units	Effluent Limitations			
		Average Monthly ⁴	Average Weekly	Maximum Daily	Instantaneous Maximum
Oil and Grease	mg/L	25	40	--	75
Settleable Solids	mL/L	1.0	1.5	--	3.0
Turbidity	NTU	75	100	--	225
pH	pH units	--	--	--	1
Temperature	°F	--	--	--	2
Chronic Toxicity	Pass/Fail	--	--	3	--
Copper, Total Recoverable	µg/L	--	--	10.0	--
Zinc, Total Recoverable	µg/L	--	--	95	--

Parameter	Units	Effluent Limitations			
		Average Monthly ⁴	Average Weekly	Maximum Daily	Instantaneous Maximum

- ¹ Within limits of 7.0 – 9.0 at all times.
- ² At no time shall any discharge be greater than 20°F over the natural temperature of the receiving water.
- ³ As specified in section VII.I of this Order.
- ⁴ The Average Monthly Effluent Limitations only apply if there is a discharge more than one day in a 30 day period.

C. Industrial Storm Water Discharge Specifications

1. Pollutant Reduction to Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT).

The Discharger shall reduce pollutants in storm water discharges from Industrial High Risk Areas as follows:

- a. Attain the technology–based standards of BAT for toxic and non-conventional pollutants, and BCT for conventional pollutants.
- b. Attain compliance with applicable effluent limitations and requirements set forth in section IV.B of this Order and water quality standards set forth in section V of this Order.

2. Storm Water Pollution Prevention Plan (SWPPP) Requirements

- a. The Discharger shall continue to maintain and implement an effective SWPPP designed to reduce or prevent the discharge of pollutants from industrial activities to the technology–based standards of BAT for toxic and non-conventional pollutants, and BCT for conventional pollutants.
- b. The SWPPP shall include identification, assignment, and guidance for implementation of measures and BMPs to control discharges from industrial activities and prevent the discharge of storm water to the receiving water. The BMPs and measures shall be selected to achieve BAT/BCT and compliance with all receiving water limitations.
- c. At a minimum, the SWPPP shall contain the elements and be implemented in accordance with Attachment G of this Order. The SWPPP elements shall be incorporated into the overall BMP Program.
- d. The relevant portions of the SWPPP may be incorporated into another plan, such as a BMP Program, in order to comply with the requirements of this Order.
- e. The SWPPP shall be reviewed annually and revised as necessary.

3. Numeric Action Levels (NALs) for Industrial High Risk

a. NAL Exceedance Determination Method

- i. **Annual NAL Exceedance.** The Discharger shall determine the average concentration for each parameter using the results of all industrial storm water sampling and analytical results for the entire Facility for the reporting year (i.e., all "effluent" data). This average concentration for each parameter shall be compared to the corresponding annual NAL values in Table G-1. If composite sampling or flow-weighted measurements are used in accordance with standard practices, the average concentrations shall be calculated in accordance with the *U.S. EPA Industrial Stormwater Monitoring and Sampling*

*Guide.*¹ An annual NAL exceedance occurs when the average of all the analytical results for a parameter from samples taken within a reporting year exceeds an annual NAL value for that parameter listed in Table G-1 (or is outside the NAL pH range) The Discharger has the option of calculating the flow-weighted average concentration for all industrial storm water effluent data for the entire Facility as shown below to compare the corresponding annual NAL values in Table G-1:

$$FWAC = \frac{\sum_{n=1}^{n=9} Q_n C_n}{\sum_{n=1}^{n=9} Q_n}$$

Where:

FWAC = Flow weighted average concentration

Q_n = Flow rate of discharge at time of sample collection

C_n = Concentration of chemical in the collected sample

n = Number of discharge points

The flow rate for each discharge point is multiplied by the concentration (C) in the sample from that discharge point. This sum is divided by the total flow rate for all of the discharge points.

For calculating the average, all effluent sampling analytical results that are reported by the laboratory as “non-detect” or less than the Method Detection Limit (MDL), a value of zero shall be used. Any results reported by the laboratory as “Detected Not Quantifiable” or less than the Minimum Level (ML) but above the MDL, a value of the MDL plus half the difference between the MDL and the ML shall be used.

- ii. **Instantaneous Maximum NAL Exceedance.** The Discharger shall compare all industrial storm water analytical results from each distinct sample (grab or composite) to the corresponding instantaneous maximum NAL values in Table G-1. An instantaneous maximum NAL exceedance occurs when two or more analytical results for TSS, oil and grease, or pH from samples taken within a reporting year exceed the instantaneous maximum NAL value or is outside the NAL pH range.
 - iii. The NALs described in Table G-1 of Attachment G of this Order are used as numeric thresholds for corrective action. An exceedance of a NAL is not a violation of this Order.
- b. **NAL Exceedance Response Actions (ERAs)**
- i. **Baseline Status – No Exceedance**
The Discharger will automatically be placed in Baseline status at the beginning of the permit term.
 - ii. **Level 1 Status**
A Discharger’s Baseline status for any given parameter shall change to Level 1 status if sampling results indicate an NAL exceedance for that same parameter.

¹ U.S. EPA. “*Industrial Stormwater Monitoring and Sampling Guide.*” March 2009. EPA 832-B-09-003 Web 7 April 2014. <http://www.epa.gov/npdes/pubs/msgp_monitoring_guide.pdf>.

Level 1 status will commence on July 1 following the reporting year during which the exceedance(s) occurred.

- a) **Level 1 ERA Evaluation.** By October 1 following commencement of Level 1 status for any parameter with sampling results indicating an NAL exceedance, the Discharger shall:
 - (1) Complete an evaluation of the industrial pollutant sources at the Facility that are or may be related to the NAL exceedance(s); and,
 - (2) Identify in the evaluation the corresponding Best Management Practices (BMPs) in the SWPPP and any additional BMPs and SWPPP revisions necessary to prevent future NAL exceedances and to comply with the requirements of this Order. Although the evaluation may focus on the drainage areas where the NAL exceedance(s) occurred, all drainage areas shall be evaluated.
- b) **Level 1 ERA Report.** Based on the above evaluation, the Discharger shall, as soon as practicable, but no later than January 1 following commencement of Level 1 status:
 - (1) Revise the SWPPP as necessary and implement any additional BMPs identified in the evaluation;
 - (2) Certify and submit a Level 1 ERA Report that includes the following:
 - (a) A summary of the Level 1 ERA Evaluation required in section IV.C.3.b.ii.a) above; and
 - (b) A detailed description of the SWPPP and any additional BMPs for each parameter that exceeded an NAL.
- c) **Return to Baseline Status.** A Discharger's Level 1 status for a parameter will return to Baseline status once a Level 1 ERA report has been completed, all identified additional BMPs have been implemented, and results from four consecutive QSEs that were sampled subsequent to BMP implementation indicate no additional NAL exceedances for that parameter.
- d) **NAL Exceedances Prior to Implementation of Level 1 Status BMPs.** Prior to the implementation of an additional BMP identified in the Level 1 ERA Evaluation or October 1, whichever comes first, sampling results for any parameter(s) being addressed by that additional BMP will not be included in the calculations of annual average or instantaneous NAL exceedances.

iii. **Level 2 Status**

A Discharger's Level 1 status for any given parameter shall change to Level 2 status if sampling results indicate an NAL exceedance for that same parameter while the Discharger is in Level 1. Level 2 status will commence on July 1 following the reporting year during which the NAL exceedance(s) occurred.

a) **Level 2 ERA Action Plan**

- (1) Dischargers with Level 2 status shall certify and submit a Level 2 ERA Action Plan that addresses each new Level 2 NAL exceedance by January 1 following the reporting year during which the NAL exceedance(s) occurred. For each new Level 2 NAL exceedance, the Level 2 Action Plan will identify which of the demonstrations in section X.B of Attachment G to this Order the Discharger has selected to perform. A new Level 2 NAL exceedance is any Level 2 NAL exceedance for 1) a new parameter in any drainage area, or 2) the same parameter that is being addressed in an existing Level 2 ERA Action Plan in a different drainage area.
- (2) The Level 2 ERA Action Plan shall at a minimum address the drainage areas with corresponding Level 2 NAL exceedances.
- (3) All elements of the Level 2 ERA Action Plan shall be implemented as soon as practicable and completed no later than 1 year after submitting the Level 2 ERA Action Plan.
- (4) The Level 2 ERA Action Plan shall include a schedule and a detailed description of the tasks required to complete the Discharger's selected demonstration(s) as described below in section X.B of Attachment G to this Order.

b) Level 2 ERA Technical Report

- (1) On **January 1** of the reporting year following the submittal of the Level 2 ERA Action Plan, a Discharger with Level 2 status shall certify and submit a Level 2 ERA Technical Report that includes one or more of the following demonstrations described in section X.B of Attachment G to this order:
 - (a) Industrial Activity BMPs Demonstration;
 - (b) Non-Industrial Pollutant Source Demonstration; or
 - (c) Natural Background Pollutant Source Demonstration.
- (2) Upon review of a Level 2 ERA Technical Report, the San Diego Water Board may reject the Level 2 ERA Technical Report and direct the Discharger to take further action(s) to comply with this Order.
- (3) Dischargers with Level 2 status who have submitted the Level 2 ERA Technical Report are only required to annually update the Level 2 ERA Technical Report based upon additional NAL exceedances of the same parameter and same drainage area, facility operational changes, pollutant source(s) changes, and/or information that becomes available via compliance activities (monthly visual observations, sampling results, annual evaluation, etc.). The Level 2 ERA Technical Report shall be certified and submitted by the Discharger with each Annual Report. If there are no changes prompting an update of the Level 2 ERA Technical Report, as specified above, the Discharger will provide this certification in the Annual Report that there have been no changes warranting re-submittal of the Level 2 ERA Technical Report.
- (4) Dischargers are not precluded from submitting a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status if

information is available to adequately prepare the report and perform the demonstrations described above. A Discharger who chooses to submit a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status will automatically be placed in Level 2 in accordance to the Level 2 ERA schedule.

c) Return to Baseline Status

- (1) The Discharger's Level 2 status will return to Baseline status once an Industrial Activity BMPs Demonstration has been submitted in accordance with section X.B.1 of Attachment G to this Order, measures and BMPs to prevent future NAL exceedance(s) for the Level 2 parameter(s) have been implemented, and the results from four subsequent consecutive Qualifying Storm Events (QSEs) sampled indicate no additional NAL exceedance(s) for that parameter(s). If future NAL exceedances occur for the same parameter(s), the Discharger's Baseline status will return to Level 2 status on July 1 of the year subsequent to the reporting year during which the NAL exceedance(s) occurred. Upon return to Level 2 status, the Discharger shall update the Level 2 ERA Technical Report.
- (2) The Discharger is ineligible to return to Baseline status if they submit any of the following:
 - (a) An Industrial Activity BMP Demonstration that the Discharger is not expected to eliminate future NAL exceedance(s) in accordance with section X.B.1.d of Attachment G to this Order;
 - (b) A Non-industrial Pollutant Source Demonstration in accordance with section X.B.2 of Attachment G to this Order; or
 - (c) A Natural Background Pollutant Source Demonstration in accordance with section X.B.3 of Attachment G to this Order.

d) Level 2 ERA Implementation Extension

- (1) If additional time is needed to submit the Level 2 ERA Technical Report, the Discharger shall be automatically granted a single time extension for up to six months upon submitting the following items as applicable:
 - (a) Reason(s) for the time extension;
 - (b) A revised Level 2 ERA Action Plan including a schedule and a detailed description of the necessary tasks still to be performed to complete the Level 2 ERA Technical Report; and
 - (c) A description of any additional temporary BMPs that will be implemented while permanent BMPs are being constructed.
- (2) Requests for extensions that total more than six months must be approved of in writing by the San Diego Water Board. The San Diego Water Board may do any of the following:
 - (a) Reject or revise the time allowed to complete Level 2 ERA Implementation Extensions,

- (b) Identify additional tasks necessary to complete the Level 2 ERA Technical Report, and/or
- (c) Require the Discharger to implement additional temporary BMPs.

4. Design Storm Standards for Storm Water Retention and Treatment Control BMPs

The Discharger shall maintain and operate the Facility's storm water diversion system to eliminate storm water discharges associated with industrial activity from the Facility. The Discharger shall maintain the current design ability to capture approximately 3.5 inches of rainfall from a 24-hour storm event.

D. Floating Dry Dock, Graving Dock, and Building Ways Discharge Specifications

1. The Discharger shall prevent or minimize the discharge of pollutants from any surface of its floating dry dock, graving dock, and building ways during submergence or flooding by implementing a BMP Program which shall incorporate the relevant SWPPP elements. The BMP Program shall include, at a minimum, specific management practices and standard operating procedures, good housekeeping practices, and provisions for inspections, records, and training.
2. As the Discharger performs construction, maintenance, and repair work, the Discharger shall remove spent abrasives, paint residues, particulate matter, and other debris and waste from surfaces that are reasonably accessible to the degree achievable by scraping, broom cleaning, and/or power and pressure washing as needed to achieve BAT and BCT. Prior to submergence or flooding, any other areas that were previously inaccessible shall be cleaned by scraping, broom cleaning, and/or power and pressure washing as soon as practical as needed to achieve BAT and BCT. The Discharger may then submerge the floating dry dock or flood the graving dock or building ways. This provision shall not apply in cases wherein a vessel must be introduced into the dry dock, graving dock, or building ways on an emergency basis, such as to prevent sinking or leakage of oil or another hazardous material. The Discharger shall notify the San Diego Water Board of such emergency circumstances as follows:
 - a. Any available information shall be provided orally or by e-mail within 24 hours after the time the Discharger becomes aware of the circumstances even if the vessel docks within these 24 hours.
 - b. A written report submission shall also be provided within five working days of the emergency docking. The report shall contain a description of the emergency circumstances including the identification of the floating dry dock, graving dock, or building way involved; identification of key waste constituents discharged as a result of the incident; the name and owner of the vessel; and the exact date and time the vessel was moved into the floating dry dock, graving dock, or building way. The San Diego Water Board may waive the written report under this provision on a case by case basis if an oral or e-mail report has been received within 24 hours.
3. The Discharger shall perform regular dry dock, graving dock, and building ways cleaning while work is being conducted to minimize the potential for pollutants to accumulate on, or to be released from, their surfaces.

E. Land Discharge Specifications – Not Applicable

F. Recycling Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

The receiving water limitations set forth below for the waters of San Diego Bay and the mouth of Chollas Creek are based on applicable water quality standards contained in water quality control plans and policies and federal regulations and are a required part of this Order. The discharge of waste shall not cause or contribute to violations of these receiving water limitations.

A. Water Quality Objectives and Criteria

The discharge of waste shall not cause violations of water quality standards, federal pollutant criteria or other provisions applicable to San Diego Bay or the mouth of Chollas Creek contained in the water quality control plans, policies, and federal regulations set forth below:

1. The San Diego Water Board's Basin Plan, including beneficial uses, water quality objectives, and implementation plans.
2. State Water Resources Control Board (State Water Board) water quality control plans and policies including:
 - a. *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries* (Thermal Plan).
 - b. *Water Quality Control Policy for the Enclosed Bays and Estuaries of California* (Bays and Estuaries Policy).
 - c. *Policy for Implementation of Toxics Standards for Inland Surface Waters, and Enclosed Bays, and Estuaries of California* (State Implementation Plan or SIP).
 - d. *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality* (Sediment Quality Plan).
3. Priority pollutant criteria promulgated by the U.S. EPA through the:
 - a. *National Toxics Rule* (NTR)² (promulgated on December 22, 1992 and amended on May 4, 1995).
 - b. *California Toxics Rule* (CTR)^{3,4}

B. Physical Characteristics

1. Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses. [Basin Plan]
2. Waters shall not contain oils, greases, waxes, or other materials in concentrations which result in a visible film or coating on the surface of the water or on objects in the water, or which cause nuisance or which otherwise adversely affect beneficial uses. [Basin Plan].
3. Waters shall not contain floating material, including solids, liquids, foams, and scum in concentrations which cause nuisance or adversely affect beneficial uses. [Basin Plan]
4. The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses. [Basin Plan]

² 40 Code of Federal Regulations (CFR) section 131.36

³ 65 Federal Register 31682-31719 (May 18, 2000), adding section 131.38 to 40 CFR

⁴ If a water quality objective and a CTR criterion are in effect for the same priority pollutant, the more stringent of the two applies.

5. Waters shall not contain suspended and settleable solids in concentrations of solids that cause nuisance or adversely affect beneficial uses. [Basin Plan]
6. Waters shall not contain taste or odor producing substances at concentrations which cause a nuisance or adversely affect beneficial uses. [Basin Plan]
7. Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. In addition, within San Diego Bay, the transparency of bay waters, insofar as it may be influenced by any controllable factor, either directly or through induced conditions, shall not be less than 8 feet in more than 20 percent of the readings in any zone, as measured by a standard Secchi disk. Wherever the water is less than 10 feet deep, the Secchi disk reading shall not be less than 80 percent of the depth in more than 20 percent of the readings in any zone. [Basin Plan]
8. The discharge of waste shall not cause the temperature of the receiving water to be altered in a manner that adversely impacts beneficial uses. [Thermal Plan]

C. Chemical Characteristics

1. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally. The pH shall not be depressed below 7.0 nor raised above 9.0. [Basin Plan]
2. The dissolved oxygen concentration shall not at any time be less than 5.0 mg/L. The annual mean dissolved oxygen concentration shall not be less than 7 mg/L more than 10 percent of the time. [Basin Plan]
3. San Diego Bay waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect beneficial uses. [Basin Plan]
4. The discharge of wastes shall not cause concentrations of un-ionized ammonia (NH_3) to exceed 0.025 mg/L (as N) in San Diego Bay. [Basin Plan]
5. No individual pesticide or combination of pesticides shall be present in the water column, sediments or biota at concentration(s) that adversely affect beneficial uses. Pesticides shall not be present at levels which will bioaccumulate in aquatic organisms to levels which are harmful to human health, wildlife or aquatic organisms. [Basin Plan]

D. Biological Characteristics

1. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded. [California Ocean Plan, Water Quality Control Plan Ocean Waters of California (Ocean Plan) – Best Professional Judgement (BPJ)]
2. The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered. [Ocean Plan - BPJ]
3. The concentration of organic materials in fish, shellfish or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health. [Ocean Plan - BPJ]

E. Bacterial Characteristics

1. The most probable number of total coliform organisms in the upper 60 feet of the water column shall be less than 1,000 organisms per 100 mL (10 organisms per mL); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 organisms per 100 mL (10 per mL); and provided further that

no single sample shall exceed 10,000 organisms per 100 mL as described in the Basin Plan. [Basin Plan]

2. The median total coliform concentration throughout the water column for any 30-day period shall not exceed 70 organisms per 100 mL nor shall more than 10 percent of the samples collected during any 30-day period exceed 230 organisms per 100 mL for a five tube decimal dilution test or 330 organisms per 100 mL when a three-tube decimal dilution test is used where shellfish harvesting is designated. [Basin Plan]
3. Where bay waters are used for whole fish handling, the density of *E. coli* shall not exceed 7 organisms per mL in more than 20 percent of any 20 daily consecutive samples of bay water. [Basin Plan]

F. Radioactivity

1. Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life. [Basin Plan]
2. The radioactivity in the receiving waters shall not exceed limits specified in title 17, division 1, chapter 5, subchapter 4, group 3, article 1, section 30253 of the California Code of Regulations (CCR).

G. Toxicity

1. All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods as specified by the Regional Board. [Basin Plan]
2. Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities. [Sediment Quality Plan]
3. Pollutants shall not be present in sediments at levels that will bioaccumulate in aquatic life to levels that are harmful to human health. [Sediment Quality Plan]

H. Corrective Actions for Receiving Water Limitation Violations

Upon determination by the Discharger or written notification by the San Diego Water Board that discharges are causing or contributing to an exceedance of receiving water limitations in section V of this Order, the Discharger shall implement the following corrective actions at a minimum:

1. As soon as practicable, notify the San Diego Water Board that discharges are causing or contributing to an exceedance of receiving water limitations in section V of this Order.
2. Conduct a facility evaluation to determine whether there are pollutant source(s) within the Facility and whether BMPs and other requirements of this Order have been properly implemented.
3. Conduct an assessment of the Facility's plans required by this Order to determine whether additional or improved measures or BMPs are necessary to prevent or reduce pollutants in discharges to comply with receiving water limitations in section V of this Order.

4. Prepare a certification statement, based upon the Facility evaluation and assessment required above, that certifies either:
 - a. Additional or improved measures or BMPs have been identified, included in the appropriate plan, and implemented to comply with receiving water limitations, as specified in section V of this Order; or
 - b. No additional or improved BMPs or measures are required for implementation to reduce or prevent pollutants in discharges to comply with receiving water limitations, as specified in section V of this Order; or
 - c. There are no sources of pollutants at the Facility that are causing or contributing to exceedances of receiving water limitations, as specified in section V of this Order.
5. If a certification statement provides that no additional BMPs or measures are required for implementation to reduce or prevent pollutants in discharges to comply with receiving water limitations specified in section V of this Order, the certification statement must show, with supporting information, why the exceedances occurred and why the exceedances will not occur again under similar circumstance(s).
6. Implement additional or improved measures or BMPs as soon as is practicable.
7. Within 60 days of the exceedance(s)/violation(s) of receiving water limitations specified in section V of this Order, prepare and submit a report that:
 - a. Describes the Facility evaluation performed pursuant to section V.H.2 above.
 - b. Describes the assessment of the Facility's plans required pursuant to section V.H.3 above.
 - c. Identifies the additional or improved measures or BMPs that are currently being implemented to assure compliance with receiving water limitations in section V of this Order.
 - d. Identifies additional or improved measures or BMPs that will be implemented to assure compliance with receiving water limitations in section V of this Order. This report shall include an implementation schedule that reflects the shortest practicable time required to perform each task, given the type of BMPs or measures planned. The implementation schedule shall not exceed 90 days from the date of determination of the exceedance(s)/violations(s) of receiving water limitations in section V of this Order.
 - e. Includes the certification statement required above in section V.H.4 of this Order.
8. The San Diego Water Board may require the Discharger to modify and resubmit the report if the report is not in conformance with the criteria described in section V.H.7 of this Order. The Discharger shall submit any required modifications to the report within 30 days of written notification from the San Diego Water Board.
9. Within 30 days following submittal of the report required by section V.H.7 above or modified report required by section V.H.8 above, the Discharger shall revise the SWPPP and other plans required by this Order and the MRP to incorporate a) the additional or improved BMPs and measures that have been and will be implemented, b) an implementation schedule, and c) any additional monitoring required.
10. Nothing in this section shall prevent the San Diego Water Board from enforcing any provisions of this Order while the Discharger prepares and implements the above report.

11. If the Discharger has complied with the procedures set forth above and is implementing the actions required, the Discharger will not be required to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the San Diego Water Board to develop and implement additional BMPs or measures.

VI. PROVISIONS

A. Standard Provisions

1. **Federal Standard Provisions.** The Discharger shall comply with all Standard Provisions included in Attachment D.
2. **San Diego Water Board Standard Provisions.** The Discharger shall comply with the following provisions:
 - a. The Discharger shall properly handle, manage, transport, treat, or dispose of waste in accordance with all applicable federal, state, and local laws and regulations. Waste management shall be implemented to avoid or minimize exposure of wastes to precipitation or storm water runoff. The storage, handling, treatment, or disposal of waste shall not cause or threaten to cause a condition of pollution, contamination or nuisance as those terms are defined in Water Code 13050 in waters of the State.
 - b. This Order expires on **January 31, 2022**, after which, the terms and conditions of this permit are automatically continued pending issuance of a new permit, provided that all requirements of U.S. EPA's NPDES regulations at 40 CFR section 122.6 and the State's regulations at CCR title 23, section 2235.4 regarding the continuation of expired permits and waste discharge requirements are met.
 - c. A copy of this Order shall be posted at a prominent location and shall be available to site personnel, San Diego Water Board, State Water Board, and U.S. EPA or their authorized representative at all times.

B. Monitoring and Reporting Program (MRP) Requirements

1. The Discharger shall comply with the MRP and future revisions thereto in Attachment E of this Order.
2. Notifications required to be provided under this Order to the San Diego Water Board shall be made to:

E-mail – sandiego@waterboards.ca.gov

Telephone – (619) 516-1990

Facsimile – (619) 516-1994

C. Special Provisions

1. Reopener Provisions

- a. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.

- b. This Order may be reopened and modified in accordance with NPDES regulations at 40 CFR parts 122 and 124, as necessary, to include additional conditions or limitations based on newly available information or to implement any new, U.S. EPA approved, State water quality objective.
- c. This Order may be modified, revoked and reissued, or terminated for cause in accordance with the provisions of 40 CFR parts 122, 124, and 125 at any time prior to its expiration under any of the following circumstances:
 - i. Violations of any terms or conditions of this Order (Water Code section 13381(a)).
 - ii. Obtaining this Order by misrepresentation or Failure to disclose fully all relevant facts (Water Code section 13381(b)).
 - iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge (Water Code section 13381(c)).
 - iv. Endangerment to human health or the environment resulting from the permitted activity (40 CFR 122.64(a)(3)).
- d. This Order may be reopened and modified for cause at any time prior to its expiration under any of the following circumstances:
 - i. Present or future investigations demonstrate that the discharge(s) regulated by this Order may have the potential to cause or contribute to adverse impacts on water quality and/or beneficial uses.
 - ii. New or revised water quality objectives come into effect, or any total maximum daily load (TMDL) is adopted or revised that is applicable to the Discharger.
 - iii. Modification is warranted to those provisions of this Order addressing compliance with water quality standards in the receiving water or those provisions of this Order laying out an iterative process for implementation of management practices to achieve compliance with water quality standards in the receiving water.
 - iv. Modification is warranted to incorporate additional effluent limitations, prohibitions, and requirements, based on the results of additional monitoring required by the MRP (Attachment E).
 - v. Modification of the receiving waters monitoring and reporting requirements and/or special studies requirements of this Order is necessary for cause, including but not limited to a) revisions necessary to implement recommendations from Southern California Coastal Water Research Project (SCCWRP); b) revisions necessary to develop, refine, implement, and/or coordinate a regional monitoring program; and/or c) revisions necessary to develop and implement improved monitoring and assessment programs in keeping with San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of a Regional Monitoring Framework*.
 - vi. Modification is warranted to address chronic toxicity in Facility wastewater discharges, storm water discharges, or receiving waters through new or revised effluent limitations or other permit toxicity requirements or to implement new, revised, or newly interpreted water quality standards applicable to chronic toxicity.

- e. The filing of a request by the Discharger for modifications, revocation and reissuance, or termination of this Order, or a notification of planned change in or anticipated noncompliance with this Order does not stay any condition of this Order.
2. **Special Studies, Technical Reports and Additional Monitoring Requirements**
See section IV.G of the MRP (Attachment E) for the Toxicity Reduction Evaluation (TRE) Requirements.
3. **Best Management Practices (BMPs)**
The Discharger shall continue to implement a BMP Program that prevents or reduces the discharge of pollutants into the receiving waters at levels that would cause or contribute to exceedances of the receiving water limitations in section V of this Order or otherwise adversely affect the beneficial uses of the receiving water. The BMP Program shall incorporate the Facility's SWPPP and shall be updated annually as needed and shall address, at a minimum, floating dry dock pre-flood cleaning, building ways pre-flood cleaning, graving dock pre-flood cleaning, dry dock ballast water, and spills including fire protection water, potable water, steam condensate. The BMP Program shall be developed and implemented in accordance with Attachment G to prevent, or minimize the potential for, the release of pollutants to waters of the U.S. and State. BMPs for floating dry dock ballast water shall include, at a minimum, applicable BMPs from the U.S. EPA Vessel General Permit (VGP).
4. **Construction, Operation and Maintenance Specifications – Not Applicable**
5. **Other Special Provisions – Not Applicable**

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below:

A. General

Compliance with effluent limitations shall be determined using sample reporting protocols defined in the MRP (Attachment E) and Attachment A of this Order. For purpose of reporting and administrative enforcement by the San Diego Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the constituent in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL) or lowest quantifiable level.

B. Multiple Sample Data

When determining compliance with an average annual effluent limitation (AAEL), average monthly effluent limitation (AMEL), or maximum daily effluent limitation (MDEL) and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determination of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, following by quantified values (if any). The order of individual ND or DNQ determinations is unimportant.

2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

C. Average Annual Effluent Limitation (AAEL)

If the average (or when applicable, the median determined by subsection VII.B above for multiple sample data) of daily discharges over a 12-month period exceeds the AAEL for a given parameter, this will represent a single violation for the purpose of assessing mandatory minimum penalties under Water Code section 13385. Because the AAEL is a rolling average calculated once each month, the Discharger will be considered out of compliance for each discharge day of that month for that parameter (e.g. resulting in 31 days of non-compliance in a 31-day month) for discretionary penalties. Each discharge day of the year is determined to be either in compliance or out of compliance for the AAEL only once, during the month in which the day falls. For anyone calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month and no penalty assessed. The AAEL will be effective when the final effluent limitations are effective. For the first month and until there is 12 months of effluent data, the samples collected since the effluent limitation became effective shall be averaged and compared to the 12-month AAEL. The Discharger may submit for San Diego Water Board review and approval an alternative statistical method for calculating annual average effluent limits to demonstrate that the mass and concentration of the pollutant in the discharge does not exceed the mass and concentration of the pollutant in the intake water.

D. Average Monthly Effluent Limitation (AMEL)

If the average (or when applicable, the median determined by subsection VII.B above for multiple sample data) of daily discharges over a calendar month exceeds the AMEL for a given parameter, this will represent a single violation for the purpose of assessing mandatory minimum penalties under Water Code section 13385, though the Discharger will be considered out of compliance for each discharge day of that month for that parameter (e.g. resulting in 31 days of non-compliance in a 31-day month) for discretionary penalties. If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the Discharger will be considered out of compliance only for days when the discharge occurs. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month and no penalty assessed.

E. Median Monthly Effluent Limit (MMEL)

If the median result of three independent toxicity tests, conducted within the same calendar month, and analyzed using the Test of Significant Toxicity (TST) is a "Fail" (i.e. two out of three is "Fail"), this will represent a single violation for the purpose of assessing mandatory minimum penalties under Water Code section 13385, though the Discharger will be considered out of compliance for each discharge day of that month for that parameter (e.g. resulting in 31 days of non-compliance in a 31-day month) for discretionary penalties. If median result is "Fail", the Discharger will be considered out of compliance for days when the discharge occurs. For any one calendar month during which fewer than three samples are taken, no compliance determination can be made for that calendar month.

F. Maximum Daily Effluent Limitation (MDEL)

If a daily discharge (or when applicable, the median result determined by section VII.B above for multiple sample data of a daily discharge) exceeds the MDEL for a given parameter, the Discharger will be considered out of compliance for that parameter for that one day only within the reporting period. For any one day during which no sample is taken, no compliance determination can be made for that day.

G. Instantaneous Minimum Effluent Limitation

If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, the Discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g. the results of two grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of noncompliance with the instantaneous minimum effluent limitation).

H. Instantaneous Maximum Effluent Limitation

If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, the Discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g. the results of two grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

I. Chronic Toxicity for Discharges to San Diego Bay

The discharge is subject to determination of “Pass” or “Fail” from a chronic toxicity test using the TST statistical t-test approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1, and Appendix B, Table B-1. The null hypothesis (Ho) for the TST statistical approach is:

Mean discharge Instream Waste Concentration (IWC) response $\leq 0.75 \times$ Mean control response.

A test result that rejects this null hypothesis is reported as “Pass”. A test result that does not reject this null hypothesis is reported as “Fail”. The relative “Percent Effect” at the discharge IWC is defined and reported as: $((\text{Mean control response} - \text{Mean discharge IWC response}) \div \text{Mean control response}) \times 100$. This is a t-test (formally Student’s t-Test), a statistical analysis comparing two sets of replicate observations—in the case of Whole Effluent Toxicity (WET), only two test concentrations (i.e. a control and IWC). The purpose of this statistical test is to determine if the means of the two sets of observations are different (i.e. if the IWC or receiving water concentration differs from the control (the test result is “Pass” or “Fail”). The Welch’s t-test employed by the TST statistical approach is an adaptation of Student’s t-test and is used with two samples having unequal variances.

The MDEL for chronic toxicity is exceeded and a violation will be flagged when a chronic toxicity test, analyzed using the TST statistical approach, results in “Fail” and the “Percent Effect” is $\geq 50\%$.

The MMEL for chronic toxicity is exceeded and a violation will be flagged when the median of no more than three independent chronic toxicity tests, conducted within the same calendar month and analyzed using the TST statistical approach, results in “Fail”. The MMEL for chronic toxicity shall only apply when there is a discharge more than one day in a calendar

month period. During such calendar months, up to three independent toxicity tests may be conducted when one toxicity test results in "Fail".

The chronic toxicity MDEL and MMEL are set at the IWC for the discharge (100% effluent) and expressed in units of the TST statistical approach ("Pass" or "Fail", "Percent Effect"). All NPDES effluent compliance monitoring for the chronic toxicity MDEL and MMEL shall be reported using the 100% effluent concentration and negative control, expressed in units of the TST. The TST hypothesis (Ho) (see above) is statistically analyzed using the IWC and a negative control. Effluent toxicity tests shall be run using a multi-concentration test design when required by *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Third Edition (EPA-821-R-02-014)* or *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms, First Edition (EPA-600-R-95-136)*. The San Diego Board's review of reported toxicity test results will include review of concentration response patterns as appropriate (see Fact Sheet (Attachment F) discussion at IV.C.5). As described in the bioassay laboratory audit directives to the San Jose Creek Water Quality Laboratory from the State Water Board dated August 7, 2014, and from the U.S. EPA dated December 24, 2013, the Percent Minimum Significant Difference (PMSD) criteria only apply to compliance reporting for the No Observed Effect Concentration (NOEC) and the sublethal statistical endpoints of the NOEC, and therefore are not used to interpret TST results. Standard Operating Procedures used by the toxicity testing laboratory to identify and report valid, invalid, anomalous, or inconclusive effluent (and receiving water) toxicity test measurement results from the TST statistical approach, including those that incorporate a consideration of concentration-response patterns, must be submitted to the San Diego Water Board (40 CFR section 122.41(h)). The San Diego Water Board will make a final determination as to whether a toxicity test result is valid, and may consult with the Discharger, U.S. EPA, the State Water Board's Quality Assurance Officer, or the State Water Board's Environmental Laboratory Accreditation Program (ELAP), as needed. The San Diego Water Board may consider results of any Toxicity Reduction Evaluation / Toxicity Identification Evaluation (TRE/TIE) studies in an enforcement action.

ATTACHMENT A – ABBREVIATIONS AND DEFINITIONS**Part 1 – Abbreviations**

Abbreviation	Definition
ASBS	Areas of Special Biological Significance
AST	Above Ground Storage Tanks
Basin Plan	<i>Water Quality Control Plan for the San Diego Basin</i>
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practices
BOD ₅	Biochemical Oxygen Demand (5-Day at 20°C)
BPJ	Best Professional Judgment
BPT	Best Practicable Treatment Control Technology
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CFU	Colony Forming Units
CIWQS	California Integrated Water Quality System
CTR	California Toxics Rule
CV	Coefficient of Variation
CWA	Clean Water Act
Water Code	California Water Code
DMR	Discharger Monitoring Report
DNQ	Detected, but Not Quantified
ECA	Effluent Concentration Allowance
ERA	Exceedance Response Action
gpd	gallons per day
gpm	gallons per minute
IWC	Instream Waste Concentration
lbs/day	Pounds per Day
MDEL	Maximum Daily Effluent Limitation
MDL	Method Detection Limit
MEP	Maximum Extent Practicable
mg/L	Milligrams per Liter
MGD	Million Gallons per Day
ML	Minimal Level
mL/L	Milliliters per Liter
MMEL	Maximum Monthly Effluent Limitation
MPCD	Marine Pollution Control Device
MPN	Most Probable Number
MRP	Monitoring and Reporting Program
MS4	Municipal Separate Storm Sewer System
NAL	Numeric Action Level
ND	Not Detected
NOEC	No Observed Effect Concentration
NOEL	No Observed Effect Level
NPDES	National Pollutant Discharge Elimination System
NR	Not Reported
NTR	National Toxics Rule
Ocean Plan	California Ocean Plan, <i>Water Quality Control Plan Ocean Waters of California</i>
PCB	Polychlorinated Biphenyls
PMP	Pollutant Minimization Program

Abbreviation	Definition
PPP	Pollution Prevention Plan
QAPP	Quality Assurance Project Plan
QSE	Qualifying Storm Event
QA/QC	Quality Assurance/ Quality Control
QSE	Qualifying Storm Event
REC-1	Contact Water Recreation Beneficial Use
RL	Reporting Level
ROWD	Report of Waste Discharge
RPA	Reasonable Potential Analysis
San Diego Water Board	California Regional Water Quality Control Board, San Diego Region
SCCWRP	Southern California Coastal Waters Research Project
Sediment Quality Plan	<i>Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality</i>
SIP	<i>State Implementation Policy, Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California</i>
SQO	Sediment Quality Objective
State Water Board	State Water Resources Control Board
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWDS	Storm Water Diversion System
TBEL	Technology-Based Effluent Limitations
Thermal Plan	Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TRE	Toxicity Reduction Evaluation
TSS	Total Suspended Solids
TST	Test of Significant Toxicity
U.S.	U.S.
U.S. EPA	United States Environmental Protection Agency
WDR	Waste Discharge Requirements
WET	Whole Effluent Toxicity
WLA	Wasteload Allocation
WQBEL	Water Quality-Based Effluent Limitation
µg	Microgram
µg/L	Micrograms per Liter

Part 2 – Definitions of Common Terms

Acute Toxicity Tests

A measurement of the adverse effect (usually mortality) of a waste discharge or ambient water sample on a group of test organisms during a short-term exposure.

Arithmetic Mean (μ)

Also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL)

The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)

The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative Pollutants

Those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Best Management Practices (BMPs)

Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the U.S. The BMPs also include treatment measures, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. The BMPs may include any type of pollution prevention and pollution control measure necessary to achieve compliance with this Order.

California Toxics Rule

The EPA promulgated numeric water quality criteria for priority toxic pollutants and other provisions for water quality standards applied to waters in the state of California found at 40 CFR 131.

Best Professional Judgment (BPJ)

The method used by permit writers to develop technology-based NPDES permit conditions on a case-by-case basis using all reasonably available and relevant data.

Carcinogenic

Pollutants are substances that are known to cause cancer in living organisms.

Clean Water Act (CWA)

The Federal Water Pollution Control Act enacted by Public Law 92-500 as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; 33 USC 1251 et seq.

Chronic Toxicity

This parameter shall be used to measure the acceptability of waters for supporting a healthy marine biota until improved methods are developed to evaluate biological response.

Chronic Toxicity (TUc)

- a. Expressed as Toxic Units Chronic (TUc)

$$\text{TUc} = \frac{100}{\text{NOEL}}$$

- b. No Observed Effect Level (NOEL)

The NOEL is expressed as the maximum percent effluent or receiving water that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test listed in Ocean Plan Appendix III, Table III-1.

Chronic Toxicity Tests

A measurement of the sub-lethal effects of a discharge or ambient water sample (e.g. reduced growth or reproduction). Certain chronic toxicity tests include an additional measurement of lethality.

Coefficient of Variation (CV)

CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Contamination

“Contamination” means an impairment of the quality of the waters of the State by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease.

“Contamination” includes any equivalent effect resulting from the disposal of waste, whether or not waters of the State are affected. (Water Code section 13050(k))

Daily Discharge

Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g. concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ)

DNQ are those sample results less than the RL, but greater than or equal to the laboratory’s MDL. Sample results reported as DNQ are estimated concentrations.

Dilution Credit

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Discharge incidental to the normal operation of a vessel

A discharge, including, but not limited to: graywater, bilgewater, cooling water, weather deck runoff, ballast water, oil water separator effluent, and any other pollutant discharge from the operation of a marine propulsion system, shipboard maneuvering system, crew habitability system, or installed major equipment, such as an aircraft carrier elevator or a catapult, or from a protective, preservative, or absorptive application to the hull of a vessel; and a discharge in connection with the testing, maintenance, and repair of any of the aforementioned systems whenever the vessel is waterborne, including pierside. A discharge incidental to normal operation does not include:

1. Sewage.
2. A discharge of rubbish, trash, or garbage.
3. A discharge of air emissions resulting from the operation of a vessel propulsion system, motor driven equipment, or incinerator.
4. A discharge that requires a National Pollutant Discharge Elimination System (NPDES) permit under the Clean Water Act (CWA).
5. A discharge containing source, special nuclear, or byproduct materials regulated by the Atomic Energy Act

Drainage Area

The area of land that drains water, sediment, pollutants, and dissolved materials to a common discharge location.

Effluent Concentration Allowance (ECA)

ECA is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in U.S. EPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration

The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Facility

As used in the Storm Water Pollution Prevention Plan contained in Attachment G, a Facility is an area or areas discharging storm water associated with industrial activity within the property boundary or operational unit.

First Flush

Storm water runoff that occurs between the time a storm event begins and when a minimum of 1 inch of precipitation has been collected in a rain gauge or equivalent measurement device at a location on the site which is representative of precipitation at the site. A storm event is a period of rainfall that is preceded by at least seven days without rainfall.

Industrial High Risk Areas

All areas where wastes or pollutants of significant quantities from ship construction, modification, repair, and maintenance activities (including abrasive blast grit material, primer, paint, paint chips, solvents, oils, fuels, sludges, detergents, cleansers, hazardous substances, toxic pollutants, non-conventional pollutants, materials of petroleum origin, or other substances of water quality significance) are subject to precipitation, run-on, and/or runoff.

Inland Surface Waters

All surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation

The highest allowable value for any single grab sample or aliquot (i.e. each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation

The lowest allowable value for any single grab sample or aliquot (i.e. each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Instream Waste Concentration (IWC)

The concentration of a toxicant or effluent in the receiving water after mixing (the inverse of the dilution factor). A discharge of 100 percent effluent will be considered the IWC whenever mixing zones or dilution credits are not authorized by the applicable Water Board.

Maximum Daily Effluent Limitation (MDEL)

The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Maximum Extent Practicable (MEP)

MEP is the technology-based standard established by Congress in CWA section 402(p)(3)(B)(iii) that municipal dischargers of storm water must meet. MEP is the result of emphasizing pollution prevention and source control BMPs as the first lines of defense in combination with structural and treatment methods where appropriate serving as additional lines of defense.

Median Monthly Effluent Limit (MMEL)

An effluent limit based on the median results of three independent toxicity tests, conducted within the same calendar month, and analyzed using the TST. The MMEL is exceeded when the median result (i.e. two out of three) is a "Fail."

Median

The middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e. the midpoint between the n/2 and n/2+1).

Method Detection Limit (MDL)

MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML)

ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Non-Storm Water Discharge

Any discharge to storm sewer systems that is not composed entirely of storm water.

Not Detected (ND)

Sample results which are less than the laboratory's MDL.

Nuisance

"Nuisance" means anything which meets all of the following requirements: (1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. (2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. (3) Occurs during, or as a result of, the treatment or disposal of waste. [Water Code section 13050(m)]

Numeric Action Level (NAL)

Numeric Action Levels (NALs), found in Table G-1 of Attachment G of this Order are used as numeric thresholds for corrective action. An exceedance of a NAL is not a violation of this Order.

Ocean Waters

The territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Percent effect

The value that denotes the difference in response between the IWC and the control, divided by the mean response, and multiplied by 100 (see the equation in Step 6 of Appendix A of the Toxicity Policy).

$$\% \text{ Effect at IWC} = \frac{\text{Mean Control Response} - \text{Mean IWC Response}}{\text{Mean Control Response}} * 100$$

Persistent Pollutants

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant

“Pollutant” means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean: (a) Sewage from vessels; or (b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well-used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources. NOTE: Radioactive materials covered by the Atomic Energy Act are those encompassed in its definition of source, byproduct, or special nuclear materials. Examples of materials not covered include radium and accelerator-produced isotopes. See *Train v. Colorado Public Interest Research Group, Inc.* 426 U.S. 1 (1976). (40 CFR 122.2)

Pollutant Minimization Program (PMP)

PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The San Diego Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution

“Pollution” means an alteration of the quality of the waters of the State by waste to a degree which unreasonably affects either of the following: (A) The waters for beneficial uses. (B) Facilities which serve these beneficial uses. “Pollution” may include “contamination.” [Water Code section 13050(l)]

Pollution Prevention

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State Water Resources Control Board (State Water Board) or San Diego Water Board.

Pollution Prevention Plan (PPP)

A PPP is a plan for implementing pollution prevention containing, at a minimum, the elements identified in Water Code section 13263.3(d)(2).

Priority Pollutants

Priority pollutants are all compounds with criteria in the California Toxics Rule (CTR).

Qualifying Storm Event (QSE)

A qualifying storm event is one that produces a discharge for at least one drainage area and is preceded by at least 48 hours with no discharge from any drainage area.

Reporting Level (RL)

The RL is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order, including an additional factor if applicable as discussed herein. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the San Diego Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

San Diego Water Board

As used in this document the term "San Diego Water Board" is synonymous with the term "Regional Board" as defined in Water Code section 13050(b) and is intended to refer to the California Regional Water Quality Control Board for the San Diego Region as specified in Water Code Section 13200.

Significant Materials

Raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101 (14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); and chemical the facility is required to report pursuant to section 313 of Title III of Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have the potential to be discharged.

Significant Quantities

Volumes, concentrations, or masses of pollutants that can cause or threaten to cause pollution, contamination, or nuisance; adversely impact human health or the environment; and/or cause or contribute to a violation of any applicable water quality standard for the receiving water or any receiving water limitation.

Significant Spills

Include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities under section 311 of the CWA (see 40 CFR 110.10 and 117.21) or section 102 of CERCLA (see 40 CFR 302.4).

Source of Drinking Water

Any water designated as municipal or domestic supply (MUN) in San Diego Water Board Basin Plan.

Standard Deviation (σ)

Standard Deviation is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

x is the observed value.

μ is the arithmetic mean of the observed values.

n is the number of samples.

Storm Water

Includes storm water runoff, snowmelt runoff, and storm water surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

Storm Water Discharge Associated with Industrial Activity

The discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program under 40 CFR part 122. For the facilities identified in the Fact Sheet (Attachment F) of this Order, the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters; sites used for residual treatment, storage areas (including tank farms) for raw materials, and intermediate and final products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the purposes of this paragraph, material handling activities include storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, by-product, or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are federally, State, or municipally owned or operated that meet the description of the facilities referenced in this paragraph) include those facilities designated under 40 CFR 122.26(a)(1)(v).

Storm Water Pollution Prevention Plan (SWPPP)

A SWPPP is a written document that identifies the industrial activities conducted at the site, including any structural control practices, which the industrial facility operator will implement to prevent pollutants from making their way into storm water runoff. The SWPPP also must include descriptions of other relevant information, such as the physical features of the facility, and procedures for spill prevention, conducting inspections, and training of employees. The SWPPP is intended to be a "living" document, updated as necessary, such that when industrial activities or storm water control practices are modified or replaced, the SWPPP is similarly revised to reflect these changes.

Test of Significant Toxicity (TST)

A statistical approach used to analyze toxicity test data. The TST incorporates a restated null hypothesis, Welch's t-test, and biological effect thresholds for chronic and acute toxicity.

Toxicity Reduction Evaluation (TRE)

TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

Vessel

Includes every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on navigable waters of the U.S. or waters of the contiguous zone, but does not include amphibious vehicles.

Water Quality Objectives

Numerical or narrative limits on constituents or characteristics of water designed to protect designated beneficial uses of the water.

Water Quality Standards

Water quality standards, as defined in CWA Section 303(c) and 40CFR131.6, consist of 1) the beneficial uses of a water body, 2) criteria (referred to as water quality objectives in California law) to protect those uses, and 3) an anti-degradation policy. Under State law, the water boards establish beneficial uses and water quality objectives in their water quality control or basin plans. Together with an anti-degradation policy (State Water Board Resolution 68-16), these beneficial uses and water quality objectives serve as water quality standards under the CWA. In CWA parlance, State beneficial uses are called “designated uses” and State water quality objectives are called “criteria.” Throughout this Order, the relevant term is used depending on the statutory scheme. The water quality standards described in section V of this Order are enforceable receiving water limitations for the surface water bodies for which they are established.

Waters of the U.S.

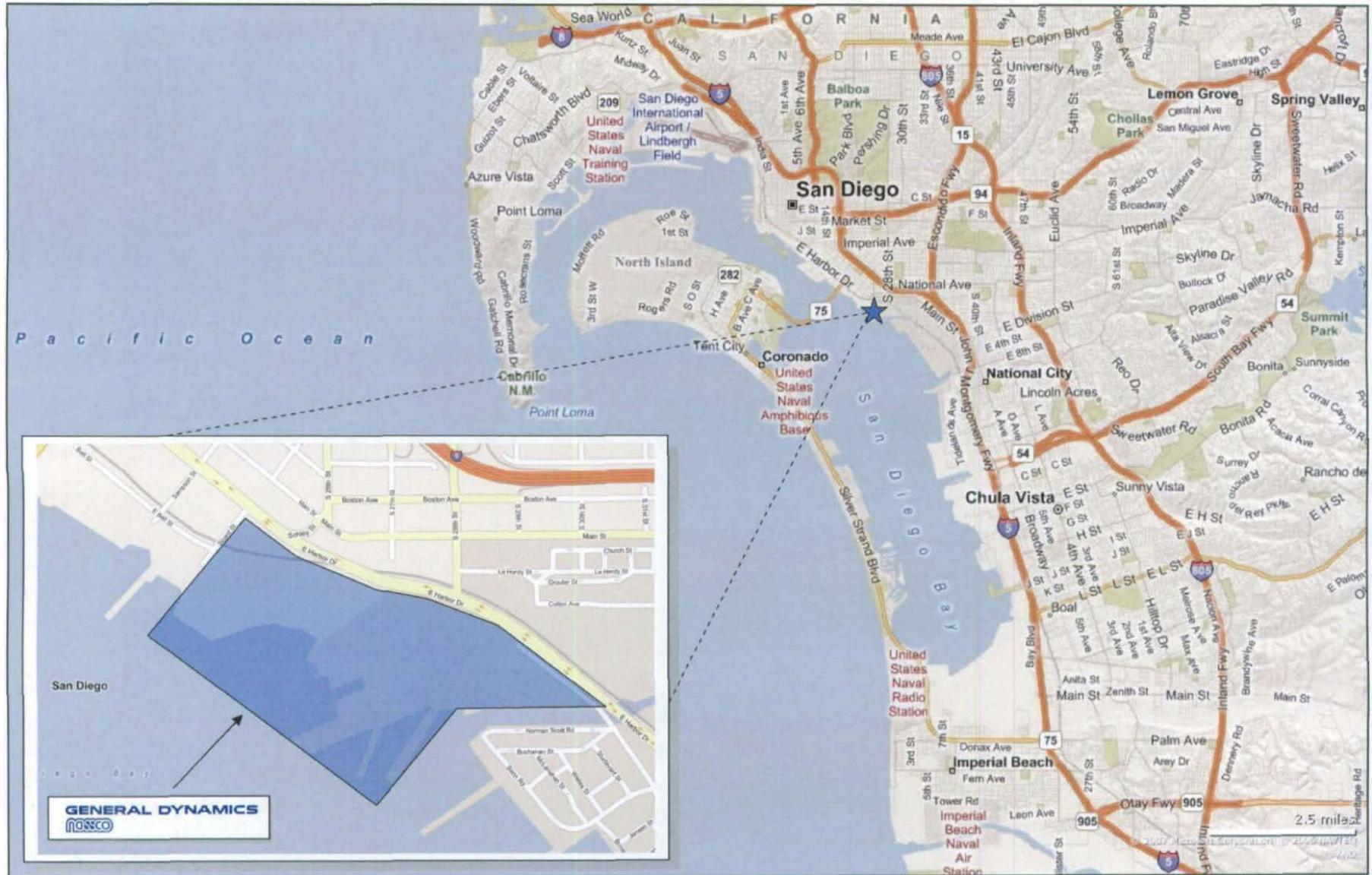
Waters of the U.S. are defined as: “(a) All waters, which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (b) All interstate waters, including interstate “wetlands;” (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, “wetlands,” sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation or destruction of which would affect or could affect interstate or foreign commerce including any such waters: (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) Which are used or could be used for industrial purpose by industries in interstate commerce; (d) All impoundments of waters otherwise defined as waters of the U.S. under this definition; (e) Tributaries of waters identified in paragraphs (a) through (d) of this definition; (f) The territorial seas; and (g) “Wetlands” adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition. Waters of the U.S. do not include prior converted cropland. Notwithstanding the determination of an area’s status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with the EPA.” (40 CFR 122.2).

Whole Effluent Toxicity (WET)

The aggregate toxic effect of a waste discharge measured directly by a chronic or acute toxicity test.

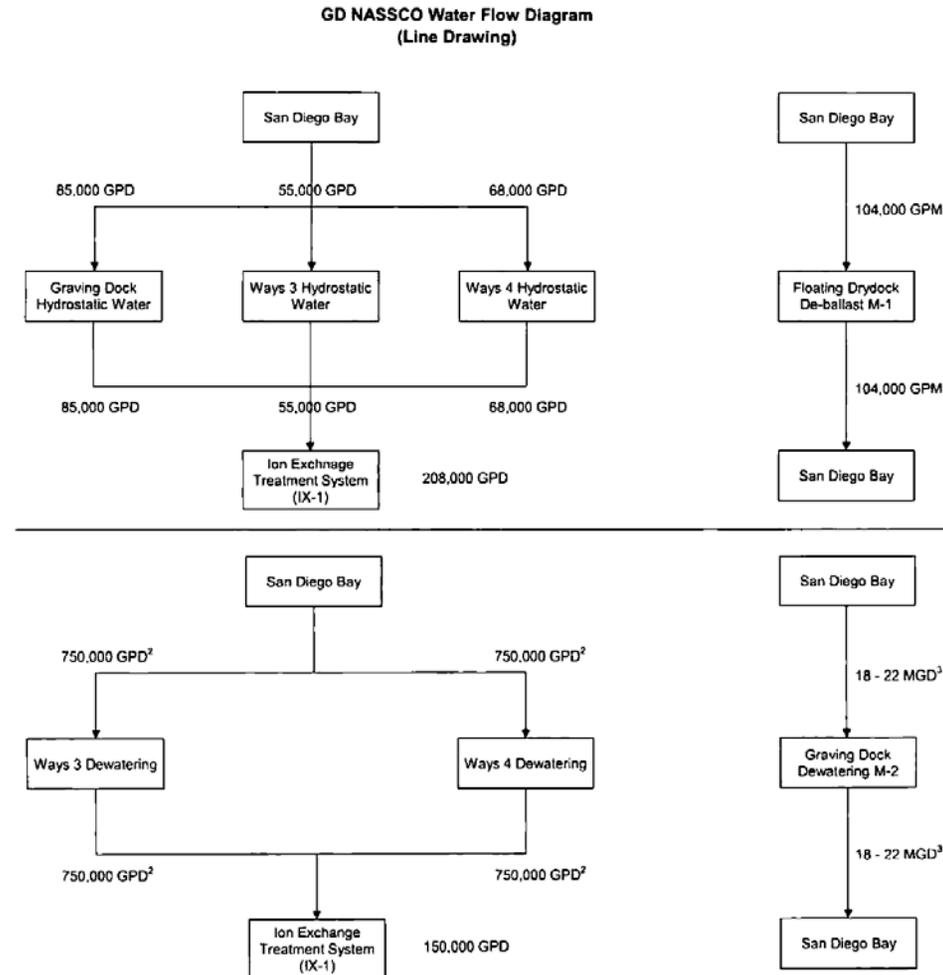
ATTACHMENT B – MAPS

Figure B-1. Location Map



ATTACHMENT C – FLOW SCHEMATICS

Figure C-1. General Flow Schematics



¹ Floating Drydock de-ballasting occurs when the dock is adjusted and deballast at a rate of 104,000 GPM, actual daily volume will vary
² Building Ways dewatering is 750,000 gallon per launch event and pumped at a rate of 5,810 GPM
³ Graving Dock dewatering is -18 - 22 million gallons per flooding event and pumped at a rate of 18,000 GPM

Figure C-2. Ion Exchange System Flow Schematic

ION EXCHANGE SYSTEM

NASSCO & Clear Creek Systems designed Water Treatment System to remove copper, nickel and zinc from flood dewatering and hydrostatic relief water to below effluent limits: Metals removal to the low part per billion range (Cu <12.8 ppb), Resin effectiveness in a highly saline environment

System Monitoring and Control – The treatment system is automated with a touch screen PLC. The PLC electrically tie the system components into one functional system.

Flow Balancing – Three 10.5K gallon **Storage Tanks** provide surge capacity – allows for lower and higher flow rates.

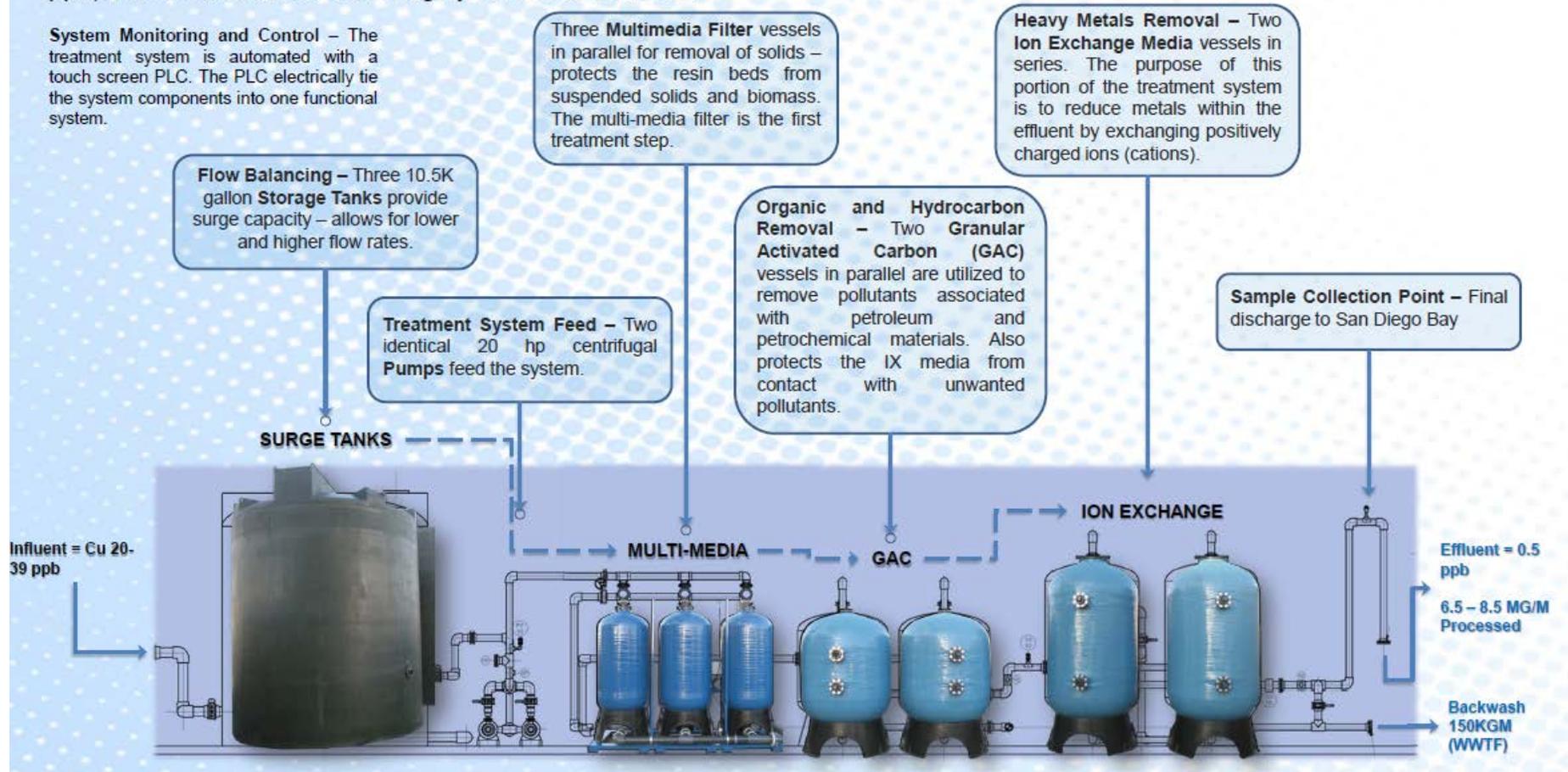
Treatment System Feed – Two identical 20 hp centrifugal **Pumps** feed the system.

Three Multimedia Filter vessels in parallel for removal of solids – protects the resin beds from suspended solids and biomass. The multi-media filter is the first treatment step.

Organic and Hydrocarbon Removal – Two **Granular Activated Carbon (GAC)** vessels in parallel are utilized to remove pollutants associated with petroleum and petrochemical materials. Also protects the IX media from contact with unwanted pollutants.

Heavy Metals Removal – Two **Ion Exchange Media** vessels in series. The purpose of this portion of the treatment system is to reduce metals within the effluent by exchanging positively charged ions (cations).

Sample Collection Point – Final discharge to San Diego Bay



ATTACHMENT D – STANDARD PROVISIONS**I. STANDARD PROVISIONS – PERMIT COMPLIANCE****A. Duty to Comply**

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (Water Code) and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (title 40 Code of Federal Regulations (40 CFR) section 122.41(a)).
2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 CFR section 122.41(a)(1)).

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 CFR section 122.41(c)).

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR section 122.41(d)).

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 CFR section 122.41(e)).

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR section 122.41(g)).
2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations. (40 CFR section 122.5(c)).

F. Inspection and Entry

The Discharger shall allow the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), State Water Resources Control Board (State Water Board), United States Environmental Protection Agency (U.S. EPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR section 122.41(i); Water Code section 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 CFR section 122.41(i)(1)).
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR section 122.41(i)(2)).
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR section 122.41(i)(3)).
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 CFR section 122.41(i)(4)).

G. Bypass

1. Definitions
 - a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR section 122.41(m)(1)(i)).
 - b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR section 122.41(m)(1)(ii)).
2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 CFR section 122.41(m)(2)).
3. Prohibition of bypass. Bypass is prohibited, and the San Diego Water Board may take enforcement action against a Discharger for bypass, unless (40 CFR section 122.41(m)(4)(i)):
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR section 122.41(m)(4)(i)(A)).
 - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR section 122.41(m)(4)(i)(B)).
 - c. The Discharger submitted notice to the San Diego Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR section 122.41(m)(4)(i)(C)).
4. The San Diego Water Board may approve an anticipated bypass, after considering its adverse effects, if the San Diego Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 CFR section 122.41(m)(4)(ii)).

5. Notice

- a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass. The notice shall be sent to the San Diego Water Board. As of December 21, 2020, a notice must also be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 CFR part 3, 40 CFR section 122.22, and 40 CFR part 127. (40 CFR section 122.41(m)(3)(i)).
- b. Unanticipated bypass. The Discharger shall submit a notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). The notice shall be sent to the San Diego Water Board. As of December 21, 2020, a notice must also be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 CFR part 3, 40 CFR section 122.22, and 40 CFR part 127. (40 CFR section 122.41(m)(3)(ii)).

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 CFR section 122.41(n)(1)).

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR section 122.41(n)(2)).
2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR section 122.41(n)(3)):
 - a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR section 122.41(n)(3)(i)).
 - b. The permitted facility was, at the time, being properly operated (40 CFR section 122.41(n)(3)(ii)).
 - c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 CFR section 122.41(n)(3)(iii)).
 - d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR section 122.41(n)(3)(iv)).
3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 CFR section 122.41(n)(4)).

II. STANDARD PROVISIONS – PERMIT ACTION**A. General**

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 CFR section 122.41(f)).

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 CFR section 122.41(b)).

C. Transfers

This Order is not transferable to any person except after notice to the San Diego Water Board. The San Diego Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 CFR section 122.41(l)(3); section 122.61).

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR section 122.41(j)(1)).

B. Monitoring must be conducted according to test procedures approved under 40 CFR part 136 for the analyses of pollutants unless another method is required under 40 CFR chapter 1, subchapters N or O. Monitoring must be conducted according to sufficiently sensitive test methods approved under 40 CFR part 136 for the analysis of pollutants or pollutant parameters or as required under 40 CFR chapter 1, subchapter N or O. For the purposes of this paragraph, a method is sufficiently sensitive when:

1. The method minimum level (ML) is at or below the level of the most stringent effluent limitation established in the permit for the measured pollutant or pollutant parameter, and either the method ML is at or below the level of the most stringent applicable water quality criterion for the measured pollutant or pollutant parameter or the method ML is above the applicable water quality criterion but the amount of the pollutant or pollutant parameter in the facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge.
2. The method has the lowest ML of the analytical methods approved under 40 CFR part 136 or required under 40 CFR chapter 1, subchapter N or O for the measured pollutant or pollutant parameter.

In the case of pollutants or pollutant parameters for which there are no approved methods under 40 CFR part 136 or otherwise required under 40 CFR chapter 1, subchapters N or O, monitoring must be conducted according to a test procedure specified in this Order for such pollutants or pollutant parameters. (40 CFR §§ 122.21(e)(3), 122.41(j)(4), 122.44(i)(1)(iv)).

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by

this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the San Diego Water Board Executive Officer at any time. (40 CFR section 122.41(j)(2)).

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 CFR section 122.41(j)(3)(i)).
2. The individual(s) who performed the sampling or measurements (40 CFR section 122.41(j)(3)(ii)).
3. The date(s) analyses were performed (40 CFR section 122.41(j)(3)(iii)).
4. The individual(s) who performed the analyses (40 CFR section 122.41(j)(3)(iv)).
5. The analytical techniques or methods used (40 CFR section 122.41(j)(3)(v)).
6. The results of such analyses. (40 CFR section 122.41(j)(3)(vi)).

C. Claims of confidentiality for the following information will be denied (40 CFR section 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 CFR section 122.7(b)(1)).
2. Permit applications and attachments, permits and effluent data. (40 CFR section 122.7(b)(2)).

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the San Diego Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the San Diego Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the San Diego Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order. (40 CFR section 122.41(h); Water Code, section 13267, 13383)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the San Diego Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, V.B.5, and V.B.6 below. (40 CFR section 122.41(k)).
2. All permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information

for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 CFR section 122.22(a)(1)).

3. All reports required by this Order and other information requested by the San Diego Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR section 122.22(b)(1)).
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR section 122.22(b)(2)).
 - c. The written authorization is submitted to the San Diego Water Board and State Water Board. (40 CFR section 122.22(b)(3)).
4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the San Diego Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR section 122.22(c)).
5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.” (40 CFR section 122.22(d)).
6. Any person providing the electronic signature for documents described in Standard Provisions – V.B.1, V.B.2, or V.B.3 that are submitted electronically shall meet all relevant requirements of Standard Provisions – Reporting V.B, and shall ensure that all relevant requirements of 40 CFR part 3 (Cross-Media Electronic Reporting) and 40 CFR part 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 CFR section 122.22(e)).

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR section 122.41(l)(4)).
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the San Diego Water Board or State Water Board for reporting the results of monitoring, sludge use, or disposal practices. As of December

21, 2016 all reports and forms must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J and comply with 40 CFR part 3, 40 CFR section 122.22, and 40 CFR part 127. (40vi CFR section 122.41(l)(4)(i)).

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR part 136, or another method required for an industry-specific waste stream under 40 CFR chapter 1, subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the San Diego Water Board. (40 CFR section 122.41(l)(4)(ii)).
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 CFR section 122.41(l)(4)(iii)).

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 CFR section 122.41(l)(5)).

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written report shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. All reports shall be submitted electronically as described in Provision VI.B.2 of this Order. (40 CFR section 122.41(l)(6)(i)).

For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (i.e. combined sewer overflow, sanitary sewer overflow, or bypass event), type of overflow structure (e.g. manhole, combined sewer overflow outfall), discharge volume untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the event, and whether the noncompliance was related to wet weather.

As of December 21, 2020 all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events must be submitted to the San Diego Water Board and must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J. The reports shall comply with 40 CFR. part 3, 40 CFR section 122.22, and 40 CFR part 127. The San Diego Water Board also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 CFR section 122.41(l)(6)(i)).

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR section 122.41(l)(6)(ii)):
 - a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR section 122.41(l)(6)(ii)(A)).

- b. Any upset that exceeds any effluent limitation in this Order. (40 CFR section 122.41(l)(6)(ii)(B)).
3. The San Diego Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR section 122.41(l)(6)(iii)).

F. Planned Changes

The Discharger shall give notice to the San Diego Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 CFR section 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 CFR section 122.41(l)(1)(i)).
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 CFR section 122.41(l)(1)(ii)).
3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR section 122.41(l)(1)(iii)).

G. Anticipated Noncompliance

The Discharger shall give advance notice to the San Diego Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 CFR section 122.41(l)(2)).

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in Standard Provision – Reporting V.E and the applicable required data in appendix A to 40 CFR part 127. The San Diego Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section (40 CFR section 122.41(l)(7)).

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the San Diego Water Board, State Water Board, or U.S. EPA, the Discharger shall promptly submit such facts or information. (40 CFR section 122.41(l)(8)).

J. Initial Recipient for Electronic Reporting Data

The owner, operator, or the duly authorized representative is required to electronically submit NPDES information specified in appendix A to 40 CFR part 127 to the initial recipient defined in 40 CFR section 127.2(b). U.S. EPA will identify and publish the list of initial recipients on its

website and in the Federal Register, by State and by NPDES data group [see 40 CFR section 127.2(c)]. U.S. EPA will update and maintain this listing. (40 CFR section 122.41(l)(9)).

VI. STANDARD PROVISIONS – ENFORCEMENT

- A.** The San Diego Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the San Diego Water Board as soon as they know or have reason to believe (40 CFR section 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 CFR section 122.42(a)(1)):
 - a. 100 micrograms per liter ($\mu\text{g/L}$) (40 CFR section 122.42(a)(1)(i)).
 - b. 200 $\mu\text{g/L}$ for acrolein and acrylonitrile; 500 $\mu\text{g/L}$ for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 CFR section 122.42(a)(1)(ii)).
 - c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR section 122.42(a)(1)(iii)).
 - d. The level established by the San Diego Water Board in accordance with section 122.44(f). (40 CFR section 122.42(a)(1)(iv)).
2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 CFR section 122.42(a)(2)):
 - a. 500 micrograms per liter ($\mu\text{g/L}$) (40 CFR section 122.42(a)(2)(i)).
 - b. 1 milligram per liter (mg/L) for antimony (40 CFR section 122.42(a)(2)(ii)).
 - c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR section 122.42(a)(2)(iii)).
 - d. The level established by the San Diego Water Board in accordance with section 122.44(f). (40 CFR section 122.42(a)(2)(iv)).

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

Section 308 of the federal Clean Water Act (CWA) and sections 122.41(h), (j)-(l), 122.44(i), and 122.48 of title 40 of the Code of Federal Regulations (40 CFR) require that all National Pollutant Discharge Elimination System (NPDES) permits specify monitoring and reporting requirements. California Water Code (Water Code) sections 13267 and 13383 also authorize the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. Pursuant to this authority, this Monitoring and Reporting Program (MRP) establishes conditions for the General Dynamics National Steel and Shipbuilding Company (NASSCO or Discharger) to conduct routine or episodic self-monitoring of the discharges regulated under this Order at specified influent, internal operations, effluent, and receiving water monitoring locations. The MRP requires the Discharger to report the results to the San Diego Water Board with information necessary to evaluate discharge characteristics and compliance status.

The purpose of the MRP is to determine and ensure compliance with effluent limitations and other requirements established in this Order, assess treatment efficiency, characterize effluents, and characterize the receiving water and the effects of the discharge on the receiving water. The MRP also specifies requirements concerning the proper use, maintenance, and installation of monitoring equipment and methods, and the monitoring type intervals and frequency necessary to yield data that are representative of the activities and discharges regulated under this Order.

Each monitoring section contains an introductory paragraph summarizing why the monitoring is needed and the key management questions the monitoring is designed to answer. In developing the list of key management questions, the San Diego Water Board considered four basic types of information for each question:

- (1) Information Need – Why does the San Diego Water Board need to know the answer?
- (2) Monitoring Criteria – What monitoring will be conducted for deriving an answer to the question?
- (3) Expected Product – How should the answer be expressed and reported?
- (4) Possible Management Actions – What actions will be potentially influenced by the answer?

The framework for this monitoring program has three components that comprise a range of spatial and temporal scales: 1. core monitoring, 2. regional monitoring, and 3. special studies.

1. Core monitoring consists of the basic site-specific monitoring necessary to measure compliance with individual effluent limits and/or impacts to receiving water quality. Core monitoring is typically conducted in the immediate vicinity of the discharge by examining local scale spatial effects.
2. Regional monitoring provides information necessary to make assessments over large areas and serves to evaluate cumulative effects of all anthropogenic inputs. Regional monitoring data also assists in the interpretation of core monitoring studies. In the event that a regional monitoring effort takes place during the permit cycle in which the MRP does not specifically address regional monitoring, the San Diego Water Board may allow relief from aspects of core monitoring components in order to encourage participation in a coalition pursuant to section V.B and V.C of this MRP.
3. Special studies are directed monitoring efforts designed in response to specific management or research questions identified through either core or regional monitoring programs. Often they are used to help understand core or regional monitoring results, where a specific environmental process is not well understood, or to address unique issues of local importance.

I. GENERAL MONITORING PROVISIONS

- A.** Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitoring flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of the San Diego Water Board.
- B.** Monitoring must be conducted according to U.S. Environmental Protection Agency (U.S. EPA) test procedures approved at 40 CFR part 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act* as amended, unless other test procedures are specified in this Order and/or in this MRP. Alternative test procedures not specified in this Order are subject to San Diego Water Board and U.S. EPA approval.
- C.** The monitoring and reports, signed and certified as required by Attachment D, Standard Provisions V.B, of this Order, shall be submitted to electronically in accordance with section VIII.B.1 of this MRP.
- D.** The Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring, instrumentation, copies of all reports required by this Order and this MRP, and records of all data used to complete the application for this Order. Records of monitoring information shall include information required under Attachment D, Standard Provisions, section IV. Records shall be maintained for a minimum of five years from the date of sample, measurement, report, or application. This period may be extended by request of this San Diego Water Board or by the U.S. EPA at any time.
- E.** All analyses shall be performed in a laboratory certified to perform such analyses by the State Water Resources Control Board's (State Water Board) Division of Drinking (DDW) or by a laboratory approved by the San Diego Water Board. The laboratory must be accredited under the DDW Environmental Laboratory Accreditation Program (ELAP) to ensure the quality of analytical data used for regulatory purposes to meet the requirements of this Order. Additional information on ELAP can be accessed at http://www.waterboards.ca.gov/drinking_water/certlic/labs/index.shtml.
- F.** All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.
- G.** The Discharger shall have, and implement, an acceptable written quality assurance (QA) plan for laboratory analyses.
- H.** Monitoring results shall be reported at intervals and in a manner specified in this Order or in this MRP.
- I.** This MRP may be modified by the San Diego Water Board as appropriate.
- J.** This Order may be modified by the San Diego Water Board and the U.S. EPA to enable the Discharger to participate in comprehensive regional monitoring activities. Minor changes may be made without further public notice.

II. MONITORING LOCATIONS**A. Monitoring Station Locations**

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
IX-1	IX-1	A location where a representative sample of treated wastewater (hydrostatic relief water and building ways water) from the ion exchange treatment can be obtained: 32° 41' 30" N: -117° 8' 26" W
M-2	M-2	A location where a representative sample of the graving dock flood water can be obtained. For newly constructed vessels, the sample shall be collected when the graving dock is full of water and ready to launch the vessel immediately before the gate is opened. For repair of vessels with a preexisting copper-based antifouling hull coating, samples shall be collected prior to the vessel's entry and exit from the graving dock as follows: For entering vessels, the sample shall be collected when the graving dock is full of water, before the gate is opened, and before the vessel enters the graving dock. For exiting vessels, the sample shall be collected immediately before the flood water is deep enough to reach the vessel hull. 32° 41' 27" N: -117° 8' 25" W
SW-1	SW-1	A location where a representative sample of storm water from the northwest storm water collection system can be obtained 32° 41' 25" N -117° 8' 33" W
SW-2	SW-2	A location where a representative sample of storm water from the northwest storm water collection system can be obtained 32° 41' 21" N -117° 8' 20" W

III. CORE MONITORING REQUIREMENTS

A. Influent Monitoring Requirements – Not Applicable

B. Industrial Process Water Effluent Monitoring Requirements

Effluent monitoring is the collection and analysis of samples or measurements of effluents, after all treatment processes, to determine and quantify contaminants and to demonstrate compliance with applicable effluent limitations, standards, and other requirements of this Order.

Monitoring Questions. Effluent monitoring is necessary to address the following questions:

- (1) Does the effluent comply with permit effluent limitations, and other requirements of this Order, thereby ensuring that water quality standards are achieved in the receiving water?
- (2) What is the mass of constituents that are discharged daily, monthly, or annually?
- (3) Is the effluent concentration or mass changing over time?
- (4) Is the Facility being properly operated and maintained to ensure compliance with the conditions of the Order?

1. Monitoring Location IX-1 – Ion Exchange Treatment System

The Discharger shall monitor the discharge from the ion exchange treatment system at Monitoring Location No. IX-1 as follows:

Table E-2. Effluent Monitoring for Ion Exchange Treatment System

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	gpd	Grab	Monthly	Meter
pH	standard units	Grab	Monthly	1
Temperature	°F	Grab	Monthly	1
Copper, Total Recoverable	µg/L	Grab	Monthly	1,2
Cadmium, Total Recoverable	µg/L	Grab	Quarterly	1
Nickel, Total Recoverable	µg/L	Grab	Quarterly	1
Zinc, Total Recoverable	µg/L	Grab	Quarterly	1
Settleable Solids	mL/L	Grab	Monthly	1
Turbidity	NTU	Grab	Monthly	1
Total Suspended Solids	mg/L	Grab	Monthly	1
Oil and Grease	mg/L	Grab	Monthly	1
Total Petroleum Hydrocarbons (TPH)	mg/L	Grab	Semiannually	1
Chronic Toxicity	Pass/Fail	Grab	Semiannually	1,3
Antimony, Total Recoverable	µg/L	Grab	Semiannually	1
Arsenic	µg/L	Grab	Semiannually	1
Beryllium	µg/L	Grab	Semiannually	1
Chromium III	µg/L	Grab	Semiannually	1
Chromium VI	µg/L	Grab	Semiannually	1
Silver, Total Recoverable	µg/L	Grab	Semiannually	1
Lead, Total Recoverable	µg/L	Grab	Semiannually	1
Mercury, Total Recoverable	µg/L	Grab	Semiannually	1
Selenium, Total Recoverable	µg/L	Grab	Semiannually	1
Thallium	µg/L	Grab	Semiannually	1
Cyanide, Total (as CN) ³	µg/L	Grab	Semiannually	1
Asbestos	µg/L	Grab	Semiannually	1
2,3,7,8-TCDD (Dioxin)	µg/L	Grab	Semiannually	1
Acrolein	µg/L	Grab	Semiannually	1
Acrylonitrile	µg/L	Grab	Semiannually	1
Benzene	µg/L	Grab	Semiannually	1
Bromoform	µg/L	Grab	Semiannually	1
Carbon Tetrachloride	µg/L	Grab	Semiannually	1
Chlorobenzene	µg/L	Grab	Semiannually	1

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Chlorodibromomethane	µg/L	Grab	Semiannually	1
Chloroethane	µg/L	Grab	Semiannually	1
2-Chloroethylvinyl Ether	µg/L	Grab	Semiannually	1
Chloroform	µg/L	Grab	Semiannually	1
Dichlorobromomethane	µg/L	Grab	Semiannually	1
1,1-Dichloroethane	µg/L	Grab	Semiannually	1
1,2-Dichloroethane	µg/L	Grab	Semiannually	1
1,1-Dichloroethylene	µg/L	Grab	Semiannually	1
1,2-Dichloropropane	µg/L	Grab	Semiannually	1
1,3-Dichloropropylene	µg/L	Grab	Semiannually	1
Ethylbenzene	µg/L	Grab	Semiannually	1
Methyl Bromide	µg/L	Grab	Semiannually	1
Methyl Chloride	µg/L	Grab	Semiannually	1
Dichloromethane (Methylene Chloride)	µg/L	Grab	Semiannually	1
Methylene Chloride	µg/L	Grab	Semiannually	1
1,1,2,2-Tetrachloroethane	µg/L	Grab	Semiannually	1
Tetrachloroethylene	µg/L	Grab	Semiannually	1
Toluene	µg/L	Grab	Semiannually	1
1,2-Trans-Dichloroethelyene	µg/L	Grab	Semiannually	1
1,1,1-Trichloroethane	µg/L	Grab	Semiannually	1
1,1,2-Trichloroethane	µg/L	Grab	Semiannually	1
Trichloroethylene (Trichloroethene)	µg/L	Grab	Semiannually	1
Vinyl Chloride	µg/L	Grab	Semiannually	1
2-Chlorophenol	µg/L	Grab	Semiannually	1
2,4-Dichlorophenol	µg/L	Grab	Semiannually	1
2,4-Dimethylphenol	µg/L	Grab	Semiannually	1
2-Methyl-4,6-Dinitophenol	µg/L	Grab	Semiannually	1
2,4-Dinitrophenol	µg/L	Grab	Semiannually	1
2-Nitophenol	µg/L	Grab	Semiannually	1
3-Methyl-4-Chlorophenol	µg/L	Grab	Semiannually	1
Pentachlorophenol	µg/L	Grab	Semiannually	1
Phenol	µg/L	Grab	Semiannually	1
2,4,6-Trichlorophenol	µg/L	Grab	Semiannually	1

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Acenaphthene	µg/L	Grab	Semiannually	1
Acenaphthylene	µg/L	Grab	Semiannually	1
Anthracene	µg/L	Grab	Semiannually	1
Benzidine	µg/L	Grab	Semiannually	1
Benzo(a)Anthracene	µg/L	Grab	Semiannually	1
Benzo(a)Pyrene	µg/L	Grab	Semiannually	1
Benzo(b)Fluoranthene	µg/L	Grab	Semiannually	1
Benzo(ghi)Perylene	µg/L	Grab	Semiannually	1
Benzo(k)Fluoranthene	µg/L	Grab	Semiannually	1
Bis(2-Chloroethoxy)Methane	µg/L	Grab	Semiannually	1
Bis(d-Chloroethyl)Ether	µg/L	Grab	Semiannually	1
Bis(2-Chloroisopropyl)Ether	µg/L	Grab	Semiannually	1
Bis(2-Ethylhexyl)Phthalate	µg/L	Grab	Semiannually	1
4-Bromophenyl Phenyl Ether	µg/L	Grab	Semiannually	1
Butylbenzyl Phthalate	µg/L	Grab	Semiannually	1
2-Chloronaphthalene	µg/L	Grab	Semiannually	1
4-Chlorophenyl Phenyl Ether	µg/L	Grab	Semiannually	1
Chrysene	µg/L	Grab	Semiannually	1
Dibenzo(a,h)Anthracene	µg/L	Grab	Semiannually	1
1,2 Dichlorobenzene	µg/L	Grab	Semiannually	1
1,3 Dichlorobenzene	µg/L	Grab	Semiannually	1
1,4 Dichlorobenzene	µg/L	Grab	Semiannually	1
3,3'-Dichlorobenzidine	µg/L	Grab	Semiannually	1
Diethyl Phthalate	µg/L	Grab	Semiannually	1
Dimethyl Phthalate	µg/L	Grab	Semiannually	1
Di-n-Butyl Phthalate	µg/L	Grab	Semiannually	1
2,4-Dinitrotoluene	µg/L	Grab	Semiannually	1
2,6-Dinitrotoluene	µg/L	Grab	Semiannually	1
Di-n-Octyl Phthalate	µg/L	Grab	Semiannually	1
1,2-Diphenylhydrazine	µg/L	Grab	Semiannually	1
Fluoranthene	µg/L	Grab	Semiannually	1
Fluorene	µg/L	Grab	Semiannually	1
Hexachlorobenzene	µg/L	Grab	Semiannually	1
Hexachlorobutadien	µg/L	Grab	Semiannually	1

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Hexachlorocyclopentadiene	µg/L	Grab	Semiannually	1
Hexachloroethane	µg/L	Grab	Semiannually	1
Ideno(1,2,3-cd) Pyrene	µg/L	Grab	Semiannually	1
Isophorone	µg/L	Grab	Semiannually	1
Naphthalene	µg/L	Grab	Semiannually	1
Nitrobenzene	µg/L	Grab	Semiannually	1
N-Nitrosodimethylamine	µg/L	Grab	Semiannually	1
N-Nitrosodi-n-Propylamine	µg/L	Grab	Semiannually	1
N-Nitrosodiphenylamine	µg/L	Grab	Semiannually	1
Phenanthrene	µg/L	Grab	Semiannually	1
Pyrene	µg/L	Grab	Semiannually	1
1,2,4-Trichlorobenzene	µg/L	Grab	Semiannually	1
Aldrin	µg/L	Grab	Semiannually	1
Alpha-BHC	µg/L	Grab	Semiannually	1
Beta-BHC	µg/L	Grab	Semiannually	1
Gamma-BHC	µg/L	Grab	Semiannually	1
Delta-BHC	µg/L	Grab	Semiannually	1
Chlordane	µg/L	Grab	Semiannually	1
4,4'-DDT	µg/L	Grab	Semiannually	1
4,4'-DDE	µg/L	Grab	Semiannually	1
4,4'-DDD	µg/L	Grab	Semiannually	1
Dieldrin	µg/L	Grab	Semiannually	1
Alpha-Endosulfan	µg/L	Grab	Semiannually	1
Beta-Endosulfan	µg/L	Grab	Semiannually	1
Endosulfan Sulfate	µg/L	Grab	Semiannually	1
Endrin	µg/L	Grab	Semiannually	1
Endrin Aldehyde	µg/L	Grab	Semiannually	1
Heptachlor	µg/L	Grab	Semiannually	1
Heptachlor Epoxide	µg/L	Grab	Semiannually	1
Polychlorinated Biphenyls (PCBs)	µg/L	Grab	Semiannually	1
Toxaphene	µg/L	Grab	Semiannually	1

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
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¹ As specified in 40 CFR part 136.

² Influent and effluent samples shall be analyzed for copper according to method 1638 or 1640. The commonly used methods 6010B (Inorganics by ICP-Atomic Emission Spectroscopy) and 200.7 (Trace Elements-ICP) have been found to give inaccurate copper readings in saline-matrix samples due to interference with the sodium argon complex, which has a molecular weight similar to copper. Method 1638 (ICP/MS) or 1640 (On-Line Chelation) will eliminate the sodium-argon complex before the sample is tested for copper. No inaccurate readings for other metals in a saline-matrix sample that is analyzed by methods 6010B or 200.7 are known.

³ As specified in Section IV of this MRP.

2. Monitoring Locations M-2 – Graving Dock Flood Water

The Discharger shall monitor the graving dock dewatering flood water at Monitoring Location No. M-2 as follows:

Table E-3. Effluent Monitoring for Graving Dock Flood Water

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	gpd	Grab	Daily ⁴	Meter or Estimate
pH	standard units	Grab	Monthly ⁴	1
Temperature	°F	Grab	Monthly ⁴	1
Copper, Total Recoverable	µg/L	Grab	Monthly ⁴	1,2
Nickel, Total Recoverable	µg/L	Grab	Quarterly ⁴	1
Zinc, Total Recoverable	µg/L	Grab	Monthly ⁴	1
Settleable Solids	mL/L	Grab	Monthly ⁴	1
Turbidity	NTU	Grab	Monthly ⁴	1
Total Suspended Solids	mg/L	Grab	Monthly ⁴	1
Oil and Grease	mg/L	Grab	Monthly ⁴	1
Total Petroleum Hydrocarbons (TPH)	mg/L	Grab	Semiannually	1
Chronic Toxicity	Pass/Fail	Grab	Semiannually	1,3
Antimony, Total Recoverable	µg/L	Grab	Semiannually	1
Arsenic	µg/L	Grab	Semiannually	1
Beryllium	µg/L	Grab	Semiannually	1
Cadmium, Total Recoverable	µg/L	Grab	Semiannually	1
Chromium III	µg/L	Grab	Semiannually	1
Chromium VI	µg/L	Grab	Semiannually	1
Silver, Total Recoverable	µg/L	Grab	Semiannually	1
Lead, Total Recoverable	µg/L	Grab	Semiannually	1

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Mercury, Total Recoverable	µg/L	Grab	Semiannually	1
Selenium, Total Recoverable	µg/L	Grab	Semiannually	1
Thallium	µg/L	Grab	Semiannually	1
Cyanide, Total (as CN) 3	µg/L	Grab	Semiannually	1
Asbestos	µg/L	Grab	Semiannually	1
2,3,7,8-TCDD (Dioxin)	µg/L	Grab	Semiannually	1
Acrolein	µg/L	Grab	Semiannually	1
Acrylonitrile	µg/L	Grab	Semiannually	1
Benzene	µg/L	Grab	Semiannually	1
Bromoform	µg/L	Grab	Semiannually	1
Carbon Tetrachloride	µg/L	Grab	Semiannually	1
Chlorobenzene	µg/L	Grab	Semiannually	1
Chlorodibromomethane	µg/L	Grab	Semiannually	1
Chloroethane	µg/L	Grab	Semiannually	1
2-Chloroethylvinyl Ether	µg/L	Grab	Semiannually	1
Chloroform	µg/L	Grab	Semiannually	1
Dichlorobromomethane	µg/L	Grab	Semiannually	1
1,1-Dichloroethane	µg/L	Grab	Semiannually	1
1,2-Dichloroethane	µg/L	Grab	Semiannually	1
1,1-Dichloroethylene	µg/L	Grab	Semiannually	1
1,2-Dichloropropane	µg/L	Grab	Semiannually	1
1,3-Dichloropropylene	µg/L	Grab	Semiannually	1
Ethylbenzene	µg/L	Grab	Semiannually	1
Methyl Bromide	µg/L	Grab	Semiannually	1
Methyl Chloride	µg/L	Grab	Semiannually	1
Dichloromethane (Methylene Chloride)	µg/L	Grab	Semiannually	1
Methylene Chloride	µg/L	Grab	Semiannually	1
1,1,2,2-Tetrachloroethane	µg/L	Grab	Semiannually	1
Tetrachloroethylene	µg/L	Grab	Semiannually	1
Toluene	µg/L	Grab	Semiannually	1
1,2-Trans-Dichloroethelyene	µg/L	Grab	Semiannually	1
1,1,1-Trichloroethane	µg/L	Grab	Semiannually	1
1,1,2-Trichloroethane	µg/L	Grab	Semiannually	1

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Trichloroethylene (Trichloroethene)	µg/L	Grab	Semiannually	1
Vinyl Chloride	µg/L	Grab	Semiannually	1
2-Chlorophenol	µg/L	Grab	Semiannually	1
2,4-Dichlorophenol	µg/L	Grab	Semiannually	1
2,4-Dimethylphenol	µg/L	Grab	Semiannually	1
2-Methyl-4,6-Dinitrophenol	µg/L	Grab	Semiannually	1
2,4-Dinitrophenol	µg/L	Grab	Semiannually	1
2-Nitrophenol	µg/L	Grab	Semiannually	1
3-Methyl-4-Chlorophenol	µg/L	Grab	Semiannually	1
Pentachlorophenol	µg/L	Grab	Semiannually	1
Phenol	µg/L	Grab	Semiannually	1
2,4,6-Trichlorophenol	µg/L	Grab	Semiannually	1
Acenaphthene	µg/L	Grab	Semiannually	1
Acenaphthylene	µg/L	Grab	Semiannually	1
Anthracene	µg/L	Grab	Semiannually	1
Benzidine	µg/L	Grab	Semiannually	1
Benzo(a)Anthracene	µg/L	Grab	Semiannually	1
Benzo(a)Pyrene	µg/L	Grab	Semiannually	1
Benzo(b)Fluoranthene	µg/L	Grab	Semiannually	1
Benzo(ghi)Perylene	µg/L	Grab	Semiannually	1
Benzo(k)Fluoranthene	µg/L	Grab	Semiannually	1
Bis(2-Chloroethoxy)Methane	µg/L	Grab	Semiannually	1
Bis(d-Chloroethyl)Ether	µg/L	Grab	Semiannually	1
Bis(2-Chloroisopropyl)Ether	µg/L	Grab	Semiannually	1
Bis(2-Ethylhexyl)Phthalate	µg/L	Grab	Semiannually	1
4-Bromophenyl Phenyl Ether	µg/L	Grab	Semiannually	1
Butylbenzyl Phthalate	µg/L	Grab	Semiannually	1
2-Chloronaphthalene	µg/L	Grab	Semiannually	1
4-Chlorophenyl Phenyl Ether	µg/L	Grab	Semiannually	1
Chrysene	µg/L	Grab	Semiannually	1
Dibenzo(a,h)Anthracene	µg/L	Grab	Semiannually	1
1,2 Dichlorobenzene	µg/L	Grab	Semiannually	1

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
1,3 Dichlorobenzene	µg/L	Grab	Semiannually	1
1,4 Dichlorobenzene	µg/L	Grab	Semiannually	1
3,3'-Dichlorobenzidine	µg/L	Grab	Semiannually	1
Diethyl Phthalate	µg/L	Grab	Semiannually	1
Dimethyl Phthalate	µg/L	Grab	Semiannually	1
Di-n-Butyl Phthalate	µg/L	Grab	Semiannually	1
2,4-Dinitrotoluene	µg/L	Grab	Semiannually	1
2,6-Dinitrotoluene	µg/L	Grab	Semiannually	1
Di-n-Octyl Phthalate	µg/L	Grab	Semiannually	1
1,2-Diphenylhydrazine	µg/L	Grab	Semiannually	1
Fluoranthene	µg/L	Grab	Semiannually	1
Fluorene	µg/L	Grab	Semiannually	1
Hexachlorobenzene	µg/L	Grab	Semiannually	1
Hexachlorobutadien	µg/L	Grab	Semiannually	1
Hexachlorocyclopentadiene	µg/L	Grab	Semiannually	1
Hexachloroethane	µg/L	Grab	Semiannually	1
Ideno(1,2,3-cd) Pyrene	µg/L	Grab	Semiannually	1
Isophorone	µg/L	Grab	Semiannually	1
Naphthalene	µg/L	Grab	Semiannually	1
Nitrobenzene	µg/L	Grab	Semiannually	1
N-Nitrosodimethylamine	µg/L	Grab	Semiannually	1
N-Nitrosodi-n-Propylamine	µg/L	Grab	Semiannually	1
N-Nitrosodiphenylamine	µg/L	Grab	Semiannually	1
Phenanthrene	µg/L	Grab	Semiannually	1
Pyrene	µg/L	Grab	Semiannually	1
1,2,4-Trichlorobenzene	µg/L	Grab	Semiannually	1
Aldrin	µg/L	Grab	Semiannually	1
Alpha-BHC	µg/L	Grab	Semiannually	1
Beta-BHC	µg/L	Grab	Semiannually	1
Gamma-BHC	µg/L	Grab	Semiannually	1
Delta-BHC	µg/L	Grab	Semiannually	1
Chlordane	µg/L	Grab	Semiannually	1
4,4'-DDT	µg/L	Grab	Semiannually	1
4,4'-DDE	µg/L	Grab	Semiannually	1

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
4,4'-DDD	µg/L	Grab	Semiannually	1
Dieldrin	µg/L	Grab	Semiannually	1
Alpha-Endosulfan	µg/L	Grab	Semiannually	1
Beta-Endosulfan	µg/L	Grab	Semiannually	1
Endosulfan Sulfate	µg/L	Grab	Semiannually	1
Endrin	µg/L	Grab	Semiannually	1
Endrin Aldehyde	µg/L	Grab	Semiannually	1
Heptachlor	µg/L	Grab	Semiannually	1
Heptachlor Epoxide	µg/L	Grab	Semiannually	1
Polychlorinated Biphenyls (PCBs)	µg/L	Grab	Semiannually	1
Toxaphene	µg/L	Grab	Semiannually	1

¹ As specified in 40 CFR part 136.

² Influent and effluent samples shall be analyzed for copper according to method 1638 or 1640. The commonly used methods 6010B (Inorganics by ICP-Atomic Emission Spectroscopy) and 200.7 (Trace Elements-ICP) have been found to give inaccurate copper readings in saline-matrix samples due to interference with the sodium-argon complex, which has a molecular weight similar to copper. Method 1638 (ICP/MS) or 1640 (On-Line Chelation) will eliminate the sodium-argon complex before the sample is tested for copper. No inaccurate readings for other metals in a saline-matrix sample that is analyzed by methods 6010B or 200.7 are known.

³ As specified in Section IV of this MRP.

⁴ Sampling is required only when a discharge occurs (i.e. flooding of the graving dock during launch or retrieval evolution).

C. Storm Water Monitoring of Industrial High Risk Areas

1. **Monitoring Questions.** The industrial storm water monitoring program is designed to address the following primary questions:
 - (1) Does the storm water discharge meet permit effluent limitations for toxicity thereby ensuring water quality standards are achieved in the receiving water?
 - (2) Does the storm water discharge meet Numeric Action Levels (NALs)?
 - (3) Is the Storm Water Pollution Prevention Plan (SWPPP) being properly implemented?
 - (4) Is the Facility achieving standards of Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT)?
2. **Non-Storm Water Discharge Visual Observations and Assessment**
 - a. Monthly, the Discharger shall visually assess each drainage area for the presence or indications of prior, current, or potential unauthorized non-storm water discharges and their sources.
 - b. The monthly visual observations shall include evaluation of the implementation and effectiveness of Best Management Practices (BMPs).

- c. The monthly visual observations shall be conducted during daylight hours, on days without precipitation, and during scheduled facility operating hours¹.
- d. Visual observations shall document the presence of or the indication of any non-storm water discharge, pollutant characteristics (floating and suspended material, oil and grease, discoloration, turbidity, odor, etc.), and source of the discharge.
- e. The Discharger shall maintain records of the personnel performing the visual observations, the dates and approximate time each drainage area and non-storm water discharge was observed, and the response taken to eliminate unauthorized non-storm water discharges and to reduce or prevent pollutants from contacting non-storm water discharges. The SWPPP shall be revised, as necessary, and implemented in accordance with Attachment G of this Order.
- f. In the Industrial Storm Water Annual Report referenced in section III.C.7 below, the Discharger shall provide a summary and evaluation of visual observations as well as an explanation for uncompleted monthly visual observations.

3. Industrial Storm Water Diversion System Assessment

- a. The Discharger shall conduct annual evaluations of the Storm Water Diversion System (SWDS) including berms, pumps, pipes, tanks, and sewer connections to ensure that all elements are in good repair and in an operational status.
- b. The Discharger shall conduct annual visual observations during a precipitation event which produces runoff to observe the perimeter of the Facility and the receiving water to ensure that no storm water discharges are visible during storms less than 3.5 inches.

4. Industrial Storm Water Discharge Visual Observations

- a. Sampling event visual observations shall be conducted at the same time sampling occurs at a discharge location. At each discharge location where a sample is obtained, the Discharger shall observe the discharge of storm water associated with industrial activity.
- b. The Discharger shall ensure that visual observations of discharge(s) from contained storm water are conducted at the time of discharge. If the discharge is not likely to occur during scheduled facility operating hours (based upon rainfall forecasts and containment freeboard), the visual observations of the contained storm water shall be conducted prior to the discharge. Visual observations shall confirm that the discharge is complying with the discharge prohibitions contained in section III of this Order.
- c. If the Discharger is employing volume-based or flow-based treatment Best Management Practices (BMPs), any bypass that occurs while the visual observations and/or sampling of storm water discharges are conducted shall be sampled.
- d. The Discharger shall visually observe and record the presence or absence of floating and suspended materials, oil and grease, discolorations, turbidity, odors, trash/debris, and source(s) of any observed pollutants.

¹ Scheduled facility operating hours are the time periods when the Facility is staffed to conduct any function related to industrial activity, but excluding time periods where only routine maintenance, emergency response, security, and/or janitorial services are performed.

- e. In the event that a discharge location is not visually observed during the sampling event, the Discharger shall record which discharge locations were not observed during sampling or that there was no discharge from the discharge location.
- f. The Discharger shall maintain records of all visual observations. Records shall include the date, approximate time, locations observed, name of person(s) that conducted the observations, and any response actions and/or additional SWPPP revisions necessary in response to the visual observations.
- g. The Discharger shall revise BMPs as necessary when the visual observations indicate pollutant sources have not been adequately addressed in the SWPPP.
- h. In the Industrial Storm Water Annual Report referenced in section III.C.7 below, the Discharger shall provide a summary and evaluation of visual observations as well as an explanation for uncompleted visual observations.

5. Industrial High Risk Storm Water Sampling and Analysis

- a. A Qualifying Storm Event (QSE) is a precipitation event that:
 - i. Produces a discharge for at least one drainage area; and
 - ii. Is preceded by 48 hours with no discharge from any drainage area.
- b. The Discharger shall collect storm water samples from two QSEs during each semiannual period (i.e. January – June, July – December). Representative storm water discharge locations for Industrial High Risk Areas, as defined under section IV.A. of this Order, shall be sampled as specified in Table E-4 below.
- c. Samples shall be collected from all industrial storm water monitoring locations (Monitoring Location Nos. SW-1 and SW-2) within four hours of the following:
 - i. The start of the discharge, or
 - ii. The start of Facility operations if the QSE occurs within the previous 12 hour period (storms that begin the previous night) and representative discharge of the facility is determined to still be occurring. Sample collection is required during scheduled Facility operating hours and when sampling conditions are safe.
- d. The Discharger shall visually observe and collect samples of storm water discharges from Discharge Point Nos. SW-001 through SW-009 that represent the quality and quantity of the Facility's industrial storm water discharges from the storm event. Monitoring stations shall be positioned at points where the industrial storm water flow has not commingled with any flow of water from a non-industrial area, and where samples representative of the discharge of storm water runoff associated with industrial activity in the drainage area can be obtained.
- e. Monitoring locations shall be identified in the SWPPP, depicted on a site map, and shall not be changed without notice to and the approval of the San Diego Water Board.
- f. Sampling of stored or contained storm water shall occur at the time the stored or contained storm water is discharged. Samples shall be collected from two QSEs during each semiannual period (i.e. January – June, July – December).
- g. Composite samples shall be flow-weighted storm water samples for the duration of the storm. If composite samples are collected, all parameters identified in Table E-4 with a sample type of grab or composite must be analyzed using composite samples.

- h. In the event that the first QSE in a semi-annual period does not produce a discharge that can be sampled at one or more sampling locations, the Discharger shall record which sampling locations were observed that did not discharge, and collect samples from those locations during the next QSE(s) that produces a discharge in that semi-annual period. If the Discharger fails to collect a sample at one or more sampling locations that did produce a discharge, the Discharger is required to fulfill the sampling requirement from an additional QSE that produces a discharge.
- i. The industrial storm water discharges from the Industrial High Risk Areas, shall be sampled and analyzed as shown in Table E-4 below.

Table E-4. Monitoring Requirements for Industrial Storm Water Discharges

Parameter	Units	Sample Type	Minimum Frequency ⁶	Required Analytical Test Method
Discharge Volume	gallons	Estimate ¹	Two storms per semiannual period	Estimate
Conventional Pollutants				
Chemical Oxygen Demand	mg/L	Grab	Two storms per semiannual period	²
Oil and Grease	mg/L	Grab	Two storms per semiannual period	²
Total Suspended Solids	mg/L	Grab	Two storms per semiannual period	²
Settleable Solids	ml/L	Grab	Two storms per semiannual period	²
pH	pH Units	Grab	Two storms per semiannual period	⁵
Priority Pollutants				
Arsenic, Total Recoverable ⁷	µg/L	Grab	Two storms per semiannual period	²
Cadmium, Total Recoverable ⁷	µg/L	Grab	Two storms per semiannual period	²
Chromium, Total Recoverable ⁷	µg/L	Grab	Two storms per semiannual period	²
Copper, Total Recoverable ⁷	µg/L	Grab	Two storms per semiannual period	²
Lead, Total Recoverable ⁷	µg/L	Grab	Two storms per semiannual period	²
Mercury, Total Recoverable ⁷	µg/L	Grab	Two storms per semiannual period	²
Nickel, Total Recoverable ⁷	µg/L	Grab	Two storms per semiannual period	²
Silver, Total Recoverable ⁷	µg/L	Grab	Two storms per semiannual period	²
Zinc, Total Recoverable	µg/L	Grab	Two storms per semiannual period	²
Non-Conventional Pollutants				
Aluminum, Total Recoverable ⁷	µg/L	Grab or Composite	Two storms per semiannual period.	²
Iron, Total Recoverable ⁷	µg/L	Grab or Composite	Two storms per semiannual period.	²
Magnesium, Total	µg/L	Grab or Composite	Two storms per	²

Parameter	Units	Sample Type	Minimum Frequency ⁶	Required Analytical Test Method
Recoverable ⁷			semiannual period.	
Nitrate+Nitrite Nitrogen ⁷	mg/L	Grab or Composite	Two storms per semiannual period.	2
Phosphorus, Total ⁷	mg/L	Grab or Composite	Two storms per semiannual period.	2
Ammonia ⁷	mg/L	Grab or Composite	Two storms per semiannual period.	2
Chronic Toxicity	Pass/ Fail, % effect (TST)	Grab	Two storms per semiannual period	3
Other Pollutants ^{4,7}	µg/L	Grab	Two storms per semiannual period	2

- 1 The volume of storm water discharge can be estimated by multiplying: amount of rainfall in feet × square feet of surface area × impervious factor. There are 7.5 gallons per cubic foot.
- 2 As specified in Table G-1 of Attachment G to this Order or 40 CFR section 136.3.
- 3 The presence of chronic toxicity in the storm water shall be determined as specified in section IV. of this MRP.
- 4 Pollutants that are likely to be present in storm water discharges in significant quantities shall be sampled. The pollutants shall be selected based upon the pollutant source assessment required in section VII of the SWPPP requirements contained in Attachment G, visual observations, and inspection records. If these pollutants are not detected in significant quantities after two consecutive sampling events, the Discharger may reduce the pollutant analysis to only the first QSE each year. The Discharger shall select appropriate analytical test methods that indicate the presence of pollutants in storm water discharges in significant quantities.
- 5 Field test with pre- and post-calibrated portable instrument, or lab sample in accordance with 40 CFR part 136.
- 6 Sampling shall occur during QSEs, or if collected, prior to release to receiving water. If there are no QSEs during the year, then sampling shall occur as soon as possible. If there are no qualifying storm events during the fifth year and conditions for administrative extension are met, then sampling shall occur as soon as possible.
- 7 After four consecutive sample events where parameters are not detected or below the Annual Numerical Action Level (NAL) values, analysis for those parameters may be reduced to only the first QSE each year.

j. Sampling Frequency Reduction Certification

- i. The Discharger is eligible to reduce the number of QSEs sampled each reporting year in accordance with the following requirements:
 - a) Results from four consecutive QSEs that were sampled (QSEs may be from different reporting years) did not exceed any NALs; and
 - b) The Discharger is in full compliance with the requirements of this Order and has updated, certified and submitted all documents, data, and reports required by this Order during the time period in which samples were collected.
 - c) The Discharger has certified that it meets conditions a) and b) above.
- ii. The San Diego Water Board may notify a Discharger that it may not reduce the number of QSEs sampled each reporting year if the Discharger is subject to an enforcement action.
- iii. Upon Sampling Frequency Reduction certification, the Discharger shall collect and analyze samples from the first QSE within the first half of each reporting year (July 1 to December 31), and the first QSE within the second half of each reporting year (January 1 to June 30). All other monitoring, sampling, and reporting requirements remain in effect.

- iv. A Discharger may reduce sampling per the Sampling Frequency Reduction certification unless notified by the San Diego Water Board that: (1) the Sampling Frequency Reduction certification has been rejected or (2) additional supporting documentation must be submitted. In such instances, a Discharger is ineligible for the Sampling Frequency Reduction until the San Diego Water Board provides Sampling Frequency Reduction certification approval. Revised Sampling Frequency Reduction certifications shall be certified and submitted by the Discharger.
- v. A Discharger loses its Sampling Frequency Reduction certification if an NAL exceedance occurs.

6. Visual Observation and Sample Collection Exceptions

The Discharger shall be prepared to collect samples and conduct visual observations at the beginning of the semiannual period until the minimum requirements of this section are completed with the following exceptions:

- a. The Discharger is not required to collect samples or conduct visual observations under the following conditions:
 - i. During dangerous weather conditions such as flooding and electrical storms; or
 - ii. Outside of scheduled Facility operating hours. The Discharger is not precluded from collecting samples or conducting visual observations outside of scheduled facility operation hours.
- b. If the Discharger does not collect the required samples or conduct the visual observations during a wet season due to these exceptions, then the Discharger shall include an explanation in the Annual Report why the sampling or visual observations were not conducted.
- c. The Discharger shall ensure that all industrial storm water discharge sampling locations are representative of drainage areas associated with industrial activities, where practicable. The storm water discharge observed and collected from these sampling locations shall be representative of the storm water discharge generated in each drainage area. For sheet flow, the Discharger shall determine the appropriate sampling location(s) which represent industrial storm water discharges generated from the corresponding drainage area.
- d. The Discharger shall identify practicable alternate sample collection locations representative of the Facility's storm water discharge if:
 - i. Specific drainage areas at the Facility are affected by storm water run-on from offsite areas or on-site non-industrial areas; or
 - ii. Specific sampling locations are difficult to sample such as submerged discharge outlets, dangerous discharge location accessibility.

7. Industrial Storm Water Annual Report

The Discharger shall submit an Industrial Storm Water Annual Report by September 1 of each year to the San Diego Water Board. The report shall include the following:

- a. A summary and evaluation of visual observations.

- b. A certification that the SWDS is in good repair and with an operational status and continues to have capacity to capture a 100-year frequency storm event (equivalent to approximately 3.5 inches of rain in 24 hours).
- c. The Annual Comprehensive Site Compliance Evaluation Report as required by section IX of the SWPPP requirements contained in Attachment G.
- d. A list of authorized and non-authorized non-storm water discharges.
- e. If there were no storm water discharges during the monitoring period, a statement certifying that no storm water discharges occurred during the monitoring period.
- f. If there was a storm water discharge during the monitoring period, a discussion describing the discharges including an estimate of the volume discharged, visual observations, size of storm, and circumstances of the discharge(s).
- g. All sample data including laboratory reports.

IV. WHOLE EFFLUENT TOXICITY (WET) TESTING REQUIREMENTS

Whole effluent toxicity (WET) refers to the overall aggregate toxic effect of an effluent measured directly by an aquatic toxicity test(s). The control of WET is one approach this Order uses to control the discharge of toxic pollutants. WET tests evaluate the 1) aggregate toxic effects of all chemicals in the effluent including additive, synergistic, or antagonistic effects; 2) the toxicity effects of unmeasured chemicals in the effluent; and 3) variability in bioavailability of the chemicals in the effluent.

The WET testing is designed to address the following primary questions:

- (1) Does the effluent meet permit effluent limits for toxicity thereby ensuring that water quality standards are achieved in the receiving water?
- (2) If the effluent does not comply with permit effluent limitations for chronic toxicity, are unmeasured pollutants causing risk to aquatic life? Are unmeasured pollutants causing risk to aquatic life?
- (3) If the effluent does not comply with permit effluent limitations for chronic toxicity, are pollutants in combinations causing risk to aquatic life? Are conditions in receiving water getting better or worse with regard to toxicity?

A. Monitoring Frequency for Chronic Toxicity

The Discharger shall conduct chronic toxicity monitoring at the frequencies and locations specified in Tables E-2, E-3, E-4, and E-5 of this Order.

B. Marine and Estuarine Species and Test Methods

The Discharger shall conduct a species sensitivity screening for chronic toxicity on a representative sample which shall include one vertebrate, one invertebrate, and one aquatic plant during the first required monitoring period. The species sensitivity screening samples shall also be analyzed for the parameters required for the discharge. The test species that exhibits the highest percent effect at the Instream Waste Concentration (IWC) during a species sensitivity screening (i.e. the most sensitive species) shall be utilized for routine monitoring during the permit cycle.

The Discharger shall follow the methods for chronic toxicity tests as established in 40 CFR section 136.3. The U.S. EPA method manuals referenced therein include *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition* (EPA-821-R-02-013), and *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Third*

Edition (EPA-821-R-02-014). Additional methods for chronic toxicity monitoring are outlined in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms, First Edition* (EPA-600-R-95-136).

For discharges to marine and estuarine waters, the Discharger shall conduct a static renewal toxicity test with the topsmelt, *Atherinops affinis* (Larval Survival and Growth Test Method 1006.0 (Daily observations for mortality make it possible to calculate acute toxicity for desired exposure periods (i.e. 7-day LC50, 96-hour LC50, etc.)); a static non-renewal toxicity test with the giant kelp, *Macrocystis pyrifera* (Germination and Growth Test Method 1009.0); and a static non-renewal toxicity test with the purple sea urchin, *Strongylocentrotus purpuratus*, or the sand dollar, *Dendraster excentricus* (Fertilization Test Method 1008.0 or Embryo-Larval Development Test Method).

If laboratory-held cultures of the topsmelt, *Atherinops affinis*, are not available for testing, then the Discharger shall conduct a static renewal toxicity test with the inland silverside, *Menidia beryllina* (Larval Survival and Growth Test Method 1006.01), found in the third edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA/821/R-02/014, 2002; Table IA, 40 CFR part 136). Additional species may be used by the Discharger if approved by the San Diego Water Board.

The total sample volume shall be determined by the specific toxicity test method(s) used. Sufficient sample volume shall be collected to perform the required toxicity test. Sufficient sample volume shall also be collected during accelerated monitoring for subsequent Toxicity Identification Evaluation (TIE) studies, if necessary, at each sampling event. All toxicity tests shall be conducted as soon as possible following sample collection. The 36-hour sample holding time for test initiation shall be targeted. For static-renewal toxicity tests, each grab or composite sample may also be used to prepare test solutions for renewal at 24 h, 48 h, and/or 72 h after first use, if stored at 0-6 °C, with minimum head space.

C. Compliance Determination

The Maximum Daily Effluent Limitation (MDEL) for chronic toxicity is exceeded and a violation will be flagged when a toxicity test during routine monitoring results in a “Fail” in accordance with the Test of Significant Toxicity (TST) approach and the percent effect is greater than or equal to 50%.

The Median Monthly Effluent Limitation (MMEL) for chronic toxicity is exceeded and a violation will be flagged when the median results of three independent toxicity tests, conducted within the same calendar month, and analyzed using the TST, (i.e. 2 out of 3) is a “Fail.”

The determination of “Pass” or “Fail” from a single effluent concentration chronic toxicity test at the IWC of 100 percent effluent shall be determined using the TST approach described in the *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010).

The Discharger shall report the results of reasonable potential analyses, species sensitivity screenings, and routine toxicity tests to the San Diego Water Board as either a “Pass” or a “Fail” at the IWC, in accordance with the TST approach and provide the calculated percent effect at the IWC. The methodology for determining “Pass”, “Fail” and “percent effect” is provided below.

Pass

A chronic toxicity test result that rejects the null hypothesis (Ho) below is reported as “Pass” in accordance with the TST approach:

Ho: Mean response (100 percent effluent) $\leq 0.75 \times$ Control mean response

Fail

A chronic toxicity test result that does not reject the null hypothesis (Ho) above is reported as “Fail” in accordance with the TST approach.

Percent Effect

The percent effect at the IWC is calculated for each chronic toxicity test result using the following equation:

$$\% \text{ Effect at IWC} = \frac{\text{Mean Control Response} - \text{Mean IWC Response}}{\text{Mean Control Response}} * 100$$

D. Chronic Toxicity MDEL Exceedance Follow-up Action

A chronic toxicity test result during routine monitoring indicating a “Fail” with a percent effect at or above 50% is an exceedance of the chronic toxicity MDEL. The Discharger shall implement corrective action to abate the source of the toxicity within 24 hours from the time the Discharger becomes aware of an MDEL exceedance, if the source of toxicity is known (e.g. operational upset). The Discharger shall also conduct an additional toxicity test during the next discharge event after receiving results of an exceedance.

If the additional test result for industrial process wastewater results in a “Pass” or a “Fail at a percent effect less than 25%, the Discharger may return to routine monitoring for the following monitoring period. If the verification test results in a “Fail” at a percent effect greater than or equal to 25%, the Discharger shall implement an accelerated monitoring schedule for chronic toxicity as set forth below in section IV.F of this MRP.

E. Quality Assurance (QA)

Quality assurance (QA) measures, instructions, and other recommendations and requirements are found in the test methods manual previously referenced. Additional requirements are specified below.

1. The discharge is subject to determination of “Pass” or “Fail” from a chronic toxicity test using the TST statistical t-test approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1 and Appendix B, Table B-1.
2. For this discharge, a mixing zone or dilution allowance is not authorized. The chronic IWC for this discharge is 100% effluent.
3. Effluent dilution water and control water should be prepared and used as specified in the test methods manual *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136, 1995) and/or *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA/821/R-02/014, 2002). If the dilution water is different from test organism culture water, then a second control using culture water shall also be used. If the use of artificial sea salts is considered provisional in the test method, then artificial sea salts shall not be used to increase the salinity of the effluent sample prior to toxicity testing without written approval by the permitting authority.
4. If organisms are not cultured in-house, then concurrent testing with a reference toxicant shall be conducted. If organisms are cultured in-house, then monthly reference toxicant testing is sufficient. Reference toxicant tests and effluent toxicity tests shall be conducted using the same test conditions (e.g. same test duration, etc.).

5. If either the reference toxicant or effluent toxicity tests do not meet all test acceptability criteria in the test methods manual, then the Discharger must resample and retest within 14 days (or as soon as possible for storm water or flood water).
6. Because this permit requires sublethal hypothesis testing endpoints from test methods in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136, 1995), within-test variability must be reviewed for acceptability and a variability criterion (upper Percent Minimum Significant Difference bound) must be applied, as directed under each test method. Based on this review, only accepted effluent toxicity test results shall be reported on the Discharger Monitoring Report (DMR). If excessive within-test variability invalidates a test result, then the Discharger must resample and retest within 14 days.
7. pH drift during the toxicity test may contribute to artifactual toxicity when pH-dependent toxicants (e.g. ammonia, metals) are present in an effluent. To determine whether or not pH drift during the toxicity test is contributing to artifactual toxicity, the Discharger shall conduct three sets of parallel toxicity tests, in which the pH of one treatment is controlled at the pH of the effluent and the pH of the other treatment is not controlled, as described in section 11.3.6.1 of the test methods manual, *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA/821/R-02/013, 2002). Toxicity is confirmed to be artifactual and due to pH drift when no toxicity above the chronic WET permit limit or trigger is observed in the treatments controlled at the pH of the effluent. If toxicity is confirmed to be artifactual and due to pH drift, then, following written approval by the permitting authority, the Discharger may use the procedures outlined in section 11.3.6.2 of the test methods manual to control sample pH during the toxicity test.

F. Accelerated Chronic Toxicity Testing Monitoring Schedule

The Discharger shall implement an accelerated chronic toxicity monitoring schedule, as required by section IV.D of this MRP, conducted at approximately two week intervals, over an eight-week period (or as soon as possible for storm or flood water). All toxicity tests conducted during an accelerated monitoring schedule shall, at a minimum, include the IWC and four additional concentrations. The additional effluent concentrations should provide useful information regarding the intensity and persistence of the toxic effect(s). If all of the additional tests result in a "Pass" or "Fail" with less than 25% percent effect, the Discharger may return to routine monitoring for the following monitoring period. If any one of the additional tests result in a "Fail" and exhibit a percent effect equal to or greater than 25%, the Discharger shall implement an approved Toxicity Reduction Evaluation (TRE) Work Plan as set forth below in section IV.G of this MRP. The requirement for a TRE may be waived by the San Diego Water Board on a case-by-case basis if implementation of a previously approved TRE Work Plan is already underway for the sampled discharge point.

G. Toxicity Reduction Evaluation (TRE)

1. **TRE Work Plan Submittal.** The Discharger shall prepare and submit a TRE Work Plan to the San Diego Water Board no later than 30 days from the time the Discharger becomes aware that industrial process water or storm water from an Industrial High Risk Area had a chronic toxicity test result in a "Fail" and exhibit a percent effect greater than or equal to 25% during accelerated monitoring.
2. **TRE Work Plan.** The TRE Work Plan shall be in conformance with the U.S. EPA manual *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations* (EPA/600/2-88/070, 1989). The TRE Work Plan shall also include the following information:

- a. A description of the actions to be undertaken by the Discharger to investigate, identify, and correct the causes of toxicity.
 - b. If the MDEL noncompliance has not been corrected, the amount of time it is expected to continue.
 - c. A description of the steps taken or planned to reduce, eliminate and prevent recurrence of the MDEL noncompliance.
 - d. A schedule for completion of all activities and submission of a final report.
- 3. TRE Work Plan Implementation.** The Discharger shall implement the TRE Work Plan unless otherwise directed in writing by the San Diego Water Board. The Discharger shall comply with any additional conditions set by the San Diego Water Board.
- 4. TRE Progress Reports.** The Discharger shall prepare and provide written semiannual progress reports which: (1) describe the actions that have been taken toward achieving compliance with the chronic toxicity MDEL for the previous six months; (2) describe all activities including, data collection and other field activities which are scheduled for the next year and provide other information relating to the progress of work; (3) identify any modifications to the compliance plans that the Discharger proposed to the San Diego Water Board or that have been approved by San Diego Water Board during the previous six months; and (4) include information regarding all delays encountered or anticipated that may affect the future schedule for completion of the actions required to attain compliance with the MDEL, and a description of all efforts made to mitigate those delays or anticipated delays. These progress reports shall be submitted to the San Diego Water Board semiannually by February 1 and August 1 each year following the adoption of this Order in accordance with the reporting schedule in Table E-6. Submission of these progress reports shall continue until compliance with the MDEL is achieved.
- 5. Toxicity Identification Evaluation (TIE).** Based upon the magnitude and persistence the chronic toxicity, the Discharger may initiate a TIE as part of a TRE to identify the causes of toxicity using the same species and test method and, as guidance, EPA manuals: *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures* (EPA/600/6-91/003, 1991); *Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/080, 1993); *Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/081, 1993); and *Marine Toxicity Identification Evaluation (TIE): Phase I Guidance Document* (EPA/600/R-96-054, 1996). If a TIE is undertaken, the Discharger shall prepare and submit a work plan to the San Diego Water Board containing the following elements and comply with any conditions set by the Board:
- a. Criteria for initiating a TIE on a sample.
 - b. Roles and responsibilities of the team conducting the TIE.
 - c. Study design, sample treatments, and chemical analysis.
 - d. Data evaluation and communication.
 - e. Follow-up actions.
 - f. A schedule for status reports at least quarterly.
 - g. A schedule for completion of all activities and submission of a final report.

H. Violations

An exceedance of the MDEL or MMEL during routine monitoring is a violation. Any exceedances occurring during a required accelerated monitoring period and, if appropriate, a TRE period shall not constitute additional violations provided that (1) the Discharger proceeds with the accelerated monitoring and TRE (if required) in a timely manner; and (2) the accelerated monitoring and TRE are completed within one year of the initial exceedance. The San Diego Water Board has the discretion to impose additional violations and initiate an enforcement action for toxicity tests that result in a "Fail" after one year from the initial violation. Additionally, a discharger's failure to initiate an accelerated monitoring schedule or conduct a TRE, as required by this Order, will result in all exceedances being considered violations of the MDEL or MMEL and may result in the initiation of an enforcement action.

I. Reporting of Chronic Toxicity Monitoring Results

1. The Discharger shall submit:
 - a. A full laboratory report for all toxicity testing as an attachment to the monitoring report. The laboratory report shall contain the toxicity test results; the dates of sample collection and initiation of each toxicity test; and all results for effluent parameters monitored concurrently with the toxicity test(s). All toxicity test results (whether identified as valid or otherwise) conducted during the calendar month shall be reported.
 - b. The actual test endpoint responses for the control (i.e. the control mean) and the IWC (i.e. the IWC mean) for each toxicity test to facilitate the review of test results and determination of reasonable potential for toxicity by the permitting authority.
 - c. A summary of water quality measurements for each toxicity test (e.g. pH, dissolved oxygen, temperature, conductivity, hardness, salinity).
 - d. All results for effluent parameters monitored concurrently with the toxicity tests.
 - e. Statistical program (e.g. TST Calculator, CETIS, etc.) output results, including graphical plots for each toxicity test.
 - f. Any additional Quality Assurance/ Quality Control (QA/QC) documentation or any additional toxicity related information.
2. The Discharger shall notify the San Diego Water Board in writing within 14 days of receipt of any test result with an exceedance of the toxicity limit. This notification shall describe actions the Discharger has taken or will take to investigate, identify, and correct the causes of toxicity; the status of actions required by this permit; and schedule for actions not yet completed; or reason(s) that no action has been taken.

V. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

The receiving water and sediment monitoring requirements set forth below are designed to measure the effects of the Facility discharges on San Diego Bay receiving waters.

A. Monitoring Questions: The receiving water and sediment monitoring shall be designed and conducted to address the following primary questions:

- (1) Does the discharge cause or contribute to violations of the receiving water limitations in section V of this Order?
- (2) Are the receiving water conditions getting better or worse over time?
- (3) Does the Facility cause or contribute to violations of the receiving water limitations in section V of this Order?

(4) Is the sediment condition changing over time?

At this time, receiving water and sediment monitoring in the vicinity of the Facility shall be conducted as specified below. This program is intended to document conditions of receiving waters and bay bottom sediments within the vicinity of the Facility discharges. Station location, sampling, sample preservation, and analyses, when not specified, shall be by methods approved by the San Diego Water Board. The monitoring program may be modified by the San Diego Water Board at any time. The Discharger may also submit proposals, including the supporting rationale, for reductions or other changes to these monitoring requirements that it considers to be appropriate to the San Diego Water Board for approval.

During monitoring events sample stations shall be located using a land-based microwave positioning system or a satellite positioning system such as Global Positioning System (GPS). If an alternate navigation system is proposed, its accuracy should be compared to that of microwave and satellite based systems, and any compromises in accuracy shall be justified.

- B. Monitoring Responsibility.** Receiving water and sediment monitoring shall be performed individually by the Discharger to assess compliance with receiving water limits or through the Discharger's participation in a regional or water body monitoring coalition or both as determined by the San Diego Water Board. The surface water receiving water monitoring requirements in section VIII.A of Attachment E (MRP) to Order No. R9-2009-0099 shall continue to be implemented until the receiving and sediment monitoring program in this Order below is implemented.
- C. Monitoring Coalition Reopener.** To achieve maximum efficiency and economy of resources, the Discharger may establish or join a San Diego Bay water body monitoring coalition. If a San Diego Bay monitoring coalition is formed, revised monitoring requirements will be established to ensure that appropriate monitoring is conducted in a timely manner.
- D. Water and Sediment Monitoring Plan.** The Discharger shall prepare and submit a Water and Sediment Monitoring Plan to assess compliance with receiving water limitations of this Order. The Water and Sediment Monitoring Plan shall be submitted within 12 months of the effective date of this Order. The Water and Sediment Monitoring Plan shall contain the following elements:
1. **Quality Assurance Project Plan (QAPP).** A QAPP describing the project objectives and organization, functional activities, and QA/QC protocols for the water and sediment monitoring.
 2. **Sampling and Analysis Plan.** A Sampling and Analysis Plan based on methods or metrics described in 40 CFR part 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act* and the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality* (Sediment Quality Plan). The plan shall include a list of chemical analytes for the water column and sediment as well as frequency and monitoring locations.
 3. **Receiving Water Monitoring**
 - a. **Frequency:** The Sampling and Analysis Plan must propose the frequency and timing for water column sampling. The minimum frequency of sampling is shown in Table E-5 below. The proposed sampling must be based upon results on the fate and transport of pollutants from the conceptual model (see section V.D.5 below).
 - b. **Pollutants:** The Sampling and Analysis Plan must propose what pollutants will be monitored. At a minimum, monitoring must include the pollutants and frequency in Table E-5 below:

Table E-5. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Copper, Total Recoverable	µg/L	Grab	Monthly	1,2
Zinc, Total Recoverable	µg/L	Grab	Quarterly	1
Chronic Toxicity	Pass/ Fail	Grab	Annually	3
Antimony, Total Recoverable	µg/L	Grab	Annually	1
Arsenic	µg/L	Grab	Annually	1
Beryllium	µg/L	Grab	Annually	1
Cadmium, Total Recoverable	µg/L	Grab	Annually	1
Chromium III	µg/L	Grab	Annually	1
Chromium VI	µg/L	Grab	Annually	1
Silver, Total Recoverable	µg/L	Grab	Annually	1
Lead, Total Recoverable	µg/L	Grab	Annually	1
Mercury, Total Recoverable	µg/L	Grab	Annually	1
Nickel, Total Recoverable	µg/L	Grab	Annually	1
Selenium, Total Recoverable	µg/L	Grab	Annually	1
Thallium	µg/L	Grab	Annually	1
Cyanide, Total (as CN) 3	µg/L	Grab	Annually	1
Asbestos	µg/L	Grab	Annually	1
2,3,7,8-TCDD (Dioxin)	µg/L	Grab	Annually	1
Acrolein	µg/L	Grab	Annually	1
Acrylonitrile	µg/L	Grab	Annually	1
Benzene	µg/L	Grab	Annually	1
Bromoform	µg/L	Grab	Annually	1
Carbon Tetrachloride	µg/L	Grab	Annually	1
Chlorobenzene	µg/L	Grab	Annually	1
Chlorodibromomethane	µg/L	Grab	Annually	1
Chloroethane	µg/L	Grab	Annually	1
2-Chloroethylvinyl Ether	µg/L	Grab	Annually	1
Chloroform	µg/L	Grab	Annually	1
Dichlorobromomethane	µg/L	Grab	Annually	1
1,1-Dichloroethane	µg/L	Grab	Annually	1
1,2-Dichloroethane	µg/L	Grab	Annually	1
1,1-Dichloroethylene	µg/L	Grab	Annually	1

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
1,2-Dichloropropane	µg/L	Grab	Annually	1
1,3-Dichloropropylene	µg/L	Grab	Annually	1
Ethylbenzene	µg/L	Grab	Annually	1
Methyl Bromide	µg/L	Grab	Annually	1
Methyl Chloride	µg/L	Grab	Annually	1
Dichloromethane (Methylene Chloride)	µg/L	Grab	Annually	1
Methylene Chloride	µg/L	Grab	Annually	1
1,1,2,2-Tetrachloroethane	µg/L	Grab	Annually	1
Tetrachloroethylene	µg/L	Grab	Annually	1
Toluene	µg/L	Grab	Annually	1
1,2-Trans-Dichloroethylene	µg/L	Grab	Annually	1
1,1,1-Trichloroethane	µg/L	Grab	Annually	1
1,1,2-Trichloroethane	µg/L	Grab	Annually	1
Trichloroethylene (Trichloroethene)	µg/L	Grab	Annually	1
Vinyl Chloride	µg/L	Grab	Annually	1
2-Chlorophenol	µg/L	Grab	Annually	1
2,4-Dichlorophenol	µg/L	Grab	Annually	1
2,4-Dimethylphenol	µg/L	Grab	Annually	1
2-Methyl-4,6-Dinitrophenol	µg/L	Grab	Annually	1
2,4-Dinitrophenol	µg/L	Grab	Annually	1
2-Nitrophenol	µg/L	Grab	Annually	1
3-Methyl-4-Chlorophenol	µg/L	Grab	Annually	1
Pentachlorophenol	µg/L	Grab	Annually	1
Phenol	µg/L	Grab	Annually	1
2,4,6-Trichlorophenol	µg/L	Grab	Annually	1
Acenaphthene	µg/L	Grab	Annually	1
Acenaphthylene	µg/L	Grab	Annually	1
Anthracene	µg/L	Grab	Annually	1
Benzidine	µg/L	Grab	Annually	1
Benzo(a)Anthracene	µg/L	Grab	Annually	1
Benzo(a)Pyrene	µg/L	Grab	Annually	1
Benzo(b)Fluoranthene	µg/L	Grab	Annually	1
Benzo(ghi)Perylene	µg/L	Grab	Annually	1

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Benzo(k)Fluoranthene	µg/L	Grab	Annually	1
Bis(2-Chloroethoxy)Methane	µg/L	Grab	Annually	1
Bis(d-Chloroethyl)Ether	µg/L	Grab	Annually	1
Bis(2-Chloroisopropyl)Ether	µg/L	Grab	Annually	1
Bis(2-Ethylhexyl)Phthalate	µg/L	Grab	Annually	1
4-Bromophenyl Phenyl Ether	µg/L	Grab	Annually	1
Butylbenzyl Phthalate	µg/L	Grab	Annually	1
2-Chloronaphthalene	µg/L	Grab	Annually	1
4-Chlorophenyl Phenyl Ether	µg/L	Grab	Annually	1
Chrysene	µg/L	Grab	Annually	1
Dibenzo(a,h)Anthracene	µg/L	Grab	Annually	1
1,2 Dichlorobenzene	µg/L	Grab	Annually	1
1,3 Dichlorobenzene	µg/L	Grab	Annually	1
1,4 Dichlorobenzene	µg/L	Grab	Annually	1
3,3'-Dichlorobenzidine	µg/L	Grab	Annually	1
Diethyl Phthalate	µg/L	Grab	Annually	1
Dimethyl Phthalate	µg/L	Grab	Annually	1
Di-n-Butyl Phthalate	µg/L	Grab	Annually	1
2,4-Dinitrotoluene	µg/L	Grab	Annually	1
2,6-Dinitrotoluene	µg/L	Grab	Annually	1
Di-n-Octyl Phthalate	µg/L	Grab	Annually	1
1,2-Diphenylhydrazine	µg/L	Grab	Annually	1
Fluoranthene	µg/L	Grab	Annually	1
Fluorene	µg/L	Grab	Annually	1
Hexachlorobenzene	µg/L	Grab	Annually	1
Hexachlorobutadien	µg/L	Grab	Annually	1
Hexachlorocyclopentadiene	µg/L	Grab	Annually	1
Hexachloroethane	µg/L	Grab	Annually	1
Ideno(1,2,3-cd) Pyrene	µg/L	Grab	Annually	1
Isophorone	µg/L	Grab	Annually	1
Naphthalene	µg/L	Grab	Annually	1
Nitrobenzene	µg/L	Grab	Annually	1
N-Nitrosodimethylamine	µg/L	Grab	Annually	1
N-Nitrosodi-n-Propylamine	µg/L	Grab	Annually	1

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
N-Nitrosodiphenylamine	µg/L	Grab	Annually	1
Phenanthrene	µg/L	Grab	Annually	1
Pyrene	µg/L	Grab	Annually	1
1,2,4-Trichlorobenzene	µg/L	Grab	Annually	1
Aldrin	µg/L	Grab	Annually	1
Alpha-BHC	µg/L	Grab	Annually	1
Beta-BHC	µg/L	Grab	Annually	1
Gamma-BHC	µg/L	Grab	Annually	1
Delta-BHC	µg/L	Grab	Annually	1
Chlordane	µg/L	Grab	Annually	1
4,4'-DDT	µg/L	Grab	Annually	1
4,4'-DDE	µg/L	Grab	Annually	1
4,4'-DDD	µg/L	Grab	Annually	1
Dieldrin	µg/L	Grab	Annually	1
Alpha-Endosulfan	µg/L	Grab	Annually	1
Beta-Endosulfan	µg/L	Grab	Annually	1
Endosulfan Sulfate	µg/L	Grab	Annually	1
Endrin	µg/L	Grab	Annually	1
Endrin Aldehyde	µg/L	Grab	Annually	1
Heptachlor	µg/L	Grab	Annually	1
Heptachlor Epoxide	µg/L	Grab	Annually	1
Polychlorinated Biphenyls (PCBs)	µg/L	Grab	Annually	1
Toxaphene	µg/L	Grab	Annually	1

¹ As specified in 40 CFR part 136.3

² Water samples shall be analyzed for copper according to method 1638 or 1640. The commonly used methods 6010B (Inorganics by ICP-Atomic Emission Spectroscopy) and 200.7 (Trace Elements-ICP) have been found to give inaccurate copper readings in saline-matrix samples due to interference with the sodium-argon complex, which has a molecular weight similar to copper. Method 1638 (ICP/MS) or 1640 (On-Line Chelation) will eliminate the sodium-argon complex before the sample is tested for copper. No inaccurate readings for other metals in a saline-matrix sample that is analyzed by methods 6010B or 200.7 are known.

³ The presence of chronic toxicity shall be determined as specified in section IV of this MRP.

4. Sediment Monitoring

- a. **Frequency:** Sediment chemistry, toxicity, and benthic organism monitoring shall be done, at a minimum twice during the term of this Order. For stations that are consistently classified as unimpacted or likely unimpacted, the frequency may be reduced to once per permit cycle in the next permit.
- b. **Station Locations:** Triad station locations shall be identified after evaluating the items in section V.D.5 through V.D.8 below.

7. **Existing Data and Information.** The Water and Sediment Monitoring Plan design shall take into consideration existing data and information of appropriate quality including ongoing monitoring programs conducted by other entities.
 8. **Strata.** Identification of appropriate strata shall consider characteristics of the water body including sediment transport, hydrodynamics, depth, salinity, land uses, inputs (both natural and anthropogenic) and other factors that could affect the physical, chemical, or biological condition of the sediment.
 9. **Index Period.** All sediment stations shall be sampled between the months of June through September to correspond with the benthic community index period.
 10. **Report Completion Schedule.** The Water and Sediment Monitoring Plan shall include a schedule for completion of all sample collection and analysis activities and submission of Water and sediment Monitoring Reports described in section V.F and V.G of this MRP.
- E. Water and Sediment Monitoring Plan Implementation.** The Discharger or water body monitoring coalition shall implement the Water and Sediment Monitoring Plan in accordance with the schedule contained in the Water and Sediment Monitoring Plan unless otherwise directed in writing by the San Diego Water Board. At the latest, implementation of the receiving water monitoring shall begin within 24 months of the effective date of this Order. Before beginning sample collection activities, the Discharger or water body monitoring coalition shall comply with any conditions set by the San Diego Water Board with respect to sample collection methods such as providing split samples.
- F. Receiving Water Monitoring Reports.** The Discharger or water body monitoring coalition shall submit Receiving Water Monitoring Reports annually in accordance with the schedule in the Water and Sediment Monitoring Plan. The Receiving Water Monitoring Reports shall contain:
1. **Monitoring Results.** The results of the monitoring in tabular and graphical form.
 2. **Data Analysis, Interpretation, and Conclusions.** An analysis of the data to evaluate trends and interpretations and conclusions on the data.
 3. **Receiving Water Limitation Compliance Determination.** A determination as to whether applicable receiving water limitations in this Order have been attained.
 4. **Sample Location Map.** The locations, type, and number of samples shall be identified and shown on a site map(s).
 5. **Laboratory Reports.** The reports from laboratories with the original analysis results including any QA/QC information.
- G. Sediment Monitoring Reports.** The Discharger or water body monitoring coalition shall submit a Sediment Monitoring Report twice during the term of the permit in accordance with the schedule in the Water and Sediment Monitoring Plan. The Sediment Monitoring Report shall contain the following information:
1. **Aquatic Life Analysis.** The data, analyses, interpretation, and integration of the multiple lines of evidence (MLOE), and station assessment shall be performed using the MLOE approach as prescribed in the Sediment Quality Plan. Compliance with receiving water limitations for sediment quality shall be determined for each station by integrating the sediment chemistry, toxicity, and benthic community lines of evidence to derive a benthic triad station assessment in accordance with the methodology in section V.I of the Sediment Quality Plan.

2. **Aquatic-dependent Wildlife and Human Health.** The data, analyses, interpretation, and results of the screening-level risk assessments for aquatic-dependent wildlife and human health shall be performed in accordance with section VI of the Sediment Quality Plan. Compliance with receiving water limitations for sediment quality shall be determined for the site based on the aquatic-dependent wildlife and human health screening-level risk assessments.
3. **Receiving Water Limitation Compliance Determination.** A determination shall be made for each sediment station of attainment of the applicable receiving water limitations.
4. **Sample Location Map.** The locations, type, and number of samples shall be identified and shown on a site map(s).
5. **Laboratory Reports.** The reports from laboratories with the original analysis results including any quality assurance / quality control information.

VI. REGIONAL MONITORING REQUIREMENTS

Regional receiving water monitoring provides information about the sources, fates, and effects of anthropogenic contaminants in the coastal marine environment necessary to make assessments over large areas. The large scale assessments provided by regional monitoring describe and evaluate cumulative effects of all anthropogenic inputs and enable better decision making regarding protection of beneficial uses of receiving waters. Regional monitoring data assists in the interpretation of core monitoring studies by providing a more accurate and complete characterization of reference conditions and natural variability. Regional monitoring also leads to methods standardization and improved quality control through intercalibration exercise. The coalitions implementing regional monitoring enable sharing of technical resources, trained personnel and associated costs. Focusing these resources on regional issues and developing a broader understanding of pollutants effects in receiving waters enables the development of more rapid and effective response strategies. Based on all of these considerations the San Diego Water Board supports regional approaches to monitoring receiving waters.

The Discharger shall, as directed by the San Diego Water Board, participate with other regulated entities, other interested parties, and the San Diego Water Board in development and implementation of new and improved monitoring and assessment programs for receiving waters in the San Diego Region and discharges to those waters. These programs shall be developed and implemented so as to answer the following primary questions:

- (1) What are the status and trends of conditions in ocean waters in the San Diego Region with regard to beneficial uses?
 - i. Are fish and shellfish safe to eat?
 - ii. Is water quality safe for swimming?
 - iii. Are ecosystems healthy?
- (2) What are the primary stressors causing or contributing to conditions of concern?
- (3) What are the major sources of the stressors causing or contributing to conditions of concern?
- (4) How effective (i.e. environmental outcomes) are actions taken to address such stressors and sources?

Development and implementation of new and improved monitoring and assessment programs for receiving waters will be guided by the following:

- (1) San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of a Regional Monitoring Framework*.
- (2) San Diego Water Board staff report entitled *A Framework for Monitoring and Assessment in the San Diego Region*.
- (3) Other guidance materials, as appropriate.

The San Diego Water Board may modify the receiving waters monitoring and reporting requirements, regional monitoring requirements, and/or special studies requirements of this Order as necessary for cause, including but not limited to a) revisions necessary to implement recommendations from Southern California Coastal Water Research Project (SCCWRP); b) revisions necessary to develop, refine, implement, and/or coordinate a regional monitoring program; and/or c) revisions necessary to develop and implement improved monitoring and assessment programs in keeping with San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of a Regional Monitoring Framework*.

VII. OTHER MONITORING REQUIREMENTS

A. Floating Dry Dock Submergence/Emergence Water Discharge, Shipbuilding Ways Flood Water Discharge, and Graving Dock Flood Water Discharge

1. **Monitoring Questions.** This submergence, flooding monitoring program is designed to answer the following primary questions:
 - (1) Are the dry dock, ways, and graving dock adequately cleaned prior to flooding?
 - (2) Are pollutants being prevented from contact with San Diego Bay waters prior to flooding?
2. **Submergence or Flooding Notice.** The Discharger shall provide written notification to the San Diego Water Board at least 72 hours prior to the flooding of its floating dry dock, shipbuilding ways, or graving dock. If the dry dock, shipbuilding ways, or graving dock has to be flooded on short notice and the 72 hour notification time cannot be met, the Discharger shall notify the San Diego Water Board as early as possible and include information on why the notification time could not be met.
3. **Submergence or Flooding Records.** The Discharger shall record on forms approved by the San Diego Water Board including photographs the condition of its dry dock, shipbuilding ways, or graving dock immediately prior to each flooding when industrial activity has occurred in the dry dock, building ways, or graving dock. Quarterly as specified in Table E-6, the Discharger shall submit the records to the San Diego Water Board. If flooding is to occur at night, photographs shall be taken during daylight hours as close to flooding as possible. The Discharger does not need to record the condition of the dry dock, building ways, or graving dock prior to the flooding when industrial activity has not occurred and a flooding evolution is required for training or other purposes.
4. **Submergence or Flooding Certification.** Quarterly as specified in Table E-6, the Discharger must submit a certification statement regarding the condition of the dry dock, building ways, and graving dock prior to each flooding event during the reporting period. If the dry dock, building ways, or graving dock was not flooded during the quarter, the Discharger shall document in the quarterly report that no flooding occurred during that monitoring period.

B. Floating Dry Dock Ballast Tank

Monitoring Questions. This ballast tank program is designed to answer the following primary questions:

- (1) Are the dry dock ballast tanks in good repair?
- (2) Are pollutants being prevented from entering the ballast tanks prior to discharge to San Diego Bay?

The Discharger shall submit U.S. Navy and ASTM reports certifying the integrity of the floating dry dock ballast tanks annually, in accordance with Table E-6.

C. Floating Boom Cleaning

Monitoring Questions. The boom cleaning program is designed to answer the following primary questions:

- (1) What is the scope and magnitude of the discharge?
- (2) What are the potential impacts to San Diego Bay?

Annually as part of the annual report, the Discharger shall submit a log of in-water floating boom cleaning activities, including the personnel-in-charge of the cleaning, the quantity of the discharge, the date, a summary of any potential impacts to receiving water quality, and a summary regarding the description and location of any boom removed from San Diego Bay to be cleaned because of oil or other pollutants. The annual log shall be submitted with the annual report in accordance with Table E-6.

D. Spill and Illicit Discharge Log

Monitoring Questions. This requirement for a spill and illicit discharge log is designed to answer the following primary monitoring questions:

- (1) Are there more frequent and/or bigger spills at this Facility than at other similar facilities?
- (2) Are spills and illicit discharges properly addressed and are measures being taken or planned to reduce, eliminate, and prevent recurrence of them in the future?

The Discharger shall log and report all spills of significant quantities to surface waters and all illicit discharges of any quantity within the Facility including spills and illicit discharges from vessels that are at the Facility for service. The spill / illicit discharge reports shall identify the following:

1. The time and date of the spill or illicit discharge.
2. The cause of the spill or illicit discharge.
3. The materials or wastes involved in the spill or illicit discharge.
4. The estimated volume of the spill or illicit discharges.
5. The specific location where the spill or illicit discharge originated including industrial activities in the area.
6. The fate of the spill or illicit discharge (e.g. discharge to San Diego Bay, etc.).
7. The physical extent or size of the area(s) affected by the spill.
8. Whether the spill or illicit discharge contained pollutants.
9. The public agencies notified.
10. The corrective actions taken or planned.
11. The measures taken or planned to prevent or minimize future spills or illicit discharges.

The reports shall be submitted annually to the San Diego Water Board in accordance with Table E-6 of this MRP.

The Discharger shall include in its Annual Report a summary of the spills and illicit discharges that occurred in or on the Facility during the annual reporting period. The spill/illicit discharge summary report shall indicate the total number of spills and illicit discharges for the year, categorize the spills and illicit discharges, and provide the percentages of each type of spill or illicit discharge in a graphical representation. The summary report shall also indicate the efforts the Discharger used during the annual reporting period to reduce, eliminate, and prevent reoccurrence of spills and illicit discharges.

VIII. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. The Discharger shall submit an annual report discussing the compliance record and corrective actions taken, or which may be taken, or which may be needed to bring the discharge into full compliance with the requirements of this Order.
3. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. If CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.
4. The Discharger shall attach a cover letter to the Self-Monitoring Report (SMR). The information contained in the cover letter shall clearly identify violations of the Waste Discharge Requirements (WDRs); discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

B. Self-Monitoring Reports (SMRs)

1. The Discharger shall electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program website (<http://www.waterboards.ca.gov/ciwqs/index.html>). The CIWQS website will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal. Any reports not in CIWQS shall be submitted electronically to the San Diego Water Board's e-mail at sandiego@waterboards.ca.gov or as otherwise directed by the San Diego Water Board.
2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP. The Discharger shall submit monthly, quarterly, semiannual, and annual SMRs including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-6. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Daily	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	Submit with monthly SMR
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1 st day of calendar month through last day of calendar month	30 days following the end of the monitoring period
Quarterly	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	30 days following the end of the monitoring period
Semiannually	Closest of January 1 or July 1 following (or on) permit effective date	January 1 through June 30 July 1 through December 31	30 days following the end of the monitoring period
Annually	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	July 1 through June 30	September 1
Annual Storm Water Report	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	July 1 through June 30	September 1

4. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR part 136. The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

- a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e. the measured chemical concentration in the sample).
- b. Sample results less than the RL, but greater than or equal to the laboratory’s MDL, shall be reported as “Detected, but Not Quantified,” or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (\pm a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- c. Sample results less than the laboratory’s MDL shall be reported as “Not Detected,” or ND.

- d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.
5. **Compliance Determination.** Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined above and Attachment A of this Order. For purposes of reporting and administrative enforcement by the San Diego Water Board and State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).
6. **Multiple Sample Data.** When determining compliance with an AMEL or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
 - a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
 - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

C. Discharge Monitoring Reports (DMRs)

1. DMRs are U.S. EPA reporting requirements. The Discharger shall electronically certify and submit DMRs together with SMRs using Electronic Self-Monitoring Reports module eSMR 2.5 or any upgraded version. Electronic DMR submittal shall be in addition to electronic SMR submittal. Information about electronic DMR submittal is available at the DMR website at:
http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring.
2. The purpose of the Discharge Monitoring Report - Quality Assurance (DMR-QA) Study is to ensure the integrity of data submitted by the Discharger for DMR reporting requirements and evaluate performance of the laboratories to analyze wastewater samples. Additional information on the DMR-QA can be found at <https://www.epa.gov/compliance/discharge-monitoring-report-quality-assurance-study-program>. The Discharger shall ensure that the results of the DMR-QA Study or the most recent Water Pollution Performance Evaluation Study are submitted annually to the State Water Board at the following address:

State Water Resources Control Board
Quality Assurance Program Officer
Office of Information Management and Analysis
1001 I Street, Sacramento, CA 95814

D. Other Reports

Special Reports. As specified in this Order, special reports or program components shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.

Table E-7. Reporting Requirements for Special Reports

Report Name	Section No.	Report Due Date
Toxicity Reduction Evaluation (TRE) Work Plan	MRP section IV.G.1	During accelerated monitoring, see Section IV.G.1 of MRP
Water and Sediment Monitoring Plan	MRP section V.D	Within 12 months of the effective date of this Order
Receiving Water Monitoring Reports	MRP section V.F	Annually in accordance with the schedule contained in the Water and Sediment Monitoring Plan
Sediment Monitoring Reports	MRP section V.G	Twice during the permit cycle in accordance with the schedule contained in the Water and Sediment Monitoring Plan

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section II of this Order, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) incorporates this Fact Sheet as findings of the San Diego Water Board supporting the issuance of this Order. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as “not applicable” have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as “not applicable” are fully applicable to this Discharger.

I. PERMIT INFORMATION

- A.** General Dynamic National Steel and Shipbuilding Company (NASSCO or Discharger) is the owner and operator of General Dynamics NASSCO shipyard facility (Facility) for the construction, conversion, and repair of ships for the U.S. Navy and commercial customers.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and State laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	9 000000066
Discharger	General Dynamics National Steel and Shipbuilding Company (NASSCO)
Name of Facility	General Dynamics National Steel and Shipbuilding Company (NASSCO)
Facility Address	2798 East Harbor Drive
	San Diego, CA 92113
	San Diego County
Facility Contact, Title and Phone	T. Michael Chee, Manager, Environmental Engineering, (619) 544-7778
Authorized Person to Sign and Submit Reports	T. Michael Chee, Manager, Environmental Engineering, (619) 544-7778
Mailing Address	2798 East Harbor Drive, San Diego, CA 92113
Billing Address	2798 East Harbor Drive, San Diego, CA 92113
Type of Facility	Shipbuilding and Repair (SIC Code# 3731)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Not Applicable
Recycling Requirements	Not Applicable
Facility Permitted Flow	Not Applicable
Facility Design Flow	Not Applicable
Watershed	San Diego Bay
Receiving Water	San Diego Bay and Mouth of Chollas Creek
Receiving Water Type	Enclosed Bay and Estuary

- B.** The Facility discharges wastewater and storm water to San Diego Bay, a water of the U.S. and conducts activities controlled by Best Management Practices (BMPs) adjacent to the Mouth of Chollas Creek, a water of the U.S. The Discharger was previously regulated by Order R9-2009-0099 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0109134, adopted on August 12, 2009 and expired on September 1, 2014. Attachment B provides a map of the Facility and surrounding area. Attachment C provides a flow schematic of the Facility.

Prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Resources Control Board (State Water Board), Division of Water Rights, and receive approval for such a change. The State Water Board retains the jurisdictional authority to enforce such requirements under California Water Code (Water Code) section 1211.

- C.** The Discharger filed a report of waste discharge and submitted an application for reissuance of its waste discharge requirements (WDRs) and NPDES permit on March 5, 2013. Supplemental information was provided by the Discharger on April 30, 2014. The application was deemed complete on May 13, 2014. A site visit was conducted on May 24, 2016 to observe operations and collect additional data to develop permit limitations and requirements for waste discharge.

II. FACILITY DESCRIPTION

NASSCO is a business unit of General Dynamics Corporation, located at 2798 East Harbor Drive in San Diego, California. NASSCO provides a full range of ship construction, conversion, and repair capabilities to the U.S. Navy and commercial customers. NASSCO covers approximately 133 acres of tidelands property leased (land and water) from the San Diego Unified Port District. The land portion of the lease covers approximately 85 acres. Improvements to the land lease include approximately 1.6 million square feet of office, shop and warehouse space, and 392,800 square feet of concrete platens used for steel fabrication, a floating dry dock, a graving dock (building dock), two building ways, twelve berths, and a blast and paint facility. A sheet pile bulkhead and a wall along most of the waterfront separate the land and the adjacent receiving waters of San Diego Bay.

A storm water containment berm encompasses the entire shipyard to prevent the discharge of contact storm water and separate the land and the adjacent receiving waters of San Diego Bay.

General industrial processes associated with shipbuilding, conversion, repair, and maintenance include: metal fabrication, welding and brazing, abrasive blasting, hydroblasting, fiberglass work, paint and coating application, mechanical work, electrical work, wood work (including sanding), chemical cleaning of piping, line heating, and hazardous waste storage. Several shipbuilding and repair activities take place over water or near shore locations, while others may be performed in workshops or at work sites located inland on the shipyard property. Crane transportation of components and storage operations are also provided. Ships are constructed in the building ways or the graving dock. Ships can be repaired in the floating dry dock, graving dock, building ways, or pier side.

A. Description of Wastewater

A description of these types of wastewater generated at the Facility is provided in the subsections below.

- 1. Graving Dock and Building Ways Hydrostatic Relief Water.** Hydrostatic relief water is water pumped from the ground to prevent seepage or buckling of the floor or walls of the graving dock and building ways. Discharges from the hydrostatic relief systems are

estimated at 208,000 gallons per day and are directed to the ion exchange treatment system.

2. **Building Ways Flood Water.** Building Ways 3 and Building Ways 4 are flooded with bay water to launch vessels. Flood water discharges from Building Ways 3 and Building Ways 4 are estimated at 750,000 gallons per launch pumped at a rate of 5,810 gallons per minute and are directed to the ion exchange treatment system.
3. **Ion Exchange Treatment System Effluent.** Hydrostatic relief water and flood water from Building Ways 3 and Building Ways 4 are directed to an ion exchange treatment system for treatment to remove copper, nickel, and zinc. The effluent from the ion exchange treatment system is discharged to San Diego Bay. The ion exchange treatment system consists of three 10.5K gallon storage tanks, two centrifugal pumps, three multimedia filter vessels in parallel, two granular activated carbon (GAC) vessels in parallel, and two ion exchange media vessels in series as shown in Flow Schematic C-2.

The previous permit contained individual outfalls for each of these wastewaters at Discharge Point Nos. HR-1, HR-2, HR-3, M-3, and M-4. These wastewaters are now directed to the ion exchange treatment system prior to discharging from the combined outfall of Discharge Point No. IX-1 to San Diego Bay.

4. **Floating Dry Dock Ballast Water.** The floating dry dock is a vessel which can be submerged and raised to bring another vessel out of the water to conduct repairs. Sinking and floating of the dry dock is accomplished by flooding and emptying the ballast tanks of the floating dry dock. Ballast tanks are also used to adjust the trim of the dock. Ballast water is discharged through Discharge Point No. M-1 to San Diego Bay. Discharges of floating dry dock ballast water are estimated at a maximum of 104,000 gallons per minute. Discharges of ballast water while docking or undocking a vessel are not regulated by this Order but are regulated by United States Environmental Protection Agency's (U.S. EPA) Vessel General Permit (VGP) under Permit Tracking No. VPAAO6620. Discharges of ballast water while the dry dock is not operating as a means of transportation, such as when the floating dry dock is at its mooring position to conduct ship repair activity, are regulated by this Order.
5. **Graving Dock Flood Water.** The graving dock is flooded with San Diego Bay water to launch and retrieve vessels. Flood water is discharged to San Diego Bay via Discharge Point No. M-2 when vessels are launched or retrieved. Estimates of the discharge volumes from flooding are approximately 18-22 million gallons per flooding event pumped at a rate of 18,000 gallons per minute. This Order includes a requirement for Best Management Practices (BMPs) for graving dock cleaning to prevent or minimize the discharge of pollutants prior to and during flooding.

The graving dock is primarily used for new construction of vessels and a non-copper based antifouling hull coating system is applied to new vessels as a best management practice to achieve compliance with the effluent limitation for copper. Occasionally, the graving dock is used for repair or minor maintenance of vessels with existing antifouling hull coating systems which may contain copper. NASSCO has no control over hull coating systems on existing vessels and does not remove or change these hull coating systems without the sole approval of the customer.

6. **Storm Water.** NASSCO operates and maintains a Storm Water Diversion System (SWDS) that is designed to capture storm water runoff from all industrial areas. NASSCO developed the SWDS to eliminate the discharge of industrial storm water to San Diego Bay with a capacity to retain in excess of 33,858,000 gallons, more than enough capacity to capture a 100-year storm event (approximately 3.5 inches of rain in 24 hours). All

storm water captured within the facility is discharged to the San Diego Metropolitan Sanitary Sewer System (SDMSSS). Storm water that flows into the graving dock during a graving dock flooding event will be discharged to San Diego Bay through Discharge Point No. M-2. Storm water exceeding the capacity of the SWSD will be discharged to San Diego Bay through SW-1 or SW-2.

B. Discharge Points and Receiving Waters

1. Wastewater is discharged into San Diego Bay as summarized in Table F-2 below:

Table F-2. Discharge Points and Receiving Waters

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
IX-1 (Ion Exchange Treatment System)	Treated Hydrostatic Relief and Ways Dewatering	32° 41' 30" N	-117° 8' 26" W	San Diego Bay
M-1 (Floating Dry Dock)	Ballast Water	32° 41' 33" N	-117° 8' 37" W	San Diego Bay
M-2 (Graving Dock)	Dewatering Flood Water	32° 41' 27" N	-117° 8' 25" W	San Diego Bay
SW-1 (North Shipyard)	Northwest Storm Water Collection	32° 41' 25" N	-117° 8' 33" W	San Diego Bay
SW-2 (South Shipyard)	Southwest Storm Water Collection	32° 41' 21" N	-117° 8' 20" W	San Diego Bay

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

1. Discharge prohibitions for all authorized discharges contained in Order No. R9-2009-0099 include:
 - a. The Discharger shall comply with all requirements of the Basin Plan Waste Discharge Prohibitions which are hereby included in this Order by reference.
 - b. The discharge of sewage, except as noted in the Basin Plan Waste Discharge Prohibitions, to San Diego Bay is prohibited.
 - c. The discharge of industrial process water, other than miscellaneous low volume water, is prohibited.
 - d. The discharge of the first flush of storm water runoff from high risk areas is prohibited, except if the pollutants in the discharge are reduced to the extent and demonstrated through testing that the discharge achieves compliance with the acute toxicity limitation specified in section IV.A.5 of this Order. The discharge of the remainder of the storm water must also achieve compliance with the acute toxicity limitations specified in section IV.A.5 of this Order but only needs to be demonstrated twice per year unless under accelerated testing.
 - e. The discharges of municipal and industrial waste sludge and untreated sludge digester supernatant, centrate, or filtrate to San Diego Bay is prohibited.
 - f. The discharge of rubbish, refuse, debris, materials of petroleum origin, waste zinc plates, abrasives, primer, paint, paint chips, solvents, and marine fouling

organisms, and the deposition of such wastes at any place where they could eventually be discharged is prohibited. This prohibition does not apply to the discharge of marine fouling organisms removed from unpainted, uncoated surfaces by underwater operations and discharges that result from floating booms that were installed for “Force Protection” purposes. Rubbish and refuse include, but are not limited to, any cans, bottles, paper, plastic, vegetable matter, or dead animals deposited or caused to be deposited by man.

- g. The discharge of materials of petroleum origin in sufficient quantities to be visible is prohibited.
 - h. The discharge or bypassing of untreated waste to San Diego Bay is prohibited. This prohibition does not apply to non-contact cooling water, miscellaneous low volume water, and fire protection water streams which comply with the requirements of this Order for elevated temperature waste discharges and which do not contain pollutants or waste other than heat.
 - i. The discharge of polychlorinated biphenyl compounds, such as those used for transformer fluid, is prohibited.
 - j. The discharge of wastes and pollutants from underwater operations, such as underwater paint and coating removal and underwater hull cleaning, is prohibited. This prohibition does not apply to the discharge of marine fouling organisms removed from unpainted and uncoated surfaces by underwater operations, or to discharges that result from the cleaning of floating booms that were installed for “Force Protection” purposes.
 - k. The discharge of wastes that cause or contribute to the violation of water quality standards (designated beneficial uses and water quality objectives developed to protect beneficial uses) is prohibited.
 - l. The discharge of flood waters from the graving dock (M-2), Ways 3 (M-3), and Ways 4 (M-4) more than 15 times per year total is prohibited.
2. Discharge effluent limitations for Discharge Point Nos. HR-1, HR-2, HR-3, M-1, M-2, M-3, M-4, and M-8 contained in the previous Order are summarized in Table F-3.

Table F-3. Previous Effluent Limits and Monitoring Data – Discharge Point Nos. HR-1 through HR-3, M-1 through M-4, and M-8

Parameter	Units	Effluent Limitations		
		Average Monthly	Average Weekly	Instantaneous Maximum
Oil and Grease	mg/L	25	40	75
Settleable Solids	mL/L	1.0	1.5	3.0
Turbidity	NTU	75	100	225
pH	pH units	--	--	¹
Temperature	°F	--	--	²
Acute Toxicity	Pass/Fail	--	--	³
Chronic Toxicity	TUc	--	--	1

¹ Within limits of 7.0 – 9.0 at all times.

² At no time shall any discharge be greater than 20°F over the natural temperature of the receiving water.

³ Discharges shall achieve a rating of “Pass” for acute toxicity with compliance determined as specified in section VII.I. of Order No. R9-2009-0099.

3. Discharge effluent limitations for Discharge Point Nos. HR-1, HR-2, and HR-3 contained in the previous Order are summarized in Table F-4.

Table F-4. Previous Effluent Limits – Summary of Additional Effluent Limitations for Hydraulic Relief Water

Discharge Location	Parameter	Units	Effluent Limitations		
			Annual Average	Average Monthly	Maximum Daily
HR-1 (Graving Dock Hydraulic Relief)	Copper, Total Recoverable	µg/L	¹	--	11.9
	Zinc, Total Recoverable	µg/L	--	31.29	95.14
HR-2 (Ways 3 Hydraulic Relief)	Cadmium, Total Recoverable	µg/L	--	7.66	15.38
	Copper, Total Recoverable	µg/L	¹	--	8.38
	Nickel, Total Recoverable	µg/L	--	6.84	13.43
	Zinc, Total Recoverable	µg/L	--	36.25	95.14
HR-3 (Ways 4 Hydraulic Relief)	Copper, Total Recoverable	µg/L	¹	--	11.2
	Nickel, Total Recoverable ²	µg/L	--	5.40	15.26

¹ Discharges shall achieve an annual average effluent concentration that is no greater than the running annual average of the receiving water concentration. The annual average of the effluent concentrations shall be calculated once each month and compared to the average of the receiving water concentrations for the same 12-month time period.

² These effluent limitations do not apply if the Discharger documents that the intake water concentration at the time of the discharge exceeds the effluent limitation. If the intake water concentration exceeds the effluent limitation, the Average Monthly and Maximum Daily effluent limitation shall be equal to the intake water concentration.

4. Discharge effluent limitations for Discharge Point Nos. M-2, M-3, and M-4 contained in the previous Order are summarized in Table F-5.

Table F-5. Previous Effluent Limits – Summary of Additional Effluent Limitations for Flood Dewatering

Discharge Location	Parameter	Units	Effluent Limitations
			Average Monthly
Flood Dewatering (Graving Dock, Building Ways 3, and Building Ways 4)	Copper, Total Recoverable	µg/L	12.8
	Nickel, Total Recoverable ¹	µg/L	13.60

¹ These effluent limitations do not apply if the Discharger documents that the Intake water concentration at the time of the discharge exceeds the effluent limitation. If the intake water concentration exceeds the effluent limitation, the Maximum Daily effluent limitation shall be equal to the intake water concentration.

5. The previous Order contained the following effluent limitation for industrial storm water:

Discharges of industrial contact storm water from the Facility shall achieve a rating of “Pass” for acute toxicity with compliance determined as specified in section VII.H of this Order.

6. Interim Effluent Limitations

- a. Interim effluent limitations for Discharge Point Nos. HR-1, HR-2, and HR-3 contained in the previous Order were effective from September 1, 2009 – May 18, 2010, and are summarized in Table F-6.

Table F-6. Previous Interim Effluent Limitations for Hydraulic Relief

Discharge Location	Parameter	Units	Interim Maximum Daily
HR-1 (Graving Dock Hydraulic Relief)	Copper, Total Recoverable	µg/L	13.12
	Zinc, Total Recoverable	µg/L	362
HR-2 (Ways 3 Hydraulic Relief)	Cadmium, Total Recoverable	µg/L	15.38
	Copper, Total Recoverable	µg/L	66.84
	Nickel, Total Recoverable	µg/L	13.60
HR-3 (Ways 4 Hydraulic Relief)	Zinc, Total Recoverable	µg/L	331
	Copper, Total Recoverable	µg/L	42.8
	Nickel, Total Recoverable	µg/L	15.26

- b. Interim effluent limitations for Discharge Point Nos. M-2, M-2, and M-3 contained in the previous Order were effective from September 1, 2009 – May 18, 2010 and are summarized in Table F-7.

Table F-7. Previous Interim Effluent Limitations for Flood Dewatering

Discharge Location	Parameter	Units	Interim Maximum Daily
M-2 (Graving Dock Flood Dewatering)	Copper, Total Recoverable	µg/L	41.5
	Nickel, Total Recoverable	µg/L	18.7
M-3 (Ways 3 Flood Dewatering)	Copper, Total Recoverable	µg/L	25.9
M-4 (Ways 4 Flood Dewatering)	Copper, Total Recoverable	µg/L	72.8

D. Compliance Summary

The following table summarizes the violations of effluent limitations and facility incidents based on data collected from September 2009 through May 2016.

Table F-8. Compliance Summary

Date	Violation Type	Incident Summary
12/9/2015	Unauthorized Discharge	40-50 gallons of wash water from the floating dry dock discharged into San Diego Bay
12/3/2015	Unauthorized Discharge	Less than two pounds of blast dust was discharged to San Diego Bay
11/13/2015	Unauthorized Discharge	Less than a half pound of blast dust was discharged to San Diego Bay

Date	Violation Type	Incident Summary
12/29/2014	Unauthorized Discharge	Water discharged to San Diego Bay from a pipe near the wastewater treatment facility
12/17/2014	Deficient Monitoring	Storm water discharged to San Diego Bay was not sampled.
8/22/2014	Unauthorized Discharge	Three separate instances of sewage leakages from restroom R-3 that flowed to San Diego Bay carried on into September 2014
6/10/2014	Unauthorized Discharge	5,000 gallons of hydrostatic relief water bypassed part of the ion exchange treatment system and was discharged into San Diego Bay
5/15/2014	Unauthorized Discharge	Paint overspray into San Diego Bay along the Graving Dock caisson gate
6/9/2013	Unauthorized Discharge	500 gallons of fresh water from a broken fresh water main between Buildings 19 and 11 was discharged into San Diego Bay
5/25/2013	Unauthorized Discharge	Sewage from a leaking hose at the head of the Floating Dry-dock was discharged to San Diego Bay
1/20/2013	Unauthorized Discharge	30 gallons of rusty water overflowed into San Diego Bay
11/30/2012	Late Report	The third Quarter 2012 monitoring report was submitted late
10/29/2012	Unauthorized Discharge	10,000 gallons of saltwater was discharged to San Diego Bay from Pier 12
3/22/2012	Effluent Limitation Violation	The total recoverable zinc concentration of 43 µg/L exceeded the effluent limitation of 31.29 µg/L at HR-1.
12/12/2011	Deficient Monitoring	500 gallons of storm water held in a containment area was discharged into San Diego Bay and not sampled.
6/2/2011	Late Report	The April 2011 monitoring report was submitted late
5/3/2011	Late Report	The March 2011 and first quarter 2011 monitoring reports were submitted late
4/1/2011	Late Report	The February 2011 monitoring report was submitted late
3/18/2011	Unauthorized Discharge	Paint chips, debris, and abrasive dust was observed floating in San Diego Bay on the side of the floating dry dock

E. Planned Changes – Not Applicable

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order serves as WDRs pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260). This Order is also issued pursuant to Clean Water Act (CWA) section 402 and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). This Order shall serve as an NPDES permit waters authorizing the Discharger to discharge into waters of the U.S. at the discharge location described in Table 2 subject to the WDRs in this Order.

B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code, division 13, chapter 3 (commencing with section 21100).

C. State and Federal Laws, Regulations, Policies, and Plans

1. Water Quality Control Plan. The San Diego Water Board adopted a Water Quality Control Plan for the San Diego Basin (Basin Plan) on September 8, 1994. The Basin Plan was subsequently approved by the State Water Board on December 13, 1994. Subsequent revisions to the Basin Plan have also been adopted by the San Diego Water Board and approved by the State Water Board. The Basin Plan was last amended by the San Diego Water Board on April 15, 2015. The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Requirements of this Order implement the Basin Plan. Beneficial uses applicable to the San Diego Bay are as follows:

Table F-9. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
IX-1; M-1; M-2	San Diego Bay and Mouth of Chollas Creek	Existing: Industrial service supply (IND); navigation (NAV); contact water recreation (REC1); non-contact water recreation (REC2); commercial and sport fishing (COMM); preservation of biological habitats of special significance (BIOL); estuarine habitat (EST); wildlife habitat (WILD); preservation of rare, threatened or endangered species (RARE); marine habitat (MAR); migration of aquatic organisms (MIGR); spawning, reproduction, and/or early development (SPWN), and shellfish harvesting (SHELL).

- 2. Thermal Plan.** The State Water Board adopted the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for surface waters. Requirements of this Order implement the Thermal Plan.
- 3. Sediment Quality Plan.** The State Water Board adopted the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality* (Sediment Quality Plan) on September 16, 2008, and it became effective on August 25, 2009. This plan supersedes other narrative sediment quality objectives, and establishes new sediment quality objectives and related implementation provisions for specifically defined sediments in most bays and estuaries. Requirements of this Order implement sediment quality objectives of this Plan.
- 4. National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the

State. The CTR was amended on February 13, 2001. These rules contain federal water quality criteria for priority pollutants.

5. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the San Diego Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.
6. **California Ocean Plan.** The State Water Board adopted the *Water Quality Control Plan for Ocean Waters of California, California* (Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, 2005, 2009, and 2012. The State Water Board adopted the latest amendment on October 16, 2012, and it became effective on August 19, 2013. Ocean Plan biological characteristic water quality objectives have been included in this Order as receiving water limitations to protect the beneficial uses of BIOL, COMM, EST, WILD, RARE, MAR, MIGR, SPWN, and SHELL. It is appropriate to use these Ocean Plan objectives because San Diego Bay and the Pacific Ocean are contiguous, have similar salinities, and have many of the same aquatic species.
7. **Antidegradation Policy.** Title 40 Code of Federal Regulations (40 CFR) section 131.12 requires that the State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16. Resolution 68-16 is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The San Diego Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 CFR section 131.12 and State Water Board Resolution 68-16.
8. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 CFR section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.
9. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the State, including protecting rare, threatened, or endangered species. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.
10. **Uniform National Discharge Standards (UNDS).** In 1996, Congress passed legislation amending CWA section 312 to provide the Department Of Defense and the U.S. EPA

authority to jointly establish UNDS for incidental discharges from vessels of the Armed Forces in State waters and the contiguous zone. This comprehensive, three-phase, regulatory program applies to vessels of the Armed Forces including, but not limited to, the Navy, Military Sealift Command, Marine Corps, Army, Air Force, and Coast Guard. UNDS is designed to enhance environmental protection of coastal waters by creating protective standards to reduce environmental impacts associated with vessel discharges, stimulate the development of improved pollution control devices, and advance the development of environmentally sound ships by the Armed Forces. The Phase I final rule and preamble language, including a summary of the Phase I process and findings (64 Fed. Reg. 25126; 40 CFR part 1700), was published in the Federal Register on May 10, 1999. Phase I of UNDS determines the types of vessel discharges that require control by a Marine Pollution Control Device (MPCD) and those that do not require control, based on consideration of the anticipated environmental effects of the discharge and other factors listed in the CWA. In Phase I, the U.S. EPA and the Department of Defense identified 25 discharges to be controlled by MPCDs. Phase II of UNDS development focuses on promulgating MPCD performance standards for those vessel discharges identified during Phase I as requiring an MPCD. In this Phase, the Department of Defense and U.S. EPA are establishing discharge performance standards for different classes, types, and sizes of vessels. These standards are specific to existing vessels as well as future (new design) vessels and will be promulgated in batches for efficiency purposes. A draft rule proposing MPCD performance standards for the first batch of 11 discharges was promulgated on February 3, 2014. A Coastal Zone Management Act National Consistency Determination has been developed for the first batch and an Environmental Species Act consultation is underway. For the second batch of 11 discharges, federal and tribal consultations occurred in March 2016 and a Notice of Public Rulemaking is anticipated for Fall 2016. Phase III of UNDS development will focus on establishing requirements for the design, construction, installation, and use of MPCDs. After completion of Phase III, states will be prohibited from regulating these UNDS discharges. In anticipation of the completion of UNDS, this Order does not regulate naval vessel discharges with applicable MPCDs (as BMPs) identified in the draft UNDS rule.

11. **Vessel General Permit.** U.S. EPA issued the Vessel General Permit (VGP) on March 28, 2013, with an effective date of December 19, 2013. The VGP provides NPDES permit coverage for ballast water and for other discharges incidental to the normal operation of commercial vessels greater than or equal to 79 feet in length and operating as a means of transportation. The U.S. EPA issued a Small Vessel General Permit (sVGP) for discharges incidental to the normal operation of small vessels on August 21, 2014. The sVGP provides NPDES permit coverage for small vessels defined as non-military, non-recreational vessels less than 79 feet in length and operating as a means of transportation. Discharges from vessels not operating as a means of transportation as described below are regulated by this Order:
 - a. Vessels in a dry dock are not operating as a means of transportation.
 - b. Floating dry docks have been determined to be operating as a means of transportation when they are docking or undocking a vessel inclusive of the transition from that operation. Floating dry docks are not operating as a means of transportation when docked at the Facility. Ballast water and other discharges from floating dry docks which are docked at the Facility are regulated by this Order.

D. Impaired Water Bodies on the CWA section 303(d) List

Under Section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On July 30, 2015, the U.S. EPA approved a revised 303(d) List of Water Quality Limited Segments in California. San Diego Bay, as a whole, is listed as impaired for polychlorinated biphenyls (PCBs). Additional portions of San Diego Bay are listed as impaired for additional parameters. Portions of San Diego Bay applicable to the Facility include, "San Diego Bay Shoreline, between Sampson and 28th Streets" and "San Diego Bay Shoreline, near Chollas Creek". These portions of San Diego Bay are listed in the 303(d) list as impaired for: benthic community effects, copper, mercury, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), sediment toxicity, and zinc. The table below lists San Diego Bay impairments near the Facility:

Table F-10. San Diego Bay CWA 303(d) Impairments near the Facility

Waterbody	Location	Constituent
San Diego Bay	San Diego Bay	Polychlorinated biphenyls (PCBs)
San Diego Bay	San Diego Bay Shoreline, between Sampson and 28th Streets	Copper, Mercury, Zinc, Polycyclic Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs) in Sediment
San Diego Bay	San Diego Bay Shoreline, near Chollas Creek	Benthic Community Effects, Sediment Toxicity

An applicable Total Maximum Daily Load (TMDL) for these impairments has not yet been adopted by the San Diego Water Board and approved by U.S. EPA. Investigative Order No. R9-2015-0058 was issued on October 26, 2015, to NASSCO, the California Department of Transportation, the City of La Mesa, the City of Lemon Grove, the City of San Diego, the San Diego Unified Port District, and the U.S. Navy to address the "San Diego Bay Shoreline, Mouth of Chollas Creek".

Cleanup and Abatement Order No. R9-2012-0024 was issued to the Discharger, BAE Systems San Diego Ship Repair, the City of San Diego, Campbell Industries, San Diego Gas and Electric, the U.S. Navy, the San Diego Unified Port District on March 14, 2012, to address the "San Diego Bay Shoreline, between Sampson and 28th Streets". The *South Shipyard Remedial Action Plan Implementation Report, San Diego Shipyard Sediment Site – South Shipyard* was submitted to the Water Board in April 2015 and documents and verifies the completion of remedial activities at the South Shipyard portion of the San Diego Shipyard Sediment Site. The report documents South Shipyard compliance with Directives A.2.a and A.2.b of the Cleanup and Abatement Order, while compliance with Directive A.2.c will be determined pending post-remedial monitoring to occur 2 and 5 years after completion of cleanup work at the entire San Diego Shipyard Sediment Site.

E. Other Plans, Policies and Regulations

- 1. Bays and Estuaries Policy.** The State Water Board adopted a Water Quality Control Policy for Enclosed Bays and Estuaries of California (Bays and Estuaries Policy) on May 16, 1974 (last amended in 1995). The Bays and Estuaries Policy establishes principles for management of water quality, quality requirements for waste discharges, discharge prohibitions, and general provisions to prevent water quality degradation and to protect

the beneficial uses of waters of enclosed bays and estuaries. These principles, requirements, prohibitions and provisions have been incorporated into this Order.

- a. The Bays and Estuaries Policy contains the following principle for management of water quality in enclosed bays and estuaries, which includes San Diego Bay:
 - i. The discharge of municipal wastewaters and industrial process waters (exclusive of cooling water discharges) to enclosed bays and estuaries shall be phased out at the earliest practicable date. Exceptions to this provision may be granted by the San Diego Water Board only when the Board finds that the wastewater in question would consistently be treated and discharged in such a manner that it would enhance the quality of receiving waters above that which would occur in the absence of the discharge. For the purpose of this policy, ballast waters and innocuous non-municipal wastewaters such as clear brines, washwater, and pool drains are not necessarily considered industrial process wastes, and may be allowed by the San Diego Water Board under waste discharge requirements that provide protection to the beneficial uses of the receiving water.
 - ii. The Bays and Estuaries Policy also prohibits the discharge or by-passing of untreated wastes. This Order prohibits the discharge and by-passing of untreated waste except for non-contact fire protection system water, hydrostatic relief water, and flood water. For the purpose of the Bays and Estuaries Policy and this Order, the discharges of fire protection water; potable water leaks from hoses, and steam condensate leaks from hoses effluent will be considered innocuous non-municipal wastewaters and, as such, will not be considered industrial process wastes.
- b. The following Principles for the Management of Water Quality in Enclosed Bays and Estuaries, as stated in the Bays and Estuaries Policy, apply to all of California's enclosed bays and estuaries including San Diego Bay:
 - i. Persistent or cumulative toxic substances shall be removed from the waste to the maximum extent practicable through source control or adequate treatment prior to discharge.
 - ii. Bay or estuarine outfall and diffuser systems shall be designed to achieve the most rapid initial dilution practicable to minimize concentrations of substances not removed by source control or treatment.
 - iii. Wastes shall not be discharged into or adjacent to areas where the protection of beneficial uses requires spatial separation from waste fields.
 - iv. Waste discharges shall not cause a blockage of zones of passage required for the migration of anadromous fish.
 - v. Non-point sources of pollutants shall be controlled to the maximum practicable extent.

The San Diego Water Board has considered the Principles for the Management of Water Quality in Enclosed Bays in Estuaries, in adopting this Order. The terms and conditions of this Order are consistent with the Principles for the Management of Water Quality in Enclosed Bays and Estuaries.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the U.S. The control of

pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 CFR section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

1. **Discharge Prohibition III.A.** This prohibition is based on the requirements of the Basin Plan.
2. **Discharge Prohibition III.B. and III.C.** Ship repair and maintenance activities may result in the discharge of pollutants and wastes to waters of the U.S. Discharge Prohibition III.B prohibits the discharge of wastes associated with ship repair and maintenance activities. These prohibitions are based on the requirements of the Enclosed Bays and Estuaries Policy and 40 CFR section 122.21(a) and Water Code section 13260. Water Code section 13260 requires filing an application and Report of Waste Discharge before a discharge can occur. Discharges not described in the application and Report of Waste Discharge, and subsequently in this Order, are prohibited.
3. **Discharge Prohibition III.D.** This prohibition is based on the requirements of the Enclosed Bays and Estuaries Policy.
4. **Discharge Prohibition III.E.** This prohibition is based on the requirements of the Bays and Estuaries Policy and is consistent with prohibitions established for similar facilities.
5. **Discharge Prohibition III.F.** This Order prohibits the discharge of hazardous substances equal to or in excess of reportable quantities listed in 40 CFR part 117 and/or CFR part 302.
6. **Discharge Prohibition III.G.** This prohibition is based on the requirements of the Bays and Estuaries Policy and is consistent with prohibitions established for similar facilities.
7. **Discharge Prohibition III.H.** This prohibition is retained from the previous Order No. R9-2009-0099 based on the 303(d) listing for PCB compounds in San Diego Bay and prohibits the discharge of PCBs to the Bay.
8. **Discharge Prohibition III.I.** This prohibition is retained from the previous Order No. R9-2009-0099 because the intake water credit effluent limitation for copper is a maximum daily effluent limitation without an average monthly effluent limitation.
9. **Discharge Prohibition III.J.** This requirement prohibits the addition of chlorine or other additive pollutants to the fire protection system, potable water system, steam system, or dry dock ballast tanks to ensure that the minimum of pollutants is discharged.
10. **Discharge Prohibition III.K.** Waste discharges from ship repair and maintenance activities on ships, piers, and shore side facilities can cause high concentrations of copper, zinc, other metals, and oil and grease in industrial storm water runoff. High concentrations of these pollutants in the industrial storm water runoff can be toxic to aquatic organisms. Discharge Prohibition III.E is based on the toxicity requirements contained in the Basin Plan and prohibits the discharge of the first 1 inch (first flush) of storm water runoff from Industrial High Risk Areas, as defined in section IV.A of this Order, unless the discharge can be demonstrated to meet the effluent limitations of this Order.

B. Technology-Based Effluent Limitations (TBELs)

1. Scope and Authority

Section 301(b) of the CWA and implementing U.S. EPA permit regulations at 40 CFR section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharges authorized by this Order must meet minimum federal technology-based requirements based on Best Professional Judgment (BPJ) in accordance with 40 CFR section 125.3.

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

- a. Best practicable treatment control technology (BPT) represents the average of the best existing performance by well-operated facilities within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.
- b. Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.
- c. Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including Biochemical Oxygen Demand 5-day @ 20 °C (BOD), Total Suspended Solids (TSS), fecal coliform, pH, and oil and grease. The BCT standard is established after considering the “cost reasonableness” of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.
- d. New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires U.S. EPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and 40 CFR section 125.3 authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the San Diego Water Board must consider specific factors outlined in 40 CFR section 125.3.

2. Applicable Technology-Based Effluent Limitations

- a. The State Water Board adopted a revised Water Quality Control Plan for Ocean Waters of California (Ocean Plan) on October 16, 2012, which became effective on August 19, 2013. Although the Ocean Plan is not directly applicable to enclosed bays, such as San Diego Bay, the salinity and beneficial uses of San Diego Bay are similar to those of the ocean waters of the State. Therefore, in order to protect the beneficial uses of San Diego Bay, the previous Order used the Ocean Plan as a reference for developing discharge specifications, receiving water prohibitions, and narrative limitations and to supplement the provisions contained in the CTR, the SIP, and the Bays and Estuaries Policy.

The Ocean Plan establishes water quality objectives, general requirements for management of waste discharged to the ocean, effluent quality requirements for waste discharges, discharge prohibitions, and general provisions. Further, Table 2 of the Ocean Plan establishes technology-based effluent limitations for discharges for which ELGs have not been established pursuant to sections 301, 302, 304, or 306 of the federal CWA.

Based on Table 2 of the Ocean Plan, Board Order No. R9-2009-0099 established numeric effluent limitations for the discharge of industrial discharges from the facility.

The effluent limitations contained in Table 2 of the Ocean Plan are summarized below:

Table F-11. Ocean Plan Table 2 Effluent Limitations

Parameter	Units	Table 2 Effluent Limitations		
		Average Monthly	Weekly Average	Instantaneous Maximum
Oil and Grease	mg/L	25	40	75
Settleable Solids	mL/L	1.0	1.5	3.0
Turbidity	NTU	75	100	225
pH	standard units	Within 6.0 - 9.0 at all times.		

Effluent limitations for oil and grease, settleable solids, turbidity, and pH have been carried over based on anti-backsliding requirements.

- b. In addition to numeric TBELs and in accordance with 40 CFR 122.44(k), the previous Order determined that the implementation of BMPs for the discharge of industrial wastes associated with ship construction, repair and maintenance activities were appropriate. To carry out the purpose and intent of the CWA, the previous Order required the Discharger to develop and implement a BMP plan, as authorized by CWA section 304(e) and section 402(p), for toxic pollutants and hazardous substances.
- c. The requirement to implement an appropriate BMP plan for non-storm water discharges is carried over from Order No. R9-2009-0099. The BMP plan shall be incorporated into the Facility’s Storm Water Pollution Prevention Plan (SWPPP).
- d. The requirement to implement appropriate BMPs for shipyard activities to prevent discharges of waste is carried over from Order No. R9-2009-0099, and in the form of a SWPPP.
- e. In addition to the retention of BMPs in a SWPPP, this Order establishes Numeric Action Levels (NALs) for storm water from areas identified as Industrial High Risk Areas. The statewide Industrial Storm Water General Permit, *General Permit for Storm Water Discharges Associated with Industrial Activities*, Order No. 2014-00570DWQ, NPDES No. CAS000001, was adopted on April 1, 2014, by the State Water Board and became effective on July 1, 2015. This statewide Industrial Storm Water General Permit contains NALs based on benchmarks in U.S. EPA’s *Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity* (MSGP) which became effective May 27, 2009. Consistent with the intent of the State Water Board, this Order establishes NALs with a tiered compliance strategy. The San Diego Water Board finds that the State Water Board’s NALs

serve as an appropriate set of technology-based, measureable criteria that demonstrate compliance with BAT/BCT.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

CWA Section 301(b) and 40 CFR section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

Section 122.44(d)(1)(i) of 40 CFR requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed State criterion or policy interpreting the State's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other State plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

- a. The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Basin Plan. The beneficial uses applicable to the San Diego Bay and the mouth of Chollas Creek contained in the Basin Plan are summarized in section III.C.1 of this Fact Sheet. The Basin Plan includes both narrative and numeric water quality objectives applicable to the receiving water.

The CTR promulgated toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the State. Priority pollutant water quality criteria in the CTR are applicable to discharges to San Diego Bay. The CTR contains both saltwater and freshwater criteria. Because a distinct separation generally does not exist between freshwater and saltwater aquatic communities, the following apply: in accordance with 40 CFR section 131.38(c)(3), freshwater criteria apply to areas where salinities are at or below 1 part per thousand (ppt) 95 percent or more of the time. The San Diego Water Board has determined that because the discharges are to San Diego Bay, saltwater CTR criteria are applicable. The CTR criteria for saltwater aquatic life or human health for consumption of organisms, whichever is more stringent, are used to prescribe the effluent limitations in this Order to protect the beneficial uses of San Diego Bay, a water of the U.S. in the vicinity of the discharges.

The SIP procedures for implementation of CTR and NTR criteria are applicable to non-storm water discharges. Discharges from the Facility to San Diego Bay include discharges treated hydrostatic relief water and Ways dewatering, floating dry dock

ballast water, and graving dock dewatering. A Reasonable Potential Analysis (RPA) was conducted for the non-storm water discharges to San Diego Bay using all the available data.

The table below summarizes the applicable water quality criteria/objectives for priority pollutants in the effluent or receiving water. These criteria were used in conducting the RPAs for this Order.

Table F-12. Applicable CTR/NTR Water Quality Criteria

Constituent	Selected Criteria	Freshwater		Saltwater		Human Health for Consumption of:	
		Acute	Chronic	Acute	Chronic	Water & Organisms	Organisms Only
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Antimony	4,300	Not Applicable		--	--	Not Applicable	4,300
Arsenic	36			69	36		--
Beryllium	No Criteria			--	--		--
Cadmium	9.4			42	9.4		--
Chromium (III)	No Criteria			--	--		--
Chromium (VI)	50			1,108	50		--
Copper	3.7			5.8	3.7		--
Lead	8.5			221	8.5		--
Mercury	0.051			--	--		0.051
Nickel	8.3			75	8.3		4,600
Selenium	71			291	71		--
Silver	2.2			2.2			--
Thallium	6.3			--	--		6.3
Zinc	86			95	86		--
Cyanide	1			1	1		220,000
Asbestos	No Criteria			--	--		--
2,3,7,8 TCDD	1.40E-08			--	--		1.40E-08
TCDD Equivalentents	1.40E-08			--	--		1.40E-08
Acrolein	780			--	--		780
Acrylonitrile	0.66			--	--		0.66
Benzene	71			--	--		71
Bromoform	360			--	--		360
Carbon Tetrachloride	4.4			--	--		4.4
Chlorobenzene	21,000			--	--		21,000
Chlorodibromomethane	34			--	--		34
Chloroethane	No Criteria			--	--		--
2-Chloroethylvinyl ether	No Criteria	--	--	--			

Constituent	Selected Criteria	Freshwater		Saltwater		Human Health for Consumption of:	
		Acute	Chronic	Acute	Chronic	Water & Organisms	Organisms Only
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Chloroform	No Criteria			--	--		--
Dichlorobromomethane	46			--	--		46
1,1-Dichloroethane	No Criteria			--	--		--
1,2-Dichloroethane	99			--	--		99
1,1-Dichloroethylene	3.2			--	--		3.2
1,2-Dichloropropane	39			--	--		39
1,3-Dichloropropylene	1,700			--	--		1,700
Ethylbenzene	29,000			--	--		29,000
Methyl Bromide	4,000			--	--		4,000
Methyl Chloride	No Criteria			--	--		--
Methylene Chloride	1600			--	--		1,600
1,1,2,2-Tetrachloroethane	11			--	--		11
Tetrachloroethylene	8.9			--	--		8.85
Toluene	200,000			--	--		200,000
1,2-Trans-Dichloroethylene	140,000			--	--		140,000
1,1,1-Trichloroethane	No Criteria			--	--		--
1,1,2-Trichloroethane	42			--	--		42
Trichloroethylene	81			--	--		81
Vinyl Chloride	525			--	--		525
2-Chlorophenol	400			--	--		400
2,4-Dichlorophenol	790			--	--		790
2,4-Dimethylphenol	2,300			--	--		2,300
4,6-dinitro-o-resol (aka 2-methyl-4,6-Dinitrophenol)	765			--	--		765
2,4-Dinitrophenol	14,000			--	--		14,000
2-Nitrophenol	No Criteria			--	--		--
4-Nitrophenol	No Criteria			--	--		--
3-Methyl-4-Chlorophenol (aka P-chloro-m-resol)	No Criteria			--	--		--
Pentachlorophenol	7.9			13	7.9		8.2
Phenol	4,600,000			--	--		4,600,000
2,4,6-Trichlorophenol	6.5			--	--		6.5
Acenaphthene	2,700			--	--		2,700
Acenaphthylene	No Criteria			--	--		--

Constituent	Selected Criteria	Freshwater		Saltwater		Human Health for Consumption of:	
		Acute	Chronic	Acute	Chronic	Water & Organisms	Organisms Only
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Anthracene	110,000			--	--		110,000
Benzidine	0.00054			--	--		0.00054
Benzo(a)Anthracene	0.049			--	--		0.049
Benzo(a)Pyrene	0.049			--	--		0.049
Benzo(b)Fluoranthene	0.049			--	--		0.049
Benzo(ghi)Perylene	No Criteria			--	--		--
Benzo(k)Fluoranthene	0.049			--	--		0.049
Bis(2-Chloroethoxy)Methane	No Criteria			--	--		--
Bis(2-Chloroethyl)Ether	1.4			--	--		1.4
Bis(2-Chloroisopropyl)Ether	170,000			--	--		170,000
Bis(2-Ethylhexyl)Phthalate	5.9			--	--		5.9
4-Bromophenyl Phenyl Ether	No Criteria			--	--		--
Butylbenzyl Phthalate	5,200			--	--		5,200
2-Chloronaphthalene	4,300			--	--		4,300
4-Chlorophenyl Phenyl Ether	No Criteria			--	--		--
Chrysene	0.049			--	--		0.049
Dibenzo(a,h)Anthracene	0.049			--	--		0.049
1,2-Dichlorobenzene	17,000			--	--		17,000
1,3-Dichlorobenzene	2,600			--	--		2,600
1,4-Dichlorobenzene	2,600			--	--		2,600
3,3 Dichlorobenzidine	0.08			--	--		0.077
Diethyl Phthalate	120,000			--	--		120,000
Dimethyl Phthalate	2,900,000			--	--		2,900,000
Di-n-Butyl Phthalate	12,000			--	--		12,000
2,4-Dinitrotoluene	9.1			--	--		9.1
2,6-Dinitrotoluene	No Criteria			--	--		--
Di-n-Octyl Phthalate	No Criteria			--	--		--
1,2-Diphenylhydrazine	0.54			--	--		0.54
Fluoranthene	370			--	--		370
Fluorene	14,000			--	--		14,000
Hexachlorobenzene	0.00077			--	--		0.00077
Hexachlorobutadiene	50			--	--		50
Hexachlorocyclopentadiene	17,000			--	--		17,000

Constituent	Selected Criteria	Freshwater		Saltwater		Human Health for Consumption of:	
		Acute	Chronic	Acute	Chronic	Water & Organisms	Organisms Only
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Hexachloroethane	8.9			--	--		8.9
Indeno(1,2,3-cd)Pyrene	0.049			--	--		0.049
Isophorone	600			--	--		600
Naphthalene	No Criteria			--	--		--
Nitrobenzene	1,900			--	--		1,900
N-Nitrosodimethylamine	8.1			--	--		8.1
N-Nitrosodi-n-Propylamine	1.4			--	--		1.4
N-Nitrosodiphenylamine	16			--	--		16
Phenanthrene	No Criteria			--	--		--
Pyrene	11,000			--	--		11,000
1,2,4-Trichlorobenzene	No Criteria			--	--		--
Aldrin	0.00014			1.3			0.00014
alpha-BHC	0.013			--	--		0.013
beta-BHC	0.046			--	--		0.046
gamma-BHC	0.063			0.16	--		0.063
delta-BHC	No Criteria			--	--		--
Chlordane	0.00059			0.09	0.004		0.00059
4,4'-DDT	0.00059			0.13	0.001		0.00059
4,4'-DDE (linked to DDT)	0.00059			--	--		0.00059
4,4'-DDD	0.00084			--	--		0.00084
Dieldrin	0.00014			0.71	0.0019		0.00014
alpha-Endosulfan	0.0087			0.034	0.0087		240
beta-Endolsulfan	0.0087			0.034	0.0087		240
Endosulfan Sulfate	240			--	--		240
Endrin	0.0023			0.037	0.0023		0.81
Endrin Aldehyde	0.81			--	--		0.81
Heptachlor	0.00021			0.053	0.0036		0.00021
Heptachlor Epoxide	0.00011			0.053	0.0036		0.00011
PCBs sum (2)	0.00017			--	0.03		0.00017
Toxaphene	0.0002			0.21	0.0002		0.00075

- b. Section 1.4.2 of the SIP establishes procedures for granting mixing zones and the assimilative capacity of the receiving water. Before establishing a dilution credit for a discharge, it must first be determined if, and how much, receiving water is available to dilute the discharge.

In the absence of a dilution credit, the worst-case dilution is assumed to be zero to provide protection for the receiving water beneficial uses. The impact of assuming zero assimilative capacity within the receiving water is that discharge limitations are applied end-of-pipe with no allowance for dilution within the receiving water.

Dilution was not requested by the Discharger. No supporting documentation for granting dilution was submitted. Thus, no dilution was applied in the implementation of WQBELs for discharges associated with the Facility.

3. Determining the Need for WQBELs

- a. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard.

The San Diego Water Board conducted the RPA in accordance with section 1.3 of the SIP. A summary of the results for the parameters which demonstrated reasonable potential, for each applicable discharge, is provided in the table below.

Table F-13. Summary of RPA Results

Discharge Location No.	Parameter	Maximum Effluent Concentration (MEC) (µg/L)	Background (B) (µg/L)	Criteria (C) (µg/L)	Reason ¹
IX-1	Copper	2.8	10.0	3.7	B>C & pollutant detected in effluent
M-1	Copper	3.8	10.0	3.7	MEC & B>C
M-2	Copper	22	10.0	3.7	MEC & B>C
	Zinc	90	23	86	MEC>C

¹ MEC = Maximum Effluent Concentration; B = Background Concentration; C = Criteria (Water Quality)

² Step 6 of section 1.3 of the SIP states that if B is greater than C and the pollutant is detected in the effluent, an effluent limitation is required and the analysis for the subject pollutant is complete.

4. WQBEL Calculations

- a. **Ballast Water.** As shown in Table F-13, the San Diego Water Board finds that discharges of ballast water from the dry dock at Discharge Point No. M-1 have the reasonable potential to exceed water quality criteria for copper. However, section 4.2.3 of the VGP Fact Sheet states that "*vessel operators cannot install equipment onboard their vessels until that equipment has been approved by the Coast Guard and, in some cases, their class societies. Hence, EPA cannot require use of equipment or technologies that would conflict with the requirements of these organizations without fully understanding the implications of such requirements. These factors create a situation where, at this time, it is generally not feasible for EPA to calculate numeric effluent limitations to effectively regulate vessel discharges.*" Consistent with the VGP, the San Diego Water Board is not establishing numeric effluent limitations for ballast water in this Order. This Order contains a provision requiring the Discharger to continue the implementation of BMPs to reduce

the discharge of pollutants from ballast water. In addition, this Order prohibits the addition of chlorine or other additives to the ballast water tanks.

- b. The WQBEL for pH is based on the water quality objective contained in the Basin Plan, which states, "In bays and estuaries the pH shall not be depressed below 7.0 nor raised above 9.0." The WQBEL for temperature is based on Part 4.B.(1) of the Thermal Plan.
- c. Effluent limitations for copper and zinc were calculated in accordance with section 1.4 of the SIP. The following paragraphs describe the methodology used for calculating effluent limitations for these parameters.
- d. Effluent Limitation Calculations. In calculating maximum effluent limitations, the effluent concentration allowances were set equal to the criteria/standards/objectives.

$$ECA_{acute} = CMC \qquad ECA_{chronic} = CCC$$

For the human health, agriculture, or other long-term criterion/objective, a dilution credit can be applied. The ECA is calculated as follows:

$$ECA_{HH} = HH + D (HH - B)$$

where:

- ECA_{acute} = effluent concentration allowance for acute (1-hour average) toxicity criterion
- $ECA_{chronic}$ = effluent concentration allowance for chronic (4-day average) toxicity criterion
- ECA_{HH} = effluent concentration allowance for human health, agriculture, or other long-term criterion/objective
- CMC = criteria maximum concentration (1-hour average)
- CCC = criteria continuous concentration (4-day average, unless otherwise noted)
- HH = human health, agriculture, or other long-term criterion/objective
- D = dilution credit
- B = maximum receiving water concentration

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTA) using statistical multipliers and the lowest is used. Additional statistical multipliers were then used to calculate the maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL). Human health ECAs are set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

Human health ECAs are set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

$$AMEL = mult_{AMEL} [\min(M_A ECA_{acute}, M_C ECA_{chronic})]$$

$$MDEL = mult_{MDEL}[\min(M_A ECA_{acute}, M_C ECA_{chronic})]$$

$$MDEL_{HH} = \left(\frac{mult_{MDEL}}{mult_{AMEL}}\right) AMEL_{HH}$$

where: mult AMEL = statistical multiplier converting minimum LTA to AMEL
 mult MDEL = statistical multiplier converting minimum LTA to MDEL
 M A = statistical multiplier converting CMC to LTA
 M C = statistical multiplier converting CCC to LTA

WQBELs were calculated for copper and zinc as follows in Tables F-14 and F-15, below.

Table F-14. WQBEL Calculations for Copper

	IX-1		M-2	
	Acute	Chronic	Acute	Chronic
Criteria (µg/L) ¹	5.8	3.7	5.8	3.7
Dilution Credit	No Dilution	No Dilution	No Dilution	No Dilution
ECA	5.8	3.7	5.8	3.7
ECA Multiplier	0.41	0.62	0.40	0.60
LTA	2.4	2.3	2.3	2.3
AMEL Multiplier (95th%)	²	1.40	²	1.47
AMEL (µg/L)	²	3.2	²	3.2
MDEL Multiplier (99th%)	²	2.43	²	2.77
MDEL (µg/L)	²	5.6	²	5.7
¹ CTR Aquatic Life Criteria				
² Limitations based on chronic LTA (Acute LTA > Chronic LTA)				

Table F-15. WQBEL Calculations for Zinc

	M-2	
	Acute	Chronic
Criteria	95	86
Dilution Credit	No Dilution	No Dilution
ECA	95	86
ECA Multiplier	0.51	0.70
LTA	48	60
AMEL Multiplier (95th%)	1.28	²
AMEL (µg/L)	62	²
MDEL Multiplier (99th%)	1.98	²
MDEL (µg/L)	95	²
¹ CTR Aquatic Life Criteria		
² Limitations based on acute LTA (Chronic LTA > Acute LTA)		

- e. A summary of the applicable WQBELs for the Discharger are summarized below:
 - i. The applicable CTR WQBELs are summarized in the following table:

Table F-16. Summary of CTR WQBELs

Discharge Locations	Parameter	Units	Effluent Limitations	
			Average Monthly ¹	Maximum Daily
IX-1	Copper	µg/L	3.2	5.6
M-2	Copper	µg/L	3.2	5.7
	Zinc	µg/L	62	95

¹ Average Monthly Effluent Limitations are not applicable for graving dock flood water discharges (M-2) unless there is a discharge more than one day in a 30 day period due to the short term and intermittent nature of the discharge.

- ii. All discharges shall maintain a pH of between 7.0 and 9.0 standard units at all times.
- iii. At no time shall any discharge be greater than 20°F over the natural temperature of the receiving water.

5. Intake Water Credits

Section 1.4.4 of the SIP provides that the San Diego Water Board may consider priority pollutants in intake water, through the application of intake water credits. By request of the Discharger, the previous order established intake water credits for certain discharges, including discharges of hydrostatic relief water at Discharge Point Nos. HR-1, HR-2 and HR-3, and flood water from the building ways and graving dock at Discharge Point Nos. M-2, M-3, and M-4 for copper and nickel. The discharges of hydrostatic relief water at Discharge Point Nos. HR-1, HR-2 and HR-3, and flood water from the building ways at Discharge Point Nos. M-3 and M-4 have been combined into the ion exchange treatment system discharging at Discharge Point No. IX-1.

The SIP gives the San Diego Water Board the discretion to allow intake water credits. Intake water credits are not appropriate for copper at Discharge Point No. IX.1 because the Maximum Effluent Concentration (MEC) for copper is well below the water quality criteria, the background concentration, and the effluent limitations established by this Order. Intake water credits are not appropriate for nickel at Discharge Point No. IX-1 because no reasonable potential was determined for nickel at Discharge Point IX.-1.

Reasonable potential was again determined at Discharge Point No. M-2 for copper, however there is no longer reasonable potential for nickel. Effluent data indicates that the Discharger cannot comply with applicable WQBELs for copper (effluent data ranges from 4.2 µg/L to 22 µg/L, with an average of 9.4 µg/L). This Order continues the application of intake water credits for copper at Discharge Point No. M-2.

The previous Order established intake water credits at Discharge Point No. M-2 based on the background copper concentration of 12.8 µg/L, applied as a maximum daily effluent limitations. The maximum effluent concentration for copper within the receiving water from September 2009 through February 2016 was 10.0 µg/L on February 22, 2011. As such, this Order establishes an intake water credit of 10.0 µg/L for discharges from Discharge Point No. M-2 as a daily maximum effluent limitation.

6. Whole Effluent Toxicity (WET)

a. Background and Rationale

The Basin Plan defines toxicity as the adverse response of organisms to chemicals or physical agents.

The Basin Plan establishes a narrative water quality objective for toxicity:

“All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.”

Order No. R9-2009-0099 established acute toxicity effluent limitations for all discharges. Available acute toxicity data from 2009 through 2016 do not indicate the presence of acute toxicity. Available chronic toxicity data from 2009 through 2016 do not indicate the presence of chronic toxicity. However, reasonable potential for chronic toxicity has been established for Discharge Point No. IX-1 due to copper and for Discharge Point No. M-2 for copper and zinc being present in the discharge of the waters at concentrations greater than applicable aquatic life water quality criteria.

U.S. EPA Region 9 has informed San Diego Water Board staff that the application of chronic toxicity monitoring and effluent limitations for all discharges are more desirable than acute toxicity because chronic toxicity is more conservative and provides a better indicator of chronic effects to organisms in the receiving water, other than percent survival. Chronic effects, such as detrimental physiological responses (affecting fertilization, growth, reproduction, etc.) may be present, even when acute effects such as the death of an organism are not apparent. The use of chronic toxicity allows for a more accurate determination of the narrative water quality objective, which specifies *“detrimental physiological responses”*. Many detrimental physiological responses are not addressed when the test is limited to simply percent survival.

Based on the U.S. EPA Region 9 guidance, chronic toxicity monitoring and effluent limitations are established in this Order for discharges at the Facility. Because chronic toxicity is considered to be a more sensitive indicator of toxicity, and the monitoring of all industrial process wastewater sample locations for both acute and chronic toxicity would be costly and redundant, the monitoring requirements and effluent limitations for acute toxicity have been removed for industrial process water based on the application of the more conservative chronic toxicity requirements. If the Discharger complies with effluent limitations for chronic toxicity, they will achieve water quality greater than that necessary to achieve compliance with acute toxicity effluent limitations.

The San Diego Water Board has considered the following information in developing toxicity monitoring and effluent limitations:

- Discussions with U.S. EPA Region 9.
- U.S. EPA's June 2010 guidance document titled *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document, An Additional Whole Effluent Toxicity Statistical Approach for Analyzing Acute and Chronic Data* (EPA 833-R-10-003).
- U.S. EPA's June 2010 guidance document titled *National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document, An Additional*

Whole Effluent Toxicity Statistical Approach for Analyzing Acute and Chronic Data (EPA 833-R-10-004).

- State Water Board’s 2015 Ocean Plan.
- The narrative water quality for objective for toxicity contained in the Water Quality Control Plan for the San Diego Basin (Basin Plan).
- An interpretation of applicable State and federal regulations.

Chronic toxicity monitoring requirements and effluent limitations have been established for industrial storm water, ion exchange system, and graving dock flood water discharges demonstrated to have toxic pollutants in toxic concentrations. These chronic toxicity requirements are consistent with U.S. EPA’s Test of Significant Toxicity (TST) hypothesis approach. The chronic toxicity effluent limitations are expressed as “Pass” for the median monthly summary results and as “Pass” or “<50% Effect” for each maximum daily individual result.

This Order also requires the Discharger to implement BMPs to prevent or eliminate toxicity, investigate the causes of any toxicity, and identify and implement corrective actions to reduce or eliminate effluent toxicity.

D. Final Effluent Limitation Considerations

1. Applicable TBELs and WQBELs described in sections IV.B and IV.C of this Fact Sheet have been applied in this Order. Both WQBELs and TBELs for pH were applicable the discharges (6.0 – 9.0 standard units and 7.0 – 9.0 standard units, respectively). To insure the protection of water quality, the more stringent lower and upper limitations for pH have been applied as the final effluent limitations in this Order.
2. Discharges from the Facility shall not exceed the effluent limitations summarized below:

Table F-17. Effluent Limitations for All Discharges

Parameter	Units	Effluent Limitations			
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum
Oil and Grease	mg/L	25	40	40	75
Settleable Solids	mL/L	1.0	1.5	1.5	3.0
Turbidity	NTU	75	100	100	225
pH	pH units	--	--	--	1
Temperature	°F	--	--	--	2
Chronic Toxicity	Pass or Fail	--	--	3	--

¹ Within limits of 7.0 - 9.0 at all times

² At no time shall any discharge be greater than 20°F over the natural temperature of the receiving water.

³ Discharges shall achieve compliance with chronic toxicity effluent limitations as specified in section VII.I of this Order.

3. Discharges from the Facility shall meet the location-specific effluent limitations specified below:

Table F-18. Summary of Final Effluent Limitations for Specific Discharge Locations

Discharge Locations	Parameter	Units	Effluent Limitations	
			Average Monthly	Maximum Daily
IX-1	Copper, Total Recoverable	µg/L	3.2	5.6
M-2	Copper, Total Recoverable	µg/L	¹	10.0
	Zinc, Total Recoverable	µg/L	¹	95

¹ Average Monthly Effluent Limitations are not applicable for the flood water discharges (M-2, 3, and 4) due to the short term and intermittent nature of the discharges.

4. Satisfaction of Anti-Backsliding Requirements

Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 CFR section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed.

Numeric effluent limitations have been removed for floating dry dock ballast water (M-1) because of new information pursuant to CWA section 402(o)(2)(B)(i). The floating dry dock is a vessel regulated under the VGP. Section 4.2.3 of the VGP Fact Sheet states that *"vessel operators cannot install equipment onboard their vessels until that equipment has been approved by the Coast Guard and, in some cases, their class societies. Hence, EPA cannot require use of equipment or technologies that would conflict with the requirements of these organizations without fully understanding the implications of such requirements. These factors create a situation where, at this time, it is generally not feasible for EPA to calculate numeric effluent limitations to effectively regulate vessel discharges."* During the previous permit cycle the VGP was issued by U.S. EPA. For the same reasons described by U.S. EPA in the VGP, the San Diego Water Board is not establishing numeric effluent limitations for ballast water in this Order. This Order instead contains a provision requiring the Discharger to continue the implementation of BMPs to reduce or prevent the discharge of pollutants from ballast water. In addition, this Order prohibits the addition of chlorine or other pollutant additives to the ballast water tanks. Removal of the limitations is not expected to negatively impact water quality.

As discussed in section IV.C.5 of this Fact Sheet, discharges from the Facility did not contain reasonable potential for acute toxicity. Further, this Order establishes effluent limitations for chronic toxicity for discharges of storm water, ion exchange treatment system discharge, and graving dock flood water at Discharge Point Nos. SW-1, SW-2, IX-1, and M-2. Chronic toxicity effluent limitations are protective of acute toxicity. The removal of the acute toxicity effluent limitations are consistent with State and federal anti-backsliding requirements and is not expected to negatively impact water quality.

Reasonable potential was not found for nickel in discharges of graving dock flood water from Discharge Point No. M-2 or for nickel, cadmium, or zinc in discharges from the ion exchange treatment system at Discharge Point No. IX.1 so these effluent limitations have been removed from this Order. The removal of these effluent limitations for nickel at Discharge Point No. M-2 and nickel, cadmium, and zinc at Discharge Point No. IX-1 is consistent with State and federal anti-backsliding requirements and is not expected to negatively impact water quality.

With the exception of the removal of effluent limitations discussed above, discharge prohibitions, and specifications in this Order are at least as stringent as the effluent limitations in Order No. R9-2009-0099 and meet State and federal anti-backsliding requirements.

5. **Satisfaction of Antidegradation Policies**

WDRs for the Discharger must conform with federal and State antidegradation policies provided at 40 CFR 131.12 and in State Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California*. The antidegradation policies require that beneficial uses and the water quality necessary to maintain those beneficial uses in the receiving waters of the discharge shall be maintained and protected, and, if existing water quality is better than the quality required to maintain beneficial uses, the existing water quality shall be maintained and protected unless allowing a lowering of water quality is necessary to accommodate important economic and social development or is consistent with maximum benefit to the people of California. When a significant lowering of water quality is allowed by the San Diego Water Board, an antidegradation analysis is required in accordance with the State Water Board's Administrative Procedures Update (July 2, 1990), *Antidegradation Policy Implementation for NPDES Permitting*.

This Order establishes the same BMP requirements as the federal VGP for ballast water discharges from the dry dock in lieu of numeric effluent limitations because the floating dry dock is a vessel already regulated by the VGP. This Order also prohibits the addition of any chlorine or other pollutant additives to the ballast water tanks. Implementation of BMPs in lieu of numeric effluent limitations is expected to reduce or prevent the discharge of pollutants to San Diego Bay and this change is consistent with State and federal antidegradation requirements.

This Order establishes chronic toxicity effluent limitations and removes acute toxicity effluent limitations for Discharge Points SW-1, SW-2, IX-1, and M-2 due to a lack of reasonable potential for acute toxicity and adequate protection provided by the chronic toxicity effluent limitations. Because of a lack of reasonable potential due to an increase in discharge quality, effluent limitations have been removed in this Order for nickel at Discharge Point No. M-2 and nickel, cadmium, and zinc at Discharge Point No. IX-1.

The permitted discharges are consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The changes described above will not result in an increase in mass emissions of pollutants to San Diego Bay from dry dock ballast water.

6. **Stringency of Requirements for Individual Pollutants**

The implementation of BMPs for the discharge of industrial wastes associated with ship construction, repair and maintenance activities are appropriate in accordance with 40 CFR 122.44(k). Section VI.C.3 of this Order requires the continued implementation of a BMP Program. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. These limitations are not more stringent than required by the CWA.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. All beneficial uses and water quality objectives contained in the Basin Plan

were approved under State law and submitted to and approved by U.S. EPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to U.S. EPA prior to May 30, 2000, but not approved by U.S. EPA before that date, are nonetheless "*applicable water quality standards for purposes of the CWA*" pursuant to section 131.21 (c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

D. Storm Water Risk Level Designation Definition

All industrial areas of the Facility have been designated as Industrial High Risk Areas due to the activities performed on-site and the contact of storm water within the industrial areas of the Facility.

E. Industrial Storm Water Discharge Specifications

- 1. Pollutant Reduction to BAT/BCT.** NPDES Permits for storm water discharges must meet all applicable provisions of sections 301 and 402 of the CWA. These provisions require control of pollutant discharges using BAT and BCT to prevent and reduce pollutants and any more stringent controls necessary to meet water quality standards
- 2. Storm Water Pollution Prevention Plan (SWPPP) for Industrial Areas.** This Order requires the Discharger to continue to implement and regularly update an adequate SWPPP as specified in Attachment G. The SWPPP requirement is explained in more detail in section IV.B.2 of this Fact Sheet.
- 3. Numeric Action Levels (NALs).** Consistent with the direction of the State Water Board, and the Statewide Industrial Storm Water General Permit adopted on April 1, 2014, this Order establishes NALs based on U.S. EPA's benchmarks with a tiered compliance strategy. The Facility was deemed as an Industrial High Risk Area which is defined in section IV.A of this Order and the risk level strategy is explained in more detail in section IV.D. of this Fact Sheet.
- 4. Storm Water Retention and Treatment Control BMPs.** The Discharger has installed a Storm Water Diversion System (SWDS) capable of retaining runoff from a 100-year storm event, or 3.5 inches over a 24-hour period. The Discharger is required to maintain and operate the Facility's storm water diversion system. Storm water that flows into the graving dock during a graving dock flooding event will be discharged to San Diego Bay through Discharge Point No. M-2. Storm water exceeding the capacity of the SWSD will be discharged to San Diego Bay through SW-1 or SW-2.

F. Floating Dry Dock, Graving Dock, and Building Ways Discharge Specifications

This Order requires specific BMPs for floating dry dock, graving dock, and building ways operation to prevent or minimize the discharge of pollutants.

G. Land Discharge Specifications – Not Applicable

H. Recycling Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

Receiving water limitations in this Order are derived from the water quality objectives for bays and estuaries established by the Basin Plan (1994), the Bays and Estuaries Policy (1974), the CTR (2000), the State Implementation Policy (2005), the Ocean Plan (2015) and the Sediment Quality Plan (2008). San Diego Bay is listed as impaired for polychlorinated biphenyls (PCBs), sediment copper, sediment mercury, sediment zinc, sediment polycyclic aromatic hydrocarbons (PAHs), sediment PCBs, sediment toxicity, and benthic community in

the area directly off shore of the Facility. This 303(d) impairment and elevated effluent concentrations demonstrates that there is reasonable potential to cause or contribute to an exceedance of the sediment quality objectives which have been included as receiving water limitations.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42.

Sections 122.41(a)(1) and (b) through (n) of 40 CFR establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) of 40 CFR allows the State to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Monitoring and Reporting Program (MRP) Requirements

The Discharger is required to comply with the MRP in Attachment E and submit notifications as provided.

C. Special Provisions

1. Reopener Provisions

This Order includes a list of circumstances when this Order may be reopened.

2. Special Studies and Additional Monitoring Requirements

Requirements for a toxicity reduction evaluation/toxicity investigation evaluation TRE/TIE have been incorporated in the MRP (Attachment E).

3. Best Management Practices

To carry out the purpose and intent of the CWA, the previous Order required the Discharger to develop and implement a BMP Program, as authorized by CWA section 304(e) and section 402(p), for toxic pollutants and hazardous substances, and for the control of storm water discharges. This Order requires the Discharger to continue to implement and regularly update a BMP Program which incorporates a SWPPP as specified in Attachment G and addresses, at a minimum, dry dock pre-flood cleaning, building ways pre-flood cleaning, graving dock pre-flood cleaning, dry dock ballast water, and spills of including fire protection water, potable water, steam condensate.

4. Construction, Operation, and Maintenance Specifications – Not Applicable

5. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable

6. Other Special Provisions – Not Applicable

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the San Diego Water Board to require technical and monitoring reports. The MRP (Attachment E) establishes monitoring and reporting requirements that implement federal and State requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP (Attachment E) for this facility.

A. Influent Monitoring – Not Applicable

B. Effluent Monitoring

Pursuant to the requirements of 40 CFR section 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of BMPs and pollution prevention plans, to assess the impacts of the discharge on the receiving water, and determine compliance with effluent limitations.

1. Based on the industrial types of activities that occur on-site, and the types of discharges from the Facility, effluent monitoring at all effluent monitoring locations for settleable solids, turbidity, total suspended solids, oil and grease, total petroleum hydrocarbons, and chronic toxicity have been carried over from MRP No. R9-2009-0099. The frequency of sampling has been increased to annually for the remaining priority pollutants to ensure proper data collection.
2. **Ion Exchange Treatment System (Monitoring Location IX-1)**
 - a. Monthly flow monitoring has been retained from the previous permit because three 10,500 gallon surge tanks ensure a generally constant flow rate.
 - b. Monthly pH and temperature monitoring has been carried over from the previous permit.
 - c. Annual monitoring for settleable solids, turbidity, total suspended solids, and oil and grease has been increased from annually to monthly to better characterize the effluent.
 - d. Monthly monitoring for copper and zinc has been carried over from the previous permit.
 - e. Annual monitoring for total petroleum hydrocarbons has been increased to semiannual.
 - f. Annual chronic toxicity monitoring has been increased to semiannual from the previous permit to better characterize the effluent and to better understand the impacts of copper and zinc on the receiving water. Acute toxicity monitoring has been eliminated because chronic toxicity monitoring will achieve water quality greater than that necessary to achieve compliance with acute toxicity monitoring as explained in section IV.C.5 of this Fact Sheet, Attachment F to this Order.
 - g. Monitoring twice per permit term for the remaining CTR priority pollutants has been increased from the previous permit to semiannual monitoring to better characterize the effluent.
3. **Ballast Water (Monitoring Location M-1)**

Numeric effluent limitations have been removed for ballast water to be consistent with U.S. EPA's VGP. Therefore, all monitoring except submergence/emergence reporting has been eliminated.

4. Graving Dock Flood Water (Monitoring Location M-2)

- a. Sampling is only required when a discharge occurs (i.e. flooding of the graving dock during a launch or retrieval evolution)
- b. Monthly effluent flow monitoring has been revised from the previous permit to daily flow monitoring to accurately determine the volume of effluent being discharged from the Facility into San Diego Bay. Monitoring is only required when a discharge occurs (i.e. flooding of the graving dock during a launch or retrieval evolution)
- c. Monthly effluent monitoring of pH and temperature has been carried over from the previous permit to characterize the discharge of graving dock flood water from the Facility into the San Diego Bay.
- d. Annual monitoring for settleable solids, turbidity, total suspended solids, and oil and grease has been increased from annually to monthly to better characterize the effluent.
- e. Monthly effluent monitoring for copper has been carried over from the previous permit and quarterly monitoring for zinc has been increased to monthly because reasonable potential was indicated for these pollutants and therefore required monitoring to evaluate compliance with applicable effluent limitations.
- f. Annual monitoring for total petroleum hydrocarbons has been increased to semiannual.
- g. Annual chronic toxicity monitoring has been revised from the previous permit to semiannual to better characterize the effluent and to better understand the impacts of copper and zinc on the receiving water. Acute toxicity monitoring has been eliminated because chronic toxicity monitoring will achieve water quality greater than that necessary to achieve compliance with acute toxicity monitoring as explained in section IV.C.5 of this Fact Sheet, Attachment F to this Order.
- h. Monitoring twice per permit term of the graving dock flood water for the remaining CTR priority pollutants has been changed from the previous permit to semiannual monitoring to better characterize the effluent.
- i. The graving dock may be used for constructing new vessels or for repairing existing vessels. When constructing new vessels, the Discharger applies a non-copper-based antifouling hull coating system as a BMP to achieve compliance with the copper effluent limitation at Discharge Point No. M-2. The graving dock can also be used for repair or minor maintenance of vessels with existing antifouling hull coatings which may contain copper. Copper-based antifouling hull coatings are regulated by the California Department of Pesticide Regulation (DPR) and are designed to leach copper into the surrounding water which could cause an exceedance of the numeric copper effluent limitation at Discharge Point No. M-2. Because the leaching of copper from antifouling hull coatings on existing vessels needing repair and maintenance is regulated by DPR, an alternate sample location has been determined appropriate to obtain a sample which is representative of the activities at NASSCO without contributions from the copper-based antifouling hull coating. For vessels with existing copper-based antifouling hull coatings, the Discharger is required to collect the sample of flood water before the vessel hull contacts the flood water.

Representative samples of graving dock flood water shall be collected as follows.

- For newly constructed vessels, the sample shall be collected when the graving dock is full of water and ready to launch the vessel immediately before the gate is opened.
- For repair of vessels with a preexisting copper-based antifouling hull coating, the sample shall be collected when the graving dock is full of water, before the gate is opened, and before the vessel enters the graving dock.
- For launching vessels with a preexisting copper-based antifouling hull coating, the sample shall be collected immediately before the flood water is deep enough to reach the vessel hull.

5. Storm Water Monitoring

The discharge of industrial contact storm water to San Diego Bay may contain pollutants from the surrounding areas which could contribute to the exceedance of the water quality criteria/objectives of the receiving waters. Industrial storm water monitoring requirements have been modified from the previous Order to be consistent with the State Water Board's Statewide Industrial Storm Water Permit. The purpose of the monitoring is to determine the effects of storm water discharges on the receiving water and monitor the effectiveness of the SWPPP to meet applicable effluent limitations, NALs, and receiving water limits. Storm water sampling has been increased from two storms per year to two storms per semiannual period consistent with the Statewide Industrial Storm Water Permit.

C. Whole Effluent Toxicity Testing Requirements

The WET testing is designed to address the following primary questions:

1. Does the effluent meet permit effluent limits for toxicity thereby ensuring that water quality standards are achieved in the receiving water?
2. If the effluent does not comply with permit effluent limitations for chronic toxicity, are unmeasured pollutants causing risk to aquatic life? Are unmeasured pollutants causing risk to aquatic life?
3. If the effluent does not comply with permit effluent limitations for chronic toxicity, are pollutants in combinations causing risk to aquatic life? Are conditions in receiving water getting better or worse with regard to toxicity?

As discussed above in section IV.C.5 of this Fact Sheet, chronic toxicity effluent limitations established in this Order are based on U.S. EPA's TST and percent effect. Chronic toxicity effluent limitations and monitoring are established for industrial storm water, ion exchange treatment system discharges, and graving dock flood water. Chronic toxicity monitoring is required to evaluate compliance with effluent limitations. This Order increases the chronic toxicity monitoring requirement from Order No. R9-2009-00099 of at least two industrial storm water discharge events annually to be consistent with the Statewide Industrial Storm Water Permit of two storms per semiannual period. This Order increases the annual chronic toxicity monitoring from the previous permit for the ion exchange treatment system and graving dock flood water to semiannual monitoring. Acute toxicity monitoring has been eliminated because chronic toxicity monitoring will achieve water quality greater than that necessary to achieve compliance with acute toxicity monitoring as explained in section IV.C.5 of this Fact Sheet, Attachment F to this Order.

This Order requires the Discharger to conduct an additional toxicity test for exceedances of the toxicity effluent limitations. If the additional test demonstrates toxicity, the Discharger is required to implement accelerated monitoring. If an accelerated monitoring test demonstrates

toxicity, the Discharger is required to submit a Toxicity Reduction Evaluation (TRE) Workplan in accordance with U.S. EPA guidance which shall include: further steps taken by the Discharger to investigate, identify, and correct the causes of toxicity; actions the Discharge will take to mitigate the effects of the discharge and prevent the recurrence of toxicity; and a schedule for these actions. This provision also includes requirements to initiate the TRE/TIE process if the results of toxicity testing exceed the effluent limitation for chronic toxicity.

D. Receiving Water Monitoring

1. Monitoring Questions

Receiving water and sediment monitoring shall be designed and conducted to address the following primary questions:

- Does the discharge cause or contribute to violations of the receiving water limitations in section V of this Order?
- Are the receiving water conditions getting better or worse over time?
- Does the Facility cause or contribute to violations of the receiving water limitations in section V of this Order?
- Is the sediment condition changing over time?

2. Water and Sediment Monitoring Plan

The Discharger is required to submit a Water and Sediment Monitoring Plan within 12 months of the effective date of this Order. The Water and Sediment Monitoring Plan has all the elements required by the State Water Board's Sediment Quality Plan, which became effective on August 25, 2009, to be implemented for both water and sediment for consistency. A conceptual model, existing data, and ongoing monitoring must be considered in the development of the Water and Sediment Monitoring Plan.

3. Receiving Water Monitoring

- a. Monitoring of the receiving water is necessary to determine if the discharges from the Facility are impacting the water quality objectives for San Diego Bay, applicable beneficial uses, and aquatic life.
- b. Monitoring locations will be determined in the Water and Sediment Monitoring Plan.
- c. Monthly monitoring of copper has been retained from the previous permit to help determine future intake credits. Quarterly monitoring of zinc has been retained from the previous permit.
- d. This Order establishes annual monitoring of receiving water for chronic toxicity.
- e. Annual monitoring of the CTR priority pollutants has been retained from the previous permit.

4. Sediment Monitoring

- a. This Order establishes monitoring and analysis requirements consistent with the Sediment Quality Plan.
- b. Monitoring locations will be determined in the Water and Sediment Monitoring Plan.

- c. Sediment chemistry, toxicity, and benthic community monitoring are required in accordance with, and at a minimum, the requirements under the Sediment Quality Control Plan.

5. Monitoring Coalitions

Monitoring coalitions enable the sharing of technical resources, trained personnel, and associated costs and create an integrated water and sediment monitoring program within each water body. Focusing resources on water body issues and developing a broader understanding of pollutants effects in these water bodies enables the development of more rapid and efficient response strategies and facilitates better management of water and sediment quality.

To achieve maximum efficiency and economy of resources, the Discharger may establish or join a San Diego Bay water body monitoring coalition. If a San Diego Bay monitoring coalition is formed, revised monitoring requirements will be established to ensure that appropriate monitoring is conducted in a timely manner.

6. Water and Sediment Monitoring Reports

The Discharger or water body monitoring coalition is required to submit annual Receiving Water Monitoring Reports and a Sediment Monitoring Report at least twice during a permit cycle in accordance with the Water and Sediment Monitoring Plan unless otherwise directed by the San Diego Water Board.

E. Regional Monitoring Requirements

The San Diego Water Board may modify the receiving waters monitoring and reporting requirements, regional monitoring requirements, and/or special studies requirements of this Order as necessary for cause, including but not limited to a) revisions necessary to implement recommendations from Southern California Coastal Water Research Project (SCCWRP); b) revisions necessary to develop, refine, implement, and/or coordinate a regional monitoring program; and/or c) revisions necessary to develop and implement improved monitoring and assessment programs in keeping with San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of a Regional Monitoring Framework*.

F. Other Monitoring Requirements

1. Monitoring requirements for floating dry dock submergence/emergence, shipbuilding ways flooding, and graving dock flooding; floating dry dock ballast tank monitoring; floating boom cleaning; and spill and illicit discharges have been carried over from Order No. R9-2009-0099 to help determine the effectiveness of the BMP Plan and ensure that appropriate BMPs are properly implemented.
2. Under the authority of section 308 of the CWA (33 U.S.C. § 1318), U.S. EPA requires major permittees under the NPDES Program to participate in the annual DMR-QA Study Program. The DMR-QA Study evaluates the analytical ability of laboratories that routinely perform or support self-monitoring analyses required by NPDES permits. There are two options to satisfy the requirements of the DMR-QA Study Program: (1) The Discharger can obtain and analyze a DMR-QA sample as part of the DMR-QA Study; or (2) Per the waiver issued by U.S. EPA to the State Water Board, the Discharger can submit the results of the most recent Water Pollution Performance Evaluation Study from its own laboratories or its contract laboratories. A Water Pollution Performance Evaluation Study is similar to the DMR-QA Study. Thus, it also evaluates a laboratory's ability to analyze wastewater samples to produce quality data that ensure the integrity of the NPDES Program. The Discharger shall ensure that the results of the DMR-QA Study or the results of the most recent Water Pollution Performance Evaluation Study are

submitted annually to the State Water Board. The State Water Board's Quality Assurance Program Officer will send the DMR-QA Study results or the results of the most recent Water Pollution Performance Evaluation Study to U.S. EPA's DMR-QA Coordinator and Quality Assurance Manager.

VIII. PUBLIC PARTICIPATION

The San Diego Water Board has considered the issuance of WDRs in this Order that will serve as an NPDES permit for the Discharger. As a step in the adoption process of this Order for the Facility, the San Diego Water Board developed a Tentative Order and encouraged public participation in the Board's proceedings to consider adoption of the Tentative Order in accordance with the requirements of 40 CFR section 124.10 and Water Code section 13167.5.

A. Notification of Public Hearing and Public Comment Period

By electronic mail dated October 10, 2016 the San Diego Water Board notified the Discharger and interested agencies and persons of its intent to consider adoption of the Tentative Order in a public hearing during a regularly scheduled Board Meeting on December 14, 2016. The San Diego Water Board also provided notice that the Tentative Order was posted on the Board website and provided a period of 30 days for public review and comment. On October 10, 2016, notice of the public hearing and public comment period was also published in the San Diego Union Tribune, a daily newspaper within the area affected by the Facility.

The public also had access to the agenda including all supporting documents and any changes in meeting dates and locations through the San Diego Water Board's website at: <http://www.waterboards.ca.gov/rwqcb9/>.

B. Written Comments and Responses

Interested persons were invited to submit written comments concerning the Tentative Order as provided through the notification process. Written comments or e-mailed comments were required to be received in the San Diego Water Board office at 2375 Northside Drive, Suite 100, San Diego, CA 92108.

To be fully responded to by staff and considered by the San Diego Water Board, the written or e-mailed comments were due at the San Diego Water Board office by 5:00 p.m. on November 9, 2016. The San Diego Water Board provided written responses to all timely received public comments on the Tentative Order and posted the response to comments document on the Board's website in advance of the public hearing date.

C. Public Hearing

The San Diego Water Board held a public hearing on the Tentative Order during its regular Board meeting on the following date and time and at the following location:

Date: December 14, 2016
Time: 9:00 am
Location: San Diego Water Board
Regional Board Meeting Room
2375 Northside Drive, Suite 100, San Diego CA 92108

Interested persons were invited to attend. At the public hearing, the San Diego Water Board heard and considered all comments and testimony pertinent to the discharge and the Tentative Order,. For accuracy of the record, important testimony was requested in writing.

D. Petition for State Water Board Review

Any aggrieved person may petition the State Water Board to review the decision of the San Diego Water Board regarding the final WDRs of this Order/Permit in accordance with Water

Code section 13320 and the CCR, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the adoption date of this Order, except that if the thirtieth day following the adoption date of this Order/Permit falls on a Saturday, Sunday, or State holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the State Water Board website at http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

For instructions on how to file a petition for review, see the State Water Board website at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml

E. Public Access to Records

Records pertinent to the San Diego Water Board's proceedings to adopt this Order including but not limited to the Report of Waste Discharge (ROWD), public notices, draft and finalized versions of the Tentative Order, public comments received, Board responses to comments received, and other supporting documents are maintained by the San Diego Water Board. These records are available for public access Monday through Friday between the hours of 8:00 a.m. to 5:00 p.m. at the San Diego Water Board office.

The San Diego Water Board website contains information and instructions on how to request access and obtain copies of these records at:

http://www.waterboards.ca.gov/sandiego/about_us/contact_us/records.shtml

Before making a request to view public records in the San Diego Water Board office you may wish to determine if the information is already available on the San Diego Water Board's website at <http://www.waterboards.ca.gov/sandiego/>

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding this Order should contact the San Diego Water Board at the e-mail address below, reference this Facility or Order, and provide a name, address, e-mail address (if available), and phone number.

G. Additional Information

Requests for additional information or questions regarding this Order should be directed to Kristin Schwall at (619) 521-3368 or kristin.schwall@waterboards.ca.gov or to the San Diego Water Board via e-mail at rb9_questions@waterboards.ca.gov.

ATTACHMENT G – BEST MANAGEMENT PRACTICES PROGRAM AND STORM WATER POLLUTION PREVENTION PLAN REQUIREMENTS FOR INDUSTRIAL AREAS**I. IMPLEMENTATION SCHEDULE**

The Discharger shall continue to implement the existing storm water pollution prevention plan (SWPPP) until the Discharger has fully completed the implementation of SWPPP requirements specified in section IV.C of this Order. The Discharger shall implement any necessary revisions to its SWPPP to comply with the requirements of this Order within 1 year of the effective date of this Order.

II. SWPPP OBJECTIVES

A. The Discharger's SWPPP shall be prepared to achieve these objectives:

1. To reduce or prevent the discharge of pollutants from industrial activities to the technology –based standards of best available technology economically achievable (BAT) for toxic and non-conventional pollutants, and best conventional pollutant control technology (BCT) for conventional pollutants.
2. To achieve compliance with the receiving water limitations in section V of this Order.
3. To identify and evaluate sources of pollutants associated with industrial activities that may affect the quality of the waters of the State and waters of the U.S.
4. To identify, describe, and implement site-specific Best Management Practices (BMPs) to reduce or prevent the discharge of pollutants associated with industrial activities to waters of the State and waters of the U.S.
5. To identify and implement timely revisions and/or updates to the SWPPP.

B. To achieve the SWPPP objectives, the Discharger shall prepare a written Facility-specific SWPPP in accordance with all applicable SWPPP requirements of this attachment. The SWPPP shall include all required maps, descriptions, schedules, checklists, and relevant copies or specific references to other documents that satisfy the requirements of this attachment. The typical development and implementation steps necessary to achieve the described objectives are summarized in Item A-2, located at the end of this attachment.

III. PLANNING AND ORGANIZATION**A. SWPPP Checklist**

The SWPPP shall include a SWPPP Checklist (Example checklist is included as Item A-1 below) located at the end of this section. For each requirement listed, the Discharger shall identify the page number where the requirement is located in the SWPPP (or the title, page number, and location of any reference documents), the implementation date or last revision date, and any SWPPP requirements that may not be applicable to the Facility.

B. Pollution Prevention Team

1. The SWPPP shall identify specific individuals and their positions within the Facility organization as members of a storm water pollution prevention team responsible for developing the SWPPP, assisting the Facility manager in SWPPP implementation and revision, and conducting all monitoring program activities required in Attachment E of this Order.
2. The SWPPP shall clearly identify the responsibilities, duties, and activities of each team member.

3. The SWPPP shall identify, as appropriate, alternative individuals to perform the required SWPPP and monitoring program activities when team members are temporarily unavailable (due to vacation, illness, out of town meetings, etc.).

C. Review Other Requirements and Existing Facility Plans

1. The SWPPP shall be developed, implemented, and revised as necessary to be consistent with any applicable municipal, State, and Federal requirement that pertains to the requirements of this Order.
2. The SWPPP may incorporate or reference the elements of the Discharger's existing plans, procedures, or regulatory compliance documents that contain storm water pollution control practices or otherwise relate to the requirements of this Order. For example, facilities subject to Federal Spill Prevention Control and Countermeasures' requirements should already have instituted a plan to control spills of certain hazardous materials, or facilities subject to regional air quality emission controls may already have evaluated industrial activities that emit dust or particulate pollutants.

IV. SITE MAP

The SWPPP shall include a site map. The site map shall be provided on an 8 ½ x 11 inch or larger sheet and include notes, legends, north arrow, and other data as appropriate to ensure that the site map is clear and understandable. If necessary, the Discharger may provide the required information on multiple site maps. The following information shall be included on the site map:

- A. Boundaries and Drainage Ares.** Outlines of the Facility boundary, storm water drainage areas within the Facility boundary, and portions of any drainage area impacted by discharges from surrounding areas. Include the flow direction of each drainage area; on-site surface water bodies; areas of soil erosion; and location(s) of near-by water bodies (such as rivers, lakes, wetlands, etc.) or municipal storm drain inlets that may receive the Facility's storm water discharges and authorized non-storm water discharges.
- B. Storm Water Collection and Conveyance System.** The location of the storm water collection and conveyance system, associated points of discharge, and direction of flow. Include any structural control measures that affect storm water discharges, authorized non-storm water discharges, and run-on. Examples of structural control measures are catch basins, berms, detention ponds, secondary containment, oil/water separators, diversion barriers, etc.
- C. Impervious Ares.** The outline of all impervious areas of the Facility, including paved areas, buildings, covered storage areas, or other roofed structures.
- D. Materials, Spills, and Leaks Locations.** Locations where materials are directly exposed to precipitation and the locations where significant spills or leaks, identified in accordance with section VI.A.4 below, have occurred.
- E. Ares of Industrial Activity.** Areas of industrial activity. Identify all storage areas and storage tanks, shipping and receiving areas, fueling areas, vehicle and equipment storage/maintenance areas, material handling and processing areas, waste treatment and disposal areas, dust or particulate generating areas, cleaning and reusing areas, and other areas of industrial activity which are potential pollutant sources.
- F. Storm Water Risk Level Boundaries.** Identify the boundaries of the Industrial High Risk areas as defined in section IV.A of the Order.

V. LIST OF SIGNIFICANT MATERIALS

The SWPPP shall include a list of significant materials handled and stored at the site. For each material on the list, the locations where the material is stored, received, shipped, and handled, as well as the typical quantities and frequencies, shall be described. The materials list shall include raw materials, intermediate products, final or finished products, recycled materials, and waste or disposed materials.

VI. DESCRIPTION OF POTENTIAL POLLUTANT SOURCES

- A. For each area identified in section IV.E of this Attachment, the SWPPP shall include a narrative description of the Facility's industrial activities, potential pollutant sources, and potential pollutants that could be exposed to storm water or authorized non-storm water discharges or otherwise be discharged. At a minimum, the following industrial activities shall be described as applicable:
- 1. Industrial Processes.** Describe each industrial process including the manufacturing, cleaning, maintenance, recycling, disposal, or other activities related to the process. Include the type, characteristics, and approximate quantity of significant materials used in or resulting from the process. Areas protected by containment structures and the corresponding containment capacity shall be identified and described.
 - 2. Material Handling and Storage Areas.** Describe each handling and storage area including the type, characteristics, and quantity of significant materials handled or stored, description of the shipping, receiving, and loading procedures, and the spill or leak prevention and response procedures. Areas protected by a containment structure and the corresponding containment capacity shall be identified and described.
 - 3. Dust and Particulate Generating Activities.** Describe all industrial activities that generate dust or particulates that may be deposited within the Facility's boundaries. Include their discharge locations and the type, characteristics, and quality of dust and particulate pollutants that may be deposited within the Facility's boundaries. Identify the primary areas of the Facility where dust and particulate pollutants would settle.
 - 4. Significant Spills and Leaks.** Identify and describe materials that have spilled or leaked in significant quantities in storm water discharges or non-storm water discharges. Include toxic chemicals (listed in 40 CFR part 302) that have been discharged to storm water as reported in United States Environmental Protection Agency (U.S. EPA) Form R, and oil and hazardous substances in excess of reportable quantities (see 40 CFR parts 110, 117, and 302).

The description shall include the location, characteristics, and approximate quantity of the materials spilled or leaked, the cleanup or remedial actions that have occurred or are planned, the approximate remaining quantity of materials that may be exposed to storm water or non-storm water discharges; and the preventative measures taken to ensure spills or leaks of the material do not reoccur.

- 5. Non-Storm Water Discharges.** The Discharger shall inspect the Facility to identify all non-storm water discharges, sources, and drainage areas. All drains (inlets and outlets) shall be evaluated to identify whether they connect to the storm drain system.

All non-storm water discharges shall be described. The description shall include the source, quantity, frequency, and characteristics of the non-storm water discharges and associated drainage area and shall identify whether the discharge is an authorized or unauthorized non-storm water discharge. Examples of unauthorized non-storm water discharges are rinse and wash water (whether detergents are used or not, contact and non-contact cooling water, boiler blow-down, etc.

6. **Soil Erosion.** Describe the Facility locations where soil erosion may occur as a result of industrial activity, storm water discharges associated with industrial activity, or authorized non-storm water discharges.
7. **Non-Industrial Storm Water Discharges.** Describe the Facility locations of non-industrial storm water discharges such as parking lots and rooftops. Explain how these discharges are kept separate from industrial activities and industrial materials. Describe good housekeeping and other non-structural BMPs, at a minimum, which are employed to reduce and minimize pollution from these areas.

VII. ASSESSMENT OF POTENTIAL POLLUTANT SOURCES

- A. The SWPPP shall include a narrative assessment of all industrial activities and potential pollutant sources as described in accordance with section VI of this Attachment. To determine the likelihood that significant materials will be exposed to storm water or authorized non-storm water discharges, the assessment shall include consideration of the quantity, characteristics, and locations of each significant material handled, produced, stored, recycled, or disposed; the direct and indirect pathways that significant materials may be exposed to storm water or authorized non-storm water discharges; history of spills or leaks; non-storm water discharges; prior sampling; visual observation, and inspection records; discharges from adjoining areas; and the effectiveness of existing BMPs to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. At a minimum, the Discharger shall consider:
 1. The quantity, physical characteristics (liquid, powder, solid, etc.), and locations of each significant material handled, produced, stored, recycled, or disposed.
 2. The degree pollutants associated with those materials are exposed to and mobilized by contact with storm water.
 3. The direct and indirect pathways that pollutants may be exposed to storm water or authorized non-storm water discharges. This shall include an assessment of past spills or leaks, non-storm water discharges, and discharges from adjoining areas.
 4. Sampling, visual monitoring, and inspection records.
 5. Effectiveness of existing BMPs to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.
- B. Based upon the assessment above, the SWPPP shall identify any areas of industrial activity and corresponding pollutant sources where significant materials are likely to be exposed to storm water or authorized non-storm water discharges and where additional BMPs are necessary to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.

VIII. STORM WATER BEST MANAGEMENT PRACTICES

- A. The SWPPP shall include a narrative description of BMPs implemented at the Facility. The BMPs, when developed and implemented, shall be effective in reducing or preventing pollutants in storm water discharges and authorized non-storm water discharges.

The BMPs narrative description shall include:

1. The type of pollutants the BMPs are designed to reduce or prevent.
2. The frequency, time(s) of day, or conditions when the BMPs are scheduled for implementation.
3. The locations within each area of industrial activity or pollutant source where the BMPs shall be implemented.

4. Identification of the person and/or position responsible for implementing the BMPs.
5. The procedures, including maintenance procedures, and/or instructions to implement the BMPs.
6. The equipment and tools necessary to implement the BMPs.

B. Non-Structural BMPs. The Discharger shall consider non-structural BMPs for implementation at the Facility. Non-structural BMPs generally consist of processes, prohibitions, procedures, training, schedule of activities, etc. that prevent pollutants associated with industrial activity from contact with storm water discharges and authorized non-storm water discharges. Below is a list of non-structural BMPs that shall be considered:

1. **Good Housekeeping.** Good housekeeping generally consists of practical procedures to maintain a clean and orderly facility.
2. **Preventative Maintenance.** Preventative maintenance includes regular inspection and maintenance of storm water structural controls (i.e. catch basins, oil/water separators, etc.) as well as other facility equipment and systems.
3. **Spill Response.** This includes spill clean-up procedures and necessary clean-up equipment based upon the quantities and locations of significant materials that may spill or leak.
4. **Material Handling and Storage.** This includes all procedures to minimize the potential for spills and leaks and to minimize exposure to significant materials to storm water and authorized non-storm water discharges.
5. **Employee Training Program.** This includes the development of a program to train personnel responsible for implementing the various compliance activities of this Order including BMPs implementation, inspections and evaluations, monitoring activities, and storm water compliance management. The training program shall include:
 - a. A description of the training program and any training manuals or training materials.
 - b. A discussion of the appropriate training frequency.
 - c. A discussion of the appropriate personnel to receive training.
 - d. A training schedule.
 - e. Documentation of all completed training classes and the personnel who received training.
6. **Waste Handling/Recycling.** This includes the procedures or processes to handle, store, or dispose of waste or recyclable materials.
7. **Record Keeping and Internal Reporting.** This includes the procedures to ensure that all records of inspections, spills, maintenance activities, corrective actions, visual observations, etc. are developed, retained, and provided, as necessary to the appropriate Facility personnel.
8. **Erosion Control and Site Stabilization.** This includes a description of all sediment and erosion control activities. This may include the planting and maintenance of vegetation, diversion of run-on and runoff, placement of sandbags, silt screens, or other sediment control devices.
9. **Inspections.** Periodic visual inspections of the Facility are necessary to ensure that the SWPPP addresses any significant changes to the Facility's operations or BMP implementation procedures.

- a. A minimum of four quarterly visual inspections of all areas of industrial activity and associated potential pollutant sources shall be completed each reporting year. The annual comprehensive site compliance evaluation described in section IX of this attachment may substitute for one of the quarterly inspections.
 - b. Tracking and follow-up procedures shall be described to ensure appropriate corrective actions and/or SWPPP revisions are implemented.
 - c. A summary of the corrective actions and SWPPP revisions resulting from quarterly inspections shall be reported in the annual report.
 - d. Dischargers shall certify in the annual report that each quarterly visual inspection was completed.
 - e. All corrective actions and SWPPP revisions shall be implemented in accordance with sections XII.D and XII.E of this attachment.
10. **Quality Assurance.** This includes the management procedures to ensure that the appropriate staff adequately implements all elements of the SWPPP and Monitoring Program.
- C. Structural BMPs.** Where non-structural BMPs identified in section VIII.B above are not effective, structural BMPs shall be considered. Structural BMPs typically consist of structural devices that reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. Below is a list of structural BMPs that shall be considered:
1. **Overhead Coverage.** This includes structures that protect materials, chemicals, and pollutant sources from contact with storm water and authorized non-storm water discharges.
 2. **Retention Ponds.** This includes basins, ponds, surface impoundments, bermed areas, etc. that do not allow storm water to discharge from the Facility.
 3. **Control Devices.** This includes berms or other devices that channel or route run-on and runoff away from pollutant sources.
 4. **Secondary Containment Structures.** This includes containment structures around storage tanks and other areas that collect any leaks or spills.
 5. **Treatment.** This includes inlet controls, infiltration devices, oil/water separators, detention ponds, vegetative swales, etc. which reduce the pollutants in storm water discharges and authorized non-storm water discharges.
- D.** The SWPPP shall include a summary identifying each area of industrial activity and associated pollutant sources, pollutants, and BMPs in a table similar to Item A-3 at the end of this attachment.

IX. ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION

The Discharger shall conduct one comprehensive site compliance evaluation (evaluation) in each reporting period (July 1 – June 30). Evaluations shall be conducted no less than 8 months from each other. The SWPPP shall be revised, as appropriate, and the revisions implemented within 90 days of the evaluation. Evaluations shall include the following:

- A.** A review of all visual observation records, inspection records, and sampling and analysis results.
- B.** A visual inspection of all areas of industrial activity and associated potential pollutant sources for evidence of, or the potential for, pollutants entering the drainage system. A visual inspection of equipment needed to implement the SWPPP.

- C. A review and evaluation of all BMPs, both structural and non-structural, for each area of industrial activity and associated potential pollutant sources to determine whether the BMPs are properly designed, implemented, and are effective in reducing and preventing pollutants in storm water discharges and authorized non-storm water discharges.
- D. An evaluation report that includes:
 1. Identification of personnel performing the evaluation,
 2. Date(s) of the evaluation,
 3. Summary and implementation dates of all significant corrective actions and SWPPP revisions for the reporting year,
 4. Schedule for implementing any incomplete corrective actions and SWPPP revisions,
 5. Any incidents of non-compliance and the corrective actions taken, and
 6. A certification that the Discharger has completed the quarterly inspections specified in section VIII.B.9, above and that the Discharger is complying with this Order.
 7. The evaluation report shall be submitted as part of the annual report, retained for at least 5 years, and signed and certified in accordance with Standard Provision V.B of Attachment D of this Order.

X. NUMERIC ACTION LEVELS (NALS)

- A. Numeric Action Levels (NALs) for all storm water discharges are appropriate numeric thresholds that allow a discharger to take corrective action when the Instantaneous Maximum or Annual Average NAL are exceeded. Exceedances of NAL values are not a violation of the Order. Dischargers that exceed one of the NAL values shall take the appropriate corrective action as set forth in section IV.C.3. of the Order.

NALs are specified as follows:

Table G-1.NALs for Storm Water

PARAMETER	TEST METHOD ¹	REPORTING UNITS	ANNUAL NAL VALUE	INSTANTANEOUS MAXIMUM NAL
pH	Field test with calibrated portable instrument, or lab sample in accordance with 40 CFR § 136.	pH units	N/A	6.0-9.0
Suspended Solids (TSS), Total	SM2540-D	mg/L	100	400
Oil & Grease (TOG), Total	EPA 1664A	mg/L	15	25
Zinc, Total (H)	EPA 200.8	mg/L	0.26 ²	-
Copper, Total (H)	EPA 200.8	mg/L	0.0332 ²	-
Cyanide, Total	SM 4500-CN C, D, or E	mg/L	0.022	-
Lead, Total (H)	EPA 200.8	mg/L	0.262 ²	-
Chemical Oxygen Demand	SM 5220C	mg/L	120	-
Aluminum, Total (pH 6.5-9.0)	EPA 200.8	mg/L	0.75	-
Iron, Total	EPA200.8	mg/L	1.0	-
Nitrate + Nitrite	SM 4500-NO3- E	mg/L as N	0.68	-

PARAMETER	TEST METHOD ¹	REPORTING UNITS	ANNUAL NAL VALUE	INSTANTANEOUS MAXIMUM NAL
Nitrogen				
Total Phosphorus	SM 4500-P B+E	mg/L as P	2.0	-
Ammonia	SM 4500-NH3 B+ C or E	mg/L	2.14	-
Magnesium, total	EPA 200.7	mg/L	0.064	-
Arsenic, Total (c)	EPA 200.8	mg/L	0.15	-
Cadmium, Total (H)	EPA 200.8	mg/L	0.0053 ²	-
Nickel, Total (H)	EPA 200.8	mg/l	1.02 ²	-
Mercury, Total	EPA 245.1	mg/L	0.0014	-
Selenium, Total	EPA 200.8	mg/L	0.005	-
Silver, Total (H)	EPA 200.8	mg/L	0.0183 ²	-
Biochemical Oxygen Demand	SM 5210B	mg/L	30	-

SM – Standard Methods for the Examination of Water and Wastewater, 18th edition

EPA – EPA test methods

¹ Test methods with lower detection limits may be necessary when discharging to impaired water bodies.

Alternate test methods may be approved by the San Diego Water Board.

² The NAL is based on the highest hardness because the water near the mouth of the creeks is very saline.

B. On January 1 of the reporting year following the submittal of the Level 2 ERA Action Plan, a Discharger with Level 2 status shall certify and submit a Level 2 ERA Technical Report that includes one or more of the following demonstrations:

1. Industrial Activity BMPs Demonstration. This shall include the following requirements as applicable:

- a. A description of the industrial pollutant sources and corresponding industrial pollutants that are or may be related to the NAL exceedance(s);
- b. An evaluation of all pollutant source(s) associated with industrial activity that are or may be related to the NAL exceedance(s);
- c. Where all of the Discharger’s implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve compliance with the effluent limitations of this Order and are expected to eliminate future NAL exceedance(s), the Discharger shall provide a description and analysis of all implemented BMPs;
- d. In cases where all of the Discharger’s implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve compliance with the effluent limitations of this Order but are not expected to eliminate future NAL exceedance(s), the Discharger shall provide the following, in addition to a description and analysis of all implemented BMPs:
 - i. An evaluation of any additional BMPs that would reduce or prevent NAL exceedances;
 - ii. An estimated costs of the additional BMPs evaluated; and,

- iii. An analysis describing the basis for the selection of BMPs implemented in lieu of the additional BMPs evaluated but not implemented.
- e. The description and analysis of BMPs required in section X.B.1.d.iii above shall specifically address the drainage areas where the NAL exceedance(s) responsible for the Discharger's Level 2 status occurred, although any additional Level 2 ERA Action Plan BMPs may be implemented for all drainage areas; and,
- f. If an alternative design storm standard for treatment control BMPs in lieu of the design storm standard for treatment control BMPs in section IV.C.4 of the Order will achieve compliance with the effluent limitations of the Order, the Discharger shall provide an analysis describing the basis for the selection of the alternative design storm standard.

2. Non-Industrial Pollutant Source Demonstration. This shall include:

- a. A statement that the Discharger has determined that the exceedance of the NAL is attributable solely to the presence of non-industrial pollutant sources. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance.) The sources shall be identified as either run-on from adjacent properties, aerial deposition from man-made sources, or as generated by on-site non-industrial sources;
- b. A statement that the Discharger has identified and evaluated all potential pollutant sources that may have commingled with storm water associated with the Discharger's industrial activity and may be contributing to the NAL exceedance; and,
- c. A description of any on-site industrial pollutant sources and corresponding industrial pollutants that are contributing to the NAL exceedance that are or may be discharged;
- d. An assessment of the relative contributions of the pollutant from (1) storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition and (2) the storm water associated with the Discharger's industrial activity;
- e. A summary of all existing BMPs for that parameter; and,
- f. An evaluation of all on-site/off-site analytical monitoring data demonstrating that the NAL exceedances are caused by pollutants in storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition.

3. Natural Background Pollutant Source Demonstration. The Natural Background Pollutant Source Demonstration Technical Report shall at a minimum, include the following:

- a. A statement that the Discharger has determined that the NAL exceedance of the NAL is attributable solely to the presence of the pollutant in the natural background that has not been disturbed by industrial activities. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance);

- b. A summary of all data previously collected by the Discharger, or other identified data collectors, that describes the levels of natural background pollutants in the storm water discharge;
- c. A summary of any research and published literature that relates the pollutants evaluated at the facility as part of the Natural Background Demonstration;
- d. A map showing the reference site location in relation to facility along with available land cover information;
- e. Reference site and test site elevation;
- f. Available geology and soil information for reference and test sites;
- g. Photographs showing site vegetation;
- h. Site reconnaissance survey data regarding presence of roads, outfalls, or other human-made structures; and
- i. Records from relevant state or federal agencies indicating no known mining, forestry, or other human activities upstream of the proposed reference site.

XI. MONITORING REQUIREMENTS

Monitoring shall be conducted as specified in the Monitoring and Reporting Program (MRP) (Attachment E). The SWPPP shall include a description of the following items:

- A.** Visual observation locations, visual observation procedures, and visual observation follow-up and tracking procedures.
- B.** Storm Water Diversion System (SWDS) evaluation procedures.
- C.** Sampling locations and sample collection procedures. This shall include procedures for sample collection, storage, preservation, and shipping to the testing lab to assure that consistent quality control and quality assurance is maintained.
- D.** Identification of the analytical methods and related method detection limits (if applicable) used to detect pollutants in storm water discharges, including a justification that the method detection limits are adequate.

XII. SWPPP GENERAL REQUIREMENTS

- A.** The SWPPP shall be retained at the Facility and made available upon request of a representative of the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) or U.S. EPA.
- A.** Upon notification by the San Diego Water Board and/or U.S. EPA that the SWPPP does not meet one or more of the minimum requirements of this Order or this attachment, the Discharger shall revise the SWPPP and implement additional BMPs that are effective in reducing and eliminating pollutants in storm water discharges and authorized non-storm water discharges. As requested, the Discharger shall provide an implementation schedule and/or completion certification to the San Diego Water Board and/or U.S. EPA.
- B.** The SWPPP shall be revised, as appropriate, and implemented prior to changes in industrial activities, which
 - 1. May significantly increase the quantities of pollutants in storm water discharges; or

2. Cause a new area of industrial activity at the Facility to be exposed to storm water; or
 3. Begin an industrial activity that would introduce a new pollutant source at the Facility.
- C.** The Discharger shall revise the SWPPP and implement the appropriate BMPs in a timely manner and in no case more than 90 days after a Discharger determines that the SWPPP is in violation of any Order requirement.
- D.** When any part of the SWPPP is infeasible to implement by the deadlines specified above due to proposed significant structural changes, the Discharger shall:
1. Submit a report to the San Diego Water Board that:
 - a. Identifies the portion of the SWPPP that is infeasible to implement by the deadline.
 - b. Provides justification for a time extension, provides a schedule for completing and implementing that portion of the SWPPP.
 - c. Describes the BMPs that will be implemented in the interim period to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.
 2. Comply with any request by the San Diego Water Board to modify the report required in Subsection XII.D.1 above, or provide certification that the SWPPP revisions have been implemented.
- E.** The SWPPP shall be provided, upon request, to the San Diego Water Board, U.S. EPA, local agency, or Compliance Inspection Designees. The San Diego Water Board under section 308(b) of the Clean Water Act (CWA) considers the SWPPP a report that shall be available to the public.

XIII. AUTHORIZED NON-STORM WATER DISCHARGES SPECIAL REQUIREMENTS

The SWPPP shall address authorized non-storm water discharges and incorporate appropriate BMPs to prevent the discharge of pollutants.

ITEM A-1

**STORM WATER POLLUTION PREVENTION PLAN
EXAMPLE CHECKLIST**

Facility Name _____

WDID# _____

FACILITY CONTACT

Name _____
 Title _____
 Company _____
 Street _____
 Address _____
 City, State _____
 ZIP _____

CONSULTANT CONTACT

Name _____
 Title _____
 Company _____
 Street _____
 Address _____
 City, State _____
 ZIP _____

Storm Water Pollution Prevention Plan	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Signed Certification			
Pollution Prevention Team			
Existing Facility Plans			
<i>Facility Site Map(s)</i>			
Facility Boundaries			
Drainage areas			
Direction of flow			
On-site water bodies			
Areas of soil erosion			
Nearby water bodies			
Municipal storm drain inlets			
Points of discharges			
Structural control measures			
Impervious areas (paved areas, buildings, covered areas, roofed areas)			
Location of directly exposed materials			
Location of significant spills and leaks			
Storage areas / Storage tanks			
Shipping and receiving areas			
Fueling areas			
Vehicle and equipment storage and maintenance			
Material handling / Material processing			
Waste treatment / Waste Disposal			
Dust generation / Particulate generation			
Cleaning areas / Rinsing areas			
Other areas of industrial activities			
<i>List of Significant Materials</i>			
For each material listed:			
Storage location			

Storm Water Pollution Prevention Plan	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Receiving and shipping location			
Handling location			
Quantity			
Frequency			
<i>Description of Potential Pollution Sources</i>			
Industrial Processes			
Material handling and storage areas			
Dust and particulate generating activities			
Significant spills and leaks			
Non-storm water discharges			
Soil Erosion			
<i>Assessment of Potential Pollutant Sources</i>			
Areas likely to be sources of pollutants			
Pollutants likely to be present			
<i>Storm Water Best Management Practices</i>			
Non-Structural BMPs			
Good Housekeeping			
Preventative Maintenance			
Spill Response			
Material Handling and Storage			
Employee Training			
Waste Handling / Waste Recycling			
Recordkeeping and Internal Reporting			
Erosion Control and Site Stabilization			
Inspections			
Quality Assurance			
Structural BMPs			
Overhead Coverage			
Retention Ponds			
Control Devices			
Secondary Containment Structures			
Treatment			
Industrial Activity BMPs/Pollutant Summary			
<i>Annual Comprehensive Site Compliance Evaluation</i>			
Review of visual observations, inspections, and sampling analysis			
Visual inspection of potential pollution sources			
Review and evaluation of BMPs			
Evaluation Report			

ITEM A-2

**FIVE PHASES FOR DEVELOPING AND IMPLEMENTING INDUSTRIAL
STORM WATER POLLUTION PREVENTION PLANS**

PLANNING AND ORGANIZATION

- *Form Pollution Prevention Team
- *Review other plans

ASSESSMENT PHASE

- *Develop a site map
- *Identify potential pollutant sources
- *Inventory of materials and chemicals
- *List significant spills and leaks
- *Identify non-storm water discharges
- *Assess pollutant risks

BEST MANAGEMENT PRACTICES IDENTIFICATION PHASE

- *Non-structural BMPs
- *Structural BMPs
- *Select activity and site-specific BMPs

IMPLEMENTATION PHASE

- *Train employees
- *Implement BMPs
- *Collect and review records

EVALUATION/MONITORING

- *Conduct annual site evaluation
- *Review monitoring information
- *Evaluate BMPs
- *Review and revise SWPPP

**ITEM A-3
 EXAMPLE
 ASSESSMENT OF POTENTIAL POLLUTION SOURCES AND
 CORRESPONDING BEST MANAGEMENT PRACTICES SUMMARY**

Area	Activity	Pollutant Source	Pollutant	Best Management Practices
Vehicle & Equipment Fueling	Fueling	Spills and leaks during delivery	fuel oil	- Use spill and overflow protection
		Spills caused by topping off fuel tanks	fuel oil	- Minimize run-on of storm water into the fueling area
		Hosing or washing down fuel area	fuel oil	- Cover fueling area
		Leaking storage tanks	fuel oil	- Use dry cleanup methods rather than hosing down area
		Rainfall running off fuel area, and rainfall running onto and off fueling area	fuel oil	- Implement proper spill prevention control program

ATTACHMENT H – DISCHARGE PROHIBITIONS CONTAINED IN THE BASIN PLAN**I. BASIN PLAN DISCHARGE PROHIBITIONS**

- A.** The discharge of waste to waters of the State in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in California Water Code (Water Code) section 13050, is prohibited.
- B.** The discharge of waste to land, except as authorized by Waste Discharge Requirements (WDRs) of the terms described in Water Code section 13264 is prohibited.
- C.** The discharge of pollutants or dredged or fill material to waters of the U.S. except as authorized by an National Pollutant Discharge Elimination System (NPDES) permit or a dredged or fill material permit (subject to the exemption described in Water Code section 13376) is prohibited.
- D.** Discharges of recycled water to lakes or reservoirs used for municipal water supply or to inland surface water tributaries thereto are prohibited, unless this California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) issues an NPDES permit authorizing such a discharge; the proposed discharge has been approved by the State of California Department of Public Health and the operating agency of the impacted reservoir; and the discharger has an approved fail-safe long-term disposal alternative.
- E.** The discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives, is prohibited. Allowances for dilution may be made at the discretion of the San Diego Water Board. Consideration would include streamflow data, the degree of treatment provided and safety measures to ensure reliability of facility performance. As an example, discharge of secondary effluent would probably be permitted if streamflow provided 100:1 dilution capability.
- F.** The discharge of waste in a manner causing flow, ponding, or surfacing on lands not owned or under the control of the discharger is prohibited, unless the discharge is authorized by the San Diego Water Board.
- G.** The dumping, deposition, or discharge of waste directly into waters of the State, or adjacent to such waters in any manner which may permit it being transported into the waters, is prohibited unless authorized by the San Diego Water Board.
- H.** Any discharge to a storm water conveyance system that is not composed entirely of storm water is prohibited unless authorized by the San Diego Water Board. [The federal regulations, 40 CFR 122.26(b)(13), define storm water as storm water runoff, snow melt runoff, and surface runoff and drainage. 40 CFR 122.26(b)(2) defines an illicit discharge as any discharge to a storm water conveyance system that is not composed entirely of storm water except discharges pursuant to an NPDES permit and discharges resulting from firefighting activities.] [Section 122.26 amended at 56 FR 56553, November 5, 1991; 57 FR 11412, April 2, 1992.]
- I.** The unauthorized discharge of treated or untreated sewage to waters of the State or to a storm water conveyance system is prohibited.
- J.** The discharge of industrial wastes to conventional septic tank/ subsurface disposal systems, except as authorized by the terms described in Water Code section 13264, is prohibited.
- K.** The discharge of radioactive wastes amenable to alternative methods of disposal into the waters of the State is prohibited.
- L.** The discharge of any radiological, chemical, or biological warfare agent into waters of the State is prohibited.

- M.** The discharge of waste into a natural or excavated site below historic water levels is prohibited unless the discharge is authorized by the San Diego Water Board.
- N.** The discharge of sand, silt, clay, or other earthen materials from any activity, including land grading and construction, in quantities which cause deleterious bottom deposits, turbidity or discoloration in waters of the State or which unreasonably affect, or threaten to affect, beneficial uses of such waters is prohibited.
- O.** The discharge of treated or untreated sewage from vessels to Mission Bay, Oceanside Harbor, Dana Point Harbor, or other small boat harbors is prohibited.
- P.** The discharge of untreated sewage from vessels to San Diego Bay is prohibited.
- Q.** The discharge of treated sewage from vessels to portions of San Diego Bay that are less than 30 feet deep at MLLW is prohibited.
- R.** The discharge of treated sewage from vessels, which do not have a properly functioning USCG certified Type 1 or Type II marine sanitation device, to portions of San Diego Bay that are greater than 30 feet deep at MLLW is prohibited.

ATTACHMENT I – SEDIMENT CHEMISTRY ANALYTES

All samples shall be tested for the analytes specified in Table I-1. If other toxic pollutants are believed to pose risk to benthic communities, aquatic-dependent wildlife, or human health, those toxic pollutants shall be identified and included by the Discharger. Analytes not on Attachment A of the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality* (Sediment Quality Plan) cannot be used in the exposure assessment in section V of the Sediment Quality Plan; however the data can be used to conduct more effective stressor identification studies as described in section VII.F of the Sediment Quality Plan.

Table I-1 Sediment Chemistry Analytes.

Chemical Name	Chemical Group
Total Organic Carbon ¹	General
Percent Fines ¹	General
Cadmium ¹	Metal
Copper ¹	Metal
Lead ¹	Metal
Mercury ¹	Metal
Zinc ¹	Metal
Acenaphthene ¹	PAH
Anthracene ¹	PAH
Biphenyl ¹	PAH
Naphthalene ¹	PAH
2,6-dimethylnaphthalene ¹	PAH
Fluorene ¹	PAH
1-methylnaphthalene ¹	PAH
2-methylnaphthalene ¹	PAH
1-methylphenanthrene ¹	PAH
Phenanthrene ¹	PAH
Benzo(a)anthracene ¹	PAH
Benzo(a)pyrene ¹	PAH
Benzo(e)pyrene ¹	PAH
Chrysene ¹	PAH
Dibenz(a,h)anthracene ¹	PAH
Fluoranthene ¹	PAH
Pyrene ¹	PAH
Alpha Chlordane ¹	Pesticide
Gamma Chlordane ¹	Pesticide
Trans Nonachlor ¹	Pesticide
Dieldrin ¹	Pesticide
o,p'-DDE ¹	Pesticide
o,p'-DDD ¹	Pesticide
o,p'-DDT ¹	Pesticide
p,p'-DDD ¹	Pesticide
p,p'-DDE ¹	Pesticide
p,p'-DDT ¹	Pesticide
2,4'-Dichlorobiphenyl ¹	PCB 8 - congener
2,2',5'-Trichlorobiphenyl ¹	PCB 18 - congener
2,4,4'-Trichlorobiphenyl ¹	PCB 28 - congener
2,2',3,5'-Tetrachlorobiphenyl ¹	PCB 44 - congener
2,2',5,5'-Tetrachlorobiphenyl ¹	PCB 52 - congener
2,3',4,4'-Tetrachlorobiphenyl ¹	PCB 66 - congener
2,2',4,5,5'-Pentachlorobiphenyl ¹	PCB 101 - congener
2,3,3',4,4'-Pentachlorobiphenyl ¹	PCB 105 - congener
2,3',4,4',5'-Pentachlorobiphenyl ¹	PCB 118 - congener
2,2',3,3',4,4'-	PCB 128 - congener

Chemical Name	Chemical Group
2,2',3,3',4,4',5'-Heptachlorobiphenyl ¹	PCB 170 - congener
2,2',3,4,4',5,5'-Heptachlorobiphenyl ¹	PCB 180 - congener
2,2',3,4',5,5',6'-Heptachlorobiphenyl ¹	PCB 187 - congener
2,2',3,3',4,4',5,6'-Octachlorobiphenyl ¹	PCB 195 - congener
2,2',3,3',4,4',5,5',6'-Nonachlorobiphenyl ¹	PCB 206 - congener
Decachlorobiphenyl ¹	PCB 209 - congener
2,3',6'-Trichlorobiphenyl	PCB 27 - congener
2,4,5'-Trichlorobiphenyl	PCB 29 - congener
2,4',5'-Trichlorobiphenyl	PCB 31 - congener
2,3',4'-Trichlorobiphenyl	PCB 33 - congener
2,2',4,5'-Tetrachlorobiphenyl	PCB 49 - congener
2,3,3',4'-Tetrachlorobiphenyl	PCB 56 - congener
2,3,4,4'-Tetrachlorobiphenyl	PCB 60 - congener
2,3,4',6'-Tetrachlorobiphenyl	PCB 64 - congener
2,3',4',5'-Tetrachlorobiphenyl	PCB 70 - congener
2,4,4',5'-Tetrachlorobiphenyl	PCB 74 - congener
3,3',4,4'-Tetrachlorobiphenyl	PCB 77 - congener
2,2',3,4,5'-Pentachlorobiphenyl	PCB 87 - congener
2,2',3,5',6'-Pentachlorobiphenyl	PCB 95 - congener
2,2',3,4',5'-Pentachlorobiphenyl	PCB 97 - congener
2,2',4,4',5'-Pentachlorobiphenyl	PCB 99 - congener
2,3,3',4',6'-Pentachlorobiphenyl	PCB 110 - congener
2,3,4,4',5'-Pentachlorobiphenyl	PCB 114 - congener
3,3',4,4',5'-Pentachlorobiphenyl	PCB 126 - congener
2,2',3,4,4',5'-Hexachlorobiphenyl	PCB 137 - congener
2,2',3,4,5,5'-Hexachlorobiphenyl	PCB 141 - congener
2,2',3,4',5,5'-Hexachlorobiphenyl	PCB 146 - congener
2,2',3,4',5,6'-Hexachlorobiphenyl	PCB 149 - congener
2,2',3,5,5',6'-Hexachlorobiphenyl	PCB 151 - congener
2,3,3',4,4',5'-Hexachlorobiphenyl	PCB 156 - congener
2,3,3',4,4',5'-Hexachlorobiphenyl	PCB 157 - congener
2,3,3',4,4',6'-Hexachlorobiphenyl	PCB 158 - congener
3,3',4,4',5,5'-Hexachlorobiphenyl	PCB 169 - congener
2,2',3,3',4,5,6'-Heptachlorobiphenyl	PCB 174 - congener
2,2',3,3',4,5',6'-Heptachlorobiphenyl	PCB 177 - congener
2,2',3,4,4',5',6'-Heptachlorobiphenyl	PCB 183 - congener
2,3,3',4,4',5,5'-Heptachlorobiphenyl	PCB 189 - congener
2,2',3,3',4,4',5,5'-Octachlorobiphenyl	PCB 194 - congener
2,2',3,3',4,5,5',6'-Octachlorobiphenyl	PCB 198 - congener
2,2',3,3',4,5,5',6'-Octachlorobiphenyl	PCB 199 - congener
2,2',3,3',4,5,6,6'-Octachlorobiphenyl	PCB 200 - congener
2,2',3,3',4,5',6,6'-Octachlorobiphenyl	PCB 201 - congener
2,2',3,4,4',5,5',6'-Octachlorobiphenyl	PCB 203 - congener

Chemical Name	Chemical Group
Hexachlorobiphenyl ¹	
2,2',3,4,4',5'- Hexachlorobiphenyl ¹	PCB 138 - congener
2,2',4,4',5,5'- Hexachlorobiphenyl ¹	PCB 153 - congener

Chemical Name	Chemical Group
---------------	----------------

¹ From Attachment A of the Sediment Quality Plan

ATTACHMENT

25

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

2375 Northside Drive, Suite 100
San Diego, CA 92108
(619) 516-1990 • Fax (619) 516-1994
<http://www.waterboards.ca.gov>

**ORDER NO. R9-2015-0117
NPDES NO. CA0109185**

**WASTE DISCHARGE REQUIREMENTS
FOR THE
UNITED STATES DEPARTMENT OF THE NAVY
NAVAL BASE CORONADO
SAN DIEGO COUNTY**

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 1. Discharger Information

Discharger	United States Department of the Navy
Name of Facility	Naval Base Coronado (NBC)
Facility Address	937 N. Harbor Drive San Diego, CA 92132-0058 San Diego County
Facility Contact, Title, and Phone at adoption	Mr. Jason Golumbfskie Installation Environmental Program Director for NBC (619) 545-3429
Mailing Address	Naval Base Coronado PWO, Bldg.3 PO Box 357088 San Diego, CA 92135-7088
Type of Facility	Naval Base
Facility Design Flow	Not Applicable
The United States Environmental Protection Agency (USEPA) and the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) have classified this discharge as a major discharge.	

Table 2. Discharge Location

Discharge Point	Discharge Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
<i>Industrial Process Water Effluent Discharges</i>				
SC-001	Steam Condensate	32° 42' 22" N	117° 11' 23" W	San Diego Bay
SC-002	Steam Condensate	32° 42' 22" N	117° 11' 22" W	San Diego Bay
SC-003	Steam Condensate	32° 42' 23" N	117° 11' 22" W	San Diego Bay
SC-004	Steam Condensate	32° 42' 21" N	117° 11' 20" W	San Diego Bay
SC-005	Steam Condensate	32° 42' 21" N	117° 11' 18" W	San Diego Bay
SC-006	Steam Condensate	32° 42' 20" N	117° 11' 16" W	San Diego Bay
SC-007	Steam Condensate	32° 42' 20" N	117° 11' 15" W	San Diego Bay
SC-008	Steam Condensate	32° 42' 19" N	117° 11' 13" W	San Diego Bay

Discharge Point	Discharge Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
SC-009	Steam Condensate	32° 42' 29" N	117° 11' 23" W	San Diego Bay
SC-010	Steam Condensate	32° 41' 46" N	117° 11' 59" W	Pacific Ocean
CW-001	Diesel Engine Cooling Water	32° 41' 43" N	117° 13' 36" W	San Diego Bay
UV-001	Utility Vault and Manhole Dewatering	32' 42' 8" N	117° 10' 57" W	San Diego Bay
UV-002	Utility Vault and Manhole Dewatering	32° 42' 17" N	117° 11' 11" W	San Diego Bay
UV-003	Utility Vault and Manhole Dewatering	32° 42' 20" N	117° 11' 27" W	San Diego Bay
UV-004	Utility Vault and Manhole Dewatering	32° 42' 37" N	117° 11' 24" W	San Diego Bay
UV-005	Utility Vault and Manhole Dewatering	32° 42' 36" N	117° 11' 22" W	San Diego Bay
UV-006	Utility Vault and Manhole Dewatering	32' 42° 45" N	117, 11° 25" W	San Diego Bay
UV-007	Utility Vault and Manhole Dewatering	32° 42' 42" N	117° 12' 12" W	San Diego Bay
UV-008	Utility Vault and Manhole Dewatering	32° 42' 26" N	117° 11' 39" W	San Diego Bay
UV-009	Utility Vault and Manhole Dewatering	32° 42' 15" N	117° 11' 57" W	San Diego Bay
UV-010	Utility Vault and Manhole Dewatering	32° 42' 2" N	117° 11' 25" W	San Diego Bay
UV-011	Utility Vault and Manhole Dewatering	32° 40' 31" N	117° 9' 38" W	San Diego Bay
UV-012	Utility Vault and Manhole Dewatering	32° 40' 23" N	117° 10' 1" W	San Diego Bay
UV-013	Utility Vault and Manhole Dewatering	32° 35' 57" N	117° 7' 25" W	San Diego Bay
PW-001	Pier Washing	32° 41' 43" N	117° 13' 36" W	San Diego Bay
<i>Small Military Base Municipal Separate Storm Sewer System (MS4) Outfalls</i>				
See Attachment M of this order	Storm Water (wet weather) and Non-Storm Water (dry weather)	See Attachment M of this order	See Attachment M of this order	Pacific Ocean, San Diego Bay, Tijuana River Estuary, San Luis Rey River Watershed, Morena Reservoir, or Canyon City Hydrologic Area
<i>Industrial No Exposure Area Outfalls</i>				
None	Industrial No Exposure Area Storm Water (wet weather) and Non-Storm Water (dry weather)	No Discharge	No Discharge	No Discharge

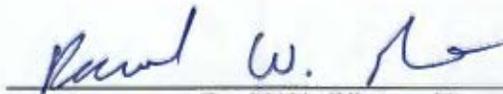
Discharge Point	Discharge Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
Industrial Low Risk Area Outfalls				
See Attachment M of this order	Industrial Low Risk Area Storm Water (wet weather) and Non-Storm Water (dry weather)	See Attachment M of this order	See Attachment M of this order	Pacific Ocean, San Diego Bay, or Tijuana River Estuary
Industrial High Risk Area Outfalls				
See Attachment M of this order	Industrial High Risk Area Storm Water (wet weather) and Non-Storm Water (dry weather)	See Attachment M of this order	See Attachment M of this order	Pacific Ocean or San Diego Bay

^[1] TBD

Table 3. Administrative Information

This Order was adopted by the San Diego Water Board on:	November 18, 2015
This Order shall become effective on:	January 1, 2016
This Order shall expire on:	December 31, 2020
The Discharger shall file a Report of Waste Discharge as an application for renewal of waste discharge requirements in accordance with title 23, California Code of Regulations, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	180 days prior to this Order expiration date
The USEPA and the San Diego Water Board have classified this discharge as follows:	Major

I, **David W. Gibson**, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of this Order adopted by the California Regional Water Quality Control Board, San Diego Region, on **November 18, 2015**.



 David W. Gibson, Executive Officer

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I. FACILITY INFORMATION

Information describing Naval Base Coronado (Facility) is summarized above in Table 1 and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Facility's permit application.

II. FINDINGS

The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), finds:

- A. Legal Authorities.** This Order serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (CWC) commencing with section 13260. This Order is also issued pursuant to section 402 of the CWA and implementing regulations adopted by the USEPA and chapter 5.5, division 7 of the CWC commencing with section 13370. This Order shall serve as an NPDES permit for point source discharges from this facility to surface waters.
- B. Background and Rationale for Requirements.** The San Diego Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through E and G through M are also incorporated into this Order.
- C. Provisions and Requirements Implementing State Law.** Some of the provisions/requirements in subsections VI.A.2 and VI.C.4 of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.
- D. Executive Officer Delegation of Authority.** The San Diego Water Board by prior resolution has delegated all matters that may legally be delegated to its Executive Officer to act on its behalf pursuant to CWC section 13223. Therefore, the Executive Officer is authorized to act on the San Diego Water Board's behalf on any matter within this Order unless such delegation is unlawful under CWC section 13223 or this Order explicitly states otherwise.
- E. Notification of Interested Parties.** Prior to the adoption of this Order, the San Diego Water Board notified the Discharger and other interested agencies and persons of its intent to prescribe WDRs for the discharge and provided them with an opportunity to submit their written comments and recommendations. Details of this notification are provided in the Fact Sheet of this Order.
- F. Consideration of Public Comment.** The San Diego Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet of this Order.

THEREFORE, IT IS HEREBY ORDERED that this Order supersedes Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the CWC (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

III. DISCHARGE PROHIBITIONS

- A.** The dumping, deposition or discharge of the following wastes directly into Waters of the United States (U.S.), including but not limited to the Pacific Ocean, San Diego Bay, the Tijuana River Estuary, Morena Reservoir, a tributary to the San Luis Rey River watershed, and waters in the Canyon City Hydrologic Area, or adjacent to such waters in any manner which may permit its being transported into the waters is prohibited:
1. Paint chips;
 2. Blasting materials;
 3. Paint over spray;
 4. Paint spills;
 5. Water contaminated with abrasive blast materials, paint, oils, fuels, lubricants, solvents, or petroleum;
 6. Hydro-blast water;
 7. Treated or untreated sewage;
 8. Tank cleaning water such as to remove sludge and/or dirt;
 9. Clarified water from an oil and water separator, except for storm water discharges treated by an oil and water separator and having coverage under this Order;
 10. Steam cleaning water;
 11. Pipe and tank hydrostatic test water, unless regulated by an NPDES permit;
 12. Saltbox water;
 13. Hydraulic oil leaks and spills;
 14. Fuel leaks and spills;
 15. Trash;
 16. Refuse and rubbish including but not limited to cans, bottles, paper, plastics, vegetable matter or dead animals;
 17. Fiberglass dust;
 18. Swept materials;
 19. Ship repair and maintenance activity debris;
 20. Waste zinc plates;
 21. Demineralizer and reverse osmosis brine; and
 22. Oily bilge water.
- B.** Diesel engine cooling water discharges having a maximum temperature greater than 4°F above the natural temperature of the receiving water are prohibited.
- C.** The discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste into San Diego Bay or the Pacific Ocean is prohibited.
- D.** The discharge of waste to Waters of the U.S. including but not limited to San Diego Bay, the Pacific Ocean, the Tijuana River Estuary, Morena Reservoir, a tributary to the San Luis Rey River watershed, and waters in the Canyon City Hydrologic Area is prohibited except as specifically authorized by this Order or another NPDES permit.

- E. All discharges regulated under this Order shall comply with waste discharge prohibitions contained in the San Diego Water Board's *Water Quality Control Plan for the San Diego Basin* (Basin Plan) and other applicable statewide water quality control plans described in Attachment F of this Order. The Basin Plan waste discharge prohibitions are listed in Attachment J to this Order.
- F. Except as provided in Non-Storm Water Specifications, section IV.F of this Order or as otherwise regulated by this Order, discharges of liquids or materials others than storm water (i.e. non-storm water discharges) either directly or indirectly to Waters of the U.S., including but not limited to San Diego Bay, the Pacific Ocean, the Tijuana River Estuary, Morena Reservoir, a tributary to the San Luis Rey River watershed, or waters in the Canyon City Hydrologic Area are prohibited.
- G. The discharge of the first ¼ inch of storm water runoff (First Flush) from all areas designated as Industrial High Risk areas, as defined in section IV.B.1.d of this Order, is prohibited, unless the First Flush complies with the effluent limitations in section IV.C. Effluent limitations contained in section IV.C are applicable to all discharges of storm water from Industrial High Risk Areas on the Facility.
- H. The discharge of materials of petroleum origin in sufficient quantities to be visible in the receiving water is prohibited.
- I. Discharges to Waters of the U.S., including but not limited to San Diego Bay, the Pacific Ocean, the Tijuana River Estuary, Morena Reservoir, a tributary to the San Luis Rey River watershed, and waters in the Canyon City Hydrologic Area, containing a hazardous substance equal to or in excess of a reportable quantity listed in 40 CFR part 117, *Security Classification Regulations Pursuant To Executive Order 11652*, and/or 40 CFR part 302, *Designation, Reportable Quantities, and Notification*, are prohibited.
- J. The discharge of Polychlorinated Biphenyls (PCBs) to Waters of the U.S., including but not limited to San Diego Bay, the Pacific Ocean, and the Tijuana River Estuary, Morena Reservoir, a tributary to the San Luis Rey River watershed, and waters in the Canyon City Hydrologic Area is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations for Industrial Process Wastewater

Industrial process wastewater discharges regulated under this order include pier washing, utility vault and manhole dewatering, pier boom cleaning, boat rinsing, steam condensate, and diesel engine cooling water.

1. **BMP Regulated Industrial Process Wastewater.** The discharge of pier washing wastewater at Discharge Point No. PW-001 and Utility Vault and Manhole Dewatering at Discharge Point No. UV-001 through UV-013 in Table 4 is regulated using a narrative effluent limitation BMP approach under section VI.C.3 of this Order. Pier boom cleaning and boat rinsing have no discharge to surface waters require BMPs under section VI.C.3 of this Order to prevent discharges.

Table 4. Industrial Process Wastewaters Regulated with BMPs

Type of Discharge	Discharge Point Nos.
Pier Washing Wastewater	PW-001
Utility Vault and Manhole Dewatering	UV-001 through UV-013
Boat Rinsing	No Discharge
Pier Boom Cleaning	No Discharge

2. Steam Condensate Discharges. Effluent Limitations for Steam Condensate – Discharge Point Nos. SC-001 through SC-010

The Discharger shall maintain compliance with the effluent limitations in Table 5 at Discharge Point Nos. SC-001 through SC-010 with compliance measured at Monitoring Locations SC-001 through SC-010 as described in the Monitoring and Reporting Program (MRP), Attachment E of this Order.

Table 5. Effluent Limitations for Steam Condensate

Parameter	Units	Effluent Limitations				
		6-Month Median	Average Monthly	Weekly Average	Maximum Daily	Instantaneous Maximum
Discharges to the San Diego Bay – Discharge Point Nos. SC-001 through SC-009						
Oil and Grease	mg/L	--	25	40	--	75
Turbidity	NTU	--	75	100	--	225
pH	standard units	--	--	--	--	1
Settleable Solids	ml/L	--	1.0	1.5	--	3.0
Chronic Toxicity	Pass/Fail	--	²	--	²	--
Arsenic, Total Recoverable	µg/L	--	30	--	59	--
Copper, Total Recoverable	µg/L	--	1.9	--	5.8	--
Lead, Total Recoverable	µg/L	--	3.4	--	12	--
Nickel, Total Recoverable	µg/L	--	6.8	--	14	--
Selenium, Total Recoverable	µg/L	--	58	--	120	--
Zinc, Total Recoverable	µg/L	--	47	--	95	--
2,3,7,8-TCDD	µg/L	--	1.4x10 ⁻⁸	--	2.8x10 ⁻⁸	--
Bis(2-Ethylhexyl)Phthalate	µg/L	--	5.9	--	12	--
Aldrin	µg/L	--	0.00014	--	0.00028	--
4,4'-DDT	ug/L	--	0.00059	--	0.00118	--
4,4'-DDE	ug/L	--	0.00059	--	0.00118	--
4,4'-DDD	ug/L	--	0.00084	--	0.00169	--
Heptachlor	µg/L	--	0.00021	--	0.00042	--
Heptachlor Epoxide	µg/L	--	0.00011	--	0.00022	--
Discharges to the Pacific Ocean – Discharge Point No. SC-010						
Oil and Grease	mg/L	--	25	40	--	75
Turbidity	NTU	--	75	100	--	225
pH	standard units	--	--	--	--	1
Settleable Solids	ml/L	--	1.0	1.5	--	3.0
Chronic Toxicity	Pass/Fail	--	²	--	²	--

Parameter	Units	Effluent Limitations				
		6-Month Median	Average Monthly	Weekly Average	Maximum Daily	Instantaneous Maximum
Copper, Total Recoverable	µg/L	3	--	--	5.8	30
Lead, Total Recoverable	µg/L	2	--	--	8	20
Zinc, Total Recoverable	µg/L	20	--	--	80	200
TCDD Equivalents	µg/L	--	3.9x10 ⁻⁹	--	--	--
Bis(2-Ethylhexyl)Phthalate	µg/L	--	3.5	--	--	--

¹ Within limits of 7.0 – 9.0 standard units at all times.
² As defined in section VII.J of this Order.

3. Diesel Engine Cooling Water Discharges. Effluent Limitations for Diesel Engine Cooling Water – Discharge Point No. CW-001

The Discharger shall maintain compliance with the effluent limitations in Table 6 at Discharge Point No. CW-001 with compliance measured at Monitoring Location CW-001 as described in the MRP, Attachment E of this Order.

Table 6. Effluent Limitations for Diesel Engine Cooling Water

Parameter	Units	Effluent Limitations			
		Average Monthly	Weekly Average	Maximum Daily	Instantaneous Maximum
Oil and Grease	mg/L	25	40	--	75
Turbidity	NTU	75	100	--	225
pH	standard units	--	--	--	1
Settleable Solids	ml/L	1.0	1.5	--	3.0
Chronic Toxicity	Pass/Fail	²	--	²	--
Arsenic, Total Recoverable	µg/L	20	--	62	--
Chromium VI, Total Recoverable	µg/L	27	--	85	--
Copper, Total Recoverable	µg/L	2.0	--	5.8	--
Lead, Total Recoverable	µg/L	5.8	--	15	--
Nickel, Total Recoverable	µg/L	5.7	--	15	--
Selenium, Total Recoverable	µg/L	58	--	120	--
Zinc, Total Recoverable	µg/L	37	--	95	--
4,4-DDT	µg/L	0.00059	--	0.0017	--
4,4-DDE	µg/L	0.00059	--	0.0012	--
4,4-DDD	µg/L	0.00084	--	0.0017	--

¹ Within the limit of 7.0 – 9.0 standard units at all times.
² As defined in section VII.J of this Order.

B. Storm Water Risk Level Designations

1. Storm Water Risk Level Designation Definitions

- a. **Small (Military Base) Municipal Separate Storm Sewer System (Small Military Base MS4) Areas.** Areas where no industrial activities occur. Areas designated as “Small Military Base MS4 Areas” are subject to the technology-based standard of maximum extent practicable (MEP) and Storm Water Management Program (SWMP) requirements contained in section IV.D of this Order.
- b. **Industrial No Exposure Areas.** Areas where all industrial materials and activities are protected by a storm resistant shelter¹ to prevent exposure to rain, snow, snowmelt, and/or runoff. “Industrial materials and activities” include, but are not limited to, material handling² equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, and waste products.
- c. **Industrial Low Risk Areas.** All areas where wastes or pollutants from industrial activities are subject to precipitation, run-on, and/or runoff and which are not classified as Industrial No Exposure Areas or Industrial High Risk Areas.
- d. **Industrial High Risk Areas.** All areas where wastes or pollutants of significant quantities from ship construction, modification, repair, and maintenance activities (including abrasive blast grit material, primer, paint, paint chips, solvents, oils, fuels, sludges, detergents, cleansers, hazardous substances, toxic pollutants, non-conventional pollutants, materials of petroleum origin, or other substances of water quality significance) are subject to precipitation, run-on, and/or runoff.

2. Annual Storm Water Risk Designation Level Report

Annually, the Discharger shall conduct a complete and thorough survey of the Facility to identify and categorize all areas and the associated storm water drainage system(s) and outfall(s) (i.e. discharge point(s)) in accordance with the risk level designations. Storm water drainage systems and outfalls that receive storm water runoff from areas that have multiple risk levels shall be designated as having the highest risk level occurring in that area. The Discharger shall prepare and submit an Annual Storm Water Risk Level Designation Report by September 1 of each year containing the results of the surveys conducted in the previous July 1 through June 30 period including the following information:

- a. **Master Risk Designation List.** An updated list of all facility discharge locations containing discharge point identification numbers, summary activity descriptions of the drainage area(s) tributary to each discharge point, the storm water risk level designation, the longitude and latitude of the outfall location, and the name of the receiving water. The current Storm Water Risk Level Designation Tables are included as Attachment M of this Order and the updated master list shall be in a format suitable for the replacement of Attachment M.

¹ “Storm-resistant shelters” include completely roofed and walled buildings or structures. They also include structures with only a top cover supported by permanent supports but with no side coverings provided material within the structure is not subject to wind dispersion (sawdust, powders, etc.), track-out, and there is no storm water discharged from within the structure that has come into contact with any materials.

² “Material handling activities” include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, or waste product.

- b. Facility Map.** A Facility map clearly labeled with (i) storm water discharge points; (ii) storm drain systems, features, drainage basin boundaries, and risk level designations; and (iii) land uses. The current storm water outfall maps are included in Attachment B of this Order and updated maps shall be in a format suitable for the replacement of the figures in Attachment B.
- c. Proposed Revisions.** A description of any proposed changes to the (i) storm water discharge points; (ii) storm drain systems, features, drainage basin boundaries, and risk levels; and (iii) land use designations from the previous year.

3. Annual Storm Water Risk Level Designation Implementation

The updated Master Risk Designation List and Facility Map in the Annual Storm Water Risk Level Designation Implementation will supersede Attachment M of this Order, except for enforcement purposes, and shall become an enforceable condition of this Order, unless directed otherwise in writing by the San Diego Water Board. The San Diego Water Board retains the right to require revisions to the Discharger designated risk levels based on relevant evidence, whether direct or circumstantial, including but not limited to, evidence in the following categories:

- a. Site characteristics and location in relation to potential sources of a discharge;
- b. Industry-wide operational practices that have led to discharges;
- c. Evidence of poor management of materials or wastes, such as improper storage practices or inability to reconcile inventories;
- d. Lack of documentation of responsible management of materials or wastes, such as lack of manifests or lack of documentation of proper disposal;
- e. Physical evidence, such as analytical data, soil or pavement staining, or unusual odor or appearance;
- f. Reports or complaints;
- g. Other agencies' records of possible or known discharges; and
- h. Refusal or failure to respond to San Diego Water Board inquiries.

4. Storm Water Risk Level Inspections

The Discharger shall conduct periodic inspections throughout the year to ensure that storm water risk level designations remain applicable and on-site operations have not changed sufficiently to warrant a revised risk level. These inspections may be conducted simultaneously with inspections conducted pursuant to other sections of this Order. If at any time the Discharger identifies a necessary revision to an area's risk level, the Discharger shall implement Best Management Practices (BMPs) and other requirements of the area's new risk level by the next storm event, unless additional time is approved by the San Diego Water Board. All risk level revisions shall be included in the Annual Storm Water Risk Level Designation Report.

C. Effluent Limitations for Discharges from Industrial High Risk Areas

For discharges of pollutants in storm water discharges, from areas designated as Industrial High Risk Areas as defined in section IV.B.1.d of this Order, the Discharger shall maintain compliance with the following Maximum Daily Effluent Limitations (MDEL) for acute toxicity with compliance measured at Monitoring Locations as described in the MRP Attachment E and Attachment M as updated annually of this Order:

Table 7. Effluent Limitations for Industrial Storm Water

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Acute Toxicity	Pass/Fail	--	Pass or % effect <40 ^a	--	--

^{a.} Compliance with the Maximum Daily Effluent Limitation shall be based on the procedures specified in section IV. of the MRP, Attachment E, of this Order.

D. Small Military Base MS4 Discharge Specifications

1. **Pollutant Reduction to MEP.** The Discharger shall reduce pollutants in storm water discharges from areas, designated as “Small Military Base MS4 Areas” as defined in section IV.B.1 of this Order, to the technology–based standard of MEP to attain compliance with water quality standards set forth in section V, Receiving Water Limitations of this Order.
2. **Storm Water Management Plan (SWMP) Implementation.** The Discharger shall prepare and submit to the San Diego Water Board, an adequate SWMP no later than 18 months following the effective date of this Order. The Discharger shall implement the SWMP no later than 24 months following the effective date of this Order. The Discharger shall make revisions to the SWMP as necessary or as required by the San Diego Water Board. The SWMP shall be designed to reduce the discharge of pollutants from “Small Military Base MS4 Areas” to the technology–based standard of MEP to protect receiving water quality. The SWMP shall serve as the framework for identification, assignment, and implementation of measures and BMPs to control Small Military Base MS4 discharges. Existing programs such as street sweeping that have storm water quality benefits should be identified in the SWMP and be a part of the Discharger’s storm water program. The SWMP shall at a minimum contain the elements described in Attachment L of this Order. A SWMP is not required if the Discharger certifies annually in the Annual Storm Water Risk Designation Level Report the following for any installation unless otherwise directed by the San Diego Water Board in writing within 90 days of submission:
 - a. Population of staff and visitors is under 1,000 and;
 - b. The installation MS4 system is not contributing substantially to the pollutant loadings of a physically interconnected regulated MS4 and can demonstrate the following:
 - i. The installation discharges less than ten percent of its storm water to the regulated MS4 or;
 - ii. The installation’s discharge makes up less than ten percent of the permitted MS4’s total storm water volume; and
 - c. If the Installation discharges any pollutants identified as a cause of Clean Water Act Section 303(d) impairment of any water body to which it discharges, storm water

controls are not needed to comply with Waste Load Assessments of an adopted Total Maximum Daily Load that addresses pollutants of concern.

3. Bacteria Project I – Twenty Beaches and Creeks TMDL. The Remote Training Site Warner Springs (RTSWS) shall take the following actions to meet the requirements of the TMDL:

- a. Implement the SWMP required by section IV.D.2 of this Order and any other additional measures necessary to achieve reductions in fecal coliform, enterococcus, and total coliform by the final compliance dates as required by the TMDL. The SWMP must include short term and long term BMP strategies appropriate for the prioritization schedule in Attachment A page A-65 of Resolution No. R9 2010- 0001.
- b. Collaborate and coordinate, to the extent feasible, with Phase I MS4s and other responsible parties to the Bacteria TMDL using an adaptive framework approach as part of the waste load reduction planning and implementation strategies in the required SWMP pursuant to section IV.D.2 of this Order. Coordinated efforts by all responsible parties are encouraged by the San Diego Water Board and will accomplish the waste load reductions required in the TMDLs faster and achieve the ultimate goal of improving water quality as soon as possible.
- c. Monitor discharges from their facilities including MS4 discharge locations to demonstrate progress towards compliance with final waste load allocations. The monitoring and assessment results must be submitted as part of the Annual Reports required under section E.16 of this Order.

E. Industrial Storm Water Discharge Specifications – No Exposure Areas, Industrial Low Risk Areas, and Industrial High Risk Areas

1. Pollutant Reduction to Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT). The Discharger shall reduce pollutants in storm water discharges from areas, designated as Industrial No Exposure Areas, Industrial Low Risk Areas, and Industrial High Risk Areas as defined in section IV.B.1 of this Order to do the following:

- a. Attain the technology-based standards of BAT for toxic and non-conventional pollutants, and BCT for conventional pollutants; and
- b. Attain compliance with applicable effluent limitations set forth in section IV, Effluent Limitations and Discharge Specifications of this Order and water quality standards set forth in section V, Receiving Water Limitations of this Order.

2. Storm Water Pollution Prevention Plan (SWPPP) Requirements.

- a. The Discharger shall continue to maintain and implement an effective SWPPP designed to reduce or prevent the discharge of pollutants from industrial activities conducted in Industrial No Exposure Areas, Industrial Low Risk Areas, and Industrial High Risk Areas to the technology-based standards of BAT for toxic and non-conventional pollutants, and BCT for conventional pollutants.
- b. The SWPPP shall include identification, assignment, and guidance for implementation of measures and BMPs to control discharges from industrial activities in the Industrial No Exposure, Industrial Low Risk and Industrial High Risk Areas of NBC. The BMPs and

measures shall be selected to achieve BAT/BCT and compliance with all receiving water limitations.

- c. At a minimum, the SWPPP shall contain the elements and be implemented in accordance with Attachment G of this Order. The Discharger shall implement any necessary revisions to its SWPPP to comply with the requirements of this Order within 1 year of the effective date of this Order and submit the revised SWPPP.

3. Numeric Action Levels (NALs) for Industrial High Risk Areas and Industrial Low Risk Areas.

The NALs described in Table G-1 of Attachment G of this Order are used as numeric thresholds for corrective action. An exceedance of an NAL is not a violation of this Order. The Discharger shall implement corrective actions as described below.

a. NAL Exceedance Determination Method:

- i. **Annual NAL Exceedance.** The Discharger shall determine the average concentration for each parameter using the results of all the industrial storm water sampling and analytical results for the entire Facility for the reporting year (i.e., all "effluent" data). This average concentration for each parameter shall be compared to the corresponding annual NAL values in Table G-1. For Dischargers using composite sampling or flow-weighted measurements in accordance with standard practices, the average concentrations shall be calculated in accordance with the USEPA *Industrial Stormwater Monitoring and Sampling Guide*.³ An annual NAL exceedance occurs when the average of all the analytical results for a parameter from samples taken within a reporting year exceeds an annual NAL value, or is outside the NAL range, for a parameter listed in Table G-1. The Discharger has the option of calculating the flow weighted average concentration for all industrial storm water effluent data for the entire Facility as shown below to compare the corresponding annual NAL values in Table G-1:

$$FWAC = \frac{\sum_{n=1}^{n=5} Q_n C_n}{\sum_{n=1}^{n=5} Q_n}$$

Where:

FWAC = Flow weighted average concentration

Q_n = Flow rate of discharge at time of sample collection

C_n = Concentration of chemical in the collected sample

n = Number of discharge points

The flow rate for each discharge point is multiplied by the concentration (C) in the sample from that discharge point. This sum is divided by the total flow rate for all of the discharge points.

³ US EPA. "Industrial Stormwater Monitoring and Sampling Guide." March 2009. EPA 832-B-09-003 Web 7 April 2014. <http://www.epa.gov/npdes/pubs/msgp_monitoring_guide.pdf>.

For calculating the average, all effluent sampling analytical results that are reported by the laboratory as less than the Minimum Level (ML), a value of zero shall be used.

- ii. **Instantaneous Maximum NAL Exceedance.** The Discharger shall compare all industrial storm water analytical results from each distinct sample (grab or composite) to the corresponding instantaneous maximum NAL values in Table G-1. An instantaneous maximum NAL exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the instantaneous maximum NAL value (TSS, oil and grease), or are outside the NAL range (pH).
- iii. Exceedances of the Annual NAL or Instantaneous Maximum NAL are not violations of this Order.

b. NAL Exceedance Response Actions (ERAs)

i. Baseline Status – No Exceedance

- (a) The Discharger will automatically be placed in Baseline status at the beginning of the permit term.

ii. Level 1 Status

A Discharger's Baseline status for any given parameter shall change to Level 1 status if sampling results indicate an NAL exceedance for that same parameter. Level 1 status will commence on July 1 following the reporting year during which the exceedance(s) occurred.

- (a) **Level 1 ERA Evaluation.** By October 1 following commencement of Level 1 status for any parameter with sampling results indicating an NAL exceedance, the Discharger shall:

- (1) Complete an evaluation of the industrial pollutant sources at the facility that are or may be related to the NAL exceedance(s); and,
- (2) Identify in the evaluation the corresponding BMPs in the SWPPP and any additional BMPs and SWPPP revisions necessary to prevent future NAL exceedances and to comply with the requirements of this Order. Although the evaluation may focus on the drainage areas where the NAL exceedance(s) occurred, all drainage areas shall be evaluated.

- (b) **Level 1 ERA Report.** Based on the above evaluation, the Discharger shall, as soon as practicable, but no later than January 1 following commencement of Level 1 status:

- (1) Revise the SWPPP as necessary and implement any additional BMPs identified in the evaluation;
- (2) Certify and submit a Level 1 ERA Report that includes the following:
 - a) A summary of the Level 1 ERA Evaluation required in section IV.E.3.b.ii.(a) above; and

- b) A detailed description of the SWPPP and any additional BMPs for each parameter that exceeded an NAL.

(c) Return to Baseline. A Discharger's Level 1 status for a parameter will return to Baseline status once a Level 1 ERA report has been completed, all identified additional BMPs have been implemented, and results from four (4) consecutive Qualifying Storm Events (QSEs) that were sampled subsequent to BMP implementation indicate no additional NAL exceedances for that parameter.

(d) NAL Exceedances Prior to Implementation of Level 1 Status BMPs. Prior to the implementation of an additional BMP identified in the Level 1 ERA Evaluation or October 1, whichever comes first, sampling results for any parameter(s) being addressed by that additional BMP will not be included in the calculations of annual average or instantaneous NAL exceedances.

iii. **Level 2 Status**

A Discharger's Level 1 status for any given parameter shall change to Level 2 status if sampling results indicate an NAL exceedance for that same parameter while the Discharger is in Level 1. Level 2 status will commence on July 1 following the reporting year during which the NAL exceedance(s) occurred.

(a) Level 2 ERA Action Plan

- (1) Dischargers with Level 2 status shall certify and submit a Level 2 ERA Action Plan that addresses each new Level 2 NAL exceedance by January 1 following the reporting year during which the NAL exceedance(s) occurred. For each new Level 2 NAL exceedance, the Level 2 Action Plan will identify which of the demonstrations in section X.B of Attachment G the Discharger has selected to perform. A new Level 2 NAL exceedance is any Level 2 NAL exceedance for 1) a new parameter in any drainage area, or 2) the same parameter that is being addressed in an existing Level 2 ERA Action Plan in a different drainage area.
- (2) The Level 2 ERA Action Plan shall at a minimum address the drainage areas with corresponding Level 2 NAL exceedances.
- (3) All elements of the Level 2 ERA Action Plan shall be implemented as soon as practicable and completed no later than 1 year after submitting the Level 2 ERA Action Plan.
- (4) The Level 2 ERA Action Plan shall include a schedule and a detailed description of the tasks required to complete the Discharger's selected demonstration(s) as described below in section X.B of Attachment G.

(b) Level 2 ERA Technical Report

- (1) On January 1 of the reporting year following the submittal of the Level 2 ERA Action Plan, a Discharger with Level 2 status shall certify and submit a Level 2 ERA Technical Report that includes one or more of the following demonstrations described in section X.B of Attachment G to this order:

- a) Industrial Activity BMPs Demonstration:

- b) Non-Industrial Pollutant Source Demonstration; or
 - c) Natural Background Pollutant Source Demonstration.
- (2) The San Diego Water Board may review the submitted Level 2 ERA Technical Reports. Upon review of a Level 2 ERA Technical Report, the San Diego Water Board may reject the Level 2 ERA Technical Report and direct the Discharger to take further action(s) to comply with this Order.
- (3) Dischargers with Level 2 status who have submitted the Level 2 ERA Technical Report are only required to annually update the Level 2 ERA Technical Report based upon additional NAL exceedances of the same parameter and same drainage area, facility operational changes, pollutant source(s) changes, and/or information that becomes available via compliance activities (monthly visual observations, sampling results, annual evaluation, etc.). The Level 2 ERA Technical Report shall be certified and submitted by the Discharger with each Storm Water Annual Report. If there are no changes prompting an update of the Level 2 ERA Technical Report, as specified above, the Discharger will provide this certification in the Annual Report that there have been no changes warranting re-submittal of the Level 2 ERA Technical Report.
- (4) Dischargers are not precluded from submitting a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status if information is available to adequately prepare the report and perform the demonstrations described above. A Discharger who chooses to submit a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status will automatically be placed in Level 2 in accordance to the Level 2 ERA schedule.

(5) Eligibility for Returning to Baseline Status

- a) Dischargers with Level 2 status who submit an Industrial Activity BMPs Demonstration in accordance with section X.B.1 of Attachment G and have implemented BMPs to prevent future NAL exceedance(s) for the Level 2 parameter(s) shall return to baseline status for that parameter, if results from four (4) subsequent consecutive QSEs sampled indicate no additional NAL exceedance(s) for that parameter(s). If future NAL exceedances occur for the same parameter(s), the Discharger's Baseline status will return to Level 2 status on July 1 in the subsequent reporting year during which the NAL exceedance(s) occurred. These Dischargers shall update the Level 2 ERA Technical Report as required above in section IV.E.3.b.iii.(b)(3).
- b) Dischargers are ineligible to return to baseline status if they submit any of the following:
 - (i) A industrial activity BMP demonstration that is not expected to eliminate future NAL exceedance(s) in accordance with section X.B.1.d of Attachment G;
 - (ii) An non-industrial pollutant source demonstration; or,

(iii) A natural background pollutant source demonstration.

(6) Level 2 ERA Implementation Extension

- a) Dischargers that need additional time to submit the Level 2 ERA Technical Report shall be automatically granted a single time extension for up to six (6) months upon submitting the following items as applicable:
 - (i) Reasons for the time extension;
 - (ii) A revised Level 2 ERA Action Plan including a schedule and a detailed description of the necessary tasks still to be performed to complete the Level 2 ERA Technical Report; and
 - (iii) A description of any additional temporary BMPs that will be implemented while permanent BMPs are being constructed.
- b) The San Diego Water Board will review Level 2 ERA Implementation Extensions for completeness and adequacy. Requests for extensions that total more than six (6) months are not granted unless approved in writing by the San Diego Water Board. The San Diego Water Board may (1) reject or revise the time allowed to complete Level 2 ERA Implementation Extensions, (2) identify additional tasks necessary to complete the Level 2 ERA Technical Report, and/or (3) require the Discharger to implement additional temporary BMPs.

4. Design Storm Standards for Storm Water Retention and Treatment Control BMPs

All new treatment control BMPs employed by Discharger to comply with this Order shall be designed to comply with minimum design storm standards in this section. A factor of safety shall be incorporated into the design of all treatment control BMPs to ensure that storm water is sufficiently treated throughout the life of the treatment control BMPs. The design storm standards for treatment control BMPs are as follows:

- a. **Volume-based BMPs:** The Discharger shall, at a minimum, calculate⁴ the volume to be treated using one of the following methods:
 - i. The volume of runoff produced from an 85th percentile storm event as determined from local, historical rainfall records. Isopluvial maps for the 85th percentile storm event are available on the internet⁵;
 - ii. The volume of runoff produced by the 85th percentile storm event, determined as the maximized capture runoff volume for the facility, from the formula recommended in the Water Environment Federation's (WEF's) Manual of Practice⁶; or,

⁴ All hydrologic calculations shall be certified by a California licensed professional engineer in accordance with the Professional Engineers Act (Bus. & Prof. Code § 6700, et seq).

⁵ The County of San Diego isopluvial map is located at http://www.sdcounty.ca.gov/dpw/watersheds/susmp/susmppdf/susmp_85precip.pdf may be used.

⁶ Water Environment Federation (WEF). Manual of Practice No. 23/ ASCE Manual of Practice No. 87, pg. 175 Equation 5.2 (1998).

- iii. The volume of annual runoff required to achieve 80% or more treatment, determined in accordance with the methodology set forth in the latest edition of *California Stormwater Best Management Practices Handbook*⁷ using local historical rainfall records.
- b. **Flow-based BMPs:** The Discharger shall calculate the flow needed to be treated using one of the following methods:
 - i. The maximum flow rate of runoff produced from a rainfall intensity of at least 0.2 inches per hour for each hour of a storm event;
 - ii. The maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity, as determined from local historical rainfall records, multiplied by a factor of two; or,
 - iii. The maximum flow rate of runoff, as determined using local historical rainfall records, that achieves approximately the same reduction in total pollutant loads as would be achieved by treatment of the 85th percentile hourly rainfall intensity multiplied by a factor of two.
- c. In lieu of complying with the design storm standards for treatment control BMPs in this section, the Discharger may certify and submit a BAT/BCT Compliance Demonstration Technical Report.
- d. The San Diego Water Board may revise the treatment design storm standard provided in this Order. The revision must be in writing and based upon sampling data indicating that a revised design storm standard would be protective of water quality, or based upon the San Diego Water Board's determination that the treatment technology associated with the revised design storm standard meets BAT/BCT.

F. Non-Storm Water Discharge Specifications

- 1. **Non-Storm Water Discharges.** Discharges through the MS4 of material other than storm water to Waters of the U.S. are prohibited, except as allowed under this Provision or as otherwise authorized by a separate NPDES permit. The following non-storm water discharges are authorized under this Order unless the Discharger or the San Diego Water Board identifies the discharges as a significant source of pollutants to Waters of the U.S. as provided in section IV.F.3 below:
 - a. Diverted stream flows;
 - b. Rising groundwaters;
 - c. Uncontaminated groundwater infiltration [as defined at 40 CFR section 35.2005(b)(20)] to MS4s;
 - d. Uncontaminated pumped groundwater, foundation drains, crawl space pumps and, footing drain discharges not subject to a groundwater extraction permit such as NPDES Permit No. CAG919003, (*General Waste Discharge Requirements for Groundwater*

⁷ California Stormwater Quality Association. Stormwater Best Management Practice New Development and Redevelopment Handbook. Web. 28 February 2013. <<http://www.cabmphandbooks.com/Development.asp>>.

- Extraction Discharges to Surface Waters within the San Diego Region*) or subsequent superseding NPDES renewal permit;
- e. Springs;
 - f. Drinking fountain water and emergency eye wash/shower station test water;
 - g. Atmospheric condensate including refrigeration, air conditioning and compressor condensate;
 - h. Flows from riparian habitats and wetlands;
 - i. Discharges from potable water sources not subject to an NPDES permit such as NPDES Permit No. CAG140001 (*Statewide National Pollutant Discharge Elimination System (NPDES) Permit for Drinking Water system Discharges to Waters of the United States*) or subsequent superseding NPDES renewal permit;
 - j. Individual residential car washing;
 - k. Dechlorinated swimming pool discharges;
 - i. Residual chlorine, algaecide, filter backwash, or other pollutants from swimming pools must be eliminated prior to discharging to the MS4; and
 - ii. The discharge of saline swimming pool water must be directed to the sanitary sewer, landscaped areas, or other pervious surfaces that can accommodate the volume of water, unless the saline swimming pool water can be discharged via a pipe or concrete channel directly to a naturally saline water body (e.g. San Diego Bay or the Pacific Ocean).
 - l. Seawater infiltration where the seawater is discharged back into the seawater source;
 - m. Building fire suppression system maintenance discharges (e.g. sprinkler line flushing) not otherwise regulated by this Order; and
 - n. Non-storm water discharges explicitly authorized elsewhere in this Order.
- 2. Conditions for Authorized Non-storm Water Discharges.** The non-storm water discharges identified in section IV.F.1 above are authorized by this Order only if all of the following conditions are satisfied:
- a. The non-storm water discharges are not in violation of any San Diego Water Board requirement;
 - b. The non-storm water discharges are not in violation of any municipal or federal agency ordinance or requirement;
 - c. BMPs are included in the SWMP for Small Military Base MS4 areas and in the SWPPP for industrial areas that are designed to do the following:
 - i. Prevent or reduce the contact of non-storm water discharges with significant materials or equipment; and

- ii. Minimize, to the extent practicable, the flow or volume of non-storm water discharges;
 - d. The non-storm water discharges do not contain quantities of pollutants that may cause or contribute to an exceedance of a water quality standard(s);
 - e. The non-storm water discharges and identified sources in industrial areas are visually inspected quarterly in accordance with the SWPPP to ensure adequate BMP implementation and effectiveness; and
 - f. The non-storm water discharges from Industrial Low Risk and Industrial High Risk Areas are reported in the Storm Water Annual Report required under section VII.C of the MRP in Attachment E of this Order.
- 3. Identification of Non-Storm Water Significant Sources of Pollutants.** Where the Discharger or the San Diego Water Board determines that any individual or category of non-storm water discharge(s) listed in section IV.F.1 above may be a significant source of pollutants to Waters of the U.S. or physically interconnected MS4, or poses a threat to water quality standards (e.g. beneficial uses), the individual or category of non-storm water discharge(s) must be addressed by the Discharger as an illicit discharge(s) and prohibited through ordinance, order, or similar means unless the discharge is from a non-anthropogenic source. For a non-anthropogenic source determined to be a significant source of pollutants, the Discharger must either prohibit the discharge or develop and implement appropriate control measures to prevent the discharge of pollutants to the MS4.
- 4. Firefighting Discharges.** Emergency firefighting flows (i.e., flows necessary for the protection of life or property) are excluded from the effective prohibition against non-storm water and need only be addressed where they are identified as significant sources of pollutants to Waters of the U.S. The Discharger should develop and encourage implementation of BMPs to reduce or eliminate pollutants in emergency firefighting discharges to the MS4s and receiving waters within its jurisdiction. During emergency situations, priority of efforts should be directed toward life, property, and the environment (in descending order). BMPs should not interfere with immediate emergency response operations or impact public health and safety.
- 5. Non-Fire Fighting Discharges.** Non-emergency firefighting discharges (i.e., discharges from controlled or practice blazes, firefighting training, and maintenance activities not associated with building fire suppression systems) must be addressed by a program, to be developed and implemented by the Discharger, to reduce or eliminate pollutants in such discharges from entering the MS4 or the receiving water. Building fire suppression system maintenance discharges (e.g. sprinkler line flushing) to the MS4 must be addressed as illicit discharges unless BMPs are implemented to prevent pollutants associated with such discharges from entering the MS4.
- 6. Utility Vault & Manhole Dewatering (Utility Vault) Discharges.** The Discharger shall reduce or prevent pollutants associated with utility vault and manhole dewatering discharges through implementation of BAT for toxic and non-conventional pollutants, and BCT for conventional pollutants.
- 7. Incidental Runoff from Landscaped Areas.** Incidental runoff is defined as unintended amounts (volume) of landscape irrigation that escapes the area of intended use. The Discharger shall control incidental runoff through the following means:

- a. Detection of leaks (e.g. broken sprinkler heads) and correction of the leaks within 72 hours of learning of the leaks;
- b. Proper design and aiming of sprinkler heads; and
- c. Elimination of landscape irrigation during precipitation events.

The discharge of incidental runoff from landscaped areas that is not controlled by the above requirements is prohibited.

V. RECEIVING WATER LIMITATIONS

- A.** The receiving water limitations set forth in sections V.B. and V.C. of this Order for San Diego Bay, the Tijuana River Estuary, the Pacific Ocean, Morena Reservoir, tributaries to the San Luis Rey River, and waters in the Canyon City Hydrologic Area are based on applicable water quality standards contained in water quality control plans and policies and federal regulations listed below. These plans, policies, and regulations set forth limits or levels of water quality characteristics to ensure the reasonable protection of beneficial uses and the prevention of nuisance. The discharges of waste regulated under this Order shall not cause or contribute to violations of these water quality standards.
1. The San Diego Water Board's Basin Plan, including beneficial uses, water quality objectives, and implementation plans;
 2. State Water Board water quality control plans and policies including the following:
 - a. *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries* (Thermal Plan);
 - b. *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan);
 - c. *Water Quality Control Policy for the Enclosed Bays and Estuaries of California* (Bays and Estuaries Policy);
 - d. *Policy for Implementation of Toxics Standards for Inland Surface Waters, and Enclosed Bays, and Estuaries of California* (State Implementation Plan or SIP);
 - e. *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality* (Bays and Estuaries Plan – Sediment Quality Plan [SQO]); and
 - f. *The Statement of Policy with Respect to Maintaining High Quality of Waters in California* (State Water Board Resolution No. 68-16).
 3. Priority pollutant criteria promulgated by the USEPA through the following:
 - a. National Toxics Rule (NTR)⁸ (promulgated on December 22, 1992 and amended on May 4, 1995); and
 - b. California Toxics Rule (CTR).^{9,10}

⁸ 40 CFR 131.36

B. Discharges to San Diego Bay and the Tijuana River Estuary. Discharges from the Facility to San Diego Bay and the Tijuana River Estuary shall not by itself or jointly with any other discharge(s) cause or contribute to violations of the following receiving water limitations:

1. Physical Characteristics

- a. Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses. [Basin Plan]
- b. Waters shall not contain oils, greases, waxes, or other materials in concentrations which result in visible film or coating on the surface of the water or on objects in the water, or which cause nuisance or which otherwise adversely affect beneficial uses. [Basin Plan]
- c. Waters shall not contain floating material, including solids, liquids, foams, and scum in concentrations which cause nuisance or adversely affect beneficial uses. [Basin Plan]
- d. The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses. [Basin Plan]
- e. Waters shall not contain suspended and settleable solids in concentrations of solids that cause nuisance or adversely affect beneficial uses. [Basin Plan]
- f. Waters shall not contain taste or odor producing substances at concentrations which cause a nuisance or adversely affect beneficial uses. [Basin Plan]
- g. Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. In addition, within San Diego Bay, the transparency of bay waters, insofar as it may be influenced by any controllable factor, either directly or through induced conditions, shall not be less than 8 feet in more than 20 percent of the readings in any zone, and measured by a standard Secchi disk. Wherever the water is less than 10 feet deep, the Secchi disk reading shall not be less than 80 percent of the depth in more than 20 percent of the readings in any zone. [Basin Plan]
- h. The discharge of waste shall not cause the temperature of the receiving water to be altered in a manner that adversely impacts beneficial uses. [Thermal Plan]

2. Chemical Characteristics

- a. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally. The pH shall not be depressed below 7.0 nor raised above 9.0. [Basin Plan]
- b. The dissolved oxygen concentration shall not at anytime be less than 5.0 mg/L. The annual mean dissolved oxygen concentration shall not be less than 7 mg/L more than 10 percent of the time. [Basin Plan]
- c. San Diego Bay waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect beneficial uses. [Basin Plan]

⁹ 65 Federal Register 31682-31719 (May 18, 2000), adding section 131.38 to 40 CFR

¹⁰ If a water quality objective and a CTR criterion are in effect for the same priority pollutant, the more stringent of the two applies

- d. The discharge of wastes shall not cause concentrations of un-ionized ammonia (NH₃) to exceed 0.025 mg/L (as N) in the San Diego Bay. [Basin Plan]
- e. No individual pesticide or combination of pesticides shall be present in the water column, sediments, or biota at concentration(s) that adversely affect beneficial uses. Pesticides shall not be present at levels which will bioaccumulate in aquatic organisms to levels which are harmful to human health, wildlife, or aquatic organisms. [Basin Plan]

3. Biological Characteristics

- a. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded. [Ocean Plan-BPJ]¹¹
- b. The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered. [Ocean Plan-BPJ]
- c. The concentration of organic materials in fish, shellfish, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health. [Ocean Plan-BPJ]

4. Bacterial Characteristics

- a. The most probable number of total coliform organisms in the upper 60 feet of the water column shall be less than 1,000 organisms per 100 ml (10 organisms per ml); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 organisms per 100 ml (10 per ml); and provided further that no single sample shall exceed 10,000 organisms per 100 ml as described in the Basin Plan. [Basin Plan]
- b. The median total coliform concentration throughout the water column for any 30-day period shall not exceed 70 organisms per 100 ml nor shall more than 10 percent of the samples collected during any 30-day period exceed 230 organisms per 100 ml for a five-tube decimal dilution test or 330 organisms per 100 ml when a three-tube decimal dilution test is used where shellfish harvesting is designated. [Basin Plan]
- c. Where bay waters are used for whole fish handling, the density of E. coli shall not exceed 7 organisms per ml in more than 20 percent of any 20 daily consecutive samples of bay water. [Basin Plan]

5. Radioactivity

- a. Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life. [Basin Plan]
- b. The radioactivity in the receiving waters shall not exceed limits specified in title 17, division 1, chapter 5, subchapter 4, group 3, article 1, section 30253 of the California Code of Regulations (CCR).

¹¹ Ocean Plan-BPJ means that Best Professional Judgment (BPJ) was used to apply standards from the Ocean Plan to San Diego Bay.

6. Toxicity

- a. All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods as specified by the Regional Board. [Basin Plan]
- b. Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities. [Bays and Estuaries Plan - SQO]
- c. Pollutants shall not be present in sediments at levels that will bioaccumulate in aquatic life to levels that are harmful to human health. [Bays and Estuaries Plan - SQO]

C. Discharges to the Pacific Ocean. Discharges from the Facility to the Pacific Ocean shall not by itself or jointly with any other discharge(s) cause or contribute to violations of the following receiving water limitations:

1. Bacterial Characteristics

- a. Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Regional Board (i.e., waters designated as REC-1), but including all kelp beds, the following bacterial objectives shall be maintained throughout the water column:
 - i. 30-day Geometric Mean – The following standards are based on the geometric mean of the five most recent samples from each site:
 - (a) Total coliform density shall not exceed 1,000 per 100 mL;
 - (b) Fecal coliform density shall not exceed 200 per 100 mL; and
 - (c) Enterococcus density shall not exceed 35 per 100 mL. [Ocean Plan]
 - ii. Single Sample Maximum:
 - (a) Total coliform density shall not exceed 10,000 per 100 mL;
 - (b) Fecal coliform density shall not exceed 400 per 100 mL;
 - (c) Enterococcus density shall not exceed 104 per 100 mL; and
 - (d) Total coliform density shall not exceed 1,000 per 100 mL when the fecal coliform/total coliform ratio exceeds 0.1. [Ocean Plan]
- b. At all areas where shellfish may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:

- i. The median total coliform density shall not exceed 70 per 100 mL, and not more than 10 percent of the samples shall exceed 230 per 100 mL. [Ocean Plan]

2. Physical Characteristics

- a. Floating particulates and grease and oil shall not be visible. [Ocean Plan]
- b. The discharge of waste shall not cause aesthetically undesirable discoloration of the ocean surface. [Ocean Plan]
- c. Natural light shall not be significantly reduced as the result of the discharge of waste. [Ocean Plan]
- d. The rate of deposition of inert solids and the characteristics of inert solids in ocean sediments shall not be changed such that benthic communities are degraded. [Ocean Plan]
- e. The discharge of waste shall not cause the temperature of the receiving water to be altered in a manner that adversely impacts beneficial uses. [Thermal Plan]

3. Chemical Characteristics

- a. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste materials. [Ocean Plan]
- b. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally. [Ocean Plan]
- c. The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions. [Ocean Plan]
- d. The concentration of substances set forth in the Ocean Plan chapter II, Table 1, in marine sediments shall not be increased to levels which would degrade indigenous biota. [Ocean Plan]
- e. The concentration of organic materials in marine sediments shall not be increased to levels which would degrade marine life. [Ocean Plan]
- f. Nutrient materials shall not cause objectionable aquatic growths or degrade indigenous biota. [Ocean Plan]

4. Numerical Water Quality Objectives

- a. Ocean Plan Table 1 water quality objectives apply to all discharges under this Order that are within the jurisdiction of the Ocean Plan. Unless otherwise specified, all metal concentrations are expressed as total recoverable concentrations. [Ocean Plan]

5. Biological Characteristics

- a. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded. [Ocean Plan]

- b. The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered. [Ocean Plan]
- c. The concentration of organic materials in fish, shellfish, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health. [Ocean Plan]

6. Radioactivity

- a. The discharge of radioactive waste shall not degrade marine life. [Ocean Plan]
- b. The radioactivity in the receiving waters shall not exceed limits specified in title 17, division 1, chapter 5, subchapter 3, group 3, article 3, section 30253 of the CCR.

D. Discharges to Inland Surface Waters. Discharges from the Facility to Morena Reservoir, tributaries to the San Luis Rey River, or waters in the Canyon City Hydrologic Area shall not by itself or jointly with any other discharge(s) cause or contribute to violations of the following receiving water limitations:

1. Bacterial Characteristics

- a. **Total Coliform Organisms [Basin Plan]:** Total coliform organisms concentration shall not exceed the following:
 - i. 1,000 MPN/100 mL geometric mean, based on a minimum of not less than five samples for any 30-day period; and
 - ii. 10,000 MPN/100 mL at any time.
- b. **Fecal Coliform [Basin Plan]:** Fecal coliform organisms concentration shall not exceed the following:
 - i. 200 MPN/100 mL geometric mean, based on a minimum of not less than five samples for any 30-day period; and
 - ii. 400 MPN/100 mL for more than 10 percent of the total samples during any 30-day period.
- c. **Enterococci [Basin Plan]:** Enterococci concentration shall not exceed the following:
 - i. 33 MPN/100 mL geometric mean, based on all samples during a 30-day period; and
 - ii. 61 MPN/100 mL at any time.
- d. **Escherichia coli [Basin Plan]:** Escherichia coli concentration shall not exceed the following:
 - i. 126 MPN/100 mL geometric mean, based on all samples during a 30-day period; and
 - ii. 235 MPN/100 mL at any time.

2. Chemical Characteristics

- a. The dissolved oxygen concentration shall not at any time be less than five mg/L in inland surface waters with designated WARM beneficial use or less than six mg/L in waters designated COLD beneficial use. The annual mean dissolved oxygen concentration shall not be less than seven mg/L more than 10 percent of the time. [Basin Plan]
- b. Changes in normal ambient pH levels shall not exceed 0.5 units. The pH shall not be depressed below 6.5 nor raised above 8.5. [Basin Plan]
- c. Concentrations of nitrogen and phosphorus, by themselves or in combination with other nutrients, shall be maintained at levels below those which stimulate algae and emergent plant growth. [Basin Plan]
- d. The discharge of wastes shall not cause concentrations of un-ionized ammonia (NH₃) to exceed 0.025 mg/L as nitrogen. [Basin Plan]

3. Physical Characteristics

- a. Water shall be free of coloration that causes nuisance or adversely affects beneficial uses. The natural color of fish, shellfish, or other resources shall not be impaired. [Basin Plan]
- b. Waters shall not contain oils, greases, waxes, or other materials in concentrations which result in a visible film or coating on the surface of the water or on objects in the water, or which cause nuisance or otherwise adversely affect beneficial uses. [Basin Plan]
- c. Waters shall not contain floating material, including solids, liquids, foams, and scum in concentrations which cause nuisance or adversely affect beneficial uses. [Basin Plan]
- d. The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses. [Basin Plan]
- e. Waters shall not contain suspended and settleable solids in concentrations of solids that cause nuisance or adversely affect beneficial uses. [Basin Plan]
- f. Waters shall not contain taste or odor producing substances at concentrations which cause a nuisance or adversely affect beneficial uses. [Basin Plan]
- g. Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.
- h. The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the San Diego Water Board that such alteration in temperature does not adversely affect beneficial uses. At no time or place shall the temperature of any waters with designated cold freshwater habitat be increased more than 5°F above the natural receiving water temperature.

4. **Toxicity.** All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or

aquatic life. Compliance will be determined by use of indicator organisms, analysis of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods, as specified by the San Diego Water Board.

5. **Radioactivity.** Radionuclides shall not be present in concentrations that are harmful/deleterious to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

E. Corrective Actions for Receiving Water Limitations Violations

Upon determination by the Discharger or written notification by the San Diego Water Board that storm water discharges are causing or contributing to an exceedance of Receiving Water Limitations in section V of this Order, the Discharger shall implement the following corrective actions at a minimum:

1. Notify the San Diego Water Board that discharges are causing or contributing to an exceedance of Receiving Water Limitations in section V of this Order.
2. Conduct a facility evaluation to determine whether there are pollutant source(s) within the Facility and whether BMPs described in the SWPPP, the SWMP, BMP Plans, the Pollution Prevention Plan (PPP), and other requirements of this Order have been properly implemented.
3. Conduct an assessment of the Facility's SWPPP, SWMP, BMP Plans, PPP, and other requirements of this Order to determine whether additional BMPs or implementation measures are necessary to prevent or reduce pollutants in storm water discharges to meet Receiving Water Limitations set forth in section V of this Order.
4. Prepare a certification statement, based upon the Facility evaluation and assessment required above, that one of the following applies:
 - a. Additional BMPs and/or implementation measures have been identified and included in the appropriate plan to meet Receiving Water Limitations, as specified in section V of this Order; or
 - b. No additional BMPs or implementation measures are required to reduce or prevent pollutants in storm water discharges to meet Receiving Water Limitations, as specified in section V of this Order; or
 - c. There are no sources of the pollutants at the Facility causing or contributing to the Receiving Water Limitations exceedance(s).
5. If a certification statement provides that no additional BMPs or implementation measures are required to reduce or prevent pollutants in storm water discharges to comply with Receiving Water Limitations specified in section V of this Order, the Discharger must demonstrate why the exceedance occurred and why it will not occur again under similar circumstance.
6. Implement additional BMPs and corrective measures as soon as is practicable in accordance with an approved schedule.

7. Prepare and submit a report, within 60 days from the date of the determination of the exceedance of Receiving Water Limitations, to the San Diego Water Board that does the following:
 - a. Describes the facility evaluation;
 - b. Describes the assessment of the SWPPP, SWMP, BMP Plans, PPP, and other requirements of this Order;
 - c. Identifies the BMPs and corrective actions that are currently being implemented to assure compliance with Receiving Water Limitations;
 - d. Identifies additional BMPs and corrective actions that will be implemented to assure compliance with Receiving Water Limitations with an implementation schedule for any additional BMPs or corrective actions not yet implemented; and
 - e. Includes the certification required above. The implementation schedule shall not exceed 90 days from the date of the determination of the exceedance of Receiving Water Limitations as specified in section V of this Order.
8. Submit any modifications to the report required by the San Diego Water Board within 30 days of notification.
9. Within 30 days following submittal of the report or modifications to the San Diego Water Board, the Discharger shall revise the SWPPP, SWMP, BMP Plans, PPP, and other plan required by this Order and monitoring program to incorporate a) the additional BMPs and corrective actions that have been and will be implemented, b) the implementation schedule, and c) a description of any additional monitoring required.
10. Nothing in this section shall prevent the San Diego Water Board from enforcing any provisions of this Order while the Discharger prepares and implements the report described above.
11. So long as the Discharger has complied with the procedures set forth above and is implementing the actions, the Discharger does not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the San Diego Water Board.

VI. PROVISIONS

A. Standard Provisions

1. **Federal Standard Provisions.** The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.
2. **San Diego Water Board Standard Provisions.** The Discharger shall comply with the following provisions:
 - a. The Discharger shall comply with all applicable federal, state, and local laws and regulations for handling, transport, treatment, or disposal of waste or the discharge of waste to Waters of the State in a manner which causes or threatens to cause a condition of pollution, contamination or nuisance as those terms are defined in CWC section 13050.

- b. This Order expires on December 31, 2020, after which, the terms and conditions of this permit are automatically continued pending issuance of a new Order, provided that all requirements of USEPA's NPDES regulations at 40 CFR section 122.6 and the state's regulations at CCR title 23, section 2235.4 regarding the continuation of expired Orders and waste discharge requirements are met.
- c. A copy of this Order shall be maintained on-site at the Facility, and shall be available to San Diego Water Board, State Water Board, and USEPA personnel and/or their authorized representative at all times.

B. Monitoring and Reporting Program (MRP) Requirements

- 1. The Discharger shall comply with the MRP and future revisions thereto, in Attachment E of this Order.
- 2. Reports required to be submitted to the San Diego Water Board shall be sent to the following address and phone numbers unless required to be submitted electronically:

Executive Officer
California Regional Water Quality Control Board
San Diego Region
2375 Northside Drive, Suite 100
San Diego, CA 92108

Notifications required to be provided to this San Diego Water Board shall be made to:

Telephone – (619) 516-1990
Facsimile – (619) 516-1994

C. Special Provisions

1. Reopener Provisions

- a. This Order may be re-opened and modified in accordance with NPDES regulations at 40 CFR parts 122 and 124, as necessary, to include additional conditions or limitations based on newly available information or to implement any USEPA approved, new, state water quality objective.
- b. This Order may be modified, revoked and reissued or terminated for cause in accordance with the provisions of 40 CFR parts 122, 124, and 125 at any time prior to its expiration under any of the following circumstances:
 - i. Violations of any terms or conditions of this Order;
 - ii. Endangerment to human health or the environment resulting from the permitted activity;
 - iii. Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts; or

- iv. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.
- c. This Order may be re-opened and modified for cause at any time prior to its expiration under any of the following circumstances:
 - i. Present or future investigations demonstrate that the discharge(s) regulated by this Order may have the potential to cause or contribute to adverse impacts on water quality and/or beneficial uses.
 - ii. New or revised Water Quality Objectives come into effect, or any total maximum daily load (TMDL) is adopted or revised that is applicable to the Discharger.
 - iii. Modification is warranted to those provisions of this Order addressing compliance with water quality standards in the receiving water or those provisions of this Order laying out an iterative process for implementation of management practices to achieve compliance with water quality standards in the receiving water.
 - iv. Modification is warranted to incorporate additional effluent limitations, prohibitions, and requirements, based on the results of additional monitoring required by the MRP in Attachment E of this Order.
 - v. Modification of the receiving waters monitoring and reporting requirements and/or special studies requirements of this Order is necessary for cause, including but not limited to a) revisions necessary to implement recommendations from Southern California Coastal Water Research Project (SCCWRP); b) revisions necessary to develop, refine, implement, and/or coordinate a regional monitoring program; and/or c) revisions necessary to develop and implement improved monitoring and assessment programs in keeping with San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of a Regional Monitoring Framework*.
 - vi. Modification is warranted to address acute or chronic toxicity in Facility wastewater discharges, storm water discharges, or receiving waters through new or revised effluent limitations or other permit toxicity requirements or to implement new, revised, or newly interpreted water quality standards applicable to acute or chronic toxicity.
 - vii. The Discharger has requested, and submitted technical information demonstrating to the satisfaction of the San Diego Water Board, that technology-based or water quality based effluent limitations may be adjusted on a pollutant-by-pollutant or discharge by discharge basis to reflect credit for pollutants in the Discharger's intake water in conformance with the applicable requirements of 40 CFR section 122.45(g) and section 1.4.4 of the State Water Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California (SIP).
 - viii. The Discharger has submitted technical information in accordance with the Ocean Plan to the satisfaction of the San Diego Water Board documenting the basis for a mixing zone of initial dilution for storm water discharges to the Pacific Ocean.

- d. The filing of a request by the Discharger for modifications, revocation and reissuance, or termination of this Order, or a notification of planned change in or anticipated noncompliance with this Order does not stay any condition of this Order.

2. Special Studies, Technical Reports and Additional Monitoring Requirements¹²

a. Future Development of Chronic Toxicity Effluent Limitations for Industrial High Risk Storm Water Areas

The San Diego Water Board may establish chronic toxicity effluent limitations for Industrial High Risk Areas storm water discharges in the future. In developing such effluent limitations, an instream waste concentration (IWC) of 100 percent will be assumed whenever mixing zones or dilution credits are not authorized by the San Diego Water Board.

The Discharger may, at their discretion, propose a work plan for a detailed study to support a Basin Plan Amendment on the possible application of chronic toxicity effluent limitations with mixing zones and dilution credits applicable to industrial storm water discharges to San Diego Bay. The study may also encompass the possible application of mixing zones and dilution credits applicable to municipal storm water discharges.

The work plan shall include the following elements:

- i. A detailed proposal describing the goals, technical approach, methods, data evaluation framework, and a schedule for completion of all study activities and submission of a draft Basin Plan Amendment for consideration of adoption by the San Diego Water Board;
- ii. Formation of a stakeholder advisory panel with the San Diego Water Board, USEPA, federal and state resource agencies, representatives of environmental non-governmental organizations, San Diego County Department of Health Services, and representatives of storm water dischargers to San Diego Bay. The panel shall be notified of proposed work and results; and the panel shall be provided opportunity for comment;
- iii. An analysis of storm water impacts to San Diego Bay that considers circulation and flushing, pollutant movement and accumulation, and fate to determine mixing zones and dilution factors appropriate for storm water discharges to San Diego Bay. The analysis shall include consideration of relevant State of California and USEPA polices and guidance pertaining to the establishment of mixing zones and dilution credits in receiving waters; and
- iv. Provisions for establishment of an external scientific peer review panel comprised of experts in the fields of plume dilution modeling, toxicology, and marine ecology to guide the technical approach, review the study results and make recommendations for a proposed Basin Plan amendment and toxicity monitoring strategies for storm water discharges.

3. Best Management Practices (BMP) and Pollution Prevention Plan (PPP)

¹² See section V.F of the MRP (Attachment E) for an overview of TRE Requirements

a. BMP and PPP for Utility Vault and Manhole Dewatering Discharges (Utility Vault Plan)

The Discharger shall continue to implement a Utility Vault Plan for utility vault and manhole dewatering discharges to prevent the discharge of pollutants into the receiving waters at levels that would contribute to the degradation of the receiving waters or otherwise adversely affect the beneficial uses of the receiving water. At a minimum, the Utility Vault Plan shall be maintained and implemented in accordance with Attachment H to prevent, or minimize the potential for, the release of pollutants to Waters of the State and Waters of the U.S.

b. BMP Plan for Pier Washing, Pier Boom Cleaning, and Boat Rinsing

The Discharger shall develop and implement a BMP Plan for discharges from pier washing that prevents the discharge of pollutants at Discharge Point No. PW-001 into the receiving waters at levels that would contribute to the degradation of the receiving waters or otherwise adversely affect the beneficial uses of the receiving water. Additionally within the BMP Plan, the Discharger shall include BMPs to prevent discharges to Waters of the U.S. from pier boom cleaning and boat rinsing activities performed at NBC. At a minimum, the BMP Plan shall be developed and implemented in accordance with Attachment I of this Order to prevent, or minimize the potential for, the release of pollutants to Waters of the State and Waters of the U.S.

c. PPP for Industrial Storm Water

The Discharger shall prepare and implement a PPP for storm water discharges associated with the Industrial High Risk Areas for acute toxicity and copper and zinc (Discharge Points specified in Attachment M of this Order, as updated annually pursuant to section IV.B.2 of this Order).

The PPP shall be developed in accordance with CWC section 13263.3(d)(2). The minimum requirements for the PPP are outlined in the Fact Sheet of this Order, Attachment F, section VII.C.3.c. A work plan and time schedule for preparation of the PPP shall be completed and submitted to the San Diego Water Board within 90 days of the effective date of this Order. The PPP shall be completed and submitted to the San Diego Water Board within 9 months of the effective date of this Order.

4. Flood and Runoff Protection Requirements

- a. All waste treatment, containment, and disposal facilities shall be protected against 100-year peak stream flows as defined by the San Diego County Flood Control Agency.
- b. All waste treatment, containment, and disposal facilities shall be protected against erosion, overland runoff, and other impacts resulting from a 100-year frequency 24-hour storm.

5. Other Special Provisions – Not Applicable

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below.

A. General

Compliance with effluent limitations shall be determined using sample reporting protocols defined in the MRP and Attachment A of this Order. For purpose of reporting and administrative enforcement by the San Diego Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the constituent in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL) or lowest quantifiable level.

B. Multiple Sample Data

When determining compliance with an average annual effluent limitation (AAEL), average monthly effluent limitation (AMEL) or maximum daily effluent limitation (MDEL) and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determination of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, following by quantified values (if any). The order of individual ND or DNQ determinations is unimportant.
2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

C. Mass Emission Rate

The mass emission rate (MER), in pounds per day, shall be obtained from the following calculation for any calendar day:

$$\text{Mass Emission Rate (lb/day)} = 8.34 \times Q \times C$$

In which Q and C are the flow rate in million gallons per day and the constituent concentration in mg/L, respectively, and 8.34 is a conversion factor. Q is the flow rate for the two hours of chlorination and C is the concentration during a chlorination event. If a composite sample is taken, then C is the concentration measured in the composite sample and Q is the average flow rate occurring during the period over which the samples are composited.

D. Average Monthly Effluent Limitation (AMEL)

If the average (or when applicable, the median determined by section VII.B above for multiple sample data) of daily discharges over a calendar month exceeds the AMEL for a given parameter, this will represent a single violation for the purpose of assessing mandatory

minimum penalties under CWC section 13385, though the Discharger will be considered out of compliance for each discharge day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month) for discretionary penalties. If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the Discharger will be considered out of compliance for days when the discharge occurs. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month.

E. Maximum Daily Effluent Limitation (MDEL)

If a daily discharge (or when applicable, the median determined by section VII.B above for multiple sample data of a daily discharge) exceeds the MDEL for a given parameter, the Discharger will be considered out of compliance for that parameter for that 1 day only within the reporting period. For any 1 day during which no sample is taken, no compliance determination can be made for that day.

F. Instantaneous Minimum Effluent Limitation

If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, the Discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of 2 grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of non-compliance with the instantaneous minimum effluent limitation).

G. Instantaneous Maximum Effluent Limitation

If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, the Discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of 2 grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in 2 instances of non-compliance with the instantaneous maximum effluent limitation).

H. Median Monthly Effluent Limit (MMEL)

If the median result of three independent toxicity tests, conducted within the same calendar month, and analyzed using the TST is a "fail" (i.e. two out of three is "fail"), this will represent a single violation for the purpose of assessing mandatory minimum penalties under CWC section 13385, though the Discharger will be considered out of compliance for each discharge day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month) for discretionary penalties. If median result is "fail", the Discharger will be considered out of compliance for days when the discharge occurs. For any one calendar month during which fewer than 3 samples are taken, no compliance determination can be made for that calendar month.

I. Acute Toxicity for Discharges

1. The Maximum Daily Effluent Limitation (MDEL) for acute toxicity is exceeded and a violation will be flagged when a toxicity test results in a "fail" in accordance with the TST approach and the percent effect is greater than or equal to 40%.

2. The determination of “Pass” or “Fail” from a single-effluent concentration acute toxicity test at the IWC of 100 percent effluent shall be determined using the TST approach described in the *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010).
3. The Discharger shall report the results of reasonable potential analyses (RPA), species sensitivity screenings, and routine toxicity tests to the San Diego Water Board as either a “pass” or a “fail” at the IWC, in accordance with the TST approach and provide the calculated percent effect at the IWC.

Pass

A test result that rejects the null hypothesis (Ho) below is reported as “Pass” in accordance with the TST approach:

Ho: Mean response (100 percent effluent) $\leq 0.80 \times$ Control mean response

Fail

A test result that does not reject the null hypothesis (Ho) above is reported as “Fail” in accordance with the TST approach.

4. The presence or absence of acute toxicity shall be determined as specified in section IV of the MRP.

J. Chronic Toxicity

The discharge is subject to determination of “Pass” or “Fail” from a chronic toxicity test using the Test of Significant Toxicity (TST) statistical t-test approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1, and Appendix B, Table B-1. The null hypothesis (Ho) for the TST statistical approach is: Mean discharge IWC response $\leq 0.75 \times$ Mean control response. A test result that rejects this null hypothesis is reported as “Pass”. A test result that does not reject this null hypothesis is reported as “Fail”. The relative “Percent Effect” at the discharge IWC is defined and reported as: $((\text{Mean control response} - \text{Mean discharge IWC response}) \div \text{Mean control response}) \times 100$. This is a t-test (formally Student’s t-Test), a statistical analysis comparing two sets of replicate observations—in the case of WET, only two test concentrations (i.e., a control and IWC). The purpose of this statistical test is to determine if the means of the two sets of observations are different (i.e., if the IWC or receiving water concentration differs from the control (the test result is “Pass” or “Fail”). The Welch’s t-test employed by the TST statistical approach is an adaptation of Student’s t-test and is used with two samples having unequal variances.

The Maximum Daily Effluent Limitation (MDEL) for chronic toxicity is exceeded and a violation will be flagged when a chronic toxicity test, analyzed using the TST statistical approach, results in “Fail” and the “Percent Effect” is $\geq 50\%$.

The Median Monthly Effluent Limitation (MMEL) for chronic toxicity is exceeded and a violation will be flagged when the median results of three independent toxicity tests, conducted within the same calendar month, and analyzed using the TST, (i.e. 2 out of 3) is a “fail.” The MMEL for chronic toxicity shall only apply when there is a discharge more than one day in a calendar

month period. During such calendar months, up to three independent toxicity tests may be conducted when one toxicity test results in "Fail".

The chronic toxicity MDEL and MMEL are set at the IWC for the discharge (100% effluent) and expressed in units of the TST statistical approach ("Pass" or "Fail", "Percent Effect"). All NPDES effluent compliance monitoring for the chronic toxicity MDEL and MMEL shall be reported using the 100% effluent concentration and negative control, expressed using the TST outcome and percent effect. The TST hypothesis (Ho) (see above) is statistically analyzed using the IWC and a negative control. Effluent toxicity tests shall be run using a multi-concentration test design when required by *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Third Edition (EPA-821-R-02-014)*. Standard Operating Procedures used by the toxicity testing laboratory to identify and report valid, invalid, anomalous, or inconclusive effluent (and receiving water) toxicity test measurement results from the TST statistical approach, including those that incorporate a consideration of concentration-response patterns, must be submitted to the Regional Water Board (40 CFR section 122.41(h)). The Regional Water Board will make a final determination as to whether a toxicity test result is valid, and may consult with the Discharger, USEPA, the State Water Board's Quality Assurance Officer, or the State Water Board's Environmental Laboratory Accreditation Program as needed. The Board may consider results of any TIE/TRE studies in an enforcement action.

ATTACHMENT A – ABBREVIATIONS AND GLOSSARY

Part 1 – Abbreviations

Abbreviation	Definition
AAEL	Average Annual Effluent Limitation
AMEL	Average Monthly Effluent Limitation
ASBS	Areas of Special Biological Significance
AWEL	Average Weekly Effluent Limitation
Basin Plan	Water Quality Control Plan for the San Diego Basin
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practices
BOD ₅	Biochemical Oxygen Demand (5-Day at 20°C)
BPJ	Best Professional Judgment
BPT	Best Practicable Treatment Control Technology
CCR	California Code of Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CFU	Colony Forming Units
CIWQS	California Integrated Water Quality System
CNRSW	Commander, Navy Region Southwest
CTR	California Toxics Rule
CV	Coefficient of Variation
CWA	Clean Water Act
CWC	California Water Code
DMR	Discharger Monitoring Report
DNQ	Detected, but Not Quantified
DoD	Department of Defense
ECA	Effluent Concentration Allowance
ERA	Exceedance Response Action
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
gpd	gallons per day
gpm	gallons per minute
IWC	Instream Waste Concentration
lbs/day	Pounds per Day
MDEL	Maximum Daily Effluent Limitation
MDL	Method Detection Limit
MEP	Maximum Extent Practicable
mg/L	Milligrams per Liter
MGD	Million Gallons per Day
ML	Minimal Level
ml/L	Milliliters per Liter
MMEL	Median Monthly Effluent Limitation
MPCD	Marine Pollution Control Device
MPN	Most Probable Number
MRP	Monitoring and Reporting Program

Abbreviation	Definition
MS4	Municipal Separate Storm Sewer System
NAB	Naval Amphibious Base, Coronado
NAL	Numeric Action Level
NASNI	Naval Air Station, North Island
NBC	Naval Base Coronado
ND	Not Detected
NOEL	No Observed Effect Level
NOLF	Naval Outlying Landing Field, Imperial Beach
NPDES	National Pollutant Discharge Elimination System
NR	Not Reported
NTR	National Toxics Rule
Ocean Plan	California Ocean Plan, Water Quality Control Plan Ocean Waters Of California
PCB	Polychlorinated Biphenyls
PMP	Pollutant Minimization Program
PPP	Pollution Prevention Plan
QAPP	Quality Assurance Project Plan
QSE	Qualifying Storm Event
REC-1	Contact Water Recreation Beneficial Use
RL	Reporting Level
ROWD	Report of Waste Discharge
RPA	Reasonable Potential Analysis
San Diego Water Board	California Regional Water Quality Control Board, San Diego Region
SCCWRP	Southern California Coastal Waters Research Project
Sediment Quality Plan	Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality
SIP	State Implementation Plan
SQO	Sediment Quality Objective
SSTC	Silver Strand Training Complex
State Water Board	State Water Resources Control Board
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
TBEL	Technology-Based Effluent Limitations
Thermal Plan	Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TRE	Toxicity Reduction Evaluation
TSS	Total Suspended Solids
TST	Test of Significant Toxicity
U.S.	United States
UNDS	Uniform National Discharge Standards
USEPA	United States Environmental Protection Agency
WDR	Waste Discharge Requirements
WEF	Water Environment Federation

Abbreviation	Definition
WET	Whole Effluent Toxicity
WLA	Wasteload Allocation
WQBEL	Water Quality-Based Effluent Limitation
µg	Microgram
µg/L	Micrograms per Liter

Part 2 – Glossary of Common Terms

Acute Toxicity Tests

A measurement of the adverse effect (usually mortality) of a waste discharge or ambient water sample on a group of test organisms during a short-term exposure.

Arithmetic Mean (µ)

Also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

$$\text{Arithmetic mean} = \mu = \Sigma x / n$$

where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Armed Forces Vessel

A vessel owned or operated by the United States Department of Defense or the United States Coast Guard, other than time or voyage chartered vessels, vessels of the U.S. Army Corps of Engineers, vessels that are memorials or museums, vessels under construction, or vessels in drydock.

Average Monthly Effluent Limitation (AMEL)

The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)

The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative Pollutants

Those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Best Management Practices (BMPs)

Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of Waters of the United States (U.S.). The BMPs also include treatment measures, operating procedures, and practices to control facility site runoff,

spillage or leaks, sludge or waste disposal, or drainage from raw material storage. The BMPs may include any type of pollution prevention and pollution control measure necessary to achieve compliance with this Order.

Best Professional Judgment (BPJ)

The method used by permit writers to develop technology-based NPDES permit conditions on a case-by-case basis using all reasonably available and relevant data.

Carcinogenic

Carcinogenic pollutants are substances that are known to have the potential to cause cancer in living organisms.

Clean Water Act (CWA)

The Federal Water Pollution Control Act enacted by Public Law 92-500 as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; 33 USC 1251 et seq.

Chronic Toxicity Tests

A measurement of the sub-lethal effects of a discharge or ambient water sample (e.g. reduced growth or reproduction). Certain chronic toxicity tests include an additional measurement of lethality.

Coefficient of Variation (CV)

CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Contamination

“Contamination” means an impairment of the quality of the Waters of the State by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease. “Contamination” includes any equivalent effect resulting from the disposal of waste, whether or not Waters of the State are affected. [CWC section 13050(k)]

Daily Discharge

Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ)

DNQ are those sample results less than the RL, but greater than or equal to the laboratory’s MDL.

Dilution Credit

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation (WQBEL), based on the allowance of a specified mixing zone. It is

calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Discharge incidental to the normal operation of a vessel

A discharge, including, but not limited to: graywater, bilgewater, cooling water, weather deck runoff, ballast water, oil water separator effluent, and any other pollutant discharge from the operation of a marine propulsion system, shipboard maneuvering system, crew habitability system, or installed major equipment, such as an aircraft carrier elevator or a catapult, or from a protective, preservative, or absorptive application to the hull of a vessel; and a discharge in connection with the testing, maintenance, and repair of any of the aforementioned systems whenever the vessel is waterborne, including pierside. A discharge incidental to normal operation does not include:

- (1) Sewage;
- (2) A discharge of rubbish, trash, or garbage;
- (3) A discharge of air emissions resulting from the operation of a vessel propulsion system, motor driven equipment, or incinerator;
- (4) A discharge that requires a National Pollutant Discharge Elimination System (NPDES) permit under the Clean Water Act; or
- (5) A discharge containing source, special nuclear, or byproduct materials regulated by the Atomic Energy Act.

Effluent Concentration Allowance (ECA)

ECA is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in USEPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration

The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Facility

Naval Base Coronado (NBC). NBC consists of the following eight installations: Naval Air Station, North Island (NASNI), Naval Amphibious Base, Coronado (NAB), Naval Outlying Landing Field, Imperial Beach (NOLF), Silver Strand Training Complex (SSTC), formerly known as the Naval Radio Receiving Facility (NRRF), Naval Auxiliary Landing Field, San Clemente Island (NALF), Remote Training Site Warner Springs (RTSWS), Camp Michael Monsoor, and Camp Morena. Of the eight installations aligned under NBC, only seven are regulated by this Order. NALF is located in the Los Angeles Regional Water Quality Control Board jurisdictional area and, therefore, is not regulated by this Order.

Industrial High Risk Areas

All areas where wastes or pollutants of significant quantities from ship construction, modification, repair, and maintenance activities (including abrasive blast grit material, primer, paint, paint chips, solvents, oils, fuels, sludges, detergents, cleansers, hazardous substances, toxic pollutants, non-conventional pollutants, materials of petroleum origin, or other substances of water quality significance) are subject to precipitation, run-on, and/or runoff.

Industrial Low Risk Areas

All areas where wastes or pollutants from industrial activities are subject to precipitation, run-on, and/or runoff which are not classified as Industrial No Exposure Areas or Industrial High Risk Areas.

Industrial No Exposure Areas

Areas where all industrial materials and activities are protected by a storm resistant shelter¹ to prevent exposure to rain, snow, snowmelt, and/or runoff. "Industrial materials and activities" include, but are not limited to, material handling² equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products.

Inland Surface Waters

All surface Waters of the State that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation

The highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation

The lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Instream Waste Concentration (IWC)

The concentration of a toxicant or effluent in the receiving water after mixing (the inverse of the dilution factor). A discharge of 100 percent effluent will be considered the IWC whenever mixing zones or dilution credits are not authorized by the applicable Water Board.

Marine Pollution Control Device, (MPCD)

Any equipment or management practice installed or used on an Armed Forces vessel that is

¹ "Storm-resistant shelters" include completely roofed and walled buildings or structures. They also include structures with only a top cover supported by permanent supports but with no side coverings provided material within the structure is not subject to wind dispersion (sawdust, powders, etc.), track-out, and there is no storm water discharged from within the structure that has come into contact with any materials.

² "Material handling activities" include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, or waste product.

designed to receive, retain, treat, control, or discharge a discharge incidental to the normal operation of a vessel, and that is determined by the Administrator of USEPA and Secretary of the Department of Defense to be the most effective equipment or management practice to reduce the environmental impacts of the discharge consistent with the considerations in Clean Water Act section 312(n)(2)(B).

Maximum Daily Effluent Limitation (MDEL)

The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Maximum Extent Practicable (MEP)

MEP is the technology-based standard established by Congress in CWA section 402(p)(3)(B)(iii) that municipal dischargers of storm water must meet. MEP is the result of emphasizing pollution prevention and source control BMPs as the first lines of defense in combination with structural and treatment methods where appropriate serving as additional lines of defense.

Median Monthly Effluent Limitation (MMEL)

An effluent limit based on the median results of three independent toxicity tests, conducted within the same calendar month, and analyzed using the TST. The MMEL is exceeded when the median result (i.e. two out of three) is a "fail."

Median

The middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the $n/2$ and $n/2+1$).

Method Detection Limit (MDL)

MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML)

ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Non-Storm Water Discharge

Any discharge to storm sewer systems that is not composed entirely of storm water.

Not Detected (ND)

Sample results which are less than the laboratory's MDL.

Nuisance

“Nuisance” means anything which meets all of the following requirements: (1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. (2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. (3) Occurs during, or as a result of, the treatment or disposal of waste. [CWC section 13050(m)]

Numeric Action Level (NAL)

Numeric Action Levels (NALs), found in Table G-1 of Attachment G and Table H-1 of Attachment H of this Order are used as numeric thresholds for corrective action. An exceedance of an NAL is not a violation of this Order.

Ocean Waters

The territorial marine Waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board’s California Ocean Plan.

Percent Effect

The value that denotes the difference in response between the IWC and the control, divided by the mean response, and multiplied by 100 using the following equation:

$$\% \text{ Effect at IWC} = \frac{\text{Mean Control Response} - \text{Mean IWC Response}}{\text{Mean Control Response}} * 100$$

Persistent Pollutants

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant

“Pollutant” means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean: (a) Sewage from vessels; or (b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well, used either to facilitate production or for disposal purposes, is approved by authority of the state in which the well is located, and if the state determines that the injection or disposal will not result in the degradation of ground or surface water resources. NOTE: Radioactive materials covered by the Atomic Energy Act are those encompassed in its definition of source, byproduct, or special nuclear materials. Examples of materials not covered include radium and accelerator-produced isotopes. See *Train v. Colorado Public Interest Research Group, Inc.*, 426 U.S. 1 (1976). (40 CFR section 122.2)

Pollution

“Pollution” means an alteration of the quality of the Waters of the State by waste to a degree which unreasonably affects either of the following: (A) The waters for beneficial uses. (B) Facilities which serve these beneficial uses. “Pollution” may include “contamination.” [CWC section 13050(l)]

Pollution Prevention

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation

(as defined in CWC section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or San Diego Water Board.

Pollution Prevention Plan (PPP)

A PPP is a plan for implementing pollution prevention containing, at a minimum, the elements identified in CWC section 13263.3(d)(2).

Priority Pollutants

Priority pollutants are all compounds with criteria in the California Toxics Rule (CTR).

Qualifying Storm Event

A Qualifying Storm Event (QSE) is a precipitation event that produces a discharge for at least one drainage area; and is preceded by 48 hours with no discharge from any **drainage area**.

Reporting Level (RL)

RL is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the San Diego Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

San Diego Water Board

As used in this document the term "San Diego Water Board" is synonymous with the term "Regional Board" as defined in CWC section 13050(b) and is intended to refer to the California Regional Water Quality Control Board for the San Diego Region as specified in CWC section 13200.

Significant Materials

Raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101 (14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); and chemicals the facility is required to report pursuant to section 313 of title III of Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have the potential to be discharged.

Significant Quantities

Volumes, concentrations, or masses of pollutants that can cause or threaten to cause pollution, contamination, or nuisance; adversely impact human health or the environment; and/or cause or contribute to a violation of any applicable water quality standard for the receiving water or any receiving water limitation.

Significant Spills

Include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities under section 311 of the CWA (see 40 CFR part 110 and section 117.21) or section 102 of CERCLA (see 40 CFR section 302.4).

Small Military Base Municipal Separate Storm Sewer System (Small Military Base MS4) Areas

Areas where no industrial activities occur. Areas designated as “Small Military Base MS4 Areas” shall be applicable to the Storm Water Management Program (SWMP) requirements contained within section IV.D.2 of this Order.

Standard Deviation (σ)

Standard Deviation is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

- x is the observed value;
- μ is the arithmetic mean of the observed values; and
- n is the number of samples.

Storm Water

Includes storm water runoff, snowmelt runoff, and storm water surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

Storm Water Discharge Associated with Industrial Activity

The discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program under 40 CFR part 122. The term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters; sites used for residual treatment, storage areas (including tank farms) for raw materials, and intermediate and final products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the purposes of this paragraph, material handling activities include storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, by-product, or waste product. The term excludes areas located on plant lands separate from the plant’s industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are federally, state, or municipally owned or operated that meet the description of the facilities referenced in this paragraph) include those facilities designated under 40 CFR section 122.26(a)(1)(v).

Storm Water Management Plan (SWMP)

The Storm Water Management Plan (SWMP) is a written plan to reduce the discharge of pollutants from “Small Military Base MS4 Areas” to the technology-based standard of MEP to protect receiving water quality.

Storm Water Pollution Prevention Plan (SWPPP)

A SWPPP is a written document that identifies the industrial activities conducted at the site, including any structural control practices, which the industrial facility operator will implement to prevent pollutants from making their way into storm water runoff. The SWPPP also must include descriptions of other relevant information, such as the physical features of the facility, and procedures for spill prevention, conducting inspections, and training of employees. The SWPPP is intended to be a “living” document, updated as necessary, such that when industrial activities or

storm water control practices are modified or replaced, the SWPPP is similarly revised to reflect these changes.

Test of Significant Toxicity (TST)

A statistical approach used to analyze toxicity test data. The TST incorporates a restated null hypothesis, Welch's t-test, and biological effect thresholds for chronic and acute toxicity.

Toxicity Reduction Evaluation (TRE)

TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

Vessel

Includes every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on navigable Waters of the U.S. or waters of the contiguous zone, but does not include amphibious vehicles.

Water Quality Objectives

Numerical or narrative limits on constituents or characteristics of water designed to protect designated beneficial uses of the water.

Water Quality Standards

Water quality standards, as defined in CWA section 303(c) and 40 CFR131.6, consist of 1) the beneficial uses of a water body, 2) criteria (referred to as water quality objectives in California law) to protect those uses, and 3) an anti-degradation policy. Under state law, the water boards establish beneficial uses and water quality objectives in their water quality control or basin plans. Together with an anti-degradation policy (State Water Board Resolution 68-16), these beneficial uses and water quality objectives serve as water quality standards under the CWA. In CWA parlance, state beneficial uses are called "designated uses" and state water quality objectives are called "criteria." Throughout this Order, the relevant term is used depending on the statutory scheme. The water quality standards described in section V of this Order are enforceable receiving water limitations for the surface water bodies for which they are established.

Waters of the State

Waters of the State means any surface water or groundwater, including saline waters, within the boundaries of the state.

Waters of the United States (U.S.)

Waters of the U.S. are defined as: "(a) All waters, which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (b) All interstate waters, including interstate "wetlands;" (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation or destruction of which would affect or could affect interstate or foreign commerce including any such waters: (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) Which are used or could be used for industrial purpose by

industries in interstate commerce; (d) All impoundments of waters otherwise defined as Waters of the U.S. under this definition; (e) Tributaries of waters identified in paragraphs (a) through (d) of this definition; (f) The territorial seas; and (g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition. Waters of the U.S. do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA." (40 CFR section 122.2)

Whole Effluent Toxicity (WET)

The aggregate toxic effect of a waste discharge measured directly by a chronic or acute toxicity test.

ATTACHMENT B – MAPS

Figure B-1. NBC Installations

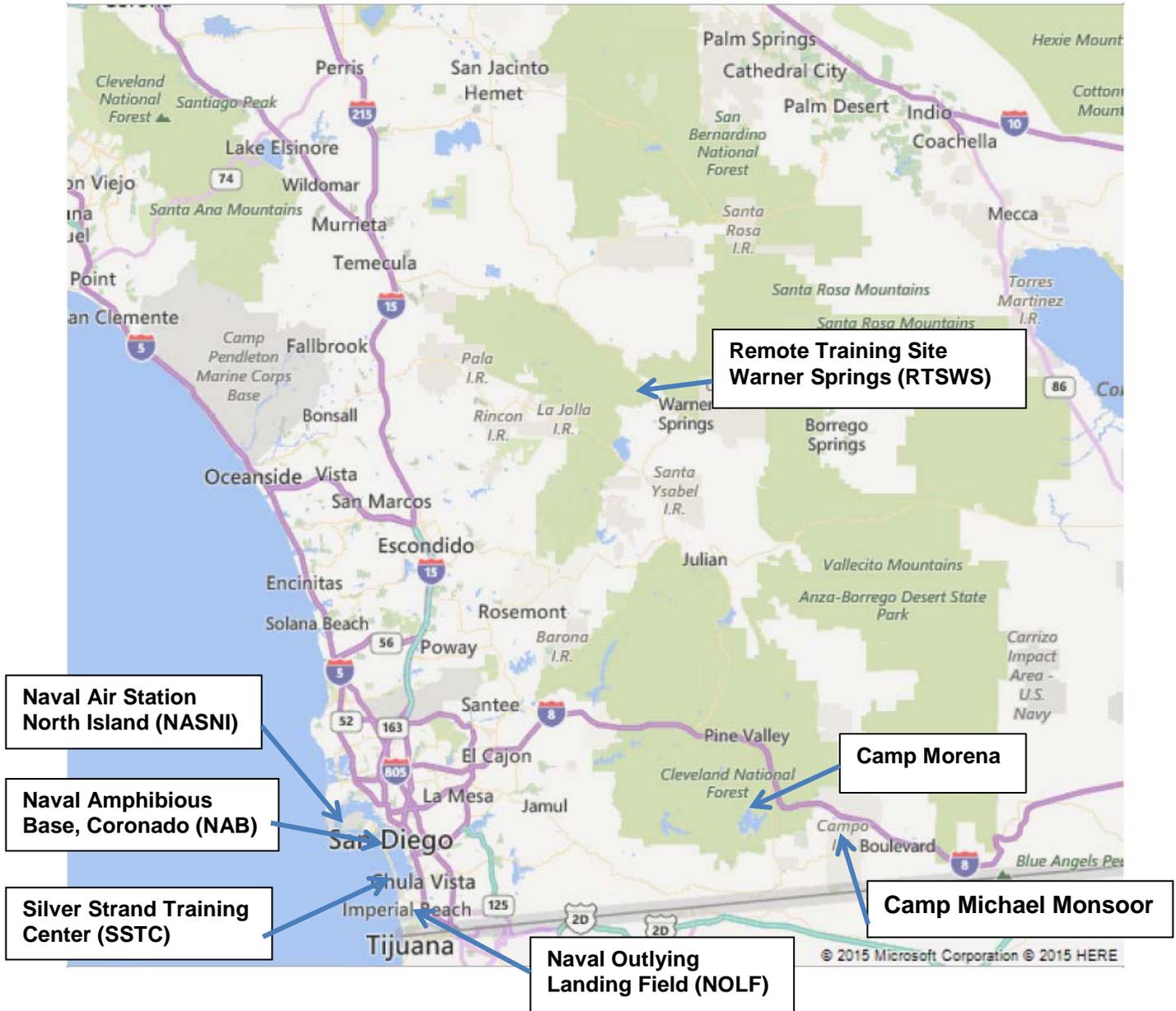
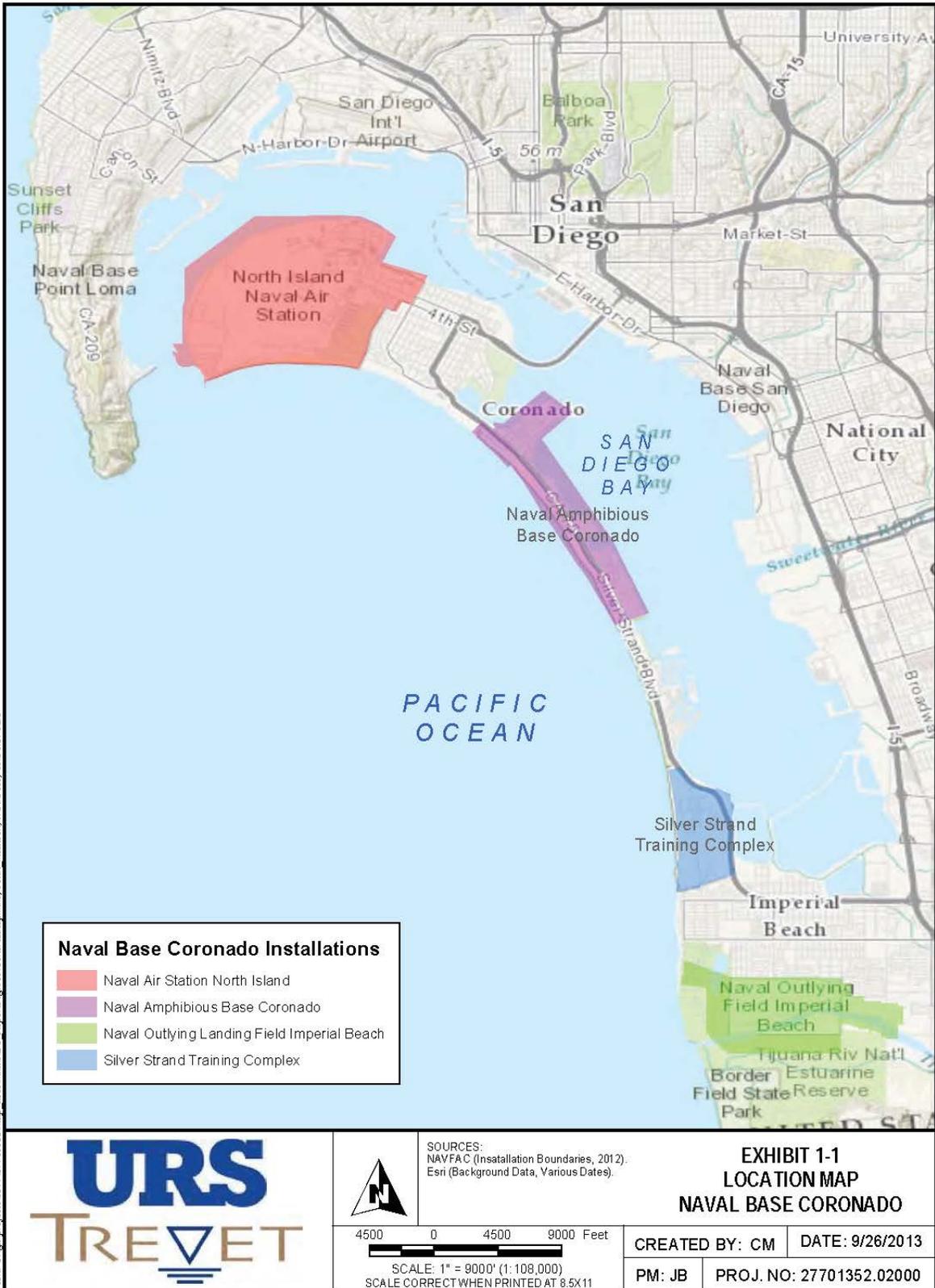


Figure B-2. NBC Installations Detail



Path: C:\projects\157701352\map_documents\NBC_Report\Figures\General\Map.mxd, colin_mattson, 9/26/2013, 11:50:57 AM

Figure B-3. NBC Topographic Map

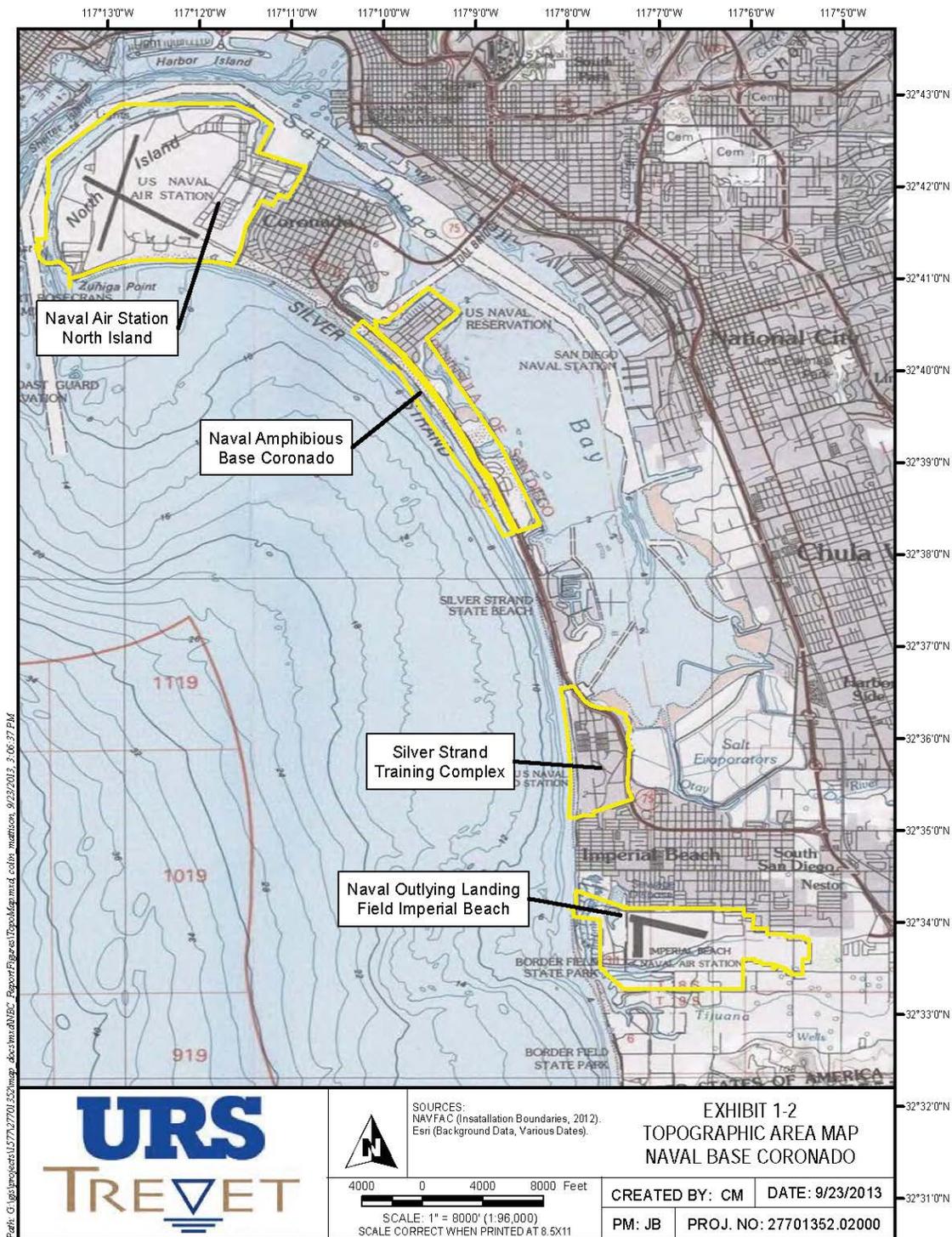


Figure B-4. NBC Steam Condensate Discharge Locations at NASNI

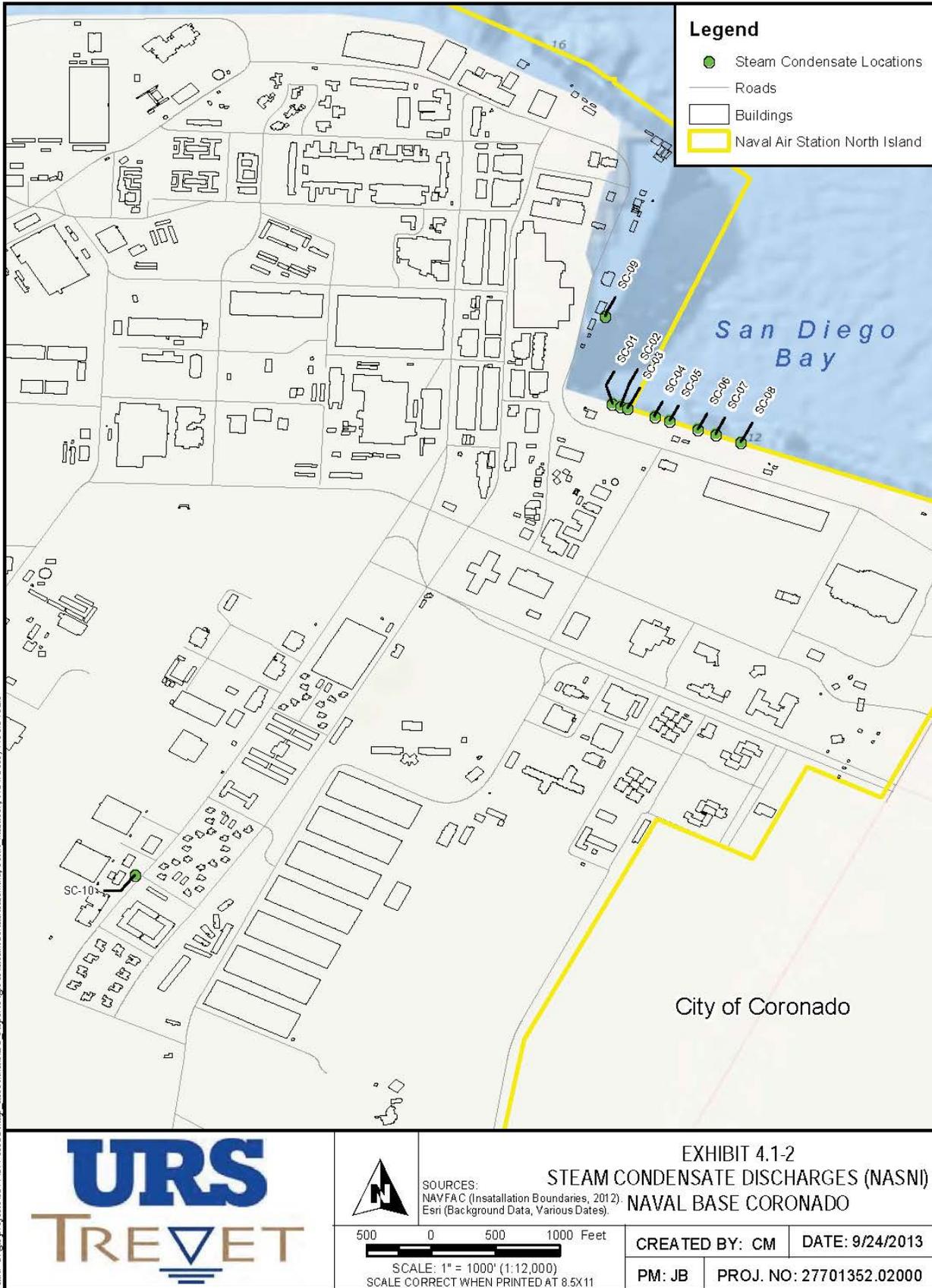


Figure B-5. NBC Diesel Engine Cooling Water Discharge Location at NASNI

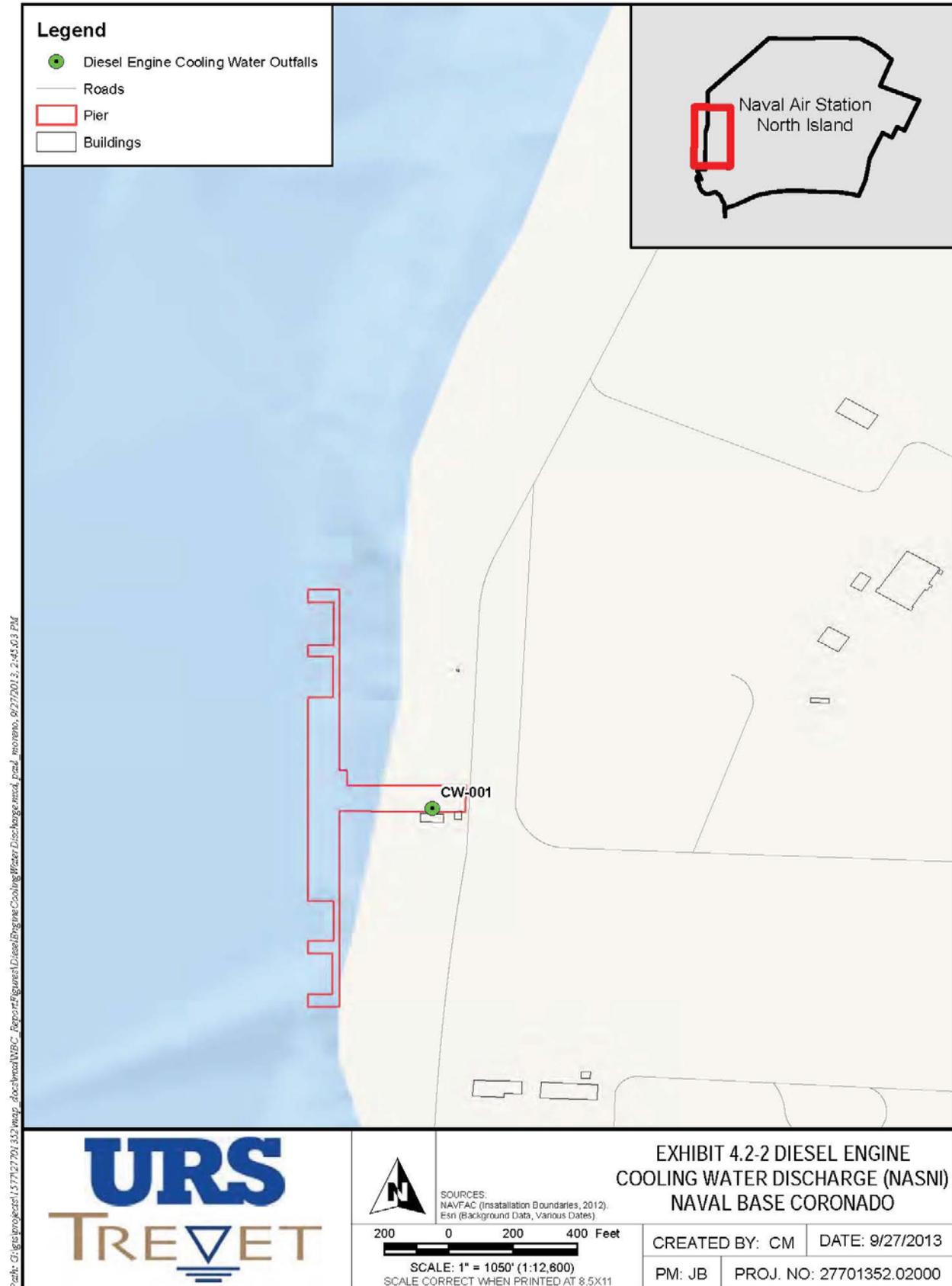


Figure B-6. NBC Utility Vault and Manhole Dewatering Discharge Locations at NASNI



Figure B-7. NBC Utility Vault and Manhole Dewatering Discharge Locations at NAB



Figure B-8. NBC Utility Vault and Manhole Dewatering Discharge Locations at SSTC

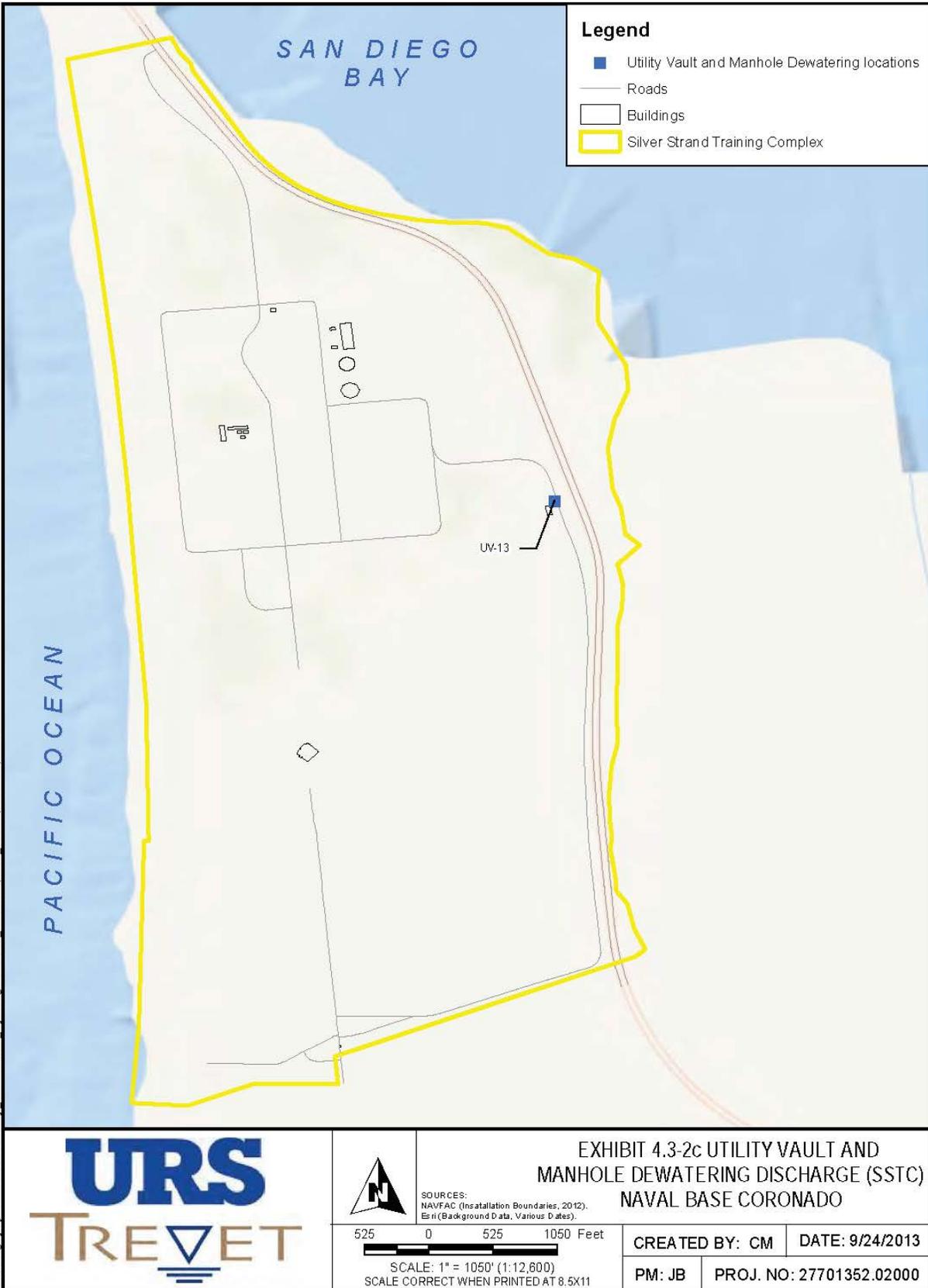


Figure B-9. NBC Pier Washing Discharge Locations at NASNI

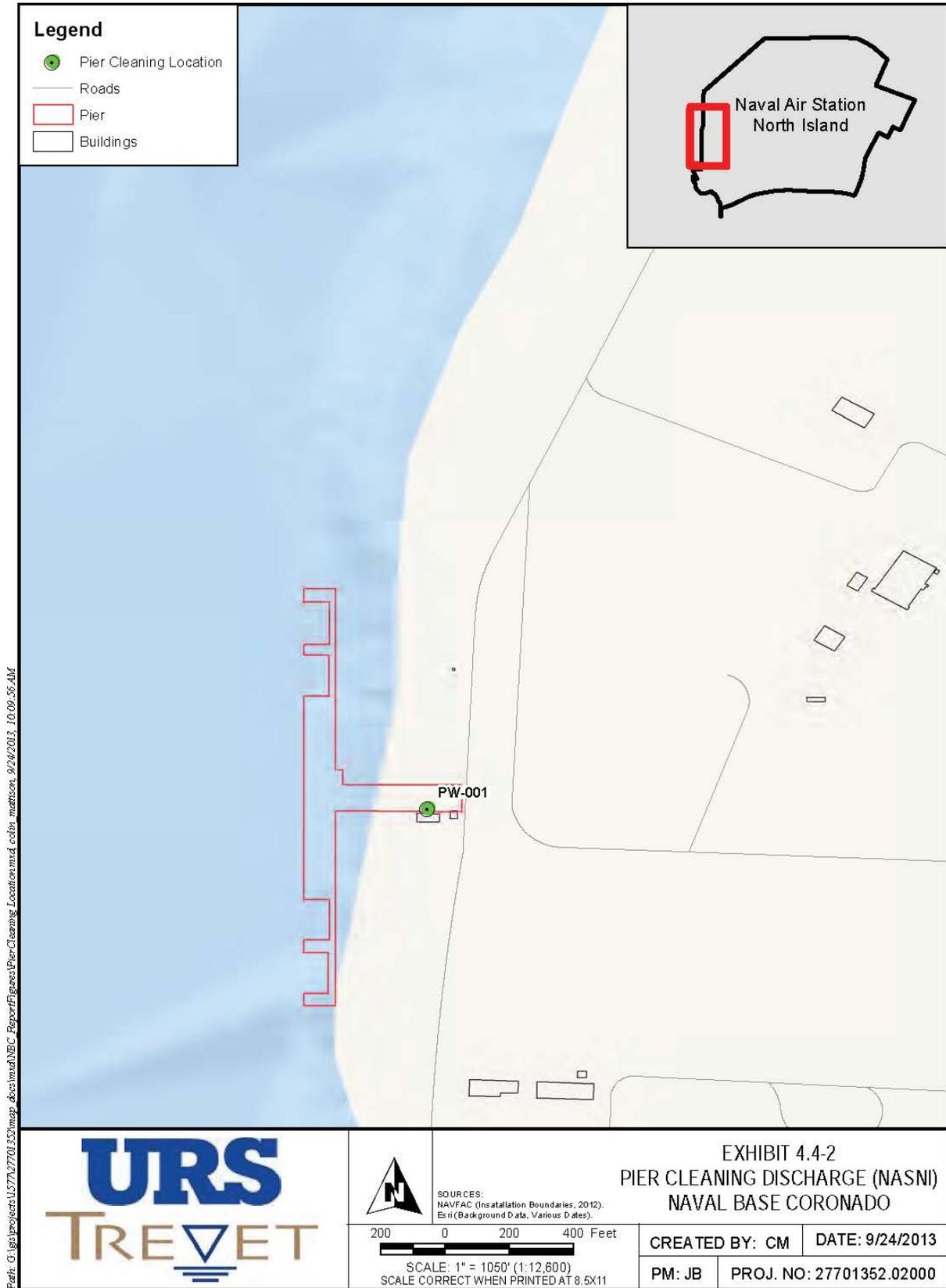


Figure B-10. NBC Industrial Storm Water Discharge Locations at NASNI



Figure B-11. NBC Industrial Storm Water Discharge Locations at NAB

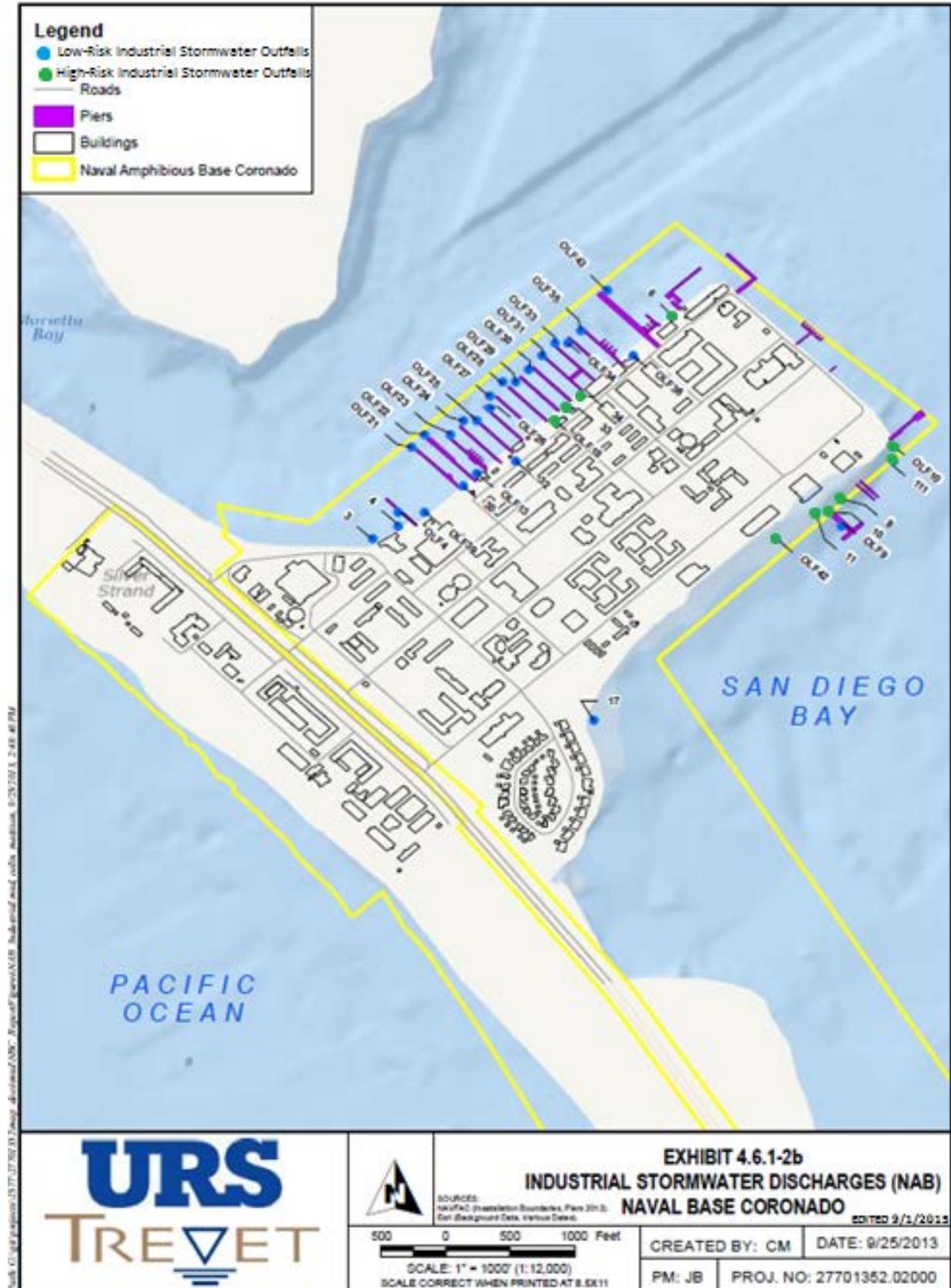


Figure B-12. NBC Industrial Stormwater Discharge Locations at NOLF



Figure B-13. NBC Small Military Base MS4 Discharge Locations at NASNI



Figure B-14. NBC Small Military Base MS4 Discharge Locations at NAB

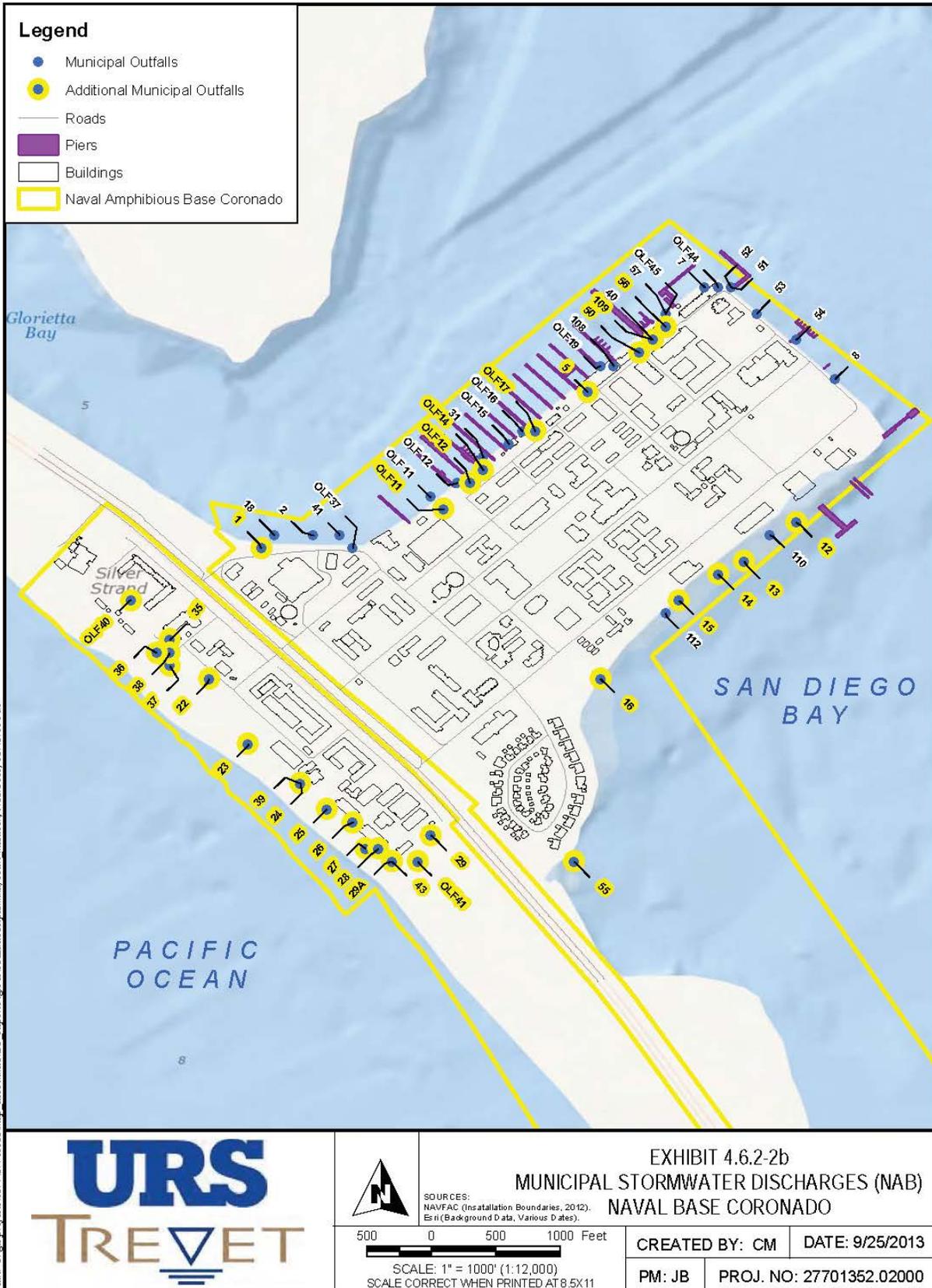
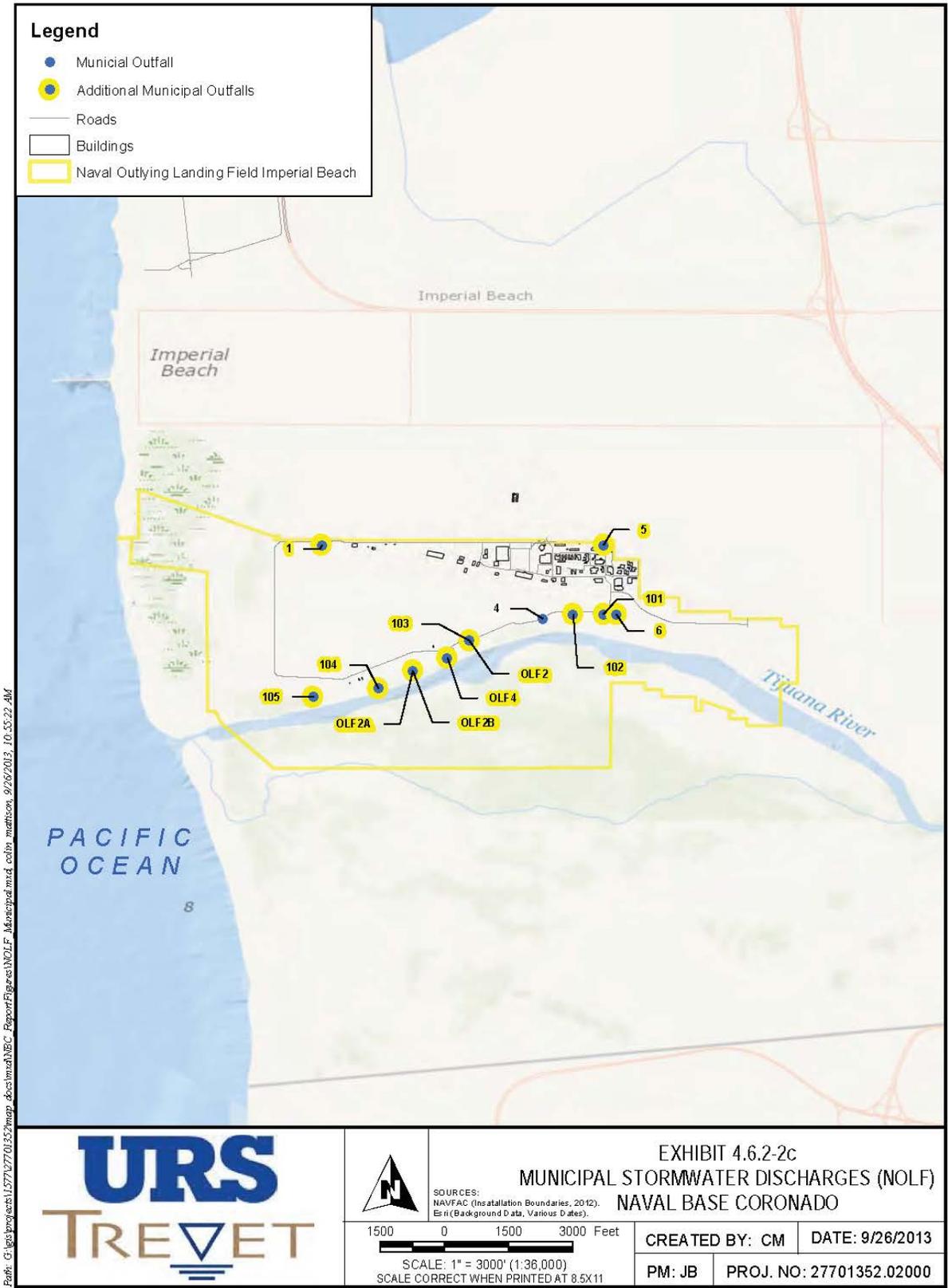


Figure B-15. NBC Small Military Base MS4 Discharge Locations at NOLF



Path: G:\projects\27701352\map_docs\ms4\NBC_Report\Figures\NOLF_Municipal\ms4_outfall_locations_9/26/2013_10:55:22 AM

Figure B-16. NBC Small Military Base MS4 Discharge Locations at SSTC



ATTACHMENT C – FLOW SCHEMATIC

Figure C-1. Steam Condensate Discharges

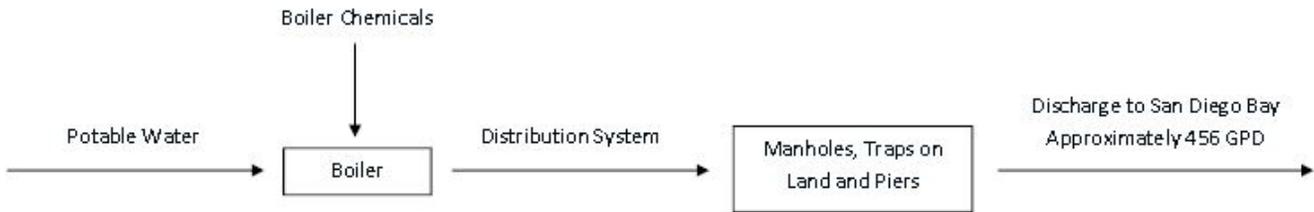


Figure C-2. Diesel Engine Cooling Water Discharges

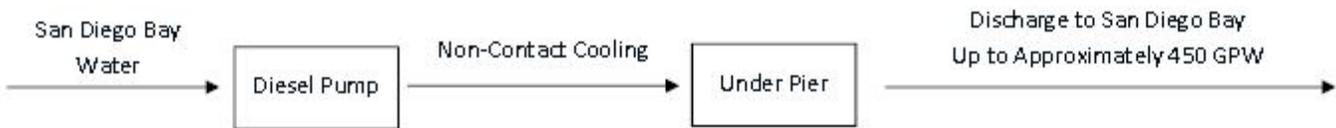


Figure C-3. Utility Vault and Manhole Dewatering Discharges

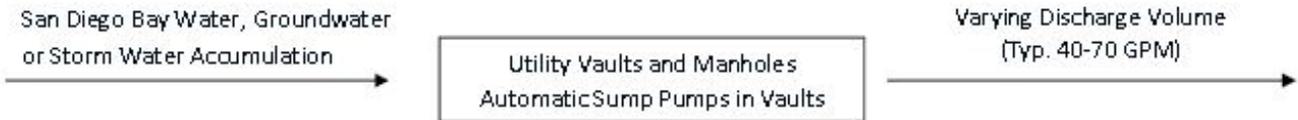
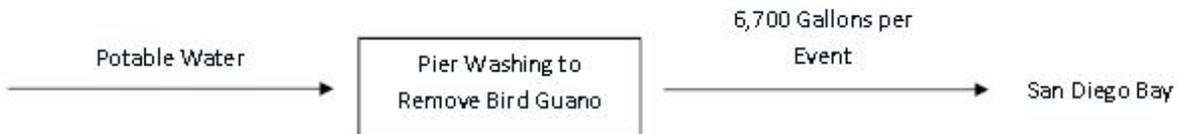


Figure C-4. Pier Washing Discharges



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR section 122.41(a).)
2. The Discharger shall comply with effluent standards or prohibitions established under section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 CFR section 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 CFR section 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR section 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 CFR section 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR section 122.41(g).)
2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 CFR section 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the San Diego Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR section 122.41(i); CWC, section 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 CFR section 122.41(i)(1));
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR section 122.41(i)(2));
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR section 122.41(i)(3)); and
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 CFR section 122.41(i)(4).)

G. Bypass

1. Definitions
 - a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR section 122.41(m)(1)(i).)
 - b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR section 122.41(m)(1)(ii).)
2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 CFR section 122.41(m)(2).)
3. Prohibition of bypass. Bypass is prohibited, and the San Diego Water Board may take enforcement action against a Discharger for bypass, unless (40 CFR section 122.41(m)(4)(i)):
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR section 122.41(m)(4)(i)(A));
 - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering

judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR section 122.41(m)(4)(i)(B)); and

- c. The Discharger submitted notice to the San Diego Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR section 122.41(m)(4)(i)(C).)
4. The San Diego Water Board may approve an anticipated bypass, after considering its adverse effects, if the San Diego Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 CFR section 122.41(m)(4)(ii).)
5. Notice
 - a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 CFR section 122.41(m)(3)(i).)
 - b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 CFR section 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 CFR section 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR section 122.41(n)(2).)
2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR section 122.41(n)(3)):
 - a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR section 122.41(n)(3)(i));
 - b. The permitted facility was, at the time, being properly operated (40 CFR section 122.41(n)(3)(ii));
 - c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 CFR section 122.41(n)(3)(iii)); and

- d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR section 122.41(n)(3)(iv).)
3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 CFR section 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 CFR section 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 CFR section 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the San Diego Water Board. The San Diego Water Board may require modification or revocation and reissuance of this Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 CFR section 122.41(l)(3); section 122.61.)

III. STANDARD PROVISIONS – MONITORING

- A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR section 122.41(j)(1).)
- B. Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 CFR section 122.41(j)(4); section 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

- A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the San Diego Water Board Executive Officer at any time. (40 CFR section 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 CFR section 122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 CFR section 122.41(j)(3)(ii));
3. The date(s) analyses were performed (40 CFR section 122.41(j)(3)(iii));
4. The individual(s) who performed the analyses (40 CFR section 122.41(j)(3)(iv));
5. The analytical techniques or methods used (40 CFR section 122.41(j)(3)(v)); and
6. The results of such analyses. (40 CFR section 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 CFR section 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 CFR section 122.7(b)(1)); and
2. Permit applications and attachments, permits and effluent data. (40 CFR section 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the San Diego Water Board, State Water Board, or USEPA within a reasonable time, any information which the San Diego Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the San Diego Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR section 122.41(h); Water. Code, section 13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the San Diego Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 CFR section 122.41(k).)
2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR section 122.22(a)(3).)
3. All reports required by this Order and other information requested by the San Diego Water Board, State Water Board, or USEPA shall be signed by a person described in

Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

- a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR section 122.22(b)(1));
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR section 122.22(b)(2)); and
 - c. The written authorization is submitted to the San Diego Water Board and State Water Board. (40 CFR section 122.22(b)(3).)
4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the San Diego Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR section 122.22 (c).)
5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.” (40 CFR section 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR section 122.22(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the San Diego Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR section 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the San Diego Water Board. (40 CFR section 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 CFR section 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 CFR section 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 CFR section 122.41(l)(6)(i).)
2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR section 122.41(l)(6)(ii)):
 - a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR section 122.41(l)(6)(ii)(A).)
 - b. Any upset that exceeds any effluent limitation in this Order. (40 CFR section 122.41(l)(6)(ii)(B).)
3. The San Diego Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR section 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the San Diego Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 CFR section 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 CFR section 122.41(l)(1)(i)); or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 CFR section 122.41(l)(1)(ii).)
3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application

process or not reported pursuant to an approved land application plan. (40 CFR section 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the San Diego Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 CFR section 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 CFR section 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the San Diego Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 CFR section 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

- A.** The San Diego Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the San Diego Water Board as soon as they know or have reason to believe (40 CFR section 122.42(a)):

- 1.** That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 CFR section 122.42(a)(1)):
 - a.** 100 micrograms per liter ($\mu\text{g/L}$) (40 CFR section 122.42(a)(1)(i));
 - b.** 200 $\mu\text{g/L}$ for acrolein and acrylonitrile; 500 $\mu\text{g/L}$ for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 CFR section 122.42(a)(1)(ii));
 - c.** Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR section 122.42(a)(1)(iii)); or
 - d.** The level established by the San Diego Water Board in accordance with section 122.44(f). (40 CFR section 122.42(a)(1)(iv).)

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 CFR section 122.42(a)(2)):
 - a. 500 micrograms per liter ($\mu\text{g/L}$) (40 CFR section 122.42(a)(2)(i));
 - b. 1 milligram per liter (mg/L) for antimony (40 CFR section 122.42(a)(2)(ii));
 - c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR section 122.42(a)(2)(iii)); or
 - d. The level established by the San Diego Water Board in accordance with section 122.44(f). (40 CFR section 122.42(a)(2)(iv).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

Section 308 of the federal Clean Water Act (CWA) and sections 122.41(h), (j)-(l), 122.44(i), and 122.48 of title 40 of the Code of Federal Regulations (40 CFR) require that all National Pollutant Discharge Elimination System (NPDES) permits specify monitoring and reporting requirements. California Water Code (Water Code) sections 13267 and 13383 also authorize the San Diego Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. Pursuant to this authority this Monitoring and Reporting Program (MRP) establishes conditions for Naval Base Coronado (Discharger or NBC) to conduct routine or episodic self-monitoring of the discharges regulated under this Order at specified effluent, and receiving water monitoring locations. The MRP requires the Discharger to report the results to the San Diego Water Board with information necessary to evaluate discharge characteristics and compliance status.

The purpose of the MRP is to determine and ensure compliance with effluent limitations and other requirements established in this Order, assess treatment efficiency, characterize effluents, characterize wastewater flows, and characterize the receiving water and the effects of the discharge on the receiving water. The MRP also specifies requirements concerning the proper use, maintenance, and installation of monitoring equipment and methods, and the monitoring type intervals and frequency necessary to yield data that are representative of the activities and discharges regulated under this Order.

Each monitoring section contains an introductory paragraph summarizing why the monitoring is needed and the key management questions the monitoring is designed to answer. In developing the list of key management questions the San Diego Water Board considered four basic types of information for each question:

- Management Information Need – Why does the San Diego Water Board need to know the answer?
- Monitoring Criteria – What monitoring will be conducted for deriving an answer to the question?
- Expected Product – How should the answer be expressed and reported?
- Possible Management Actions – What actions will be potentially influenced by the answer?

The framework for this monitoring program has three components that comprise a range of spatial and temporal scales: 1. core monitoring, 2. regional monitoring, and 3. special studies.

1. Core monitoring consists of the basic site-specific monitoring necessary to measure compliance with individual effluent limits and/or impacts to receiving water quality. Core monitoring is typically conducted in the immediate vicinity of the discharge by examining local scale spatial effects.
2. Regional monitoring provides information necessary to make assessments over large areas and serves to evaluate cumulative effects of all anthropogenic inputs. Regional monitoring data also assists in the interpretation of core monitoring studies. In the event that a regional monitoring effort takes place during the permit cycle in which the MRP does not specifically address regional monitoring, the San Diego Water Board may allow relief from aspects of core monitoring components in order to encourage participation pursuant to section VI of this MRP.
3. Special studies are directed monitoring efforts designed in response to specific management or research questions identified through either core or regional monitoring programs. Often they are used to help understand core or regional monitoring results, where a specific environmental process is not well understood, or to address unique issues of local importance.

I. GENERAL MONITORING PROVISIONS

- A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitoring flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of the San Diego Water Board.
- B. Monitoring must be conducted according to United States Environmental Protection Agency (USEPA) test procedures approved at 40 CFR part 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act* as amended, unless other test procedures are specified in this Order and/or in this MRP. Alternative test procedures not specified in this Order are subject to San Diego Water Board and USEPA approval.
- C. The monitoring reports, signed and certified as required by Attachment D, Standard Provisions V.B, of this Order, shall be submitted electronically using the State Water Board's California Integrated Water Quality System (CIWQS) Program website in accordance with section VIII.B.1 this MRP.
- D. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring, instrumentation, copies of all reports required by this Order and this MRP, and records of all data used to complete the application for this Order. Records of monitoring information shall include information required under Attachment D, Standard Provisions, section IV. Records shall be maintained for a minimum of five years from the date of sample, measurement, report, or application. This period may be extended by request of the San Diego Water Board or by the USEPA at any time.
- E. All analyses shall be performed in a laboratory certified to perform such analyses by the State Water Board's Division of Drinking (DDW) or by a laboratory approved by the San Diego Water Board. The laboratory must be accredited under the DDW Environmental Laboratory Accreditation Program (ELAP) to ensure the quality of analytical data used for regulatory purposes to meet the requirements of this Order. Additional information on ELAP can be accessed at http://www.waterboards.ca.gov/drinking_water/certlic/labs/index.shtml.
- F. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.
- G. The Discharger shall have, and implement, an acceptable written quality assurance (QA) plan for laboratory analyses. When requested by USEPA or the San Diego Water Board, the Discharger will participate in the NPDES discharge monitoring report QA performance study. The Discharger should have a success rate equal to or greater than 80 percent.
- H. Monitoring results shall be reported at intervals and in a manner specified in this Order or in this MRP.
- I. This MRP may be modified by the San Diego Water Board as appropriate.
- J. This Order may be modified by the San Diego Water Board or the USEPA to enable the Discharger to participate in comprehensive regional monitoring activities.

II. MONITORING LOCATIONS

A. Monitoring Station Locations

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
SC-001	SC-001	A location where a representative sample of the Steam Condensate can be obtained: 32° 42' 22" N; 117° 11' 23" W
SC-002	SC-002	A location where a representative sample of the Steam Condensate can be obtained: 32° 42' 22" N; 117° 11' 22" W
SC-003	SC-003	A location where a representative sample of the Steam Condensate can be obtained: 32° 42' 23" N; 117° 11' 22" W
SC-004	SC-004	A location where a representative sample of the Steam Condensate can be obtained: 32° 42' 21" N; 117° 11' 20" W
SC-005	SC-005	A location where a representative sample of the Steam Condensate can be obtained: 32° 42' 21" N; 117° 11' 18" W
SC-006	SC-006	A location where a representative sample of the Steam Condensate can be obtained: 32° 42' 20" N; 117° 11' 16" W
SC-007	SC-007	A location where a representative sample of the Steam Condensate can be obtained: 32° 42' 20" N; 117° 11' 15" W
SC-008	SC-008	A location where a representative sample of the Steam Condensate can be obtained: 32° 42' 19" N; 117° 11' 13" W
SC-009	SC-009	A location where a representative sample of the Steam Condensate can be obtained: 32° 42' 29" N; 117° 11' 23" W
SC-010	SC-010	A location where a representative sample of the Steam Condensate can be obtained: 32° 41' 46" N; 117° 11' 59" W
CW-001	CW-001	A location where a representative sample of Diesel Engine Cooling Water can be obtained: 32° 41' 43" N; 117° 13' 36" W
UV-001	UV-001	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 42' 8" N; 117° 10' 57" W
UV-002	UV-002	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 42' 17" N; 117° 11' 11" W
UV-003	UV-003	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 42' 20" N; 117° 11' 27" W
UV-004	UV-004	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 42' 37" N; 117° 11' 24" W
UV-005	UV-005	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 42' 36" N; 117° 11' 22" W
UV-006	UV-006	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 42' 45" N; 117, 11° 25" W
UV-007	UV-007	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 42' 42" N; 117° 12' 12" W
UV-008	UV-008	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 42' 26" N; 117° 11' 39" W
UV-009	UV-009	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 42' 15" N; 117° 11' 57" W

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
UV-010	UV-010	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 42' 2" N; 117° 11' 25" W
UV-011	UV-011	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 40' 31" N; 117° 9' 38" W
UV-012	UV-012	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 40' 23" N; 117° 10' 1" W
UV-013	UV-013	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 35' 57" N; 117° 7' 25" W
PW-001	PW-001	A location where a representative sample of Pier Washing Water can be obtained: 32° 41' 43" N; 117° 13' 36" W
--	Industrial Storm Water See Attachment M	The Discharger shall identify storm water monitoring locations at a point prior to or at the point of discharge for all "Industrial High Risk Areas" and "Industrial Low Risk Areas), as identified in Attachment M of this Order. The Discharger shall establish monitoring locations as described in section II.B of the MRP.
--	Municipal Storm Water See Attachment M	The Discharger shall identify storm water monitoring locations at a point prior to or at the point of discharge for Small Military Base MS4 Areas, as identified in Attachment M of this Order. The Discharger shall establish monitoring locations sufficient to meet the requirements described in section VII.B of the MRP. The number and location of monitoring locations shall be sufficient to characterize storm water runoff to the MS4 throughout the Facility.

B. Industrial Storm Water Monitoring Location Report

1. The Discharger shall prepare and submit, no later than May 1, 2016, an Industrial Storm Water Monitoring Location Plan to identify representative monitoring locations for industrial storm water discharges from Industrial High Risk Areas, and Industrial Low Risk Areas. The Plan shall contain the following information:
 - a. The criteria and methods used to identify the representative monitoring locations.
 - b. A map of monitoring locations for each Industrial High Risk Area and Industrial Low Risk Area storm water discharge point. Where a single drainage area, or similar drainage areas to the same receiving water, discharge to multiple discharge points, the Discharger may propose a single monitoring location for that drainage area (or similar drainage areas), provided the Discharger submits supporting rationale demonstrating that a single monitoring location is representative for that drainage area (or similar drainage areas) (i.e., similar industrial activities and best management practices (BMPs)).
 - c. A tabulation of the proposed representative monitoring locations for industrial storm water discharges from Industrial High Risk Areas and Industrial Low Risk Areas. The tabulation shall include the discharge points, the representative monitoring locations for each discharge point, a brief description of the representative monitoring location (including the drainage area for storm water discharges only), and the latitude and longitude for each representative monitoring location.
2. In the Storm Water Annual Report for industrial storm water discharges, the Discharger shall submit a summary of any proposed changes to the representative monitoring locations, a rationale for each change in monitoring location, and a certification that all monitoring locations are representative of their respective discharge locations.

- The Discharger shall implement the Industrial Storm Water Monitoring Location Report unless otherwise directed in writing by the San Diego Water Board. The Discharger shall comply with any conditions set by the San Diego Water Board including modification of proposed monitoring locations.

III. CORE MONITORING REQUIREMENTS

A. Influent Monitoring Requirements – Not Applicable

B. Steam Condensate Monitoring Locations SC-001 through SC-010

The Discharger shall monitor steam condensate discharges at a minimum of three representative monitoring locations from Monitoring Locations SC-001 through SC-010 as specified below to answer the following primary questions:

- Does the effluent meet permit effluent limitations based on water quality standards for the receiving water?
- What is the mass discharged annually of each constituent monitored?
- Is the effluent concentration or mass changing over time?

The three representative monitoring locations shall be chosen at random and may be different each year depending upon which steam systems are active.

Table E-2. Effluent Monitoring for Steam Condensate

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	GPD	Grab or Estimate	Quarterly	Estimate
Oil and Grease	mg/L	Grab	Quarterly	1
Turbidity	NTU	Grab	Quarterly	1
Settleable Solids	ml/L	Grab	Quarterly	1
Chronic Toxicity	Pass/Fail	Grab	Annually	1,2
pH	standard units	Grab	Quarterly	1
Priority Pollutants				
Antimony, Total Recoverable	µg/L	Grab	Quarterly	1
Arsenic, Total Recoverable	µg/L	Grab	Quarterly	1
Copper, Total Recoverable	µg/L	Grab	Quarterly	1
Lead, Total Recoverable	µg/L	Grab	Quarterly	1
Nickel, Total Recoverable	µg/L	Grab	Quarterly	1
Selenium, Total Recoverable	µg/L	Grab	Quarterly	1
Zinc, Total Recoverable	µg/L	Grab	Quarterly	1
2,3,7,8-TCDD ³	µg/L	Grab	Quarterly	1
TCDD Equivalents ⁴	µg/L	Grab	Quarterly	1

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Bis(2-Ethylhexyl)Phthalate	µg/L	Grab	Quarterly	1
Aldrin	µg/L	Grab	Quarterly	1
4,4'-DDT	µg/L	Grab	Quarterly	1
4,4'-DDE	µg/L	Grab	Quarterly	1
4,4'-DDD	µg/L	Grab	Quarterly	1
Heptachlor	µg/L	Grab	Quarterly	1
Heptachlor Epoxide	µg/L	Grab	Quarterly	1
Remaining CTR Priority Pollutants	µg/L	Grab	Annual	1

¹ As specified in 40 CFR part 136.

² As described in section IV.B of this MRP.

³ Applicable to discharges to San Diego Bay, SC-001 to SC-009 only.

⁴ Applicable to discharges to the Pacific Ocean, SC-010 only.

C. Diesel Engine Cooling Water Location CW-001

The Discharger shall monitor diesel engine cooling water discharges at Monitoring Location CW-001 as specified below to answer the following primary questions:

1. Does the effluent meet permit effluent limitations based on water quality standards for the receiving water?
2. What is the mass discharged annually of each constituent monitored?
3. Is the effluent concentration or mass changing over time?

Table E-3. Effluent Monitoring for Diesel Engine Cooling Water

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	GPD	Grab or Estimate	Quarterly	Estimate
Oil and Grease	mg/L	Grab	Quarterly	1
Turbidity	NTU	Grab	Quarterly	1
pH	standard units	Grab	Quarterly	1
Temperature	°F	Grab	Quarterly	1
Settleable Solids	ml/L	Grab	Quarterly	1
Chronic Toxicity	Pass/Fail	Grab	Annually	1,2
Priority Pollutants				
Arsenic, Total Recoverable	µg/L	Grab	Quarterly	1
Chromium VI, Total Recoverable	µg/L	Grab	Quarterly	1
Copper, Total Recoverable	µg/L	Grab	Quarterly	1
Lead, Total Recoverable	µg/L	Grab	Quarterly	1
Nickel, Total Recoverable	µg/L	Grab	Quarterly	1

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Selenium, Total Recoverable	µg/L	Grab	Quarterly	1
Zinc, Total Recoverable	µg/L	Grab	Quarterly	1
4,4-DDT	µg/L	Grab	Quarterly	1
4,4-DDE	µg/L	Grab	Quarterly	1
4,4-DDD	µg/L	Grab	Quarterly	1
Remaining CTR Priority Pollutants	µg/L	Grab	Annually	1

¹ As specified in 40 CFR part 136.

² As described in section IV.B of this MRP.

D. Pier Washing Monitoring Location PW-001

The Discharger shall submit a log of pier washing wastewater discharges at Monitoring Locations PW-001 annually. The log shall include the date, location, duration, approximate discharge volume, water source, visual assessment of discharge and receiving water quality, and any other relevant comments. The log is designed to address the following primary questions:

1. How much pier washing occurs?

E. Utility Vault and Manhole Monitoring Locations UV-001 through UV-013

1. The Discharger shall monitor utility vault and manhole dewatering discharges at Monitoring Locations UV-001 through UV-013 at a minimum of three representative monitoring locations, including at least one electrical vault discharge and one manhole discharge as shown in Table E-4 below to address the following primary questions:

- a. Does the effluent comply with Numeric Action Levels in Attachment H?
- b. What is the mass discharged annually of each constituent monitored?
- c. Is the effluent concentration or mass changing over time?

The electrical vault representative shall be chosen from Monitoring Location Nos. UV-001 through UV-013 and shall change each year. The manhole discharge and steam vault discharge monitoring location shall be chosen at random and may be different each year.

Table E-4. Effluent Monitoring Utility Vault and Manhole Dewatering for Discharges

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	GPD	Grab or Estimate	Annually	Estimate
Oil and Grease	mg/L	Grab	Annually	3
pH	standard units	Grab	Annually	1
Total Suspended Solids	mg/L	Grab	Annually	1
Total Petroleum Hydrocarbons—Gasoline Range Organics ²	mg/L	Grab	Annually	1

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Petroleum Hydrocarbons— Diesel Range Organics ³	mg/L	Grab	Annually	1

¹ As specified in 40 CFR part 136.

² TPH Gasoline (TPH-g) – Report Benzene, Ethylbenzene, Toluene, and Xylene.

³ TPH Diesel (TPH-d).

2. Annually in accordance with Table E-8, the Discharger shall submit a log of the utility vault and manhole dewatering discharges. For vaults with automatic sump pumps, the log shall include the total volume of each discharge point for each calendar quarter. For vaults or manholes that are dewatered manually, the log shall describe the estimated annual volume, flow rate, location of the discharge, date, and receiving water body. This Order does not require the Discharger to enter utility vaults if there is a human health/safety concern. If the Discharger cannot comply with these requirements due to human health/safety concerns, the Discharger shall submit a description of the circumstances for omitting required information. The log is designed to address the following primary questions:
 - a. How often does the discharge occur?
 - b. Is the discharge a major source of pollutants?
3. Annually in accordance with Table E-8, the Discharger shall submit an Annual Utility Vault Report containing, at a minimum, the following information:
 - a. An executive summary that includes a discussion of utility vault compliance and/or violation(s) of this Order including utility vault NAL exceedances.
 - b. The results of the annual Utility Vault Plan evaluation and any revisions to the Utility Vault Plan in accordance with section III.E.2 and 3 of Attachment H.
 - c. A summary of monitoring data generated with comparison to NALs.
 - d. A summary of relevant field observations.
 - e. A map showing the location of each monitored (i.e., annual sampling) discharge location.

IV. WHOLE EFFLUENT TOXICITY (WET) TESTING REQUIREMENTS

Whole effluent toxicity (WET) refers to the overall aggregate toxic effect of an effluent measured directly by an aquatic toxicity test(s). The control of WET is one approach this Order uses to control the discharge of toxic pollutants. WET tests evaluate the 1) aggregate toxic effects of all chemicals in the effluent including additive, synergistic, or antagonistic toxicity effects; 2) the toxicity effects of unmeasured chemicals in the effluent; and 3) variability in bioavailability of the chemicals in the effluent.

Monitoring to assess the overall toxicity of the effluent is required to answer the following questions:

- (1) Does the effluent meet permit effluent limitations for toxicity based on water quality standards for the receiving water?

If not:

- a. Are unmeasured pollutants causing risk to aquatic life?
 - b. Are pollutants in combination causing risk to aquatic life?
- (2) Does the storm water runoff meet receiving water limitations for toxicity in the receiving water?
- (3) Are conditions in receiving water getting better or worse with regard to toxicity?
- (4) What is the relative storm water runoff contribution to the receiving water toxicity?
- (5) What are the causes of the toxicity and the sources of the constituents responsible?

A. Acute Toxicity

1. Monitoring Frequency for Industrial High Risk Storm Water Discharges

The Discharger shall conduct acute toxicity monitoring at the frequencies specified in Table E-7 and section VII.A.4. of this MRP. For storm water sampling, sampling shall occur during storm events or if storm water is collected, prior to the release of storm water to the receiving water.

2. Marine and Estuarine Species and Test Methods

The Discharger shall conduct a species sensitivity screening for acute toxicity on a representative sample which shall include one vertebrate and one invertebrate during the first required monitoring period. The species sensitivity screening samples shall also be analyzed for the parameters required for the discharge. The test species that exhibits the highest percent effect at the instream waste concentration (IWC) during a species sensitivity screening (i.e. the most sensitive species) shall be utilized for routine monitoring during the permit cycle. Routine toxicity test design shall, at a minimum, include a single-concentration analysis of the IWC compared to a control.

The Discharger shall follow the methods for acute toxicity tests as established in 40 CFR section 136.3 using a single-concentration test design for routine monitoring, or a five-concentration test design for accelerated monitoring. The USEPA method manuals referenced therein include *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition* (EPA-821-R-02-012).

The total sample volume shall be determined by the specific toxicity test method used. Sufficient sample volume shall be collected to perform the required toxicity test. Sufficient sample volume shall also be collected during accelerated monitoring for subsequent TIE studies, if necessary, at each sampling event. All toxicity tests shall be conducted as soon as possible following sample collection. The 36-hour sample holding time for test initiation shall be targeted. However, no more than 72 hours shall elapse before the conclusion of sample collection and test initiation.

3. Compliance Determination

The acute toxicity Maximum Daily Effluent Limitation (MDEL) is exceeded and a violation will be flagged when a toxicity test during routine monitoring results in a "fail" in accordance with the Test of Significant Toxicity (TST) approach and the percent effect is greater than or equal to 40%.

The determination of “pass” or “fail” from a single effluent concentration acute toxicity test at the IWC of 100 percent effluent shall be determined using the TST approach described in the *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010).

The Discharger shall report the results of a reasonable potential analysis (RPA), species sensitivity screenings, and routine toxicity tests to the San Diego Water Board as either a “pass” or a “fail” at the IWC, in accordance with the TST approach and provide the calculated percent effect at the IWC. The methodology for determining “pass”, “fail” and “percent effect” is provided below.

Pass

An acute toxicity test result that rejects the null hypothesis (Ho) below is reported as “pass” in accordance with the TST approach:

Ho: Mean response (100 percent effluent) \leq 0.80 \times Control mean response

Fail

An acute toxicity test result that does not reject the null hypothesis (Ho) above is reported as “fail” in accordance with the TST approach.

Percent Effect

The percent effect at the IWC is calculated for each acute toxicity test result using the following equation:

$$\% \text{ Effect at IWC} = \frac{\text{Mean Control Response} - \text{Mean IWC Response}}{\text{Mean Control Response}} * 100$$

4. Acute Toxicity MDEL Exceedance Follow-up Action

If an acute toxicity test result during routine monitoring exceeds the acute toxicity MDEL, the Discharger shall implement corrective action to abate the source of the toxicity within 24 hours from the time the Discharger becomes aware of an MDEL exceedance, if the source of toxicity is known (e.g. operational upset). The Discharger shall also conduct an additional acute toxicity test within the same calendar month that the exceedance occurred or, the next qualifying storm event after receiving results of an exceedance for storm water discharges.

5. Evaluation of Additional Toxicity Tests for Industrial Storm Water from High Risk Areas

If the additional test result for industrial storm water from high risk areas results in a “pass”, the Discharger may return to routine monitoring for the following monitoring period. If the verification test results in a “fail” at a percent effect greater than or equal to 0.20, the Discharger shall implement an approved Toxicity Reduction Evaluation (TRE) Work Plan as set forth below in section IV.E of this MRP. The requirement for a TRE may be waived by the San Diego Water Board on a case-by-case basis if implementation of a previously approved TRE Work Plan is already underway for the sampled discharge point.

B. Chronic Toxicity

1. Monitoring Frequency for Chronic Toxicity

The Discharger shall conduct chronic toxicity monitoring at the frequencies specified in Table E-2 and E-3.

2. Marine and Estuarine Species and Test Methods

The Discharger shall conduct a species sensitivity screening for chronic toxicity on a representative sample which shall include one vertebrate, one invertebrate, and one aquatic plant during the first required monitoring period. The species sensitivity screening samples shall also be analyzed for the parameters required for the discharge. The test species that exhibits the highest percent effect at the IWC during a species sensitivity screening (i.e. the most sensitive species) shall be utilized for routine monitoring during the permit cycle. If the result of all three species is "Pass", then the species that exhibits the highest "Percent Effect" at the discharge IWC during species sensitivity screening shall be used for routine monitoring during the permit cycle. If only one species fails, then that species shall be used for routine monitoring during the permit cycle. If two or more species result in "Fail," then the species that exhibits the highest "Percent Effect" at the discharge IWC during the suite of species sensitivity screening shall be used for routine monitoring during the permit cycle.

The Discharger shall follow the methods for chronic toxicity tests as established in 40 CFR section 136.3. The USEPA method manuals referenced therein include *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition* (EPA-821-R-02-013), and *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Third Edition* (EPA-821-R-02-014). Additional methods for chronic toxicity monitoring are outlined in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms, First Edition* (EPA-600-R-95-136).

For discharges to marine and estuarine waters, the Discharger shall conduct a static renewal toxicity test with the topsmelt, *Atherinops affinis* (Larval Survival and Growth Test Method 1006.01); a static non-renewal toxicity test with the giant kelp, *Macrocystis pyrifera* (Germination and Growth Test Method 1009.0); and a static non-renewal toxicity test with the purple sea urchin, *Strongylocentrotus purpuratus*, or the sand dollar, *Dendraster excentricus* (Fertilization Test Method 1008.0 or Embryo-Larval Development Test Method).

If laboratory-held cultures of the topsmelt, *Atherinops affinis*, are not available for testing, then the Discharger shall conduct a static renewal toxicity test with the inland silverside, *Menidia beryllina* (Larval Survival and Growth Test Method 1006.01), found in the third edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA/821/R-02/014, 2002; Table IA, 40 CFR Part 136). Additional species may be used by the Discharger if approved by the San Diego Water Board.

The total sample volume shall be determined by the specific toxicity test method(s) used. Sufficient sample volume shall be collected to perform the required toxicity test. Sufficient sample volume shall also be collected during accelerated monitoring for subsequent TIE studies, if necessary, at each sampling event. All toxicity tests shall be conducted as soon as possible following sample collection. The 36-hour sample holding time for test initiation

shall be targeted. However, no more than 72 hours shall elapse before the conclusion of sample collection and test initiation.

3. Compliance Determination

The MDEL for chronic toxicity is exceeded and a violation will be flagged when a toxicity test during monitoring results in a “fail” in accordance with the TST approach and the percent effect relative to a control is greater than or equal to 50%.

The Median Monthly Effluent Limitation (MMEL) for chronic toxicity is exceeded and a violation will be flagged when the median results of three independent toxicity tests, conducted within the same calendar month, and analyzed using the TST, (i.e. 2 out of 3) is a “fail.”

The determination of “Pass” or “Fail” from a chronic toxicity test at the IWC of 100 percent effluent shall be determined using the TST approach described in the *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010).

The Discharger shall report the results of reasonable potential analyses, species sensitivity screenings, and routine toxicity tests to the San Diego Water Board as either a “pass” or a “fail” at the IWC, in accordance with the TST approach and provide the calculated percent effect at the IWC. The methodology for determining “pass”, “fail” and “percent effect” is provided below.

Pass

A chronic toxicity test result that rejects the null hypothesis (Ho) below is reported as “pass” in accordance with the TST approach:

Ho: Mean response (100 percent effluent) $\leq 0.75 \times$ Control mean response

Fail

A chronic toxicity test result that does not reject the null hypothesis (Ho) above is reported as “fail” in accordance with the TST approach.

Percent Effect

The percent effect at the IWC is calculated for each chronic toxicity test result using the following equation:

$$\% \text{ Effect at IWC} = \frac{\text{Mean Control Response} - \text{Mean IWC Response}}{\text{Mean Control Response}} * 100$$

The discharge is subject to determination of “Pass” or “Fail” from a chronic toxicity test using the Test of Significant Toxicity (TST) statistical t-test approach described in National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1 and Appendix B, Table B-1. The null hypothesis (Ho) for the TST statistical approach is: Mean discharge IWC response $\leq 0.75 \times$ Mean control response. A test result that rejects this null hypothesis is reported as “Pass”. A test result that does not reject this null hypothesis is reported as

“Fail”. The relative “Percent Effect” at the discharge IWC is defined and reported as: $((\text{Mean control response} - \text{Mean discharge IWC response}) \div \text{Mean control response}) \times 100$. This is a t-test (formally Student’s t-Test), a statistical analysis comparing two sets of replicate observations—in the case of WET, only two test concentrations (i.e., a control and IWC). The purpose of this statistical test is to determine if the means of the two sets of observations are different (i.e., if the IWC or receiving water concentration differs from the control (the test result is “Pass” or “Fail”). The Welch’s t-test employed by the TST statistical approach is an adaptation of Student’s t-test and is used with two samples having unequal variances.

4. Chronic Toxicity MDEL Exceedance Follow-up Action

A chronic toxicity test result during routine monitoring indicating a “fail” with a percent effect at or above 50% is an exceedance of the chronic toxicity MDEL. The Discharger shall implement corrective action to abate the source of the toxicity within 24 hours from the time the Discharger becomes aware of an MDEL exceedance, if the source of toxicity is known (e.g. operational upset). The Discharger shall also conduct an additional toxicity test within the same calendar month that the exceedance occurred or, in the event laboratory monitoring results are not received during the same month when the sampling was performed, the next discharge event after receiving results of an exceedance.

5. Evaluation of Additional Toxicity Tests for Industrial Process Wastewater (Steam Condensate and Diesel Engine Cooling Water)

If the additional test result for industrial process wastewater results in a “pass”, the Discharger may return to routine monitoring for the following monitoring period. If the verification test results in a “fail” at a percent effect greater than or equal to 25%, the Discharger shall implement an accelerated monitoring schedule for chronic toxicity as set forth below in section IV.D of this MRP.

6. Evaluation of Additional Toxicity Tests for High Risk Industrial Storm Water

The chronic toxicity test results shall be used in the Discharger’s study on chronic toxicity described in section VI.C.2.a of this Order. If both the chronic toxicity test results at the end of pipe for high risk industrial storm water and the concurrent receiving water chronic toxicity test result in a “fail”, the discharger shall conduct a TRE as required in section IV.E of this MRP. The requirement for a TRE may be waived by the San Diego Water Board on a case-by-case basis if implementation of a previously approved TRE Work Plan is already underway for the sampled discharge point.

C. Quality Assurance

1. Quality assurance measures, instructions, and other recommendations and requirements are found in the test methods manual previously referenced. Additional requirements are specified below.
 - a. This discharge is subject to a determination of “pass” or “fail” from a toxicity test at the IWC (for statistical flowchart and procedures, see *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document*, Appendix A, Figure A-1).
 - b. The IWC for applicable discharges is 100 percent effluent.

- c. If either the reference toxicant or effluent toxicity tests do not meet all test acceptability criteria in the test methods manual, then the Discharger shall resample and retest within 14 days (or as soon as possible for storm water).
- d. Effluent dilution water and control water should be prepared and used as specified in the test methods manual *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/821/R-02/012, 2002); or, for *Atherinops affinis*, *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136, 1995). If the dilution water is different from test organism culture water, then a second control using culture water shall also be used.
- e. If organisms are not cultured in-house, then concurrent testing with a reference toxicant shall be conducted. If organisms are cultured in-house, then monthly reference toxicant testing is sufficient. Reference toxicant tests and effluent toxicity tests shall be conducted using the same test conditions (e.g., same test duration, etc.).
- f. All multi-concentration reference toxicant test results must be reviewed and reported according to USEPA guidance on the evaluation of concentration-response relationships found in Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing (40 CFR part 136) (EPA 821-B-00-004, 2000).

D. Accelerated Chronic Toxicity Testing Monitoring Schedule

The Discharger shall implement an accelerated chronic toxicity monitoring schedule, as required by section IV.B.5 of this MRP for industrial process wastewater discharges, consisting of four, five-concentration chronic toxicity tests, conducted at approximately two-week intervals, over an eight-week period. All toxicity tests conducted during an accelerated monitoring schedule shall, at a minimum, include the IWC and four additional concentrations. The additional effluent concentrations should provide useful information regarding the intensity and persistence of the toxic effect(s). If all of the additional tests result in a “pass” or “fail” with less than 25% percent effect, the Discharger may return to routine monitoring for the following monitoring period. If any one of the additional tests result in a “fail” and exhibit a percent effect equal to or greater than 25%, the Discharger shall implement an approved TRE Work Plan as set forth below in section IV.E of this MRP. The requirement for a TRE may be waived by the San Diego Water Board on a case-by-case basis if implementation of a previously approved TRE Work Plan is already underway for the sampled discharge point

E. Toxicity Reduction Evaluation (TRE)

1. **TRE Work Plan Submittal.** The Discharger shall prepare and submit a TRE Work Plan to the San Diego Water Board no later than 30 days from the time the Discharger becomes aware of the following:
 - a. A TRE work plan is required for an industrial process wastewater discharge which had a chronic toxicity test result during accelerated monitoring that resulted in a “fail” and exhibited a percent effect greater than or equal to 25%; or
 - b. A TRE work plan is required for a high risk industrial storm water discharge which had an additional acute toxicity test conducted following an MDEL exceedance that results in a “fail” and exhibits a percent effect greater than or equal to 20%; or

- c. A TRE work plan is required for a high risk industrial storm water discharge which had a chronic toxicity test and a concurrent receiving water sample test both result in a “fail” and exhibit a percent effect greater than or equal to 25%.
- 2. TRE Work Plan.** The TRE Work Plan shall be in conformance with the USEPA manual “*Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (EPA/600/2-88/070, 1989)*.” The TRE Work Plan shall also include the following information:
 - a. A description of the actions to be undertaken by the Discharger to investigate, identify, and correct the causes of toxicity;
 - b. If the MDEL noncompliance has not been corrected, the amount of time it is expected to continue;
 - c. A description of the steps taken or planned to reduce, eliminate and prevent recurrence of the MDEL noncompliance; and
 - d. A schedule for completion of all activities, the expected duration of the toxicity noncompliance, and submission of a final report.
- 3. TRE Work Plan Implementation.** The Discharger shall implement the TRE Work Plan unless otherwise directed in writing by the San Diego Water Board. The Discharger shall comply with any additional conditions set by the San Diego Water Board.
- 4. TRE Progress Reports.** The Discharger shall prepare and provide written semiannual progress reports which: (1) describe the actions that have been taken toward achieving compliance with the acute or chronic toxicity effluent limitation for the previous six months; (2) describe all activities including, data collection and other field activities which are scheduled for the next year and provide other information relating to the progress of work; (3) identify any modifications to the compliance plans that the Discharger proposed to the San Diego Water Board or that have been approved by San Diego Water Board during the previous six months; and (4) include information regarding all delays encountered or anticipated that may affect the future schedule for completion of the actions required to attain compliance with the MDEL, and a description of all efforts made to mitigate those delays or anticipated delays. These progress reports shall be submitted to the San Diego Water Board semiannually by February 1 and August 1 each year following the adoption of this Order in accordance with the reporting schedule in Table E-11. Submission of these progress reports shall continue until compliance with the MDEL is achieved.
- 5. Toxicity Identification Evaluation (TIE).** Based upon the magnitude and persistence of the acute and chronic toxicity, the Discharger may initiate a TIE as part of a TRE to identify the causes of toxicity using the same species and test method and, as guidance, EPA manuals: *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures (EPA/600/6-91/003, 1991)*; *Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity (EPA/600/R-92/080, 1993)*; *Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity (EPA/600/R-92/081, 1993)*; and *Marine Toxicity Identification Evaluation (TIE): Phase I Guidance Document (EPA/600/R-96-054, 1996)*. If a TIE is undertaken, the Discharger shall prepare and submit a work plan to the San Diego Water

Board containing the following elements and comply with any conditions set by the Board:

- a. Criteria for initiating a TIE on a sample;
- b. Roles and responsibilities of the team conducting the TIE;
- c. Study design, sample treatments, and chemical analysis;
- d. Data evaluation and communication;
- e. Follow-up actions; and
- f. A schedule for completion of all activities and submission of a final report.

F. Violations

An exceedance of the MDEL or MMEL during routine monitoring is a violation. Any exceedances occurring during a required accelerated monitoring period and, if appropriate, a TRE period shall not constitute additional violations provided that (1) the Discharger proceeds with the accelerated monitoring and TRE (if required) in a timely manner; and (2) the accelerated monitoring and TRE are completed within one year of the initial exceedance. The San Diego Water Board has the discretion to impose additional violations and initiate an enforcement action for toxicity tests that result in a "fail" after one year from the initial violation. Additionally, a discharger's failure to initiate an accelerated monitoring schedule or conduct a TRE, as required by this Order, will result in all exceedances being considered violations of the MDEL or MMEL and may result in the initiation of an enforcement action.

G. Reporting of Toxicity Monitoring Results

1. The Discharger shall submit:
 - a. A full laboratory report for all toxicity testing as an attachment to the monitoring report. The laboratory report shall contain the toxicity test results; the dates of sample collection and initiation of each toxicity test; and all results for effluent parameters monitored concurrently with the toxicity test(s). All toxicity test results (whether identified as valid or otherwise) conducted during the calendar month shall be reported.
 - b. The actual test endpoint responses for the control (i.e., the control mean) and the IWC (i.e., the IWC mean) for each toxicity test to facilitate the review of test results and determination of reasonable potential for toxicity by the permitting authority.
 - c. A summary of water quality measurements for each toxicity test (e.g. pH, dissolved oxygen, temperature, conductivity, hardness, salinity).
 - d. All results for effluent parameters monitored concurrently with the toxicity tests.
 - e. Statistical program (e.g. TST Calculator, CETIS, etc.) output results, including graphical plots for each toxicity test.
 - f. Any additional QA/QC documentation or any additional toxicity related information.

2. The Discharger shall notify the San Diego Water Board in writing within 14 days of receipt of any test result with an exceedance of the toxicity limit. This notification shall describe actions the Discharger has taken or will take to investigate, identify, and correct the causes of toxicity; the status of actions required by this permit; and schedule for actions not yet completed; or reason(s) that no action has been taken.

V. RECEIVING WATER AND SEDIMENT MONITORING REQUIREMENTS

The receiving water and sediment monitoring requirements set forth below are designed to measure the effects of the Facility discharges on San Diego Bay receiving waters. The overall receiving water monitoring program is intended to answer the following questions:

- (1) Does the receiving water meet water quality standards listed in section V of this Order, Receiving Water Limitations?
- (2) Are the receiving water conditions getting better or worse over time?
- (3) Does the Facility cause or contribute to violations of the Receiving Water Limitations in section V of this Order?

At this time, receiving water and sediment monitoring in the vicinity of the Facility shall be conducted as specified below. This program is intended to document conditions of receiving waters and bay bottom sediments within the vicinity of the Facility discharges. Station location, sampling, sample preservation and analyses, when not specified, shall be by methods approved by the San Diego Water Board. The monitoring program may be modified by the San Diego Water Board at any time. The Discharger may also submit proposals, including the supporting rationale, for reductions or other changes to these monitoring requirements that it considers to be appropriate to the San Diego Water Board for approval.

During monitoring events sample stations shall be located using a land-based microwave positioning system or a satellite positioning system such as Global Positioning System (GPS). If an alternate navigation system is proposed, its accuracy should be compared to that of microwave-based and satellite-based systems, and any compromises in accuracy shall be justified.

- A. Monitoring Responsibility.** Receiving water and sediment monitoring shall be performed individually by the Discharger to assess compliance with receiving water limits or through the Discharger's participation in a regional or water body monitoring coalition or both as determined by the San Diego Water Board.
- B. Monitoring Coalition Reopener.** To achieve maximum efficiency and economy of resources, the Discharger may establish or join a San Diego Bay water body monitoring coalition. If a San Diego Bay monitoring coalition is formed, revised monitoring requirements will be established to ensure that appropriate monitoring is conducted in a timely manner.
- C. Water and Sediment Monitoring Plan.** The Discharger shall prepare and submit a Water and Sediment Monitoring Plan to assess compliance with Receiving Water Limitations of this Order. The Water and Sediment Monitoring Plan shall be submitted within 12 months of the effective date of this Order. The Water and Sediment Monitoring Plan shall contain the following elements:
 1. **Quality Assurance Project Plan (QAPP).** A QAPP describing the project objectives and organization, functional activities, and quality assurance/quality control (QA/QC) protocols for the water and sediment monitoring.

2. Sampling and Analysis Plan. A Sampling and Analysis Plan based on methods or metrics described in 40 CFR part 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act* and the State Water Board's *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality* (Sediment Quality Plan). The Sampling and Analysis Plan shall include a list of chemical analytes for the water column and sediment as well as the monitoring frequency and sample station locations.

3. Receiving Water Monitoring

Pollutants and Frequency: The Sampling and Analysis Plan shall propose the pollutants to be monitored, and the frequency and timing for water column sampling to be performed in San Diego Bay. At a minimum, monitoring shall include the pollutants and frequency in Table E-5 below. The proposed sampling shall be based upon results on the fate and transport of pollutants from the conceptual model (see V.C.5 below).

Table E-5. Minimum Receiving Water Column Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Priority Pollutants				
Arsenic, Total Recoverable	µg/L	Grab	Annually	1
Copper, Total Recoverable	µg/L	Grab	Annually	1,2
Lead, Total Recoverable	µg/L	Grab	Annually	1
Nickel, Total Recoverable	µg/L	Grab	Annually	1
Zinc, Total Recoverable	µg/L	Grab	Annually	1
Other Pollutants Identified by the Discharger	µg/L	Grab	Annually	1
Non-Conventional Pollutants				
Temperature	°F	Grab	Semiannually	1
Chronic Toxicity	Pass/Fail	Grab	Semiannually	3

¹ As specified in 40 CFR part 136.

² Effluent samples shall be analyzed for copper according to method 1638 or 1640. The commonly used methods 6010B (Inorganics by ICP-Atomic Emission Spectroscopy) and 200.7 (Trace Elements-ICP) have been found to give inaccurate copper readings in saline-matrix samples due to interference with the sodium-argon complex, which has a molecular weight similar to copper. Method 1638 (ICP/MS) or 1640 (On-Line Chelation) will eliminate the sodium-argon complex before the sample is tested for copper. No inaccurate readings for other metals in a saline-matrix sample is analyzed by methods 6010B or 200.7 are known.

³ The Discharger shall monitor receiving water chronic toxicity twice per year concurrently with chronic toxicity monitoring at one location for end-of-pipe high risk industrial storm water discharge monitoring required in Table E-7 of this MRP during one storm event per semiannual period. The receiving water chronic toxicity sample shall be collected in the receiving water adjacent to the storm drain outfall sampled in Table E-7 during the storm event. The data for this chronic toxicity sampling shall be reported annually in the Annual Storm Water Report.

4. Sediment Monitoring

a. Frequency. Sediment chemistry, toxicity and benthic community monitoring shall be done at least twice during the term of this Order. For stations that are consistently classified as unimpacted or likely unimpacted, the frequency may be reduced to once per permit cycle in the next permit.

b. Station Locations. Triad station locations shall be identified after evaluating the items in section V.C.5 through V.C.9 below.

- c. Sediment Chemistry, Toxicity, and Benthic Community Condition.** Sediment chemistry, toxicity and benthic community monitoring shall be done in accordance with, at a minimum, the requirements set forth in the State Water Board's Sediment Quality Plan. The proposal must also include the following:

 - i. Sediment Chemistry. Bulk sediment chemical analysis shall include at a minimum the pollutants identified in Attachment A of the State Water Board's Sediment Quality Plan and listed in Attachment K of this Order.
 - ii. Sediment Toxicity. Short term survival tests and sublethal tests shall be performed as specified in section V.F of the State Board's Sediment Quality Plan. The results shall be recorded as "Percent of control response".
 - iii. Benthic Community - Subtidal Habitat The benthic community shall be evaluated using the line of evidence approach described in section V.G of the State Water Board's Sediment Quality Plan.
- 5. Conceptual Model.** A Conceptual Model identifying the physical and chemical factors that control the fate and transport of pollutants and receptors that could be exposed to pollutants in the water and sediment shall be developed and included in the Water and Sediment Monitoring Plan. The Conceptual Model will serve as the basis for assessing the appropriateness of the Water and Sediment Monitoring Plan design. The Conceptual Model shall consider:

 - a. Points of discharge into the segment of the water body or region of interest;
 - b. Tidal flow and/or direction of predominant currents;
 - c. Historic or legacy conditions in the vicinity;
 - d. Nearby land and marine uses or actions;
 - e. Beneficial Uses;
 - f. Potential receptors of concern;
 - g. Change in grain size salinity water depth and organic matter; and
 - h. Other sources or discharges in the immediate vicinity.
- 6. Spatial Representation.** The Water and Sediment Monitoring Plan shall be designed to ensure that the sample stations are spatially representative of the water and sediment within the water body segment or region of interest.
- 7. Existing Data and Information.** The Water and Sediment Monitoring Plan design shall take into consideration existing data and information of appropriate quality including ongoing monitoring programs conducted by other entities.
- 8. Strata.** Identification of appropriate strata shall consider characteristics of the water body including sediment transport, hydrodynamics, depth, salinity, land uses, inputs (both natural and anthropogenic) and other factors that could affect the physical, chemical, or biological condition of the sediment.
- 9. Index Period.** All sediment stations shall be sampled between the months of June through September to correspond with the benthic community index period.

10. Report Completion Schedule. The Water and Sediment Monitoring Plan shall include a schedule for completion of all sample collection and analysis activities and submission of the Water Column Monitoring Report and the Sediment Monitoring Report described section V.E. of this MRP.

D. Water and Sediment Monitoring Plan Implementation. The Discharger or water body monitoring coalition shall implement the Water and Sediment Monitoring Plan in accordance with the schedule contained in the Water and Sediment Monitoring Plan unless otherwise directed in writing by the San Diego Water Board within 90 days of submission. At the latest, implementation of the receiving water monitoring shall begin within 24 months of the effective date of this Order. Before beginning sample collection activities, the Discharger or water body monitoring coalition shall comply with any conditions set by the San Diego Water Board with respect to sample collection methods such as providing split samples.

E. Water Column and Sediment Monitoring Reports. The Discharger or water body monitoring coalition shall submit a Sediment Monitoring Report twice during the term of the permit by February 1 of the year after the sampling occurs. The Water Column and Sediment Monitoring Report shall contain the following information:

- 1. Monitoring Results.** The results of the monitoring in tabular and graphical form.
- 2. Data Analysis, Interpretations, and Conclusions.** An analysis of the data to evaluate trends and interpretations and conclusions on the data.
- 3. Sediment Aquatic Life Analysis.** The data, analyses, interpretation, and integration of the multiple lines of evidence (MLOE), and station assessment shall be performed using the MLOE approach as prescribed in the State Water Board Sediment Quality Plan. Compliance with receiving water limitations for sediment quality shall be determined for each station by integrating the sediment chemistry, toxicity, and benthic community lines of evidence to derive a benthic triad station assessment in accordance with the methodology in section V.I of the State Water Board Sediment Quality Plan.
- 4. Receiving Water Limitation Determination.** A determination shall be made for each station of attainment of the applicable Receiving Water Limitations.
- 5. Sample Location Map.** The locations, type, and number of samples shall be identified and shown on a site map(s).
- 6. Laboratory Reports.** The reports from laboratories with the original analysis results including any QA/QC information.

VI. REGIONAL MONITORING REQUIREMENTS

Regional receiving water monitoring provides information about the sources, fates, and effects of anthropogenic contaminants in the receiving water necessary to make assessments over large areas. The large scale assessments provided by regional monitoring describe and evaluate cumulative effects of all anthropogenic inputs and enable better decision making regarding protection of beneficial uses of receiving waters. Regional monitoring data assists in the interpretation of core monitoring studies by providing a more accurate and complete characterization of reference conditions and natural variability. Regional monitoring also leads to methods standardization and improved quality control through intercalibration exercise. The coalitions implementing regional monitoring enable sharing of technical resources, trained personnel and associated costs. Focusing these resources on regional issues and developing a broader understanding of pollutants effects in receiving waters enables the development of more

rapid and effective response strategies. Based on all of these considerations the San Diego Water Board supports regional approaches to monitoring receiving waters.

The Discharger shall, as directed by the San Diego Water Board, participate with other regulated entities, other interested parties, and the San Diego Water Board in development and implementation of new and improved monitoring and assessment programs for receiving waters in the San Diego Region and discharges to those waters. These programs shall be developed and implemented so as to:

- (1) Determine the status and trends of conditions in ocean waters in the San Diego Region with regard to beneficial uses, e.g.,
 - i. Are fish and shellfish safe to eat?
 - ii. Is water quality safe for swimming?
 - iii. Are ecosystems healthy?
- (2) Identify the primary stressors causing or contributing to conditions of concern;
- (3) Identify the major sources of the stressors causing or contributing to conditions of concern; and
- (4) Evaluate the effectiveness (i.e., environmental outcomes) of actions taken to address such stressors and sources.

Development and implementation of new and improved monitoring and assessment programs for receiving waters will be guided by the following:

- (1) San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of A Regional Monitoring Framework*;
- (2) San Diego Water Board staff report entitled *A Framework for Monitoring and Assessment in the San Diego Region*; and
- (3) Other guidance materials, as appropriate.

The San Diego Water Board may modify the receiving waters monitoring and reporting requirements, regional monitoring requirements, and/or special studies requirements of this Order as necessary for cause, including but not limited to a) revisions necessary to implement recommendations from Southern California Coastal Water Research Project (SCCWRP); b) revisions necessary to develop, refine, implement, and/or coordinate a regional monitoring program; and/or c) revisions necessary to develop and implement improved monitoring and assessment programs in keeping with San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of a Regional Monitoring Framework*.

VII. OTHER MONITORING REQUIREMENTS

A. Storm Water Discharges from Industrial High Risk Areas, Industrial Low Risk Areas, and Industrial No Exposure Areas

1. **Monitoring Questions.** The industrial storm water monitoring program is designed to address the following primary questions:
 - a. Does the runoff comply with permit effluent limitations for toxicity thereby ensuring water quality standards are achieved in the receiving water?
 - b. Does the runoff comply with the Numeric Action Levels (NALs) in Attachment G?
 - c. Is the Storm Water Pollution Prevention Plan (SWPPP) being properly implemented?

- d. Is the Facility achieving standards of Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT)?

2. Non-Storm Water Discharge Visual Observations and Assessment

- a. Monthly, the Discharger shall visually assess each drainage area for the presence or indications of prior, current, or potential unauthorized non-storm water discharges and their sources.
- b. The Discharger shall visually observe the Facility's authorized non-storm water discharges and their sources;
- c. The monthly visual observations shall be conducted during daylight hours, on days without precipitation, and during scheduled facility operating hours¹.
- d. Visual observations shall document the presence of or the indication of any non-storm water discharge, pollutant characteristics (floating and suspended material, oil and grease, discoloration, turbidity, odor, etc.), and source.
- e. The Discharger shall maintain records of the personnel performing the visual observations, the dates and approximate time each drainage area and non-storm water discharge was observed, and the response taken to eliminate unauthorized non-storm water discharges and to reduce or prevent pollutants from contacting non-storm water discharges. The SWPPP shall be revised, as necessary, and implemented in accordance with Attachment G of this Order.
- f. The Discharger shall provide an explanation in the Annual Report for uncompleted monthly visual observations.

3. Industrial Storm Water Discharge and Other Visual Observations

- a. Sampling event visual observations shall be conducted at the same time sampling occurs at a discharge location. At each discharge location where a sample is obtained, the Discharger shall observe the discharge of storm water associated with industrial activity.
- b. The Discharger shall ensure that visual observations of discharge(s) from contained storm water are conducted at the time of discharge. If the discharge is not likely to occur during scheduled Facility operating hours (based upon rainfall forecasts and containment freeboard), the visual observations of the contained storm water shall be conducted prior to the discharge. Visual observations shall confirm that the discharge is complying with the section III. Discharge Prohibitions of this Order.
- c. If the Discharger is employing volume-based or flow-based treatment BMPs, any bypass that occurs while the visual observations and/or sampling of storm water discharges are conducted shall be sampled.

¹ *Scheduled facility operating hours* are the time periods when the facility is staffed to conduct any function related to industrial activity, but excluding time periods where only routine maintenance, emergency response, security, and/or janitorial services are performed.

- d. The Discharger shall visually observe and record the presence or absence of floating and suspended materials, oil and grease, discolorations, turbidity, odors, trash/debris, and source(s) of any observed pollutants.
- e. In the event that a discharge location is not visually observed during the sampling event, the Discharger shall record which discharge locations were not observed during sampling or that there was no discharge from the discharge location. The Discharger shall provide an explanation in the Annual Report for uncompleted sampling event visual observations.
- f. Dischargers shall maintain records of all visual observations. Records shall include the condition of the water, date, approximate time, locations observed, name of person(s) that conducted the observations, and any response actions and/or additional SWPPP revisions necessary in response to the visual observations.
- g. The Discharger shall revise BMPs as necessary when the visual observations indicate pollutant sources have not been adequately addressed in the SWPPP.

4. Industrial Storm Water Sampling and Analysis

- a. A Qualifying Storm Event (QSE) is a precipitation event that:
 - i. Produces a discharge for at least one drainage area; and
 - ii. Is preceded by 48 hours with no discharge from any drainage area.
- b. The Discharger shall collect storm water samples from two QSEs during each semiannual period (i.e. January – June, July – December). Representative storm water discharge locations for “Industrial High Risk” and “Industrial Low Risk” areas, as designated under section IV.B.1 of this Order, shall be sampled as specified in Tables E-6 and E-7.
- c. Sampling of stored or contained storm water shall occur at the time the stored or contained storm water is discharged. Samples shall be collected from two QSE during each semiannual period (i.e. January –June, July – December).
- d. Samples shall be collected from each drainage location within four hours of the following:
 - i. The start of the discharge, or
 - ii. The start of facility operations if the QSE occurs within the previous 12 hour period (storms that begin the previous night) and representative discharge of the facility is determined to still be occurring. Sample collection is required during scheduled facility operating hours and when sampling conditions are safe.
- e. Composite samples shall be flow-weighted storm water samples for the duration of the storm. If composite samples are collected, all parameters identified in Tables E-6 and E-7 with a sample type of grab or composite must be analyzed using composite samples.
- f. In the event that the first QSE in a semi-annual period does not produce a discharge that can be sampled at one or more sampling locations, the Discharger shall record which sampling locations were observed that did not discharge, and collect samples from those

locations during the next QSE(s) that produces a discharge in that semi-annual period. If the Discharger fails to collect a sample at one or more sampling locations that did produce a discharge, the Discharger is required to fulfill the sampling requirement from an additional QSE that produces a discharge. For each discharge location, the maximum number of storm water samples required per reporting year is four.

- g. Section IX.A.3 of the MRP of Order No. R9-2009-0081 is incorporated by reference as if set forth herein. The Discharger shall continue monitoring in accordance with section IX.A.3 of the MRP of Order No. R9-2009-0081 until June 30, 2016, with the annual report due September 1, 2016, as required by Table E-8 of this MRP.
- h. Beginning July 1, 2016, the industrial storm water discharges shall be sampled and analyzed in accordance with Table E-6 and Table E-7 below.

Table E-6. Monitoring Requirements for Industrial Storm Water Discharges from “Industrial Low Risk” Areas

Parameter	Unit	Sample Type	Minimum Frequency ⁵	Required Analytical Test Method
Discharge Volume	gallons	Estimate ¹	Two storms per semi-annual period	Estimate
Conventional Pollutants				
Oil and Grease	mg/L	Grab	Two storms per semi-annual period	²
pH	pH Units	Grab	Two storms per semi-annual period	⁴
Total Suspended Solids	mg/L	Grab	Two storms per semi-annual period	²
Priority Pollutants				
Copper, Total Recoverable ⁶	mg/L	Grab or Composite	Two storms per semi-annual period	²
Zinc, Total Recoverable ⁶	mg/L	Grab or Composite	Two storms per semi-annual period	²
Non-Conventional Pollutants				
Other Pollutants ³	µg/L	Grab or Composite	Two storms per semi-annual period	²

¹ The volume of storm water discharge can be estimated by multiplying: amount of rainfall in feet × square feet of surface area × impervious factor. There are 7.5 gallons per cubic foot.

² As specified in 40 CFR section 136.3.

³ Pollutants that are likely to be present in storm water discharges in significant quantities shall be sampled. The pollutants shall be selected based upon the pollutant source assessment required in section VII of the SWPPP requirements contained in Attachment G, visual observations, and inspection records. If these pollutants are not detected in significant quantities after two consecutive sampling events, the Discharger may eliminate the pollutant from future analysis until the pollutant is likely to be present again. The Discharger shall select appropriate analytical test methods that indicate the presence of pollutants in storm water discharges in significant quantities.

⁴ Field test with pre- and post-calibrated portable instrument, or lab sample in accordance with 40 CFR part 136.

⁵ Sampling shall occur during qualifying storm events each semiannual calendar period (January – June, July – December) prior to release to receiving water. If there are no qualifying storm events during the semiannual period, then sampling shall occur as soon as possible.

⁶ After four consecutive sample events where parameters are not detected or below the Annual NAL values, analysis for those parameters may be discontinued at any affected outfall.

Table E-7. Monitoring Requirements for Storm Water Discharges from “Industrial High Risk” Areas.

Parameter	Unit	Sample Type	Minimum Frequency ⁷	Required Analytical Test Method
Discharge Volume	gallons	Estimate ¹	Two storms per semiannual period.	Estimate
Conventional Pollutants				
Chemical Oxygen Demand	mg/L	Grab or Composite	Two storms per semiannual period.	2
Oil and Grease	mg/L	Grab	Two storms per semiannual period.	2
pH	pH Units	Grab	Two storms per semiannual period.	5
Total Suspended Solids	mg/L	Grab	Two storms per semiannual period.	2
Priority Pollutants				
Arsenic, Total Recoverable ⁸	mg/L	Grab or Composite	Two storms per semiannual period.	2
Cadmium, Total Recoverable ⁸	mg/L	Grab or Composite	Two storms per semiannual period.	2
Copper, Total Recoverable	mg/L	Grab or Composite	Two storms per semiannual period.	2
Mercury, Total Recoverable ⁸	mg/L	Grab or Composite	Two storms per semiannual period.	2
Nickel, Total Recoverable ⁸	mg/L	Grab or Composite	Two storms per semiannual period.	2
Selenium, Total Recoverable ⁸	mg/L	Grab or Composite	Two storms per semiannual period.	2
Silver, Total Recoverable ⁸	mg/L	Grab or Composite	Two storms per semiannual period.	2
Zinc, Total Recoverable	mg/L	Grab or Composite	Two storms per semiannual period.	2
Lead, Total Recoverable ⁸	mg/L	Grab or Composite	Two storms per semiannual period.	2
Non-Conventional Pollutants				
Aluminum, Total Recoverable ⁸	µg/L	Grab or Composite	Two storms per semiannual period.	2
Iron, Total Recoverable ⁸	µg/L	Grab or Composite	Two storms per semiannual period.	2
Magnesium, Total Recoverable ⁸	µg/L	Grab or Composite	Two storms per semiannual period.	2
Nitrate+Nitrite Nitrogen ⁸	mg/L	Grab or Composite	Two storms per semiannual period.	2
Phosphorus, Total ⁸	mg/L	Grab or Composite	Two storms per semiannual period.	2
Ammonia ⁸	mg/L	Grab or Composite	Two storms per semiannual period.	2
Acute Toxicity ³	Pass or Fail	Grab or Composite	Two storms per semiannual period.	3

Parameter	Unit	Sample Type	Minimum Frequency ⁷	Required Analytical Test Method
Chronic Toxicity ^{3,6}	Pass or Fail	Grab or Composite	Two storms per semiannual period.	3
Other Pollutants ⁴	µg/L	Grab or Composite	Two storms per semiannual period.	2

¹ The volume of storm water discharge can be estimated by multiplying: amount of rainfall in feet × square feet of surface area × impervious factor. There are 7.5 gallons per cubic foot.

² As specified in 40 CFR section 136.3.

³ The presence of acute or chronic toxicity in the storm water shall be determined as specified in section IV of this MRP.

⁴ Pollutants that are likely to be present in storm water discharges in significant quantities shall be sampled. The pollutants shall be selected based upon the pollutant source assessment required in section VII of the SWPPP requirements contained in Attachment G, visual observations, and inspection records. If these pollutants are not detected in significant quantities after two consecutive sampling events, the Discharger may eliminate the pollutant from future analysis until the pollutant is likely to be present again. The Discharger shall select appropriate analytical test methods that indicate the presence of pollutants in storm water discharges in significant quantities.

⁵ Field test with pre- and post-calibrated portable instrument, or lab sample in accordance with 40 CFR part 136.

⁶ Chronic toxicity will be sampled at one representative high risk industrial storm water discharge location.

⁷ Sampling shall occur during qualifying storm events, or if collected, prior to release to receiving water. If there are no qualifying storm events during the year, then sampling shall occur as soon as possible. If there are no qualifying storm events during the fifth year and conditions for administrative extension are met, then sampling shall occur as soon as possible.

⁸ After four consecutive sample events where parameters are not detected or below the Annual NAL values, analysis for those parameters may be discontinued at any affected outfall.

g. Sampling Frequency Reduction Certification

- 1) The Discharger is eligible to reduce the number of QSEs sampled each reporting year in accordance with the following requirements:
 - a) Results from four (4) consecutive QSEs that were sampled (QSEs may be from different reporting years) did not exceed any NALs; and
 - b) The Discharger is in full compliance with the requirements of this Order and has updated, certified and submitted all documents, data, and reports required by this Order during the time period in which samples were collected.
- 2) The San Diego Water Board may notify a Discharger that it may not reduce the number of QSEs sampled each reporting year if the Discharger is subject to an enforcement action.
- 3) An eligible Discharger shall certify that it meets the conditions in section VII.A.4.g.1) of this MRP above.
- 4) Upon Sampling Frequency Reduction certification, the Discharger shall collect and analyze samples from one (1) QSE within the first half of each reporting year (July 1 to December 31), and one (1) QSE within the second half of each reporting year (January 1 to June 30). All other monitoring, sampling, and reporting requirements remain in effect.
- 5) A Discharger may reduce sampling per the Sampling Frequency Reduction certification unless notified by the San Diego Water Board that: (1) the Sampling

Frequency Reduction certification has been rejected or (2) additional supporting documentation must be submitted. In such instances, a Discharger is ineligible for the Sampling Frequency Reduction until the San Diego Water Board provides Sampling Frequency Reduction certification approval. Revised Sampling Frequency Reduction certifications shall be certified and submitted by the Discharger.

- 6) A Discharger loses its Sampling Frequency Reduction certification if an NAL exceedance occurs.

5. Visual Observation and Sample Collection Exceptions

The Discharger shall be prepared to collect samples and conduct visual observations at the beginning of the semi-annual period until the minimum requirements of this section are completed with the following exceptions:

- a. The Discharger is not required to collect samples or conduct visual observations under the following conditions:
 - i. During dangerous weather conditions such as flooding and electrical storms; or
 - ii. Outside of scheduled Facility operating hours. The Discharger is not precluded from collecting samples or conducting visual observations outside of scheduled Facility operation hours.
- b. If the Discharger does not collect the required samples or conduct the visual observations during a wet season due to these exceptions, then the Discharger shall include an explanation in the Annual Report why the sampling or visual observations were not conducted.
- c. The Discharger shall ensure that all industrial storm water discharge sampling locations are representative of drainage areas associated with industrial activities, where practicable. The storm water discharge observed and collected from these sampling locations shall be representative of the storm water discharge generated in each drainage area. For sheet flow, the Discharger shall determine the appropriate sampling location(s) which represent industrial storm water discharges generated from the corresponding drainage area.
- d. The Discharger shall identify practicable alternate sample collection locations representative of the Facility's storm water discharge if:
 - i. Specific drainage areas at the Facility are affected by storm water run-on from off-site areas or on-site non-industrial areas; or
 - ii. Specific sampling locations are difficult to sample such as submerged discharge outlets, dangerous discharge location accessibility.

B. Non-Industrial Storm Water Monitoring for Small Military Base Municipal Separate Storm Sewer System (MS4) Areas (Small Military Base MS4 Areas)

1. **Monitoring Questions.** The Small Military Base MS4 monitoring program shall be designed to address the following primary questions:
 - a. Is the Storm Water Management Plan (SWMP) being properly implemented?

- b. Is the Facility achieving the standard of reducing pollutants in Small Military Base MS4 discharges to the Maximum Extent Practicable (MEP)?

2. Small Military Base MS4 Monitoring Plan. Within 24 months of the effective date of this Order, the Discharger shall prepare and submit to the San Diego Water Board a written plan for monitoring discharges and pollutants in non-industrial storm water discharges from Small Military Base MS4 Areas designed to answer the monitoring questions above. The monitoring plan shall include the following information:

- a. A list of pollutants to be monitored in non-industrial storm water and non-storm water from Small Military Base MS4 areas.
 - b. Specific monitoring procedures for pollutants identified by the Discharger, with the goal of evaluating SWMP implementation throughout the Facility. Dry weather monitoring also has the goal of identifying and eliminating unauthorized non-storm water discharges.
 - c. A minimum subset of three representative monitoring locations for storm water and dry-weather discharges within the Small Military Base MS4 Areas of the Facility. These monitoring locations shall be sampled for pollutants identified by the Discharger.
 - d. A schedule for monitoring. Pollutant monitoring shall be performed a minimum of twice per year at the representative monitoring locations for storm water, and twice per year for dry-weather discharges, beginning 24 months after the effective date of this Order. Dry weather stations only need to be sampled if there is unauthorized non-storm water flowing at the time of sampling.
 - e. A program for at least quarterly visual observations to identify and correct unauthorized non-storm water discharges.
- 3.** The Discharger shall implement the Small Military Base MS4 Monitoring Plan no later than 28 months after the effective date of this Order unless otherwise directed in writing by the San Diego Water Board. The Discharger shall comply with any conditions set by the San Diego Water Board including modification of proposed monitoring locations and constituents.
- 4.** Monitoring results shall be submitted annually with the Storm Water Annual Report.

C. Storm Water Annual Report for Industrial High Risk Areas, Industrial Low Risk Areas, and Small Military Base MS4 Areas

The Discharger shall submit an Industrial Storm Water Annual Report by September 1 of each year to the San Diego Water Board. The report shall include the following:

1. Identification of any changes to "Industrial High Risk", "Industrial Low Risk", "Industrial No-Exposure", and "Small Military Base MS4 Areas" at the Facility, as defined in section IV.B.1 of this Order;
2. A summary of visual observations and sampling and analysis results;
3. An evaluation of the visual observation and sampling and analysis results;

4. The Annual Comprehensive Site Compliance Evaluation Report as required by section IX of the SWPPP requirements contained in Attachment G;
5. Laboratory reports; and
6. A list of authorized and non-authorized non-storm water discharges.

D. Spill and Illicit Discharge Log (within all industrial storm water risk areas)

This requirement for a Spill and Illicit Discharge log is designed to answer the following primary monitoring questions:

1. Are there more frequent and/or bigger spills at this Facility than at other similar facilities?
2. Are spills and illicit discharges properly addressed and are measures being taken or planned to reduce, eliminate, and prevent recurrence of them in the future?

The Discharger shall log and report all spills of significant quantities to surface waters and all illicit discharges of any quantity within the Facility including spills and illicit discharges from vessels that are at the Facility for service. The spill / illicit discharge reports shall identify the following:

- a. The time and date of the spill or illicit discharge;
- b. The cause of the spill or illicit discharge;
- c. The materials or wastes involved in the spill or illicit discharge;
- d. The estimated volume of the spill or illicit discharges;
- e. The specific location where the spill or illicit discharge originated including storm water risk level;
- f. The fate of the spill or illicit discharge (e.g., San Diego Bay, etc.);
- g. The physical extent or size of the area(s) affected by the spill;
- h. Whether the spill or illicit discharge contained pollutants;
- i. The public agencies notified;
- j. The corrective actions taken or planned; and
- k. The measures taken or planned to prevent or minimize future spills or illicit discharges.

The reports shall be submitted annually to the San Diego Water Board in accordance with Table E-8 of this MRP.

The Discharger shall include in its Annual Report a summary of the spills and illicit discharges that occurred in or on the Facility during the annual reporting period. The spill/illicit discharge summary report shall indicate the total number of spills and illicit discharges for the year, categorize the spills and illicit discharges, and provide the percentages of each type of spill or illicit discharge in a graphical representation. The summary report shall also indicate the efforts the Discharger used in during the annual reporting period to prevent or minimize spills.

VIII. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. The Discharger shall report all instances of noncompliance not reported under Attachment D, sections V.E, V.G, and V.H, of this Order at the time monitoring reports are submitted.
3. The Discharger shall submit an annual report discussing the compliance record and corrective actions taken, or which may be taken, or which may be needed to bring the discharge into full compliance with the requirements of this Order in accordance with Table E-8.

B. Self-Monitoring Reports (SMRs)

1. The Discharger shall electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program website (<http://www.waterboards.ca.gov/ciwqs/index.html>). The CIWQS website will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal. Any reports not in CIWQS shall be submitted electronically to the San Diego Water Board's e-mail at sandiego@waterboards.ca.gov or as otherwise directed by the San Diego Water Board.
2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP. The Discharger shall submit quarterly, semiannual, and annual SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-8. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with quarterly SMR
Daily	Permit effective date	(Midnight through 11:59PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling	Submit with quarterly SMR
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	First day of calendar month through last day of calendar month	Submit with quarterly SMR

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Quarterly	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	May 1 August 1 November 1 February 1
Semiannually	Closest of January 1 or July 1 following (or on) permit effective date	January 1 through June 30 July 1 through December 31	August 1 February 1
Annually	Permit effective date	July 1 through June 30	September 1
First Annual Storm Report	July 1, 2015 for Order R9-2009-0081 storm water sampling and the permit effective date for section VII.A.4.g of this MRP	July 1 through June 30	September 1, 2016
Annual Storm Water Report (section VII.C of this MRP)	July 1, 2016	July 1 through June 30	September 1

C. Reporting Protocols

1. The Discharger shall report with each sample result the applicable reported Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR part 136.
2. The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:
 - a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
 - b. Sample results less than the Reporting Level (RL), but greater than or equal to the laboratory’s MDL, shall be reported as “Detected, but Not Quantified,” or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words “Estimated Concentration” (may be shortened to “Est. Conc.”). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- c. Sample results less than the laboratory’s MDL shall be reported as “Not Detected,” or ND.
- d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

3. **Compliance Determination.** Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined above and Attachment A of this Order. For purposes of reporting and administrative enforcement by the Regional and State Water Boards, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the RL.
4. **Multiple Sample Data.** When determining compliance with an AMEL or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
 - a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
 - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
5. The Discharger shall submit SMRs in accordance with the following requirements:
 - a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the Facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.
 - b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

D. Discharge Monitoring Reports (DMRs)

1. The Discharger shall electronically submit DMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program website (<http://www.waterboards.ca.gov/ciwqs/index.html>). The CIWQS website will provide additional information for DMR submittal in the event there will be a planned service interruption for electronic submittal.
2. DMRs must be signed and certified as required by the standard provisions (Attachment D).

E. Other Reports

- 1. Special Reports.** As specified in this Order, special reports or program components shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.

Table E-9. Reporting Requirements for Special Provisions Progress Reports

Report Name	Section No.	Report Due Date
Industrial Storm Water Monitoring Location Report	MRP section II.B.1	April 1, 2016
Toxicity Reduction Evaluation (TRE) Work Plan	MRP section IV.E.1	Within 30 days of a requirement to complete a TRE Work Plan
Water and Sediment Monitoring Plan	MRP section V.C	Within 12 months of the effective date of this Order
Annual Storm Water Risk Level Designation Report	Order section IV.B.2	Annually by September 1 st
Revised Storm Water Pollution Prevention Plan	Order section IV.E.2.c	Within 1 year of the effective date of this Order
Small Military Base Municipal Separate Storm Sewer System (MS4) – Storm Water Management Program (SWMP)	Order section IV.D.2	Within 18 months of the effective date of this Order
Small Military Base MS4 Storm Water Monitoring Plan	MRP section VII.B.2	Within 24 months of the effective date of this Order
Future Development of Chronic Toxicity Effluent Limitations for Industrial High Risk Storm Water Areas	Order section VI.C.2.a	At Discharger’s discretion
Revised Utility Vault Plan	Order section VI.C.3.a	Within 1 year of the effective date of this Order
BMP Plan for Industrial Process Wastewater Discharges	Order section VI.C.3.b	Within 1 year of the effective date of this Order
Pollution Prevention Plan (PPP) Work Plan and Time Schedule	Order section VI.C.3.c	Within 90 days of the effective date of this Order
PPP	Order section VI.C.3.c	Within 9 months of the effective date of this Order

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section II.B of this Order, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) incorporates this Fact Sheet as findings of the San Diego Water Board supporting the issuance of this Order. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as “not applicable” have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as “not applicable” are fully applicable to this Discharger.

I. PERMIT INFORMATION

A. The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	9 000000495
Discharger	United States Department of the Navy
Name of Facility	Naval Base Coronado (NBC)
Facility Address	937 N. Harbor Drive
	San Diego, CA 92132-0058
	San Diego County
Facility Contact, Title and Phone	Mr. Jason Golumbfskie, Installation Environmental Program Director for NBC, (619) 545-3429
Authorized Person to Sign and Submit Reports	Mr. Jason Golumbfskie, Installation Environmental Program Director for NBC, (619) 545-3429
Mailing Address	Same as Facility Address
Billing Address	Same as Facility Address
Type of Facility	Naval Base
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Not Applicable
Reclamation Requirements	Not Applicable
Facility Permitted Flow	Not Applicable
Facility Design Flow	Not Applicable
Watershed	Pacific Ocean, San Diego Bay, Tijuana River Estuary (Hydrologic Areas 10.10 and 11.11), San Luis Rey River (Warner Hydrologic Subarea 3.31), Tijuana River (Canyon City Hydrologic Subarea 11.82), and Morena Reservoir (Hydrologic Area 11.50)
Receiving Water	Pacific Ocean, San Diego Bay, Tijuana River Estuary, tributary to San Luis Rey River, waters in the Canyon City Hydrologic Subarea 11.82, and Morena Reservoir
Receiving Water Type	Ocean, Enclosed Bay, Estuary, Inland Surface Water

B. The United States (U.S.) Department of the Navy (Navy or Discharger) is the owner and operator of Naval Base Coronado (Facility or NBC), a U.S. Naval Base. The Facility is comprised of eight installations which are described in section II and are hereinafter jointly referred to as the “Facility”.

For the purposes of this Order, references to the “discharger” or “Discharger” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

- C. The Discharger was previously regulated by Order No. R9-2009-0081 as modified by Order No. R9-2010-0057, National Pollutant Discharge Elimination System (NPDES) Permit No. CA0109185, for wastewater discharges from multiple discharge points within the Facility to the Pacific Ocean, San Diego Bay, and the Tijuana River Estuary, a Water of the U.S. The regulated discharges included wastewater from the following sources/activities:

- Boat rinsing discharges;
- Diesel engine cooling water;
- Discharges associated with the housing of marine mammals within pens;
- Pier boom cleaning;
- Steam condensate;
- Product water for the reverse osmosis water purification unit;
- Utility vault and manhole dewatering; and
- Industrial storm water.

During the term of Order No. R9-2009-0081, discharges associated with boat rinsing, marine mammals, pier boom cleaning, and the operation of the reverse osmosis water purification unit were eliminated by the Discharger.

Order No. R9-2009-0081 was adopted on June 10, 2009, and expired on June 10, 2014. Order No. R9-2009-0081 was modified by Order No. R9-2010-0057, adopted September 8, 2010. The terms and conditions of the 2009 and 2010 orders were automatically continued and remained in effect until a new Waste Discharge Requirements (WDRs) and NPDES permit was adopted pursuant to this Order.

- D. The Discharger filed a report of waste discharge (ROWD) dated December 12, 2013. A formal request for additional information deemed to be lacking in the initial submission was sent on February 23, 2014. An updated ROWD was filed February 27, 2014. The application was deemed complete on March 5, 2014. A site visit was conducted on May 22, 2015 to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

A. Installations

The Discharger manages three naval bases in the San Diego area under the Commander, Navy Region Southwest (CNRSW) command structure. These three major naval bases are Naval Base Point Loma (NBPL); Naval Base San Diego (NBSD); and Naval Base Coronado (NBC). NBC consists of the following eight installations:

- Naval Air Station, North Island (NASNI)
- Naval Amphibious Base, Coronado (NAB)
- Naval Outlying Landing Field, Imperial Beach (NOLF)
- Silver Strand Training Complex (SSTC), formerly known as the Naval Radio Receiving Facility (NRRF)
- Naval Auxiliary Landing Field, San Clemente Island (NALF)

- Remote Training Site Warner Springs, (RTSWS) formerly known as Survival, Evasion, Resistance, and Escape (SERE) Training School
- Camp Michael Monsoor formerly known as La Posta Mountain Warfare Training Center (La Posta MWTC)
- Camp Morena

Of the eight installations aligned under the Facility, only NASNI, NAB, NOLF, SSTC, and NALF have discharges subject to NPDES permitting. NALF is located in the Los Angeles Regional Water Quality Control Board jurisdictional area and, therefore, is not regulated by this Order.

1. Naval Air Station, North Island (NASNI)

NASNI is located on the northern end of the Coronado Peninsula west of the city of San Diego's downtown district and adjacent to the city of Coronado. San Diego Bay borders NASNI on the north and east, and the Pacific Ocean borders it on the west. The base consists of 2,803 acres (2,397 on land and 406 acres in water). NASNI is located within the Coronado Hydrologic Area (910.10) in the Otay Hydrologic Unit (910.00).

The mission of NASNI is to arm, repair, provision, service, and support the U.S. Pacific Fleet and other operating forces. It is the only aviation industrial complex on the west coast and the only naval air station in California with an airfield having 24-hour support capabilities. The installation houses the California Least Tern Preserve and Nesting area. NASNI is also the only military installation in southern California capable of berthing and maintaining a Nimitz Class aircraft carrier. The Discharger's largest Naval Aviation Depot and the Defense Distribution Center are located at NASNI. It is distinguished as headquarters for several major military flag staffs, including Commander, U.S. Naval Air Forces (CNAF); Commander, Strike Force Training Pacific (CSFTP); Commander, Carrier Strike Group Seven (CCSG7); and Commander, Naval Air Force Reserve. NASNI provides aviation support shore facilities, three aircraft carrier piers, industrial maintenance support, aircraft maintenance, bachelor quarters and dining facilities, training facilities and the attendant support infrastructure of utilities, roads and grounds. The airport at NASNI has two runways. One runway is 7,500 feet long the other runway is 8,000 feet long. Approximately 70 percent of the total area is impervious to storm water infiltration.

The three piers at NASNI are used to berth aircraft carriers, support vessels, and barges. The aircraft carriers, support vessels, and barges receive various ship support services such as supplies and minor maintenance when berthed. Ship support services on the three piers include loading supplies and equipment onto the ships. Berth-side ship maintenance (that is, maintenance while the vessel is docked at the pier) may include abrasive blasting, hydro-blasting, metal grinding, painting, tank cleaning, removal of bilge and ballast water, removal of anti-fouling paint, sheet metal work, electrical work, mechanical repair, engine repair, hull repair, and sewage disposal. Berth-side ship repair activities are generally less complex than the ship repair activities conducted at commercial shipyards or at the Navy's graving dock or floating dry-dock (not located at NBC). Berth-side maintenance may be conducted by naval personnel (ships' force), civil service personnel, or civilian contractors.

Ship maintenance activities may also be conducted on the piers. Boats, ship sections, or parts can be placed on the piers or adjacent lands for repairs. The ship maintenance activities may be conducted by naval personnel (ships' force), civil service personnel, or by civilian contractors. The breadth of work performed by the civilian contractors is typically greater than the work performed by ships' force. Some complex ship repair work is

conducted inside various support buildings near the piers. Typically, civilian contractors will store materials and supplies on the piers while working aboard the ships.

NASNI has an Industrial Wastewater Treatment Plant (IWTP) which discharges treated industrial wastewater to the San Diego Metropolitan Sewage System (SDMSS). The wastewater is from metal plating facilities, etc. The IWTP is permitted by the city of San Diego to discharge to the SDMSS up to 3,097 gallons per day (GPD).

NASNI also has an Oil Recovery Plant (ORP) which discharges treated oily wastewater to the SDMSS. The oily wastewater is from the ships, ballast and bilge water, and other facilities at NASNI. The ORP is permitted by the City of San Diego to discharge to the sanitary sewer up to 26,100 GPD. The IWTP and ORP are located on the same facility plot. The storm water at the IWTP and ORP facility is collected and diverted to the SDMSS.

Point source discharges subject to NPDES permitting from NASNI are listed in Table F-2 below and are classified as discharges associated with steam condensate, diesel engine cooling water, utility vault and manhole dewatering, pier washing, and storm water.

Table F-2. Discharges from the Main NASNI

Types of Discharge	Discharge Point Nos.
Steam Condensate	SC-001 through SC-010
Diesel Engine Cooling Water	CW-001
Utility Vault and Manhole Dewatering	UV-001 through UV-010
Pier Washing	PW-001
Municipal Storm Water	1
Industrial Storm Water	1

Various locations as discussed in section II.B.1 of this Fact Sheet.

2. Naval Amphibious Base, Coronado (NAB)

NAB is located on a sand-spit strip known as the Silver Strand in the north-central section of the Coronado Peninsula, just west of the city of San Diego. NAB is within the city of Coronado. The Glorietta Bay area of San Diego Bay borders NAB on the north, San Diego Bay borders NAB on the east, and the Pacific Ocean borders it on the west. The base consists of 1,006 acres, including 257 beachfront acres leased from the State along the Pacific Ocean. NAB is located within the Coronado Hydrologic Area (910.10) in the Otay Hydrologic Unit (910.00).

NAB is a major shore command. The mission of NAB is to provide on-base facilities and services for the support of U.S. and allied forces engaged in amphibious, inshore, clandestine, unconventional and special warfare training operations. The primary land uses include the administrative areas, training beaches, California Least Tern Preserve, recreational marina, and housing. There are 21 piers at NAB. The piers are used to berth coastal patrol boats, MK-5 boats, Mike 8 boats, LCU boats, and ferry barges.

Point source discharges from NAB are classified as utility vault and manhole dewatering. These discharges are not sampled at NAB because they are substantially similar to utility vault and manhole dewatering discharges at NASNI, which are sampled. State Highway 75 separates NAB into two areas known as surfside (oceanside) and bayside. The bayside administrative area consists of over 170 buildings for housing, administration, operations, recreation, community support facilities, utilities, and maintenance facilities. The surfside administrative area houses the Naval Special Warfare Command. Approximately 60 percent of the total area is impervious to storm water infiltration.

Point source discharges from NAB are listed in Table F-3 and include discharges associated with utility vault and manhole dewatering, and storm water.

Table F-3. Discharges from NAB

Types of Discharge	Discharge Point Nos.
Utility Vault and Manhole Dewatering Water	UV-011 and UV-012
Municipal Storm Water	1
Industrial Storm Water	1

1 Various locations as discussed in section II.B.1 of this Fact Sheet.

3. Silver Strand Training Complex (SSTC)

SSTC, formerly known as the Naval Radio Receiving Facility (NRRF), is a training facility for U.S. Special Operations Forces. SSTC occupies approximately 450 acres on the southern tip of the Silver Strand. The city of Imperial Beach adjoins the SSTC on the southern end, while Silver Strand State Beach is adjacent on the north. State Highway 75 parallels the eastern end of the SSTC. There are a few structures on the SSTC, and only one, a maintenance shop, is in use on a daily basis. The Wullenweber antenna at SSTC is not working. The installation is primarily used for Naval Special Warfare training. SSTC is located within the Coronado Hydrologic Area (910.10) in the Otay Hydrologic Unit (910.00).

One point source discharge, a utility vault and manhole dewatering discharge, originates from SSTC. Storm water discharges from SSTC are considered non-industrial. South and southwest of the installation is Camp Surf, a Young Men’s Christian Association (YMCA) aquatic activities and education camp for youth on land leased from the Navy. Camp Surf has a wetland that fills with storm water runoff during the rainy season. A concrete-lined swale drains the wetland area of excess rainwater to the ocean. This swale also brings storm water runoff from an Imperial Beach residential area south of Camp Surf. Because the wetland area and swale are below sea level, a water-level-controlled pump house is activated to pump the storm water to an ocean outfall at approximately 20 gallons per minute. The storm water outfall (SSTC-01) is located on the beach adjacent to Camp Surf as shown on the map in Attachment B to this Order.

Point source discharges subject to NPDES permitting from SSTC are listed in Table F-4 below and are classified as discharges associated with utility vault and manhole dewatering.

Table F-4. Discharges from SSTC

Types of Discharge	Discharge Point Nos.
Utility Vault and Manhole Dewatering	UV-013
Municipal Storm Water	SSTC-01 ¹

1 Various locations as discussed in section II.B.1 of this Fact Sheet.

4. Naval Outlying Landing Field, Imperial Beach (NOLF)

NOLF is located 10 miles south of NASNI and 1.5 miles north of the U.S. - Mexican border, and is within the San Ysidro Hydrologic Subarea (911.11) of the Tijuana Valley Hydrologic Area (911.10) of the Tijuana Hydrologic Unit (911.00). NOLF contains approximately 1,295 acres in the Tijuana River Valley, south of the Silver Strand peninsula. Approximately 283 acres of NOLF is part of the Tijuana River National Estuarine Sanctuary Management Authority. This area and certain adjoining lands of the Tijuana River Valley have been designated a National Natural Landmark.

The mission of NOLF, as an extension of NASNI, is to provide a practice field for helicopter operations and miscellaneous personnel support facilities that serve the military population in the Imperial Beach area. Naval helicopters from NASNI conduct daily landing practice and lift-training operations at NOLF. Helicopters are not stationed at NOLF. Approximately 30 percent of the total area is impervious to storm water infiltration.

Point source discharges subject to NPDES permitting from NOLF are listed in Table F-5 below and include storm water.

Table F-5. Discharges from NOLF

Types of Discharge	Discharge Point Nos.
Municipal Storm Water	1

Various locations as discussed in section II.B.1 of this Fact Sheet.

5. Naval Auxiliary Landing Field, San Clemente Island (NALF)

NALF is located within the Los Angeles Regional Water Quality Control Board jurisdictional area, and therefore not regulated under this Order.

6. Remote Training Site Warner Springs (RTSWS) formerly known as Survival, Evasion, Resistance, and Escape (SERE) Training School

The RTSWS is located in Cleveland National Forest in northern, inland San Diego County, near the community of Warner Springs. The school teaches military personnel the skills to survive and evade capture, or if captured, to resist interrogation and plan their escape. The RTSWS is a remote facility with no industrial storm water or point source discharges. The RTSWS is located within the Warner Hydrologic Subarea (903.31) of the Warner Valley Hydrologic Area (903.30) of the San Luis Rey Hydrologic Unit (903.00). Storm water discharges from the RTSWS are considered to be non-industrial Small Military Base MS4 discharges. There are no identified point source discharges at the RTSWS. An onsite wastewater treatment system / advanced treatment unit produces up to 10,000 gallons per day of secondary treated effluent which is discharged to a spray field under Order R9-2015-0012.

7. Camp Michael Monsoor formerly known as La Posta Mountain Warfare Training Center (MWTC)

The Camp Michael Monsoor is a Navy Special Warfare Command facility located on approximately 1,079 mountainous acres in eastern San Diego County. It is bordered by National Forest lands on the north, and Bureau of Land Management lands on the remaining three sides, with a small privately-held parcel to the southwest. The facility primarily supports training for SEAL teams and platoons, but is occasionally used by Explosive Ordnance Disposal Units, Marines, and the Army and California National Guard for training. Camp Michael Monsoor is a remote facility has only non-industrial Small Military Base MS4 storm water or point source discharges. Camp Michael Monsoor is located within the Canyon City Hydrologic Subarea (911.82) of the Campo Hydrologic Area (911.80) of the Tijuana Hydrologic Unit (911.00). Storm water discharges from Camp Michael Monsoor are considered to be non-industrial. There are no identified point source discharges at the Camp Michael Monsoor.

8. Camp Morena

Camp Morena is located on approximately 62 acres in mountainous eastern San Diego County approximately 55 miles east of the city of San Diego. It is bordered by National Forest lands on the north and east. The Morena Reservoir high water line is across Morena Stokes Valley Road from the camp and the North Shore Camp of the San Diego County Lake Morena Regional Park borders the camp on the southwest side. The facility primarily supports training for military and homeland security personnel. Camp Morena is a remote facility with no industrial storm water or point source discharges. Camp Morena is located within the Morena Hydrologic Area (911.50) of the Tijuana Hydrologic Unit (911.00). Storm water discharges from Camp Morena are considered to be non-industrial Small Military Base MS4 discharges. There are no identified point source discharges at Camp Morena.

B. Description of Wastewater Discharges

During the term of Order No. R9-2009-0081, as modified by Order No. R9-2010-0057, discharges to receiving waters have been eliminated for boat rinsing, pier boom cleaning, swimmer rinsing, marine mammal enclosure cleaning, and product water from the reverse osmosis water purification unit. Wastewater discharges at NBC consist of the following:

1. Storm Water Discharges

A total of approximately 191 storm water discharge points drain storm water runoff from the Facility. In the ROWD submitted in February 2014, the Discharger indicated that there were industrial runoff points from three of the installations at the Facility. Three installations at the Facility have municipal storm water discharges.

This Order establishes requirements for storm water discharges from industrial and non-industrial areas of the Facility (including Industrial High Risk Areas, Industrial Low Risk Areas, Industrial No Exposure Areas, and Small Military Base MS4 Areas).

a. Small Municipal Separate Storm Sewer System Areas (Small Military Base MS4s)

Section 402(p) of the Clean Water Act (CWA) establishes a framework for regulating storm water discharges under the NPDES Program. In 1990, the United States Environmental Protection Agency (USEPA) promulgated regulations for permitting storm water discharges from industrial sites and from municipal separate storm sewer systems (MS4s) serving a population of 100,000 people or more. These regulations, known as the Phase I regulations, require operators of medium and large MS4s to obtain storm water permits. On December 8, 1999, USEPA promulgated regulations, known as Phase II regulations, requiring permits for storm water discharges from Small MS4s.

As defined by 40 CFR section 122.26(b)(8), an MS4 is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) designed or used for collecting or conveying storm water; (ii) which is not a combined sewer; and (iii) which is not part of a publicly owned treatment works (POTW).

A Small MS4 is an MS4 that is not permitted under the municipal Phase I regulations, but is permitted under the municipal Phase II regulations. A Small MS4 is owned or operated by the U.S., a state, a city, a town, a borough, a county, a parish, a district, an association, or another public body having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes. Small MS4s include systems similar to separate

storm sewer systems in large municipalities, such as systems at military bases. In this Order, Small Military Base MS4 is the non-industrial part of a Small MS4.

Storm water runoff from non-industrial portions of the Facility such as administrative buildings, roads, parking lots, and other municipal type discharges, are subject to regulation under Phase II MS4 requirements.

Discharges through the MS4 of material other than storm water to Waters of the U.S. are effectively prohibited except as allowed under the provisions of section IV.F of this Order or as otherwise authorized by a separate NPDES permit. A list of authorized non-storm water discharges is provided in section IV.F of this Order and includes diverted stream flows, rising groundwater, uncontaminated groundwater, springs, drinking fountain water, emergency eye wash/shower water, condensate, and several other categories of discharge. These discharges are authorized under this Order unless the Discharger or the San Diego Water Board identifies the discharges as a significant source of pollutants to Waters of the U.S. or physically interconnected MS4. If the discharges meet the conditions in section IV.F, the Discharger must ensure that steps are taken to prevent or reduce the contact of non-storm water discharges with significant materials or equipment; and minimize, to the extent practicable, the flow or volume of non-storm water discharges. The Discharger is required to prepare a Storm Water Management Plan (SWMP) with Best Management Practices (BMPs) for Small Military Base MS4 discharges including authorized non-storm water.

This Order establishes requirements for Small Military Base MS4 storm water discharges from the Facility based on Phase II MS4 requirements, similar to those established in the State Water Resources Control Board (State Water Board) General NPDES Permit for the Discharge of Storm Water From Small Municipal Separate Storm Sewer Systems (WQ Order No. 2013-0001-DWQ), adopted on February 5, 2013.

b. Industrial Storm Water

This Order establishes requirements for the discharge of storm water runoff from "Industrial High Risk Areas," which are defined in section IV.B.1 of this Order as *"All areas where wastes or pollutants of significant quantities from ship construction, modification, repair, and maintenance activities (including abrasive blast grit material, primer, paint, paint chips, solvents, oils, fuels, sludges, detergents, cleansers, hazardous substance, toxic pollutants, non-conventional pollutants, materials of petroleum origin, or other substances of water quality significance) are subject to precipitation, run-on, and/or runoff."*

This Order also establishes requirements for storm water runoff from industrial areas not associated with ship construction, modification, repair, or maintenance activities, and are designated as "Industrial Low Risk Areas," and from "Industrial No Exposure Areas," where all industrial materials and activities are protected from contact with storm water.

Section IV.B.1. of this Order defines Industrial No Exposure Areas, Industrial Low Risk Areas, and Industrial High Risk Areas. Section IV.B.2 of this Order requires that the risk level of storm water discharges shall be categorized annually by the Discharger based on the activities conducted in the drainage area for each outfall.

Pollutants that may be present in the discharge include pollutants that the storm water is likely to contact, including, but not limited to sediment, solids, oil and grease, and metals.

2. Steam Condensate

NBC currently uses a pressurized steam system for both shore and afloat operations. Within NBC, only NASNI has an on-base steam system. During the generation and distribution of steam at NASNI, condensate is formed. This condensate is discharged both on land and to San Diego Bay and the Pacific Ocean.

Currently, steam is produced at NASNI by an on-site cogeneration plant that is operated by Applied Energy, a Navy contractor. During the production of steam, one or more of the following chemical additives are injected to the steam to assist in controlling the pH in the steam system: Trident 3506 (into boiler feed water), Trident 2301 (into boiler feed water), Trident 1003 (into boiler), and Trident 1103 (into boiler). It is important to control the pH and the goal is to maintain the pH between 8.5 and 9 to avoid the creation of acids in the steam distribution system. Specific chemicals that may be present in steam condensate as a result of additives, as presented in prior annual reports, include: cyclohexylamine (20%), diethylaminoethanol, diethylhydroxylamine, hydroquinone, and morpholine.

After leaving the plant, the steam enters the distribution system, which consists of high- and low-pressure steam lines; pressure reducing valve stations; and expansion joints. The steam is provided to buildings and surface ships. The steam system has traps in the steam lines designed to discharge steam condensate to ensure the steam supplied to users meets quality assurance specifications and is free of condensate. When water collects in the steam lines it is essential for the system to remove the water as soon as possible.

The only steam condensate discharge at NBC to San Diego Bay is from NASNI. There were 66 steam discharge points during the term of Order No. R9-2009-0081, but only 10 remain. Fifty-six discharges were eliminated during the current permit term as a result of removal, change of status, or discharge to permeable ground surface. At most locations, the system releases steam condensate from traps in a cloud of steam that has a temperature in excess of 100 degrees Celsius. A portion of this steam discharge evaporates prior to forming a condensate and discharging to the land or to San Diego Bay. The pier discharge points, in addition to releasing steam, drip small amounts of water to the bay between steam discharges. The estimated discharge rate for the steam lines is one ounce per minute. Based on two years of self-monitoring report (SMR) data for discharge points SC-001 through SC-008, the discharge volume has been modified from 750 GPD to approximately 456 GPD. Out of the ten steam condensate discharges still active on NASNI, nine discharge to the San Diego Bay, and one discharges to the golf course pond and then to the Pacific Ocean.

A map of the steam condensate discharge locations is shown in Attachment B (Figure B-3). A line drawing for the steam condensate discharge is shown in Attachment C (Figure C-1).

3. Diesel Engine Cooling Water Discharges

NASNI has historically used diesel engines to supply water to the fire suppression system (sprinklers). These diesel engines discharge non-contact engine cooling water. Order No. R9-2009-0081 regulated four diesel engine cooling water systems, Discharge Points CW-001 through CW-004. Only one diesel engine cooling water system remains on NBC and is located at Building 812 on NASNI (Discharge Point CW-001). Discharge Points CW-002 through CW-004 have been eliminated and are no longer regulated by this Order.

The diesel engine at Discharge Point CW-001 has been out of service for more than a year and is not expected to be in use for another year or more. Moreover, the Navy is currently

evaluating ways to eliminate the discharge from Building 812 in the future by directing the cooling water to the sanitary sewer or otherwise managing it to prevent a discharge. However, the Report of Waste Discharge includes information on the Diesel Engine Cooling Water discharge as it most recently occurred, in case it should continue.

When operational, the diesel engines must be tested regularly to ensure the operability of the fire sprinkler pump. During the pump tests, non-contact bay water will be used to cool the diesel engine that supplies water to the fire sprinkler pump. During an emergency, the pump will supply water to the fire sprinkler system in adjacent buildings. During non-emergency weekly tests, cooling water is discharged into the San Diego Bay. The fire sprinkler systems in adjacent buildings are not activated during these weekly tests.

If the pump becomes operational and the weekly pump tests are conducted, non-contact seawater will be pumped from San Diego Bay through a steel pipe that is approximately 48 feet long and 15 inches in diameter. The diesel engine will discharge non-contact cooling seawater through a 2-inch steel pipe that runs approximately 12 feet into a sump that channels into the San Diego Bay. The flow rate is expected to be 450 gallons per week (GPW). A pollution prevention plan has been developed and implemented to address potential chemical pollutants in the cooling water discharge of the diesel-engine-powered pump in Building 812.

A map of the diesel engine cooling discharge locations is shown in Attachment B (Figure B-4). A line drawing for the utility vault dewatering discharge is shown in Attachment C (Figure C-2).

4. Utility Vault and Manhole Dewatering

NBC has electrical and steam utility vaults and manholes that may discharge water to surface waters. The utility vaults and manholes are located at NASNI, NAB, and SSTC. Only NASNI has steam vaults. NAB and SSTC have only electrical switch or substation vaults. Utility companies or agencies, including NAVFAC SW, supply utility resources (excluding water), as necessary for day-to-day living and operations. This includes, but is not limited to, supplies of natural gas, electricity, and telephone service. Electrical and steam utilities are owned and maintained by NAVFAC SW. The utility vault discharges are short-term intermittent discharges of contained water from utility vaults and underground structures. Navy installations in San Diego require electrical power for both shore and afloat operations. The on-base electrical power is carried through an extensive underground conduit system. Electrical utility vaults and manholes contain high voltage electrical equipment, transformers, switchgear, and/or below ground cables.

The steam utility manholes can also accumulate steam condensate water. High-pressure steamlines are also located in underground conduit systems and are accessed through utility manholes. NAVFAC SW dewater utility vaults and manholes as needed to protect equipment, or prior to performing repair, maintenance, or installation of equipment. Water collected in utility vaults or manholes is either automatically or manually pumped out for disposal. The volume of water pumped is dependent upon rainfall amounts and infiltration. The automatic sump pumps are used to dewater the utility electrical vaults and the water is discharged to landscaped areas, gutters, catch basins, or channels depending on the location of the vault. Only those vaults that use automatic pumping that discharge to receiving waters are subject to this permit. Vaults are not included in the permit where NBC staff or contractors deliver or direct water removed from the vaults to the sanitary sewer or a pervious area where it will not discharge to receiving waters.

There are a total of 13 utility vaults located across the NBC installations that could potentially have point source discharges. Of the 13 vaults, 10 electrical vaults are located at NASNI. These vaults can accumulate groundwater and storm water and are dewatered using automatic sump pumps. Depending on the volume, these discharges may reach a storm drain inlet that drains to San Diego Bay.

There are two electrical switch or substation vaults located at NAB. These vaults are located inside buildings and are away from the quay walls and piers. These vaults can also accumulate groundwater and storm water and are dewatered using automatic sump pumps. Depending on the volume, these discharges may reach a storm drain inlet that drains to San Diego Bay or the Pacific Ocean. All 13 vaults have meters on the pumps and most record little to no discharge. The Navy is currently evaluating the actual discharge potential at these locations.

There is one electrical switch or substation vault at SSTC. This substation is located inside a building and has an automated sump pump to dewater the vaults of groundwater seepage and storm water. The sump pump prevents the water from contacting the electrical equipment. The sump discharges to the ground surface around the building. Depending on the volume, these discharges may reach a storm drain that drains to the Pacific Ocean.

Vaults without sump pumps and manholes at NBC are manually dewatered when necessary, using a portable pump or pump truck. NAVFAC SW has implemented procedures to eliminate dewatering discharges to surface waters from vaults without sump pumps and manholes, which can be found in the recently updated Pollution Prevention Plan (PPP) for Utility Vault and Manhole Dewatering Discharges at NBSD/NBC/NBPL (August 2013). NAVFAC SW either pumps the water into an adjacent utility manhole or transfers the water to the sanitary sewer system. However, there could be rare emergency situations that would require dewatering vaults without sump pumps or manholes onto the ground surface.

Prior to the adoption of Order No. R9-2003-0008 for the Facility, discharges from utility vaults and manholes were regulated by the statewide *General Order for Discharges from Utility Vaults and Underground Structures to Surface Waters* (Order No. 96-12-DWQ, NPDES No. CAG990002). At the time of adoption of Order No. R9-2003-0008, the State Water Board was awaiting USEPA approval of the re-issued General Order (Order No. 2001-11-DWQ). In order to regulate all of the discharges at the Facility under one Order, the San Diego Water Board incorporated the pertinent specifications, limitations, and monitoring requirements of Order No. 2001-11-DWQ into Order No. R9-2003-0008. Order No. R9-2009-0081 incorporated the pertinent specifications, limitations, and monitoring requirements of Order No. 2006-0008-DWQ, *General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges from Utility Vaults and Underground Structures to Surface Waters*. It is the practice of the San Diego Water Board to incorporate the provisions of the most current applicable permit. This Order incorporates the pertinent requirements from the State Water Board's *General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges from Utility Vaults and Underground Structures to Surface Waters* (Order No. 2014-0174-DWQ).

A map of the utility vault dewatering discharge locations is shown in Attachment B (Figures B-5 through B-7). A line drawing for the utility vault dewatering discharge is shown in Attachment C (Figure C-3).

5. Pier Washing Discharge

Bird feces are washed from the ammunition pier (Bravo Pier) at NASNI and discharged to San Diego Bay. No industrial activities are performed on the ammunition pier, only loading and unloading of ammunition and ordnance from ships. Bravo Pier is swept with a street sweeper prior to being washed. A pump located on the pier is used to supply potable water for washing. The pump is rated at 100 gpm, but the actual rate varies. Duration of pier washing varies from 45-90 minutes. The discharge volume is approximately 6,700 gallons for each washing event. Washing occurs 4 times per week during the seagull migration period and about 100 times per year depending on duration of the migration period which may start as early as late May and go through November. The wash water discharges to San Diego Bay from several drains located on the pier. Discharges from the Bravo Pier occur over the edge of the pier and through numerous rectangular drains located on the pier.

A map of the pier washing discharge locations is shown in Attachment B (Figure B-8). A line drawing for the pier washing discharge is shown in Attachment C (Figure C-4).

C. Discharge Points and Receiving Waters

1. The eight installations of the Facility are described in section II.A of this Fact Sheet and the four installations which are regulated by this Order are shown in Attachment B (Figure B-1).

Wastewater is discharged into the San Diego Bay, Pacific Ocean, Tijuana River Estuary, Morena Reservoir, tributaries to the San Luis Rey River, and waters in the Canyon City Hydrologic Area as summarized in Table F-6 below:

Table F-6. Discharge Locations

Discharge Point	Discharge Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
Industrial Process Water Effluent Discharges				
SC-001	Steam Condensate	32° 42' 22" N	117° 11' 23.26	San Diego Bay
SC-002	Steam Condensate	32° 42' 22" N	117° 11' 22" W	San Diego Bay
SC-003	Steam Condensate	32° 42' 23" N	117° 11' 22" W	San Diego Bay
SC-004	Steam Condensate	32° 42' 21" N	117° 11' 20" W	San Diego Bay
SC-005	Steam Condensate	32° 42' 21" N	117° 11' 18" W	San Diego Bay
SC-006	Steam Condensate	32° 42' 20" N	117° 11' 16" W	San Diego Bay
SC-007	Steam Condensate	32° 42' 20" N	117° 11' 15" W	San Diego Bay
SC-008	Steam Condensate	32° 42' 19" N	117° 11' 13" W	San Diego Bay
SC-009	Steam Condensate	32° 42' 29" N	117° 11' 23" W	San Diego Bay
SC-010	Steam Condensate	32° 41' 46" N	117° 11' 59" W	Pacific Ocean
CW-001	Diesel Engine Cooling Water	32° 41' 43" N	117° 13' 36" W	San Diego Bay
UV-001	Utility Vault and Manhole Dewatering	32° 42' 8" N	117° 10' 57" W	San Diego Bay
UV-002	Utility Vault and Manhole Dewatering	32° 42' 17" N	117° 11' 11" W	San Diego Bay
UV-003	Utility Vault and Manhole Dewatering	32° 42' 20" N	117° 11' 27" W	San Diego Bay

Discharge Point	Discharge Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
UV-004	Utility Vault and Manhole Dewatering	32° 42' 37" N	117° 11' 24" W	San Diego Bay
UV-005	Utility Vault and Manhole Dewatering	32° 42' 36" N	117° 11' 22" W	San Diego Bay
UV-006	Utility Vault and Manhole Dewatering	32° 42' 45" N	117, 11° 25" W	San Diego Bay
UV-007	Utility Vault and Manhole Dewatering	32° 42' 42" N	117° 12' 12" W	San Diego Bay
UV-008	Utility Vault and Manhole Dewatering	32° 42' 26" N	117° 11' 39" W	San Diego Bay
UV-009	Utility Vault and Manhole Dewatering	32° 42' 15" N	117° 11' 57" W	San Diego Bay
UV-010	Utility Vault and Manhole Dewatering	32° 42' 2" N	117° 11' 25" W	San Diego Bay
UV-011	Utility Vault and Manhole Dewatering	32° 40' 31" N	117° 9' 38" W	San Diego Bay
UV-012	Utility Vault and Manhole Dewatering	32° 40' 23" N	117° 10' 1" W	San Diego Bay
UV-013	Utility Vault and Manhole Dewatering	32° 35' 57" N	117° 7' 25" W	San Diego Bay
PW-001	Pier Washing	32° 41' 43" N	117° 13' 36" W	San Diego Bay
<i>Small Military Base Municipal Separate Storm Sewer System (MS4) Discharges</i>				
See Attachment M of this order	Storm Water (wet weather) and Non-Storm Water (dry weather)	See Attachment M of this order	See Attachment M of this order	Pacific Ocean, San Diego Bay, Tijuana River Estuary, San Luis Rey River Watershed, Morena Reservoir, or Canyon City Hydrologic Area
<i>Industrial No Exposure Area Storm Water Discharges</i>				
See Attachment M of this order	Industrial No Exposure Area Storm Water (wet weather) and Non-Storm Water (dry weather)	See Attachment M of this order	See Attachment M of this order	Pacific Ocean or San Diego Bay
<i>Industrial Low Risk Area Storm Water Discharges</i>				
See Attachment M of this order	Industrial Low Risk Area Storm Water (wet weather) and Non-Storm Water (dry weather)	See Attachment M of this order	See Attachment M of this order	Pacific Ocean or San Diego Bay

Discharge Point	Discharge Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
<i>Industrial High Risk Area Storm Water Dischargers</i>				
See Attachment M of this order	Industrial High Risk Area Storm Water (wet weather) and Non-Storm Water (dry weather)	See Attachment M of this order	See Attachment M of this order	Pacific Ocean or San Diego Bay

D. Summary of Previous Requirements and Self-Monitoring Report (SMR) Data

1. Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 contained the following Discharge Prohibitions:
 - a. The dumping, deposition or discharge of the following wastes directly into Waters of the U.S., including but not limited to the Pacific Ocean and San Diego Bay, or adjacent to such waters in any manner which may permit its being transported into the waters is prohibited:
 - i. Paint chips;
 - ii. Blasting materials;
 - iii. Paint over spray;
 - iv. Paint spills;
 - v. Water contaminated with abrasive blast materials, paint, oils, fuels, lubricants, solvents, or petroleum;
 - vi. Hydro-blast water;
 - vii. Tank cleaning water such as to remove sludge and/or dirt;
 - viii. Clarified water from an oil and water separator, except for storm water discharges treated by an oil and water separator and having coverage under this Order;
 - ix. Steam cleaning water;
 - x. Pipe and tank hydrostatic test water, unless regulated by an NPDES permit;
 - xi. Saltbox water;
 - xii. Hydraulic oil leaks and spills;
 - xiii. Fuel leaks and spills;
 - xiv. Trash;
 - xv. Miscellaneous refuse and rubbish;
 - xvi. Fiberglass dust;
 - xvii. Swept materials;
 - xviii. Ship repair and maintenance activity debris;
 - xix. Demineralizer and reverse osmosis brine; and
 - xx. Oily bilge water.
 - b. Diesel engine cooling water discharges having a maximum temperature greater than 4°F above the natural temperature of the receiving water are prohibited.
 - c. Boat rinsing discharges having a maximum temperature greater than 20°F above the natural temperature of the receiving water are prohibited.

- d. The Discharger shall comply with all requirements of the Basin Plan Waste Discharge Prohibitions.
 - e. Discharges of waste not specifically authorized by this Order or in a manner or location not specifically described in this Order are prohibited unless regulated by applicable WDRs.
 - f. Except as allowed in [the Storm Water Pollution Prevention Plan], non-storm water discharges that discharge either directly or indirectly to Waters of the United States (U.S.) are prohibited. Prohibited non-storm water discharges must be either eliminated or permitted by a separate NPDES permit.
 - g. Industrial storm water discharges and authorized or permitted non-storm water discharges shall not cause or threaten to cause pollution, contamination, or nuisance as defined in CWC section 13050.
 - h. Wastes shall not be discharged into or adjacent to areas where the protection of beneficial uses requires spatial separation from waste fields.
 - i. The discharge of the first ¼ inch (first flush) of storm water runoff from high risk areas is prohibited, except if the pollutants in the discharge are reduced to the extent and demonstrate through testing that the discharge achieves compliance with the [applicable acute toxicity effluent limitations]. The discharge of the remainder of the storm water must also achieve compliance with the toxicity limitation specified in this Order but only needs to be demonstrated twice per year, unless under accelerated testing.
 - j. The discharge of wastes that cause or contribute to the violation of water quality standards (designated beneficial uses and water quality objectives developed to protect beneficial uses) is prohibited
2. Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 also established requirements for steam condensate, diesel engine cooling water, reverse osmosis product water, utility vault and manhole dewatering discharges, pier washing, pier boom cleaning, marine mammal enclosure cleaning, small boat rinsing, and miscellaneous discharges.
 3. Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 established acute toxicity effluent limitations for the discharge of industrial storm water.
 4. Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 established benchmark values for the discharge of storm water from any industrial activity for copper of 63.6 µg/L and zinc of 117 µg/L.

Table F-7. Storm Water Benchmark Exceedances

Reporting Period	No. of Outfall Discharge Events Exceeding Copper Benchmark	No. of Outfall Discharge Events Exceeding Zinc Benchmark
2011	55	83
2012	7	15
2013	11	82
2014	14	41

E. Compliance Summary

1. Review of the Facility's self-monitoring reports from June 2009 to March 2015 identified the following violations:
 - a. Industrial Storm Water Acute Toxicity effluent limitation in section IV.A.5 of Order No. R9-2009-0081 of Pass was reported as Fail 105 times from June 2009 to June 2014 which includes the 2013/2014 monitoring year. In the 2013/2014 monitoring year, 51 samples were tested for toxicity and 14 samples were reported as Fail. Using the effluent limitation in this Order, only one sample would be in violation.
 - b. The Discharger reported 23 discharges of unauthorized cooling water in violation of the prohibitions in section A of Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 from 9/10/2009 to 8/2/2011. This discharge was discontinued after August 2011.
2. The following effluent limitation violations were found in reviewing the Facility's self-monitoring reports from June 2009 to March 2015:

Table F-8. Effluent Limitation Violations

Discharge	Constituent	Number of Exceedances	Period	Effluent Limitation	Dates
Steam Condensate	Lead, Total Recoverable	3	Daily Maximum	15.5 µg/L	7/23/2012, 10/17/2013, & 8/4/2014
Steam Condensate	Lead, Total Recoverable	10	Monthly Average	6.3 µg/L	7/23/2012 to 3/3/2015
Steam Condensate	Copper, Total Recoverable	66	Daily Maximum	5.8 µg/L	6/2/2010 to 5/4/2014
Steam Condensate	Copper, Total Recoverable	116	Monthly Average	2.0 µg/L	6/10/2010 to 3/3/2015
Steam Condensate	Bis (2-Ethylhexyl) Phthalate	1	Daily Maximum	11.8 µg/L	12/22/2011
Steam Condensate	Bis (2-Ethylhexyl) Phthalate	4	Monthly Average	5.9 µg/L	12/22/2011 to 10/20/2014
Steam Condensate	pH	3	Instantaneous Maximum	9.0	9/10/2009 to 3/10/2010
Steam Condensate	pH	2	Instantaneous Minimum	7.0	10/20/2014
Diesel Engine Cooling Water	Turbidity	1	Monthly Average	75 NTU	12/9/2009
Diesel Engine Cooling Water	Zinc, Total Recoverable	1	Daily Maximum	150 µg/L	11/5/2009
Diesel Engine Cooling Water	Copper, Total Recoverable	6	Daily Maximum	97 µg/L	7/22/2009 to 12/9/2009

3. On 05/22/2015, the Facility was inspected by the San Diego Water Board to determine compliance with Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 and to verify the information contained in the ROWD. No violations were observed.
4. On 01/24/2013, the Facility was inspected by a USEPA contractor to determine compliance with Order No. R9-2009-0081 as modified by Order No. R9-2010-0057. No violations were observed.

F. Planned Changes

1. The steam cogeneration plant contract is due to expire in 2018, and NBC is currently pursuing efforts toward full decentralization of the system. The steam condensate discharges are expected to be eliminated following conversion to the new systems which will include return systems for steam condensate. While the overall category of steam condensate discharges will remain in this Order, multiple individual steam condensate discharges have been eliminated since the previous permit.
2. The diesel engine sprinkler station at Building 812 on NASNI has been out of service for more than a year and is not expected to be in use for another year or more. The Discharger plans to direct the cooling water to the sanitary sewer or otherwise manage it to prevent discharge.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to CWA section 402 and implementing regulations adopted by the USEPA and chapter 5.5, division 7 of the California Water Code (Water Code or CWC; commencing with section 13370). This Order shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as WDRs pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).

B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100 through 21177.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** The San Diego Water Board adopted a *Water Quality Control Plan for the San Diego Basin* (Basin Plan) on September 8, 1994 which was last amended on April 4, 2011. The Basin Plan was subsequently approved by the State Water Board on December 13, 1994. Subsequent revisions to the Basin Plan have also been adopted by the San Diego Water Board and approved by the State Water Board. The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Requirements of this Order implement the Basin Plan. Beneficial uses applicable to the San Diego Bay, Pacific Ocean, Tijuana River Estuary, Morena Reservoir, tributaries to the San Luis Rey River, and waters in the Canyon City Hydrologic Area are as follows:

Table F-9. Basin Plan Beneficial Uses.

Discharge Point	Receiving Water Name	Beneficial Use(s)
SC-001 through SC-009, CW-001, UV-001 through UV-013, PW-001, and storm water discharges as identified in Attachment M of this order.	San Diego Bay	Industrial service supply (IND); navigation (NAV); contact water recreation (REC1); non-contact water recreation (REC2); commercial and sport fishing (COMM); preservation of biological habitats of special significance (BIOL); estuarine habitat (EST); wildlife habitat (WILD); preservation of rare, threatened or endangered species (RARE); marine habitat (MAR); migration of aquatic organisms (MIGR); spawning, reproduction, and/or early development (SPWN); and, shellfish harvesting (SHELL).
SC-010, and storm water discharges, as identified in Attachment M of this order.	Pacific Ocean	IND, REC1, REC2, NAV, COMM, aquaculture (AQUA), BIOL, WILD, RARE, MAR; MIGRA, SPWN, and SHELL.
Storm water discharges, as identified in Attachment M of this order.	Tijuana River Estuary	REC1, REC2, COMM, BIOL, EST, WILD, RARE, MAR, MIGR, SPWN, and SHELL.
Municipal storm water discharges from the Remote Training Site Warner Springs.	San Luis Rey River Watershed	Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), IND, Freshwater Replenishment (FRESH), Hydropower Generation (POW), REC1, REC2, Warm Freshwater Habitat (WARM), WILD
Municipal storm water discharges from Camp Morena	Morena Reservoir	MUN, AGR, IND, Industrial Process Supply (PROC), FRESH, REC1, REC2, WARM, Cold Freshwater Habitat (COLD), WILD, RARE
Municipal storm water discharges from Camp Michael Monsoor	Canyon City Hydrologic Area	REC1, REC2, WARM, WILD

2. Thermal Plan. The State Water Board adopted the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. The Thermal Plan contains temperature objectives for surface waters.

The Thermal Plan defines elevated temperature waste as “*liquid, solid, or gaseous material including thermal waste discharged at a temperature higher than the natural temperature of receiving water.*” The Thermal Plan also defines a new discharge as “*any discharge (a) which is not presently taking place unless waste discharge requirements have been established and construction as defined in Paragraph 10 has commenced prior to adoption of this plan or (b) which is presently taking place and for which a material change is proposed but no construction as defined in Paragraph 10 has commenced prior to adoption of this plan.*”

Thermal objectives for new discharges to an enclosed bay are applicable for diesel engine cooling water. This objective is:

Thermal waste discharges having a maximum temperature greater than 4°F above the natural temperature of the receiving water are prohibited.

Requirements of this Order implement the Thermal Plan.

- 3. California Ocean Plan.** The State Water Board adopted the *Water Quality Control Plan for Ocean Waters of California, California Ocean Plan* (Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, 2005, 2009, and 2012. The State Water Board adopted the latest amendment on October 16, 2012, and it became effective on August 19, 2013. The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean. The Ocean Plan identifies beneficial uses of ocean Waters of the State to be protected as summarized below:

Table F-10. Ocean Plan Beneficial Uses

Discharge Point	Receiving Water	Beneficial Uses
SC-010, and storm water discharges, as identified in Attachment M of this Order.	Pacific Ocean	Industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated Areas of Special Biological Significance (ASBS); rare and endangered species; marine habitat; fish spawning and shellfish harvesting

In order to protect the beneficial uses, the Ocean Plan establishes water quality objectives and a program of implementation. Requirements of this Order implement the Ocean Plan.

- 4. Sediment Quality Plan.** The State Water Board adopted the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality* (Sediment Quality Plan) on September 16, 2008, and it became effective on August 25, 2009. This Sediment Quality Plan supersedes other narrative sediment quality objectives, and establishes new sediment quality objectives and related implementation provisions for specifically defined sediments in most bays and estuaries. Requirements of this Order implement the sediment quality objectives of this Sediment Quality Plan.
- 5. National Toxics Rule (NTR) and California Toxics Rule (CTR).** Federal water quality criteria were adopted by USEPA through the NTR in 40 CFR section 131.36 (promulgated on December 22, 1992, amended on May 4, 1995 and November 9, 1999). About forty criteria in the NTR applied to California waters. On May 18, 2000, USEPA published the CTR in the Federal Register (65 Fed. Register 31682-31719), adding 40 CFR section 131.38. The CTR established new priority pollutant criteria for California waters and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These regulations contain federal water quality criteria for priority pollutants.
- 6. State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the San Diego Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

- 7. Antidegradation Policy.** Federal regulations at 40 CFR section 131.12 require that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68 16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The San Diego Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 CFR section 131.12 and State Water Board Resolution No. 68-16.
- 8. Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 CFR section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.
- 9. Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of Waters of the State, including protecting rare, threatened, or endangered species. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.
- 10. Atomic Energy Act.** Pursuant to the *Atomic Energy Act*, the San Diego Water Board does not have jurisdictional authority to regulate the discharge of radioactive wastes from United States naval nuclear propulsion plants and their support facilities. The U.S. Department of the Navy and the Department of Energy have jurisdiction for discharges of radioactive material. The Navy has a monitoring program for the discharge of radioactive wastes from naval vessels. Consistent with the Atomic Energy Act, this Order does not regulate the discharge of radioactive wastes and does not include monitoring for radioactivity.
- 11. Uniform National Discharge Standards (UNDS).** In 1996, Congress passed legislation amending CWA section 312 to provide the Department Of Defense and the USEPA authority to jointly establish UNDS for incidental discharges from vessels of the Armed Forces in state waters and the contiguous zone. This comprehensive, three-phase, regulatory program applies to vessels of the Armed Forces including, but not limited to, the Navy, Military Sealift Command, Marine Corps, Army, Air Force, and Coast Guard. UNDS is designed to enhance environmental protection of coastal waters by creating protective standards to reduce environmental impacts associated with vessel discharges, stimulate the development of improved pollution control devices, and advance the development of environmentally sound ships by the Armed Forces. The Phase I final rule and preamble language, including a summary of the Phase I process and findings (64 Fed. Reg. 25126; 40 CFR part 1700), was published in the Federal Register on May 10, 1999. Phase I of UNDS determines the types of vessel discharges that require control by a Marine Pollution Control Device (MPCD) and those that do not require control, based on consideration of the anticipated environmental effects of the discharge and other factors listed in the CWA. In Phase I, the USEPA and the Department Of Defense identified 25 discharges to be controlled by MPCDs. Phase II of UNDS development focuses on promulgating MPCD

performance standards for those vessel discharges identified during Phase I as requiring an MPCD. In this Phase, Department Of Defense and USEPA are establishing discharge performance standards for different classes, types, and sizes of vessels. These standards are specific to existing vessels as well as future (new design) vessels and will be promulgated in batches for efficiency purposes. A draft rule establishing MPCD for the first batch of 11 discharges was promulgated on February 3, 2014. Phase III of UNDS development will focus on establishing requirements for the design, construction, installation, and use of MPCDs. After completion of Phase III, states will be prohibited from regulating these UNDS discharges. In anticipation of the completion of UNDS, this Order does not regulate vessel discharges with applicable MPCDs (as BMPs) identified in the draft UNDS rule.

D. Impaired Water Bodies on CWA 303(d) List

Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On October 11, 2011 USEPA gave final approval to California's 2010 section 303(d) List of Water Quality Limited Segments (303(d) list). San Diego Bay, as a whole, is listed as impaired for polychlorinated biphenyls (PCBs). Additional portions of San Diego Bay are listed as impaired for additional parameters. San Diego Bay adjacent to the Facility is listed as impaired for copper. Table F-10 below lists the San Diego Bay impairments near the Facility.

Table F-11. 303(d) Impairments near the Facility

Water Body	Location	Constituent	Installation
San Diego Bay	Whole Bay	Polychlorinated biphenyls (PCBs)	All
San Diego Bay	Shoreline, Glorietta Bay	Copper	Adjacent to NAB
San Diego Bay	San Diego Bay Shoreline, G Street Pier	Total Coliform	Near NASNI and NAB ¹
San Diego Bay	San Diego Bay Shoreline, Vicinity of B St and Broadway Piers	Benthic Community Effects	Near NASNI and NAB ¹
San Diego Bay	San Diego Bay Shoreline, Vicinity of B St and Broadway Piers	Sediment Toxicity	Near NASNI and NAB ¹
San Diego Bay	San Diego Bay Shoreline, Vicinity of B St and Broadway Piers	Total Coliform	Near NASNI and NAB ¹
San Diego Bay	San Diego Bay Shoreline, Shelter Island Shoreline Park	Enterococcus, Fecal Coliform, and Total Coliform	Near NASNI and NAB ¹
San Diego Bay	San Diego Bay Shoreline, Tidelands Park	Enterococcus, Fecal Coliform, and Total Coliform	Near NASNI and NAB ¹
San Luis Rey River	East of Interstate 15	Total Nitrogen as N	Adjacent to RTSWS
San Luis Rey River	West of Interstate 15	Chloride, Enterococcus, Fecal Coliform, Phosphorus, Total Dissolved Solids, Total Nitrogen as N, and Toxicity	RTSWS is tributary
Pacific Ocean Shoreline	San Luis Rey River Mouth	Enterococcus and Total Coliform	RTSWS is tributary

Water Body	Location	Constituent	Installation
Morena Reservoir	Whole Reservoir	Ammonia as Nitrogen, Color, Manganese, Phosphorus, pH	Adjacent to Camp Morena
Tijuana River Estuary	1 Acre to 150 Acres	Eutrophic, Indicator Bacteria, Lead, Nickel, Dissolved Oxygen, Pesticides, Thallium, Trash, Turbidity	Adjacent to NOLF

¹ These impairments are not adjacent to the Facility but are near the Facility.

On February 10, 2010, the San Diego Water Board adopted Resolution No. R9-2010-0001, an Amendment to the Water Quality Control Plan for the San Diego Region to Incorporate the Revised Total Maximum Daily Loads for Indicator Bacteria, Project I - Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek). This TMDL Basin Plan amendment was subsequently approved by the State Water Resources Control Board on December 14, 2010, the Office of Administrative Law (OAL) on April 4, 2011, and the United States Environmental Protection Agency (USEPA) on June 22, 2011. RTSWS is a Phase II MS4 discharger to a tributary to the San Luis Rey River. The TMDL establishes the following Waste Load Allocations (WLAs) and compliance schedule for Phase II MS4 dischargers. This Order establishes requirements to implement these WLAs in accordance with the TMDL.

Table F-12. WLAs for Phase II MS4s in the San Luis Rey HU

Watershed	Fecal Coliform WLA		Enterococcus WLA		Total Coliform WLA	
	Wet Weather Billion MPN/year	Dry Weather Billion MPN/Month	Wet Weather Billion MPN/year	Dry Weather Billion MPN/Month	Wet Weather Billion MPN/year	Dry Weather Billion MPN/Month
San Luis Rey HU (903.00)	914,026	1,058	1,300,235	185	14,373,954	5,289

Table F-13. Wet and Dry Weather Compliance Schedule and Reduction Milestones for Achieving Exceedance Frequency

Implementation Action	Responsible Party	Date
Submit annual progress reports or Update SWPPPs/SWMPs/LRPS in accordance with RB Accepted LRPs	Phase II Permittees	Upon Enrollment in Phase II MS4 Requirements
Meet Wet and Dry Weather Frequency Exceedance Milestones	All Phase I, Phase II MS4s, Caltrans	
50% Reductions ¹ – Priority ² 1		April 4, 2016
50% Reductions ¹ – Priority ² 2		April 4, 2017
50% Reductions ¹ – Priority ² 3		April 4, 2018
100% Reductions ¹ – Priority ² 1,2,3		April 2, 2021+

Notes:

¹ Wet: single sample maximum REC-1 WQOs Dry: 30-day geometric mean REC-1 WQOs. The percent reduction for each compliance year applies to the total number of samples taken that comply with Resolution No. R9-2010-0001. The maximum allowable percent exceedance frequency for the single sample maximum (wet weather days only) is 22% (Resolution No. R9-2010-0001, Finding 10). For dry weather days, there is no maximum allowable exceedance and it is set at 0%. The Compliance Year percent reductions are based on the total number of samples taken. For Example: If in Year 5 of the compliance schedule, 100 samples are taken, only 50% of those samples can exceed the single sample maximum for wet weather by 22% of the maximum allowable percent exceedance frequency for the single sample maximum. By Year 10+, no samples can exceed

the Exceedance Frequency. Baseline years for wet and dry days shall be as identified in Order No R9 2015-0001 Attachment E for the Bacteria I TMDL.

² Priorities are defined in Resolution No. R9-2010-0001, Attachment A, pg. 63-65.

E. Other Plans, Polices and Regulations

1. **Bays and Estuaries Policy.** The State Water Board adopted a Water Quality Control Policy for Enclosed Bays and Estuaries of California (Bays and Estuaries Policy) on May 16, 1974 (last amended in 1995). The Bays and Estuaries Policy establishes principles for management of water quality, quality requirements for waste discharges, discharge prohibitions, and general provisions to prevent water quality degradation and to protect the beneficial uses of waters of enclosed bays and estuaries. These principles, requirements, prohibitions and provisions have been incorporated into this Order.
 - a. The Bays and Estuaries Policy contains the following principle for management of water quality in enclosed bays and estuaries, which includes San Diego Bay and the Tijuana River Estuary:
 - i. The discharge of municipal wastewaters and industrial process waters (exclusive of cooling water discharges) to enclosed bays and estuaries shall be phased out at the earliest practicable date. Exceptions to this provision may be granted by the San Diego Water Board only when the San Diego Water Board finds that the wastewater in question would consistently be treated and discharged in such a manner that it would enhance the quality of receiving waters above that which would occur in the absence of the discharge. For the purpose of this policy, ballast waters and innocuous non-municipal wastewaters such as clear brines, washwater, and pool drains are not considered industrial process wastes, and may be allowed by the San Diego Water Board under discharge requirements that provide protection to the beneficial uses of the receiving water.

The San Diego Water Board finds that the discharges of steam condensate, diesel engine cooling water, pier washing wastewater, other miscellaneous facility-related discharges identified in the Discharger's ROWD storm water, and utility vault dewatering wastewater discharged in compliance with the terms of this Order are innocuous non-municipal wastewaters and, as such, are not subject to the above prohibition.
 - ii. The Bays and Estuaries Policy also prohibits the discharge or by-passing of untreated wastes. This Order prohibits the discharge and by-passing of untreated waste except for steam condensate, diesel engine cooling water, pier washing wastewater, other miscellaneous facility-related discharges identified in the Discharger's ROWD storm water, and utility vault dewatering wastewater.
 - b. The following Principles for the Management of Water Quality in Enclosed Bays and Estuaries, as stated in the Bays and Estuaries Policy, apply to all of California's enclosed bays and estuaries including San Diego Bay and the Tijuana River Estuary:
 - i. Persistent or cumulative toxic substances shall be removed from the waste to the maximum extent practicable through source control or adequate treatment prior to discharge.

- ii. Bay or estuarine outfall and diffuser systems shall be designed to achieve the most rapid initial dilution practicable to minimize concentrations of substances not removed by source control or treatment.
- iii. Wastes shall not be discharged into or adjacent to areas where the protection of beneficial uses requires spatial separation from waste fields.
- iv. Waste discharges shall not cause a blockage of zones of passage required for the migration of anadromous fish.
- v. Non-point sources of pollutants shall be controlled to the maximum practicable extent.

The San Diego Water Board has considered the Principles for the Management of Water Quality in Enclosed Bays in Estuaries, in adopting this Order. The terms and conditions of this Order are consistent with the Principles for the Management of Water Quality in Enclosed Bays and Estuaries.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the Waters of the U.S. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the CFR: 40 CFR section 122.44(a) requires that permits include applicable technology-based effluent limitations (TBELs) and standards; and 40 CFR section 122.44(d) requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

1. **Discharge Prohibition III.A.** Ship repair and maintenance activities may result in the discharge of pollutants and wastes to Waters of the U.S. Discharge Prohibition III.A prohibits the discharge of wastes associated with ship repair and maintenance activities. This prohibition is based on the requirements of the Enclosed Bays and Estuaries Policy. Water Code section 13260 requires filing an application and ROWD before a discharge can occur. Discharges not described in the application and ROWD, and subsequently in this Order, are prohibited.
2. **Discharge Prohibition III.B.** As discussed in section III.C.2 of this Fact Sheet, the discharges from diesel engine cooling water are considered a new discharge of thermal waste. The specific water quality objective for enclosed bays for new discharges contained in the Thermal Plan states that “thermal waste discharges having a maximum temperature greater than 4°F above the natural temperature of the receiving water are prohibited.” Discharge Prohibition III.B is based on the requirements of the Thermal Plan.
3. **Discharge Prohibitions III.C., III.D., III.E and III.F.** These prohibitions are based on the requirements of the Basin Plan.
4. **Discharge Prohibition III.G.** Waste discharges from ship repair and maintenance activities on ships, piers, and shoreside facilities can cause high concentrations of copper, zinc, other metals, and oil and grease in industrial storm water runoff. High concentrations of these

pollutants in the industrial storm water runoff can be toxic to aquatic organisms. Discharge Prohibition III.G is based on the toxicity requirements contained in the Basin Plan and prohibits the discharge of the first ¼ inch (first flush) of storm water runoff from High Risk areas unless the discharge can be demonstrated to meet the limits of this Order.

5. **Discharge Prohibition III.H.** This Prohibition is based on the requirements of the Bays and Estuaries Policy and is consistent with prohibitions established for similar facilities.
6. **Discharge Prohibition III.I.** This Order prohibits the discharge of hazardous substances equal to or in excess of reportable quantities listed in 40 CFR part 117 and/or 40 CFR part 302.
7. **Discharge Prohibition III.J.** This requirement prohibits the discharge of PCBs based on the 303(d) listing for these compounds for San Diego Bay.

B. Technology-Based Effluent Limitations (TBELs)

1. Scope and Authority

Section 301(b) of the CWA and implementing USEPA permit regulations at section 40 CFR section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards.

The CWA requires that TBELs be established based on several levels of controls:

- a. Best practicable treatment control technology (BPT) represents the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.
- b. Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.
- c. Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including Biochemical Oxygen Demand 5-day @ 20 °C (BOD), Total Suspended Solids (TSS), fecal coliform, pH, and oil and grease. The BCT standard is established after considering the “cost reasonableness” of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.
- d. New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA also requires USEPA to develop effluent limitations guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and 40 CFR section 125.3 authorize the use of Best Professional Judgment (BPJ) to derive TBELs on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the San Diego Water Board must consider specific factors outlined in 40 CFR section 125.3.

There are no applicable ELGs for the discharges in this Order. As such, the discharges authorized by this Order meet minimum federal technology-based requirements based on Best Professional Judgment (BPJ) in accordance with 40 CFR section 125.3.

2. Applicable TBELs

- a. **Steam Condensate and Diesel Engine Cooling Water.** The Ocean Plan is applicable in its entirety to point source discharges to the ocean. Steam condensate from Discharge Point No. SC-010 discharges to the Pacific Ocean. As such, effluent limitations based on Table 2 of the Ocean Plan for grease and oil, settleable solids, turbidity, and pH have been established in this Order for discharges of steam condensate to the Pacific Ocean at Discharge Point No. SC-010.

Although the Ocean Plan is not directly applicable to enclosed bays such as San Diego Bay, Order No. R9-2009-0081 determined that the salinity and beneficial uses of San Diego Bay are similar to those of ocean Waters of the State, and used the Ocean Plan as a reference for developing discharge specifications, receiving water prohibitions, and narrative limitations to supplement the provisions contained in the CTR, the SIP, and the Bays and Estuaries Policy. As such, Order No. R9-2009-0081 established effluent limitations for steam condensate at Discharge Points SC-001 through SC-66 and diesel engine cooling water discharges at Discharge Points CW-001 through CW-004 to the San Diego Bay, consistent with Table 2 of the Ocean Plan for grease and oil, settleable solids, turbidity, and pH. Steam condensate discharges except SC-001 through SC-010 and diesel engine cooling water discharges except CW-001 have been eliminated. Consistent with federal and state anti-backsliding requirements, effluent limitations for grease and oil, settleable solids, turbidity, and pH have been carried over for discharges of steam condensate and diesel engine cooling water to the San Diego Bay.

Table F-14. Applicable Numeric Effluent Limitations from the Ocean Plan

Parameter	Units	Effluent Limitations		
		Average Monthly	Weekly Average	Instantaneous Maximum
Oil and Grease	mg/L	25	40	75
Settleable Solids	ml/L	1.0	1.5	3.0
Turbidity	NTU	75	100	225
pH	standard units	--	--	¹

¹ Within limits of 6.0 – 9.0 at all times

- b. **Utility Vaults.** The State Water Board found in section V.B.1.b of the Fact Sheet to Order No. 2014-0174-DWQ that it is not feasible to establish numeric effluent limitations for pollutants in discharges from utility vaults and underground structures. Instead, the State Water Board included a provision in Order No. 2014-0174-DWQ requiring implementation of pollution prevention practices to control and abate the discharge of pollutants to surface waters, achieve compliance utilizing BAT and BCT requirements, and achieve compliance with applicable water quality standards. Federal Regulations at 40 CFR sections 122.44(k)(3) and (4) authorize the San Diego Water Board to require BMPs to control or abate the discharge of pollutants when numeric effluent limitations are infeasible and when the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA. Consistent with the requirements of the Order No. 2014-0174-DWQ and Order No. R9-2009-0081 as modified by Order No. R9-2010-0057, this Order includes a provision requiring the Discharger to continue the implementation and maintenance of their BMPs and Pollution

Prevention Plan for Utility Vault and Manhole Dewatering Discharges (Utility Vault Plan) which includes BMPs to reduce the discharge of pollutants from utility vault and manhole dewatering. In addition, this Order establishes Numeric Action Levels (NALs) for utility vault discharges consistent with NALs in Order No. 2014-0174-DWQ.

- c. **Pier Washing.** Due to the nature of activities associated with discharges from pier washing, it is impractical to collect and treat the associated wastewaters prior to discharge. Therefore, the San Diego Water Board finds that it is not feasible to establish numeric effluent limitations for pollutants in discharges from pier washing. In accordance with 40 CFR sections 122.44(k)(3) and (4), the San Diego Water Board finds that the implementation of BMPs in lieu of numeric effluent limitations are appropriate. This Order includes a provision requiring the implementation of BMPs to control and abate the discharge of pollutants from pier washing.
- d. **Small Military Base MS4.** In accordance with 40 CFR section 122.44(k), the inclusion of BMPs in lieu of numeric effluent limitations is appropriate in storm water permits. The Discharger must implement BMPs that reduce pollutants in storm water runoff to the technology-based standard of Maximum Extent Practicable (MEP) to protect water quality. This Order requires the Discharger to develop and implement a SWMP that describes BMPs, measurable goals, and timetables for implementation in the six minimum control measures identified in 40 CFR section 122.34(b). This approach is consistent with the requirements of the current Naval Base San Diego Permit (Order No. R9-2013-0064) and Navy Base Point Loma Permit (Order No. R9-2014-0037) which include regulation of Phase II MS4 storm water discharges.
- e. **Industrial Storm Water.** In accordance with 40 CFR section 122.44(k), Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 determined that the implementation of BMPs for the discharge of industrial storm water were appropriate. To carry out the purpose of the CWA, Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 required the Discharger to develop and implement a SWPPP, as authorized by CWA section 304(e) and section 402(p), for toxic pollutants and hazardous substances, and for the control of storm water discharges. The requirement to implement an appropriate SWPPP for areas associated with industrial activity is retained from Order No. R9-2009-0081 as modified by Order No. R9-2010-0057.

In addition to the retention of a SWPPP, this Order establishes NALs for storm water from Industrial High Risk Areas and Industrial Low Risk Areas in lieu of benchmarks.

The statewide Industrial Storm Water General Permit was adopted on April 1, 2014, by the State Water Board and became effective on July 1, 2015. This statewide Industrial Storm Water General Permit contains NALs based on benchmarks in USEPA's *Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP)* which became effective May 27, 2009. Consistent with the intent of the State Water Board, this Order establishes NALs with a tiered compliance strategy. The San Diego Water Board finds that the State Water Board's NALs serve as an appropriate set of technology-based, measureable criteria that demonstrate compliance with BAT/BCT.

- f. **Non-storm water Discharges.** Non-storm water discharges as described in section IV.F of this Order include a wide variety of sources and may contribute significant pollutant loads to receiving waters. Measures to control spills, leakage, and dumping, and to prevent illicit connections must be addressed through structural as well as non-structural BMPs. The San Diego Water Board recognizes, however, that certain non-

storm water discharges may be necessary for general operation. Therefore, this Order authorizes such discharges provided they meet certain conditions that will minimize the discharge of pollutants to the receiving waters.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

Section 301(b) of the CWA and 40 CFR section 122.44(d) require that permits include limitations more stringent than applicable technology-based requirements where necessary to achieve applicable water quality standards.

Section 122.44(d)(1)(i) of 40 CFR mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels with the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but no numeric criterion or objective for the pollutant has been established, WQBELs must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

- a. The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Basin Plan. The beneficial uses applicable to San Diego Bay, the Tijuana River Estuary, a tributary to the San Luis Rey River watershed, Morena Reservoir, and waters in the Canyon City Hydrologic Area contained in the Basin Plan are summarized in section III.C.1 of this Fact Sheet. The Basin Plan includes both narrative and numeric water quality objectives applicable to the receiving waters.
- b. The CTR promulgated toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. Priority pollutant water quality criteria in the CTR are applicable to industrial process discharges to San Diego Bay. The CTR contains both saltwater and freshwater criteria. Because a distinct separation generally does not exist between freshwater and saltwater aquatic communities, the following apply: in accordance with 40 CFR section 131.38(c)(3), freshwater criteria apply to areas where salinities are at or below 1 part per thousand (ppt) 95 percent or more of the time. The San Diego Water Board has determined that because the discharges are to San Diego Bay, saltwater CTR criteria are applicable. The CTR criteria for saltwater aquatic life or human health for consumption of organisms, whichever is more stringent, are used to prescribe the effluent limitations in this Order to protect the beneficial uses of San Diego Bay, a water of the U.S. in the

vicinity of the discharges.

The SIP procedures for implementation of CTR and NTR criteria are not explicitly applicable to storm water discharges. However, the toxicity objectives contained in the Basin Plan and the Bays and Estuary Policy are applicable to the discharge of storm water from Facility to San Diego Bay, the Tijuana River Estuary, a tributary to the San Luis Rey River watershed, Morena Reservoir, and waters in the Canyon City Hydrologic Area. The applicable toxicity limitations are discussed in this section of the Fact Sheet.

The SIP procedures for implementation of CTR and NTR criteria are applicable to non-storm water discharges. The non-storm water discharges from the Facility to San Diego Bay include discharges associated with steam condensate, diesel engine cooling water, pier washing, and utility vault and manhole dewatering. A Reasonable Potential Analysis (RPA) was conducted for the non-storm water discharges to the San Diego Bay using all the available data. All data available for a type (e.g., steam condensate) was used to categorize the type of discharge and used for evaluating reasonable potential.

- Representative monitoring data for utility vault and manhole dewatering discharges was available from September 2009 through June 2015.
 - Representative monitoring data for discharges of diesel generator cooling water was available from July 2009 through August 2011 when the discharge last occurred.
 - Representative monitoring data for steam condensate was available from August 2009 through June 2015.
 - Representative monitoring data for pier washing water was available from September 2009 through June 2015.
 - Receiving water monitoring in the vicinity of the discharges was available from January 2011 through June 2015.
- c. For all ocean Waters of the State, the Ocean Plan establishes the beneficial uses summarized in section III.C.3 of this Fact Sheet. The Ocean Plan also includes water quality objectives for the ocean receiving water for bacterial characteristics, physical characteristics, chemical characteristics, biological characteristics, and radioactivity. Table 1 of the Ocean Plan establishes numeric water quality objectives that are applicable to all discharges within the jurisdiction of the Ocean Plan.

The Ocean Plan procedures for implementation of Table 1 criteria are applicable to non-storm water discharges. The non-storm water discharges from the Facility to San Diego Bay include the discharge of steam condensate at Discharge Point No. SC-010. A RPA was conducted for the non-storm water discharges to the Pacific Ocean. All data available for steam condensate was used to categorize the discharge and used for evaluating reasonable potential.

- Representative monitoring data for steam condensate was available from August 2009 through June 2015.
- Receiving water monitoring in the vicinity of the discharges was available from January 2011 through June 2015.

Tables F-13 and F-14 summarizes the applicable water quality criteria/objectives for priority pollutants reported in detectable concentrations in the effluent. These criteria were used in conducting the RPAs for this Order.

Table F-15. Applicable CTR/NTR Water Quality Criteria with Detectable Concentrations

Constituent	Selected Criteria	CTR/NTR Water Quality Criteria					
		Freshwater		Saltwater		Human Health for Consumption of:	
		Acute	Chronic	Acute	Chronic	Water & Organisms	Organisms Only
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Antimony, Total Recoverable	4,300			--	--		4,300
Arsenic, Total Recoverable	36			69	36		--
Beryllium, Total Recoverable	No Criteria			--	--		--
Cadmium, Total Recoverable	9.36			42.25	9.36		--
Chromium (III), Total Recoverable	No Criteria			--	--		--
Chromium (VI), Total Recoverable	50			1,100	50		--
Copper, Total Recoverable	3.73			5.78	3.73		--
Cyanide, Total Recoverable	1			1	1		--
Lead, Total Recoverable	8.52			220.82	8.52		--
Mercury, Total Recoverable	0.051			--	--		0.051
Nickel, Total Recoverable	8.28			74.75	8.28	Not Applicable	4,600
Silver, Total Recoverable	2.24			2.24	--		--
Selenium, Total Recoverable	71			290	71		--
Thallium, Total Recoverable	6.3			--	--		6.3
Zinc, Total Recoverable	86			95.14	86		--
2,3,7,8-TCDD	1.4x10 ⁻⁸			--	--		1.4x10 ⁻⁸
Chlorodibromomethane	34			--	--		34
Methylene Chloride	1,600			--	--		1,600
4-Nitrophenol	14			--	--		14
Benzo(a)Anthracene	0.049			--	--		0.049
Benzo (a) Pyrene	0.049			--	--		0.049
Benzo (b) Fluoranthene	0.049			--	--		0.049
Bis (2-ethylhexyl) Phthalate	5.9			--	--		5.9
Butylbenzyl Phthalate	5,200			--	--		5,200
Chrysene	0.049			--	--		0.049
Diethyl Phthalate	120,000			--	--		120,000
Indeno(1,2,3-cd)Pyrene	0.049			--	--		0.049

Constituent	Selected Criteria	CTR/NTR Water Quality Criteria					
		Freshwater		Saltwater		Human Health for Consumption of:	
		Acute	Chronic	Acute	Chronic	Water & Organisms	Organisms Only
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Pyrene	11,000			--	--		11,000
Aldrin	0.00014			--	--		0.00014
alpha-BHC	0.0130			--	--		0.0130
beta-BHC	0.046			--	--		0.046
gamma-BHC	0.063			--	--		0.063
delta-BHC	No Criteria			--	--		No Criteria
Chlordane	0.00059			--	--		0.00059
4,4-DDT	0.00059			--	--		0.00059
4,4-DDE	0.00059			--	--		0.00059
4,4-DDD	0.00084			--	--		0.00084
Dieldrin	0.00014			--	--		0.00014
alpha-Endosulfan	0.0087			--	--		0.0087
beta-Endosulfan	0.0087			--	--		0.0087
Endosulfan Sulfate	240			--	--		240
Endrin	0.0023			--	--		0.0023
Endrin Aldehyde	0.81			--	--		0.81
Heptachlor	0.00021			--	--		0.00021
Heptachlor Epoxide	0.00011			--	--		0.00011

Table F-16. Applicable Ocean Plan Water Quality Objectives with Detectable Concentrations

Constituent	Selected Criteria	Water Quality Objectives (µg/L)			
		6-Month Median	30-day Average	Daily Maximum	Instantaneous Maximum
Antimony, Total Recoverable	1,200	--	1,200	--	--
Arsenic, Total Recoverable	8	8	--	32	80
Copper, Total Recoverable	3	3	--	12	30
Lead, Total Recoverable	2	2	--	8	20
Nickel, Total Recoverable	5	5	20	--	50
Zinc, Total Recoverable	20	20	--	80	200
TCDD Equivalents	3.9x10 ⁻⁹	--	3.9x10 ⁻⁹	--	--
Bis(2-Ethylhexyl)Phthalate	3.5	--	3.5	--	--

b. **Dilution Credits.** Section 1.4.2 of the SIP establishes procedures for granting mixing zones and the assimilative capacity of the receiving water. Before establishing a dilution credit for a discharge, it must first be determined if, and how much, receiving water is available to dilute the discharge.

In the absence of a dilution credit, the worst-case dilution is assumed to be zero to provide protection for the receiving water beneficial uses. The impact of assuming zero assimilative capacity within the receiving water is that discharge limitations are applied end-of-pipe with no allowance for dilution within the receiving water. This Order uses a dilution of zero.

3. Determining the Need for WQBELs

Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an instream excursion above a narrative or numerical water quality standard.

The San Diego Water Board conducted the RPA for discharges to the San Diego Bay in accordance with section 1.3 of the SIP. The RPA for the discharge of steam condensate to the Pacific Ocean was conducted consistent with the requirements of Appendix VI of the Ocean Plan. A summary of the results for the parameters which demonstrated reasonable potential, for each applicable discharge, is provided in the tables below.

Table F-17. Summary of CTR/NTR RPA Results (Discharges to San Diego Bay)

Discharge Location No.	Parameter	Maximum Effluent Concentration (MEC) (µg/L)	Background (B) (µg/L)	Criteria (C) (µg/L)	Reason ^{1,2}
Steam Condensate to San Diego Bay (SC-001 through SC-009)	Arsenic, Total Recoverable	2.9	99	36	B > C
	Copper, Total Recoverable	170	5.9	3.73	MEC > C
	Lead, Total Recoverable	15.6	2.45	8.5	MEC > C
	Nickel, Total Recoverable	2.2	23	8.3	B > C
	Selenium, Total Recoverable	0.35	330	71	B > C
	Zinc, Total Recoverable	1,100	27	86	MEC > C
	2,3,7,8-TCDD	0.00000114	<0.000000463	1.4x10 ⁻⁸	MEC > C
	Bis(2-Ethylhexyl)Phthalate	16	1.2	5.9	MEC > C
	Aldrin	0.01	0.003	0.00014	MEC > C
	4,4'-DDT	0.009	0.02	0.00059	B > C
	4,4'-DDE	0.005	0.002	0.00059	B > C
	4,4'-DDD	0.004	0.002	0.00084	B > C
	Heptachlor	0.02	0.004	0.00021	MEC > C
	Heptachlor Epoxide	0.1	0.002	0.00011	MEC > C
Diesel Engine Cooling Water (CW-001)	Arsenic, Total Recoverable	84	63	36	MEC > C
	Chromium (VI), Total Recoverable	150	2.18	50	MEC > C
	Copper, Total Recoverable	280	9.75	3.73	MEC > C
	Lead, Total Recoverable	16	2.45	8.51	MEC > C
	Nickel, Total Recoverable	46	23	8.28	MEC > C
	Selenium, Total Recoverable	1.2	290	71.14	B > C, pollutant detected in effluent
	Zinc, Total Recoverable	380	<27	86	MEC > C
	4,4'-DDT	0.039	<0.002	0.00059	MEC > C
	4,4'-DDE (linked to DDT)	0.018	<0.0002	0.00059	MEC > C
	4,4'-DDD	0.021	<0.0007	0.00084	MEC > C

Discharge Location No.	Parameter	Maximum Effluent Concentration (MEC) (µg/L)	Background (B) (µg/L)	Criteria (C) (µg/L)	Reason ^{1,2}
Utility Vault and Manhole Dewatering (UV-001 through UV-013)	Arsenic, Total Recoverable	47	99	36	B > C, pollutant detected in effluent
	Cadmium, Total Recoverable	9.89	<0.03	9.36	MEC > C
	Copper, Total Recoverable	910	5.9	3.73	MEC > C
	Lead, Total Recoverable	32	2.45	8.51	MEC > C
	Mercury, Total Recoverable	0.17	<0.03	0.051	MEC > C
	Nickel, Total Recoverable	35.3	23	8.28	MEC > C
	Selenium, Total Recoverable	31	330	71	B > C, pollutant detected in effluent
	Zinc, Total Recoverable	870	<27	86	MEC > C
	Benzo(a)Anthracene	2.7	0.02	0.049	MEC > C
	Benzo(a)Pyrene	0.11	<0.02	0.049	MEC > C
	Benzo(b)Fluoranthene	0.17	<0.03	0.049	MEC > C
	Bis(2-Ethylhexyl)Phthalate	240	1.2	5.9	MEC > C
	Chrysene	1.7	<0.02	0.049	MEC > C
	Indeno(1,2,3-cd)Pyrene	0.052	<0.06	0.049	MEC > C
	Aldrin	0.009	0.003	0.00014	MEC > C
	alpha-BHC	0.03	0.002	0.013	MEC > C
	beta-BHC	0.11	0.008	0.046	MEC > C
	Chlordane	0.009	<0.007	0.00059	MEC > C
	4,4'-DDT	0.3	0.02	0.00059	MEC >= C
	4,4'-DDE (linked to DDT)	0.009	0.002	0.00059	MEC >= C
	4,4'-DDD	0.19	0.002	0.00084	MEC >= C
	Dieldrin	0.01	0.002	0.00014	MEC > C
	alpha-Endosulfan	0.026	0.003	0.0087	MEC > C
	beta-Endosulfan	0.02	0.03	0.0087	MEC > C
	Endrin	0.05	0.003	0.0023	MEC > C
	Heptachlor	0.23	0.004	0.00021	MEC > C
Heptachlor Epoxide	0.92	0.002	0.00011	MEC > C	
PCBs Sum	0.45	<3.43	0.00017	MEC > C	
Pier Washing (PW-001)	Arsenic, Total Recoverable	21	99	36	B > C, pollutant detected in effluent
	Copper, Total Recoverable	55	5.9	3.7	MEC > C
	Lead, Total Recoverable	12	2.45	8.5	MEC > C
	Mercury, Total Recoverable	0.12	<0.03	0.051	MEC > C
	Nickel, Total Recoverable	8.4	23	8.3	MEC > C
	Selenium, Total Recoverable	3.3	330	71	B > C, pollutant detected in effluent
	Zinc, Total Recoverable	1,020	27	86	MEC > C
	Aldrin	0.04	0.003	0.00014	MEC > C
	alpha-BHC	0.1	0.002	0.013	MEC > C
	beta-BHC	0.3	0.008	0.046	MEC > C
	4,4'-DDT	0.02	0.02	0.00059	MEC > C
	4,4'-DDE (linked to DDT)	0.02	0.002	0.00059	MEC > C
	alpha-Endosulfan	0.026	0.003	0.0087	MEC > C
beta-Endosulfan	0.03	0.03	0.0087	MEC > C	

Discharge Location No.	Parameter	Maximum Effluent Concentration (MEC) (µg/L)	Background (B) (µg/L)	Criteria (C) (µg/L)	Reason ^{1,2}
	Heptachlor	0.04	0.004	0.00021	MEC > C
	Heptachlor Epoxide	0.02	0.002	0.00011	MEC > C

¹ MEC = Maximum Effluent Concentration; B = Background Concentration; C = Criteria (Water Quality)

² Step 6 of section 1.3 of the SIP states that if B is greater than C and the pollutant is detected in the effluent, an effluent limitation is required and the analysis for the subject pollutant is complete.

Table F-18. Summary of Ocean Plan RPA Results (Discharges to the Pacific Ocean)

Discharge Location No.	Parameter	Number of Samples	Maximum Effluent Concentration (MEC) (µg/L)	Background (B) (µg/L)	Criteria (C) (µg/L)	Endpoint ¹
Steam Condensate to the Pacific Ocean (SC-010)	Antimony, Total Recoverable	6	1.5	0	1,200	3
	Arsenic, Total Recoverable	6	2.9	3	8	3
	Copper, Total Recoverable	146	170	2	3	1
	Lead, Total Recoverable	146	15.6	0	2	1
	Nickel, Total Recoverable	6	2.2	0	5	3
	Zinc, Total Recoverable	6	1,100	8	20	1
	TCDD Equivalentents	160	0.0000139	0	3.9 x 10 ⁻⁹	1
	Bis(2-Ethylhexyl)Phthalate	147	16	0	3.5	1

¹ Endpoint1 = Reasonable potential exists, limit required, establish monitoring.

Endpoint3 = The RPA is inconclusive. Monitoring has been established for these parameters.

4. WQBEL Calculations

- a. **Utility Vaults.** As shown in Table F-15, the San Diego Water Board finds that discharges from utility vault and manhole dewatering have the reasonable potential to exceed water quality criteria for several priority pollutants. However, section V.B.2 of the Fact Sheet to Order No. 2014-0174-DWQ finds that the State Water Board believes that it is infeasible to establish numeric effluent limitations for utility vault and underground structure discharges due, in part to: discharges occurring intermittently and for short durations; dewatering of utility vaults and underground structures provide essential public services needs to be conducted promptly to facilitate restoration of those services; the uncertainty of the volume and characteristics of the discharge from a utility vault or an underground structure; and the general lack of data and information to characterize discharges from utility vaults. Consistent with Order No. 2014-0174-DWQ and Order No. R9-2009-0081 as modified by Order No. R9-2010-0057, the San Diego Water Board is not establishing numeric effluent limitations for utility vaults and manholes in this Order. This Order includes a provision requiring the Discharger to continue the implementation and maintenance of their Utility Vault Plan which includes BMPs to reduce the discharge of pollutants from utility vault and manhole dewatering.
- b. **Discharges associated with pier washing.** Based on BPJ, the San Diego Water Board finds that discharges associated with pier washing exhibit reasonable potential to

exceed water quality criteria for a number of priority pollutants. The minimal flow, duration, infrequent and disperse nature of this discharges precludes the implementation of practical treatment systems. Therefore, the San Diego Water Board finds that it is not feasible to establish numeric effluent limitations for pollutants in this discharge. In lieu of numeric effluent limitations, the San Diego Water Board finds that the implementation of BMPs is sufficient to adequately protect receiving waters. This Order includes a provision requiring the implementation of BMPs to control and abate the discharge of pollutants from pier washing.

- c. **The Thermal Plan.** The Thermal Plan applies to steam condensate discharges and diesel engine cooling and was adopted by the State Water Board on May 18, 1972.

Steam condensate discharges are considered discharges of elevated temperature wastes and must comply with the following water quality objectives for enclosed bays and for coastal waters. The Discharger installed the steam condensate system prior to adoption of the Thermal Plan on May 18, 1972, so this steam condensate discharge is an existing discharge. A numeric effluent limitation is not provided for existing discharges. The following Thermal Plan water quality objectives have been applied as a narrative receiving water limitation. Due to the low discharge rate of steam condensate into the receiving water, the discharge is not expected to degrade beneficial uses due to elevated temperatures.

Thermal Plan water quality objective for existing discharges to enclosed bays:

“Elevated temperature waste discharges shall comply with limitations necessary to assure protection of beneficial uses.”

Thermal Plan water quality objective for existing discharges to coastal waters:

“Elevated temperature wastes shall comply with limitations necessary to assure protection of the beneficial uses and areas of special biological significance.”

Diesel engine cooling water discharges are considered discharges of thermal waste. Because it commenced after the May 18, 1972, Thermal Plan adoption date, the discharge of diesel engine cooling water constitutes a new discharge of a thermal waste. The following Thermal Plan water quality objective for new thermal discharges to enclosed bays is implemented directly as a discharge prohibition:

“Thermal waste discharges having a maximum temperature greater than 4° F above the nature temperature of the receiving water are prohibited.”

- d. **pH.** The WQBEL for pH for discharges to the San Diego Bay is based on the water quality objective contained in the Basin Plan, which states, *“In bays and estuaries the pH shall not be depressed below 7.0 nor raised above 9.0.”* This limitation has also been applied in this Order to discharges of steam condensate to the Pacific Ocean.
- e. **SIP Effluent Limitation Calculations.** If a reasonable potential exists to exceed applicable water quality criteria or objectives, then a WQBEL must be established in accordance with one or more of the three procedures contained in section 1.4 of the SIP where numeric effluent limitations are feasible. These procedures include:
- i. If applicable and available, use the WLA established as part of a TMDL.

- ii. Use of a steady-state model to derive maximum daily effluent limitations (MDELs) and average monthly effluent limitations (AMELs).
- iii. Where sufficient effluent and receiving water data exist, use of a dynamic model, which has been approved by the San Diego Water Board.

WQBELs are calculated following the procedures in section 1.4 of the SIP. Where an applicable primary MCL or secondary MCL is more stringent than a CTR/NTR parameter, the MCL has been used as the applicable human health criteria for CTR/NTR parameter.

WQBELs Calculation Example:

Using total recoverable copper for the discharge of steam condensate as an example, the following demonstrates how WQBELs were established for CTR/NTR parameters in this Order.

The process for developing these limitations and performance goals is consistent with section 1.4 of the SIP.

Calculation of aquatic life AMEL and MDEL:

Step 1: For each constituent requiring an effluent limitation, identify the applicable water quality criteria or objective. For each criterion, determine the effluent concentration allowance (ECA) using the following steady state equation:

$$ECA = C + D(C-B) \quad \text{when } C > B, \text{ and}$$

$$ECA = C \quad \text{when } C \leq B,$$

Where C = The priority pollutant criterion/objective, adjusted if necessary for hardness, pH, and translators. For discharges from the Facility, criteria for saltwater are independent of hardness and pH.

D = The dilution credit, and

B = The ambient background concentration.

As discussed above, this Order does not allow for dilution (D=0); therefore, for copper:

$$ECA_{\text{acute}} = 5.8 \text{ } \mu\text{g/L}$$

$$ECA_{\text{chronic}} = 3.7 \text{ } \mu\text{g/L}$$

$$ECA_{\text{human health}} = \text{Not Applicable}$$

Step 2: For each ECA based on aquatic life criterion/objective, determine the long-term average discharge condition (LTA) by multiplying the ECA by a factor (multiplier). The multiplier is a statistically based factor that adjusts the ECA to account for effluent variability. The value of the multiplier varies depending on the coefficient of variation (CV) of the data set and whether it is an acute or chronic criterion/objective. Table 1 of the SIP provides pre-calculated values for the multipliers based on the value of the CV. Equations to develop the multipliers in

place of using values in the tables are provided in section 1.4, Step 3 of the SIP and will not be repeated here.

$$LTA = ECA \times \text{Multiplier}_{99}$$

The CV for the data set must be determined before the multipliers can be selected and will vary depending on the number of samples and the standard deviation of a data set. If the data set is less than 10 samples, or at least 80% of the samples in the data set are reported as non-detect, the CV shall be set equal to 0.6. If the data set is greater than 10 samples, and at least 20 percent of the samples in the data set are reported as detected, the CV shall be equal to the standard deviation of the data set divided by the average of the data set.

For copper in steam condensate, over 10 samples were available and only 2 percent were non-detect. A CV of 2.08 was calculated by dividing the standard deviation by the mean of the data set. Thus, the CV shall be set equal to 2.08 for all CTR/NTR parameters.

For copper in steam condensate, the following data was used to develop the acute and chronic LTAs using equations provided in section 1.4, Step 3 of the SIP (Table 1 of the SIP also provides this data up to three decimals).

No. of Samples	CV	ECA Multiplier _{acute}	ECA Multiplier _{chronic}
147	1.81	0.13	0.22

$$LTA_{acute} = 5.8 \mu\text{g/L} \times 0.13 = 0.73 \mu\text{g/L}$$

$$LTA_{chronic} = 3.7 \mu\text{g/L} \times 0.22 = 0.81 \mu\text{g/L}$$

Step 3: Select the most limiting (lowest) of the LTA.

$$LTA = \text{most limiting of } LTA_{acute} \text{ or } LTA_{chronic}$$

For copper, the most limiting LTA is LTA_{acute}

$$LTA_{copper} = LTA_{acute} = 0.73 \mu\text{g/L}$$

Step 4: Calculate the WQBELs by multiplying the LTA by a factor (multiplier). WQBELs are expressed as AMEL and MDEL. The multiplier is a statistically based factor that adjusts the LTA for the averaging periods and exceedance frequencies of the criteria/objectives and the effluent limitations. The value of the multiplier varies depending on the probability basis, the CV of the data set, the number of samples (for AMEL) and whether it is a monthly or daily limit. Table 2 of the SIP provides pre-calculated values for the multipliers based on the value of the CV and the number of samples. Equations to develop the multipliers in place of using values in the tables are provided in section 1.4, Step 5 of the SIP and will not be repeated here.

$$AMEL_{aquatic\ life} = LTA \times AMEL_{multiplier95}$$

$$MDEL_{aquatic\ life} = LTA \times MDEL_{multiplier99}$$

AMEL multipliers are based on a 95th percentile occurrence probability, and the MDEL multipliers are based on the 99th percentile occurrence probability. If the number of samples is less than four (4), the default number of samples to be used is four (4).

For copper, the following data were used to develop the AMEL and MDEL for effluent limitations using equations provided in section 1.4, Step 5 of the SIP:

No. of Samples Per Month	CV	Multiplier _{MDEL99}	Multiplier _{AMEL95}
4	1.81	7.97	2.64

Copper

$$AMEL_{\text{aquatic life}} = 0.73 \mu\text{g/L} \times 2.64 = 1.92 \mu\text{g/L}$$

$$MDEL_{\text{aquatic life}} = 0.73 \mu\text{g/L} \times 7.97 = 5.78 \mu\text{g/L}$$

Step 5: For the ECA based on human health, set the AMEL equal to the ECA_{human health}. For copper, there is no applicable human health criteria. Thus, heptachlor in steam condensate has been used as an example for calculating applicable human health effluent limitations below.

Heptachlor

$$AMEL_{\text{human health}} = ECA_{\text{human health}} = 0.00021 \mu\text{g/L}$$

Step 6: Calculate the MDEL for human health by multiplying the AMEL by the ratio of Multiplier_{MDEL} to the Multiplier_{AMEL}. Table 2 of the SIP provides pre-calculated ratios to be used in this calculation based on the CV and the number of samples. Heptachlor has a CV of 0.6 because there are fewer than 10 samples.

$$MDEL_{\text{human health}} = AMEL_{\text{human health}} \times (\text{Multiplier}_{\text{MDEL}} / \text{Multiplier}_{\text{AMEL}})$$

For the default CV of 0.6:

No. of Samples Per Month	CV	Multiplier _{MDEL 99}	Multiplier _{AMEL 95}	Ratio
4	0.6	3.1	1.6	2.0

For heptachlor:

$$MDEL_{\text{human health}} = 0.00021 \mu\text{g/L} \times 2.0 = 0.00042 \mu\text{g/L}$$

Step 7: Select the lower of the AMEL and MDEL based on aquatic life and human health as the WQBEL for the Order. In neither of the examples were both aquatic life and human health criteria applicable to both of the criteria, thus this step is not applicable for copper or heptachlor.

For discharges of steam condensate, the resulting effluent limitations are at least as stringent as those established in Order No. R9-2009-0081, with the exception of the MDEL for bis(2-ethylhexyl)phthalate. The MDEL of 13.7 μg/L would be less stringent than the MDEL of 11.8 μg/L established in the previous Order, thus the previous MDEL has been carried over consistent with state and federal anti-backsliding requirements.

For discharges of diesel engine cooling water, the resulting effluent limitations are at least as stringent as those established in Order No. R9-2009-0081, with some exceptions. The resulting AMEL for lead of 6.3 μg/L is less stringent than the AMEL

of 5.8 µg/L established in the previous Order, thus the previous AMEL has been carried over consistent with state and federal anti-backsliding requirements. Mercury did not demonstrate reasonable potential and the effluent limitation for mercury was removed consistent with state and federal anti-backsliding requirements.

A summary of the applicable CTR/NTR effluent limitations is provided below:

Table F-19. CTR-based Effluent Limitations

Parameters	Units	Effluent Limitations		
		Average Monthly	Average Weekly	Maximum Daily
Steam Condensate				
Arsenic, Total Recoverable	µg/L	30	--	59
Copper, Total Recoverable	µg/L	1.9	--	5.8
Lead, Total Recoverable	µg/L	3.4	--	12
Nickel, Total Recoverable	µg/L	6.8	--	14
Selenium, Total Recoverable	µg/L	58	--	120
Zinc, Total Recoverable	µg/L	47	--	95
2,3,7,8-TCDD	µg/L	1.4x10 ⁻⁸	--	2.8x10 ⁻⁸
Bis(2-Ethylhexyl)Phthalate	µg/L	5.9	--	15 ¹
Aldrin	µg/L	0.00014	--	0.00028
4,4'-DDT	ug/L	0.00059	--	0.00118
4,4'-DDE	ug/L	0.00059	--	0.00118
4,4'-DDD	ug/L	0.00084	--	0.00169
Heptachlor	µg/L	0.00021	--	0.00042
Heptachlor Epoxide	µg/L	0.00011	--	0.00022
Diesel Engine Cooling Water				
Arsenic, Total Recoverable	µg/L	20	--	62
Chromium VI, Total Recoverable	µg/L	27	--	85
Copper, Total Recoverable	µg/L	2.0	--	5.8
Lead, Total Recoverable	µg/L	6.3 ²	--	15
Nickel, Total Recoverable	µg/L	5.7	--	15
Selenium, Total Recoverable	µg/L	58	--	120
Zinc, Total Recoverable	µg/L	37	--	95
4,4-DDT	µg/L	0.00059	--	0.0017
4,4-DDE	µg/L	0.00059	--	0.0012
4,4-DDD	µg/L	0.00084	--	0.0017

¹ Current Order R9-2009-0081 has an effluent limitation of 12 µg/L for Bis(2-Ethylhexyl)Phthalate which is more stringent so this Order establishes an MDEL of 12 µg/L.

² Current Order R9-2009-0081 has an effluent limitation of 5.8 µg/L for lead which is more stringent so this Order establishes an MDEL of 5.8 µg/L.

- f. **Ocean Plan Effluent Limitation Calculations.** If a reasonable potential exists to exceed applicable water quality objectives, then a WQBEL must be established consistent with the requirements of the Ocean Plan.

Effluent limitations for water quality objectives listed in Table 1 of the Ocean Plan, with the exception of acute toxicity and radioactivity, are determined through the use of the following equation:

$$\text{Equation 1: } C_e = C_o + D_m (C_o - C_s)$$

where:

C_e = the effluent concentration limit, $\mu\text{g/L}$.

C_o = the concentration (water quality objective) to be met at the completion of initial* dilution, $\mu\text{g/L}$.

C_s = background seawater concentration, $\mu\text{g/L}$. Background seawater concentrations are specified in Table 3 of the Ocean Plan for arsenic (3 $\mu\text{g/L}$), copper (2 $\mu\text{g/L}$), mercury (0.0005 $\mu\text{g/L}$), silver (0.16 $\mu\text{g/L}$), and zinc (8 $\mu\text{g/L}$). For all other Table 1 parameters, $C_s = 0 \mu\text{g/L}$.

D_m = minimum probable initial dilution expressed as parts seawater per part wastewater. (There is no initial dilution for this discharge.)

Because there is no initial dilution for the discharge of steam condensate from Discharge Point No. SC-010, the effluent limitations will be equal to the objectives (i.e. $C_e = C_o$).

In addition to concentration-based effluent limitations, section C.4.j of the Ocean Plan requires mass-based effluent limitations calculated based on the concentration-based effluent limitations and a maximum flow rate.

$$\text{Mass Emission Rate (lb/day)} = 8.34 \times Q \times C$$

where: Q and C are the flow rate in million gallons per day and the constituent concentration in mg/L, respectively. 8.34 is a conversion factor.

However, due to the type of discharge (steam condensate), and periodic and low flow, accurate flow measurement to evaluate compliance with a mass-based effluent limitation is not feasible. Further, due to the nature of the discharge, it is not possible for the effluent to be further diluted and large fluctuations in flow are not expected to occur. Consistent with the previous Order, this Order establishes concentration-based effluent limitations for discharges to the Pacific Ocean. Concentration-based effluent limitations are anticipated to be protective of water quality.

A summary of the applicable WQBELs for the Discharger are summarized below:

Table F-20. Summary Applicable WQBELs for Steam Condensate to the Pacific Ocean

Parameter	Units	Effluent Limitations			
		6-Month Median	30-Day Average	Maximum Daily	Instantaneous Maximum
Copper, Total Recoverable	$\mu\text{g/L}$	3	--	12 ¹	30
Lead, Total Recoverable	$\mu\text{g/L}$	2	--	8	20
Zinc, Total Recoverable	$\mu\text{g/L}$	20	--	80	200
TCDD Equivalents	$\mu\text{g/L}$	--	3.9×10^{-9}	--	--
Bis(2-Ethylhexyl)Phthalate	$\mu\text{g/L}$	--	3.5	--	--

- ¹ Current Order R9-2009-0081 has an effluent limitation of 5.8 µg/L which is more stringent so this Order establishes an MDEL of 5.8 µg/L.

5. Whole Effluent Toxicity (WET)

a. Background and Rationale

The Basin Plan defines toxicity as the adverse response of organisms to chemicals or physical agents.

The Basin Plan establishes a narrative water quality objective for toxicity:

“All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.”

WET testing protects receiving waters from the aggregate toxic effect of a mixture of pollutants in the effluent. An acute toxicity test is conducted over a short time period and measures mortality. A chronic toxicity test is conducted over a short or a longer period of time and may measure mortality, reproduction, and growth. A chemical at a low concentration could have chronic effects but no acute effects until the chemical was at a higher concentration.

Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 established acute toxicity effluent limitations for storm water discharges. The Discharger reported 105 failed acute toxicity tests from June 2009 to June 2014 which includes the 2013/2014 monitoring year, indicating the presence and reasonable potential for toxicity in the discharge of storm water from the Facility. Further, the presence of numerous priority pollutants present in the industrial wastewaters indicate reasonable potential for toxicity within those discharges as well.

In discussions with USEPA Region 9, USEPA has informed San Diego Water Board staff that the application of chronic toxicity monitoring and effluent limitations are more desirable than acute toxicity because chronic toxicity is more conservative and provides a better indicator of chronic effects to organisms in the receiving water, other than organism mortality. Chronic effects, such as detrimental physiological responses (affecting fertilization, growth, reproduction, etc.) may be present, even when acute effects such as the death of an organism are not apparent. The use of chronic toxicity allows for a more accurate determination of the narrative water quality objective, which specifies *“detrimental physiological responses”*. Many detrimental physiological responses are not addressed when the test is limited to simply percent survival.

Based on the USEPA Region 9 guidance, chronic toxicity monitoring and effluent limitations are established in this Order for the discharge of industrial process waters (steam condensate and diesel engine cooling water) at the Facility. Because chronic toxicity is considered to be a more conservative indicator of toxicity, and the monitoring of all industrial process wastewater sample locations for both acute and chronic toxicity would be costly and redundant, the monitoring requirements and effluent limitations for acute toxicity have been removed for industrial process water based on the application of the more conservative chronic toxicity requirements. If the Discharger complies with effluent limitations for chronic toxicity, they will achieve water quality greater than that necessary to achieve compliance with acute toxicity effluent limitations.

The State Water Board has not adopted a policy or plan for regulating toxicity in storm water discharges. NBC currently has acute toxicity effluent limitations for industrial storm water discharges which they have not been able to achieve. An acute toxicity effluent limitation from Order R9-2009-0081 as modified by Order No. R9-2010-0057 has been carried over to this Order for industrial storm water and incorporates USEPA's guidance on the Test of Significant Toxicity (TST) approach. This Order also allows the Navy to conduct a study on chronic toxicity in industrial storm water discharges to evaluate appropriate instream waste concentration (IWC) for discharges to San Diego Bay. Because there is no established policy and the potential effects on receiving waters from chronic toxicity in industrial storm water discharges are not well understood, this Order maintains the acute toxicity effluent limitation for Industrial High Risk Areas storm water discharges. The San Diego Water Board may choose to establish end-of-pipe chronic toxicity effluent limitations for Industrial High Risk Areas storm water discharges in the future. In developing such a limitation, an IWC of 100 percent will be assumed unless mixing zones or dilution credits are authorized by the San Diego Water Board.

Navy Acute Toxicity Effluent Limitation Challenge

During the previous renewal of the Discharger's NPDES permits for NBPL and NBC in 2002 and 2003, the Discharger challenged the acute toxicity limitation, asserting that the acute toxicity limitation is not based on scientific data, that it is overly stringent for protecting water quality, and that diversion of all storm water runoff to the sanitary sewer is the only effective BAT/BCT for meeting the effluent limitation. The Discharger's challenge to the acute toxicity effluent limitation is addressed below because this Order establishes acute toxicity effluent limitations for storm water and chronic toxicity effluent limitations for applicable industrial wastewaters.

The acute toxicity effluent limitation established in Order No. R9-2009-0081 was established to implement the Basin Plan water quality objective for toxicity in receiving waters. The effluent limitation was derived from, and is essentially the same as, the acute toxicity discharge standard contained in the Bays and Estuaries Policy.

The Discharger's NPDES permits contained provisions which allowed the Discharger to recommend, after conducting a required study, alternative scientifically valid survival rates for acute exposure to discharges of storm water from industrial areas at the Discharger's facilities. The Discharger conducted a study to develop a scientifically defensible, and appropriate, toxicity limitation for industrial storm water discharges from Naval facilities to San Diego Bay. The results of the study were summarized in a Final Report, *Storm Water Toxicity Evaluation Conducted at: Naval Station San Diego, Naval Submarine Base San Diego, Naval Amphibious Base Coronado, and Naval Air Station North Island*, dated May 2006.

The Discharger's final recommendations included in the report are summarized below:

- The use of appropriate USEPA WET test methods and data evaluation when declaring a test result as toxic.
- Acknowledge WET method variability and the minimum significant difference that laboratory testing can provide in declaring a toxic result.
- Consideration of realistic exposure conditions when using WET testing to infer toxicity in the receiving water.

In addition, the Discharger submitted comments regarding the current acute toxicity requirements. Comments of significant importance are summarized below:

- The Discharger requested that the existing storm water toxicity testing language be revised to require a statistical comparison of discharge toxicity results with control sample toxicity results using a student t-test, to determine whether a discharge is toxic or not.
- The Discharger requested that the existing storm water toxicity testing language be revised to require the use of percent minimum significant difference, using the 10th and 75th percentiles as lower and upper bounds, respectively, to account for inherent variability of toxicity testing procedures to determine whether a discharge is toxic or not.
- The Discharger requested that the existing storm water toxicity discharge specification language be revised according to two proposed alternatives that presumably consider realistic exposure conditions to infer toxicity in the receiving water.

San Diego Water Board staff stated in a memorandum to the Executive Officer dated August 22, 2006 that the Discharger's proposed toxicity alternatives should not be adopted in their entirety and, "*Toxicity in storm water discharges should not be ignored just because the causative agent is diluted in bay water. Testing times should not be shortened to ensure that the variability inherent to storm water discharges is not causing low level toxicity that may be missed in an acute test.*" However, Order R9-2009-0081 established acute toxicity effluent limitations based on comparison of the discharge and a control using a statistical analysis.

Toxicity Rationale

The San Diego Water Board has considered the following information in developing toxicity monitoring and effluent limitations:

- The May 2006 storm water toxicity study performed by the Discharger;
- Comments received from the Discharger;
- Discussions with USEPA Region 9;
- USEPA's June 2010 guidance document titled *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document, An Additional Whole Effluent Toxicity Statistical Approach for Analyzing Acute and Chronic Data* (EPA 833-R-10-003);
- USEPA's June 2010 guidance document titled *National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document, An Additional Whole Effluent Toxicity Statistical Approach for Analyzing Acute and Chronic Data* (EPA 833-R-10-004);
- The narrative water quality for objective for toxicity contained in the Water Quality Control Plan for the San Diego Basin (Basin Plan); and
- An interpretation of applicable state and federal regulations.

The implementation of toxicity monitoring requirements and effluent limitations for discharges to San Diego Bay and Pacific Ocean are based on a new statistical approach

developed by USEPA that assesses the whole effluent toxicity measurement of wastewater effects on specific test organisms' ability to survive, grow, and reproduce called the TST. This new approach is a statistical method that uses hypothesis testing techniques based on research and peer-reviewed publications. The approach examines whether an effluent at the critical concentration and a control within a whole effluent toxicity test differ by an unacceptable amount (the amount that would have a measured detrimental effect on the ability of aquatic organisms to thrive and survive).

Organism response to the effluent and control are unlikely to be exactly the same, even if no toxicity is present. They might differ by such a small amount that even if statistically significant, it would be considered negligible biologically. A more useful approach could be to rephrase the null hypothesis, "Is the mean response in the effluent less than a defined biological amount?" The Food and Drug Administration has successfully used that approach for many years to evaluate drugs, as have many researchers in other biological fields. In that approach, the null hypothesis is stated as the organism response in the effluent is less than or equal to a fixed fraction (*b*) of the control response (e.g., 0.75 of the control mean response):

Null hypothesis: Treatment mean $\leq b * \text{Control mean}$

To reject the null hypothesis above means the effluent is considered non-toxic. To accept the null hypothesis means the effluent is toxic.

Before the TST null hypothesis expression could be recommended by USEPA, certain Regulatory Management Decisions (RMDs) were needed, including what effect level in the effluent is considered unacceptably toxic and the desired frequency of declaring a truly negligible effect within a test non-toxic.

In the TST approach, the *b* value in the null hypothesis represents the threshold for unacceptable toxicity. For chronic toxicity, the USEPA made the RMD that the *b* value is set at 0.75, which means that a 25 percent effect (or more) at the IWC is considered evidence of unacceptable chronic toxicity. For acute toxicity, the *b* value is set at 0.80.

USEPA's RMDs for the TST method are intended to identify unacceptable toxicity most of the time when it occurs, while also minimizing the probability that the IWC is declared toxic when in fact it is truly acceptable. Additional RMDs by USEPA to achieve this objective were made regarding acceptable maximum false positive (β using a TST approach) and false negative rates (α using a TST approach).

In the TST approach, the RMDs are defined as follows:

1. Declare a sample toxic between 75 – 95 percent of the time ($0.05 \leq \alpha \leq 0.25$) when there is unacceptable toxicity.
2. Declare an effluent non-toxic no more than 5 percent of the time ($\beta \leq 0.05$) when the effluent effect at the critical effluent concentration is 10 percent.

USEPA used valid toxicity data from approximately 2,000 WET tests to develop and evaluate the TST approach. The TST approach was tested using nine different whole effluent toxicity test methods comprising twelve biological endpoints and representing most of the different types of whole effluent toxicity test designs in use. More than one

million computer simulations were used to select appropriate alpha error rates for each test method that also achieved USEPA's other RMDs for the TST approach.

Effluent limitations are established using the TST "pass" "fail" approach as well as a percent effect.

Chronic Pass: A test result that rejects the null hypothesis (Ho) below is reported as "Pass" in accordance with the TST approach:

Ho: Mean response (100 percent effluent) $\leq 0.75 \times$ Control mean response

Chronic Fail: A test result that does not reject the null hypothesis (Ho) above is reported as "Fail" in accordance with the TST approach.

Percent Effect: The percent effect at the IWC is calculated for each test result using the following equation:

$$\% \text{ Effect at IWC} = \frac{\text{Mean Control Response} - \text{Mean IWC Response}}{\text{Mean Control Response}} * 100$$

A Maximum Daily Effluent Limitation (MDEL) and Median Monthly Effluent Limitation (MMEL) for chronic toxicity are established for applicable industrial process wastewaters (steam condensate and diesel engine cooling water). The MDEL is exceeded and a violation will be flagged when a toxicity test during routine monitoring results in a "fail" in accordance with the TST approach and the percent effect relative to a control is greater than or equal to 50%. The MMEL is exceeded when the median results of three independent toxicity tests, conducted within the same calendar month, and analyzed using the TST, (i.e. two out of three) is a "fail".

Acute Pass: An acute toxicity test result that rejects the null hypothesis (Ho) below is reported as "pass" in accordance with the TST approach:

Ho: Mean response (100 percent effluent) $\leq 0.80 \times$ Control mean response

Acute Fail: An acute toxicity test result that does not reject the null hypothesis (Ho) above is reported as "fail" in accordance with the TST approach.

A MDEL for acute toxicity is established for Industrial High Risk Areas storm water discharges and is exceeded when a toxicity test during routine monitoring results in a "fail" in accordance with the TST approach and the percent effect relative to a control is greater than or equal to 40%.

In June 2010, USEPA published a guidance document titled, *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, June 2010), in which they recommend the following: "Permitting authorities should consider adding the TST approach to their implementation procedures for analyzing valid WET data for their current NPDES WET Program." The TST approach is another statistical option for analyzing valid WET test data. Use of the TST approach does not result in any changes to USEPA's WET test methods. USEPA's *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Third Edition (EPA-821-R-02-014)*, recognizes that, "the statistical methods in this manual are not the only possible methods of statistical

analysis.” The TST approach can be applied to acute (survival) and chronic (sublethal) endpoints and is appropriate to use for both freshwater and marine EPA WET test methods.

USEPA’s WET testing program and acute and chronic WET methods rely on the measurement result for a specific test endpoint, not upon achievement of specified concentration-response patterns to determine toxicity. USEPA’s WET methods do not require achievement of specified effluent or ambient concentration-response patterns prior to determining that toxicity is present. Nevertheless, USEPA’s acute and chronic WET methods require that effluent and ambient concentration-response patterns generated for multi-concentration acute and chronic toxicity tests be reviewed—as a component of test review following statistical analysis—to ensure that the calculated measurement result for the toxicity test is interpreted appropriately (EPA-821-R-02-012, section 12.2.6.2; EPA-821-R-02-013, section 10.2.6.2.). In 2000, EPA provided guidance for such reviews to ensure that test endpoints for determining toxicity based on the statistical approaches utilized at the time the guidance was written (NOEC, LC50’s, IC25s) were calculated appropriately (EPA 821-B-00-004).

Appropriate interpretation of the measurement result from USEPA’s TST statistical approach (pass/fail) for effluent and receiving water samples is, by design, independent from the concentration-response patterns of the toxicity tests for those samples. Therefore, when using the TST statistical approach, application of EPA’s 2000 guidance on effluent and receiving waters concentration-response patterns will not improve the appropriate interpretation of TST results as long as all Test Acceptability Criteria and other test review procedures—including those related to Quality Assurance for effluent and receiving water toxicity tests, reference toxicity tests, and control performance (mean, standard deviation, and coefficient of variation)—described by the WET test methods manual and TST guidance, are followed. The 2000 guidance may be used to identify reliable, anomalous, or inconclusive concentration-response patterns and associated statistical results to the extent that the guidance recommends review of test procedures and laboratory performance already recommended in the WET test methods manual. The guidance does not apply to single-concentration (IWC) and control statistical t-tests and does not apply to the statistical assumptions on which the TST is based. The Regional Water Board will not consider a concentration-response pattern as sufficient basis to determine that a TST t-test result for a toxicity test is anything other than valid, absent other evidence. In a toxicity laboratory, unexpected concentration-response patterns should not occur with any regular frequency and consistent reports of anomalous or inconclusive concentration-response patterns or test results that are not valid will require an investigation of laboratory practices.

Any Data Quality Objectives or Standard Operating Procedure used by the toxicity testing laboratory to identify and report valid, invalid, anomalous, or inconclusive effluent or receiving water toxicity test measurement results from the TST statistical approach which include a consideration of concentration-response patterns and/or Percent Minimum Significant Difference (PMSDs) must be submitted for review by the Regional Water Board, in consultation with USEPA and the State Water Board’s Quality Assurance Officer and Environmental Laboratory Accreditation Program (40 CFR section 122.44(h)). As described in the bioassay laboratory audit directives to the San Jose Creek Water Quality Laboratory from the State Water Resources Control Board dated August 7, 2014, and from the USEPA dated December 24, 2013, the PMSD criteria only apply to compliance for NOEC and the sublethal endpoints of the NOEC, and are not used to interpret TST results.

A percent effect of 50% for chronic toxicity and 40% for acute toxicity has been incorporated into the MDEL. The decision to conduct a Toxicity Identification Evaluation (TIE) is based upon consideration of multiple factors such as the magnitude and persistence of toxicity. The magnitude of toxicity present in effluent is an important consideration because a moderate to high level of toxicity typically yield more successful results. Usually, TIEs can be successfully conducted on samples producing at least 50 percent effect (e.g., >50% mortality or reduction in reproduction), and this value is recommended for general use in selecting samples for TIEs. Effective TIEs can also be conducted with less toxic samples (e.g., >25% effect), but there is a greater chance of the TIE being inconclusive due to changes in toxicity with storage or variability in response (Norberg-King et al. 2005). A percent effect of 50% for chronic toxicity and 40% for acute toxicity has been incorporated into the MDEL based on recommendations from USEPA and to facilitate a successful TIE.

The IWC for these discharges are established at 100% effluent. Because the San Diego Water Board has no documentation to support a different IWC, the IWC is defined as 100 percent effluent (undiluted). This IWC is consistent with other San Diego Water Board's NPDES permitted discharges to San Diego Bay which do not allow dilution. This Order allows further study on the appropriate IWC for chronic toxicity observed in industrial storm water discharges to San Diego Bay.

The San Diego Water Board finds that the application of USEPA's TST method with the 50% effect for chronic toxicity and 40% effect for acute toxicity is scientifically defensible and appropriate for the determination of compliance with the Basin Plan's narrative objective for toxicity and an acceptable alternative to the Ocean Plan's toxicity objective for discharges to the Pacific Ocean. As such, toxicity monitoring requirements, analysis, and effluent limitations are established in this Order based on USEPA's TST method and a 50% effect for chronic toxicity and 40% effect for acute toxicity. Taken together, these refinements of using chronic toxicity instead of acute toxicity for industrial process wastewater and using the TST approach with the appropriate percent effect clarifies the requirements for toxicity analyses, provide the Discharger with the positive incentive to generate high quality data, and affords greater protection of aquatic life.

b. Acute Toxicity

Acute toxicity effluent limitations have been maintained for industrial high risk storm water discharges and have been updated to use the USEPA's TST method with a percent effect of 40%.

c. Chronic Toxicity

As previously discussed, chronic toxicity monitoring requirements and effluent limitations have been established for industrial process wastewater discharges demonstrated to have toxic pollutants in toxic concentrations, consistent with the State Water Board's draft Toxicity Policy and USEPA's TST approach.

This Order also requires the Discharger to implement BMPs to prevent or eliminate toxicity, investigate the causes of any toxicity, and identify and implement corrective actions to reduce or eliminate effluent toxicity.

D. Final Effluent Limitations

Industrial process wastewater discharges regulated under this order include pier washing, utility vault and manhole dewatering, pier boom cleaning, boat rinsing, steam condensate, and diesel engine cooling water.

1. **BMP Regulated Industrial Process Wastewater.** The discharge of pier washing wastewater at Discharge Point No. PW-001 and Utility Vault and Manhole Dewatering at Discharge Point No. UV-001 through UV-013 in Table 4 is regulated using a narrative effluent limitation BMP approach under section VI.C.3 of this Order. Pier boom cleaning and boat rinsing have no discharge to surface waters require BMPs under section VI.C.3 of this Order to prevent discharges.

Table F-21. Industrial Process Wastewaters Regulated with BMPs

Type of Discharge	Discharge Point Nos.
Pier Washing Wastewater	PW-001
Utility Vault and Manhole Dewatering	UV-001 through UV-013
Pier Boom Cleaning	No Discharge
Boat Rinsing	No Discharge

2. **Steam Condensate Discharges.** Effluent Limitations for Steam Condensate – Discharge Point Nos. SC-001 through SC-010
 - a. Applicable TBELs and WQBELs for pH have been applied in this Order. Both TBELs and WQBELs are applicable to discharges to San Diego Bay (6.0 – 9.0 standard units and 7.0 – 9.0 standard units, respectively). To ensure the protection of water quality, the more stringent lower and upper limitations for pH (7.0 to 9.0) have been applied as final effluent limitations for discharges to San Diego Bay in this Order. These limits have also been applied as final effluent limitations for discharges of steam condensate to the Ocean (SC-10) to maintain the pH limitations from the current permit.
 - b. Order No. R9-2009-0081 has a maximum daily effluent limitation of 11.8 µg/L for Bis(2-Ethylhexyl)Phthalate in steam condensate discharges to San Diego Bay which is more stringent than the 14 µg/L maximum daily effluent limitation calculated above. The more stringent effluent limitation rounded to two significant figures has been applied in this Order.
 - c. Order No. R9-2009-0081 established effluent limitations for steam condensate discharges to San Diego Bay. New limitations have been calculated for steam condensate discharges from Discharge Point SC-010 to the Pacific Ocean based on the Ocean Plan except the maximum daily effluent limitation for copper of 5.8 µg/L has been retained from the current permit because it is more stringent than the 12 µg/L calculated above.
 - d. The Discharger shall maintain compliance with the following effluent limitations in Tables F-20 and F-21 at Discharge Point Nos. SC-001 through SC-010 with compliance measured at Monitoring Locations SC-001 through SC-010 as described in the Monitoring and Reporting Program (MRP), Attachment E of this Order.

Table F-22. Effluent Limitations for Steam Condensate Discharges to San Diego Bay – Discharge Point Nos. SC-001 through SC-009

Parameter	Units	Effluent Limitations			
		Average Monthly	Weekly Average	Maximum Daily	Instantaneous Maximum
Arsenic, Total Recoverable	µg/L	30	--	59	--
Copper, Total Recoverable	µg/L	1.9	--	5.8	--
Lead, Total Recoverable	µg/L	3.4	--	12	--
Nickel, Total Recoverable	µg/L	6.8	--	14	--
Selenium, Total Recoverable	µg/L	58	--	120	--
Zinc, Total Recoverable	µg/L	47	--	95	--
2,3,7,8-TCDD	µg/L	1.4x10 ⁻⁸	--	2.8x10 ⁻⁸	--
Bis(2-Ethylhexyl)Phthalate	µg/L	5.9	--	12	--
Aldrin	µg/L	0.00014	--	0.00028	--
4,4'-DDT	ug/L	0.00059	--	0.00118	--
4,4'-DDE	ug/L	0.00059	--	0.00118	--
4,4'-DDD	ug/L	0.00084	--	0.00169	--
Heptachlor	µg/L	0.00021	--	0.00042	--
Heptachlor Epoxide	µg/L	0.00011	--	0.00022	--
Oil and Grease	mg/L	25	40	--	75
Settleable Solids	ml/L	1.0	1.5	--	3.0
Turbidity	NTU	75	100	--	225
pH	standard units	--	--	--	1
Chronic Toxicity	Pass/Fail	²	--	²	--

¹ Within limits of 7.0 – 9.0 standard units at all times.
² As defined in section VII.J of the Order.

Table F-23. Effluent Limitations for Steam Condensate Discharges to the Pacific Ocean – Discharge Point No. SC-010

Parameter	Units	Effluent Limitations				
		6-Month Median	Average Monthly	Weekly Average	Maximum Daily	Instantaneous Maximum
Copper, Total Recoverable	µg/L	3	--	--	5.8	30
Lead, Total Recoverable	µg/L	2	--	--	8	20
Zinc, Total Recoverable	µg/L	20	--	--	80	200
TCDD Equivalents	µg/L	--	3.9x10 ⁻⁹	--	--	--
Bis(2-Ethylhexyl)Phthalate	µg/L	--	3.5	--	--	--
Oil and Grease	mg/L	--	25	40	--	75
Settleable Solids	ml/L	--	1.0	1.5	--	3.0
Turbidity	NTU	--	75	100	--	225
pH	standard units	--	--	--	--	1
Chronic Toxicity	Pass/Fail	--	²	--	²	--

¹ Within limits of 7.0 – 9.0 standard units at all times.
² As defined in section VII.J of the Order.

3. Diesel Engine Cooling Water Discharges. Final Effluent Limitations for Diesel Engine Cooling Water – Discharge Point No. CW-001

- a. The Discharger shall maintain compliance with the following effluent limitations in Table F-22 at Discharge Point No. CW-001 with compliance measured at Monitoring Location CW-001 as described in the MRP, Attachment E of this Order.

Table F-24. Effluent Limitations for Diesel Engine Cooling Water

Parameter	Units	Effluent Limitations			
		Average Monthly	Weekly Average	Maximum Daily	Instantaneous Maximum
Arsenic, Total Recoverable	µg/L	20	--	62	--
Chromium VI, Total Recoverable	µg/L	27	--	85	--
Copper, Total Recoverable	µg/L	2.0	--	5.8	--
Lead, Total Recoverable	µg/L	5.8	--	15	--
Nickel, Total Recoverable	µg/L	5.7	--	15	--
Selenium, Total Recoverable	µg/L	58	--	120	--
Zinc, Total Recoverable	µg/L	37	--	95	--
4,4-DDT	µg/L	0.00059	--	0.0017	--
4,4-DDE	µg/L	0.00059	--	0.0012	--
4,4-DDD	µg/L	0.00084	--	0.0017	--
Oil and Grease	mg/L	25	40	--	75
Settleable Solids	ml/L	1.0	1.5	--	3.0
Turbidity	NTU	75	100	--	225
pH	standard units	--	--	--	1
Chronic Toxicity	Pass/Fail	²	--	²	--

¹ Within the limit of 7.0 – 9.0 standard units at all times.

² As defined in section VII.J of the Order.

- b. Order No. R9-2009-0081 has an average monthly effluent limitation of 5.8 µg/L for lead in cooling water discharges to San Diego to San Diego Bay which is more stringent than the 6.3 µg/L effluent limitation calculated above. The more stringent effluent limitation has been applied in this Order.
4. The previous Order required the Discharger to develop and implement a SWPPP for storm water discharges throughout the Facility, as authorized by CWA section 304(e) and section 402(p). The requirements to update and implement a SWPPP are carried over from the previous Order.
 5. Discharges of pollutants in storm water discharges, from areas designated under section IV.B.1 of this Order as Industrial High Risk Areas, to Waters of the U.S. from Discharge Points specified in Attachment M of this Order shall maintain compliance with the MDEL for acute toxicity. The MDEL is based on the outcome of the TST approach and the resulting percent effect at the IWC in accordance with Compliance Determination, section VII. of this Order.

E. Satisfaction of Anti-Backsliding Requirements

Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 CFR section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this Order are at least as stringent as the effluent limitations in Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 and meet state and federal anti-backsliding requirements. Effluent limitations for reverse osmosis product water have been removed because the Discharger no longer discharges this category of effluent. Further, effluent limitations for previous discharge points not authorized by this Order for steam condensate and diesel engine cooling water have been removed and discharges from these locations are prohibited.

F. Satisfaction of Antidegradation Policy

WDRs for the Discharger must conform with federal and state antidegradation policies provided at 40 CFR section 131.12 and in State Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California*. The antidegradation policies require that beneficial uses and the water quality necessary to maintain those beneficial uses in the receiving waters of the discharge shall be maintained and protected, and, if existing water quality is better than the quality required to maintain beneficial uses, the existing water quality shall be maintained and protected unless allowing a lowering of water quality is necessary to accommodate important economic and social development or is consistent with maximum benefit to the people of California. When a significant lowering of water quality is allowed by the San Diego Water Board, an antidegradation analysis is required in accordance with the State Water Board's Administrative Procedures Update (July 2, 1990), *Antidegradation Policy Implementation for NPDES Permitting*.

The discharge of steam condensate at 66 discharge points to San Diego Bay was previously authorized in Order No. R9-2009-0081, however, some of these discharges were to the Pacific Ocean not San Diego Bay. This Order authorizes the discharge of steam condensate from Discharge Points SC-001 through SC-009 to San Diego Bay and Discharge Point SC-010 to the Pacific Ocean. Discharge Point SC-010 is in the same discharge location as Discharge Point SC-061 authorized in Order No. R9-2009-0081. The receiving water for SC-061 was mischaracterized in Order No. R9-2009-0081 as a discharge to San Diego Bay. Discharges from Discharge Point SC-010 (previously SC-061) are expected to be low volume and infrequent, and the Discharger has removed 62 discharge points for steam condensate, many of which are also anticipated to have been mischaracterized as discharges to San Diego Bay, and significantly reduced the total discharge flow. WQBELs have been established that are protective of water quality and are at least as stringent as in Order No. R9-2009-0081. The correction of this receiving water error is not anticipated to result in a lowering of water quality within the receiving water and is consistent with state and federal antidegradation requirements.

The limitations and requirements of this Order are more stringent than established in Order No. R9-2009-0081 as modified by Order No. R9-2010-0057. The permitted discharge is consistent with the antidegradation provisions of 40 CFR section 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

G. Stringency of Requirements for Individual Pollutants

This Order contains both TBELs and WQBELs for individual pollutants. The TBELs applied in the Order consist of restrictions on oil and grease, settleable solids, turbidity, and pH as specified in Table 2 of the Ocean Plan; a requirement to continue to implement a BMP and PPP for utility vault and manhole dewatering discharges; a requirement to develop and maintain a BMP Plan to prevent discharges from pier boom, fender, and mooring cleaning; and a requirement to continue to implement a SWPPP for toxic pollutants and hazardous substances in storm water runoff. These restrictions and requirements are discussed in section IV.B.2. of this Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. These limitations are not more stringent than required by the CWA.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR section 131.38. The scientific procedures for calculating the individual WQBELs for priority pollutants are based on the CTR-SIP. WQBELs were also derived from the Ocean Plan using scientific procedures established in the Ocean Plan. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "*applicable water quality standards for purposes of the CWA*" pursuant to section 131.21 (c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

H. Storm Water Risk Level Designations

This Order addresses storm water discharges from various locations throughout the Facility, with varying degrees of industrial activity and potential to impact water quality. As such, a tiered approach has been applied in this Order to control storm water discharges, including MS4 requirements, industrial storm water requirements, and effluent limitations. To apply the appropriate controls for storm water, the Discharger is required to identify all storm water outfalls located at the Facility, and designate the outfalls as Industrial High Risk Areas, Industrial Low Risk Areas, Industrial No Exposure Areas, or Small Military Base MS4 Areas.

Because operations at the Facility are subject to change, annual site surveys are necessary to account for any operational changes that may occur at the Facility to ensure that appropriate regulatory mechanisms are being applied. In addition, the Discharger shall conduct periodic inspections throughout the year to ensure that storm water risk level designations remain applicable.

I. Small Military Base MS4 Discharge Specification

The San Diego Water Board finds that Phase II MS4 requirements are applicable to storm water discharges from non-industrial portions of the Facility. As such, applicable requirements of the Phase II MS4 program, consistent with the requirements 40 CFR section 122.44(k) and the 6 minimum control measures identified in 40 CFR section 122.34(b) have been applied to ensure discharges of storm water from non-industrial areas meet the minimum requirement of MEP. Specific requirements have been established where necessary to increase the tracking and enforceability of the Discharger's SWMP. This approach is consistent with the requirements of

the current Naval Base San Diego Permit (Order No. R9-2013-0064) and Naval Base Point Loma Permit (R9-2014-0037) which include regulation of Phase II MS4 storm water discharges.

J. Industrial Storm Water Discharge Specifications

- a. Pollutant Reduction to BAT/BCT.** NPDES Permits for storm water discharges must meet all applicable provisions of sections 301 and 402 of the CWA. These provisions require control of pollutant discharges using best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT) to prevent and reduce pollutants and any more stringent controls necessary to meet water quality standards.
- b. Storm Water Pollution Prevention Plan (SWPPP) for Industrial Areas.** Prior to the adoption of Order No. 2002-0002, the storm water discharges at the Facility were regulated by the State Water Board's *General Order for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities* (Order No. 97-03-DWQ, NPDES No. CAG000001). To carry out the purpose and intent of the CWA, Order No. 97-03-DWQ and subsequently Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 required the Discharger to develop and implement a SWPPP, as authorized by CWA section 304(e) and section 402(p), for toxic pollutants and hazardous substances, and for the control of storm water discharges. Consistent with Order No. 97-03-DWQ and Order No. R9-2009-0081 as modified by Order No. R9-2010-0057, this Order requires the Discharger to continue to implement and regularly update an adequate SWPPP as specified in Attachment G. The SWPPP requirement is explained in more detail in section IV.B.2 of this Fact Sheet and in Attachment G.
- c. Numeric Action Levels (NALs).** Consistent with the direction of the State Water Board, this Order establishes NALs based on USEPA's benchmarks with a tiered compliance strategy of establishing industrial storm water risk levels. This risk level strategy is explained in more detail in section IV.B. of this Order.

K. Non-Storm Water Discharge Specifications

Discharge specifications for the discharge of exempted non-storm water discharges as specified in section IV.F of this Order are based on the requirements of 40 CFR section 122.26(d). These discharge specifications exempt the discharge of certain wastes from prohibition that are not currently expected to be a significant source of pollutants to the receiving waters.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

Receiving water limitations in this Order are derived from the water quality objectives for bays and estuaries established by the Basin Plan (1994), the Bays and Estuaries Policy (1974), the CTR (2000), the State Implementation Policy (2005), the Ocean Plan (2012) and the State Water Board's Sediment Quality Plan (2008). San Diego Bay is listed as impaired for copper, PCBs, sediment toxicity, and benthic community effects in the area near the Facility. This 303(d) impairment and elevated effluent concentrations for these parameters demonstrates that there is reasonable potential to cause or contribute to an exceedance of the sediment quality objectives which have been included as receiving water limitations.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the San Diego Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Industrial Storm Water Monitoring Location Study and Annual Report

In order to determine compliance with effluent limitations, action levels, and evaluate the effectiveness of BMPs specified in the SWPPP, this order establishes monitoring requirements for industrial storm water. The San Diego Water Board recognizes that establishing monitoring requirements at all discharge locations would be redundant and an inefficient use of resources. Monitoring is only necessary at representative discharge locations for industrial storm water. This directive requires the discharger to identify representative monitoring locations for these discharges, and verify these monitoring locations annually. Monitoring includes visual as well as sample collection.

B. Core Monitoring Requirements

1. Influent Monitoring – Not Applicable

2. Industrial Wastewater Effluent Monitoring

Pursuant to the requirements of 40 CFR section 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of BMPs and pollution prevention plans, and to assess the impacts of the discharge on the receiving water. Effluent monitoring is necessary to address the following primary questions:

- Does the effluent meet permit effluent limitations based on water quality standards for the receiving water?
- What is the mass discharged annually of each constituent monitored?
- How much pier washing occurs?
- Is the discharge a major source of pollutants?

1. Steam Condensate (Monitoring Locations SC-001 through SC-010)

- a. Quarterly effluent flow monitoring has been established to determine the volume of condensate being discharged from the Facility into the receiving waters.
- b. Quarterly monitoring has been established to evaluate compliance with applicable WQBELs for pollutants that the discharge has reasonable potential to exceed or contribute to an exceedance of water quality.
- c. Quarterly monitoring has been established for antimony, arsenic, and nickel which had inconclusive reasonable potential analysis.

- d. Quarterly monitoring has been established to evaluate compliance with effluent limitations for oil and grease, turbidity, pH, and settleable solids.
- e. Annual monitoring has been established to evaluate compliance with the WET limitation.
- f. Monitoring the remaining priority pollutants has been established annually so that reasonable potential for all priority pollutants can be evaluated during the next permit renewal.

2. Diesel Engine Cooling Water (Monitoring Location CW-001)

- a. Quarterly effluent flow monitoring has been established to determine the volume of condensate being discharged from the Facility into the receiving waters.
- b. Quarterly monitoring has been established to evaluate compliance with applicable WQBELs for pollutants that the discharge has reasonable potential to exceed or contribute to an exceedance of water quality.
- c. Quarterly monitoring has been established to evaluate compliance with effluent limitations for oil and grease, turbidity, pH, temperature, and settleable solids.
- d. Annual monitoring has been established to evaluate compliance with the WET limitation.
- e. Monitoring the remaining priority pollutants has been established annually so that reasonable potential for all priority pollutants can be evaluated during the next permit renewal.

3. Pier Washing Monitoring (Monitoring Location PW-001)

An annual log of pier washing activities has been established to track this discharge. Monitoring requirements have been reduced to just those necessary to evaluate compliance with applicable NPDES permit requirements and are BMP focused.

4. Utility Vaults and Manhole Dewatering Monitoring (Monitoring Locations UV-001 through UV-013)

- a. Annual effluent flow monitoring has been established to determine the volume of effluent being discharged from the Facility into the San Diego Bay.
- b. Annual effluent monitoring of total petroleum hydrocarbons-diesel range organics, total petroleum hydrocarbons- gasoline range organics, oil and grease, pH, and total suspended solids has been established to characterize the discharge of utility vault and manhole dewatering from the Facility into the San Diego Bay for these pollutants of concern for this category of effluent.
- c. In order to evaluate BMP implementation and characterize utility vault activities, this Order requires the Discharger to submit a log of the utility vault and manhole dewatering discharges annually.

C. Whole Effluent Toxicity (WET) Testing Requirements

The WET testing is designed to address the following primary questions:

- Does the effluent meet permit effluent limitations for toxicity based on water quality standards for the receiving water?

If not:

- Are unmeasured pollutants causing risk to aquatic life?
- Are pollutants in combination causing risk to aquatic life?
- Does the storm water runoff meet receiving water limitations for toxicity in the receiving water?
- Are conditions in receiving water getting better or worse with regard to toxicity?
- What is the relative storm water runoff contribution to the receiving water toxicity?
- What are the causes of the toxicity and the sources of the constituents responsible?

As discussed above in section IV.C.5 of this Fact Sheet, chronic and acute toxicity effluent limitations established in this Order are based on USEPA's TST and percent effect. Chronic toxicity effluent limitations have been established for industrial process water discharges established in Order No. R9-2009-0081 as modified by Order No. R9-2010-0057. Acute toxicity effluent limitations and monitoring are maintained for industrial storm water. Chronic toxicity monitoring is also required for industrial storm water.

Past sampling of storm water at the Facility shows the presence and reasonable potential for toxicity in the discharge of industrial storm water from the Facility (96 exceedances from December 7, 2009 through May 6, 2013). This Order requires the Discharger to conduct additional toxicity testing for exceedances of the toxicity effluent limitations. If the additional tests demonstrate toxicity, the Discharger is required to submit a Toxicity Reduction Evaluation (TRE) Workplan in accordance with USEPA guidance which shall include: further steps taken by the Discharger to investigate, identify, and correct the causes of toxicity; actions the Discharge will take to mitigate the effects of the discharge and prevent the recurrence of toxicity; and a schedule for these actions. This provision also includes requirements to initiate the TRE/Toxicity Identification Evaluation (TIE) process if the results of toxicity testing exceed the effluent limitation for toxicity.

D. Receiving Water Monitoring

Receiving water and sediment monitoring shall be designed and conducted to address the following primary questions:

- (1) Does the receiving water meet water quality standards listed in section V of this Order, Receiving Water Limitations?
- (2) Are the receiving water conditions getting better or worse over time?
- (3) Does the Facility cause or contribute to violations of the Receiving Water Limitations in section V of this Order?

1. Water and Sediment Monitoring Plan

The Discharger is required to submit a Water and Sediment Monitoring Plan within 12 months of the effective date of this Order. The Water and Sediment Monitoring Plan has all the elements required by the State Water Board's Sediment Quality Plan, which became effective on August 25, 2009, to be implemented for both water and sediment for

consistency. A conceptual model, existing data, and ongoing monitoring must be considered in the development of the Water and Sediment Monitoring Plan.

2. Receiving Water Monitoring

- a. Monitoring of the receiving water is necessary to determine if the discharges from the Facility are impacting the water quality objectives, applicable beneficial uses, and aquatic life.
- b. Monitoring locations will be determined in the Water and Sediment Monitoring Plan.
- c. Annual monitoring of arsenic, copper, lead, nickel, and zinc in the Pacific Ocean and the San Diego Bay has been established to determine compliance with receiving water limitations and to help determine reasonable potential, as specified in section 1.3 of the SIP, for future permitting efforts. These constituents are required based on the RPA for the steam condensate and diesel engine cooling water, storm water benchmark exceedances, and BPJ.
- d. Semiannual temperature monitoring has been established in order to determine compliance with Prohibition III.B for the temperature effluent limitation for discharges of steam condensate.
- e. Semiannual chronic toxicity monitoring has been added to assess the impacts of storm water discharges on the receiving water. The Discharger is required to monitor chronic toxicity twice per year concurrently with the end of pipe high risk industrial storm water discharge monitoring required in Table E-8 of this MRP. The receiving water chronic toxicity sample is to be collected in the receiving water adjacent to the storm drain outfall sampled in Table E-8 during the storm event. The results of the chronic toxicity testing in the receiving water shall be included in the Annual Storm Water Report.
- f. Annual monitoring of other pollutants identified by the Discharger has been added for pollutants identified by the Discharger during routine monitoring of industrial process water or storm water.

3. Sediment Monitoring

- a. This Order establishes monitoring and analysis requirements consistent with the State Water Board's Sediment Quality Plan.
- b. Monitoring locations will be determined in the Water and Sediment Monitoring Plan.
- c. Sediment chemistry, toxicity, and benthic community monitoring are required in accordance with, and at a minimum, the requirements under the State Water Board's Sediment Quality Plan.

4. Monitoring Coalitions

To achieve maximum efficiency and economy of resources, the San Diego Water Board encourages and may require San Diego Bay dischargers to establish or join a San Diego Bay water body monitoring coalition. Monitoring coalitions enable the sharing of technical resources, trained personnel, and associated costs and create an integrated water and sediment monitoring program within each water body. Focusing resources on water body issues and developing a broader understanding of pollutants effects in these water bodies

enables the development of more rapid and efficient response strategies and facilitates better management of water and sediment quality.

5. Water Column and Sediment Monitoring Report

The Discharger or water body monitoring coalition is required to submit a Water and Sediment Monitoring Report at least twice during a permit cycle in accordance with the schedule contained in the Water and Sediment Monitoring Plan unless otherwise directed in writing by the San Diego Water Board. Receiving water sampling will be done annually and sediment sampling will be done at least twice during the term of this Order, so two reports during a permit cycle will allow more samples to be collected and reported in one report.

E. Other Monitoring Requirements

1. The discharge of industrial contact storm water to the San Diego Bay or the Pacific Ocean may contain pollutants from the surrounding area which could contribute to the exceedance of the water quality criteria/objectives of the receiving waters. Industrial storm water monitoring requirements have been established to determine the effects of storm water discharges on the receiving water and monitor the effectiveness of the SWPPP to meet applicable NALs and receiving water limits. Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 required monitoring of industrial storm water for oil and grease, total suspended solids (TSS), pH, copper, zinc, acute toxicity, electrical conductivity, settleable solids, total organic carbon, total petroleum hydrocarbons, and other pollutants identified by the Discharger as likely to be present, at two storms per year. The Discharger was also required to monitor for remaining priority pollutants for two storm events for the first and last year of the permit term.

Under this Order, industrial areas on NBC have been divided into three categories: Industrial No-Exposure, Industrial Low Risk, and Industrial High Risk. Each category has different monitoring requirements. Industrial storm water monitoring has been retained for copper, zinc, acute toxicity, oil and grease pH, TSS, and other parameters identified by the Discharger as likely to be present within storm water discharges from highly industrial areas. Additional monitoring has been established for metals (arsenic, cadmium, mercury, nickel, selenium, and silver) that are either bioaccumulative and a greater risk to the receiving water, or are often found in the discharge of storm water from highly industrial areas. Additionally, monitoring for nutrients has been added to evaluate potential eutrophication impacts on the receiving waters. There is limited information on pollutants in storm water from the Facility. Because of this limited information, the Discharger is required to monitor industrial high risk areas for all of the NAL pollutants in Table G-1 of Attachment G to this Order. Monitoring of these additional pollutants can be discontinued after four consecutive sample events where the parameter is not detected or is below the Annual NAL values in Table G-1 of Attachment G to this Order.

Industrial storm water monitoring frequency has been increased to two storms per semiannual period in conformance with the statewide Industrial Storm Water General Permit.

Chronic toxicity monitoring has been established in addition to acute toxicity for discharges from "Industrial High Risk Areas" to determine reasonable potential. The industrial storm water monitoring program is designed to address the following primary questions:

- Does the runoff meet permit effluent limitations for toxicity thereby ensuring water quality standards are achieved in the receiving water?
 - Does the runoff meet the NALs?
 - Is the SWPPP being properly implemented?
 - Is the Facility achieving standards of BAT and BCT?
2. The Discharger is required to submit a sampling plan for Small Military Base MS4 storm water discharges within 24 months of the effective date of this Order. A minimum subset of three representative monitoring locations for storm water and dry-weather discharges within the Small Military Base MS4 Areas of the Facility. These monitoring locations shall be sampled for pollutants identified by the Discharger. Sampling and analysis is required twice per year for storm water and twice per year for dry-weather. The Small Military Base MS4 monitoring program shall be designed to address the following primary questions:
- Is the SWMP being properly implemented?
 - Is the Facility achieving the standard of reducing pollutants in MS4 discharges to the MEP?
3. Monitoring requirements for spill and illicit discharges are in this Order to help determine the effectiveness of the BMP Plan and ensure that appropriate BMPs are properly implemented. This log is designed to answer the following primary monitoring questions:
- Are there more frequent and/or bigger spills at this Facility than at other similar facilities?
 - Are spills and illicit discharges properly addressed and are measures being taken or planned to reduce, eliminate, and prevent them in the future?

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR section 122.42.

Section 122.41(a)(1) and (b) through (n) of 40 CFR establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in this Order. 40 CFR section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Monitoring and Reporting Program (MRP) Requirements

Language in this section requires the Discharger to properly implement and submit self-monitoring reports (SMRs) to the San Diego Water Board and Discharger Monitoring Reports (DMRs) for USEPA to the State Water Board. Telephone and fax numbers are also provided. The San Diego Water Board office may be relocated. Dischargers will be notified of new contact information.

C. Special Provisions

1. Reopener Provisions

This Order includes a list of circumstances when this Order may be reopened.

2. Special Studies and Additional Monitoring Requirements

Requirements for a TRE/TIE have been incorporated in the MRP. This section discusses a study on the future development of chronic toxicity effluent limitations for industrial high risk areas.

3. Best Management Practices and Pollution Prevention

a. Best Management Practices and Pollution Prevention Plan for Utility Vault and Manhole Dewatering Discharges (Utility Vault Plan). As discussed in sections IV.B.2.b and IV.C.4.a of this Fact Sheet, the San Diego Water Board finds that numerical effluent limitations are not feasible for discharges from utility vault and manhole dewatering discharges. Federal Regulations at 40 CFR sections 122.44(k)(3) and (4) authorize the San Diego Water Board to require BMPs to control or abate the discharge of pollutants when numeric effluent limitations are infeasible and when the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

The development of pollution prevention practices (PPP) provides the flexibility necessary to establish controls which can appropriately address the various utility vault and manhole dewatering discharges. The pollution prevention practices have two major objectives:

- i. To identify situations which allow water to collect in the vault or underground structure and lead to a discharge; and
- ii. To describe and ensure the implementation of practices that will reduce pollutants in the discharge from normal operations of utility companies.

Similar to BMPs, pollution prevention practices are designed to prevent or control the discharge of pollutants. They may include a schedule of activities, prohibition of practices, maintenance procedures, or other management practices. The Best Management Practices and Pollution Prevention Practices Plan for Utility and Manhole Dewatering Discharges (Utility Vault Plan) is a written document that describes the operator's activities to comply with the requirements of this Order. The Utility Vault Plan is intended to evaluate potential pollutant sources at the site and select and implement appropriate measures designed to prevent or control the discharge of pollutants. Order No. R9-2003-0008 incorporated the pertinent requirements of Order No. 2001-11-DWQ, including the requirement to develop and implement a Utility Vault Plan that included

BMPs to achieve BAT and BCT. According to the *Case Study for Utility Vault and Manhole Dewatering Discharges at Naval Base Point Loma, Naval Base San Diego, and Naval Base Coronado* submitted by the Discharger in May 2007, the Discharger has maintained and implemented the *Pollution Prevention Plan for Utility Vault Dewatering Discharges*, which describes the types of discharges, prohibited discharges, pollution prevention practices and BMPs, and monitoring and inspections of utility vault and manhole discharges. Additionally, the case study states that the Discharger has implemented procedures to eliminate manhole dewatering discharges to surface waters and either pumps the water into an adjacent utility manhole or transfers the water to the sanitary sewer system. However, the Discharger acknowledges the potential for rare emergency situations that would require dewatering of a utility vault or manhole onto the ground surface.

Order No. 2014-0174-DWQ, replacing Order No. 2001-011-DWQ, includes additional specifications for pollution prevention practices for Utility Vault and Manhole Dewatering Discharges for dischargers of utility and manhole dewatering discharges. This Order incorporates the additional specifications from Order No. 2014-0174-DWQ. The Discharger is required to maintain and implement their Utility Vault Plan in accordance with the requirements of Provision VI.C.3.a of this Order. For assistance in developing the Utility Vault Plan, the Discharger may refer to the *California Stormwater BMP Handbook – Industrial/Commercial (January 2003 Edition)*, published by the California Stormwater Quality Association, which includes references the Discharger may find useful.

- b. BMP Plan for Industrial Process Water Discharges.** Due to the nature of activities associated with discharges of pier washing, collecting and treating the associated wastewaters prior to discharge is impractical. Therefore, the San Diego Water Board finds that establishing numeric effluent limitations for pollutants in the specified discharges is not feasible. In accordance with 40 CFR sections 122.44(k)(3) and (4), the San Diego Water Board finds that the implementation of BMPs in lieu of numeric effluent limitations are appropriate. This Order requires the Discharger to develop and implement a BMP Plan that includes, at a minimum, the requirements contained in Attachment I to prevent, or minimize the potential for, the release of pollutants to Waters of the State and Waters of the U.S.
- c. CWC section 13263.3(d)(2) Pollution Prevention Plans.** Section 13263.3 of the California Water Code states that pollution prevention should be the first step in the hierarchy for reducing pollution and managing wastes. Further, section 13263.3 (d)(1)(D) states that the San Diego Water Board may require a Discharger to complete and implement a pollution prevention plan the San Diego Water Board determines that pollution prevention is necessary to achieve a water quality objective. Based on storm water monitoring results discussed in section II.E.1 of this Fact Sheet, the Discharger has reasonable potential to exceed the water quality objectives for acute toxicity in industrial storm water. Based on storm water monitoring results discussed in section II.D.4 of this Fact Sheet, the Discharger has regularly exceed the benchmarks for copper and zinc in industrial storm water. Pollution prevention is necessary to achieve water quality objectives for these constituents. The Discharger shall develop and implement a Pollution Prevention Plan for acute toxicity, copper, and zinc in industrial storm water, which at a minimum, meets the requirements outlined in CWC section 13263.3(d)(2), for each applicable discharge.

The Pollution Prevention Plan shall, at a minimum, meet the requirements outlined in

CWC section 13263.3(d)(2) and in this Order, for each applicable discharge. The minimum requirements for the pollution prevention plans include the following:

- i. An analysis of one or more of the pollutants, as directed by the State Water Board, San Diego Water Board, or a POTW, that the Facility discharges into Waters of the State or introduces into POTWs, a description of the sources of the pollutants, and a comprehensive review of the processes used by the discharger that result in the generation and discharge of the pollutants.
- ii. An analysis of the potential for pollution prevention to reduce the generation of the pollutants, including the application of innovative and alternative technologies and any adverse environmental impacts resulting from the use of those methods.
- iii. A detailed description of the tasks and time schedules required to investigate and implement various elements of pollution prevention techniques.
- iv. A statement of the Discharger's pollution prevention goals and strategies, including priorities for short-term and long-term action.
- v. A description of the Discharger's existing pollution prevention methods.
- vi. A statement that the Discharger's existing and planned pollution prevention strategies do not constitute cross media pollution transfers unless clear environmental benefits of such an approach are identified to the satisfaction of the State Water Board, the San Diego Water Board, or the POTW, and information that supports that statement.
- vii. Proof of compliance with the Hazardous Waste Source Reduction and Management Review Act of 1989 (Article 11.9 (commencing with section 25244.12) of Chapter 6.5 of Division 20 of the Health and Safety Code) if the Discharger is also subject to that act.
- viii. An analysis, to the extent feasible, of the relative costs and benefits of the possible pollution prevention activities.
- ix. A specification of, and rationale for, the technically feasible and economically practicable pollution prevention measures selected by the Discharger for implementation.

4. Flood and Runoff Protection Requirements

The construction, operation, and maintenance specifications have been retained from Order No. R9-2009-0081 as modified by Order No. R9-2010-0057.

5. Other Special Provisions – Not Applicable

VIII. PUBLIC PARTICIPATION

The San Diego Water Board has considered the issuance of WDRs to serve as an NPDES permit for the U.S. Department of the Navy, Naval Base Coronado. As a step in the WDR adoption process, the San Diego Water Board developed tentative WDRs and has encouraged public participation in the WDR adoption process.

A. Notification of Interested Parties

The San Diego Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided an opportunity to submit written comments and recommendations. Notification was provided through the following: Published in the San Diego Union-Tribune on September 11, 2015, posted on the San Diego Water Board website on September 11, 2015, and sent by e-mail on September 11, 2015.

The public had access to the agenda and any changes in dates and locations through the San Diego Water Board website at <http://www.waterboards.ca.gov/rwqcb9/>.

B. Written Comments

Interested persons were invited to submit written comments concerning these tentative WDRs. Comments were due either in person or by mail to the Executive Office at the San Diego Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the San Diego Water Board, written comments were due at the San Diego Water Board offices by 5:00 p.m. on October 12, 2015.

C. Public Hearing

The San Diego Water Board held a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: **November 18, 2015**
Time: **9:00 a.m.**
Location: **California Regional Water Quality Control Board, San Diego Region
Board Meeting Room
2375 North Side Drive, Suite 100
San Diego, CA 92108**

Interested persons were invited to attend. At the public hearing, the San Diego Water Board heard testimony pertinent to the discharge, WDRs, and permit. For accuracy of the record, important testimony was requested in writing.

D. Reconsideration of Waste Discharge Requirements

Any person aggrieved by this action of the San Diego Water Board may petition the State Water Board to review the action in accordance with CWC section 13320 and CCR title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m. 30 days after the adoption date of this Order at the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

Copies of the law and regulations applicable to filing petitions may be found on the internet at :

http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

E. Information and Copying

The ROWD, other supporting documents, and comments received are on file and may be inspected at the San Diego Water Board address below at any time between 8:00 a.m. and 5:00 p.m., Monday through Friday. To request a file review please contact the San Diego Water Board receptionist at (619) 516-1990, or email rb9_records@waterboards.ca.gov, or fax (619) 516-1994 or mail requests to:

California Regional Water Quality Control Board
San Diego Region
Attention: File Review Request
2375 Northside Drive, Suite 100
San Diego, CA 92108

The office is closed on weekends and on all state holidays.

Before making a request to view public records in the San Diego Water Board office interested persons may wish to determine if the information is already available on the San Diego Water Board's website at <http://www.waterboards.ca.gov/sandiego> or the State Water Board's website at <http://www.waterboards.ca.gov>. New and updated information is constantly being added to these websites. For example the San Diego Water Board's website alphabetical index and the State Water Board's Website alphabetical index provide links to many volumes of key documents on the State and Regional Water Board's water quality programs.

The following is a partial list of the documents available:

- Board Meeting Agendas
- Board Meeting Minutes
- Adopted Orders
- Tentative Orders
- Basin Plan
- Ocean Plan

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding this Order should contact the San Diego Water Board, reference this facility, and provide a name, address, and phone number. If possible, email address is preferred.

G. Additional Information

Requests for additional information or questions regarding this Order should be directed to Kristin Schwall at (619) 521-3368 or kschwall@waterboards.ca.gov.

ATTACHMENT G – STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS FOR INDUSTRIAL AREAS

I. IMPLEMENTATION SCHEDULE

The Discharger shall continue to implement the existing storm water pollution prevention plan (SWPPP) for all storm water outfalls from the Facility regulated by Order No. R9-2009-0081 until the Discharger has fully completed the implementation of the Storm Water Management Program Requirements specified in section IV.D.2 of the Order. Following full compliance with section IV.D.2 of the Order, the Discharger may phase out coverage of areas designated as “Small Military Base MS4 Area”, as defined in section IV.B.1 of the Order, that are adequately addressed under the Storm Water Management Program (SWMP). All storm water outfalls from the Facility are subject to either the SWPPP or the SWMP.

The Discharger shall implement any necessary revisions to its SWPPP to comply with the requirements of this Order within 1 year of the effective date of this Order.

II. SWPPP OBJECTIVES

A. The Discharger’s SWPPP shall be prepared and maintained to achieve the following objectives:

- 1.** To reduce or prevent the discharge of pollutants from industrial activities to the technology-based standards of best available technology economically achievable (BAT) for toxic and non-conventional pollutants, and best conventional pollutant control technology (BCT) for conventional pollutants;
- 2.** To achieve compliance with the Receiving Water Limitations in section V of this Order;
- 3.** To identify and evaluate sources of pollutants associated with industrial activities that may affect the quality of the Facility’s industrial storm water discharges and authorized non-storm water discharges;
- 4.** To identify, describe, and implement site-specific Best Management Practices (BMPs) to reduce or prevent pollutants associated with industrial activities in storm water discharges and authorized non-storm water discharges;
- 5.** To identify and implement timely revisions and/or updates to the SWPPP.

B. To achieve the SWPPP objectives, the Discharger shall prepare a written Facility-specific SWPPP in accordance with all applicable SWPPP requirements of this attachment. The SWPPP shall include all required maps, descriptions, schedules, checklists, and relevant copies or specific references to other documents that satisfy the requirements of this attachment. The typical development and implementation steps necessary to achieve the described objectives are summarized in Item A-2, located at the end of this attachment.

III. PLANNING AND ORGANIZATION

A. SWPPP Checklist

The SWPPP shall include a SWPPP Checklist (Example checklist is included as Item A-1 below) located at the end of this section. For each requirement listed, the Discharger shall identify the page number where the requirement is located in the SWPPP (or the title, page number, and location of any reference documents), the implementation date or last revision date, and any SWPPP requirements that may not be applicable to the Facility.

B. Pollution Prevention Team

1. The SWPPP shall identify specific individuals and their positions within the Facility organization as members of a storm water pollution prevention team responsible for developing the SWPPP, assisting the Facility manager in SWPPP implementation and revision, and conducting all monitoring program activities required in Attachment E of this Order.
2. The SWPPP shall clearly identify the responsibilities, duties, and activities of each team member.
3. The SWPPP shall identify, as appropriate, alternative individuals to perform the required SWPPP and monitoring program activities when team members are temporarily unavailable (due to vacation, illness, out of town meetings, etc.).

C. Review Other Requirements and Existing Facility Plans

1. The SWPPP shall be developed, implemented, and revised as necessary to be consistent with any applicable municipal, state, or federal requirement that pertains to the requirements of this Order.
2. The SWPPP may incorporate or reference the elements of the Discharger's existing plans, procedures, or regulatory compliance documents that contain storm water pollution control practices or otherwise relate to the requirements of this Order. For example, facilities subject to Federal Spill Prevention Control and Countermeasures' requirements should already have instituted a plan to control spills of certain hazardous materials, or facilities subject to regional air quality emission controls may already have evaluated industrial activities that emit dust or particulate pollutants.

IV. SITE MAP

The SWPPP shall include a site map. The site map shall be provided on an 8 ½ x 11 inch or larger sheet and include notes, legends, north arrow, and other data as appropriate to ensure that the site map is clear and understandable. If necessary, the Discharger may provide the required information on multiple site maps. The following information shall be included on the site map:

- A. Boundaries and Drainage Areas.** Outlines of the Facility boundary, storm water drainage areas within the Facility boundary, and portions of any drainage area impacted by discharges from surrounding areas. Include the flow direction of each drainage area; on-site surface water bodies; areas of soil erosion; and location(s) of near-by water bodies (such as rivers, lakes, wetlands, etc.) or municipal storm drain inlets that may receive the Facility's storm water

discharges and authorized non-storm water discharges.

- B. Storm Water Collection and Conveyance System.** The location of the storm water collection and conveyance system, associated points of discharge, and direction of flow. Include any structural control measures that affect storm water discharges, authorized non-storm water discharges, and run-on. Examples of structural control measures are catch basins, berms, detention ponds, secondary containment, oil/water separators, diversion barriers, etc.
- C. Impervious Areas.** The outline of all impervious areas of the Facility, including paved areas, buildings, covered storage areas, or other roofed structures.
- D. Materials, Spills, and Leaks Locations.** Locations where materials are directly exposed to precipitation and the locations where significant spills or leaks, identified in accordance with section VI.A.4 below, have occurred.
- E. Areas of Industrial Activity.** Identify all storage areas and storage tanks, shipping and receiving areas, fueling areas, vehicle and equipment storage/maintenance areas, material handling and processing areas, waste treatment and disposal areas, dust or particulate generating areas, cleaning and reusing areas, and other areas of industrial activity which are potential pollutant sources.
- F. Storm Water Risk Level Boundaries.** Identify the boundaries of the Industrial High Risk areas, Industrial Low Risk areas, Industrial No-Exposure areas, and Small Military Base MS4 areas, as defined in section IV.B.1 of the Order.

V. LIST OF SIGNIFICANT MATERIALS

The SWPPP shall include a list of significant materials handled and stored at the site. For each material on the list, the locations where the material is stored, received, shipped, and handled, as well as the typical quantities and frequencies, shall be described. The materials list shall include raw materials, intermediate products, final or finished products, recycled materials, and waste or disposed materials.

VI. DESCRIPTION OF POTENTIAL POLLUTANT SOURCES

- A.** For each area identified in section IV.E of this Attachment, the SWPPP shall include a narrative description of the Facility's industrial activities, potential pollutant sources, and potential pollutants that could be exposed to storm water or authorized non-storm water discharges. At a minimum, the following industrial activities shall be described as applicable:
 - 1. Industrial Processes.** Describe each industrial process including the manufacturing, cleaning, maintenance, recycling, disposal, or other activities related to the process. Include the type, characteristics, and approximate quantity of significant materials used in or resulting from the process. Areas protected by containment structures and the corresponding containment capacity shall be identified and described.
 - 2. Material Handling and Storage Areas.** Describe each handling and storage area including the type, characteristics, and quantity of significant materials handled or stored, description of the shipping, receiving, and loading procedures, and the spill or leak prevention and response procedures. Areas protected by a containment structure and the corresponding

containment capacity shall be identified and described.

- 3. Dust and Particulate Generating Activities.** Describe all industrial activities that generate dust or particulates that may be deposited within the Facility's boundaries. Include their discharge locations and the type, characteristics, and quality of dust and particulate pollutants that may be deposited within the Facility's boundaries. Identify the primary areas of the Facility where dust and particulate pollutants would settle.
- 4. Significant Spills and Leaks.** Identify and describe materials that have spilled or leaked in significant quantities in storm water discharges or non-storm water discharges. Include toxic chemicals (listed in 40 CFR Part 302) that have been discharged to storm water as reported in USEPA Form R, and oil and hazardous substances in excess of reportable quantities (see 40 CFR Parts 110, 117, and 302).

The description shall include the location, characteristics, and approximate quantity of the materials spilled or leaked, the cleanup or remedial actions that have occurred or are planned, the approximate remaining quantity of materials that may be exposed to storm water or non-storm water discharges; and the preventative measures taken to ensure spills or leaks of the material do not reoccur.

- 5. Non-Storm Water Discharges.** The Discharger shall inspect the Facility to identify all non-storm water discharges, sources, and drainage areas. All drains (inlets and outlets) shall be evaluated to identify whether they connect to the storm drain system.

All non-storm water discharges shall be described. The description shall include the source, quantity, frequency, and characteristics of the non-storm water discharges and associated drainage area and shall identify whether the discharge is an authorized or unauthorized non-storm water discharge in accordance with section IV.F of the Order. Examples of unauthorized non-storm water discharges include but are not limited to rinse and wash water (whether detergents are used or not), contact and non-contact cooling water, and boiler blow-down.

- 6. Soil Erosion.** Describe the Facility locations where soil erosion may occur as a result of industrial activity, storm water discharges associated with industrial activity, or authorized non-storm water discharges.

VII. ASSESSMENT OF POTENTIAL POLLUTANT SOURCES

- A.** The SWPPP shall include a narrative assessment of all industrial activities and potential pollutant sources as described in accordance with section VI of this Attachment. To determine the likelihood that significant materials will be exposed to storm water or authorized non-storm water discharges, the assessment shall include consideration of the quantity, characteristics, and locations of each significant material handled, produced, stored, recycled, or disposed; the direct and indirect pathways that significant materials may be exposed to storm water or authorized non-storm water discharges; history of spills or leaks; non-storm water discharges; prior sampling; visual observation, and inspection records; discharges from adjoining areas; and the effectiveness of existing BMPs to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. At a minimum, the Discharger shall consider:
 - 1.** The quantity, physical characteristics (liquid, powder, solid, etc.), and locations of each significant material handled, produced, stored, recycled, or disposed.

2. The degree pollutants associated with those materials are exposed to and mobilized by contact with storm water.
 3. The direct and indirect pathways that pollutants may be exposed to storm water or authorized non-storm water discharges. This shall include an assessment of past spills or leaks, non-storm water discharges, and discharges from adjoining areas.
 4. Sampling, visual monitoring, and inspection records.
 5. Effectiveness of existing BMPs to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.
- B.** Based upon the assessment above, the SWPPP shall identify any areas of industrial activity and corresponding pollutant sources where significant materials are likely to be exposed to storm water or authorized non-storm water discharges and where additional BMPs are necessary to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.

VIII. STORM WATER BEST MANAGEMENT PRACTICES

- A.** The SWPPP shall include a narrative description of BMPs implemented at the Facility. The BMPs, when developed and implemented, shall be effective in reducing or preventing pollutants in storm water discharges and authorized non-storm water discharges.

The BMPs narrative description shall include:

1. The type of pollutants the BMPs are designed to reduce or prevent.
 2. The frequency, time(s) of day, or conditions when the BMPs are scheduled for implementation.
 3. The locations within each area of industrial activity or pollutant source where the BMPs shall be implemented.
 4. Identification of the person and/or position responsible for implementing the BMPs.
 5. The procedures, including maintenance procedures, and/or instructions to implement the BMPs.
 6. The equipment and tools necessary to implement the BMPs.
- B.** The Discharger shall consider non-structural BMPs for implementation at the Facility. Non-structural BMPs generally consist of processes, prohibitions, procedures, training, schedule of activities, etc., that prevent pollutants associated with industrial activity from contact with storm water discharges and authorized non-storm water discharges. Below is a list of non-structural BMPs that shall be considered:
1. **Good Housekeeping.** Good housekeeping generally consists of practical procedures to maintain a clean and orderly facility.

- 2. Preventative Maintenance.** Preventative maintenance includes regular inspection and maintenance of storm water structural controls (i.e., catch basins, oil/water separators, etc.) as well as other facility equipment and systems.
- 3. Spill Response.** This includes spill clean-up procedures and necessary clean-up equipment based upon the quantities and locations of significant materials that may spill or leak.
- 4. Material Handling and Storage.** This includes all procedures to minimize the potential for spills and leaks and to minimize exposure to significant materials to storm water and authorized non-storm water discharges.
- 5. Employee Training Program.** This includes the development of a program to train personnel responsible for implementing the various compliance activities of this Order including BMP implementation, inspections and evaluations, monitoring activities, and storm water compliance management. The training program shall include:
 - a. A description of the training program and any training manuals or training materials.
 - b. A discussion of the appropriate training frequency.
 - c. A discussion of the appropriate personnel to receive training.
 - d. A training schedule.
 - e. Documentation of all completed training classes and the personnel who received training.
- 6. Waste Handling/Recycling.** This includes the procedures or processes to handle, store, or dispose of waste or recyclable materials.
- 7. Record Keeping and Internal Reporting.** This includes the procedures to ensure that all records of inspections, spills, maintenance activities, corrective actions, visual observations, etc., are developed, retained, and provided, as necessary to the appropriate Facility personnel.
- 8. Erosion Control and Site Stabilization.** This includes a description of all sediment and erosion control activities. This may include the planting and maintenance of vegetation, diversion of run-on and runoff, placement of sandbags, silt screens, or other sediment control devices.
- 9. Inspections.** Periodic visual inspections of the Facility are necessary to ensure that the SWPPP addresses any significant changes to the Facility's operations or BMP implementation procedures.
 - a. A minimum of four quarterly visual inspections of all areas of industrial activity and associated potential pollutant sources shall be completed each reporting year. The annual comprehensive site compliance evaluation described in section IX of this Attachment may substitute for one of the quarterly inspections.
 - b. Tracking and follow-up procedures shall be described to ensure appropriate corrective actions and/or SWPPP revisions are implemented.

- c. A summary of the corrective actions and SWPPP revisions resulting from quarterly inspections shall be reported in the annual report.
- d. Dischargers shall certify in the annual report that each quarterly visual inspection was completed.
- e. All corrective actions and SWPPP revisions shall be implemented in accordance with sections XII.D and XII.E of this Attachment.

10. Quality Assurance. This includes the management procedures to ensure that the appropriate staff adequately implements all elements of the SWPPP and Monitoring Program.

C. Structural BMPs. Where non-structural BMPs identified in section VIII.B above are not effective, structural BMPs shall be considered. Structural BMPs typically consist of structural devices that reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. Below is a list of structural BMPs that shall be considered:

- 1. **Overhead Coverage.** This includes structures that protect materials, chemicals, and pollutant sources from contact with storm water and authorized non-storm water discharges.
- 2. **Retention Ponds.** This includes basins, ponds, surface impoundments, bermed areas, etc., that do not allow storm water to discharge from the Facility.
- 3. **Control Devices.** This includes berms or other devices that channel or route run-on and runoff away from pollutant sources.
- 4. **Secondary Containment Structures.** This includes containment structures around storage tanks and other areas that collect any leaks or spills.
- 5. **Treatment.** This includes inlet controls, infiltration devices, oil/water separators, detention ponds, vegetative swales, etc., which reduce the pollutants in storm water discharges and authorized non-storm water discharges.

D. The SWPPP shall include a summary identifying each area of industrial activity and associated pollutant sources, pollutants, and BMPs in a table similar to Item A-3 at the end of this Attachment.

IX. ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION

The Discharger shall conduct one comprehensive site compliance evaluation (evaluation) in each reporting period (July 1 – June 30). Evaluations shall be conducted no less than 8 months from each other. The SWPPP shall be revised, as appropriate, and the revisions implemented within 90 days of the evaluation. Evaluations shall include the following:

- A.** A review of all visual observation records, inspection records, and sampling and analysis results.
- B.** A visual inspection of all areas of industrial activity and associated potential pollutant sources for evidence of, or the potential for, pollutants entering the drainage system. A visual inspection of

equipment needed to implement the SWPPP.

- C. A review and evaluation of all BMPs, both structural and non-structural, for each area of industrial activity and associated potential pollutant sources to determine whether the BMPs are properly designed, implemented, and effective in reducing and preventing pollutants in storm water discharges and authorized non-storm water discharges.
- D. An evaluation report that includes:
 1. Identification of personnel performing the evaluation,
 2. Date(s) of the evaluation,
 3. Summary and implementation dates of all significant corrective actions and SWPPP revisions for the reporting year
 4. Schedule for implementing any incomplete corrective actions and SWPPP revisions,
 5. Any incidents of non-compliance and the corrective actions taken, and
 6. A certification that the Discharger has completed the quarterly inspections specified in section VIII.B.9, above and that the Discharger is complying with this Order.
 7. The evaluation report shall be submitted as part of the annual report, retained for at least 5 years, and signed and certified in accordance with Standard Provision V.B of Attachment D of this Order.

X. NUMERIC ACTION LEVELS (NALs) AND NUMERIC EFFLUENT LIMITATIONS (NELS)

- A. Numeric Action Levels (NALs) for all storm water discharges are appropriate numeric thresholds that allow a discharger to take corrective action when the Instantaneous Maximum or Annual Average NAL are exceeded. Exceedances of NAL values are not a violation of the Order. Dischargers that exceed one of the NAL values shall take the appropriate corrective action as set forth in section IV.E.3. of the Order.

NALs are specified as follows:

Table G-1.NALs for Storm Water

PARAMETER	TEST METHOD ¹	REPORTING UNITS	ANNUAL NAL VALUE	INSTANTANEOUS MAXIMUM NAL
pH	Field test with calibrated portable instrument, or lab sample in accordance with 40 CFR § 136.	pH units	N/A	6.0-9.0
Suspended Solids (TSS), Total	SM2540-D	mg/L	100	400
Oil & Grease (TOG), Total	EPA 1664A	mg/L	15	25

PARAMETER	TEST METHOD ¹	REPORTING UNITS	ANNUAL NAL VALUE	INSTANTANEOUS MAXIMUM NAL
Zinc, Total (H)	EPA 200.8	mg/L	0.26 ²	-
Copper, Total (H)	EPA 200.8	mg/L	0.0332 ²	-
Cyanide, Total	SM 4500-CN C, D, or E	mg/L	0.022	-
Lead, Total (H)	EPA 200.8	mg/L	0.262 ²	-
Chemical Oxygen Demand	SM 5220C	mg/L	120	-
Aluminum, Total (pH 6.5-9.0)	EPA 200.8	mg/L	0.75	-
Iron, Total	EPA200.8	mg/L	1.0	-
Nitrate + Nitrite Nitrogen	SM 4500-NO3- E	mg/L as N	0.68	-
Total Phosphorus	SM 4500-P B+E	mg/L as P	2.0	-
Ammonia	SM 4500-NH3 B+ C or E	mg/L	2.14	-
Magnesium, total	EPA 200.7	mg/L	0.064	-
Arsenic, Total (c)	EPA 200.8	mg/L	0.15	-
Cadmium, Total (H)	EPA 200.8	mg/L	0.0053 ²	-
Nickel, Total (H)	EPA 200.8	mg/l	1.02 ²	-
Mercury, Total	EPA 245.1	mg/L	0.0014	-
Selenium, Total	EPA 200.8	mg/L	0.005	-
Silver, Total (H)	EPA 200.8	mg/L	0.0183 ²	-
Biochemical Oxygen Demand	SM 5210B	mg/L	30	-

SM – Standard Methods for the Examination of Water and Wastewater, 18th edition
 EPA – EPA test methods

¹ Test methods with lower detection limits may be necessary when discharging to impaired water bodies. Alternate test methods may be approved by the San Diego Water Board.

² The NAL is based on the highest hardness because the water near the mouth of the creeks is very saline.

B. On January 1 of the reporting year following the submittal of the Level 2 ERA Action Plan, a Discharger with Level 2 status shall certify and submit a Level 2 ERA Technical Report that includes one or more of the following demonstrations:

1. Industrial Activity BMPs Demonstration. This shall include the following requirements as applicable:

- a. A description of the industrial pollutant sources and corresponding industrial pollutants that are or may be related to the NAL exceedance(s);
- b. An evaluation of all pollutant source(s) associated with industrial activity that are or may be related to the NAL exceedance(s);
- c. Where all of the Discharger’s implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve compliance with the effluent limitations of this

Order and are expected to eliminate future NAL exceedance(s), the Discharger shall provide a description and analysis of all implemented BMPs;

- d. In cases where all of the Discharger's implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve compliance with the effluent limitations of this Order but are not expected to eliminate future NAL exceedance(s), the Discharger shall provide the following, in addition to a description and analysis of all implemented BMPs:
 - i. An evaluation of any additional BMPs that would reduce or prevent NAL exceedances;
 - ii. An estimated costs of the additional BMPs evaluated; and,
 - iii. An analysis describing the basis for the selection of BMPs implemented in lieu of the additional BMPs evaluated but not implemented.
- e. The description and analysis of BMPs required in section d.iii above shall specifically address the drainage areas where the NAL exceedance(s) responsible for the Discharger's Level 2 status occurred, although any additional Level 2 ERA Action Plan BMPs may be implemented for all drainage areas; and,
- f. If an alternative design storm standard for treatment control BMPs in lieu of the design storm standard for treatment control BMPs in section IV.E.4 of the Order will achieve compliance with the effluent limitations of the Order, the Discharger shall provide an analysis describing the basis for the selection of the alternative design storm standard.

2. Non-Industrial Pollutant Source Demonstration. This shall include:

- a. A statement that the Discharger has determined that the exceedance of the NAL is attributable solely to the presence of non-industrial pollutant sources. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance.) The sources shall be identified as either run-on from adjacent properties, aerial deposition from man-made sources, or as generated by on-site non-industrial sources;
- b. A statement that the Discharger has identified and evaluated all potential pollutant sources that may have commingled with storm water associated with the Discharger's industrial activity and may be contributing to the NAL exceedance; and,
- c. A description of any on-site industrial pollutant sources and corresponding industrial pollutants that are contributing to the NAL exceedance that are or may be discharged;
- d. An assessment of the relative contributions of the pollutant from (1) storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition and (2) the storm water associated with the Discharger's industrial activity;
- e. A summary of all existing BMPs for that parameter; and,

- f. An evaluation of all on-site/off-site analytical monitoring data demonstrating that the NAL exceedances are caused by pollutants in storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition.

- 3. Natural Background Pollutant Source Demonstration.** The Natural Background Pollutant Source Demonstration Technical Report shall at a minimum, include the following:
 - a. A statement that the Discharger has determined that the NAL exceedance of the NAL is attributable solely to the presence of the pollutant in the natural background that has not been disturbed by industrial activities. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance);
 - b. A summary of all data previously collected by the Discharger, or other identified data collectors, that describes the levels of natural background pollutants in the storm water discharge;
 - c. A summary of any research and published literature that relates the pollutants evaluated at the facility as part of the Natural Background Demonstration;
 - d. A map showing the reference site location in relation to facility along with available land cover information;
 - e. Reference site and test site elevation;
 - f. Available geology and soil information for reference and test sites;
 - g. Photographs showing site vegetation;
 - h. Site reconnaissance survey data regarding presence of roads, outfalls, or other human-made structures; and
 - i. Records from relevant state or federal agencies indicating no known mining, forestry, or other human activities upstream of the proposed reference site.

XI. MONITORING REQUIREMENTS

Monitoring shall be conducted as specified in the MRP. The SWPPP shall include a description of the following items:

- A.** Visual observation locations, visual observation procedures, and visual observation follow-up and tracking procedures.
- B.** Sampling locations and sample collection procedures. This shall include procedures for sample collection, storage, preservation, and shipping to the testing lab to assure that consistent quality control and quality assurance is maintained.
- C.** Identification of the analytical methods and related method detection limits (if applicable) used to detect pollutants in storm water discharges, including a justification that the method detection limits are adequate.

XII. SWPPP GENERAL REQUIREMENTS

- A.** The SWPPP shall be retained at the Facility and made available upon request of a representative of the San Diego Water Board.
- B.** Upon notification by the San Diego Water Board or USEPA that the SWPPP does not meet one or more of the minimum requirements of this Attachment, the Discharger shall revise the SWPPP and implement additional BMPs that are effective in reducing and eliminating pollutants in storm water discharges and authorized non-storm water discharges. As requested, the Discharger shall provide an implementation schedule and/or completion certification to the San Diego Water Board or USEPA.
- C.** The SWPPP shall be revised, as appropriate, and implemented prior to changes in industrial activities, which;
 - 1.** May significantly increase the quantities of pollutants in storm water discharges; or
 - 2.** Cause a new area of industrial activity at the Facility to be exposed to storm water; or
 - 3.** Begin an industrial activity that would introduce a new pollutant source at the Facility.
- D.** The Discharger shall revise the SWPPP and implement the appropriate BMPs in a timely manner and in no case more than 90 days after a Discharger determines that the SWPPP is in violation of any Order requirement.
- E.** When any part of the SWPPP is infeasible to implement by the deadlines specified above due to proposed significant structural changes, the Discharger shall:
 - 1.** Submit a report to the San Diego Water Board that:
 - a.** Identifies the portion of the SWPPP that is infeasible to implement by the deadline;
 - b.** Provides justification for a time extension, and a schedule for completing and implementing that portion of the SWPPP; and
 - c.** Describes the BMPs that will be implemented in the interim period to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.
 - 2.** Comply with any request by the San Diego Water Board to modify the report required in Subsection VII.E.1 above, or provide certification that the SWPPP revisions have been implemented.
- F.** The SWPPP shall be provided, upon request, to the San Diego Water Board, USEPA, local agency, or Compliance Inspection Designees. The San Diego Water Board under section 308(b) of the Clean Water Act considers the SWPPP a report that shall be available to the public.

XIII. AUTHORIZED NON-STORM WATER DISCHARGES SPECIAL REQUIREMENTS

- A.** The SWPPP shall address authorized non-storm water discharges and incorporate the requirements of section IV.F of this Order.

ITEM A-1

**STORM WATER POLLUTION PREVENTION PLAN
 EXAMPLE CHECKLIST**

Facility Name _____

WDID# _____

FACILITY CONTACT

Name _____
 Title _____
 Company _____
 Street _____
 Address _____
 City, State _____
 ZIP _____

CONSULTANT CONTACT

Name _____
 Title _____
 Company _____
 Street _____
 Address _____
 City, State _____
 ZIP _____

Storm Water Pollution Prevention Plan	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Signed Certification			
Pollution Prevention Team			
Existing Facility Plans			
<i>Facility Site Map(s)</i>			
Facility Boundaries			
Drainage areas			
Direction of flow			
On-site water bodies			
Areas of soil erosion			
Nearby water bodies			
Municipal storm drain inlets			
Points of discharges			
Structural control measures			
Impervious areas (paved areas, buildings, covered areas, roofed areas)			
Location of directly exposed materials			
Location of significant spills and leaks			
Storage areas / Storage tanks			
Shipping and receiving areas			
Fueling areas			
Vehicle and equipment storage and maintenance			
Material handling / Material processing			
Waste treatment / Waste Disposal			
Dust generation / Particulate generation			
Cleaning areas / Rinsing areas			
Other areas of industrial activities			
For the NBC, High Risk area			
<i>List of Significant Materials</i>			

Storm Water Pollution Prevention Plan	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
For each material listed:			
Storage location			
Receiving and shipping location			
Handling location			
Quantity			
Frequency			
<i>Description of Potential Pollution Sources</i>			
Industrial Processes			
Material handling and storage areas			
Dust and particulate generating activities			
Significant spills and leaks			
Non-storm water discharges			
Soil Erosion			
<i>Assessment of Potential Pollutant Sources</i>			
Areas likely to be sources of pollutants			
Pollutants likely to be present			
<i>Storm Water Best Management Practices</i>			
Non-Structural BMPs			
Good Housekeeping			
Preventative Maintenance			
Spill Response			
Material Handling and Storage			
Employee Training			
Waste Handling / Waste Recycling			
Recordkeeping and Internal Reporting			
Erosion Control and Site Stabilization			
Inspections			
Quality Assurance			
Structural BMPs			
Overhead Coverage			
Retention Ponds			
Control Devices			
Secondary Containment Structures			
Treatment			
Industrial Activity BMPs/Pollutant Summary			
<i>Annual Comprehensive Site Compliance Evaluation</i>			
Review of visual observations, inspections, and sampling analysis			
Visual inspection of potential pollution sources			
Review and evaluation of BMPs			
Evaluation Report			

ITEM A-2

**FIVE PHASES FOR DEVELOPING AND IMPLEMENTING INDUSTRIAL
STORM WATER POLLUTION PREVENTION PLANS**

PLANNING AND ORGANIZATION

- *Form Pollution Prevention Team
- *Review other plans

ASSESSMENT PHASE

- *Develop a site map
- *Identify potential pollutant sources
- *Inventory of materials and chemicals
- *List significant spills and leaks
- *Identify non-storm water discharges
- *Assess pollutant risks

BEST MANAGEMENT PRACTICES IDENTIFICATION PHASE

- *Non-structural BMPs
- *Structural BMPs
- *Select activity and site-specific BMPs

IMPLEMENTATION PHASE

- *Train employees
- *Implement BMPs
- *Collect and review records

EVALUATION/MONITORING

- *Conduct annual site evaluation
- *Review monitoring information
- *Evaluate BMPs
- *Review and revise SWPPP

**ITEM A-3
 EXAMPLE
 ASSESSMENT OF POTENTIAL POLLUTION SOURCES AND
 CORRESPONDING BEST MANAGEMENT PRACTICES SUMMARY**

Area	Activity	Pollutant Source	Pollutant	Best Management Practices
Vehicle & Equipment Fueling	Fueling	Spills and leaks during delivery	fuel oil	- Use spill and overflow protection
		Spills caused by topping off fuel tanks	fuel oil	- Minimize run-on of storm water into the fueling area
		Hosing or washing down fuel area	fuel oil	- Cover fueling area
		Leaking storage tanks	fuel oil	- Use dry cleanup methods rather than hosing down area
		Rainfall running off fuel area, and rainfall running onto and off fueling area	fuel oil	- Implement proper spill prevention control program

ATTACHMENT H – BEST MANAGEMENT PRACTICES AND POLLUTION PREVENTION PLAN FOR UTILITY VAULT AND MANHOLE DEWATERING DISCHARGES (UTILITY VAULT PLAN)

I. IMPLEMENTATION

The Discharger shall develop and implement a Best Management Practices and Pollution Prevention Plan for Utility Vault and Manhole Dewatering Discharges (Utility Vault Plan) which achieves the objectives and the specific requirements listed below. The existing Utility Vault Plan shall continue to be implemented. The revised Utility Vault Plan shall be implemented as soon as possible but no later than 1 year from the effective date of this Order.

II. OBJECTIVE

Through implementation of the Utility Vault Plan, the Discharger shall prevent or minimize the generation and the potential for the release of pollutants from the Facility to the Waters of the United States through normal operations and ancillary activities. The Utility Vault Plan shall be designed to comply with BAT/BCT and to ensure compliance with water quality standards.

III. The Utility Vault Plan shall include, to the extent possible, at least the following items:

A. Utility Vault Plan Administration

- 1. Pollution Prevention Team.** The Utility Vault Plan shall identify a specific individual or individuals as members of a Pollution Prevention Team that are responsible for developing the Utility Vault Plan and assisting in its implementation, maintenance, and revision. The Utility Vault Plan shall clearly identify the responsibilities of each team member. The activities and responsibilities of the team shall address all aspects of the Utility Vault Plan.
- 2. Employee Training.** The Discharger shall implement a training program to ensure that all utility personnel that are responsible for implementing the Utility Vault Plan are trained in the proper execution of the procedures and BMPs identified in the Utility Vault Plan to minimize the potential for the release of pollutants in utility vault and underground structure discharges. The training shall address topics such as spill response, good housekeeping, pollution control procedures, and material management practices. In addition, staff who dewater utility vaults or underground structures shall be trained to use a dewatering checklist or dewatering procedures to facilitate evaluation of the quality of the water prior to a planned (non-emergency or non-automated critical) discharge from a utility vault or underground structure. The Utility Vault Plan shall identify who is responsible for the training and how often training will take place. Training shall be held at intervals frequent enough to assure adequate understanding of the Utility Vault Plan goals, objectives, and procedures.

B. Identification of Potential Pollutant Source

- 1. Description of Potential Pollutant Sources.** The Utility Vault Plan shall provide a description of potential sources that may add pollutants to discharges. The Utility Vault Plan shall identify all activities and significant materials that may potentially be a source of pollutants. The Utility Vault Plan shall include a description of the types of utility materials handled at the site that potentially may be exposed to vault water either within the vault or underground structure or during discharge operations.

- 2. Drainage Map.** Provide a map showing the essential features of the distribution system for the service area boundary and showing the corresponding surface waters to which water may be discharged.

3. Pollution Assessment

- a.** Using the information identified in section III.B and procedures and pollution control measures developed in sections III.C and III.D below, analyze and discuss the pollution sources which have been identified to potentially cause or contribute to an exceedance of water quality objectives. The analysis shall identify potential sources of pollutants and, for each potential source, any corresponding pollutant or pollutant parameter (e.g., oil and grease) of concern. For each pollutant of concern, identify specific control measures which utility company personnel may use to control the discharge of the pollutant.
- b.** If existing discharge data are available, use these data to identify sites or categories of sites which present an increased risk of discharging utility vault water with elevated pollutant levels. Identify potential sources of the elevated pollutant levels and identify specific control measures which will be used to control pollutant levels in the discharges at these sites.

C. Procedures for Discharges from Utility Vaults and Underground Structures

The Discharger shall develop and use a checklist or series of procedures to evaluate the quality of the water prior to a planned (nonemergency or non-automated critical) discharge from a utility vault or underground structure. These procedures shall be included in the Utility Vault Plan. The checklist or series of procedures are intended to allow the Discharger to make a preliminary determination of the quality of water to be disposed and indicate to the Discharger which pollution control measures should be used when discharging the water. The procedures shall include, at a minimum, visual inspection for evidence of, or the potential for, pollutants to be present in the discharge.

The Discharger's Utility Vault Plan shall also include the procedures that will be used for discharges that occur during emergency situations where it is recognized that utility vault or underground structure dewatering may need to occur as soon as possible to avoid endangerment to human health, public safety, or the environment or to reestablish essential public services. Further, the Utility Vault Plan shall address the procedures to be used for automated critical discharges. Automated critical discharges are necessary to protect equipment that is vulnerable to damage by water infiltration or seepage, to minimize outage delays and maintain reliability of essential public services, and for safety purposes. The Discharger shall describe the feasible procedures that may be implemented during emergency situations and for automated critical discharges to minimize the release of pollutants to the environment. The Discharger's staff responsible for dewatering utility vaults or underground structures shall use a checklist or procedures during dewatering activities to facilitate evaluation of the quality of the water prior to a planned (non-emergency or non-automated critical) discharge from a utility vault or underground structure.

D. Pollution Control Measures

The Discharger shall develop a description of BMPs appropriate for their site(s) and operations and implement such BMPs. The appropriateness and priorities of BMPs in a Utility Vault Plan must reflect identified potential sources of pollutants described in section III.B above. In addition, the Discharger should discuss the advantages and limitations of each BMP. If relevant,

include a flow diagram describing the conditions under which specific pollution control measures and/or BMPs will be deployed. The description of pollution control measures and/or BMPs shall address the following minimum components:

1. **Good Housekeeping.** The Discharger shall identify and discuss good housekeeping BMPs which can be adopted to prevent or control the discharge of pollutants. Examples of best practices that should be considered by The Discharger include, but are not limited to, the following:
 - a. Maintain areas surrounding the utility vault and underground structure so that they are kept clean and orderly prior to dewatering activities so as to minimize the presence of pollutants in discharges.
 - b. If applicable, store and contain liquid materials in such a manner that if the container is ruptured, the contents will not discharge, flow, or be washed into the storm drainage system, surface waters, or groundwater.
 - c. Prior to dewatering a utility vault or underground structure, when feasible and safe, maintain the cleanliness and orderliness of all areas that may be impacted by the discharge including the discharge area (e.g., street, roadway, storm drain inlet) which should be clear of debris and sediment prior to discharging.
 - d. Use an absorbent material (e.g., absorbent pads, rags) on the utility vault's or underground structure's water surface prior to dewatering and discharge when an oil sheen has been observed.
2. **Discharge Procedures.** The Utility Vault Plan shall include, at a minimum, provisions and procedures which will be implemented during the discharge from utility vaults and underground structures to minimize the introduction of pollutants and protect receiving water quality. For example, best practices that should be considered to control erosion and minimize the discharge of sediment include, but are not limited to, the following:
 - a. When feasible and safe, sweep/clear the area surrounding the discharge point to prevent washing sediment and debris into storm drains.
 - b. Use straw wattles to reduce erosion.
 - c. Use a filter sock or bag to reduce oil and sediment discharge.
3. **Pollution Control and Waste Disposal Procedures.** Instances may arise where utility personnel determine that a utility vault or underground structure discharge may have a reasonable potential to cause or contribute to an exceedance of water quality objectives for the receiving water and that BMPs and procedures implemented in accordance with sections III.D.1. a and b above will be insufficient to adequately control pollutants in the discharge. In these instances, the Utility Vault Plan shall include provisions and procedures to be implemented to capture, treat, and/or dispose of the discharge in a manner that is protective of receiving water quality (e.g., hauling the utility vault or underground structure water to a wastewater treatment plant or a disposal site). Any potential discharge for which it is determined that the discharge from the utility vault or underground structure will cause or contribute to an exceedance in the receiving water of applicable water quality objectives is not authorized under this Order. The determination of the potential to cause water quality

impacts shall be based on field observations prior to dewatering as well as the results of the Identification of Potential Pollutant Source required in section III.B above.

E. Annual Plan Evaluation Requirements

The Discharger shall conduct an overall evaluation of the effectiveness of its Utility Vault Plan in controlling the discharge of pollutants during a discharge event and revise or replace the Utility Vault Plan as necessary to address procedures and BMPs found to not be effective in minimizing the discharge of pollutants.

1. Plan Evaluation Requirements

At least once per year, the Discharger shall conduct an evaluation of the effectiveness of their Utility Vault Plan in controlling the discharge of pollutants during a discharge event. At a minimum, the Utility Vault Plan evaluation shall include the following:

- a. Evaluate the Utility Vault Plan measures to reduce pollutant loadings to determine whether they are adequate and properly implemented in accordance with the terms of this Order or whether additional control measures are needed. Ensure that utility source control measures, sediment and erosion control measures, and other structural BMPs identified in the Utility Vault Plan are operating correctly. Perform an evaluation of equipment needed to implement the Utility Vault Plan.
- b. If the results of the monitoring at any of the representative sites required in the MRP (Attachment E) exceed of one or more of the Numeric Action Levels (NALs) listed in Table H-1 below, then a Discharger shall prepare a Discharge Characterization Study to evaluate the potential cause(s) of the NAL exceedance(s). At a minimum, this evaluation shall include an assessment of the potential source(s) of the pollutant and whether the procedures and BMPs contained in the Utility Vault Plan need to be revised to address the identified source(s) in future discharges. Additional NALs may be added in the future based on the results of the Discharge Characterization Study.

Table H-1. Numeric Action Levels for Utility Vault and Manhole Dewatering

Parameter	Numeric Action Levels		
	Unit	Minimum Daily	Maximum Daily
Oil and Grease	mg/L	---	25
pH	Standard Units	6.0	9.0
Total Petroleum Hydrocarbons-Diesel Range Organics	mg/L	---	2
Total Petroleum Hydrocarbons-Gasoline Range Organics	µg/L	---	5
Total Suspended Solids	mg/L	---	400

2. Plan Revisions

If Utility Vault Plan revisions are necessary based on the Utility Vault Plan evaluation required in section III.E.1 above, the Discharger shall develop a revised Plan with new or revised BMPs to prevent future exceedance(s) of NALs. The Discharger shall implement

such BMPs and document the progress of their implementation and effectiveness in the Annual Report to the Regional Water Board Executive Officer.

If it is determined that the cause(s) of an exceedance of an NAL were beyond the control of the Discharger and not a result of inadequate Utility Vault Plan implementation, procedures, or BMPs, then revisions to the Utility Vault Plan are not required. The Discharger shall provide as part of the Annual Report an explanation detailing when this situation occurs.

The Discharger shall amend the Utility Vault Plan whenever there is a change in construction, operation, or maintenance, when such amendment is necessary to ensure compliance with BAT/BCT and receiving water limitations. The Utility Vault Plan shall also be amended if it is in violation of any conditions of this Order or has not achieved the general objective of controlling pollutants in discharges to surface waters. The Discharger shall submit the amended the Utility Vault Plan to the San Diego Water Board.

3. Annual Plan Evaluation and Revision Reporting

- a.** The Discharger shall provide the results of the annual Utility Vault Plan evaluation and any revisions to the Utility Vault Plan as part of the Annual Report required in section VII.E. of the MRP (Attachment E).
- b.** The Discharger shall retain for five years records summarizing the scope of the annual Utility Vault Plan evaluation, personnel making the evaluation, the date(s) of the evaluation(s), significant observations relating to the implementation of the Utility Vault Plan, and actions taken to revise the Utility Vault Plan.

F. Other Special Provisions

- 1.** The Dischargers shall dispose of solids removed from liquid wastes in accordance with applicable federal, state and local laws, regulations, and ordinances.
- 2.** If the Discharger determines that its utility vault or underground structure is causing or contributing to vector problems, it shall coordinate with a vector control agency to address the vector problems.

ATTACHMENT I – BEST MANAGEMENT PRACTICES PLAN FOR APPLICABLE INDUSTRIAL WASTEWATERS

I. Implementation

The Discharger shall develop and implement a Best Management Practices (BMP) Plan which achieves the objectives and the specific requirements listed below for the activities of pier washing, pier boom cleaning, and boat rinsing activities. Existing BMP Plans for these activities shall continue to be implemented. The revised BMP Plan for these activities shall be implemented as soon as possible but no later than 1 year from the effective date of this Order.

II. Purpose

Through implementation of the BMP Plan, the Discharger shall prevent or minimize the generation and the potential for the release of pollutants from the Facility to the Waters of the United States (U.S.) through normal operations and ancillary activities. The BMP Plan shall address at a minimum pier washing, pier boom cleaning, and boat rinsing activities. Pier boom cleaning and boat rinsing discharges have been eliminated and BMPs are necessary to ensure that there is no discharge from these activities.

III. Objectives

The Discharger shall develop and amend the BMP Plan consistent with the following objectives for the control of pollutants:

- A.** The number and quantity of pollutants and the toxicity of effluent generated, discharged or potentially discharged at the Facility shall be minimized by the Discharger to the extent feasible by managing each waste stream in the most appropriate manner.
- B.** The Discharger shall ensure proper operation and maintenance of the Facility. Standard Operating Procedures (SOPs) may be included in the BMP Plan or referenced.
- C.** The Discharger shall evaluate each component or system for its waste minimization opportunities and its potential for causing a release of significant amounts of pollutants to Waters of the U.S. due to equipment failure, improper operation, and natural phenomena such as rain or snowfall, or other emergency situation. The evaluation shall include all normal operations and ancillary activities at a minimum related to pier washing and any other activities which have the potential to discharge pollutants. The Discharger shall have a plan to address any emergency situation which would result in a significant release of pollutants to Waters of the U.S. including those identified in this evaluation.

IV. Requirements

- A.** The BMP Plan shall be consistent with the objectives in section III above and the general guidance contained in the publication entitled *Guidance Manual for Developing Best Management Practices (BMPs)* (USEPA, 1993) or any subsequent revisions to the guidance document.
- B.** The BMP Plan shall 1) be documented in narrative form, 2) include any necessary plot plans, drawings or maps, and 3) be developed in accordance with good engineering practices.

- C.** The BMP Plan shall be organized and written with the following elements:
1. Purpose and objectives of the BMP Plan
 2. Name and location of the activity with specific BMPs.
 3. Specific management practices and standard operating procedures to achieve the above objectives, including, but not limited to, the following:
 - a. Modification of equipment, facilities, technology, processes, and procedures,
 - b. Reformulation or redesign of products,
 - c. Substitution of materials,
 - d. Improvement in management, inventory control, materials handling or general operational phases of the facility, and
 - e. Materials compatibility.
 4. Good housekeeping.
 5. Preventative maintenance.
 6. Risk identification and assessment.
 7. Reporting of BMP incidents and spills.
 8. Inspections and records.
 9. Employee training.
- D.** The BMP Plan shall establish specific BMPs to meet the objectives identified in section III of this Attachment, addressing each component or system capable of generating or causing a release of significant amounts of pollutants, and identifying specific preventative or remedial measures to be implemented.
- E.** The BMP Plan shall establish specific BMPs or other measures which ensure that the discharge of pollutants including, but not limited to, arsenic, copper, lead, nickel, selenium, zinc, aldrin, alpha-BHC, beta-BHC, 4,4'-DDE (linked to DDT), alpha-endosulfan, beta-endosulfan, heptachlor, and heptachlor epoxide from pier washing is reduced to levels that do not exceed water quality objectives. (RPA)
- F.** The BMP Plan shall include a statement this BMP Plan fulfills the requirements of this Order and shall be signed and certified in accordance with the signatory requirements of Standard Provision V.B. of Attachment D.

V. Documentation

The Discharger shall maintain a copy of the BMP Plan at the Facility and shall make it available to the San Diego Water Board upon request. All offices of the Discharger which are required to maintain a copy of the NPDES permit shall also maintain a copy of the BMP Plan.

VI. BMP Plan Modification

The Discharger shall amend the BMP Plan whenever there is a change in the facility or in the operation of the facility which materially increases the generation of pollutants or their release or potential release to the receiving waters. The Discharger shall also amend the BMP Plan, as appropriate, when operations covered by the BMP Plan change. Any such changes to the BMP Plan shall be consistent with the objectives and specific requirements listed above. All changes in the BMP Plan shall be reported to the San Diego Water Board in writing.

VII. Modification for Ineffectiveness

At any time, if the BMP Plan proves to be ineffective in achieving the general objective of preventing and minimizing the generation of pollutants and their release and potential release to the receiving waters and/or the specific requirements above, the Order and/or the BMP Plan shall be subject to modification to incorporate revised BMP requirements.

ATTACHMENT J – DISCHARGE PROHIBITIONS CONTAINED IN THE BASIN PLAN

I. Basin Plan Discharge Prohibitions

- A.** The discharge of waste to Waters of the State in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in Water Code section 13050, is prohibited.
- B.** The discharge of waste to land, except as authorized by WDRs of the terms described in Water Code section 13264 is prohibited.
- C.** The discharge of pollutants or dredged or fill material to Waters of the United States except as authorized by an NPDES permit or a dredged or fill material permit (subject to the exemption described in Water Code section 13376) is prohibited.
- D.** Discharges of recycled water to lakes or reservoirs used for municipal water supply or to inland surface water tributaries thereto are prohibited, unless this San Diego Water Board issues an NPDES permit authorizing such a discharge; the proposed discharge has been approved by the State of California Department of Public Health and the operating agency of the impacted reservoir; and the discharger has an approved fail-safe long-term disposal alternative.
- E.** The discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives, is prohibited. Allowances for dilution may be made at the discretion of the San Diego Water Board. Consideration would include streamflow data, the degree of treatment provided and safety measures to ensure reliability of facility performance. As an example, discharge of secondary effluent would probably be permitted if streamflow provided 100:1 dilution capability.
- F.** The discharge of waste in a manner causing flow, ponding, or surfacing on lands not owned or under the control of the discharger is prohibited, unless the discharge is authorized by the San Diego Water Board.
- G.** The dumping, deposition, or discharge of waste directly into Waters of the State, or adjacent to such waters in any manner which may permit it being transported into the waters, is prohibited unless authorized by the San Diego Water Board.
- H.** Any discharge to a storm water conveyance system that is not composed entirely of storm water is prohibited unless authorized by the San Diego Water Board. [The federal regulations, 40 CFR section 122.26(b)(13), define storm water as storm water runoff, snow melt runoff, and surface runoff and drainage. 40 CFR section 122.26(b)(2) defines an illicit discharge as any discharge to a storm water conveyance system that is not composed entirely of storm water except discharges pursuant to an NPDES permit and discharges resulting from fire fighting activities.] [section 122.26 amended at 56 FR 56553, November 5, 1991; 57 FR 11412, April 2, 1992].
- I.** The unauthorized discharge of treated or untreated sewage to Waters of the State or to a storm water conveyance system is prohibited.
- J.** The discharge of industrial wastes to conventional septic tank/subsurface disposal systems, except as authorized by the terms described in Water Code section 13264, is prohibited.

- K.** The discharge of radioactive wastes amenable to alternative methods of disposal into the Waters of the State is prohibited.
- L.** The discharge of any radiological, chemical, or biological warfare agent into Waters of the State is prohibited.
- M.** The discharge of waste into a natural or excavated site below historic water levels is prohibited unless the discharge is authorized by the San Diego Water Board.
- N.** The discharge of sand, silt, clay, or other earthen materials from any activity, including land grading and construction, in quantities which cause deleterious bottom deposits, turbidity or discoloration in Waters of the State or which unreasonably affect, or threaten to affect, beneficial uses of such waters is prohibited.
- O.** The discharge of treated or untreated sewage from vessels to Mission Bay, Oceanside Harbor, Dana Point Harbor, or other small boat harbors is prohibited.
- P.** The discharge of untreated sewage from vessels to San Diego Bay is prohibited.
- Q.** The discharge of treated sewage from vessels to portions of San Diego Bay that are less than 30 feet deep at MLLW is prohibited.
- R.** The discharge of treated sewage from vessels, which do not have a properly functioning USCG certified Type 1 or Type II marine sanitation device, to portions of San Diego Bay that are greater than 30 feet deep at MLLW is prohibited.

ATTACHMENT K – SEDIMENT CHEMISTRY ANALYTES

All samples shall be tested for the analytes specified in Table K-1. If other toxic pollutants are believed to pose risk to benthic communities, aquatic-dependent wildlife, or human health, those toxic pollutants shall be identified and included by the Discharger. Analytes not on Attachment A of the State Water Board's Sediment Quality Plan cannot be used in the exposure assessment in section V of the State Water Board's Sediment Quality Plan; however the data can be used to conduct more effective stressor identification studies as described in section VII.F of the State Water Board's Sediment Quality Plan.

Table K-1 Sediment Chemistry Analytes.

Chemical Name	Chemical Group	Chemical Name	Chemical Group
Total Organic Carbon ¹	General	2,2',3,3',4,4',5-Heptachlorobiphenyl ¹	PCB 170 - congener
Percent Fines ¹	General	2,2',3,4,4',5,5'-Heptachlorobiphenyl ¹	PCB 180 - congener
Cadmium ¹	Metal	2,2',3,4',5,5',6-Heptachlorobiphenyl ¹	PCB 187 - congener
Copper ¹	Metal	2,2',3,3',4,4',5,6-Octachlorobiphenyl ¹	PCB 195 - congener
Lead ¹	Metal	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl ¹	PCB 206 - congener
Mercury ¹	Metal	Decachlorobiphenyl ¹	PCB 209 - congener
Zinc ¹	Metal	2,3',6-Trichlorobiphenyl	PCB 27 - congener
Acenaphthene ¹	PAH	2,4,5-Trichlorobiphenyl	PCB 29 - congener
Anthracene ¹	PAH	2,4',5-Trichlorobiphenyl	PCB 31 - congener
Biphenyl ¹	PAH	2,3',4'-Trichlorobiphenyl	PCB 33 - congener
Naphthalene ¹	PAH	2,2',4,5'-Tetrachlorobiphenyl	PCB 49 - congener
2,6-dimethylnaphthalene ¹	PAH	2,3,3',4'-Tetrachlorobiphenyl	PCB 56 - congener
Fluorene ¹	PAH	2,3,4,4'-Tetrachlorobiphenyl	PCB 60 - congener
1-methylnaphthalene ¹	PAH	2,3,4',6-Tetrachlorobiphenyl	PCB 64 - congener
2-methylnaphthalene ¹	PAH	2,3',4',5-Tetrachlorobiphenyl	PCB 70 - congener
1-methylphenanthrene ¹	PAH	2,4,4',5-Tetrachlorobiphenyl	PCB 74 - congener
Phenanthrene ¹	PAH	3,3',4,4'-Tetrachlorobiphenyl	PCB 77 - congener
Benzo(a)anthracene ¹	PAH	2,2',3,4,5'-Pentachlorobiphenyl	PCB 87 - congener
Benzo(a)pyrene ¹	PAH	2,2',3,5',6-Pentachlorobiphenyl	PCB 95 - congener
Benzo(e)pyrene ¹	PAH	2,2',3,4',5'-Pentachlorobiphenyl	PCB 97 - congener
Chrysene ¹	PAH	2,2',4,4',5-Pentachlorobiphenyl	PCB 99 - congener
Dibenz(a,h)anthracene ¹	PAH	2,3,3',4',6-Pentachlorobiphenyl	PCB 110 - congener
Fluoranthene ¹	PAH	2,3,4,4',5-Pentachlorobiphenyl	PCB 114 - congener
Perylene ¹	PAH	3,3',4,4',5-Pentachlorobiphenyl	PCB 126 - congener
Pyrene ¹	PAH	2,2',3,4,4',5-Hexachlorobiphenyl	PCB 137 - congener
Alpha Chlordane ¹	Pesticide	2,2',3,4,5,5'-Hexachlorobiphenyl	PCB 141 - congener
Gamma Chlordane ¹	Pesticide	2,2',3,4',5,5'-Hexachlorobiphenyl	PCB 146 - congener
Trans Nonachlor ¹	Pesticide	2,2',3,4',5,6-Hexachlorobiphenyl	PCB 149 - congener
Dieldrin ¹	Pesticide	2,2',3,5,5',6-Hexachlorobiphenyl	PCB 151 - congener
o,p'-DDE ¹	Pesticide	2,3,3',4,4',5-Hexachlorobiphenyl	PCB 156 - congener
o,p'-DDD ¹	Pesticide	2,3,3',4,4',5'-Hexachlorobiphenyl	PCB 157 - congener
o,p'-DDT ¹	Pesticide	2,3,3',4,4',6-Hexachlorobiphenyl	PCB 158 - congener
p,p'-DDD ¹	Pesticide	3,3',4,4',5,5'-Hexachlorobiphenyl	PCB 169 - congener
p,p'-DDE ¹	Pesticide	2,2',3,3',4,5,6'-Heptachlorobiphenyl	PCB 174 - congener
p,p'-DDT ¹	Pesticide	2,2',3,3',4,5',6'-Heptachlorobiphenyl	PCB 177 - congener
2,4'-Dichlorobiphenyl ¹	PCB 8 - congener	2,2',3,4,4',5',6-Heptachlorobiphenyl	PCB 183 - congener
2,2',5-Trichlorobiphenyl ¹	PCB 18 - congener	2,3,3',4,4',5,5'-Heptachlorobiphenyl	PCB 189 - congener
2,4,4'-Trichlorobiphenyl ¹	PCB 28 - congener	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	PCB 194 - congener
2,2',3,5'-Tetrachlorobiphenyl ¹	PCB 44 - congener	2,2',3,3',4,5,5',6-Octachlorobiphenyl	PCB 198 - congener
2,2',5,5'-Tetrachlorobiphenyl ¹	PCB 52 - congener	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	PCB 199 - congener

Chemical Name	Chemical Group
2,3',4,4'-Tetrachlorobiphenyl ¹	PCB 66 - congener
2,2',4,5,5'-Pentachlorobiphenyl ¹	PCB 101 - congener
2,3,3',4,4'-Pentachlorobiphenyl ¹	PCB 105 - congener
2,3',4,4',5-Pentachlorobiphenyl ¹	PCB 118 - congener
2,2',3,3',4,4'-Hexachlorobiphenyl ¹	PCB 128 - congener
2,2',3,4,4',5'-Hexachlorobiphenyl ¹	PCB 138 - congener
2,2',4,4',5,5'-Hexachlorobiphenyl ¹	PCB 153 - congener

Chemical Name	Chemical Group
2,2',3,3',4,5,6,6'-Octachlorobiphenyl	PCB 200 - congener
2,2',3,3',4,5',6,6'-Octachlorobiphenyl	PCB 201 - congener
2,2',3,4,4',5,5',6-Octachlorobiphenyl	PCB 203 - congener

¹ From Attachment A of the State Water Board's Sediment Quality Plan

ATTACHMENT L – ELEMENTS FOR SMALL MILITARY BASE MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) – STORM WATER MANAGEMENT PROGRAM (SWMP)

I. SIX MINIMUM CONTROL MEASURES. The SWMP shall describe BMPs, and associated measurable goals, that fulfill the requirements of the following six Minimum Control Measures:

A. Public Education and Outreach on Storm Water Impacts. The SWMP shall contain a written plan to distribute educational materials to the target audiences identified below, or conduct equivalent outreach activities about the effects of storm water discharges on water bodies and the steps that the target audiences can take to reduce pollutants in storm water runoff

The SWMP shall contain a list of target audience groups consisting of civilian, contractor, retailers military personnel (including dependents) that are present on the Facility and may be conducting activities that could have potential adverse effect(s) to water quality.

B. Public Involvement/Participation Program. The SWMP shall contain a written Public Involvement/Participation Program to:

1. Regularly encourage public participation in the development and implementation of the SWMP;
2. Establish a platform for the public and target audiences to provide input into the development and implementation of the SWMP;
3. Solicit public reporting of suspected illicit discharges via telephone and writing; and
4. Implement procedures for the receipt and consideration of verbal or written public inquires, concerns, and information submitted by the public.

C. Illicit Discharge Detection and Elimination. The SWMP shall contain a written Illicit Discharge Detection and Elimination Program containing the following elements:

1. A written program to detect and eliminate illicit discharges (as defined at 40 CFR §122.26(b)(2)) into the storm water drainage systems;
2. A storm sewer system map, showing the location of all storm water drainage systems, outfalls and the names and locations of all Waters of the U.S. that receive discharges from those outfalls;
3. A prohibition against non-storm water discharges into the storm water drainage system except as allowed under Non-Storm Water Specifications IV.F of this Order;
4. A plan to detect and address non-storm water discharges, including illegal dumping, to the MS4 system that are not authorized by a separate NPDES permit;
5. A plan to inform the target audiences of the hazards that are generally associated with illegal discharges and improper disposal of waste; and

6. A plan to address the categories of non-storm water discharges or flows as specified in Non-Storm Water Specification IV.F of this Order (i.e., authorized non-storm water discharges) only where they are identified as significant contributors of pollutants to the storm water collection system.

D. Construction Site Storm Water Runoff Control. The SWMP shall contain a written *Construction Site Storm Water Runoff Control* program to reduce pollutants in any storm water runoff to the MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of storm water discharges from construction activity disturbing less than one acre must be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. The program must, at a minimum, include the development and implementation of:

1. Mechanisms to require erosion and sediment controls, as well as enforcement mechanisms, to ensure compliance;
2. Requirements for construction site operators to implement appropriate erosion and sediment control BMPs;
3. Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;
4. Procedures for site plan review which incorporate consideration of potential water quality impacts;
5. Procedures for receipt and consideration of information submitted by the public. The Discharger shall demonstrate acknowledgement and consideration of the information submitted, whether submitted verbally or in writing; and
6. Procedures for site inspection and enforcement of control measures.
7. Procedures for verifying that the site has existing coverage under California's statewide General NPDES Permit for Storm Water Discharges Associated with Construction Activities (hereinafter General Construction Permit).

E. Post-Construction Storm Water Management in New Development and Redevelopment. The SWMP shall contain a written Post-Construction Storm Water Management Program to:

1. Address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development, that discharge into the storm water drainage system by ensuring that controls are in place that would prevent or minimize water quality impacts, and that are designed to maintain pre-project runoff condition
2. Develop and implement water quality strategies, which include a combination of structural and/or non-structural BMPs appropriate for the Facility;

3. Develop or use a mechanism to address post-construction runoff from new development and redevelopment projects.
4. Ensure adequate long-term operation and maintenance of water quality BMPs.
5. Maintain and regularly update an inventory of BMPs installed pursuant to the SWMP. The inventory shall include, at a minimum:
 - a. Exact location of BMP(s);
 - b. Contact information for the individual or entity responsible for long term BMP operation and maintenance;
 - c. A description of the BMP and the year it was installed;
 - d. Maintenance required;
 - e. Actual inspection/maintenance activities that occurred during the reporting year; and
 - f. An assessment by the Discharger if proper operation and maintenance occurred during the year, and if not, what actions the Discharger has taken, or will take, to address the deficiencies.

F. Pollution Prevention/Good Housekeeping. The SWMP shall contain a written *Pollution Prevention/Good Housekeeping Program* that is sufficient to minimize pollutant runoff from on-site operations. The Discharger may incorporate by reference, other plans implemented at the Facility (i.e., SWPPP and BMP Plan) that address similar goals. The Discharger shall :

1. Develop *and* implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from Facility operations: and
2. Using training materials that are available from USEPA, the state, or other organizations, include target audience training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet building maintenance, new construction and land disturbances, and storm water system maintenance.

II. MEASUREABLE GOALS. The SWMP must identify the measurable goals for each of the BMPs, including, as appropriate, the months and years for scheduled actions, including interim milestones and the frequency of the action.

III. SWMP ANNUAL REVIEW. The SWMP shall be reviewed annually and revised as necessary. A summary of each annual review, the identified inadequacies, and any planned efforts to address the identified inadequacies shall be maintained as an attachment to the SWMP for a minimum of 5 years.

ATTACHMENT M – STORM WATER RISK LEVEL DESIGNATION TABLES

Listing of NBC Municipal Storm Water Discharge Locations

Discharge Point	Navy ID Number	Latitude	Longitude	Outfall Risk Level	Receiving Water
NBC-001	NASNI-50	32° 42' 31" N	117° 13' 11" W	Municipal	San Diego Bay
NBC-002	NASNI-CVN1	32° 42' 52" N	117° 11' 41" W	Municipal	San Diego Bay
NBC-003	NASNI-CVN2	32° 42' 52" N	117° 11' 37" W	Municipal	San Diego Bay
NBC-004	NASNI-CVN4	32° 42' 51" N	117° 11' 37" W	Municipal	San Diego Bay
NBC-005	NASNI-CVN12	32° 42' 52" N	117° 11' 43" W	Municipal	San Diego Bay
NBC-006	NASNI-CVN17-IN	32° 42' 46" N	117° 11' 25" W	Municipal	San Diego Bay
NBC-007	NASNI-CVN17-EF	32° 42' 47" N	117° 11' 25" W	Municipal	San Diego Bay
NBC-008	NASNI-CVN18-IN	32° 42' 45" N	117° 11' 23" W	Municipal	San Diego Bay
NBC-009	NASNI-CVN18-EF	32° 42' 46" N	117° 11' 23" W	Municipal	San Diego Bay
NBC-010	NASNI-CVN11	32° 42' 25" N	117° 11' 26" W	Municipal	San Diego Bay
NBC-011	NASNI-18	32° 42' 53" N	117° 11' 49" W	Municipal	San Diego Bay
NBC-012	NASNI-61	32° 42' 53" N	117° 12' 1" W	Municipal	San Diego Bay
NBC-013	NASNI-60	32° 42' 53" N	117° 12' 2" W	Municipal	San Diego Bay
NBC-014	NASNI-58	32° 42' 53" N	117° 12' 17" W	Municipal	San Diego Bay
NBC-015	NASNI-57	32° 42' 49" N	117° 12' 34" W	Municipal	San Diego Bay
NBC-016	NASNI-56	32° 42' 48" N	117° 12' 34" W	Municipal	San Diego Bay
NBC-017	NASNI-55	32° 42' 45" N	117° 12' 41" W	Municipal	San Diego Bay
NBC-018	NASNI-54	32° 42' 43" N	117° 12' 48" W	Municipal	San Diego Bay
NBC-019	NASNI-52	32° 42' 41" N	117° 12' 53" W	Municipal	San Diego Bay
NBC-020	NASNI-48	32° 42' 5" N	117° 13' 30" W	Municipal	San Diego Bay
NBC-021	NASNI-47	32° 41' 44" N	117° 13' 40" W	Municipal	San Diego Bay
NBC-022	NASNI-1	32° 41' 38" N	117° 11' 27" W	Municipal	Pacific Ocean
NBC-023	NASNI-2	32° 41' 26" N	117° 11' 31" W	Municipal	Pacific Ocean
NBC-024	NASNI-41	32° 41' 23" N	117° 12' 10" W	Municipal	Pacific Ocean
NBC-025	NASNI-42	32° 41' 23" N	117° 12' 16" W	Municipal	Pacific Ocean
NBC-026	NASNI-45	32° 41' 28" N	117° 13' 37" W	Municipal	San Diego Bay
NBC-027	NASNI-44	32° 41' 26" N	117° 13' 36" W	Municipal	San Diego Bay
NBC-028	NASNI-CVN10	32° 42' 27" N	117° 11' 25" W	Municipal	San Diego Bay
NBC-029	NASNI-19	32° 42' 53" N	117° 11' 46" W	Municipal	San Diego Bay
NBC-030	NASNI-13	32° 42' 28" N	117° 13' 10" W	Municipal	San Diego Bay
NBC-031	NASNI-40	32° 42' 11" N	117° 10' 51" W	Municipal	San Diego Bay
NBC-032	NASNI-CVN19	32° 42' 46" N	117° 11' 22" W	Municipal	San Diego Bay
NBC-033	NAB-2	32° 40' 30" N	117° 09' 58" W	Municipal	San Diego Bay
NBC-034	NAB-7	32° 40' 49" N	117° 09' 28" W	Municipal	San Diego Bay
NBC-035	NAB-8	32° 40' 42" N	117° 9' 18" W	Municipal	San Diego Bay
NBC-036	NAB-18	32° 40' 30" N	117° 10' 01" W	Municipal	San Diego Bay
NBC-037	NAB-31	32° 40' 36" N	117° 09' 45" W	Municipal	San Diego Bay
NBC-038	NAB-40	32° 40' 45" N	117° 9' 32" W	Municipal	San Diego Bay
NBC-039	NAB-41	32° 40' 30" N	117° 09' 56" W	Municipal	San Diego Bay
NBC-040	NAB-51	32° 40' 49" N	117° 09' 26" W	Municipal	San Diego Bay
NBC-041	NAB-52	32° 40' 49" N	117° 09' 26" W	Municipal	San Diego Bay
NBC-042	NAB-53	32° 40' 47" N	117° 09' 24" W	Municipal	San Diego Bay
NBC-043	NAB-54	32° 40' 45" N	117° 09' 21" W	Municipal	San Diego Bay

Listing of NBC Municipal Storm Water Discharge Locations

Discharge Point	Navy ID Number	Latitude	Longitude	Outfall Risk Level	Receiving Water
NBC-044	NAB-57	32° 40' 47" N	117° 09' 31" W	Municipal	San Diego Bay
NBC-045	NAB-108	32° 40' 43" N	117° 09' 35" W	Municipal	San Diego Bay
NBC-046	NAB-110	32° 40' 30" N	117° 9' 23" W	Municipal	San Diego Bay
NBC-047	NAB-112	32° 40' 24" N	117° 9' 31" W	Municipal	San Diego Bay
NBC-048	NAB-OLF 11	32° 40' 33" N	117° 09' 49" W	Municipal	San Diego Bay
NBC-049	NAB-OLF 12	32° 40' 34" N	117° 09' 47" W	Municipal	San Diego Bay
NBC-050	NAB-OLF15	32° 40' 37" W N	117° 09' 43" W	Municipal	San Diego Bay
NBC-051	NAB-OLF16	32° 40' 38" N	117° 09' 42" W	Municipal	San Diego Bay
NBC-052	NAB-OLF19	32° 40' 43" N	117° 09' 36" W	Municipal	San Diego Bay
NBC-053	NAB-OLF37	32° 40' 29" N	117° 09' 55" W	Municipal	San Diego Bay
NBC-054	NAB-OLF44	32° 40' 49" N	117° 09' 27" W	Municipal	San Diego Bay
NBC-055	NAB-OLF45	32° 40' 47" N	117° 09' 31" W	Municipal	San Diego Bay
NBC-056	NAB-OLF12	32° 40' 34" N	117° 9' 47" W	Municipal	San Diego Bay
NBC-057	NAB-5	32° 40' 42" N	117° 9' 37" W	Municipal	San Diego Bay
NBC-058	NAB-13	32° 40' 29" N	117° 9' 26" W	Municipal	San Diego Bay
NBC-059	NAB-14	32° 40' 27" N	117° 9' 28" W	Municipal	San Diego Bay
NBC-060	NAB-50	32° 40' 45" N	117° 9' 33" W	Municipal	San Diego Bay
NBC-061	NAB-109	32° 40' 46" N	117° 9' 32" W	Municipal	San Diego Bay
NBC-062	NAB-56	32° 40' 46" N	117° 9' 32" W	Municipal	San Diego Bay
NBC-063	NAB-1	32° 40' 30" N	117° 10' 3" W	Municipal	San Diego Bay
NBC-064	NAB-29	32° 40' 7" N	117° 9' 50" W	Municipal	Pacific Ocean
NBC-065	NAB-43	32° 40' 5" N	117° 9' 52" W	Municipal	Pacific Ocean
NBC-066	NAB-27	32° 40' 7" N	117° 9' 54" W	Municipal	Pacific Ocean
NBC-067	NAB-28	32° 40' 6" N	117° 9' 53" W	Municipal	Pacific Ocean
NBC-068	NAB-26	32° 40' 8" N	117° 9' 55" W	Municipal	Pacific Ocean
NBC-069	NAB-39	32° 40' 12" N	117° 9' 59" W	Municipal	Pacific Ocean
NBC-070	NAB-24	32° 40' 12" N	117° 9' 60" W	Municipal	Pacific Ocean
NBC-071	NAB-23	32° 40' 15" N	117° 10' 3" W	Municipal	Pacific Ocean
NBC-072	NAB-35	32° 40' 22" N	117° 10' 10" W	Municipal	Pacific Ocean
NBC-073	NAB-37	32° 40' 21" N	117° 10' 10" W	Municipal	Pacific Ocean
NBC-074	NAB-38	32° 40' 22" N	117° 10' 9" W	Municipal	Pacific Ocean
NBC-075	NAB-36	32° 40' 21" N	117° 10' 10" W	Municipal	Pacific Ocean
NBC-076	NAB-55	32° 40' 6" N	117° 9' 39" W	Municipal	San Diego Bay
NBC-077	NAB-25	32° 40' 9" N	117° 9' 57" W	Municipal	Pacific Ocean
NBC-078	NAB-15	32° 40' 25" N	117° 9' 31" W	Municipal	San Diego Bay
NBC-079	NAB-OLF41	32° 40' 5" N	117° 9' 51" W	Municipal	Pacific Ocean
NBC-080	NAB-16	32° 40' 20" N	117° 9' 36" W	Municipal	San Diego Bay
NBC-081	NAB-OLF40	32° 40' 25" N	117° 10' 13" W	Municipal	Pacific Ocean
NBC-082	NAB-OLF14	32° 40' 35" N	117° 9' 45" W	Municipal	San Diego Bay
NBC-083	NAB-OLF17	32° 40' 39" N	117° 9' 41" W	Municipal	San Diego Bay
NBC-084	NAB-12	32° 40' 32" N	117° 9' 22" W	Municipal	San Diego Bay
NBC-085	NAB-22	32° 40' 20" N	117° 10' 7" W	Municipal	Pacific Ocean
NBC-086	NAB-OLF11	32° 40' 33" N	117° 9' 48" W	Municipal	San Diego Bay
NBC-087	NAB-29A	32° 40' 6" N	117° 9' 52" W	Municipal	Pacific Ocean
NBC-088	NOLF-4	32° 33' 51" N	117° 06' 21" W	Municipal	Tijuana Estuary

Listing of NBC Municipal Storm Water Discharge Locations

Discharge Point	Navy ID Number	Latitude	Longitude	Outfall Risk Level	Receiving Water
NBC-089	NOLF-1	32° 34' 9" N	117° 7' 12" W	Municipal	Tijuana Estuary
NBC-090	NOLF-105	32° 33' 33" N	117° 7' 14" W	Municipal	Tijuana Estuary
NBC-091	NOLF-104	32° 33' 35" N	117° 6' 60" W	Municipal	Tijuana Estuary
NBC-092	NOLF-103	32° 33' 46" N	117° 6' 38" W	Municipal	Tijuana Estuary
NBC-093	NOLF-102	32° 33' 53" N	117° 6' 14" W	Municipal	Tijuana Estuary
NBC-094	NOLF-101	32° 33' 53" N	117° 6' 7" W	Municipal	Tijuana Estuary
NBC-095	NOLF-6	32° 33' 53" N	117° 6' 5" W	Municipal	Tijuana Estuary
NBC-096	NOLF-5	32° 34' 9" N	117° 6' 8" W	Municipal	Tijuana Estuary
NBC-097	NOLF-OLF2A	32° 33' 40" N	117° 6' 52" W	Municipal	Tijuana Estuary
NBC-098	NOLF-OLF2B	32° 33' 40" N	117° 6' 52" W	Municipal	Tijuana Estuary
NBC-099	NOLF-OLF2	32° 33' 46" N	117° 6' 39" W	Municipal	Tijuana Estuary
NBC-100	NOLF-OLF4	32° 33' 42" N	117° 6' 44" W	Municipal	Tijuana Estuary
SSTC-01	SSTC-01	32° 35' 15" N	117° 7' 57" W	Municipal	Pacific Ocean
Remote Training Site Warner Springs		No identified point source discharges.		Municipal	Tributary to San Luis Rey River
Camp Michael Monsoor		No identified point source discharges.		Municipal	Waters in the Canyon City HSA 11.82
Camp Morena		No identified point source discharges.		Municipal	Morena Reservoir

Listing of NBC Industrial Storm Water Discharge Locations

Discharge Point	Navy ID Number	Latitude	Longitude	Outfall Risk Level	Receiving Water
NBC-101	NASNI-3	32° 41' 15" N	117° 11' 53" W	Industrial Low Risk	Pacific Ocean
NBC-102	NASNI-5	32° 41' 16" N	117° 12' 47" W	Industrial Low Risk	Pacific Ocean
NBC-103	NASNI-6	32° 41' 11" N	117° 13' 01" W	Industrial Low Risk	Pacific Ocean
NBC-104	NASNI-7	32° 41' 07" N	117° 13' 12" W	Industrial Low Risk	Pacific Ocean
NBC-105	NASNI-8	32° 41' 46" N	117° 13' 37" W	Industrial Low Risk	San Diego Bay
NBC-106	NASNI-9	32° 42' 09" N	117° 13' 27" W	Industrial Low Risk	San Diego Bay
NBC-107	NASNI-10	32° 42' 18" N	117° 13' 22" W	Industrial Low Risk	San Diego Bay
NBC-108	NASNI-11	32° 42' 24" N	117° 13' 16" W	Industrial Low Risk	San Diego Bay
NBC-109	NASNI-12	32° 42' 30" N	117° 13' 10" W	Industrial Low Risk	San Diego Bay
NBC-110	NASNI-14	32° 42' 46" N	117° 12' 38" W	Industrial Low Risk	San Diego Bay
NBC-111	NASNI-15	32° 42' 48" N	117° 12' 35" W	Industrial Low Risk	San Diego Bay
NBC-112	NASNI-16	32° 42' 50" N	117° 12' 25" W	Industrial Low Risk	San Diego Bay
NBC-113	NASNI-17	32° 42' 53" N	117° 12' 06" W	Industrial Low Risk	San Diego Bay
NBC-114	NASNI-21	32° 42' 38" N	117° 11' 20" W	Industrial High Risk	San Diego Bay
NBC-115	NASNI-22A	32° 42' 35" N	117° 11' 22" W	Industrial High Risk	San Diego Bay
NBC-116	NASNI-22B	32° 42' 35" N	117° 11' 21" W	Industrial High Risk	San Diego Bay
NBC-117	NASNI-23A	32° 42' 32" N	117° 11' 23" W	Industrial High Risk	San Diego Bay
NBC-118	NASNI-23B	32° 42' 34" N	117° 11' 26" W	Industrial Low Risk	San Diego Bay
NBC-119	NASNI-24	32° 42' 30" N	117° 11' 23" W	Industrial High Risk	San Diego Bay
NBC-120	NASNI-25	32° 42' 25" N	117° 11' 26" W	Industrial Low Risk	San Diego Bay
NBC-121	NASNI-26	32° 42' 24" N	117° 11' 26" W	Industrial High Risk	San Diego Bay
NBC-122	NASNI-27	32° 42' 23" N	117° 11' 25" W	Industrial High Risk	San Diego Bay
NBC-123	NASNI-28	32° 42' 23" N	117° 11' 24" W	Industrial High Risk	San Diego Bay

Listing of NBC Industrial Storm Water Discharge Locations

Discharge Point	Navy ID Number	Latitude	Longitude	Outfall Risk Level	Receiving Water
NBC-124	NASNI-29	32° 42' 22" N	117° 11' 19" W	Industrial High Risk	San Diego Bay
NBC-125	NASNI-30	32° 42' 21" N	117° 11' 17" W	Industrial High Risk	San Diego Bay
NBC-126	NASNI-31	32° 42' 21" N	117° 11' 16" W	Industrial High Risk	San Diego Bay
NBC-127	NASNI-31A	32° 42' 20" N	117° 11' 15" W	Industrial High Risk	San Diego Bay
NBC-128	NASNI-32	32° 42' 20" N	117° 11' 14" W	Industrial High Risk	San Diego Bay
NBC-129	NASNI-33	32° 42' 19" N	117° 11' 11" W	Industrial High Risk	San Diego Bay
NBC-130	NASNI-34	32° 42' 18" N	117° 11' 07" W	Industrial High Risk	San Diego Bay
NBC-131	NASNI-35	32° 42' 17" N	117° 11' 04" W	Industrial High Risk	San Diego Bay
NBC-132	NASNI-36	32° 42' 16" N	117° 11' 00" W	Industrial High Risk	San Diego Bay
NBC-133	NASNI-37	32° 42' 15" N	117° 10' 57" W	Industrial High Risk	San Diego Bay
NBC-134	NASNI-38	32° 42' 14" N	117° 10' 54" W	Industrial High Risk	San Diego Bay
NBC-135	NASNI-39	32° 42' 13" N	117° 10' 52" W	Industrial High Risk	San Diego Bay
NBC-136	NASNI-43	32° 41' 24" N	117° 12' 24" W	Industrial Low Risk	Pacific Ocean
NBC-137	NASNI-46	32° 41' 43" N	117° 13' 37" W	Industrial Low Risk	San Diego Bay
NBC-138	NASNI-53	32° 42' 41" N	117° 12' 53" W	Industrial Low Risk	San Diego Bay
NBC-139	NASNI-59	32° 42' 53" N	117° 12' 10" W	Industrial Low Risk	San Diego Bay
NBC-140	NASNI-62	32° 42' 53" N	117° 11' 56" W	Industrial Low Risk	San Diego Bay
NBC-141	NASNI-CVN5	32° 42' 49" N	117° 11' 33" W	Industrial Low Risk	San Diego Bay
NBC-142	NASNI-CVN6	32° 42' 49" N	117° 11' 29" W	Industrial Low Risk	San Diego Bay
NBC-143	NASNI-CVN8	32° 42' 41" N	117° 11' 18" W	Industrial High Risk	San Diego Bay
NBC-144	NASNI-CVN9	32° 42' 36" N	117° 11' 20" W	Industrial High Risk	San Diego Bay
NBC-145	NASNI-CVN13A	32° 42' 39" N	117° 11' 19" W	Industrial High Risk	San Diego Bay
NBC-146	NASNI-CVN13B	32° 42' 33" N	117° 11' 22" W	Industrial High Risk	San Diego Bay
NBC-147	NASNI-CVN14	32° 42' 40" N	117° 11' 18" W	Industrial High Risk	San Diego Bay
NBC-148	NASNI-CVN15	32° 42' 49" N	117° 11' 29" W	Industrial High Risk	San Diego Bay
NBC-149	NASNI-CVN16	32° 42' 48" N	117° 11' 27" W	Industrial High Risk	San Diego Bay
NBC-150	NASNI-CVN17	32° 42' 47" N	117° 11' 25" W	Industrial High Risk	San Diego Bay
NBC-151	NASNI-CVN18	32° 42' 46" N	117° 11' 23" W	Industrial High Risk	San Diego Bay
NBC-152	NASNI-CVN20	32° 42' 45" N	117° 11' 22" W	Industrial High Risk	San Diego Bay
NBC-153	NASNI-CVN21	32° 42' 43" N	117° 11' 18" W	Industrial High Risk	San Diego Bay
NBC-154	NAB-3	32° 40' 30" N	117° 09' 54" W	Industrial Low Risk	San Diego Bay
NBC-155	NAB-4	32° 40' 31" N	117° 09' 52" W	Industrial Low Risk	San Diego Bay
NBC-156	NAB-6	32° 40' 47" N	117° 09' 31" W	Industrial High Risk	San Diego Bay
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Listing of NBC Industrial Storm Water Discharge Locations

Discharge Point	Navy ID Number	Latitude	Longitude	Outfall Risk Level	Receiving Water
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NBC-172	NAB-OLF21	32° 40' 37" N	117° 09' 51" W	Industrial Low Risk	San Diego Bay
NBC-173	NAB-OLF22	32° 40' 38" N	117° 09' 50" W	Industrial Low Risk	San Diego Bay
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NBC-186	NAB-OLF36	32° 40' 44" N	117° 09' 34" W	Industrial Low Risk	San Diego Bay
NBC-187	NAB-OLF39	32° 40' 32" N	117° 09' 50" W	Industrial Low Risk	San Diego Bay
NBC-188	NAB-OLF42	32° 40' 30" N	117° 09' 23" W	Industrial High Risk	San Diego Bay
NBC-189	NAB-OLF43	32° 40' 49" N	117° 09' 36" W	Industrial Low Risk	San Diego Bay
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RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-1	GENERAL
	<p>COMMENT: <i>Implementation of the Tentative Order and its burdensome, untested regulations will be too costly.</i></p> <p>Comments were submitted by members of the Building Industry, Community Planning Groups, Copermittees, Engineering/Design Consultants, State Government, Societies/Associations/Coalitions, and Other Entities generally expressing concerns with costs to implement requirements. Commenters also generally expressed support for practical, cost-effective, and scientifically based regulation.</p> <p>Building Industry / Industry Associated General Contractors of America</p> <p>Community Planning Groups Jamul Dulzura Community Planning Group Julian Community Planning Group Pala Pauma Valley Community Sponsor Group Ramona Community Planning Group</p> <p>Copermittees County of San Diego San Diego County Fire Authority San Diego Unified Port District</p> <p>Environmental Organizations Clean Water Now</p> <p>Engineering/Design Consultants Latitude 33 Planning and Engineering</p> <p>State/Federal Government Senator Mark Wyland</p> <p>Societies/Associations/Coalitions BIOCOM East Otay Mesa Property Owners Association Otay Mesa Property Owners Association San Diego Association of Realtors San Diego County Taxpayers Association South County Economic Development Council</p> <p>Other Entities Carol Crossman Continental Maritime of San Diego Gable PR Hughes Marino Marston+Marston, Inc. National Enterprises Inc. Nuffer, Smith, Tucker, Inc. Peter Hekman Jr. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton LLP Southern Cross Property Consultants Transition IT</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-1	GENERAL
	<p>RESPONSE: The San Diego Water Board understands the concerns expressed by the commenters about the potential costs to implement the requirements, but disagrees that the requirements are burdensome and untested.</p> <p>Most of the requirements in the Tentative Order are not new to the San Diego Region. The Tentative Order incorporates many existing requirements from the MS4 permits for Orange and Riverside Counties.</p> <p>The San Diego Water Board has put considerable effort into developing a draft Regional MS4 permit (referred to as the Tentative Order) that that will jointly cover thirty-nine (39) municipal, county government, and special district entities (Copermittees) in San Diego County , southern Orange County and southwest Riverside County. The Tentative Order significantly modifies the prescriptive action-based regulatory approach of the current municipal storm water permits to an outcome-based approach, with a focus on measuring and achieving improvements in MS4 discharges and receiving water quality. A key feature of the Tentative Order is that it provides an adaptive management pathway for the Copermittees to select and address the highest priority water quality issues through a non-punitive iterative process. The proposed adaptive management permit provisions have great promise and will allow the Copermittees to more flexibly deploy resources to achieve goals that will yield the greatest water quality improvements in the most effective and efficient manner to restore and protect the quality of the San Diego Region's receiving waters. The regional approach of the Tentative Order offers the opportunity to better achieve regulatory consistency as well as maximum efficiency and economy of resources for both the San Diego Water Board and the Copermittees.</p> <p>The San Diego Water Board has carefully considered costs of both the Tentative Order and the TMDLs included in the Tentative Order and found them to be necessary. Consideration of costs is discussed under the Economic Considerations in Section IV of the Fact Sheet. The commenters assert that the Tentative Order is too expensive, but do not consider the costs of not addressing impacts from discharges from the MS4. In addition, the San Diego Water Board has significantly modified the structure and focus of the requirements in the Tentative Order to allow the Copermittees to more efficiently and cost effectively utilize their resources, which is expected to result in the realization of significant cost savings that could not be realized in the existing MS4 permits.</p> <p>The Tentative Order was developed over a two year period beginning in February 2011 through a participatory approach designed to actively engage key stakeholders, The transparent and comprehensive stakeholder participation process has resulted in a Tentative Order designed to be a strategic, cost-effective, and water</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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Gnl-1	GENERAL
	<p>quality outcome based permit. Strategic in that it allows for identifying the highest priority water quality conditions to be addressed first. Cost-effective in that the Copermittees are allowed to use their limited resources on the highest priority water quality conditions and can look for efficiencies on a watershed scale. The Tentative Order is water quality outcome based in that it has a clearly defined iterative and adaptive management process that fcuses on measuring and achieving improvements in MS4 discharges and receiving water quality. The Tenaitve Order evaluates success based on water quality monitoring data and assessment, not just completing a minimum number of actions without consideration if these actions are succeeding in improving water quality.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-2 GENERAL	
<p>COMMENT: <i>Allow current permit requirements to remain in effect until Water Quality Improvement Plans are developed.</i></p> <p>Comments were submitted by members of the Building Industry, Engineering/Design Consultants, Societies/Associations/Coalitions, and Other Entities generally requesting that the Copermittees be allowed to continue implementing the current permit requirements until Water Quality Improvement Plans are developed and implemented.</p>	<p>Building Industry / Industry Associated General Contractors of America Otay Land Company</p> <p>Engineering/Design Consultants Latitude 33 Planning and Engineering</p> <p>Societies/Associations/Coalitions BIOCUM San Diego Association of Realtors</p> <p>Other Entities Carol Crossman Continental Maritime of San Diego Gable PR Hughes Marino Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton LLP Southern Cross Property Consultants Transition IT</p>
<p>RESPONSE: The San Diego Water Board agrees that the jurisdictional runoff management program requirements of the current permits should remain in effect until the Water Quality Improvement Plans are developed and accepted.</p> <p>The jurisdictional runoff management program requirements of the existing MS4 permits will remain in effect until the Water Quality Improvement Plans are developed and implemented. The introductory paragraph to Provision E states, <i>“Until the Copermittee has updated its jurisdictional runoff management program document with the requirements of Provision E, the Copermittee must continue implementing its current jurisdictional runoff management program.”</i> This includes the development planning requirements.</p> <p>The Copermittees, however, will be required to comply with the prohibitions and limitations, and implement the transitional monitoring requirements, transitional reporting requirements, and TMDL requirements upon adoption of the Tentative Order.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-3 GENERAL	
	<p>COMMENT: <i>Regional MS4 Permit approach allowing prioritization may result in the neglect of parts of the watershed.</i></p> <p>The Environmental Groups and the South Laguna Civic Association submitted comments expressing support for the Regional MS4 Permit allowing the Copermittees to focus on priorities, but they also expressed concern that the approach may also result in the neglect of parts of the watersheds. The South Laguna Civic Association are particularly concerned that high value habitats and coastal receiving waters of the Aliso Creek watershed will continue to be impacted by runoff from residential developments. The Environmental Groups are concerned that there will be “orphaned” priorities, or one jurisdiction will carry most of the burden of implementing the water quality improvement strategies within the watershed.</p>
	<p>Environmental Organizations Environmental Groups South Laguna Civic Association</p>
	<p>RESPONSE: The San Diego Water Board understands the concerns, but disagrees that the approach of the Regional MS4 Permit will result in the neglect of parts of the watershed.</p> <p>The San Diego Water Board developed the approach of the Regional MS4 Permit because the Copermittees are no longer focused on achieving outcomes of improved water quality, but compliance with actions that must be implemented. In effect, the current approach is actually resulting in the neglect of the entire watershed because of the “everything, everywhere” approach. When everything is a priority, nothing is a priority.</p> <p>In contrast, the approach of the Regional MS4 Permit is to re-focus the Copermittees’ efforts toward achieving outcomes that will result in improvements in MS4 discharges and receiving water quality. While not all priorities will be addressed immediately, all priorities will be addressed at some point. In allowing the Copermittees to focus on the highest priorities, lower priorities may also be addressed by the strategies being implemented to address the highest priorities. The requirements of the Tentative Order also include several elements that are intended to provide the San Diego Water Board and the public the information necessary to determine if each Copermittee is participating in implementing the Water Quality Improvement Plans.</p> <p>The San Diego Water Board encourages the Environmental Organizations to remain involved during the development and implementation of the Water Quality Improvement Plans to provide recommendations to the Copermittees for the priority water quality conditions that should be addressed. By remaining involved, the environmental organizations can also understand the opportunities and constraints that are identified during the prioritization process.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-4 GENERAL	
	<p>COMMENT: <i>Meaningful enforcement of permit requirements is necessary to protect receiving waters.</i></p> <p>The San Diego Green Building Council, Laguna Bluebelt Association, and South Laguna Civic Association each submitted comments that the Tentative Order must include requirements that result in meaningful enforcement actions. Without requirements for meaningful enforcement actions, the commenters are concerned that discharges from the MS4 and dry weather flows will continue to degrade water quality.</p>
	<p>Building Industry / Industry San Diego Green Building Council</p> <p>Environmental Organizations Laguna Bluebelt Coalition South Laguna Civic Association</p>
	<p>RESPONSE: The San Diego Water Board agrees that meaningful enforcement actions are necessary to protect receiving waters.</p> <p>The requirements of the Tentative Order are all intended to result in the protection of the quality of receiving waters from MS4 discharges. The Tentative Order also includes requirements for the Copermittees to demonstrate that they are issuing enforcement actions in a timely manner to obtain compliance from sources that are discharging to their MS4s.</p> <p>Enforcement of the requirements of the Tentative Order by the San Diego Water Board may be necessary to compel the Copermittees to properly implement and enforce their legal authorities to adequately protect water quality. By issuing the Regional MS4 Permit, the San Diego Water Board expects to be able to reallocate its resources to better enforce permit requirements instead of developing permits and permit requirements.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-5 GENERAL	
<p>COMMENT: <i>Include requirements to develop maps or charts to track and monitor coastal receiving waters subject to MS4 runoff flows and impacts.</i></p> <p>The Laguna Bluebelt Coalition and South Laguna Civic Association expressed support for the creation of maps to show water quality impacted areas of all creeks and coastal receiving waters within the region. The South Laguna Civic Association would like an interactive map that identifies protected coastal receiving water resources and dominant littoral currents and counter currents to help identify distribution patterns of urban runoff induced algal plumes and thermal plumes.</p>	<p>Environmental Organizations Laguna Bluebelt Coalition South Laguna Civic Association</p>
<p>RESPONSE: The San Diego Water Board has considered the concept, but does not agree this requirement is appropriate or necessary to be included in the requirements of the Tentative Order.</p> <p>The San Diego Water Board understands the desire for such spatial and temporal information to be available in a visual format. However, the creation and maintenance of such map would require the collection and processing of data that is beyond the scope of what is required to be measured and reported for the purposes of the Tentative Order.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-6 GENERAL	
	<p>COMMENT: <i>Increase use of recycled water to reduce need for imported water and discharges from MS4s.</i></p> <p>The Laguna Bluebelt Coalition and South Laguna Civic Association expressed support for the increasing the use of recycled water to reduce imported water demand. The commenters contend that increasing recycled water use will reduce discharges to the ocean.</p>
	<p>Environmental Organizations Laguna Bluebelt Coalition South Laguna Civic Association</p>
	<p>RESPONSE: The San Diego Water Board supports and promotes the use of recycled water.</p> <p>The Tentative Order does not prohibit the use of recycled water, but does limit the discharge of recycled water to receiving waters. The requirements of the Tentative Order do not specifically encourage the use of recycled water, nor is it appropriate for the Tentative Order to do so. Recycled water and the discharge of recycled water are regulated by the San Diego Water Board under separate regulatory mechanisms.</p> <p>The San Diego Water Board agrees that the recycling of wastewater, as well as recycling non-storm water discharges and retaining and using storm water runoff has the potential to reduce the need to import water to the San Diego Region. The San Diego Water Board encourages the Environmental Organizations to remain involved during the development and implementation of the Water Quality Improvement Plans to provide recommendations to the Copermittees for identifying opportunities to promote recycled water use and recycling of non-storm water and storm water discharges to and from the MS4.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-7 GENERAL	
<p>COMMENT: <i>Portions of San Diego County in the Colorado River Region should not be subject to requirements of San Diego Region.</i></p> <p>The Julian Community Planning Group submitted a comment stating that the portion of San Diego County under the jurisdiction of the Colorado River Water Board should not be subject to the requirements of the Tentative Order.</p>	<p>Community Planning Groups Julian Community Planning Group</p>
<p>RESPONSE: The San Diego Water Board agrees.</p> <p>The requirements of the Tentative Order are only applicable to the portion of San Diego County within the jurisdiction of the San Diego Water Board.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-8 GENERAL	
	<p>COMMENT: <i>Urban runoff is the San Diego Region's most urgent pollution problem.</i></p> <p>Several Environmental Organizations, the San Diego Green Building Council, and Other Entities submitted comments stating that urban runoff is the San Diego Region's most urgent problem. Most of the commenters also acknowledged that it is a difficult problem to solve, but they are willing to work together to help solve the problem.</p>
	<p>Building Industry / Industry San Diego Green Building Council</p> <p>Environmental Organizations The Escondido Creek Conservancy Friends of Rose Canyon Creek / Rose Creek Watershed Alliance Laguna Bluebelt Coalition Los Penasquitos Lagoon Foundation Natural Resources Defense Council San Diego Canyonlands San Elijo Lagoon Conservancy</p> <p>Other Entities Curious Company Hector Valtierra</p>
	<p>RESPONSE: The San Diego Water Board agrees that runoff from developed and developing areas pose a significant problem to protecting water quality in the San Diego Region.</p> <p>The San Diego Water Board has developed the Regional MS4 Permit approach to allow the Copermittees to tap into the community and the resources the community is willing to provide to help address the problems associated with runoff from developed and developing areas. The San Diego Water Board encourages the community to remain involved during the development and implementation of the Water Quality Improvement Plans to provide recommendations to the Copermittees for identifying opportunities to the public for addressing problems associated with runoff from developed and developing areas.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-9 GENERAL	
<p>COMMENT: <i>The term "prohibit" should be changed to "effectively prohibit" throughout Tentative Order when referring to non-storm water discharges.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that the language of the Tentative Order be revised to "effectively prohibit" non-storm water discharges to the MS4 instead of just "prohibit" to be consistent with the language of the Clean Water Act. The Natural Resources Defense Council submitted comments that assert that the Clean Water Act and the Code of Federal Regulation require an absolute prohibition of non-storm water discharges, in any amount, to the MS4.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Natural Resources Defense Council</p>
<p>RESPONSE: The San Diego Water Board agrees that the language of the Tentative Order should be consistent with the Clean Water Act and Code of Federal Regulations.</p> <p>The Clean Water Act requires MS4 permits to include a requirement that non-storm water discharges are to be "effectively prohibited" to the MS4. The Code of Federal Regulations requires each Copermittee to have the legal authority to "prohibit" non-storm water discharges to the MS4. The Phase I Final Rule clarifies what "effectively prohibit" means (55 FR 47995): <i>"Section 402(p)(3)(B) requires that permits for discharges from municipal separate storm sewers require the municipality to "effectively prohibit" non-storm water discharges from the municipal separate storm sewer...Ultimately, such non-storm water discharges through a municipal separate storm sewer must either be removed from the system or become subject to an NPDES permit (other than the permit for the discharge from the municipal separate storm sewer.)"</i></p> <p>Where appropriate, the language in the Tentative Order has been revised to be consistent with the language of the Clean Water Act to include the term "effectively prohibit" instead of "prohibit" or "reduce and eliminate." In other cases, the language has been maintained to be consistent with the requirements of the Code of Federal Regulations requiring the Copermittees to establish the legal authority to "prohibit" non-storm water discharges to their MS4s and enforce that legal authority. The establishment and enforcement of the legal authority to "prohibit" non-storm water discharges to their MS4s is how the Copermittees will "effectively prohibit" non-storm water discharges to their MS4s.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-10	GENERAL	
	<p>COMMENT: <i>The requirements of the Tentative Order do not allow Copermittees to adaptively manage their programs.</i></p> <p>The Riverside County Copermittees submitted comments contending that the requirements of the Tentative Order will not allow the Copermittees to adaptively manage their programs. In particular, the Riverside County Copermittees cite the prohibitions and limitations of Provision A and the development planning requirements of Provision E.3 as requirements that will limit their ability to adaptively manage.</p>	<p>Copermittees Riverside County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the requirements of the Tentative Order will not allow the Copermittees to adaptively manage their programs.</p> <p>The approach used in developing the requirements in the Tentative Order departs significantly from the approach used in developing the requirements of previous and current permits. The current MS4 permits essentially prescribe the programs that must be implemented by each Copermittee, resulting in a focus on complying with the implementation of required actions. The current permits provide the Copermittees little or no ability to adaptively manage the programs to become more focused on achieving outcomes.</p> <p>In contrast, the requirements of the Tentative Order allow the Copermittees to strategically plan by identifying the highest priority pollutants or conditions in a specific watershed, goals and strategies to address those pollutants or conditions, and resources to implement the strategies. Furthermore, the Copermittees are provided the monitoring and assessment information that allows them to determine when those priorities, goals and strategies should be adjusted or are no longer appropriate. The Tentative Order is predicated on a new emphasis on water quality based outcomes (i.e., restoration or protection of water quality and beneficial uses) instead of a prescriptive action based regulatory approach (e.g., implementation of programs).</p> <p>The flexibility that is provided in the Tentative Order should not be mistaken as the San Diego Water Board wishing to grant full autonomy to the Copermittees to implement their jurisdictional runoff management programs. The requirements of the Clean Water Act and the Code of Federal Regulations must still be incorporated into the requirements of the Tentative Order. The Code of Federal Regulations includes several program components that must be implemented by the Copermittees. The USEPA has also provided guidance as to what minimum requirements should be included in those programs.</p> <p>The San Diego Water Board must balance the Copermittees' desire to have more flexibility to adjust their</p>	

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Gnl-10	GENERAL	
	<p>programs with the statutory requirements of the Clean Water Act and the California Water Code which hold the Copermitees accountable for compliance with a minimum set of requirements that are enforceable. Given that the Tentative Order already provides the Copermitees great latitude in adjusting their programs to focus their resources on achieving improved water quality, the San Diego Water Board has extended that flexibility further by incorporating additional opportunities into the revised Tentative Order for identifying and implementing more watershed-specific requirements in areas of the Tentative Order where the Copermitees perceive and assert there is little to no flexibility provided. Please see responses to comments A-1 and E3c-2.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-11 GENERAL	
<p>COMMENT: <i>Implementation of current permit requirements and accomplishments of Orange and Riverside County Copermittees not being considered.</i></p> <p>The Orange County and Riverside County Copermittees each submitted comments expressing concern that the Tentative Order has been developed without considering the programs and plans being developed under their current permit requirements, and does not acknowledge the accomplishments achieved by the Copermittees during the previous and current permit terms. In addition, the Orange County and Riverside County Copermittees each submitted comments that they must have an opportunity to propose changes to the requirements of the Tentative Order through the Report of Waste Discharge.</p> <p>The San Diego Green Building Council recommended that the Tentative Order also take into account successes that have been achieved in other jurisdictions outside of the San Diego Region.</p>	<p>Building Industry / Industry Copermittees San Diego Green Building Council Orange County Copermittees Riverside County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees that the Tentative Order does not consider the implementation of current permit requirements, and accomplishments and successes of the Orange County and Riverside County Copermittees and other jurisdictions.</p> <p>Most of the requirements included in the Tentative Order are also in the current permits issued to the Orange County and Riverside Copermittees (Order Nos. R9-2009-0002 and R9-2010-0016). The current permits issued to the Orange County and Riverside County Copermittees include prohibitions and limitations, numeric action levels, and the same jurisdictional runoff management program components. The structural BMP performance standards (i.e. storm water pollutant control retention and hydromodification management) are effectively the same as in the Orange County and Riverside County MS4 permits. The Watershed Workplans of the current permits are very similar to, and are expected to serve as the basis of the Water Quality Improvement Plans. The monitoring program requirements are very similar, with potential reductions of monitoring requirements in several instances. The reporting requirements in the Tentative Order have actually been significantly reduced compared to the current permits.</p> <p>The San Diego Water Board expects the Orange County and Riverside County Copermittees' implementation of their current permit requirements will make the transition from to the Tentative Order much easier than the San Diego County Copermittees because so many of the MS4 permit requirements are similar, and in many cases more prescriptive, than the requirements of the Tentative Order. The flexibility of the requirements of the Tentative Order compared to their current permit requirements will provide the Orange County and Riverside</p>	

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March 27, 2013

Gnl-11 GENERAL

County Copermittees many opportunities to identify more effective and efficient ways to utilize their resources to improve water quality. However, until the Orange County and Riverside County Copermittees obtain coverage under the Tentative Order, they will remain subject to the more prescriptive requirements of their current permits.

Furthermore, the requirements of the Tentative Order were developed with a strong consideration of the current permit requirements being implemented by the Orange County and Riverside County Copermittees, as well the accomplishments of all the Copermittees in the San Diego Region. In fact, the Tentative Order was developed and improved based on comments received from the Orange County and Riverside County Copermittees during the 18 month administrative draft focused meeting and comment process.

The Tentative Order was also developed considering the accomplishments and successes of other jurisdictions outside of the San Diego Region. The basis of incorporating an allowance for implementing a true iterative and adaptive management process is because of the accomplishments, successes, and failures observed by the San Diego Region's Copermittees, as well as those observed in other jurisdictions within California and other states. By allowing a true iterative and adaptive management process to be implemented, the San Diego Water Board expects the Copermittees to not only learn from each other's successes and failures within the San Diego Region, but the successes and failures from other jurisdictions outside the San Diego Region.

The fact of the matter is that the requirements of the Tentative Order are more similar to the current permits issued to the Orange County and Riverside Copermittees than the current permit issued to the San Diego County Copermittees (Order No. R9-2007-0001). This is because most of these elements in the Tentative Order were developed based on the requirements in the current Orange County and Riverside County MS4 permits. The Tentative Order also allows the Orange County and Riverside County Copermittees to provide additional recommendations and propose changes for consideration by the Board based on their experiences and successes when they submit their Report of Waste Discharge for coverage under the Regional MS4 Permit.

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March 27, 2013

Gnl-12 GENERAL	
	<p>COMMENT: <i>Updating the Basin Plan needs to be a priority of the San Diego Water Board.</i></p> <p>The Riverside County Copermittees commented that the San Diego Water Board should make updating the Basin Plan with water quality objectives based on background conditions, beneficial uses of specific water bodies, and specific conditions that influence the water bodies a priority. The Riverside County Copermittees contend that without the updates, the desired outcomes the Copermittees include in the Water Quality Improvement Plans will be arbitrary and may not achieve desired beneficial use improvements, or be appropriate.</p>
	<p>Copermittees Riverside County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees that updating the Basin Plan should be a priority. Updating the Basin Plan, however, is not within the scope of developing and issuing the Tentative Order.</p> <p>On many occasions, dischargers have asserted that the water quality standards are not achievable, and because they are not achievable they are not appropriate. The San Diego Water Board disagrees. The water quality standards in the Basin Plan are protective of water quality and are therefore appropriate. The San Diego Water Board maintains that because they are appropriate, they must be achieved to protect water quality.</p> <p>If the Copermittees believe a different water quality objective is appropriate and will protect water quality, the San Diego Water Board recommends that the Copermittees collect the data and develop the evidence to support a different water quality objective to be incorporated into the Basin Plan through an amendment to the Basin Plan. Until then, the water quality standards in the Basin Plan are considered appropriate and must be implemented in MS4 permits.</p>

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March 27, 2013

Gnl-13 GENERAL	
<p>COMMENT: <i>"Clarify" responsibilities of the Copermitees under the Tentative Order.</i></p> <p>The Orange County, Riverside County and San Diego County Copermitees each submitted comments requesting that the requirements of the Tentative Order "clarify" the responsibilities of the Copermitees, consistent with the requirements of the Clean Water Act. The Copermitees requested revisions throughout the requirements of the Tentative Order to specify that the Copermitees must "effectively prohibit" non-storm water discharges "into the MS4" instead of "into and from the MS4," and control the discharge of "pollutants" not "pollutants in storm water" from the MS4 to the MEP. The Copermitees also requested including several qualifying phrases that the Copermitees could only operate "to the extent allowable" or "as applicable" or other such phrases to "clarify" the Copermitees were only responsible for implementing requirements subject to their legal authority</p> <p>The Natural Resources Defense Council (NRDC) expressed concern that the non-storm water action levels (NALs) may violate the effective prohibition of non-storm water discharges to the MS4. The NRDC requested that the Tentative Order be very clear that the Copermitees are responsible for prohibiting non-storm water discharges to the MS4.</p> <p>The Orange County and Riverside County Copermitees objected to language in the Tentative Order that implied the Copermitees were responsible for "enhancing" and "restoring" water quality in receiving waters, contending that they are only responsible for the discharges from their MS4s. The Orange County Copermitees also objected to the requirements for the Copermitees to evaluate stream channels for restoration, asserting the Copermitees are not responsible for restoring stream channels.</p> <p>The San Diego Unified Port District supported including requirements that result in jurisdictional accountability, recognizing that most of the discharges from the MS4 to San Diego Bay originate from upstream jurisdictions. The San Diego Unified Port District also provided requests for modifications to specify the downstream owners and operators of the MS4 are not responsible and should not be held liable for discharges and pollutants in discharges originating from upstream MS4s. The San Diego Unified Port District requested that the Tentative Order include requirements for the San Diego Water Board to demonstrate a Copermitee caused or contributed to an exceedance of water quality standards. The San Diego Unified Port District also encouraged the San Diego Water Board to include additional monitoring to ensure jurisdictional accountability.</p>	<p>Copermitees Orange County Copermitees Riverside County Copermitees San Diego County Copermitees San Diego Unified Port District San Diego Unified Port District / Brown and Winters</p> <p>Environmental Organizations Natural Resources Defense Council</p>

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Gnl-13 GENERAL

RESPONSE: The San Diego Water Board reviewed and considered the recommendations and requests.

The San Diego Water Board has revised the language in the Tentative Order to emphasize the Copermittees are responsible for “effectively prohibiting” non-storm water discharges “to the MS4.” The language has not been revised from the control of “pollutants in storm water” to “pollutants” from the MS4 to the MEP. The San Diego Water Board maintains that the Copermittees are required to control “pollutants in storm water” to the MEP. Pollutants in non-storm water discharges are controlled through the effective prohibition of non-storm water discharges to the MS4. Please see the response to comments Gnl-9 and Fnd-3.

The Tentative Order has also been revised to replace any language of “restoring water quality standards in receiving waters” to “protecting water quality standards in receiving waters from MS4 discharges.”

The San Diego Water Board generally did not revise the language with the qualifying phrases requested by the Copermittees. The Copermittees are required to establish the legal authority to implement the requirements of the Tentative Order. The Tentative Order does not require the Copermittees to implement requirements outside of their jurisdictions or outside of their legal authority. Please see response to comments E1-1 and E1-2.

The San Diego Water Board appreciates the support expressed for the requirements that result in jurisdictional accountability. The San Diego Water Board agrees that the requirements of the Tentative Order must provide the San Diego Water Board the information necessary to account for each individual Copermittee’s contribution toward improving or degrading water quality. This information will allow the San Diego Water Board to provide support to improve the Copermittee’s programs, where needed, and the evidence necessary to enforce the requirements of the Tentative Order, when appropriate.

The San Diego Water Board generally disagreed with the modifications to the Tentative Order requested by the San Diego Unified Port District. The San Diego Water Board maintains that the Copermittees are responsible for the discharges from their MS4s to receiving waters. If there are sources that originate from outside a Copermittee’s jurisdiction, it is the Copermittee’s responsibility to demonstrate to the San Diego Water Board that the source is outside of the Copermittee’s legal authority to control.

The San Diego Water Board considered the request by the San Diego Unified Port District for additional monitoring to ensure jurisdictional accountability. The San Diego Water Board included additional monitoring for this purpose. Please see response to comment D-5.

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Gnl-14 GENERAL	
	<p>COMMENT: <i>Request for consistency in MS4 permit requirements for Copermittees under the jurisdiction of multiple Regional Water Boards.</i></p> <p>The Orange County Copermittees submitted comments requesting that the requirements in the Tentative Order be as consistent as possible with requirements in MS4 permits from other Regional Water Boards. The Orange County Copermittees include 5 municipalities that are split between 2 Regional Water Boards. The Orange County Copermittees provided recommended revisions to the Tentative Order aimed at creating greater uniformity and implementability for these 5 municipalities under two MS4 permits.</p>
	<p>Copermittees Orange County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board has reviewed and considered the recommended revisions.</p> <p>The San Diego Water Board understands implementing requirements that are not consistent between multiple Regional Water Board permits can present some challenges for a Copermittee. The requirements in the Tentative Order provide significantly more flexibility that will allow a Copermittee to align the implementation of its programs with the requirements of different permit requirements.</p> <p>The San Diego Water Board, however, has not and will not modify any requirements in the Tentative Order to reduce the accountability, enforceability or protectiveness to be more consistent with another Regional Water Board's permit requirements. For those areas of the MS4 permits where there are inconsistent requirements, the solution for the Copermittee would be to develop jurisdictional runoff management programs that implement the most protective elements of both Regional Water Boards' permit requirements and apply them throughout its jurisdiction. In doing so, the Copermittee will be in compliance with the requirements of both MS4 permits and have programs that will be most protective of water quality.</p>

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Gnl-15 GENERAL	
	<p>COMMENT: <i>Findings and Fact Sheet do not provide adequate justification for new or modified requirements.</i></p> <p>The Building Industry Association of Southern California and the Orange County Copermittees submitted comments asserting that the Findings and the Fact Sheet do not provide adequate justification for the new or modified requirements in the Tentative Order. The Building Industry Association of Southern California is particularly interested in the justification for the development planning structural BMP performance standards. The Orange County Copermittees provided examples of several specific requirements in the Tentative Order that they assert were not adequately justified.</p>
	<p>Building Industry / Industry Building Industry Association of Southern California Copermittees Orange County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the Findings and Fact Sheet do not provide adequate justification for the new or modified requirements in the Tentative Order.</p> <p>The San Diego Water Board understands that the commenters may not be satisfied with the justification for the requirements of the Tentative Order provided in the Findings and Fact Sheet. The San Diego Water Board maintains that the Findings and the Fact Sheet provide the background information, regulatory and legal citations, references and additional explanatory information and data in support of all the Findings and requirements in the Tentative Order.</p>

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Gnl-16 GENERAL	
	<p>COMMENT: <i>Recommendation for revising numbering system in the Tentative Order.</i></p> <p>The Orange County Copermitees submitted comments recommending that the numbering system of the provisions in the Tentative Order provide the full number of the provision (e.g. A.1 instead of 1). The recommended revisions would assist and better orient the reader.</p>
	<p>Copermitees Orange County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board appreciates the recommendation.</p> <p>The San Diego Water Board understands that the length and the numerous subsections of the provisions in the Tentative Order can be difficult to navigate at times. The San Diego Water Board has included footers to assist the reader in navigating through the provisions of the Tentative Order. Additionally, the electronic PDF version of the Tentative Order will have bookmarks for the major provisions to assist in navigating the requirements of the Tentative Order.</p>

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Gnl-17 GENERAL	
	<p>COMMENT: <i>Requests for changes to schedules and deadlines in the Tentative Order.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting changes to the schedules and deadlines for developing, submitting, and implementing several requirements in the Tentative Order. In particular, the requests were focused on additional time for developing the Water Quality Improvement Plans. The San Diego Unified Port District supported the requests. The BIA Regulated Community Coalition and Environmental Groups each submitted comments with recommendations to include more time for public participation during the development of the Water Quality Improvement Plans.</p> <p>The commenters provided several recommendations for modifications to the schedules and deadlines in the Tentative Order that would result in more time to develop and implement the Water Quality Improvement Plans and the monitoring and assessment programs.</p>
	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District</p> <p>Environmental Organizations Environmental Groups</p>
	<p>RESPONSE: The San Diego Water Board reviewed and considered the recommendations to change the schedules and deadlines in the Tentative Order.</p> <p>The San Diego Water Board generally agrees that additional time should be provided to develop the Water Quality Improvement Plans, to allow for a robust public participation process and to provide enough time to implement the optional requirements that have been included in the revised Tentative Order if the Copermittees choose to do so. The San Diego Water Board modified many of the schedules to provide additional flexibility in scheduling the development of several deliverables, as well as including later deadlines for submitting several deliverables. The requirements have also been modified to allow the Copermittees more control in developing the schedules for implementing the monitoring requirements in the Water Quality Improvement Plans.</p> <p>Please see the revisions to Provisions B.3 and F.1 in the revised Tentative Order, as well as the responses to comments B-3 and F1-1.</p>

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Gnl-18 GENERAL	
	<p>COMMENT: <i>Requests for additional opportunities to provide comments.</i></p> <p>The Riverside County Copermittees, Clean Water Now, and Environmental Groups each submitted comments expressing interest in additional opportunities to provide comments. The Riverside County Copermittees requested an additional public review and comment period after the Tentative Order is revised and the responses to comments are released by the San Diego Water Board. Clean Water Now expressed disappointment with the focused meeting process used in the development of the Tentative Order, and the lack of time available to have protracted discussions. The Environmental Groups requested additional opportunities for the public to participate and provide comments during the development of the Water Quality Improvement Plans.</p>
	<p>Copermittees Riverside County Copermittees</p> <p>Environmental Organizations Clean Water Now Environmental Groups</p>
	<p>RESPONSE: The San Diego Water Board considered the requests for additional opportunities to provide comments.</p> <p>The San Diego Water Board disagrees that an additional public review and comment period needs to be provided after the revised Tentative Order and responses to comments are released. Federal regulations only require that the San Diego Water Board provide at least 30 days for public comment on the Tentative Order. The lengthy public review and comment period that was provided for the Tentative Order complies with and exceeds the statutory and regulatory requirements for bringing the Tentative Order before the Board for consideration and adoption. The San Diego Water Board released an administrative draft of the Tentative Order in April 2012, which went through a 5 month review and comment period, with several focused meetings to discuss the requirements. The administrative draft of the Tentative Order was significantly revised based on the comments and information received during the focused meetings and written comments received. The Tentative Order was released in October 2012 and the public comment period was closed in January 2013. The revised Tentative Order will be the third draft of the permit, with a second round of revisions, and revisions reflected in it were made in direct response to written comments received by the San Diego Water Board. The San Diego Water Board has already provided multiple opportunities to comment on the Tentative Order. An additional opportunity to submit written comments is not required or necessary. There will be an opportunity to make oral comments on the revisions to the Tentative Order at the San Diego Water Board hearing.</p> <p>The San Diego Water Board understands that the commenter wished to have more lengthy discussions during the focused meetings that were held during the administrative draft review and comment period. With the exception of the commenter, the San Diego Water Board has received very positive feedback on the focused</p>

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<p>meetings that were held. The focused meeting process was above and beyond what is required and the discussions that did take place were more inclusive than previous permit renewal processes. At each focused meeting the San Diego Water Board also extended invitations to everyone present for additional meetings outside the focused meetings. The San Diego Water Board had multiple additional in depth discussions with several groups outside of the focused meeting process on specific topics. If the commenter had contacted the San Diego Water Board for an additional meeting, the San Diego Water Board could have scheduled a meeting with the commenter to have more in depth discussions.</p> <p>The San Diego Water Board agrees that additional opportunities should be provided to the public to participate and comment during the development of the Water Quality Improvement Plans. The San Diego Water Board disagrees that Water Quality Improvement Plans are equivalent in meaning to “water quality control plans” as defined in Water Code section 13050, subdivision (j), requiring a public hearing for the acceptance of the Water Quality Improvement Plans. Please see response to comment B-3.</p>

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Gnl-19 GENERAL	
	<p>COMMENT: <i>The maximum extent practicable (MEP) standard is the floor, not the limit, for MS4 permit requirements.</i></p> <p>The Natural Resources Defense Council (NRDC) submitted comments asserting that the San Diego Water Board has the authority to include MS4 permit requirements that are more stringent than the MEP standard if necessary to ensure that discharges from the Copermittees' MS4s do not cause or contribute to exceedances of water quality standards in receiving waters. The NRDC cited several court decisions that support their position that the MEP standard is the floor for MS4 permit requirements, and the San Diego Water Board has the authority to impose additional more stringent requirements over and above MEP as determined to be appropriate.</p>
	<p>Environmental Organizations Natural Resources Defense Council</p>
	<p>RESPONSE: The San Diego Water Board agrees that the MEP standard is the floor for permit requirements.</p> <p>In concept, the MEP standard is supposed to evolve and improve and become more stringent over time through an iterative process. In reality, in the current and previous permits issued by the San Diego Water Board, the MEP standard was essentially defined by the requirements of the MS4 permit and the iterative process only occurred when an MS4 permit was renewed by incorporating additional and more stringent requirements. Thus, the MEP standard became static rather than dynamic for each permit term, and only advanced with each permit renewal. This has resulted in multiple MS4 permits by the San Diego Water Board that have different requirements, each a little more stringent than the last one issued.</p> <p>In the Tentative Order the San Diego Water Board has incorporated a new regulatory approach that is expected to result in a more dynamic iterative process to advance the MEP standard during the permit term. Instead of dictating the actions that must be implemented by the Copermittees, and defining the MEP "floor" of requirements that will be utilized to determine compliance, the requirements of the Tentative Order define the iterative process that must be implemented to achieve water quality improvement outcomes through an ever advancing and improving MEP standard.</p> <p>With the exception of the TMDL requirements, the San Diego Water Board disagrees it is necessary to include requirements that are more stringent than the MEP standard. The approach incorporated into the Tentative Order redefines the MEP "floor" from being a "static floor" to a "dynamic floor" that is expected to rise as the Copermittees learn from their failures and successes while working toward achieving tangible improvements in water quality.</p>

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Gnl-20 GENERAL	
<p>COMMENT: <i>Include graphical representation of areas covered by the Tentative Order.</i></p> <p>The San Diego Green Building Council submitted comments recommending that the final permit include a graphic representation of both the political and natural boundaries related to the area under the jurisdiction of the Order.</p>	<p>Building Industry / Industry San Diego Green Building Council</p>
<p>RESPONSE: The San Diego Water Board appreciates the recommendation.</p> <p>Including a graphical representation of the area under the jurisdiction of the Tentative Order is not necessary. The Tentative Order is expected to cover all the Phase I municipalities in the San Diego Region in a phased manner. The Tentative Order will no longer be issued to three separate counties or include requirements separated by political boundaries.</p>	

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Gnl-21	GENERAL	
	<p>COMMENT: <i>Federal regulations require that the term of the Tentative Order not exceed five years.</i></p> <p>The USEPA submitted comments that expressed concern that the San Diego Water Board was considering a permit term longer than five years. The USEPA supported a permit term that does not exceed five years.</p>	<p>State/Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board agrees that the term of the permit will not exceed five years.</p>	

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Gnl-22 GENERAL	
	<p>COMMENT: <i>Identification of grammatical and typographical errors.</i></p> <p>The San Diego County Copermittees submitted comments noting several grammatical and typographical errors in the text of the Tentative Order that should be corrected.</p>
	<p>Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board appreciates the identification of grammatical and typographical errors.</p> <p>The San Diego Water Board has corrected the grammatical and typographical errors identified by the commenter. The San Diego Water Board has corrected any grammatical and typographical errors to the extent possible in the revised Tentative Order. If there are additional grammatical and typographical errors identified in the revised Tentative Order after adoption, the San Diego Water Board can correct them without re-opening the adopted Order if they are considered minor modifications pursuant to the requirements of Provision H.</p>

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Lgl-1	LEGAL	
	<p>COMMENT: <i>Concerns with strict liability for exceedances of water quality standards and receiving water limitations.</i></p> <p>Comments were submitted by members of the Community Planning Groups, Copermittees, Engineering/Design Consultants, State Government, Societies/Associations/Coalitions, and Other Entities generally expressed concerns with the strict liability that the Copermittees are exposed to for exceedances of the water quality standards and receiving water limitations. The Copermittees submitted several comments that a recent Ninth Circuit Court of Appeals decision resulted in a new interpretation of precedential receiving water limitations language, or that it creates any new third party liability risks.</p>	<p>Community Planning Groups Jamul Dulzura Community Planning Group Ramona Community Planning Group</p> <p>Copermittees City of Dana Point City of Imperial Beach City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Juan Capistrano County of San Diego County of San Diego Office of County Counsel Orange County Copermittees Riverside County Copermittees San Diego Unified Port District / Brown and Winters</p> <p>Engineering/Design Consultants Latitude 33 Planning and Engineering</p> <p>State/Federal Government Senator Mark Wyland</p> <p>Societies/Associations/Coalitions BIOCOM San Diego Association of Realtors South County Economic Development Council</p> <p>Other Entities Carol Crossman Continental Maritime of San Diego Gable PR Hughes Marino Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton LLP Southern Cross Property Consultants Transition IT</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the recent Ninth Circuit Court of Appeals decision in NRDC v. County of Los Angeles (<i>Natural Resources Defense Council v. County of Los Angeles, et al.</i> (673 F.3d</p>	

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Lgl-1	LEGAL
	<p>1235 (9th Cir. 2011) (revd. on other grounds and remanded, <i>Los Angeles County Flood Control District v. Natural Resources Defense Council</i> (133 S.Ct. 710 (2013))), adopted a new interpretation of precedential receiving water limitations language or that it creates any new third party liability risks.</p> <p>Rather the Ninth Circuit's interpretation is consistent with the San Diego Water Board's interpretation of the precedential receiving water limitations language that affords the San Diego Water Board with discretion to take enforcement action for violations of receiving water limitations and discharge prohibitions and also allows for citizen suit enforcement – in other words, engagement in the iterative process does not create a safe harbor from liability for violations of water quality standards. In precedential orders, the State Water Board exercised its discretion to require compliance with water quality standards by directing that MS4 permits contain provision requiring discharges of pollutants in storm water to be controlled so as not to cause or contribute to exceedances of water quality standards in receiving waters. (State Water Board Order WQ-98-01 (<i>Environmental Health Coalition</i>), and WQ 99-05 (<i>Environmental Health Coalition</i>.)</p> <p>Consistent with federal law, the State Water Board also found it appropriate to implement best management practices (BMPs) in lieu of imposing numeric water quality-based effluent limitations to meet water quality standards. (See SWRCB Orders WQ 91-03 (<i>Citizens for a Better Environment</i>), WQ 98-01 (<i>Environmental Health Coalition</i>), WQ 2001-15 (<i>Building Industry Association of San Diego County</i>); See also 40 CFR sec. 122.44(k); Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits, USEPA, September 1995.) In these orders and USEPA guidance, the State Water Board and USEPA recognize that the storm water program will evolve over time to incorporate more stringent limitations, including improved BMPs, to meet water quality standards or numeric water quality based effluent limitations.</p> <p>While the State Water Board and San Diego Water Board in its recent MS4 permits have directed MS4 dischargers to achieve compliance with water quality standards through an "iterative process," using the State Water Board's precedential receiving water limitations language, the Water Boards have never interpreted the iterative process to provide a "safe harbor" for MS4 dischargers. Thus, the Ninth Circuit's recent opinion is consistent with the Water Boards' interpretation and does not create any new uncertainty or third party liability risks that did not previously exist.</p> <p>The San Diego Water Board recognizes and will continue to follow the State Water Board's process (commenced with a public workshop in November 2012) for reconsidering the precedential receiving water limits language and the possibility of creating a "safe harbor" from enforcement for violations of water quality</p>

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Lgl-1	LEGAL
	standards while an MS4 discharger engages in an iterative process of improving its controls and practices. However, the Tentative Order has been revised to provide a discharge prohibitions and receiving water limitations compliances option. Please see response to comment A-1.

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Lgl-2	LEGAL	
	<p>COMMENT: <i>Concerns with the Copermitees' legal authority to impose requirements on development projects where a nexus between impact on the receiving water and the project cannot be established.</i></p> <p>Comments were submitted by members of the Copermitees, Societies/ Associations/Coalitions, and Other Entities generally expressed concerns with the Copermitees' legal authority to imposed requirements on development projects where a nexus between impact on the receiving water and the project cannot be established. The Copermitees assert that they would be subject to liability under takings clauses of the US and California Constitutions and the Mitigation Fee Act for requiring hydromodification management BMP requirements on new development or redevelopment projects that discharge to hardened channels where a hydromodification impact would be questionable and difficult to establish. Comments from the Societies/ Associations/Coalitions assert that allowing an in lieu fee for improvements to Priority Development Projects that do not cause hydromodification impacts is a direct violation of CEQA.</p> <p>In contrast, the South Laguna Civic Association asserts that the regulatory and legal nexus is clear between MS4 discharges and creek erosion and infrastructure damage, ocean pollution and public health hazards.</p>	<p>Copermitees City of Dana Point City of Imperial Beach City of Rancho Santa Margarita City of San Diego City Attorney County of San Diego Office of County Counsel Orange County Copermitees Riverside County Copermitees San Diego County Copermitees</p> <p>Environmental Organizations South Laguna Civic Association</p> <p>Societies/Associations/Coalitions East Otay Mesa Property Owners Association Otay Mesa Property Owners Association</p> <p>Other Entities National Enterprises Inc.</p>
	<p>RESPONSE: The San Diego Water Board recognizes the concerns of about the Copermitees' legal authority to impose hydromodification management requirements on development that causes no hydromodification impacts.</p> <p>Federal law mandates that permits issued to MS4s require management practices that will result in reducing pollutants to the maximum extent practicable. The state is required, by law, to select the BMPs. (See <i>NRDC v. USEPA</i> (9th Cir. 1992) 966 F.2d 1292; <i>Environmental Defense Center v. USEPA</i> (9th Cir. 2002) 344 F.3d 832, 855; <i>Rancho Cucamonga v. Regional Water Quality Control Bd., Santa Ana Region</i> (2006) 135 Cal.App.4th 1377, 1389.) The Tentative Order's requirements for Low Impact Development and hydromodification management controls are authorized by federal law. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) provides that Copermitees develop and implement a management program which is to include "A description of planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment. Such plans shall address controls to reduce pollutants in discharges from municipal separate storm sewers after construction is completed."</p> <p>The Tentative Order does not impose land use regulations, nor does it restrict or control local land-use decision-</p>	

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Lgl-2	LEGAL
	<p>making authority. Rather, the Tentative Order requires the permittees to fulfill Clean Water Act requirements and protect water quality in their land use decisions. The requirements in the Tentative Order allow for flexibility in compliance options to the extent allowable under the Clean Water Act. The substantive regulatory requirements of the Clean Water Act are a valid exercise of the federal government's enumerated powers and authority over navigable waters. (<i>NRDC v. USEPA</i> (9th Cir. 1998) 863 F.2d 1420, 1436.)</p> <p>Environmental regulation is not land use regulation, and therefore does not infringe upon local authority over land use decisions. (<i>California Coastal Commission v. Granite Rock</i> (1987) 480 U.S. 572. In addition, local land use planning must be consistent with general statewide laws. (<i>County of Los Angeles v. California State Water Resources Control Board</i> (2006) 143 Cal.App.4th 985, 1003.) Article 11, section 7, of the California Constitution states that a county or city may not enact laws that conflict with general laws. The Porter-Cologne Water Quality Control Act contains the California Legislature's finding that water quality is a matter of state-wide concern, requiring a statewide program administered at a regional level. (See, e.g., <i>Wat. Code</i>, § 13000; see also generally <i>Southern California Edison v. State Water Resources Control Board</i> (1981) 116 Cal.App.3d 751, 758.) Section 101 of the CWA has a companion policy statement, where Congress found that water quality is a matter of federal concern.</p> <p>The Tentative Order also does not dictate specific methods of compliance or dictate the manner in which the Copermittees use their land. Where the Tentative Order includes detailed requirements, it is to comply with the Clean Water Act and its regulations. USEPA's regulations mandate that certain requirements be included in MS4 permits in order to achieve the requirements of the Clean Water Act. Thus, federal law mandates that permits issued for MS4s require certain actions that will result in the elimination or reduction of pollutants to receiving waters and the state is required, by federal law, to select the controls necessary to meet this standard. (See <i>NRDC v. USEPA</i> (9th Cir. 1992) 966 F.2d 1292, 1308; <i>City of Rancho Cucamonga v. Regional Water Quality Control Bd., Santa Ana Region</i> (2006) 135 Cal.App.4th 1377, 1389-90.)</p> <p>The requirement that the Copermittees require Priority Development Projects to control post-project runoff flow rates and durations so that they do not exceed pre-development runoff flow rates and durations by more than ten percent is appropriate and necessary to reduce erosion and the discharge of pollutants into receiving waters. It does not require mitigation beyond redevelopment project impacts because the requirement lessens (although does not eliminate) the perpetuating impacts that originated upon initial land alteration (i.e., the project would continue to cause accelerated erosion) absent improved controls of post-project runoff flow rates and durations. The San Diego Water Board maintains that the Copermittees have authority to implement this</p>

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Lgl-2	LEGAL
	<p>requirement, and that if implemented it would not rise to the level of a taking of private property. The pre-development condition provision is also consistent with the requirements in both the current Orange County and Riverside County MS4 permits. Please see response to comment E3c2-2.</p> <p>However, to remove the question of the nexus between a project's impact on an already hardened channel, the San Diego Water Board has included a hydromodification management exemption for projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. Please see response to comment E3c2-3.</p> <p>The hydromodification management requirements that may be imposed on projects with no hydromodification impacts has been modified, but in any case would not have violated CEQA because the mitigation requirement was not imposed as a result of a CEQA analysis.</p>

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Lgl-3	LEGAL	
	<p>COMMENT: <i>The Tentative Order must address water quality inconsistencies with the California Coastal Act and California Water Code.</i></p> <p>The South Laguna Civic Association submitted comments that asserts the Tentative Order is inconsistent with the California Coastal Act and the water reclamation requirements of the California Water Code. The commenter asserts that the Tentative Order must address the water quality inconsistencies.</p>	<p>Environmental Organizations South Laguna Civic Association</p>
	<p>RESPONSE: The Tentative Order is not issued pursuant to the requirements of the California Coastal Act. The Tentative Order is issued pursuant to and consistent with the requirements of the federal Clean Water Act, Code of Federal Regulations, and the California Water Code for discharges of non-storm water and discharges of pollutants in storm water from the Copermittees' MS4s to receiving waters.</p> <p>Compliance with the requirements of the Tentative Order should also allow the Copermittees to be in compliance with the requirements of the California Coastal Act. When and where applicable, however, the Copermittees may be required to comply with the California Coastal Act under other regulatory mechanisms. The Tentative Order is not required to implement the requirements of the California Coastal Act.</p> <p>The Tentative Order also is not the appropriate regulatory mechanism for implementing the water reclamation requirements of the California Water Code. The water reclamation requirements of the California Water Code are implemented by the San Diego Water Board under separate regulatory mechanisms.</p>	

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Lgl-4	LEGAL	
	<p>COMMENT: <i>San Diego Water Board has legal authority to not incorporate the Beaches and Creeks Bacteria TMDLs into the Tentative Order.</i></p> <p>The County of San Diego and the County of San Diego Office of County Counsel each submitted comments that assert that the San Diego Water Board has the authority to not incorporate the Beaches and Creeks Bacteria TMDLs into the Tentative Order. The comments from the County cite the MEP standard, <i>Defenders of Wildlife v. Browner</i>, and a November 2010 USEPA memorandum as providing the the basis for the legal authority. The City of Lake Forest submitted comments that also cited <i>Defenders of Wildlife v. Browner</i> as providing the the basis for the legal authority to not incorporate TMDLs into the Tentative Order. The comments from the County also assert that the scientific basis of the Beaches and Creeks Bacteria TMDLs is flawed, the requirements of the TMDLs are not achievable, and the costs to implement the requirements of the TMDLs are not worth the benefits that may be achieved. The County requested that the San Diego Water Board elect not to include the Beaches and Creeks Bacteria TMDLs in the Tentative Order and re-evaluate the TMDL.</p> <p>Clean Water Now submitted comments alluded to “recent legal renderings” that called into question the TMDL provisions included in the Tentative Order.</p> <p>Conversely, the USEPA submitted comments in support of the the San Diego Water Board’s approach for incorporating applicable TMDL requirements into the Tentative Order.</p>	<p>Copermittees City of Lake Forest County of San Diego County of San Diego Office of County Counsel</p> <p>Environmental Organizations Clean Water Now</p> <p>State/Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board disagrees that it has the legal authority to not incorporate the requirements of the Beaches and Creeks Bacteria TMDLs into the Tentative Order.</p> <p>Federal regulations under 40 CFR 122.44(d)(1)(vii)(B) require that NPDES permit requirements incorporate water quality based effluent limitations (WQBELs) that must be consistent with the requirements and assumptions of any available wasteload allocations (WLAs) developed under TMDLs. The federal regulations do not provide the option or discretion to not incorporate these WQBELs into NPDES permits.</p> <p>The San Diego Water Board is required to adopt and implement TMDLs through the MS4 permit, where the Copermittees’ MS4 discharges are a source of the impairment. TMDLs are adopted by the San Diego Water Board pursuant to CWA section 303(d) and CWC sections 13240 and 13242. TMDL implementation programs consist of a description of the nature of actions that are necessary to achieve the WLAs (and LAs), a time schedule for the actions to be taken, and a description of the monitoring and reporting to be undertaken to</p>	

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Lgl-4	LEGAL
	<p>determine compliance with the WLAs. Because TMDLs and their programs of implementation are adopted through the Basin Plan amendment process in California, the TMDL implementation program contained in a regional water board's basin plan becomes a regulation upon approval by the State of California Office of Administrative Law. All permits must implement the applicable water quality control plan (i.e. Basin Plan), including any applicable TMDL implementation programs (CWA §§ 303(d), 402(p)(3)(B)(iii); Cal. Water Code §§ 13263, 13377). These Basin Plan provisions thus become the applicable regulations that authorize an MS4 permit to include compliance schedules to achieve effluent limitations derived from TMDL WLAs. It is unclear whether the commenters understand that the TMDL implementation programs are the basis for the compliance schedules and, without the TMDL implementation program, Copermittees would be required to comply with final WQBELs immediately.</p> <p>Further, USEPA has set forth guidance regarding MS4 permits, that such permits must require compliance with applicable TMDLs to meet water quality standards. (See "Revisions to the November 22, 2002 Memorandum 'Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) (for Storm Water Sources and NPDES Requirements Based on Those WLAs.'" (USEPA Office of Water, Nov. 10, 2010.) "<i>Where a TMDL has been established and there is an accompanying implementation plan that provides a schedule for an MS4 to implement the TMDL, the permitting authority [in this case, the Regional Water Board] should consider the schedule as it decides whether and how to establish enforceable interim requirements and interim dates in the permit.</i>" (Id.) The San Diego Water Board is aware that the USEPA memorandum is not legally binding, but finds it very instructive and it is appropriate to consider USEPA guidance, even if that guidance <i>may</i> be modified in some manner in the future.</p> <p>NPDES permits are intended to support the objective of the federal Clean Water Act "<i>to restore and maintain the chemical, physical, and biological integrity of the Nation's waters</i>" (Clean Water Act section 101(a)). Water quality standards, which are the basis for the receiving water limitations in the Tentative Order, are the foundation for achieving this objective. To ensure that discharges do not cause or contribute to exceedances of water quality standards, receiving water limitations provisions are included in all NPDES permits issued pursuant to CWA section 402. Further, Clean Water Act section 402(p)(3)(B)(iii) requires permits for discharges from municipal storm sewers to "require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design, and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." [Emphasis added.] In its Phase I Stormwater Regulations, Final Rule, USEPA elaborated on these requirements, stating that, "permits for discharges from municipal separate storm sewer systems must require</p>

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Lgl-4	LEGAL
	<p>controls to reduce the discharge of pollutants to the maximum extent practicable, and where necessary, water quality-based controls.” (See 55 Fed. Reg. 47990, 47994 (Nov. 16, 1990).) USEPA reiterated in its Phase II Stormwater Regulations, Final Rule, that MS4 “permit conditions must provide for attainment of applicable water quality standards (including designated uses), allocations of pollutant loads established by a TMDL, and timing requirements for implementation of a TMDL.”</p> <p>The Clean Water Act provides the San Diego Water Board, to the same extent as the Administrator of USEPA, the discretion to determine what controls are appropriate to protect water quality and achieve the objectives of the Clean Water Act. (See <i>Defenders of Wildlife v. Browner</i> (1999) 191 F.3d 1159, 1166.) As explained in the Tentative Order, compliance with the WLAs established in TMDLs is necessary to achieve compliance with water quality standards. The State Water Board and the San Diego Water Board have previously concluded that discharges from the MS4 contain pollutants that have the reasonable potential to cause or contribute to excursion above water quality standards. As such, receiving water limitations are included in the Tentative Order to ensure that individual and collective discharges from the MS4 do not cause or contribute to exceedances of water quality standards necessary to protect the beneficial uses of the receiving waters. Compliance with the WLAs established in TMDLs is necessary to achieve compliance with water quality standards.</p> <p>In recognition of the purpose of the NPDES program in supporting the objective of the Clean Water Act and utilizing its authority provided by CWA section 402(p)(3)(B)(iii), and considering USEPA’s statements and guidance, the State Water Board has determined that MS4 permits must include compliance with water quality standards. (See State Water Board Order Nos. WQ91-03, WQ 98-01, WQ 99-05 and WQ 2001-15.) Accordingly, the provisions contained in 40 CFR 122.44(d), are applicable to MS4 permits.</p> <p>The San Diego Water Board also disagrees that incorporation of TMDL requirements is based on state law provisions of the Porter Cologne Water Quality Control Act and that consideration of the factors under Water Code section 13241 is required before the requirements may be implemented. TMDLs implement existing water quality objectives that are designed to protect designated beneficial uses. Numeric targets used by TMDLs to implement water quality standards are not designed to re-balance the policy interests underlying those standards. While policy considerations are important in developing water quality standards in the first instance, they are less important in formulating TMDLs that implement them. The statutory directive to adopt TMDLs in the first instance is to “implement the applicable water quality standards with seasonal variations and a margin of safety.” (33 U.S.C. § 1313(c)(2)(A). See also 40 CFR §§ 131.10-13.) While consideration of economic</p>

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Lgl-4	LEGAL	
	<p>factors may be appropriate in adopting TMDLs, a section 13241 economic analysis is not required either in the adoption of TMDLs or in the implementation through an NPDES permit.</p> <p>Additionally, the implementation plan included as part of the Beaches and Creeks Bacteria TMDLs requires the San Diego Water Board to incorporate the requirements of the TMDLs into the appropriate regulatory mechanisms to implement the TMDL requirements. If the requirements of the Beaches and Creeks Bacteria TMDLs are not incorporated into any regulatory mechanisms (e.g. NPDES permits), the TMDL requirements will not be implemented and will not be enforceable. Implementation of the TMDL requirements in regulatory mechanisms must be initiated as soon as possible to achieve the requirements of the TMDL within the compliance schedules of the TMDL.</p> <p>The San Diego Water Board is obligated to incorporate the requirements into the MS4 permit. Otherwise, the San Diego Water Board would be in conflict with its own implementation plan requirements within the Basin Plan as well as the requirements of the Code of Federal Regulations. Please also see response to comment Lgl-10.</p>	

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Lgl-5	LEGAL	
	<p>COMMENT: <i>San Diego Water Board does not have the legal authority to issue a regional MS4 permit.</i></p> <p>The Orange County and Riverside County Copermittees each submitted comments asserting that the San Diego Water Board does not have the authority to issue a regional MS4 permit under the Clean Water Act. The Orange County Copermittees argue that while it geographically abuts San Diego County, there is extensive federal land separating MS4s within its county from other MS4s and the federal regulations to not allow the issuance of a regional MS4 permit without a “connection.” The commenters also raised concerns over the regulatory requirement to file a Report of Waste Discharge before obtaining coverage under the Tentative Order.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the federal regulations do not authorize the issuance of a region-wide MS4 permit coextensive with the jurisdictional boundaries of the San Diego Region.</p> <p>Despite the geographic separation, the San Diego Water Board has legal authority to issue a regional MS4 permit through its authority in the Clean Water Act. (See Attachment No. 2, September 7, 2012 Letter from San Diego Water Board Counsel on Legal Authority Supporting Issuance of a Regional MS4 Permit) Section 402, subpart (p)(3)(B) of the Clean Water Act states that “Permits for discharges from municipal storm sewers – (i) may be issued on a system- or jurisdiction-wide basis” The federal storm water regulations in 40 CFR at Part 122.26, subdivision (a)(1)(v) also state that the Director (the San Diego Water Board) may designate dischargers from municipal separate storm sewers on a system-wide or jurisdiction-wide basis, taking into consideration the following factors: (A) location of the the discharge with respect to waters of the United States; (B) the size of the discharge; (C) the quantity and nature of the pollutants discharged to waters of the United States and (D) other relevant factors. Consideration of these factors provides wide discretion to the San Diego Water Board in issuing MS4 permits.</p> <p>More specifically, the regulations permit issuance of system-wide permits covering all MS4s in “adjacent . . . large or medium separate storm sewer systems.” (See 40 CFR sec. 122.26(a)(3)(iv). The regulations also support issuance of MS4 permits on watershed or “other basis” contemplating that such permits may “specify different conditions relating to different discharges covered by the permit, including different management programs for different drainage areas” (40 CFR Part 122.26(a)(3)(v).)</p> <p>The USEPA responses to comments for the above regulations also make clear that the permitting authority, in this case, the San Diego Water Board, has flexibility to establish system- or region-wide permits. In the Final</p>	

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Lgl-5	LEGAL
	<p>Rule published in the Federal Register and containing USEPA's responses to comments, USEPA notes that paragraph (iv) of section 122.26(a)(3) would allow an entire system in a geographical region under the purview of a state agency to be designated under a permit. (National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges, 55 Fed.Reg. 47990, 48030-48042 (Nov. 16, 1990).)</p> <p>It is important to note that a regional MS4 permit does not expand the requirements for each municipality beyond its borders as the federal regulations make clear that MS4 permittees need only comply with permit conditions relating to discharges from the MS4s for which they are operators. (40 CFR Part 122.26(a)(3)(vi).) See also September 7, 2012, memorandum from Jessica Jahr and Catherine Hagan, State Water Board's Office of Chief Counsel, to Ryan Baron and David Huff, counsels for Orange and Riverside Counties, respectively which is incorporated into this response.</p> <p>The other objection commenters raise concerns the regulatory requirement to file a Report of Waste Discharge (ROWD). The Tentative Order does not cover or become effective for either the Orange County or Riverside County Copermittees until the earlier of (1) either or both Counties voluntarily seeks to be covered by the permit, once adopted, or (2) Orange or Riverside County timely submits its respective ROWD proposing changes or other recommendations to the Tentative Order and appropriate changes are made concurrent with permit coverage becoming effective as to one or each County. In other words, the obligation to submit a ROWD and for the San Diego Water Board to consider an ROWD has not been abandoned and the Tentative Order reflects that the San Diego Water Board will rely on the ROWD process to frame prospective revisions to the permit. And while neither county has yet filed its next ROWD, both have been provided with ample and extensive opportunities to participate fully in the development of this Tentative Order.</p>

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Lgl-6	LEGAL	
	<p>COMMENT: <i>The requirements of the Tentative Order are more stringent than Federal law and require a CWC 13241 analysis.</i></p> <p>The Orange County and Riverside County Copermitees, City of Lake Forest, and the Building Industry Association of Southern California assert that several requirements of the Tentative Order go beyond the requirements of Federal law, thus an analysis pursuant to California Water code section 13241 is required. The commenters also make several assertions about the deficiencies they perceive with the economic considerations discussed in the Fact Sheet, and assert that a cost-benefit analysis needs to be included in the Fact Sheet discussion.</p>	<p>Building Industry / Industry Building Industry Association of Southern California Copermitees City of Lake Forest Orange County Copermitees Riverside County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that there are “many requirements in the Draft Permit which exceed the federal MEP standard.”</p> <p>The San Diego Water Board is charged with construction of and administration of the Clean Water Act in the San Diego Region. In issuing MS4 permits, “[t]he permitting agency has discretion to decide what practices, techniques, methods and other provisions are appropriate and necessary to control the discharge of pollutants.” (<i>City of Rancho Cucamonga v. Regional Water Quality Control Board-Santa Ana Region</i> (2006) 135 Cal.App.4th 1377,1389.) However, the “<i>Regional Board must comply with federal law requiring detailed conditions for NPDES permits.</i>” (<i>Ibid.</i>)</p> <p>Further, USEPA expects the permitting authority to develop the specific practices that comply with the Clean Water Act on a permit-by-permit basis. (<i>NRDC v. USEPA</i> (9th Cir. 1992) 966 F.2d 1292, 1308.) To the extent the Board is exercising discretion in including certain permit requirements, the Board is exercising discretion required and/or authorized by federal law, not state law. (See <i>City of Rancho Cucamonga, supra</i>, 135 Cal.App.4th at 1389; <i>Building Industry Association of San Diego County v. State Water Resources Control Bd.</i> (2004) 124 Cal.App.4th 866, 882-883.) Further, the MEP standard is a flexible standard that balances a number of considerations, including technical feasibility, cost, public acceptance, regulatory compliance, and effectiveness. (<i>Id.</i> at pp. 873, 874, 889.) Such considerations change over time with advances in technology and with experience gained in storm water management. (55 Fed. Reg. 47990, 48052 (Nov. 16, 1990).)</p> <p>Accordingly, a determination of whether the conditions contained in Tentative Order exceed the requirements of federal law cannot be based on a point by point comparison of the permit conditions with federal law. The appropriate focus is whether the permit conditions as a whole exceed the MEP standard. The commenters have failed to cite any evidence that demonstrates how requirements in the Tentative Order exceed the MEP</p>	

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Lgl-6	LEGAL
	<p>standard or applicable requirements of federal law.</p> <p>The commenters assert that provisions of the Tentative Order are more stringent than the requirements of the Clean Water Act and therefore require an analysis of the factors, including economic considerations, in Water Code section 13241 before the San Diego Water Board can approve such provisions. As indicated above, the San Diego Water Board disagrees that provisions of the Tentative Order are more stringent than requirements of the Clean Water Act. Because the Tentative Order is not more stringent than federal law, its adoption does not require the San Diego Water Board to consider Water Code section 13241 factors. The California Supreme Court in <i>City of Burbank v. State Water Resources Control Board, et al.</i>, ((2005) 35 Cal.4th 613) (<i>Burbank</i>), held: [Water Code s]ection 13377 specifies that wastewater discharge permits must meet the federal standards set by federal law. In effect, section 13377 forbids a regional board's consideration of any economic hardship on the part of the permit holder if doing so would result in the dilution of the requirements set by Congress in the Clean Water Act. That act prohibits the discharge of pollutants into the navigable waters of the United States unless there is compliance with federal law (33 U.S.C. § 1322(a)), and publicly operated wastewater treatment plants such as those before us here must comply with the act's clean water standards, regardless of cost [citations]. Because [Water Code] section 13263 cannot authorize what federal law forbids, it cannot authorize a regional board, when issuing a wastewater discharge permit, to use compliance costs to justify pollutant restrictions that do not comply with federal clean water standards." (<i>Burbank</i>, 35 Cal.4th at 625.)</p> <p>While the <i>Burbank</i> decision does require an analysis of Water Code section 13241 factors when the state adopts permit conditions that are more stringent than federal law (<i>id.</i> at 618) the Tentative Order reflects that all of the challenged provisions are necessary to implement federal law. Thus, the San Diego Water Board is not required to consider economic information to justify a "dilution of the requirements" established in federal law. Even when applicable, consideration of economic information pursuant to section 13241 does not require a cost-benefit analysis, as some commenters suggest. And section 13241 neither specifies how regional water boards must consider its enumerated factors nor does it require that regional water boards may specific findings documenting consideration of the factors. (See <i>California Ass'n of Sanitation Agencies, et al. v. State Water Resources Control Board, et al.</i>, (208 Cal.App.4th 1438, 1464 (2012).) Nonetheless, the Fact Sheet and Response to Comments reflect economic information that has either been developed or gathered by the San Diego Water Board or has been submitted by Copermitees or others as part of this proceeding. To the extent that economic information in connection with compliance and other costs associated with challenged permit provisions, the San Diego Water Board has fully considered this information. Under these circumstances, <i>Burbank</i> does not require more.</p>

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Lgl-7	LEGAL	
	<p>COMMENT: <i>The San Diego Water Board cannot determine whether a particular mandate is unfunded.</i></p> <p>The Orange County, Riverside County and San Diego County Copermitees each submitted comments asserting that the San Diego Water Board does not have the legal authority to determine whether any provisions in the Tentative Order constitute a state mandate, and only the Commission on State Mandates can make the determination.</p>	<p>Copermittees Orange County Copermitees Riverside County Copermitees San Diego County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board does not dispute that the Commission on State Mandate ultimately has jurisdiction to determine whether the State has imposed a mandate requiring state subvention. However, it is entirely appropriate for the San Diego Water Board to set forth its legal basis to support the provisions in the Tentative Order, finding them to be necessary and appropriate to meet the federal Clean Water Act standards.</p> <p>While the Commission may be expert in state mandates, it has no expertise in the field of water law. As indicated in response to comment Lgl-6, above, the San Diego Water Board does not agree that provisions in the Tentative Order exceed federal requirements of the Clean Water Act. The San Diego Water Board is charged by law with administering and constructing the Clean Water Act's requirements and is entitled to considerable deference in its interpretation of the Act. (See <i>Buidling Industry Ass'n of San Diego, supra</i>, 124 Cal.App.5th at pp. 873, 879 fn.9; <i>County of Los Angeles v. California State Water Resources Control Bd.</i> (2006) 143 Cal.App.4th 985, 997.) In issuing MS4 permits, "[t]he permitting agency has discretion to decide what practices, techniques, methods and other provisions are appropriate and necessary to control the discharge of pollutants." (<i>City of Rancho Cucamonga v. Regional Water Quality Control Board-Santa Ana Region</i> (2006) 135 Cal.App.4th 1377,1389.) However, the "Regional Board must comply with federal law requiring detailed conditions for NPDES permits." (<i>Ibid.</i>) Further, USEPA expects the permitting authority to develop the specific practices that comply with the Clean Water Act on a permit-by-permit basis. (<i>NRDC v. USEPA</i> (9th Cir. 1992) 966 F.2d 1292, 1308.) To the extent the Board is exercising discretion in including certain permit requirements, the Board is exercising discretion required and/or authorized by federal law, not state law. (See <i>City of Rancho Cucamonga, supra</i>, 135 Cal.App.4th at 1389; <i>Building Industry Association of San Diego County v. State Water Resources Control Bd.</i> (2004) 124 Cal.App.4th 866, 882-883.)</p> <p>Further, the MEP standard is a flexible standard that balances a number of considerations, including technical feasibility, cost, public acceptance, regulatory compliance, and effectiveness. (<i>Id.</i> at pp. 873, 874, 889.) Such considerations change over time with advances in technology and with experience gained in storm water management. (55 Fed. Reg. 47990, 48052 (Nov. 16, 1990).) The San Diego Water Board's findings are the</p>	

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Lgl-7	LEGAL
	<p>expert conclusions of the principal state agency charged with implementing the NPDES program in California. (Cal. Wat. Code §§ 13001, 13370.) The San Diego Water Board is not precluded from including provisions in the Tentative Order which commenters may contend are state mandates and it is well within the San Diego Water Board's authority to conclude, based on its expertise in administering the Clean Water Act, the the Tentative Order does not exceed federal law and is therefore not a state mandate subject to subvention.</p>

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Lgl-8	LEGAL	
	<p>COMMENT: <i>"Waters of the state" should be revised to "waters of the U.S" or "receiving waters" throughout the Tentative Order.</i></p> <p>The Riverside County and San Diego County Copermittees each submitted comments objecting to applying the requirements of the Tentative Order to "waters of the state" instead of "waters of the U.S." which is consistent with the Clean Water Act, or "receiving waters." The Copermittees are concerned that "waters of the state" may include groundwater, which exceeds federal requirements. The Copermittees requested several revisions throughout the Tentative Order reflecting this comment.</p>	<p>Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees that certain requirements of the Tentative Order should be revised to "waters of the U.S." or "receiving waters."</p> <p>Where applicable and appropriate, the San Diego Water Board revised "waters of the state" to "waters of the U.S." or "receiving waters" to limit the application of a requirement to surface waters. However, because the Tentative Order also serves as waste discharge requirements and incorporates the water quality standards of the Basin Plan (i.e. discharge prohibition A.1.a), the term "waters of the state" remains appropriate where the phrase exists in the applicable Basin Plan provision, incorporated into the Tentative Order. Because the Tentative Order regulates discharges of pollutants to waters of the United States, the San Diego Water Board does not anticipate there being any MS4 discharges to groundwaters that could violate the prohibition as to waters of the state. Additionally, such provisions are not new to San Diego Region MS4 permits.</p>	

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Lgl-9	LEGAL	
	<p>COMMENT: <i>The Tentative Order cannot include requirements to regulate storm water flow.</i></p> <p>The Riverside County and San Diego County Copermittees, the City of Lake Forest, and the BIA Regulated Community Coalition each submitted comments that assert the Tentative Order cannot include requirements (i.e. hydromodification management requirements) to regulate storm water flow. The commenters cite a recent court decision from Virginia (<i>Virginia Dept. of Transp. v. U.S. Environmental Protection Agency</i>) as the basis for this assertion.</p> <p>In contrast, the Los Penasquitos Lagoon Foundation requests that the Tentative Order finds discharges (i.e. flow) from the MS4s can generate and/or contribute to discharges of pollutants downstream of the MS4 outfalls (e.g. discharge of sediment due to scouring of the natural channels).</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermittees City of Lake Forest Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Los Penasquitos Lagoon Foundation</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the Tentative Order cannot include requirements that will result in decreasing the impact of pollutants in storm water runoff discharged from the MS4s on the physical, chemical, and biological integrity of receiving waters to the maximum extent practicable (MEP).</p> <p>The Tentative Order includes requirements to effectively prohibit non-storm water discharges to the MS4, and control the discharge of pollutants from the MS4 to the MEP, consistent with the requirements of the Clean Water Act and Code of Federal Regulations. If non-storm water discharges are effectively prohibited to the MS4s, there should be little to no flow from the MS4s to receiving waters. Thus, the Tentative Order already includes requirements to regulate non-storm water flow to and from the MS4s.</p> <p>In contrast, the MEP standard is a technologically based effluent limitation (TBEL) that applies specifically to storm water discharges from the MS4s. The Tentative Order includes development planning structural BMP requirements that act as BMP-based TBELs to implement the MEP standard for new development and significant redevelopment projects. While the development planning structural BMP requirements are separated into “<i>storm water pollutant control</i>” and “<i>hydromodification management</i>” BMP requirements, they are both for the control of pollutants in storm water discharges from the MS4 to the MEP.</p> <p>The hydromodification management BMP requirements of the Tentative Order do, to a significant extent, regulate flow. However, the primary purpose of the hydromodification management BMP requirements still stems from the requirement that MS4 permits include controls to reduce the discharge of pollutants in storm water from the MS4s to receiving waters. The increases in flows and durations caused by new development</p>	

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Lgl-9	LEGAL
	<p>and significant redevelopment also results in increases to pollutants that are discharged in storm water from the MS4s to the receiving waters. The pollutants discharged will always be in excess of what would be generated in a natural environment, even with controls in place.</p> <p>Those increased pollutant loads associated with increased flows and durations of storm water discharging from the MS4s impact the chemical integrity (e.g. salinity, temperature, toxic pollutants), biological integrity (e.g. biological toxicity, supportable flora and fauna, habitat alteration), and physical integrity (e.g. destabilization of stream channels, excessive sediment deposition) of receiving waters. Thus, the hydromodification management BMP requirements of the Tentative Order are necessary to control the discharge of pollutants generated by new development and significant redevelopment projects in storm water discharges from the MS4 to the MEP, even if they do result in the regulation of flow.</p> <p>The recent district court decision from the Eastern District of Virginia (<i>Virginia Dept. of Transportation, et al. v. United States Environmental Protection Agency, et al.</i> (2013 WL 53741 (E.D.Va.) (Virginia Decision)) cited by commenters does not support their argument in the context of the Tentative Order. In the Virginia Decision, USEPA had established a TMDL limiting the flow rate of stormwater into a creek to 681.8 ft/acre-day. USEPA characterized the flow rate as a “surrogate” for sediment, a pollutant. USEPA recognized that flow in and of itself is not a pollutant.</p> <p>As some commenters acknowledge, the Virginia Decision is not precedential and does not bind the San Diego Water Board. More importantly, the decision is inapposite as it concerns section 303(d) of the Clean Water Act concerning total daily maximum loads (TMDLs) which sets forth a very specific requirement that for impaired water bodies, states must establish numeric loads “for those <i>pollutants</i> which the Administrator identifies under section 1314(a)(2) of this title are suitable for such calculation.” Instead of setting a load for a pollutant, USEPA calculated a load for flow as a surrogate for the relevant pollutant.</p> <p>In contrast, as explained above, section 402(p) of the Clean Water Act provides that states issuing MS4 permits shall “require <i>controls</i> to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.” (CWA, § 402(p)(3)(B)(iii).) Following the directives of this section of the Clean Water Act, the Tentative Order establishes controls discussed above such as best management practices to remove pollutants in storm water, source control and restrictions on the flow rate and duration of post-construction runoff, the latter of which not only can</p>

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	<p>contain pollutants but can affect the discharge of pollutants in the runoff. (See State Water Board Order No. WQ 2000-11 (p. 5) (<i>Cities of Bellflower, et al.</i>) and State Water Board Order WQ 2001-15 (fn.23) (<i>Building Industry Association of San Diego</i>)).</p> <p>One commenter also cites to the Virginia Decision in requesting that the San Diego Water Board conform the TMDL provisions in the Tentative Order to the Virginia Decision. It is unclear how the commenter believes the Virginia Decision applies to the TMDL provisions in the Tentative Order, but as indicated above, the decision is not binding on the San Diego Water Board and any concerns with the loads established in TMDLs should most appropriately be raised in the context of the TMDL approval proceeding.</p>

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Lgl-10	LEGAL	
	<p>COMMENT: <i>The numeric WQBELs violate requirements of law because they are infeasible.</i></p> <p>The Orange County Copermitees submitted comments that object to the incorporation of numeric WQBELs for TMDLs, and assert that the inclusion of the numeric WQBELs violate the law because they are infeasible (presumably, to achieve). The Copermitees assert that the WQBELs should be BMP-based and not numeric. The Copermitees cite a 2010 USEPA memorandum, 40 CFR 122.44(k), and the Caltrans MS4 permit as justification for BMP-based instead of numeric WQBELs in the Tentative Order.</p>	<p>Copermitees Orange County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that including numeric WQBELs for the TMDLs in the Tentative Order violate the requirements of law.</p> <p>The federal regulations under 40 CFR 122.44(d)(1)(vii)(B) require that NPDES permit requirements incorporate WQBELs that must be consistent with the requirements and assumptions of any available wasteload allocations (WLAs) developed under TMDLs. The federal regulations under 40 CFR 122.44(k) do not require WQBELs to be BMP-based if numeric effluent limitations are infeasible, but only that WQBELs that implement WLAs <u>may</u> be expressed in the form of BMPs. BMP-based WQBELs may be allowed if BMPs alone adequately implement WLAs, and additional controls are not necessary. This is consistent with a 2002 USEPA memorandum for “<i>Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs.</i>” WQBELs are required for point source discharges that have the reasonable potential to cause or contribute to an excursion of water quality standards and technology based effluent limitations or standards are not sufficient to achieve water quality standards. Where a WLA has been assigned to a discharge in a TMDL, it is concluded that there is reasonable potential for the discharger to cause or contribute to an excursion of water quality standards.</p> <p>The 2010 USEPA memorandum for “<i>Revisions to the November 22, 2002 Memorandum ‘Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs.’</i>” cited by the Copermitees states, “<i>For the purpose of this memorandum, numeric WQBELs use numeric parameters such as pollutant concentrations, pollutant loads, or numeric parameters acting as surrogates for pollutants [...].</i>” The memorandum goes on to recommend, “<i>Where the NPDES authority determine that MS4 discharges have a reasonable potential to cause or contribute to a water quality standard excursion, EPA recommends that, where feasible, the NPDES permitting authority exercise its discretion to include numeric effluent limitations necessary to meet water quality standards.</i>” The “where feasible” in the memorandum applies to the NPDES permitting authority’s discretion to include numeric effluent</p>	

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Lgl-10	LEGAL
	<p>limitations necessary to meet water quality standards, not to the feasibility of achieving the numeric effluent limitations. The State Water Board, in Order WQ 2006-0012 (Boeing), has made clear that “infeasibility” in the context of numeric effluent limitations refers to “the ability or propriety of establishing” numeric limits, as opposed to the feasibility of compliance. Please also see response to comment Lgl-4.</p> <p>The Caltrans MS4 permit is issued by the State Water Board. Even though the Caltrans MS4 permit may allow for BMP-based WQBELs, this does not require the San Diego Water Board to include BMP-based WQBELs in the Tentative Order regardless of any potential or apparent conflict. The San Diego Water Board will issue additional requirements to Caltrans with numeric WQBELs when and where warranted.</p> <p>The San Diego Water Board considered the feasibility of incorporating numeric WQBELs to implement the requirements of each of the TMDLs and has determined that they are feasible, and necessary, to include to meet water quality standards, consistent with the 2010 USEPA memorandum. Numeric WQBELs are also “additional controls” necessary to implement the WLAs, consistent with the 2002 USEPA memorandum.</p> <p>Each of the TMDLs in the Tentative Order, however, includes BMP-based WQBELs which must be implemented to achieve the numeric WQBELs. The Tentative Order requires the Copermittees to implement the BMP-based WQBELs to achieve the numeric WQBELs. This is consistent with the 40 CFR 122.44(d)(1)(vii)(B) and 40 CFR 122.44(k), and the recommendations of the 2010 USEPA memorandum. The Tentative Order has also been revised to include interim and final TMDL compliance determination options that allow the Copermittees to demonstrate that the BMP-based WQBELs will achieve the numeric WQBELs. The numeric WQBELs are necessary for the Copermittees to quantitatively demonstrate that the BMPs implemented are achieving the WLAs of the TMDLs. Please see response to comments AttE-1 and AttE-3.</p> <p>Thus, the Tentative Order appropriately includes numeric WQBELs and does not violate any requirements of law.</p>

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Lgl-11	LEGAL	
	<p>COMMENT: <i>Storm water pollutant control retention requirements of the Tentative Order conflict with Rainwater Capture Act of 2012 (AB 1750).</i></p> <p>The BIA Regulated Community Coalition commented that the Rainwater Capture Act does not provide the authority to collect and retain storm water from impervious surfaces other than rooftops. Thus, the BIA Regulated Community Coalition asserts that the storm water pollutant control retention requirements of the Tentative Order may be in conflict with the Rainwater Capture Act and the retention requirements of the Tentative Order should not be enforced.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the storm water pollutant control retention requirements of the Tentative Order are in conflict with the Rainwater Capture Act.</p> <p>The Rainwater Capture Act provides additional clarification that the collection of rainwater from rooftops does not require a water right permit. The Rainwater Capture Act does not address collection of water from other surfaces, nor does it modify or alter existing law pertaining to appropriative water rights. Retention of rainwater or diffuse surface flow before it flows into a watercourse does not require a water right permit. The storm water pollutant control retention requirements of the Tentative Order are not in conflict with the Rainwater Capture Act or existing water rights law.</p>	

FINDINGS

Fnd-1: Requests for additional findings.

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Fnd-1	FINDINGS	
	<p>COMMENT: <i>Requests for additional findings.</i></p> <p>The Riverside County Copermittees requested several additional findings be included in the Tentative Order associated with water law, flooding, flood control acts, and limitations on legal authority. The County of San Diego and the County of San Diego Department of Environmental Health requested a finding with vector-related language.</p>	<p>Copermittees County of San Diego County of San Diego Department of Environmental Health Riverside County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board considered the requests for the additional findings and determined that including the additional findings is not necessary.</p> <p>The requirements of the Tentative Order are consistent with the federal Clean Water Act, Code of Federal Regulations, and the California Water Code. The additional findings requested associated with water law, flooding, flood control acts, limitations on legal authority and vector-related issues are not necessary to establish that the requirements of the Tentative Order are consistent the federal Clean Water Act, Code of Federal Regulations, and the California Water Code.</p> <p>The San Diego Water Board did not include any additional findings as requested by the commenters. The San Diego Water Board did, however, incorporate an additional requirement under the general requirements of all development projects (new Provision E.3.a.(1)(c)) to avoid the creation of nuisance or pollution associated with vectors. Subsequently, additional discussion was also included in the Fact Sheet to encourage the design and implementation of BMPs in consultation with local vector control agencies and the California Department of Public Health.</p>	

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Fnd-2 FINDINGS	
	<p>COMMENT: <i>Findings 2 and 26: Remove language that states the San Diego Water Board has the authority to issue a regional MS4 permit.</i></p> <p>The Orange County and Riverside County Copermitees each submitted comments asserting that Findings 2 and 26 were inaccurate and the San Diego Water Board does not have the authority to issues a regional MS4 permit under the Clean Water Act.</p>
	<p>Copermitees Orange County Copermitees Riverside County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that it does not have the authority to issue a regional MS4 permit.</p> <p>The San Diego Water Board maintains Findings 2 and 26 are accurate and the San Diego Water Board has the authority to issue a regional MS4 permit. Please see the response to comment Lgl-5.</p>

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Fnd-3	FINDINGS	
	<p>COMMENT: <i>Finding 3 and 15 (and elsewhere in the Tentative Order): Remove "in storm water" from "reduce discharges of pollutants in storm water to the maximum extent practicable."</i></p> <p>The Riverside County and San Diego County Copermitees each submitted comments that objected to requiring the control of pollutants "in storm water" to the MEP. The Copermitees assert that the Tentative Order is inconsistent with the Clean Water Act and the control of pollutants to the MEP applies to both storm water and non-storm water.</p> <p>The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Findings 3 and 15. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermitees Riverside County Copermitees San Diego County Copermitees</p> <p>Environmental Organizations Clean Water Now</p>
	<p>RESPONSE: The San Diego Water Board disagrees that there is any inconsistency with the requirements of the Clean Water Act, or that the adoption of the Tentative Order should be delayed.</p> <p>Comments received assert that the "plain language" of the Clean Water Act states that the MEP standard applies to all pollutants discharged from the MS4, not just pollutants in storm water. The commenter, however, fails to acknowledge the "plain language" of the Clean Water Act that specifically makes a clear distinction that non-storm water discharges are to be effectively prohibited from entering the MS4.</p> <p>Since the "plain language" of the Clean Water Act states that non-storm water discharges to the MS4 are to be effectively prohibited (CWA section 402(p)(3)(B)(ii)), then no pollutants in non-storm water will enter the MS4 if the discharger is in compliance with this requirement. If no pollutants are entering the MS4 because non-storm water discharges are not entering the MS4, then clearly the very next requirement to control pollutant discharges from the MS4 be reduced to the MEP (CWA section 402(p)(3)(B)(iii)) intends that the discharge of pollutants only apply to storm water.</p> <p>Provisions A.1.b and A.3.a are consistent with CWA section 402(p)(3)(B)(ii) and CWA section 402(p)(3)(B)(iii), respectively, and the Fact Sheet further clarifies this distinction between non-storm water discharges and pollutants in storm water discharges. Findings 3 and 15 are consistent with the Clean Water Act have not be modified. The United States Supreme Court decision, <i>Los Angeles County Flood Control v. Natural Resources Defense Council</i> (2013) 133 S.Ct. 710 does not require any modifications to the Tentative Order.</p>	

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Fnd-4 FINDINGS	
	<p>COMMENT: <i>Finding 7: Finding should be modified to support construction of BMPs in receiving waters.</i></p> <p>The BIA Regulated Community Coalition submitted comments requesting revisions to Finding 7 to support the construction of BMPs in receiving waters. The commenter is concerned that the Tentative Order will not allow the construction of BMPs, or implementation of retrofitting or rehabilitation projects in waters of the U.S. or waters of the state to treat pollutants in storm water from areas of existing development. The commenter also requested a revision to Provision E.3.a.(1)(b) to reflect the requested revision to Finding 7.</p>
	<p>Building Industry / Industry BIA Regulated Community Coalition</p>
	<p>RESPONSE: The San Diego Water Board disagrees revisions to Finding 7 are appropriate or necessary.</p> <p>Finding 7 correctly provides that pursuant to federal regulations under 40 CFR 131.10(a) waste transport or waste assimilation cannot be a designated use for any waters of the U.S. Thus, waters of the U.S. cannot be utilized for the treatment of pollutants in storm water discharges from the MS4s, and treatment control BMPs must not be constructed in waters of the U.S. to treat pollutants in storm water discharges from the MS4s.</p> <p>Finding 7 does not, however, include construction of BMPs for the treatment of pollutants in waters of the state. Thus, the San Diego Water Board has revised Provision E.3.a.(1)(b) to limit the prohibition of constructing structural BMPs in only waters of the U.S. consistent with 40 CFR 131.10(a).</p>

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Fnd-5 FINDINGS	
<p>Fnd-5</p>	<p>COMMENT: <i>Findings 8, 16 and 17: Findings should not include presumption that discharges from MS4s always contain waste or pollutants.</i></p> <p>The Orange County and San Diego County Copermittees objected to Finding 8 stating that discharges from the MS4s contain waste, and does not acknowledge that there may not be pollutants in the discharges from the MS4s. The Copermittees requested revisions to Findings 8, 16 and 17 to reflect this position.</p> <p>The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Finding 8. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available.</p> <p>In contrast, the Los Penasquitos Lagoon Foundation recommended that Finding 8 should also acknowledge pollutant discharges that are caused as a result of discharges from the MS4s (e.g. sediment discharged due to scouring of the receiving waters).</p>
	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermittees Orange County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Clean Water Now Los Penasquitos Lagoon Foundation</p>
	<p>RESPONSE: The San Diego Water Board disagrees that Findings 8, 16, or 17 are inaccurate, or that the adoption of the Tentative Order should be delayed.</p> <p>The Tentative Order is implementing the requirements of the California Water Code as well as the requirements of the Clean Water Act. Under the California Water Code section 13376, any person discharging waste, or proposing to discharge wastes to waters of the state is not authorized to discharge waste unless issued waste discharge requirements. The requirements of the Clean Water Act, specific to discharges of pollutants to waters of the U.S. are also included in the California Water Code, Chapter 5.5 of Division 7. Thus, under the California Water Code, any person discharging pollutants, or proposing to discharge pollutants to waters of the U.S. is not authorized to discharge pollutants unless issued waste discharge requirements that include NPDES requirements. Waste discharge requirements that include NPDES requirements is also an NPDES permit under the Clean Water Act. The Clean Water Act requires municipalities to obtain NPDES permits to authorize discharges of pollutants from their MS4s.</p> <p>Commenters cite the definition of “waste” in the California Water Code to assert that the definition does not include storm water or any discharge that is not created by human activity. Comments received also assert that</p>

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Fnd-5	FINDINGS
	<p>waste discharge requirements and NPDES permits cannot regulate the discharge of “pure storm water” and that not all discharges from the MS4 contain pollutants.</p> <p>Discharges from the MS4 are not “pure storm water.” Storm water that flows over the surface of any developed area, which includes the MS4 itself, do not enter or discharge from the MS4 without coming into contact with pollutants or constituents that alter the storm water such that it is no longer “pure storm water.” Thus, storm water discharges from the MS4 contains pollutants and contain waste. It is well-known and documented that urban runoff and storm water contains pollutants. (See, e.g., State Water Board Order WQ 2001-015 (“As we stated in Board Order WQ 95-2, the requirement to adopt permits for urban runoff is undisputed, and Regional Water Boards are not required to obtain any information on the impacts of runoff prior to issuing a permit (citation). It is also undisputed that urban runoff contains ‘waste’ within the meaning of Water code section 13050(d), and that the federal regulations define ‘discharge of a pollutant’ to include ‘additions of pollutants into waters of the United States from surface runoff which is collected or channeled by man.’ (40 C.F.R. § 122.2.) But it is the waste or pollutants in the runoff that meet these definitions of ‘waste’ and ‘pollutant.’ And not the runoff itself. [fn]. (p. 5.))</p> <p>The Tentative Order is not regulating “pure storm water” but the discharge of storm water that is being discharged as a waste and contains pollutants. Finding 8 accurately states that discharges from the MS4s contain waste, as defined in the California Water Code. Finding 8 also accurately states that discharges from the MS4s contain pollutants that adversely affect the quality of waters of the state. Findings 16 and 17 also accurately conclude that BMPs and implementation of BMPs are necessary to remove waste and pollutants in storm water discharges from the MS4s.</p> <p>The San Diego Water Board does not understand the comments concerning the recent United States Supreme Court decision in Los Angeles County Flood Control District v. NRDC (133 S.Ct 710 (2013)). The San Diego Water Board has reviewed the opinion and does not believe the opinion necessitates any changes to the Tentative Order.</p>

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Fnd-6 FINDINGS	
	<p>COMMENT: <i>Finding 10: Finding should be modified to specify linear underground projects (LUPs) should not be subject to permanent post construction BMP requirements.</i></p> <p>San Diego Gas and Electric and the Southern California Gas Company each submitted comments requesting revisions to Finding 10 to specify that linear underground/overhead (utility) projects (LUPs) are not subject to post construction requirements to be consistent with the State Water Board Construction General Permit findings.</p>
	<p>Building Industry / Industry San Diego Gas and Electric Southern California Gas Company</p>
	<p>RESPONSE: The San Diego Water Board disagrees that revisions to Finding 10 are appropriate or necessary.</p> <p>Finding 10 accurately states that pollutants are generated by land development. Finding 10 discusses the generation of pollutants by land development in broad and general terms, and does not specify types of land development activities. Incorporating language into Finding 10 specific to LUPs is inappropriate and not necessary.</p>

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Fnd-7	FINDINGS	
	<p>COMMENT: <i>Finding 11: Finding should not classify natural waters as part of the MS4, and cannot be classified as both an MS4 and receiving water.</i></p> <p>The Orange County, Riverside County, and San Diego County Copermittees each submitted comments asserting that Finding 11 was inaccurate and the San Diego Water Board cannot classify natural waters as part of the MS4.</p> <p>The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Finding 11. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available.</p> <p>In contrast, the Los Penasquitos Lagoon Foundation recommended that the language of Finding 11 should be maintained.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Clean Water Now Los Penasquitos Lagoon Foundation</p>
	<p>RESPONSE: The San Diego Water Board disagrees that Finding 11 is inaccurate, or that the adoption of the Tentative Order should be delayed.</p> <p>An MS4 is defined in the federal regulations as a conveyance or system of conveyances owned or operated by a Copermittee, and designed or used for collecting or conveying runoff. Therefore, the San Diego Water Board considers natural drainages that are used by the Copermittees as conveyances of runoff, as both part of the MS4 and as receiving waters.</p> <p>The State Water Board supports this approach. In reviewing a Petition on Order No. R9-2001-0001, the State Water Board stated "<i>We also agree with the Regional Water Board's concern, as stated in its response, that there may be instances where MS4s use 'waters of the United States as part of their sewer system [...]</i>" State Water Resources Control Board Order WQ 2001-15.</p> <p>Furthermore, the U.S. Supreme Court's 2006 <i>Rapanos</i> decision supports the conclusion that natural streams in developed areas can be both receiving waters and MS4s by confirming that ephemeral and intermittent streams can be waters of the U.S. subject to regulation under Clean Water Act section 404 and also be considered point sources of pollution discharges regulated under Clean Water Act section 402. (See <i>Rapanos, et al. v. United</i></p>	

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Fnd-7	FINDINGS
	<p data-bbox="212 266 1444 302"><i>States and Carabell et al. v. United States Army Corps of Engineers, et al.</i> (2006) 547 U.S. 715, 743-744.)</p> <p data-bbox="212 337 1234 373">Finding 11 is accurate and consistent with the Clean Water Act and NPDES regulations.</p>

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Fnd-8	FINDINGS	
	<p>COMMENT: <i>Finding 12: Finding should not state that Copermitees provide free and open access to MS4s; Copermitees are not responsible for all discharges not prohibited.</i></p> <p>The Orange County and Riverside County Copermitees each submitted comments objecting to Finding 12 stating that the Copermitees provide free and open access to MS4s. The Riverside County Copermitees also objected to Finding 12 stating that the Copermitees cannot passively receive and discharge pollutants from third parties. The Copermitees assert that they are not responsible for discharges from their MS4s that are from third parties that are subject to the jurisdiction of the San Diego Water Board.</p>	<p>Copermitees Orange County Copermitees Riverside County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that Finding 12 is inaccurate.</p> <p>The Copermitees have the option to request the authority to discharge from their MS4s under an NPDES permit or comply with the complete prohibition against the discharge of pollutants pursuant to Clean Water Act section 301(a) (33 U.S.C. § 1311(a)). These choices are provided by the federal Clean Water Act, not state laws.</p> <p>The Copermitees have opted to discharge from their MS4s under an NPDES permit. In doing so, they are responsible for discharges from the MS4s. Thus, Finding 12 correctly provides that the Copermitees provide free and open access to their MS4s and they are responsible for discharges into the MS4 that they do not prohibit or otherwise control. Finding 12 also correctly provides that the Copermitees cannot passively receive and discharge pollutants from third parties.</p> <p>The Copermitees have the responsibility of identifying the sources of discharges and pollutants from their MS4s. If the Copermitees are not actively identifying sources and cannot identify sources of discharges and pollutants to and from their MS4s, then the Copermitees are the source of the MS4s discharges and pollutants to receiving waters, even if they believe third parties are responsible for the discharges and pollutants.</p> <p>If, however, the Copermitees identify the sources of discharges and pollutants to or from the MS4s as outside of their legal authority to prohibit or otherwise control, then they are not passively receiving and discharging pollutants, even if they are providing free and open access to the MS4s. The data and information that the Copermitees collect to identify the third party sources can provide the evidence that the Copermitees are not responsible for the discharges and pollutants from the MS4s that can be attributed to third parties. Until the data and information are provided to identify those third parties, and demonstrate those parties are not subject to the Copermitees' legal authority, then the Copermitees are responsible for all of the discharges to and from their MS4s unless such discharges are authorized by a separate NPDES permit.</p>	

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Fnd-9	FINDINGS
	<p>COMMENT: <i>Finding 15: Finding should state that the maximum extent practicable standard applies to both non-storm water and storm water, not just storm water.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments that assert Finding 15 is inaccurate. The Copermittees assert that the Tentative Order is inconsistent with the Clean Water Act and the MEP standard applies to both non-storm and water storm water, not just storm water.</p> <p>The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Finding 15. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available.</p> <p>San Diego Gas and Electric and the Southern California Gas Company each submitted comments requesting revisions to Finding 15 to clarify that non-storm water discharge authorized by a NPDES permit are authorized to be discharged to the MS4s.</p>
	<p>Building Industry / Industry BIA Regulated Community Coalition San Diego Gas and Electric Southern California Gas Company</p> <p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Clean Water Now</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the MEP standard applies to both non-storm water and storm water. The San Diego Water Board also disagrees that Finding 15 should be revised.</p> <p>Finding 15 accurately states the requirements of the Clean Water Act. The San Diego Water Board maintains that MEP standard only applies to pollutants in storm water. The San Diego Water Board also maintains that Finding 15 does not need to be clarified to state that non-storm water discharge authorized by a NPDES permit are authorized to be discharged to the MS4s. Please see the responses to comments Fnd-3 and Fnd-8, and also see Memorandum from San Diego Water Board Counsel to San Diego Water Board dated 5 November 2009, incorporated by reference herein.</p>

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Fnd-10	FINDINGS	
	<p>COMMENT: <i>Finding 27: Finding should state that implementation of the requirements of the Tentative Order "will" not "may" allow the San Diego Water Board to re-categorize impaired water bodies to Category 4 in the Integrated Report.</i></p> <p>The San Diego County Copermittees requested that Finding 27 be revised to state that the requirements of the Tentative Order "will" allow the San Diego Water Board to re-categorize impaired water bodies to Category 4 in the Integrated Report, as opposed to only "may" allow the re-categorization.</p>	<p>Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that revising Finding 27 is appropriate.</p> <p>Finding 27 is accurate to state that the implementation of the Water Quality Improvement Plan "may" allow the San Diego Water Board to re-categorize an impaired water body in Category 4 in the Integrated Report meaning a TMDL is not required. The Integrated Report is ultimately approved by the USEPA. The USEPA may not allow the San Diego Water Board to re-categorize an impaired water body from Category 5 (i.e. TMDL required) to Category 4 (i.e. TMDL not required) if they do not agree that the implementation of the requirements of the Tentative Order will result in attainment of the water quality standards.</p>	

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Fnd-11 FINDINGS	
<p>COMMENT: <i>Finding 28: Finding should state that the requirements of the Tentative Order are more stringent than Federal law and require a CWC 13241 analysis.</i></p> <p>The Orange County and Riverside County Copermitees each submitted comments objecting to Finding 28. The Copermitees assert that several requirements of the Tentative Order go beyond the requirements of Federal law, thus an analysis pursuant to California Water code section 13241 is required. The Copermitees make several assertions about the deficiencies they perceive with the economic considerations discussed in the Fact Sheet. The Copermitees assert that a cost-benefit analysis needs to be included in the Fact Sheet discussion.</p> <p>The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Finding 28. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermitees Orange County Copermitees Riverside County Copermitees</p> <p>Environmental Organizations Clean Water Now</p>
<p>RESPONSE: The San Diego Water Board disagrees that provisions of the Tentative Order go beyond the requirements of the Clean Water Act or Code of Federal Regulations, or that the adoption of the Tentative Order should be delayed.</p> <p>The San Diego Water Board considered economic information in developing the Tentative Order using the best available information, but did not do so in accordance with an analysis pursuant to California Water code section 13241. The provisions of the Tentative Order are based on and fully supported by federal requirements, as demonstrated by the legal authority provided by the Clean Water Act and Code of Federal Regulations sections cited in the Fact Sheet. Thus, the San Diego Water Board maintains that an analysis pursuant to California Water code section 13241 is not required. Federal NPDES regulations do not require that the San Diego Water Board conduct a cost-benefit analysis.</p> <p>Please also see response to comment Lgl-6.</p>	

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Fnd-12 FINDINGS	
	<p>COMMENT: <i>Finding 29: San Diego Water Board cannot determine what is a state mandate.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments objecting to Finding 29 generally asserting that the San Diego Water Board does not have the legal authority to determine whether any provisions in the Tentative Order constitute a state mandate, and only the Commission on State Mandates can make the determination. The County of San Diego also submitted a similar comment.</p>
	<p>Copermittees County of San Diego Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees that the Commission on State Mandates ultimately has jurisdiction to determine that a provision in the Tentative Order constitutes a state mandate.</p> <p>Finding 29 is, nonetheless, appropriate and necessary to express and support the San Diego Water Board's position that the Tentative Order is the result of a federal and not a state mandate. Please see the response to comment Lgl-7.</p>

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Fnd-13 FINDINGS	
	<p>COMMENT: <i>Finding 31: Finding should support implementation of the iterative process to comply with prohibitions and limitations.</i></p> <p>The Riverside County Copermittees submitted a comment related to Finding 31 requesting that the Tentative Order be revised to support the iterative process as a means to comply with the discharge prohibitions and receiving water limitations of Provision A. The Copermittees did not request or recommend any revisions to Finding 31, but requested revisions to Provision A to support implementation of the iterative process to comply with the discharge prohibitions and receiving water limitations.</p>
	<p>Copermittees Riverside County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees that implementation of the iterative process is necessary to achieve compliance with the discharge prohibitions and receiving water limitations of Provision A.</p> <p>The San Diego Water Board did not make any revisions to Finding 31 or Provision A as requested by the commenter. The San Diego Water Board did, however, include an option as part of the Water Quality Improvement Plan requirements that each Copermittee may choose to implement to demonstrate compliance with the discharge prohibitions and receiving water limitations of Provision A. Please see response to comment A-1.</p>

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Fnd-14 FINDINGS	
<p>COMMENT: <i>Finding 32: Finding should clarify that NPDES permitted discharges to MS4s that discharge to ASBS are authorized.</i></p> <p>San Diego Gas and Electric and Southern California Gas Company requested modifications to Finding 32 to specify that the San Diego Water Board finds that NPDES-permitted discharges to the MS4 that subsequently discharge to ASBS will not alter ocean water quality and the Tentative Order authorizes these NPDES-permitted discharges. The commenters are concerned that the Tentative Order does not clearly state that NPDES permitted discharges to the Copermittees' MS4s that then discharge to ASBS are authorized.</p> <p>The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Finding 32. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition San Diego Gas and Electric Southern California Gas Company</p> <p>Environmental Organizations Clean Water Now</p>
<p>RESPONSE: The San Diego Water Board disagrees that revisions to Finding 32 are appropriate or necessary, or that the adoption of the Tentative Order should be delayed.</p> <p>The Tentative Order requires discharges from the Copermittees' MS4 to be consistent with the requirements of Special Protections contained in Attachment B to State Water Board Resolution No. 2012-0012 (Special Protections). The Tentative Order includes provisions that apply to the Copermittees' MS4 discharges to ASBS, thus the Copermittees are subject to the requirements of the Special Protections. Incorporating the requested language into Finding 32 to find that the San Diego Water Board authorizes discharges of other NPDES-permitted discharges to the MS4 is inappropriate and not necessary.</p>	

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A-1 PROVISION A: PROHIBITIONS AND LIMITATIONS	
<p>COMMENT: <i>Revise Provision A to clarify how compliance with prohibitions and limitations can be achieved.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that the requirements of Provision A be modified to provide a clear linkage between the prohibitions and limitations of Provisions A.1 to A.3 with the iterative process required under Provision A.4 to be demonstrated through the implementation of the Water Quality Improvement Plans. The Copermittees are concerned that the language of Provision A, if not modified, will be interpreted as requiring strict and immediate compliance with the prohibitions and limitations, and the implementation of the iterative process would not be enough to demonstrate compliance with the prohibitions and limitations. Among the many recommended modifications to the requirements of Provision A, the Copermittees are generally requesting that the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a specifically state that implementation of Provision A.4 constitutes compliance. Furthermore, the Copermittees have requested that Provision A.4 explicitly state that the implementation of the iterative process constitutes compliance with any of the prohibitions and limitations under Provision A.1 to A.3, including compliance with the effective prohibitions of non-storm water discharges to the MS4s, the special protections for ASBS, and the TMDL requirements.</p> <p>Many Copermittees submitted separate comments in support of the requested modifications. One commenter from the Building Industry also requested similar modifications to the requirements of Provision A.</p> <p>In contrast, commenters from Environmental Organizations were strongly in support of maintaining the existing language and asserted that modifications to Provision A that would “weaken” the requirements, or provide “safe harbor” and would violate federal anti-backsliding requirements.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermittees City of Del Mar City of Imperial Beach City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Diego City of San Juan Capistrano County of San Diego County of San Diego Office of County Counsel Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District / Brown and Winters</p> <p>Environmental Organizations Environmental Groups Natural Resources Defense Council</p>
<p>RESPONSE: The San Diego Water Board agrees with the comments from the Copermittees and their supporters, as well as the Environmental Organizations.</p> <p>The San Diego Water Board understands the concerns that the Copermittees have expressed regarding the requirements of Provision A and the apparent lack of a linkage between the iterative process under Provision A.4 and the strict compliance with the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a. This language, however, is consistent with the precedential language that was issued under State Water Board Order WQ-1999-05 and has been implemented in all MS4 permits issued by the San Diego Water Board since 2001. The State Water Board has not issued an order or taken other action to supersede the</p>	

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A-1	PROVISION A: PROHIBITIONS AND LIMITATIONS	
	<p>precedential language.</p> <p>Under the Porter-Cologne Water Quality Control Act, waste discharge requirements must implement applicable water quality control plans, including water quality objectives. The discharge prohibitions and receiving water limitations of Provision A.1.a, A.1.c and A.2.a are consistent with this requirement, and are included in all NPDES permits and Waste Discharge Requirements issued by the San Diego Water Board. These are the fundamental requirements that protect water quality by ensuring that discharges comply with applicable water quality standards to ensure protection of receiving water beneficial uses. The San Diego Water Board does recognize an increasing body of monitoring data indicates that water quality standards are in fact not being met by many of the Copermittees' MS4 discharges. The San Diego Water Board has as a matter of practice chosen not to enforce the discharge prohibitions and receiving water limitations of Provision A.1.a, A.1.c or A.2.a if the Copermittees are actively engaged in implementing the other requirements of the MS4 permit. The focus of the previous MS4 permits and the San Diego Water Board has been on compliance with implementation of the actions required by the permit, rather than the water quality outcomes that are expected to be achieved. The San Diego Water Board has initiated enforcement against the Copermittees on several occasions for noncompliance with permit requirements.</p> <p>As noted by the Copermittees, however, the approach of the Tentative Order is a significant departure from the approach of previous MS4 permits. Previous MS4 permits did not provide the Copermittees enough flexibility to truly implement an iterative process to adaptively manage their programs to identify innovative new ways to improve the quality of discharges from their MS4s or in the receiving waters, because the actions required by the permit were relatively fixed and prescriptive. In contrast, the Tentative Order is structured to allow the Copermittees to take advantage of the iterative process and adaptively manage their programs to focus on achieving outcomes.</p> <p>The Tentative Order has been revised to provide an optional pathway for the Copermittees to demonstrate compliance with the discharge prohibitions and receiving water limitations of Provision A.1.a, A.1.c or A.2.a through implementation of technically supported iterative and adaptive management processes applicable to specific pollutant/waterbody combinations. The appropriate location in the Tentative Order for providing this "compliance mechanism," however, is not under Provision A. Instead, the appropriate location is under Provision B. Under the requirements of Provision B for the development of the Water Quality Improvement Plans, the San Diego Water Board has added Provision B.3.c. Provision B.3.c explicitly provides that a Copermittee will be in compliance with the requirements of Provision A.1.a, A.1.c and A.2.a if a specific set of</p>	

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A-1	PROVISION A: PROHIBITIONS AND LIMITATIONS	
	<p>requirements are incorporated and implemented as part of an accepted Water Quality Improvement Plan.</p> <p>Under this option, a Copermittee can demonstrate compliance with the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.for specific pollutant/waterbody combinations if the Water Quality Improvement Plan demonstrates through a robust technical analysis that the water quality improvement strategies the Copermittee plans on implementing will achieve applicable water quality stand based numeric goals by a certain date. The implementation must be verified through monitoring and assessments, and the goals, strategies and schedules in the plan can be adjusted accordingly based on those results. The more specific planning, implementation, monitoring and assessment program required under Provision B.3.c, combined with a clear set of numeric goals, strategies, and schedules that the Copermittee demonstrates will achieve compliance through, becomes the iterative and adaptive management process that the San Diego Water Board may accept as being in compliance with Provisions A.1.a, A.1.c and A.2.a, as well as Provision A.4.</p> <p>As recommended by the Environmental Organizations, the San Diego Water Board did not revise Provisions A.1.a, A.1.c, A.2.a and A.4, and the language of Provision A remains consistent with State Water Board Order WQ 1999-05. The addition of Provision B.3.c provides the linkage for compliance with the discharge prohibitions and receiving water limitations through the iterative process that the Copermittees and their supporters requested.</p> <p>The San Diego Water Board did modify Provision A.1.b to clarify how to demonstrate compliance with the effective prohibition of non-storm water discharges to the MS4s. The San Diego Water Board recognizes that the effective prohibition of non-storm water discharges to the MS4 is specifically required by the federal regulations to be achieved through the implementation of an illicit discharge detection and elimination program as specified under 40CFR122.26(d)(2)(iv)(B). Provision A.1.b has been revised to refer to Provision E.2, which is the illicit discharge detection and elimination program requirements that must be implemented by each Copermittee within its jurisdiction to effectively prohibit non-storm water discharges to its MS4.</p> <p>As for the requests to modify the requirements of Provision A to allow the Copermittees to utilize the Water Quality Improvement Plan to demonstrate compliance with the other requirements of Provision A pertaining to the special protections for ASBS and the TMDL requirements, the San Diego Water Board generally did not agree to modify the requirements as requested.</p>	

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A-1 PROVISION A: PROHIBITIONS AND LIMITATIONS
<p>The linkage for compliance with the ASBS requirements is provided under Provision A.1.d. Provision A.1.d specifies that discharges from MS4s to ASBS are authorized subject to the Special Protections contained in Attachment B to State Water Board Resolution No. 2012-0012. The provisions of the Special Protections are provided in Attachment A to the Order for easy reference, but the Special Protections are actually part of the Ocean Plan. The requirements for the Water Quality Improvement Plan take into account the requirements for the Special Protections. The development and implementation of the Water Quality Improvement Plans should allow the Copermittees that discharge to ASBS to demonstrate that they are in compliance with the Special Protections.</p> <p>As for the linkage for compliance with the TMDL requirements, the linkage is provided under Provision A.3.b. The Copermittees are required to comply with the WQBELs for the TMDLs in Attachment E. The requirements for the Water Quality Improvement Plan take into account the requirements for the TMDLs. The requirements of the TMDLs in Attachment E must be incorporated into the Water Quality Improvement Plan. The development and implementation of the Water Quality Improvement Plans should allow the Copermittees subject to TMDL requirements to demonstrate that they are in compliance with the WQBELs.</p>

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A-2 PROVISION A: PROHIBITIONS AND LIMITATIONS	
A-2	<p>COMMENT: <i>The maximum extent practicable (MEP) standard applies to both non-storm water and storm water.</i></p> <p>The Riverside County Copermittees submitted comments asserting that the MEP standard of the Clean Water Act and federal regulations applies to reducing pollutants in non-storm water discharges as well as in storm water discharges. Accordingly, non-storm water discharges are authorized to be discharged if pollutants in non-storm water are reduced to the MEP. The Riverside County Copermittees requested that the language be revised to reflect this concept throughout the Tentative Order.</p> <p>In contrast, the Natural Resources Defense Council (NRDC) submitted comments that the non-storm water action levels (NALs) in the permit may contradict the effective prohibition of non-storm water discharges to the MS4. The NRDC is concerned that stating that the NALs are not considered by the San Diego Water Board to be enforceable limitations could be interpreted as an authorization for discharges of non-storm water, which would be in conflict with the effective prohibition requirements of the Clean Water Act for non-storm water discharges to the MS4.</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the MEP standard applies to both non-storm water and storm water. Building on the effective prohibition against non-storm water discharges, the Clean Water Act requirement to reduce pollutants discharged from the MS4 to the MEP standard necessarily is limited to storm water discharges. (See Attachment 1 November 5, 2009 Memorandum from San Diego Water Board Counsel, Non-Storm Water Discharges) The San Diego Water Board disagrees that including the NALs in the permit may contradict the effective prohibition of non-storm water discharges to the MS4.</p> <p>Please see the responses to comments Fnd-3 and C-1.</p>
	<p>Copermittees Riverside County Copermittees</p> <p>Environmental Organizations Natural Resources Defense Council</p>

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A-3 PROVISION A: PROHIBITIONS AND LIMITATIONS		
	<p>COMMENT: <i>The Copermittees should only be subject to "applicable" prohibitions and water quality standards in the Basin Plan, plans and policies.</i></p> <p>The Riverside County Copermittees are concerned that there are prohibitions and water quality standards included in Provisions A.1.c and A.2.a that do not apply to their jurisdictions. Thus those prohibitions or water quality standards should be deleted or clarified to state that they are only applicable if those discharges or water bodies are within their jurisdictions.</p>	<p>Copermittees Riverside County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board does not agree that it is necessary to delete or clarify any of the requirements under Provisions A.1.c or A.2.a.</p> <p>If there are discharge prohibitions that are not applicable, then there should not be any violations of those discharge prohibitions. Likewise, if there are water quality standards that are not applicable, there should not be any violations of those water quality standards. If, however, any of those prohibitions or water quality standards is applicable, the Copermittees are required to comply or demonstrate compliance with those prohibitions and water quality standards.</p>	

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A1-1 PROVISION A.1: Discharge Prohibitions		
	<p>COMMENT: <i>MS4 discharges to environmentally sensitive area (ESA) shellfish habitat should be prohibited.</i></p> <p>The South Laguna Civic Association commented that dry weather discharges and elevated storm water flows are incompatible with the protection of ESA shellfish habitat and should be vigorously regulated and prohibited in the Tentative Order.</p>	<p>Environmental Organizations South Laguna Civic Association</p>
	<p>RESPONSE: The San Diego Water Board agrees that dry weather discharges and storm water flows should be regulated to protect ESA shellfish habitats.</p> <p>Provision A.1.a prohibits discharges from MS4s in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance in receiving waters of the state. Provision A.2.c requires that discharges from MS4s must not cause or contribute to the violation of water quality standards in any receiving waters. And, specifically for dry weather discharges, Provision A.1.b requires the Copermittees to effectively prohibit non-storm water discharges to the MS4s. Thus, the Tentative Order includes requirements for MS4 discharges that are protective of ESAs.</p>	

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A1-2 PROVISION A.1: Discharge Prohibitions		
	<p>COMMENT: <i>Specify that NPDES permitted discharges to MS4s discharging to ASBS are authorized.</i></p> <p>San Diego Gas and Electric and Southern California Gas Company requested modifications to Provision A.1.d to specify that storm water and non-storm water discharges from the Copermittees MS4s from ASBS “made pursuant to NPDES permit” are authorized under the Tentative Order. The commenters are concerned that the Tentative Order does not clearly state that NPDES permitted discharges to the Copermittees’ MS4s that then discharge to ASBS are authorized.</p>	<p>Building Industry / Industry San Diego Gas and Electric Southern California Gas Company</p>
	<p>RESPONSE: The San Diego Water Board disagrees that it is necessary to revise Provision A.1.d.</p> <p>Provision A.1.d requires discharges from the Copermittees’ MS4 to be consistent with the requirements of Special Protections contained in Attachment B to State Water Board Resolution No. 2012-0012 (Special Protections). Provision A.1.d applies to the Copermittees’ MS4 discharges to ASBS, thus the Copermittees are subject to the requirements of the Special Protections. If storm water and non-storm water discharges are authorized under an NPDES permit and discharged to a Copermittee’s MS4, the Copermittee is responsible for identifying this NPDES permitted discharge to its MS4 that then discharges to ASBS. If the NPDES permitted discharge does not allow the Copermittees to be consistent with the requirements of the Special Protections, the Copermittees should notify the NPDES permitted discharger and/or the San Diego Water Board that the discharge must be brought into compliance with the requirements of the Special Protections.</p> <p>Additionally, please see the response to comment Fnd-14.</p>	

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B-1 PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
	<p>COMMENT: <i>Link compliance with prohibitions and limitations to development and implementation of Water Quality Improvement Plans.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that they be allowed to utilize the development and implementation of the Water Quality Improvement Plans as a compliance mechanism for the prohibitions and limitations of Provisions A.1 to A.3. Several Copermittees submitted separate comments in support of the request.</p> <p>Comments submitted by the Environmental Groups were not in support of such an approach, but did support incorporating numeric goals into the Water Quality Improvement Plans that are based on water quality standards and using the Water Quality Improvement Plans to hold the Copermittees accountable for achieving the water quality standards.</p>
	<p>Copermittees City of Del Mar City of Poway Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District</p> <p>Environmental Organizations Environmental Groups</p>
	<p>RESPONSE: The San Diego Water Board agrees with the comments from the Copermittees and the Environmental Organizations.</p> <p>The San Diego Water Board has added Provision B.3.c to provide a “pathway” to compliance with the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a. Please see the response to comment A-1.</p> <p>Several commenters indicated that including an analysis to demonstrate that the implementation of the water quality improvement strategies would achieve compliance with the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a is not necessary. The San Diego Water Board disagrees that the analysis is not necessary. Without the analysis, the San Diego Water Board would not be able to make a determination that the implementation of the water quality improvement strategies would result in the achievement of and compliance with Provisions A.1.a, A.1.c and A.2.a for specific pollutant /waterbody combinations. In addition, the required analysis provides another level of transparency that would allow the public to make a determination that the Copermittees are in fact implementing strategies that are making progress toward achieving the requirements of Provisions A.1.a, A.1.c and A.2.a. Thus, the analysis has been incorporated into the requirements of Provision B.3.c.</p>

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B-2 PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
<p>COMMENT: <i>Support for the Water Quality Improvement Plan approach.</i></p> <p>Comments were submitted by members of the Building Industry, Industry, the Copermittees, Environmental Organizations, Engineering/Design Consultants, Societies/Associations/Coalitions, and Other Entities generally supporting the approach in the Tentative Order to utilize the Water Quality Improvement development and implementation process as a more strategic, cost effective, holistic approach to improving water quality in the San Diego Region.</p>	<p>Building Industry / Industry American Society of Landscape Architects Associated General Contractors of America BIA Regulated Community Coalition Industrial Environmental Association Otay Land Company Otay Ranch New Homes</p> <p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego Unified Port District</p> <p>Environmental Organizations The Escondido Creek Conservancy Friends of Rose Canyon Creek / Rose Creek Watershed Alliance Laguna Bluebelt Coalition San Diego Canyonlands San Elijo Lagoon Conservancy</p> <p>Engineering/Design Consultants Latitude 33 Planning and Engineering</p> <p>Societies/Associations/Coalitions BIOCUM San Diego Association of Realtors</p> <p>Other Entities Carol Crossman Continental Maritime of San Diego Curious Company Hector Valtierra Hughes Marino Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton Southern Cross Property Consultants Transition IT</p>
<p>RESPONSE: The San Diego Water Board appreciates the support expressed by the commenters for the Water Quality Improvement Plan and the more structured iterative and adaptive management process.</p>	

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B-3 PROVISION B: WATER QUALITY IMPROVEMENT PLANS		
	<p>COMMENT: <i>Ensure adequate public participation in the development and updating of the Water Quality Improvement Plans.</i></p> <p>Comments were submitted by members of the Building Industry, Environmental Organizations, Engineering/Design Consultants, USEPA, Societies/Associations/Coalitions, and Other Entities requesting the requirements of the Tentative Order ensure that there is adequate public participation during the development of the Water Quality Improvement Plans.</p> <p>Comments from the Environmental Organizations, the San Diego Green Building Council, and a joint comment letter from San Diego Coastkeeper and the BIA, requested that the Tentative Order require the Copermittees to form a stakeholder advisory group with knowledge of the watersheds. The comments from the Environmental Groups recommending several additional requirements for public participation during the development of the Water Quality Improvement Plans, including:</p> <ol style="list-style-type: none"> 1) Requiring the Copermittees to create a schedule for developing the Water Quality Improvement Plans, 2) Modifying the required formal public review requirements to occur after identifying priorities, after identifying strategies, and after identifying goals and assessment methods, 3) Requiring Water Quality Improvement Plans to be developed consecutively instead of concurrently, 4) Require approval of the Water Quality Improvement Plans at a public hearing, and 5) Require public participation during the adaptive management process. 	<p>Building Industry / Industry American Society of Landscape Architects Associated General Contractors of America BIA Regulated Community Coalition San Diego Green Building Council</p> <p>Environmental Organizations Environmental Groups The Escondido Creek Conservancy Friends of Rose Canyon Creek / Rose Creek Watershed Alliance Laguna Bluebelt Coalition Los Penasquitos Lagoon Foundation Natural Resources Defense Council San Diego Canyonlands San Diego Coastkeeper and BIA San Elijo Lagoon Conservancy</p> <p>Engineering/Design Consultants Latitude 33 Planning and Engineering</p> <p>State/Federal Government USEPA</p> <p>Societies/Associations/Coalitions BIOCUM San Diego Association of Realtors</p> <p>Other Entities Continental Maritime of San Diego Hector Valtierra Curious Company Carol Crossman Gable PR Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton Southern Cross Property Consultants Transition IT</p>
	<p>RESPONSE: The San Diego Water Board agrees that the Tentative Order should ensure adequate public participation during the development and updating of the Water Quality Improvement Plans.</p> <p>The public participation requirements for the development and updates of the Water Quality Improvement Plan</p>	

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B-3 PROVISION B: WATER QUALITY IMPROVEMENT PLANS
<p>are contained in Provisions F.1 and F.2.c. The San Diego Water Board has revised Provisions F.1 and F.2.c to include several of the elements into the public participation requirements as recommended by the commenters, and provide additional time for a robust public participation process to be included in the development of the Water Quality Improvement Plans.</p> <p>Provision F.1.a has been modified to include a set of public participation requirements for the development of the Water Quality Improvement Plan under Provision F.1.a.(1). Included in Provision F.1.a.(1) are requirements to: a) develop a publicly available and noticed schedule of the opportunities for the public to participate and provide comments during the development of the Water Quality Improvement Plan; b) form a Water Quality Improvement Consultation Panel that will consist of at least one San Diego Water Board staff, one representative of the environmental community, and one representative of the development community; and c) coordinate the schedules for the public participation process among the Watershed Management Areas to provide the public as much time and opportunity as possible to participate during the development of the Water Quality Improvement Plans.</p> <p>The role of the Water Quality Improvement Consultation Panel is similar to the requested stakeholder advisory group, which will review the elements that the Copermittees propose to include in the Water Quality Improvement Plan after the public is provided an opportunity to provide data, information and recommendations for each element.</p> <p>The elements of the Water Quality Improvement Plan that require public review and comment remain the same, but have been revised and reorganized under Provisions F.1.a.(2) and F.1.a.(3). The Tentative Order required a public review of the priorities and goals and then a public review of the strategies and schedules. The revised Tentative Order has been modified to first require a public review of the priorities and potential water quality improvement strategies and then a review of the goals, strategies that Copermittees plan on implementing, and the schedules. In each case, the public will be provided an opportunity to provide data, information and recommendations and the Water Quality Improvement Consultation Panel will review the elements required to be developed with the Copermittees to provide recommendations or concurrence prior to submitting to the San Diego Water Board for a public review and comment period.</p> <p>Provisions B.2 and B.3 were also revised and reorganized to be consistent with revisions made to Provisions F.1.a.(2) and F.1.a.(3). Provision B.2.e was revised to require the Copermittees to identify the “potential” water quality improvement strategies that could be implemented to address the highest priority water quality conditions</p>

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	<p>identified by the Copermitees. The requirements for identifying numeric goals and schedules for achieving the goals were moved to Provision B.3. Thus the requirements of Provision B.2 will be subject to the public participation and development process requirements of Provision F.1.a.(2), and the requirements of Provision B.3 will be subject to the public participation and development process requirements of Provision F.1.a.(3).</p> <p>Provision F.1.b has also been revised to clarify the completed Water Quality Improvement Plan public review and acceptance process. The San Diego Water Board will make the determination if a public hearing to accept the Water Quality Improvement Plans will be required, or if public input will be limited to written comments. Provision F.1.b has been revised to clarify when the Water Quality Improvement Plans will be considered accepted.</p> <p>Finally, Provision F.2.c has been revised to clarify the requirements for public participation during the updates of the Water Quality Improvement Plans. The public will be provided an opportunity to provide data, information and recommendations and the Water Quality Improvement Consultation Panel will review the elements required to be developed with the Copermitees to provide recommendations or concurrence prior to submitting the requested updates to the San Diego Water Board.</p>	

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B-4 PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
<p>COMMENT: <i>Allow current permit requirements to remain in place until Water Quality Improvement Plans are developed.</i></p> <p>Comments were submitted by members of the Building Industry, Engineering/Design Consultants, State Government, Societies/Associations/Coalitions, and Other Entities requesting the Tentative Order allow the requirements of the current permits to remain in place until the Water Quality Improvement Plans were developed. There was general concern that enforcement and implementation of the new requirements of the Tentative Order would preempt the Water Quality Improvement Plans before the Water Quality Improvement Plans had a chance to be developed.</p>	<p>Building Industry / Industry Associated General Contractors of America Otay Land Company Otay Ranch New Homes</p> <p>Engineering/Design Consultants Latitude 33 Planning and Engineering</p> <p>State/Federal Government Senator Mark Wyland</p> <p>Societies/Associations/Coalitions BIOCUM San Diego Association of Realtors</p> <p>Other Entities Continental Maritime of San Diego Carol Crossman Gable PR Hughes Marino Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton Southern Cross Property Consultants Transition IT</p>
<p>RESPONSE: The San Diego Water Board agrees that the jurisdictional runoff management program requirements should remain in place until the Water Quality Improvement Plans are developed and accepted by the San Diego Water Board.</p> <p>According to the second paragraph of the opening to Provision E, <i>“Until the Copermittee has updated its jurisdictional runoff management program document with the requirements of Provision E the Copermittee must continue implementing its current jurisdictional runoff management program.”</i> Provision F.2.c does not require the jurisdictional runoff management program documents to be updated until 3 months after the acceptance of the Water Quality Improvement Plan.</p> <p>The Copermittees will be subject to requirements of Provision A (Prohibitions and Limitations), and responsible for implementing the requirements of Provision D (Monitoring and Assessment Program Requirements), Provision F (Reporting), and Attachment E (Specific Provisions for TMDLs) upon the effective date of the Tentative Order.</p>	

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B-5 PROVISION B: WATER QUALITY IMPROVEMENT PLANS		
	<p>COMMENT: <i>Adopt Water Quality Improvement Plans as Orders to implement the requirements of the Tentative Order.</i></p> <p>Comments were submitted by Engineering/Design Consultants, Societies/Associations/Coalitions, and Other Entities requesting that the San Diego Water Board adopt the Water Quality Improvement Plans as Orders to implement the requirements of the Tentative Order.</p>	<p>Engineering/Design Consultants Latitude 33 Planning and Engineering</p> <p>Societies/Associations/Coalitions BIOCOM San Diego Association of Realtors</p> <p>Other Entities Continental Maritime of San Diego Carol Crossman Gable PR Hughes Marino Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton Southern Cross Property Consultants Transition IT</p>
	<p>RESPONSE: The San Diego Water Board disagrees with adopting the Water Quality Improvement Plans as Orders to implement the requirements of the Tentative Order.</p> <p>The Tentative Order, when adopted by the San Diego Water Board, is an Order issued to the Copermittees to implement the requirements of the Clean Water Act and Code of Federal Regulations. The Tentative Order includes specific requirements that must be included in the Water Quality Improvement Plans, which are to be developed by the Copermittees. The Water Quality Improvement Plans themselves, therefore, cannot and should not be adopted as Orders issued by the San Diego Water Board.</p>	

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B-6 PROVISION B: WATER QUALITY IMPROVEMENT PLANS		
	<p>COMMENT: <i>Align Water Quality Improvement Plan requirements with the Jurisdictional Runoff Management Program requirements.</i></p> <p>The Orange County, Riverside County and San Diego County Copermitees each submitted comments requesting that requirements in Provision E be allowed to be modified based on what is proposed in the Water Quality Improvement Plans. The Copermitees assert that the jurisdictional runoff management program requirements of Provision E are a “one size fits all” set of requirements, and the requirements of the Water Quality Improvement Plan become “additive” rather than “complimentary.” Several Copermitees submitted separate comment letters supporting the concept by requesting the San Diego Water Board align the development and implementation of the Water Quality Improvement Plan better with the jurisdictional runoff management program requirements. The BIA Regulated Community Coalition also submitted comments supporting the concept.</p> <p>The Environmental Groups are concerned with the flexibility of the jurisdictional runoff management program requirements and commented that the Water Quality Improvement Plan should include a detailed list of activities and what activities each Copermitee will implement within its jurisdiction. The Environmental Groups are concerned that without this specificity in the Water Quality Improvement Plans, and the flexibility that is provided in the jurisdictional runoff management program requirements, would result in the burden of achieving water quality improvement within a watershed falling to only one or two Copermitees. The Environmental Groups would like to see a clearer commitment of what will be implemented by each Copermitee either in the Water Quality Improvement Plan or in the jurisdictional runoff management program documents for each Copermitee.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermitees City of Dana Point City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Juan Capistrano Orange County Copermitees Riverside County Copermitees San Diego County Copermitees</p> <p>Environmental Organizations Environmental Groups</p>
	<p>RESPONSE: The San Diego Water Board agrees that the Water Quality Improvement Plans and jurisdictional runoff management program requirements should be better aligned and clearly present the water quality improvement strategies that each Copermitee will implement within its jurisdiction. The San Diego Water Board does not agree that the jurisdictional runoff management program requirements of Provision E should be allowed to be modified by the Water Quality Improvement Plan.</p> <p>The revised Tentative Order requires the Copermitees to clearly present the water quality improvement strategies that each Copermitees will implement within its jurisdiction in the Water Quality Improvement Plan. Each Copermitee must incorporate the strategies that the Copermitee commits to implement, as identified in the Water Quality Improvement Plan, into its jurisdictional runoff management program document.</p> <p>Please see the response to comment E-1.</p>	

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B-7 PROVISION B: WATER QUALITY IMPROVEMENT PLANS		
	<p>COMMENT: <i>Recommendations for revisions to the introductory paragraph of Provision B.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments recommending revisions to the introductory paragraph under Provision B. The Copermittees recommended revising the goal statement to be focused more on MS4 discharges and not on receiving waters. The Copermittees also recommended adding a statement about the linkage between the Water Quality Improvement Plan and compliance with the prohibitions and limitations of Provision A.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the recommended revisions to the introductory paragraph of Provision B.</p> <p>The recommended revisions by the Copermittees were not necessary and not appropriate for the introductory paragraph to Provision B. After considering the comments and recommendations from the Copermittees, however, the San Diego Water Board did make one minor revision to the introductory paragraph of Provision B. Please see the revised Tentative Order for the revision to the introductory paragraph to Provision B.</p>	

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B1-1 PROVISION B.1: Watershed Management Areas	
	<p>COMMENT: <i>Allow San Diego County to use Watershed Urban Runoff Management Plan (WURMP) for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees are covered under the Tentative Order.</i></p> <p>The County of San Diego and the San Diego County Copermittees requested that the requirement to develop a Water Quality Improvement Plan for the Santa Margarita River Watershed Management Area be postponed until the Riverside County Copermittees become covered by the Tentative Order. The Riverside County Copermittees supported the request.</p>
	<p>Copermittees County of San Diego Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the request.</p> <p>The San Diego Water Board has revised the footnote to Table B-1 to state that the County of San Diego is not required to develop a Water Quality Improvement Plan for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees receive notification of coverage under the Tentative Order. Until then, the County of San Diego will be required to implement their jurisdictional runoff management program in conformance with the requirements of Order No. R9-2007-0001, and implement the transitional monitoring and assessment requirements of Provision D, the transitional reporting requirements of Provisions F.3.b, and the TMDL requirements in Attachment E.</p>

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B2e-1 PROVISION B.2.e: Numeric Goals and Schedules	
	<p>COMMENT: <i>Clearly state that numeric goals are enforceable or not enforceable limitations.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that the Tentative Order specify that numeric goals are not enforceable limitations. In contrast, the USEPA recommended that the Tentative Order or Fact Sheet clarify that the numeric goals (and the schedule for attainment of the goals) would become enforceable requirements once the Water Quality Improvement Plans are accepted by the San Diego Water Board.</p>
	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>State/Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board disagrees that additional revisions are necessary to specify the numeric goals are not enforceable limitations. The San Diego Water Board agrees with the USEPA interpretation, but disagrees with the recommendation.</p> <p>The San Diego Water Board did not modify the language of Provision B.2.e (now Provision B.3.a.(1) in the revised Tentative Order) because the San Diego Water Board will utilize the numeric goals to determine if the Copermittees are making progress toward improving water quality.</p> <p>As part of the iterative and adaptive management process, the Copermittees are allowed to modify the numeric goals and the schedules for achieving the goals if the monitoring and assessments provide the rationale to do so. If, however, the Copermittees did not modify the numeric goals or the schedules to achieve the goals, and an interim or final goal was not achieved pursuant to the schedule, the San Diego Water Board would consider the failure to achieve the numeric goal a point of non-compliance. The non-compliance would include the failure to achieve the numeric goal within the schedule, the failure to implement the iterative and adaptive management process, and a demonstration that one or more prohibitions or limitations under Provision A have been violated. Thus, the numeric goals and schedules are enforceable.</p>

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B2e-2 PROVISION B.2.e: Numeric Goals and Schedules		
	<p>COMMENT: <i>Remove or modify the language for the 10 year limitation of the schedules to achieve numeric goals.</i></p> <p>The Orange County and San Diego County Copermittees each submitted comments requesting modifications to the requirement to achieve the numeric goals within 10 years of the effective date of the Tentative Order. The Orange County Copermittees provided several reasons for removing the 10 year requirement. The San Diego County Copermittees requested that the Tentative Order clarify that the 10 year requirement be limited to achieving a goal that represents progress toward attainment of water quality standards.</p>	<p>Copermittees Orange County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the request to remove the requirement.</p> <p>The San Diego Water Board has removed the requirement that the Copermittees must include the final dates for achieving the numeric goals that do not initially extend more than 10 years beyond the effective date of the Tentative Order. In its place, the Copermittees must develop a schedule to achieve the numeric goals within a “reasonable period of time” that can be identified during the public participation process required for the development of the Water Quality Improvement Plans. The modifications are provided under Provision B.3.a.(2) of the revised Tentative Order.</p>	

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B3-1	PROVISION B.3: Water Quality Improvement Strategies and Schedules	
	<p>COMMENT: <i>Provide a mechanism for compliance with the prohibitions and limitations in Provision A through the Water Quality Improvement Plan.</i></p> <p>The San Diego County Copermittees proposed modifications to the requirements of Provision B.3 to include a compliance mechanism that could be included in the Water Quality Improvement Plan to demonstrate compliance with the prohibitions and limitations in Provision A. The San Diego County Copermittees proposed including an option to perform a Reasonable Assurance Analysis to demonstrate that the water quality improvement strategies will attain discharge prohibitions, receiving water limitations, and effluent limitations. The San Diego Unified Port District submitted separate comments that did not support the inclusion of a compliance option utilizing the Water Quality Improvement Plan.</p> <p>The Orange County and Riverside County Copermittees supported the concept of allowing the Copermittees to demonstrate that the water quality improvement strategies in the Water Quality Improvement Plan will attain discharge prohibitions, receiving water limitations, and effluent limitations, but objected to requiring a Reasonable Assurance Analysis.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District</p>
	<p>RESPONSE: The San Diego Water Board agrees with including an optional mechanism for compliance with the prohibitions and limitations in Provision A as part of Provision B.3.</p> <p>The San Diego Water Board has added Provision B.3.c as an optional mechanism that the Copermittees may utilize to demonstrate compliance with the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a. Please see the responses to comments A-1 and B-1.</p>	

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B3-2 PROVISION B.3: Water Quality Improvement Strategies and Schedules		
	<p>COMMENT: <i>Allow the Copermittees to "reduce" instead of "prevent and eliminate" non-storm water discharges through the Water Quality Improvement Plan.</i></p> <p>Comments from the Building Industry included a recommendation to modify the language of Provision B.3 to allow the Copermittees to "reduce" non-storm water discharges instead of "prevent and eliminate" these discharges to the MS4.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the proposed recommendations.</p> <p>The Clean Water Act requires MS4 permits to include a requirement that the MS4 dischargers must "effectively prohibit" non-storm water discharges to the MS4, not just "reduce" non-storm water discharges to the MS4. Provision B.3 included the phrase "prevent and eliminate" to specify what "effectively prohibit" means. To be consistent with the language in the Clean Water Act, the San Diego Water Board has revised "prevent and eliminate" to "effectively prohibit" in Provision B.3.</p>	

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B5-1 PROVISION B.5: Iterative Approach and Adaptive Management Process		
	<p>COMMENT: <i>Recommendations for minor revisions to the language under iterative and adaptive management process requirements.</i></p> <p>The Riverside County and San Diego County Copermittees each submitted comments recommending minor revisions to the language under Provision B.5 to “clarify” the requirements or to be consistent with their comments regarding non-storm water discharges (see comment Gnl-13).</p>	<p>Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the recommended revisions to Provision B.5.</p> <p>The San Diego Water Board did not make any of the minor revisions recommended by the Copermittees as they were not necessary, not appropriate, or changed the intent of the requirement. The San Diego Water Board did, however, make several revisions to Provision B.5 to be consistent with the revisions made to Provisions B.2 and B.3, as discussed in the response to comment B-3.</p>	

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B6-1 PROVISION B.6: Water Quality Improvement Plan Submittal, Updates, and Implementation	
B6-1	<p>COMMENT: <i>Clarify that the implementation of Water Quality Improvement Plans may demonstrate TMDLs are not required.</i></p> <p>The San Diego County Copermittees requested that the Tentative Order, under Finding 27, clarify that the implementation of the requirements “will” not “may” allow the San Diego Water Board to include an impaired water body in Category 4 in the Integrated Report (i.e. TMDL not required). The USEPA recommended including language in the Fact Sheet to clarify that the monitoring and assessments implemented as part of the Water Quality Improvement Plan may demonstrate that TMDLs are not necessary for water bodies listed on the 303(d) List.</p>
	<p>Copermittees San Diego County Copermittees State/Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request by the Copermittees. The San Diego Water Board agrees with the recommendation from the USEPA.</p> <p>Finding 27 is correct to state that the implementation of the Water Quality Improvement Plan “may” allow the San Diego Water Board to re-categorize an impaired water body in Category 4 in the Integrated Report meaning a TMDL is not required. Please see the response to comment Fnd-8.</p> <p>The San Diego Water Board has modified the Fact Sheet discussion for Provision B.6 as recommended by the USEPA.</p>

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C-1 PROVISION C: ACTION LEVELS	
<p>COMMENT: <i>Clarify that action levels are enforceable or not enforceable limitations.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that the Tentative Order clarify that the non-storm water action levels (NALs) and storm water action levels (SALs) developed pursuant to Provision C are not enforceable limitations. San Diego Gas and Electric and the Southern California Gas Company requested that the permit clarify that the NALs and SALs are not applicable to non-storm water discharges that have NPDES permits.</p> <p>The Natural Resources Defense Council is concerned that stating that the NALs are not considered by the San Diego Water Board to be enforceable limitations could be interpreted as an authorization for discharges of non-storm water, which would be in conflict with the effective prohibition requirements of the Clean Water Act for non-storm water discharges to the MS4. The USEPA also expressed concern that action levels based on wasteload allocations (WLAs) established as WQBELs in the TMDL requirements of Attachment E may be interpreted as not enforceable.</p>	<p>Building Industry / Industry San Diego Gas and Electric Southern California Gas Company</p> <p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Natural Resources Defense Council</p> <p>State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board agrees that additional clarification of the enforceability of the action levels is necessary.</p> <p>The San Diego Water Board did not revise the footnotes as requested by the Copermittees, but did revise the footnotes to clarify that NALs and SALs are not enforceable limitations unless they are based on WQBELs expressed as interim or final effluent limitations for any TMDLs in Attachment E and the interim or final compliance dates have passed.</p> <p>The San Diego Water Board also revised the introductory paragraph under Provision C.1 to specify that the NALs must be incorporated into the Water Quality Improvement Plans to support the development and prioritization of water quality improvement strategies for “effectively prohibiting” not just “addressing” non-storm water discharges to the MS4, consistent with the requirements of the Clean Water Act.</p> <p>Finally, the San Diego Water Board did not revise the requirements of Provision C to clarify that NALs do not apply to non-storm water discharges that have NPDES permits. The requirements of the Tentative Order, including the NALs and SALs, apply to the Copermittees’ MS4 discharges, not to other NPDES permitted discharges, thus it is not necessary or appropriate to specify that the NALs are not applicable to other NPDES permitted discharges.</p>	

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C-2 PROVISION C: ACTION LEVELS	
	<p>COMMENT: <i>Allow the Copermitees to develop action levels instead of prescribing required action levels.</i></p> <p>The Orange County, Riverside County and San Diego County Copermitees each submitted comments requesting that they be allowed to develop or propose non-storm water action levels (NALs) and storm water action levels (SALs) as part of the Water Quality Improvement Plan development process rather than being required to include a prescribed set of NALs and SALs in addition to other NALs and SALs that may be developed as part of the Water Quality Improvement Plan. The Copermitees expressed concern that requiring the prescribed NALs and SALs under Provision C would result in unnecessary analyses for constituents that are not a priority identified in the Water Quality Improvement Plan.</p> <p>The Orange County and San Diego County Copermitees are concerned that the inclusion of the chemically-based prescribed action levels under Provision C may not be the best metric to measure progress toward protection and enhancement of receiving waters if the numeric goals are biologically- or physically-based.</p>
	<p>Copermitees Orange County Copermitees Riverside County Copermitees San Diego County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request to remove the requirements to include the prescribed NALs and SALs in the Water Quality Improvement Plans.</p> <p>The NALs and SALs under Provision C have been included to support the development and prioritization of the water quality strategies that will be implemented based on the highest priority water quality conditions identified by the Copermitees in the Water Quality Improvement Plans.</p> <p>The NALs and SALs have been included as a tool that the Copermitees and the San Diego Water Board can utilize to determine if the Copermitees are implementing the requirements of the Clean Water Act for MS4 permits, which is to <i>effectively prohibit non-storm water discharges to the MS4 and reduce pollutants in storm water discharges from the MS4 to the MEP</i>. The NALs and SALs are not new, and are included in both of the current MS4 permits issued to Orange County (Order No. R9-2009-0002) and Riverside County (Order No. R9-2010-0016).</p> <p>The Copermitees are required to effectively prohibit non-storm water discharges to their MS4s, which in turn should result in little to no discharges from their MS4s to receiving waters. If there are non-storm water discharges from the Copermitees' MS4s to receiving waters, those discharges should only be NPDES permitted discharges. Even if those discharges are NPDES permitted discharges, the Copermitees are responsible for demonstrating that those discharges are not illicit discharges by identifying the sources as</p>

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C-2	PROVISION C: ACTION LEVELS	
	<p>NPDES permitted discharges.</p> <p>The prescribed NALs in Table C-1 through C-4 are associated with most if not all the pollutants that are known or suspected to be causing or contributing to impairments in water bodies on the 303(d) List for the San Diego Region. The NALs are appropriately based on water quality objectives because non-storm water discharges that do not contain pollutants at levels in exceedance of the NALs are not expected to cause or contribute to exceedances of water quality standards in receiving waters.</p> <p>Thus, the prescribed NALs have been included to allow the Copermittees to prioritize their efforts in effectively prohibiting unpermitted non-storm water discharges to their MS4s, demonstrate that they have effectively prohibited non-storm water discharges to their MS4s that could cause or contribute to exceedances of water quality standards, or identify NPDES permitted sources that are resulting in discharges from their MS4s that are causing or contributing to exceedances of water quality standards in receiving waters. In any case, the prescribed NALs are necessary to allow the San Diego Water Board to determine if the Copermittees are effectively prohibiting non-storm water discharges to the MS4.</p> <p>In contrast, the prescribed SALs are not based on water quality objectives, but set at higher levels because the San Diego Water Board recognizes that reducing pollutants in wet weather discharges from the MS4s to water quality objectives is difficult. The prescribed SALs, however, will allow the Copermittees to prioritize their efforts in reducing pollutants in storm water discharges from their MS4s, and allow the San Diego Water Board to determine if the Copermittees are reducing pollutants in storm water discharges from their MS4s to the MEP.</p> <p>The San Diego Water Board disagrees with the concerns about monitoring for constituents that are not associated with the highest priority water quality conditions. Periodically analyzing non-storm water and storm water discharges from the Copermittees' MS4 for other pollutants other than those associated with the highest priority water quality conditions is necessary if the Copermittees would like to re-prioritize or identify new priority water quality conditions that will be addressed. The San Diego Water Board does recognize that there is a cost associated with analyzing for additional constituents. Thus, the San Diego Water Board has modified the MS4 outfall monitoring requirements to reduce the number of dry weather MS4 outfall monitoring stations that must be analyzed (see Provision D.2.b.(2)(b) of the revised Tentative Order), and provided the Copermittees some flexibility to modify the analytes for the wet weather MS4 outfall monitoring stations (see Provision D.2.c.(5)(f) of the revised Tentative Order).</p>	

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C-2	PROVISION C: ACTION LEVELS
	<p>As for the concerns about the chemically-based NALs and the biologically- or physically-based numeric goals for receiving waters, the San Diego Water Board disagrees that they cannot be linked or may be incompatible. Biologically- or physically-based numeric goals will likely be measured in the receiving waters. The chemically-based NALs apply to the MS4 outfalls. The quality of the MS4 discharges and the improvement of biological or physical measurements can be linked. Both are likely necessary to demonstrate that MS4 discharges are either not causing or contributing to a biological or physical impairment of the receiving water, or an improvement in MS4 discharges is resulting in improvements in the biological or physical conditions of the receiving water.</p> <p>The San Diego Water Board did not revise Provision C as requested by the Copermittees.</p>

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C-3 PROVISION C: ACTION LEVELS	
	<p>COMMENT: <i>Notes to Table C-3 should refer to the California Toxics Rule (CTR) instead of including equations.</i></p> <p>The San Diego County Copermittees recommended removing the equations to calculate the non-storm water action levels (NALs) for the priority pollutants from the notes under Table C-3 and instead refer to the CTR under 40 CFR 131.38(b)(2), where the equations can be found.</p>
	<p>Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the recommendations.</p> <p>The San Diego Water Board has revised the notes under Table C-3 to refer to 40 CFR 131.38(b)(2).</p>

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C-4 PROVISION C: ACTION LEVELS		
	<p>COMMENT: <i>Action levels should be included for insecticides.</i></p> <p>The Los Penasquitos Lagoon Foundation recommended specifying action levels for insecticides.</p>	<p>Environmental Organizations Los Penasquitos Lagoon Foundation</p>
	<p>RESPONSE: The San Diego Water Board disagrees with this recommendation.</p> <p>Provision C includes numeric actions levels for specific pollutants consistent with Order Nos. R9-2009-0002 and R9-2010-0016. Provisions C.1.b and C.2.b require the Copermittees to develop additional numeric action levels for pollutants or waste constituents that cause or contribute, or are threatening to cause or contribute to a condition of pollution or nuisance associated with the highest water quality priorities related to non-storm water and storm water discharges from the MS4s, respectively.</p> <p>If insecticides cause or contribute to the highest priority water quality conditions identified in the Water Quality Improvement Plan, the Copermittees are required to incorporate numeric action levels into the Water Quality Improvement Plan for insecticides. The San Diego Water Board did not revise Provision C to specify action levels for insecticides.</p>	

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D-1 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS		
D-1	<p>COMMENT: <i>Revise monitoring and assessment requirements as recommended by San Diego County Copermittees.</i></p> <p>The San Diego County, Orange County, and Riverside County Copermittees designed a question driven monitoring and assessment program that would allow the Copermittees to adaptively manage their storm water programs more effectively and efficiently based on the monitoring data collected and the program assessments. The monitoring and reporting program in Provision D of the Tentative Order largely includes the monitoring and assessment program designed by the Copermittees. The commenters requested further revisions be made to the monitoring and assessment program in Provision D of the Tentative Order.</p> <p>Commenters from Environmental Organizations and Industry support the monitoring and assessment program in Provision D, however stress the importance of the Tentative Order requiring enough monitoring so that the Copermittees are able to track specific short, medium, and long term progress towards detecting and eliminating illicit discharges and improving water quality throughout the San Diego Region. Failing to require enough monitoring puts at risk a Copermittee’s ability to detect increases in pollutant discharges and their effects on receiving water conditions.</p>	<p>Building Industry / Industry Industrial Environmental Association</p> <p>Copermittees City of San Diego City of Imperial Beach City of National City</p> <p>Environmental Organizations Environmental Groups</p>
	<p>RESPONSE: The San Diego Water Board agrees with the comments from the Copermittees as well as the Environmental Organizations and Industry.</p> <p>Provision D largely includes the question driven monitoring and assessment program collectively designed by the Copermittees. The program requires a sufficient amount of monitoring such that the Copermittees are able to track specific short, medium, and long term progress towards the goals established in the Water Quality Improvement Plan. Through development of the Water Quality Improvement Plans, the monitoring and assessment program required in Provision D can be modified to address specific needs and strategies developed to address the highest priority water quality conditions within each jurisdiction in each Watershed Management Area. The monitoring approach in Provision D has been further refined, based on the specific comments received on the Tentative Order, to allow Copermittees to more efficiently and effectively address the critical questions necessary to adaptively manage their storm water programs and achieve improved water quality within their jurisdiction and each watershed throughout the San Diego Region.</p>	

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D-2 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS	
<p>COMMENT: <i>Include requirements to track and monitor progress toward watershed goals and health of watersheds.</i></p> <p>The Coastal Environmental Rights Foundation, Environmental Health Coalition, and the San Diego Coastkeeper jointly provided comments expressing concern that the monitoring and assessment requirements of the Tentative Order are not robust enough to: 1) support the Copermittees’ ability to track progress towards achieving the goals and requirements of the Clean Water Act and the San Diego Basin Plan (i.e. effectively prohibiting non-storm water discharges, reducing pollutants in storm water to the maximum extent practicable, supporting the beneficial uses of the receiving waters), 2) enable the San Diego Water Board to determine compliance with the requirements of the Tentative Order, and 3) inform the public of the Copermittees’ compliance with the requirements of the Tentative Order and progress towards achieving its goals.</p> <p>Other commenters from the Environmental Organizations expressed their support to include more monitoring in the Tentative Order, specifically requesting monitoring that provides assurances that Copermittees are able to detect any increase in pollutant discharges from their MS4 systems and be better able to address them sooner rather than later. Commenters from Industry requested the monitoring approach be iterative, strategic, cost-effective and question–driven so that it can provide the Copermittees with cost-effective informed data to guide their future storm water program actions through coordination with the San Diego Water Board staff. Several other commenters provided topic specific comments related to the need for mapping of coastal receiving waters and creeks.</p> <p>The USEPA commented on the need to bring the toxicity sampling requirements up to date with those recently adopted in other general and regional MS4 permits, as well as clarification to the monitoring locations required for determining compliance with TMDLs.</p>	<p>Building Industry / Industry Industrial Environmental Association</p> <p>Environmental Organizations South Laguna Civic Association CERF, EHC and SDCK Environmental Groups Laguna Bluebelt Coalition</p> <p>State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board disagrees with commenters from the Environmental Organizations that the monitoring and assessment requirements of the Tentative Order are not robust enough to support the Copermittees’ ability to track progress towards achieving goals and requirements of the Clean Water Act (CWA), the California Water Code (CWC), and the San Diego Basin Plan (i.e. effectively prohibiting non-storm water discharges, reducing pollutants in storm water to the maximum extent practicable, and supporting the beneficial uses of the receiving waters).</p> <p>Provision D includes a monitoring program structure that is expected to be refined through the Water Quality</p>	

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D-2 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS
<p>Improvement Plan. The Provision D monitoring and assessment program should be customized to achieve the desired outcomes of the Water Quality Improvement Plan and ultimately the CWA and the CWC. The desired outcomes of the CWA and the CWC are about conditions in water bodies (chemical, physical, and biological integrity), and information about conditions in water bodies is essential to help guide the work of protection and restoration. The Tentative Order's monitoring and assessment program requires collection of chemical, physical, and biological data from outfalls and receiving waters designed to inform the Copermittees, the San Diego Water Board, and the public about the condition of the discharge and the conditions of the water bodies in the San Diego Region. The Tentative Order's assessment requirements are designed to take the data collected from the monitoring program and convert it to useful information about the successfulness of the Copermittees' storm water management programs to achieve the desired outcomes of the CWA and the CWC.</p> <p>The San Diego Water Board agrees with comments from Industry that the monitoring program needs to be iterative, strategic, cost-effective and question-driven. As part of the iterative approach and adaptive management requirements of the Tentative Order, Provision D.4 requires the Copermittees to integrate: 1) the data collected pursuant to Provision D.1 through D.3; 2) the assessment findings required pursuant to Provision D.4a-c; and, 3) information collected during the implementation of the jurisdictional runoff management programs required pursuant to Provision E to assess the effectiveness of, and any necessary modifications to, the Water Quality Improvement Plans. The requirements of the Tentative Order allow the Copermittees to adapt the monitoring based on watershed specific priority conditions within the confines of a robust Water Quality Improvement Plan development and implementation process.</p> <p>The San Diego Water Board agrees that the Tentative Order should be modified to increase clarity of what is required of each Copermittee, thus enabling the San Diego Water Board to better determine compliance. Several commenters provided suggested improvements to Provision D language. Selected modifications to Provision D of the Tentative Order were made to increase clarity of what is expected of the Copermittees throughout the iterative monitoring approach in efforts to increase specificity of what is minimally required and how compliance with the Tentative Order will be determined.</p> <p>The San Diego Water Board also agrees that the Tentative Order should be modified to increase the public's awareness of the Copermittees' compliance and progress towards achieving the goals of the Water Quality Improvement Plans. Provision F.1.a was modified to require the Copermittees implement a robust public participation process with multiple opportunities for public participation throughout the development of each component of the Water Quality Improvement Plan. Provision F.1.b provides the public another opportunity to</p>

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D-2 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS
<p>submit comments on the Water Quality Improvement Plan during the acceptance process. The Copermitees are also required to include public participation during any updates to the Water Quality Improvement Plan. Finally, the data and information collected from monitoring, and the findings from the assessments will be reported in the Water Quality Improvement Plan Annual Reports.</p> <p>The San Diego Water Board has revised Provision D to be consistent with the toxicity sampling requirements included in the most recently adopted State Water Board and other Regional Water Board MS4 permits. Modifications were also made to Provision D requirements to clarify the monitoring locations for determining compliance with TMDLs.</p>

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D-3 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS		
	<p>COMMENT: <i>Requests for changes to schedules for monitoring and monitoring reports.</i></p> <p>The San Diego County Copermittees submitted comments requesting an extension to the duration of the transitional monitoring program to accommodate the acceptance process of the Water Quality Improvement Plan and municipal program budget cycles. The Orange County Copermittees also submitted a comment requesting the commencement of the wet weather transitional outfall monitoring be delayed to year 2 of the transitional period to allow time to inventory and evaluate MS4 outfalls as required by Provision D.2.a.(1).</p>	<p>Copermittees Orange County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the comment that the transitional monitoring program should be continued until such time that the monitoring program within a Water Quality Improvement Plan is accepted by the San Diego Water Board. Provision D.1.a. Receiving Water, D.2.a. MS4 Outfall Discharge Monitoring, D.2.a.(2) Dry Weather MS4 Outfall Discharge Field Screening, and D.2.a.(3) Wet Weather MS4 Outfall Discharge Monitoring have been revised to require the Copermittees to conduct the transitional monitoring program until the Water Quality Improvement Plan is accepted.</p> <p>The San Diego Water Board disagrees with the recommendation to begin wet weather transitional monitoring in year two of the transitional period. Municipalities have already mapped the location of their MS4s for operation and maintenance reasons. Municipalities are also already aware of the majority of information listed in Provision D.2.a.(1), therefore delaying the commencement of the transitional wet weather MS4 outfall monitoring is not appropriate and no change to the Tentative Order was necessary.</p>	

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D-4 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS		
D-4	<p>COMMENT: <i>Require the Copermittees to utilize monitoring data from third party sources.</i></p> <p>Comments submitted by Environmental Groups support the position that the Tentative Order should require the Copermittees to use third party data that meets particular criteria in their efforts to assess the watersheds and progress towards achieving water quality standards. The particular criteria would require third parties to maintain and make available for review the quality assurance plan, list of methods used, and standard operating procedures for the data. Additionally, the commenters requested the Tentative Order specify that data is “appropriate” if it has been collected using the latest Standard Methods of Water and Wastewater Analysis. The commenters further requested the Tentative Order require the Copermittees to solicit and evaluate third party data that meets the Tentative Order’s criteria for collection, not just the data collected pursuant to Provisions D.1, D.2, and D.3 when evaluating the causes of water quality conditions. Lastly, the commenters support the position that the Copermittees should be allowed to partner with environmental groups or other third parties to complete regional special studies.</p>	<p>Environmental Organizations Environmental Groups</p>
	<p>RESPONSE: The San Diego Water Board agrees that the Copermittees should be required to use appropriately collected data from third parties during their efforts to assess conditions of the watershed.</p> <p>During development of the Water Quality Improvement Plan, the Copermittees are required under Provision B.2.a.(6) and Provision B.2.d.(4)(e) to consider available, relevant, and appropriately collected and analyzed data, information, or studies during their efforts to identify water quality priorities based on impacts of MS4 discharges on receiving waters and pollutant sources and/or stressors that contribute to the highest priority water quality conditions. Provision B.2.a.(6) and Provision B.2.d.(4)(e) allow the Copermittees to consider other data, not just data collected by the Copermittees. Additionally, Provision D.2 allows any data, “<i>not collected specifically for the Order that meet the quality assurance criteria of the Copermittees and the monitoring requirements of the Order</i>” to be used by the Copermittees in their MS4 outfall monitoring program. Lastly, the assessments required under Provision D.4 require evaluation of the data collected pursuant to Provisions D.1, D.2, and D.3, which isn’t restricted to that data which is collected solely by the Copermittees, and which will be heavily influenced by the Water Quality Improvement Plans which are required to use “<i>other available, relevant, and appropriately collected data, information, and studies.</i>”</p> <p>The San Diego Water Board agrees that the Copermittees should be allowed to partner with Environmental Groups or other third parties to complete regional special studies and additional language has been added to Provision D.3.</p>	

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D-5 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS	
D-5	<p>COMMENT: <i>Include monitoring that will ensure compliance and jurisdictional accountability.</i></p> <p>The Coastal Environmental Rights Foundation (CERF), Environmental Health Coalition (EHC), and the San Diego Coastkeeper (SDCK) collectively submitted comments in support of increasing the nature, frequency, and amount of monitoring in the Tentative Order. The commenters expressed concern that the “lax approach” to monitoring currently in the Tentative Order is not adequate to assess compliance with the requirements.</p> <p>The USEPA requested the Tentative Order be more specific with regards to required monitoring locations and minimum monitoring frequencies to determine compliance with the TMDLs in Attachment E.</p> <p>The San Diego Unified Port District specifically requested additional jurisdictional outfall monitoring be required to support the San Diego Water Board’s and the Copermitees’ ability to determine the sources of any exceedances(s) of water quality standard(s) in receiving waters.</p>
	<p>Copermitees San Diego Unified Port District / Brown and Winters</p> <p>Environmental Organizations CERF, EHC and SDCK</p> <p>State/Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board generally disagrees with the comments from the Environmental Organizations that the monitoring approach in Tentative Order is too “lax.” However, the San Diego Water Board agrees that certain monitoring provisions need additional specificity requiring minimum monitoring frequencies and monitoring at specific locations to track compliance with the TMDLs in Attachment E to the Tentative Order.</p> <p>The monitoring and assessment program in the Tentative Order is a question-driven monitoring approach largely designed to place monitoring resources where they are most needed. In order to answer the questions and accomplish efficiencies, the monitoring approach for non-storm water includes screenings, prioritization, and collection of data through visual observations. The Environmental Organizations call specific attention to the MS4 outfall screening required during the transitional monitoring period and monitoring the 10 highest priority non-storm water persistent flow MS4 outfall locations during the post transitional monitoring period. The San Diego Water Board considers this MS4 outfall screening approach necessary for the Copermitees to identify the highest priority non-storm water persistent flows and eliminate them.</p> <p>Elimination of non-storm water flows is a priority of the Tentative Order because eliminating non-storm water flows is consistent with the Clean Water Act requirement to effectively prohibit non-storm water discharges to the MS4. Elimination of non-storm water flows is the most effective way to prevent 100 percent of the pollutants in the non-storm water discharges from causing or contributing to exceedances in receiving water quality</p>

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D-5 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS
<p>standards. Therefore, the Tentative Order requires more attention (monitoring, screening, and sampling) at the outfalls to eliminate non-storm water flows. That attention is based on a prioritization to address the outfalls causing or contributing to the very highest priority water quality conditions first.</p> <p>The monitoring and assessment program is designed to be dynamic with collection of data during both wet and dry weather at the MS4 outfalls and in the receiving water. The San Diego Water Board has made revisions in response to comments to ensure the monitoring program in the Tentative Order will be sufficient to inform all stakeholders and the San Diego Water Board on the Copermittees' progress to effectively eliminate non-storm water flows, reduce pollutants in storm water to the maximum extent practicable, and protect conditions in the receiving waters from MS4 discharges. The monitoring and assessment program is adaptable through the Water Quality Improvement Plan to allow the Copermittees to address the highest water quality priorities in a focused manner, directing resources towards those areas or sources within their jurisdiction causing and contributing to the priority water quality conditions.</p> <p>To address the comment on public transparency, the San Diego Water Board has modified the Water Quality Improvement Plan Development process of Provision F.1.a to require the Copermittees to identify the opportunities for public involvement in the development of the Water Quality Improvement Plans. Provision F.4 requires Copermittees to place data and information available to the public on the Regional Clearinghouse. Additional public participation and notification requirements can be found in Provision F that address comments regarding the public access to information concerning the nexus between the health of the receiving waters and the water quality conditions of the discharges from the Copermittees' MS4s.</p> <p>The USEPA requested the Tentative Order to be more specific with regards to the monitoring required to determine compliance with the TMDLs in Attachment E. Provision D.2.c.(2) now requires wet weather outfall monitoring be conducted at least once per year (during the transitional monitoring the Copermittees are still required to sample twice per year), with a requirement that the Copermittees may need to increase the frequency of monitoring to identify pollutants in storm water discharges from the MS4s in order to, among other things, determine compliance with the WQBELs associated with the applicable TMDLs in Attachment E. Additionally, language in Provision D.2.b.(2)(b) has been modified to require the Copermittees to consider, notwithstanding all other priorities, compliance with applicable TMDLs in Attachment E when selecting MS4 outfall monitoring locations.</p> <p>The San Diego Unified Port District specifically requested additional jurisdictional outfall monitoring be required</p>

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D-5	PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS	
	<p>to support the San Diego Water Board's and the Copermittees' ability to determine the sources of any exceedances(s) of water quality standard(s) in receiving waters. The San Diego Water Board modified Provisions D.2.b.(2)(b) and D.2.c.(1)-(2) in response to USEPA's comments, thereby specifying a minimum frequency for MS4 outfall monitoring during wet weather and requiring both MS4 outfall and receiving water monitoring station locations be suitable to determine compliance with TMDLs in Attachment E, as well as suitable to determine progress towards achieving the goals of the Water Quality Improvement Plans.</p> <p>Provision D.4.b requires the Copermittees to utilize a watershed model to calculate or estimate the total flow volume and pollutant loadings during wet weather and dry weather discharges from the Copermittee's jurisdiction within the Watershed Management Area. These modifications to Provision D, along with the newly revised Water Quality Improvement Plan development process, address the comments on requiring more monitoring to determine compliance. Additionally, the Tentative Order does not preclude a Copermittee from collecting additional monitoring above what is required, if they deem it necessary to demonstrate that the sources are outside of their jurisdictional legal authority to control.</p>	

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D-6 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS		
	<p>COMMENT: <i>Provide the County of San Diego an alternative transitional monitoring and assessment program for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees are covered under the permit.</i></p> <p>The monitoring and assessment program requirements should account for the phased coverage of the Riverside County Copermittees at a later date than the San Diego County Copermittees with regards to the Santa Margarita River Watershed Management Area.</p>	<p>Copermittees County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board agrees with the commenter.</p> <p>Footnote 3 in Table B-1 of Provision B and Provision D.2.a.(3)(a)(iii), have been revised to allow the County of San Diego to delay development of the Water Quality Improvement Plan for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees have been notified of coverage under the Tentative Order. Footnote 3 in Table B-1 of Provision B clarifies that the County of San Diego is not required to implement the requirements of Provision B until the Riverside County Copermittees have been notified of coverage, but are required to implement the requirements of Provision D and Attachment E for its jurisdiction within the Santa Margarita River Watershed Management Area.</p> <p>Additionally, Provision D.2.a.(3)(a)(iii) was added to specify that the County of San Diego must select at least two (2) wet weather MS4 outfall discharge monitoring stations, reduced from the 5 stations required in Provision D.2.a.(3)(a)(i), for the portion of the Santa Margarita River Watershed Management Area within its jurisdiction until the Riverside Copermittees are notified of coverage. After the Riverside Copermittees are notified of coverage, the County of San Diego in concert with the County of Riverside Copermittees must comply with Provision B requirements and prepare a Water Quality Improvement Plan and implement the monitoring and assessment requirements according to Provision D for the Santa Margarita River Watershed Management Area.</p>	

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D1-1 PROVISION D.1: Receiving Water Monitoring Requirements	
<p>COMMENT: <i>Requests for "clarifications" of receiving water monitoring requirements.</i></p> <p>The Riverside County Copermitees provided suggested changes to the language in Provision D to clarify that the receiving water monitoring required pursuant to Provision D.1.a.(3) and D.1.e must be conducted as applicable to the Watershed Management Area and the Copermitees' MS4 discharges. The Riverside County Copermitees want a distinction written into the requirements because some of the monitoring requirements only apply to MS4 discharges to certain water bodies and not all Copermitees within a Watershed Management Area will have discharges to that water body.</p> <p>The USEPA requested the Tentative Order be more specific with regards to the transitional and post transitional receiving water monitoring required (frequency and station location) to determine compliance with the TMDLs in Attachment E.</p>	<p>Copermitees Riverside County Copermitees State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board disagrees with the requested changes to Provisions D.1.a.(3) and D.1.e.</p> <p>The requested changes to Provision D.1.a.(3) were not incorporated because the intent is to require the Copermitees, during the transitional monitoring period, to participate in regional receiving water monitoring programs, as applicable to the Watershed Management Area, including participation in (a) Storm Water Monitoring Coalition Regional Monitoring, (b) Southern California Bight Regional Monitoring, and (c) Sediment Quality Monitoring. Provision D.1.a.(3) correctly conditions the requirement by stating, 'as applicable' to the Watershed Management Area. For example, the expectation is that the Riverside County Flood Control and Water Conservation District, a current member of the Southern California Stormwater Monitoring Coalition (SMC), participate in SMC monitoring within the Watershed Management Area(s), in which their jurisdiction lies.</p> <p>The SMC was formed in 2001 by cooperative agreement of the Phase I municipal storm water NPDES lead Copermitees (including the Riverside County Flood Control and Water Conservation District), the NPDES regulatory agencies in southern California (including the San Diego Water Board) and the Southern California Coastal Water Research Project. It is the goal of the SMC to develop the technical information necessary to better understand storm water mechanisms and impacts, and then develop the tools that will effectively and efficiently improve storm water management decision-making. The SMC develops and funds cooperative projects to improve knowledge of storm water quality management for all throughout the San Diego Region.</p>	

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D1-1	PROVISION D.1: Receiving Water Monitoring Requirements	
	<p>The requested changes to Provision D.1.e were not incorporated because the existing language is appropriate.</p> <p>Provision D.2.c.(2) has been revised to require wet weather MS4 outfall monitoring be conducted at least once per year after the Water Quality Improvement Plans are accepted, with a requirement that Copermittees may need to increase the frequency of monitoring in order to identify pollutants in storm water discharges from the MS4s in order to, among other things, determine compliance with the WQBELs associated with the applicable TMDLs in Attachment E. During the transitional monitoring period, the Copermittees are still required to conduct wet weather MS4 outfall monitoring twice per year. Additionally, the language in Provision D.2.b.(2)(b) has been modified to require the Copermittees to consider, notwithstanding all other priorities, compliance with applicable TMDLs in Attachment E when selecting MS4 outfall monitoring locations.</p>	

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D1-2 PROVISION D.1: Receiving Water Monitoring Requirements		
D1-2	<p>COMMENT: <i>Requests for modifications to receiving water monitoring stations, frequency, and data collection requirements.</i></p> <p>Comments submitted by the Copermitees ranged from a broad request to remove the entire coastal storm drain monitoring program from the receiving water monitoring requirements (San Diego County), adding an alternate compliance option in lieu of the receiving waters monitoring program previously adopted in their current permit (Orange County), to very specific additions to what is recorded during receiving water station field observations (Riverside County).</p> <p>Multiple Environmental Organizations supported the need to increase the amount of monitoring in order to 1) better inform the Copermitees of the nexus between the health of receiving waters and the water quality condition of their discharge, 2) be sufficient to fulfill the San Diego Water Board's need to assess compliance, and 3) be sufficient to fulfill the public's need to stay informed.</p> <p>The USEPA commented on the need for the receiving water requirements to include minimum monitoring frequencies and a minimum number of station locations to measure compliance with the WLAs and associated water quality based effluent limitations of the TMDLs in the Order.</p> <p>The Los Penasquitos Lagoon Foundation requested continuous flow monitoring at the base of tributaries to 303(d) listed water bodies and monitoring of groundwater seepages into 303(d) listed water bodies be added to the monitoring requirements of the Watershed Management Area including the Los Penasquitos Lagoon.</p>	<p>Copermitees Orange County Copermitees Riverside County Copermitees San Diego County Copermitees</p> <p>Environmental Organizations CERF, EHC, SDCK Los Penasquitos Lagoon Foundation</p> <p>State / Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board agrees with the request to discontinue the coastal storm drain monitoring program and has replaced it with the receiving water monitoring program of Provision D.1 along with the transitional outfall monitoring screening and post-transitional outfall monitoring program (Provision D.2).</p> <p>The San Diego Water Board disagrees with the requested changes to the field screening observations required in Tables D-1 and D-6. The requests included adding the requirement to record any observed connectivity between MS4 outfall discharges and flowing receiving waters during receiving water and outfall field screening efforts. This was not added to the required observations listed in Tables D-1 or D-6 because the observations are already required as part of the illicit connection and illegal discharge requirements of Provision E.2.</p> <p>Pursuant to Provision D.1.f Alternative Watershed Monitoring Requirements, the San Diego Water Board may</p>	

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D1-2	PROVISION D.1: Receiving Water Monitoring Requirements	
	<p>direct the Copermitees to participate in an effort to develop alternative watershed monitoring with other regulated entities, other interested parties, and the San Diego Water Board to refine, coordinate, and implement regional monitoring and assessment programs to determine status and trends in receiving waters. This requirement calls attention to the San Diego Water Board's plan to involve the Copermitees in the development of regional monitoring and assessment programs. It further calls attention to the San Diego Waters Board's position that a regional monitoring and assessment program must include other regulated entities in addition to the Phase I Copermitees. The Draft Framework for Monitoring and Assessment in the San Diego Region lays out the San Diego Water Board's framework to develop a regional receiving water monitoring program. Prior to development and required implementation of a regional receiving water monitoring program, and to maintain historical water quality monitoring trends, the requirements of Provision D.1.a-f require Copermitees to continue the receiving water monitoring required by their current storm water permits until coverage under the Tentative Order commences, and the Water Quality Improvement Plans are accepted.</p> <p>The monitoring program in Provision D has been modified to include minimums (removing the language "as appropriate"). Required monitoring minimums also address concerns regarding the Copermitees' and the San Diego Water Board's ability to determine compliance with the requirements of the Tentative Order (including TMDLs). Additionally, the Water Quality Improvement Plan development process has been significantly changed to include more public participation.</p> <p>Furthermore, the Tentative Order recognizes that each Copermitee should evaluate the need to increase its monitoring above what is minimally required to the appropriate level necessary to achieve the goals of the Water Quality Improvement Plan. Within the process for a Copermitee to get a Water Quality Improvement Plan developed and accepted by the San Diego Water Board, the Environmental Organizations and the public at large will have opportunities to contribute their expertise and provide comments on the nature and extent of monitoring needed to measure progress towards achieving the goals of the Water Quality Improvement Plans.</p> <p>Each Copermitee must establish a public participation process to solicit data, information, and recommendations to be utilized in the development of the Water Quality Improvement Plan. The Tentative Order also requires the Copermitees to form a Water Quality Improvement Consultation Panel (Panel) to provide recommendations on the priorities, goals, and strategies of the Water Quality Improvement Plan. The Panel must include a member of the environmental community, a member of the development community, and a member of the San Diego Water Board staff. Any recommendations for monitoring specific to a particular Watershed Management Area, receiving water body, pollutant, or stressor could be provided by the Panel and</p>	

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D1-2	PROVISION D.1: Receiving Water Monitoring Requirements	
	<p>addressed in the Water Quality Improvement Plan.</p> <p>The minimum monitoring required plus the monitoring needed to attain goals established in the Water Quality Improvement Plans will be sufficient to inform the Copermittees, the San Diego Water Board, the environmental groups, and the public on the nexus between the health of receiving waters and the water quality condition of the discharges, compliance with TMDLs, and progress towards achieving the goals of the Clean Water Act.</p>	

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D1-3 PROVISION D.1: Receiving Water Monitoring Requirements		
	<p>COMMENT: <i>Require Test of Significant Toxicity to be consistent with other recent MS4 permits.</i></p> <p>The USEPA commented that the toxicity monitoring requirements should be modified and to be consistent with the requirements in MS4 permits recently issued by the State Water Resources Control Board (Caltrans MS4 Permit) and the Los Angeles Regional Water Quality Control Board (Los Angeles County MS4 Permit).</p>	<p>State/Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board agrees that the toxicity testing and data analysis requirements in the Tentative Orders should be consistent with other recently adopted MS4 Permits.</p> <p>The recently adopted Caltrans and Los Angeles County MS4 Permits include updated toxicity data collection procedures and data analysis methods that are consistent with the Draft State Water Resources Control Board Policy for Toxicity Assessment and Control, June 2012 (Draft State Board Toxicity Policy). Provision D has been updated to remove the acute toxicity test requirements, and only require chronic toxicity test biological endpoint data be analyzed using the Test of Significant Toxicity t-test approach specified in National Pollutant Discharge Elimination System Test of Significant Toxicity Document (USEPA, EPA 833-R-10-003, 2010), and other minor changes to make the Tentative Order consistent with recently adopted MS4 permits.</p>	

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D2-1 PROVISION D.2: MS4 Outfall Discharge Monitoring Requirements	
	<p>COMMENT: <i>Requests for "clarifications" of MS4 outfall discharge monitoring requirements.</i></p> <p>The San Diego County and Riverside County Copermittees requested the dry weather MS4 outfall field screening language in Provision D.2.a.(2) be modified to clarify the number of visual inspections at major outfall locations required per jurisdiction per Watershed Management Area. The Riverside County Copermittees additionally requested that the field screening only apply to those MS4 outfalls in a Copermittee's inventory that are 'accessible,' and clarification to the definition of persistent flow.</p> <p>USEPA supports the Copermittees' comments to improve clarity with respect to identification of MS4 outfall monitoring locations. USEPA further requested language specific enough to assure MS4 outfall monitoring locations are selected to include compliance points for the TMDLs in Attachment E.</p>
	<p>Copermittees Riverside County Copermittees San Diego County Copermittees State and Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board generally agrees with comments from the Copermittees and USEPA.</p> <p>Additional language has been added to improve the clarity of Provision D.2.a.(2) for those jurisdictions with equal to or greater than 500 major MS4 outfalls within their inventory that are located within multiple Watershed Management Areas. The San Diego Water Board specifically retained language to allow for the Copermittees to conduct more than the minimum amount of visual inspections of their major MS4 outfalls should increased inspections be a part of the strategies specified to meet the goals of any Water Quality Improvement Plan.</p> <p>The San Diego Water Board disagrees with the comments requesting modifications to the persistent flow definition in Footnote 19. The San Diego Water Board maintains that the definition, as written, accomplishes the intent of the requested revision and does not need to be explicitly stated. Existing language in Provision D.2.a.(1)(e) addresses the comment about field screening "accessible" inventoried MS4 outfalls. The Copermittees can field screen an MS4 outfall location by screening a manhole just upgradient of the discharge where access is safe.</p> <p>Provisions D.2.b.(2)(b)(i) and D.2.c.(1) were modified to require additional outfall monitoring locations if the 5 chosen MS4 outfall locations were not sufficient to determine compliance with the TMDLs in the Tentative Order.</p>

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D2-2 PROVISION D.2: MS4 Outfall Discharge Monitoring Requirements		
D2-2	<p>COMMENT: <i>Requests for modifications to MS4 outfall monitoring stations, frequency, and data collection requirements.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each requested modifications to the MS4 outfall monitoring stations, frequency, and data collection requirements.</p> <p>The San Diego County Copermittees requested the MS4 outfall discharge monitoring requirements be changed for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees become covered under the Tentative Order, a reduction to the frequency of outfall sampling during the transitional period from annually to once per 2-year transitional period, a modification to the requirement to sample the 'first flush' during wet weather, a reduction to the number of dry weather outfall monitoring locations from 10 to 5, and an allowance for analytical testing to be reduced if demonstrated by supporting data.</p> <p>The Orange County and Riverside County Copermittees supported most of San Diego County Copermittees' requested revisions. Additionally, the Riverside County Copermittees commented on the disproportionality of the persistent flow MS4 outfall monitoring requirements, and the need to de-emphasize MS outfall monitoring locations if the discharge does not reach a receiving water due to infiltration, evaporation, or treatment.</p> <p>Environmental Organizations supported the need to increase the amount of monitoring in order to better inform the Copermittees of the nexus between the health of receiving waters and the water quality condition of their discharge, be sufficient to fulfill the San Diego Water Board's need to assess compliance, and be sufficient to fulfill the public's need to stay informed.</p> <p>The USEPA commented on the need for the MS4 outfall monitoring requirements to include minimum monitoring frequencies and a minimum number of MS4 outfall locations to measure compliance with the TMDLs.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations CERF, EHC, SDCK</p> <p>State / Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board agreed with several of the requested modifications. Revisions to Provision D.2 were made where appropriate.</p> <p>The requirement to monitor at least 10 major outfalls was reduced to monitoring at least 5 major outfalls with persistent flows. To address comments from the USEPA, this requirement was also modified to require additional MS4 outfall monitoring locations, if the 5 chosen outfall locations were not sufficient to determine compliance with the TMDLs. If a smaller jurisdiction has less than 5 major MS4 outfalls with persistent flow,</p>	

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D2-2	PROVISION D.2: MS4 Outfall Discharge Monitoring Requirements	
	<p>they would be required to monitor all the MS4 outfalls with persistent flow until such time that they identify and terminate the discharge or met another criteria of Provision D.2.(2)(b)(ii). If any Copermittee eliminates all persistent flows from all of its MS4 outfalls, they would not be required to conduct dry weather MS4 outfall monitoring.</p> <p>The San Diego Water Board accepted most of the requested revisions from the Orange County Copermittees, except those concerning toxicity sampling and coliform sampling. Toxicity sampling was modified in response to comments provided by USEPA to make the toxicity requirements more consistent with recently adopted MS4 permits (i.e. Caltrans and Los Angeles County MS4 Permits). Please see the response to comment D1-3.</p>	

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D3-1 PROVISION D.3: Special Studies	
<p>COMMENT: <i>Request to reduce the number of special studies required.</i></p> <p>The San Diego County Copermitees submitted a comment requesting a reduction in the number of required special studies from three to two per Watershed Management Area, and from two to one for the San Diego Region to account for the time and resources required to plan and develop the special studies, and integrate the plans for the special studies into the monitoring and assessment programs of the Water Quality Improvement Plans. This comment was supported by the Riverside County Copermitees.</p>	<p>Copermitees Riverside County Copermitees San Diego County Copermitees</p>
<p>RESPONSE: The San Diego Water Board agrees with the commenters.</p> <p>Provision D.3 has been modified to reduce the number of required special studies from three to two per Watershed Management Area, and from two to one for the San Diego Region.</p>	

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D3-2 PROVISION D.3: Special Studies	
<p>COMMENT: <i>Allow special studies initiated prior to the term of the Tentative Order to count toward the required special studies.</i></p> <p>The San Diego County Copermitees submitted a comment requesting that the special studies initiated prior to the term of the Tentative Order be allowed to count towards the special studies required in Provision D.3, citing that special studies are typically multi-year efforts that require multi-stage planning, funding approval/allocation, and analysis. This comment was supported by the Riverside County Copermitees.</p>	<p>Copermitees Riverside County Copermitees San Diego County Copermitees</p>
<p>RESPONSE: The San Diego Water Board agrees with the commenters.</p> <p>Provision D.3 has been modified to allow the use of special studies initiate prior to adoption of the Tentative Order to comply with the requirements of Provision D.3.</p>	

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D4-1 PROVISION D.4: Assessment Requirements	
	<p>COMMENT: <i>Requests for "clarifications" of assessment requirements.</i></p> <p>The San Diego County and Riverside County Copermittees submitted comments requesting clarifications be made to the assessment requirements of Provisions D.4.b.(1)-(2). The Copermittees concurred that the timing of reporting be compatible with completion of the assessments. The Riverside County Copermittees requested specific revisions to Provision D.4.b.(1)(c)(iv) concerning extrapolation of calculated flow volumes and pollutant loads; and assessment of jurisdictional accountability.</p>
	<p>Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the commenters.</p> <p>The San Diego Water Board modified Provision D.4.b.(1)(a) to add an annual assessment of data collected during the transition period and reporting as part of the Transitional Monitoring and Assessment Program Annual Report (Provision F.3.b.2). Provision D.4.b.(2)(a) requires assessment of MS4 outfall data collected after the transitional period and reporting as part of the Water Quality Improvement Plan Annual Report (Provision F.3.b.(3)). Requiring an annual report during the transitional years before the acceptance of the Water Quality Improvement Plan will allow Copermittees to perform 'complete' assessments and report on the progress for that year, whether it be a year within the transitional monitoring period or a year in which monitoring is conducted in accordance with the Water Quality Improvement Plan.</p> <p>Provisions D.4.b.(2)(c)(iv)[a]-[b] were modified to address comments concerning extrapolation of calculated flow volume and pollutant loads to outfalls that were not actually monitored. The assessment now requires the use of a model or other method to calculate or estimate the non-storm water volumes and pollutant loads collectively discharged from all the major MS4 outfalls in its jurisdiction identified as having persistent dry weather flows. To address the issue of jurisdictional accountability, the Copermittees are now required to identify and quantify (i.e. volume and pollutant loads) sources of non-storm water not subject to the Copermittee's legal authority that are discharged from the Copermittee's major MS4 outfalls to downstream receiving waters.</p> <p>The San Diego Water Board generally disagrees with the comment to require calculation of pollutant loads only for those priority water quality constituents identified in the Water Quality Improvement Plan. Calculation of all pollutant loads are required until a Copermittee collects sufficient data or other supporting information pursuant to Provision D.2.b.(2)(e)(iii)[e] to demonstrate analysis of a constituent is not necessary.</p>

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D4-1	PROVISION D.4: Assessment Requirements
	<p>The San Diego Water Board agrees with the comment that MS4 outfall assessments are to be done for the area covered by each Copermittee and that the data to be used by each Copermittee would include the data collected from any Flood Control District MS4 operated within its jurisdiction. The San Diego Water Board has not modified any language within Provision D.4 to address this comment because the language adequately addresses the comment without further modifications.</p>

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D4-2 PROVISION D.4: Assessment Requirements	
	<p>COMMENT: <i>Requests for modifications to assessment requirements.</i></p> <p>The San Diego County Copermittees commented on the need for a longer assessment term (once per permit term rather than annually) to provide meaningful analysis of the annual pollutant load and flow calculations from MS4 outfalls during dry weather. The Copermittees further commented on the need to modify the requirements to calculate jurisdictional loads during wet weather, as well as modifications to clarify assessments necessary to track jurisdictional accountability.</p> <p>The Riverside County Copermittees agreed in large part with the comments provided by the San Diego County Copermittees. The Riverside County Copermittees also expressed a desire to clarify MS4 outfall assessments are to be done by each municipal Copermittee and that the data to be used by each municipal Copermittee include the data collected from any flood control district within its jurisdiction. Additionally, the Riverside County Copermittees expressed concern that the assessment requirements were requiring evaluations beyond their expertise and suggested pollutant loads only be calculated for priority pollutants.</p> <p>The Los Penasquitos Lagoon Foundation requested that the Tentative Order require the Copermittees to work with local land managers to assess the status and trends of receiving water quality conditions.</p>
	<p>Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Los Penasquitos Lagoon Foundation</p>
	<p>RESPONSE: The San Diego Water Board generally agreed with the need for a longer assessment term (once per permit term rather than annually) to provide meaningful analysis of the annual pollutant load and flow calculations from MS4 outfalls during dry weather and the need to modify the requirements to calculate jurisdictional loads during wet weather to the added area-based jurisdictional computational approach.</p> <p>The San Diego Water Board generally modified the Tentative Order where there was agreement with the comments. The San Diego Water Board, however, disagrees with the requests regarding MS4 outfall assessments for flood control districts, assessment requirements related to critical receiving water beneficial uses, and the suggestion that pollutant loads only be calculated for priority pollutants.</p> <p>The San Diego Water Board agrees with the comments provided by the Los Penasquitos Lagoon Foundation and required increased public participation and formation of a Water Quality Improvement Plan Consultation Panel in Provision F.1.a.</p>

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E-1 PROVISION E: JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS	
<p>COMMENT: <i>Align the Jurisdictional Runoff Management Program requirements with the Water Quality Improvement Plan requirements.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting the requirements in Provision E be allowed to be modified based on what is proposed in the Water Quality Improvement Plans. The Copermittees assert that the requirements of Provision E are a “one size fits all” set of requirements, and the requirements of the Water Quality Improvement Plan become “additive” rather than “complimentary.” Several Copermittees submitted separate comment letters supporting the concept by requesting the San Diego Water Board align the development and implementation of the Water Quality Improvement Plan better with the jurisdictional runoff management program requirements. The BIA Regulated Community Coalition also submitted comments supporting the concept.</p> <p>The Environmental Groups submitted comments expressing concern with the flexibility of the jurisdictional runoff management program requirements and requested that the Water Quality Improvement Plan include a detailed list of activities and what activities each Copermittee will implement within its jurisdiction. The Environmental Groups are concerned that without this specificity in the Water Quality Improvement Plans, and the flexibility that is provided in the jurisdictional runoff management program requirements would result in the burden of achieving water quality improvement within a watershed falling to only one or two Copermittees. The Environmental Groups would like to see a clearer commitment of what will be implemented by each Copermittee either in the Water Quality Improvement Plan or in the jurisdictional runoff management program documents for each Copermittee.</p> <p>The USEPA is also concerned with the flexibility that is provided by the requirements of Provision E. The USEPA prefers jurisdictional runoff management program requirements that include specific inspection frequencies.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermittees City of Dana Point City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Juan Capistrano Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Environmental Groups</p> <p>State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board agrees that the Water Quality Improvement Plans and jurisdictional runoff management program requirements should be better aligned and clearly present the water quality improvement strategies that each Copermittee will implement within its jurisdiction. The San Diego Water Board does not agree that the jurisdictional runoff management program requirements of Provision E should be allowed to be modified by the Water Quality Improvement Plan.</p>	

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E-1	PROVISION E: JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS	
	<p>The San Diego Water Board has revised Provision B.3.b in the revised Tentative Order (formerly Provision B.3.a in the Tentative Order) to require the Copermittees to specify which water quality improvement strategies each Copermittee will commit to implementing within its jurisdiction as part of its jurisdictional runoff management program requirements under Provisions E.2-E-7, and the optional water quality improvement strategies that will be implemented by the Copermittee within its jurisdiction when necessary to achieve the numeric goals. The optional water quality improvement strategies are to be implemented by the Copermittee as necessary to contribute toward achieving the numeric goals. Provision B.3.b in the revised Tentative Order also includes requirements for the Copermittees to identify optional Watershed Management Area strategies that the Copermittees will implement when necessary to achieve the numeric goals.</p> <p>Each Copermittee must specify BMPs, education programs, inspection frequencies, incentive and enforcement programs that will be implemented within its jurisdiction as part of its jurisdictional runoff management program requirements under Provisions E.2-E-7. Provisions E.2.e, E.3.g, E.4.f, E.5.e.(1), and E.7.c were removed in the revised Tentative Order, and the introductory paragraphs of Provisions E.2-E.7 were revised to state that each component must be implemented in accordance with the jurisdictional strategies identified in the Water Quality Improvement Plan. These revisions were made to better align the requirements of the Water Quality Improvement Plans and the jurisdictional runoff management programs, and provide an additional layer of transparency to the public for the strategies that the Copermittees will be committing to implement versus those strategies that will be implemented only when necessary to achieve the numeric goals.</p> <p>The San Diego Water Board has not modified the inspection frequency requirements in Provisions E.2-E.7. The inspection frequency requirements provide a sufficient level of guidance and flexibility for allowing the Copermittees to develop appropriate inspection frequencies that will be committed to in the Water Quality Improvement Plans, and a minimum level of effort that is expected for areas associated with the highest priority water quality conditions. The inspection frequencies that the Copermittees commit to implementing as part of the Water Quality Improvement Plans will be utilized by the San Diego Water Board during its audits of the Copermittees' programs to determine compliance with the requirements of the Tentative Order.</p>	

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E-2 PROVISION E: JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS	
<p>COMMENT: <i>Allow San Diego County to use the Watershed Urban Runoff Management Plan (WURMP) to guide its jurisdictional runoff management program for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees are covered under the Tentative Order.</i></p> <p>The County of San Diego and the San Diego County Copermittees requested that the requirement to develop a Water Quality Improvement Plan and implementation of the requirements of Provision E for the Santa Margarita River Watershed Management Area be postponed until the Riverside County Copermittees become covered under the Tentative Order.</p>	<p>Copermittees County of San Diego San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board agrees with the request.</p> <p>The second introductory paragraph of Provision E states, “<i>Until the Copermittee has updated its jurisdictional runoff management program document with the requirements of Provision E, the Copermittee must continue implementing its current jurisdictional runoff management program.</i>” The County of San Diego will continue to implement the jurisdictional runoff management program requirements of Order No. R9-2007-0001 until the Riverside County Copermittees are notified of coverage under the Order and a Water Quality Improvement Plan is developed pursuant to the requirements of this Order. The County of San Diego may use its WURMP for the Santa Margarita River Watershed to guide its jurisdictional runoff management program until the Water Quality Improvement Plan is developed and accepted.</p> <p>Please also see the response to comment B1-1.</p>	

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E1-1 PROVISION E.1: Legal Authority Establishment and Enforcement	
<p>COMMENT: <i>Specify that the legal authority established by the Copermitees only applies to the Copermitees' jurisdictions.</i></p> <p>The Orange County, Riverside County and San Diego County Copermitees each submitted comments requesting that the requirements of Provision E.1 be modified to specify that the legal authority established by the Copermitees only apply "to the extent allowable by law" and only applies to discharges within their jurisdiction. The Julian Community Planning Group also commented that there are jurisdictions that a Copermitee has no authority to require compliance.</p>	<p>Community Planning Groups Julian Community Planning Group</p> <p>Copermitees Orange County Copermitees Riverside County Copermitees San Diego County Copermitees</p>
<p>RESPONSE: The San Diego Water Board disagrees that it is necessary to specify that the legal authority established by the Copermitees is only applicable to their jurisdictions.</p> <p>The requirements of Provision E.1 are consistent with the requirements under 40CFR122.26(d)(2)(i)(A)-(F) and do not go beyond those requirements. The legal authority that each Copermitee is required to establish for its jurisdiction is logically only expected to apply to its jurisdiction.</p> <p>Provision E.1.a.(2) is consistent with 40CFR122.26(d)(2)(i)(A), which requires the Copermitee to "Control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity." 40CFR122.26(d)(2)(i)(A) does not make a distinction between industrial activity (which includes construction activity according to 40 CFR 122.26(b)(14)(x)) that is regulated by an NPDES permit, such as the Statewide Industrial and Construction General Permits, and those that are not. Even if there are industrial and construction sites regulated by the Statewide Industrial or Construction General Permits, those sites are still subject to the Copermitees ordinances and the Copermitee must have the legal authority to control discharges from those sites.</p> <p>Provisions E.1.a.(4) is consistent with 40CFR122.26(d)(2)(i)(D), which requires the Copermitee to "Control through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system." The federal regulations require the Copermitees to enter into interagency agreements to control pollutants from one Copermitee's jurisdiction to another Copermitee's jurisdiction. Provision E.1.a.(4) does not require anything outside of the federal requirements.</p>	

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E1-1	PROVISION E.1: Legal Authority Establishment and Enforcement	
	<p>Provision E.1.a.(5) is consistent with the requirements in the Order Nos. R9-2007-0001, R9-2009-0002, and R9-2010-0016. The Copermittees should be working with other entities outside of their jurisdiction to reduce or eliminate pollutants being discharged into their jurisdictions and MS4s, especially if those are significant sources of pollutants. The “where possible” qualifier in the requirement gives the Copermittees some flexibility in working with other entities, but Provision E.1.a.(5) does not require the Copermittees to impose their legal authority upon entities outside their jurisdictions.</p> <p>Provision E.1.a.(10) is consistent with 40CFR122.26(d)(2)(i)(F), which requires the Copermittee to “<i>Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer.</i>”</p> <p>The San Diego Water Board did not make revisions to the requirements of Provision E.1 requested by the Copermittees.</p>	

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E1-2 PROVISION E.1: Legal Authority Establishment and Enforcement	
<p>COMMENT: <i>Requests for "clarifications" for legal authority requirements.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting several "clarification" to requirements of Provision E.1.a to be "consistent" with the requirements under 40CFR122.26(d)(2)(i)(A)-(F).</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees that the legal authority requirements under Provision E.1.a are not consistent with the requirements under 40CFR122.26(d)(2)(i)(A)-(F).</p> <p>The requirements of Provision E.1.a are consistent with the requirements under 40CFR122.26(d)(2)(i)(A)-(F) and do not go beyond those requirements. The requirements under 40CFR122.26(d)(2)(i)(A)-(F) apply to both non-storm water discharges <i>to</i> the MS4 and pollutants in storm water discharges <i>from</i> the MS4.</p> <p>Provision E.1.a.(1) is consistent with 40CFR122.26(d)(2)(i)(B), which requires the Copermittee to "[operate pursuant to legal authority established...which authorizes or enables the applicant at a minimum to...] <i>Prohibit through ordinance, order or similar means, illicit discharges to the municipal separate storm sewer.</i>" The requirement under 40CFR122.26(d)(2)(i)(B) does not include the term "effectively prohibit" only "prohibit" illicit discharges to the MS4.</p> <p>Provision E.1.a.(2) is consistent with 40CFR122.26(d)(2)(i)(A), which requires the Copermittee to "[operate pursuant to legal authority established...which authorizes or enables the applicant at a minimum to...] <i>Control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity.</i>" The requirement under 40CFR122.26(d)(2)(i)(A) does not make a distinction between industrial activity (which includes construction activity according to 40 CFR 122.26(b)(14)(x)) that is regulated by an NPDES permit, such as the Statewide Industrial and Construction General Permits, and those that are not.</p> <p>Provision E.1.a.(3) is consistent with 40CFR122.26(d)(2)(i)(C), which requires the Copermittee to "[operate pursuant to legal authority established...which authorizes or enables the applicant at a minimum to...] <i>Control through ordinance, order or similar means the discharge to a municipal separate storm sewer of spills, dumping or disposal of materials other than storm water.</i>"</p>	

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E1-2	PROVISION E.1: Legal Authority Establishment and Enforcement	
	<p>Provisions E.1.a.(6)-(9) are consistent with 40CFR122.26(d)(2)(i)(E), which requires the Copermittee to “[operate pursuant to legal authority established...which authorizes or enables the applicant at a minimum to...] Require compliance with conditions in ordinances, permits, contracts or orders.” Provisions E.1.a.(6)-(9) provide more specificity about what “compliance with conditions in ordinances, permits, contracts or orders” includes.</p> <p>Provision E.1.a.(10) is consistent with 40CFR122.26(d)(2)(i)(F), which requires the Copermittee to “[operate pursuant to legal authority established...which authorizes or enables the applicant at a minimum to...] Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer.”</p> <p>The San Diego Water Board did not make revisions to the requirements of Provision E.1.a requested by the Copermittees.</p>	

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E2-1 PROVISION E.2: Illicit Discharge Detection and Elimination	
<p>COMMENT: <i>Non-storm water discharges must be addressed because of the impacts dry weather flows have on receiving waters.</i></p> <p>The Los Penasquitos Lagoon Foundation and the South Laguna Civic Association each submitted comments expressing concerns about the impacts on receiving water due to dry weather flows. The Los Penasquitos Lagoon Foundation noted that dry weather discharges can create serious impacts to the beneficial uses of receiving waters that support salt marsh habitats. The South Laguna Civic Association noted that elevated creek flows originating from over-irrigation result in the discharge of several pollutants to protected creek, estuary and coastal receiving waters.</p> <p>The Los Penasquitos Lagoon Foundation requested that the Tentative Order provide mechanisms to allow the Copermittees to address dry weather flows regardless of whether or not constituents of concern are present in the flows. The South Laguna Civic Association advocated for effective enforcement measures by the San Diego Water Board to reduce discharges generated by over-irrigation.</p>	<p>Environmental Organizations Los Penasquitos Lagoon Foundation South Laguna Civic Association</p>
<p>RESPONSE: The San Diego Water Board agrees that non-storm water discharges must be addressed.</p> <p>The approach to regulating non-storm water discharges in the Tentative Order has been modified compared to earlier permits. The Tentative Order focuses on “effectively prohibiting” or preventing and eliminating all non-NPDES-permitted non-storm water discharges to the MS4. The Tentative Order also requires the Copermittees to prohibit non-storm discharges associated with over-irrigation to the MS4. These two changes are expected to result in more actions implemented by the Copermittees to “effectively prohibit” non-storm water discharges to the MS4s and thereby non-storm water and pollutants from the MS4s to receiving waters.</p> <p>The San Diego Water Board agrees that the San Diego Water Board must enforce permit requirements more effectively. By issuing the Tentative Order, the San Diego Water Board expects to be able to reallocate its resources to better enforce permit requirements instead of developing permits and permit requirements. However, the San Diego Water Board also expects the public to provide data, information and evidence that will allow the San Diego Water Board to enforce the requirements of the Tentative Order.</p>	

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E2-2 PROVISION E.2: Illicit Discharge Detection and Elimination	
	<p>COMMENT: <i>Requests for "clarifications" of illicit discharge detection and elimination requirements.</i></p> <p>The Riverside County and San Diego County Copermittees, the Industrial Environmental Association, the BIA Regulated Community Coalition, and the Los Penasquitos Lagoon Foundation each submitted comment letters recommending minor revisions to the language under Provision E.2 to "clarify" the requirements, or to be consistent the comments regarding non-storm water discharges (see comment Gnl-13).</p>
	<p>Building Industry / Industry Industrial Environmental Association BIA Regulated Community Coalition</p> <p>Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Los Penasquitos Lagoon Foundation</p>
	<p>RESPONSE: The San Diego Water Board reviewed and considered the requests for minor revisions to "clarify" the requirements under Provision E.2.</p> <p>Where the San Diego Water Board determined a revision requested by a commenter was appropriate and necessary to clarify a requirement, clarify a linkage to another requirement, or make it consistent with other revisions made in the Tentative Order, the San Diego Water Board made a revision under Provision E.2. In many cases, the requested revision was not appropriate, not necessary, or both. In such cases, the San Diego Water Board did not revise the language as requested.</p> <p>Please see Provision E.2 in the revised Tentative Order to see where revisions were made. Please also see the responses to the comments that follow, associated with Provision E.2, for revisions that were made for specific parts under Provision E.2.</p>

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E2-3	PROVISION E.2: Illicit Discharge Detection and Elimination	
	<p>COMMENT: <i>Requests to more clearly define the responsibility of each Copermitttee to address sources non-storm water discharges originating outside of a Copermitttee's jurisdiction or control.</i></p> <p>The Riverside County and San Diego County Copermitttees each submitted comments requesting modifications to the language under Provisions E.2.b and E.2.d to better define or more clearly define the responsibilities of each Copermitttee to address sources of non-storm water discharges originating outside of a Copermitttee's jurisdiction or control.</p> <p>The San Diego County Copermitttees requested a minor revision to Provision E.2.b.(6) changing "must" to "shall." The San Diego County Copermitttees also requested a minor revision to Provision E.2.d.(1)(d) to include a consideration for natural sources in its prioritization of investigations. The Riverside County Copermitttees did not include the comments in their comment letter, but did include similar revisions in a track changes version of the Tentative Order provided with their comments.</p> <p>The Riverside County Copermitttees requested additions to Provision E.2.d.(3) to specify that a Copermitttee is no longer responsible for eliminating a non-storm water discharge to its jurisdiction if the source is in an upstream jurisdiction, and allowing the Copermitttee to charge the San Diego Water Board for identifying non-storm water discharges subject to the regulatory authority of the San Diego Water Board.</p>	<p>Copermitttees Riverside County Copermitttees San Diego County Copermitttees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the requests.</p> <p>Revision of Provision E.2.b.(6) to change "must" to "shall" is unnecessary. In either case, the San Diego Water Board would interpret the language as the Copermitttee is required to implement Provision E.2.b.(6).</p> <p>Revision of Provision E.2.d.(1)(d) is unnecessary. Provisions E.2.d.(1)(a)-(e) are the criteria that the Copermitttee must consider in its prioritization of follow-up investigations. Nothing in Provisions E.2.d.(1)(a)-(e) prohibit the Copermitttee from considering natural sources as part of its prioritization of follow-up investigations.</p> <p>The recommended revisions to Provision E.2.d.(3) are not necessary or appropriate. Provision E.2.b.(6) already requires the Copermitttee to coordinate with upstream Copermitttees to prevent illicit discharges to the MS4 within its jurisdiction. In addition, Provision E.1.a.(4) requires the Copermitttee to "<i>Control through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system.</i>" The federal regulations require the Copermitttees to enter into</p>	

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E2-3	PROVISION E.2: Illicit Discharge Detection and Elimination	
	<p>interagency agreements to control pollutants from one Copermittee's jurisdiction to another Copermittee's jurisdiction.</p> <p>The request to allow a Copermittee to charge the San Diego Water Board for implementing an investigation of non-storm water discharges to its MS4 is inappropriate. Each Copermittee is required to effectively prohibit non-storm water discharges to their MS4s by enforcing its legal authority, unless a non-storm water discharge is authorized under an NPDES permit. If a non-storm water discharge originates from a source that is subject to the San Diego Water Board's authority and requires an NPDES permit, then the Copermittee is still responsible for identifying the source if it is resulting in a non-storm water discharge into and from the Copermittee's MS4.</p> <p>If the non-storm water discharge is not authorized under an NPDES permit, then it is an illicit discharge. The Copermittee must either eliminate the illicit discharge or require the discharger to obtain authorization from the San Diego Water Board under an NPDES permit. If a non-storm water discharge to the Copermittee's MS4 is an NPDES permitted discharge, then the Copermittee is responsible for demonstrating that the non-storm water discharge is not an illicit discharge by identifying the source as an NPDES permitted discharge. The Copermittee must provide the data and documentation to demonstrate that non-storm water discharges from its MS4 are authorized under separate NPDES requirements. Until the Copermittee demonstrates that a non-storm water discharge is an NPDES-permitted discharge, the Copermittee is responsible for the non-storm water discharge. The non-storm water source investigation and identification are part of the Copermittee's responsibility to demonstrate compliance with the requirements in the Tentative Order.</p> <p>The San Diego Water Board did not revise Provisions E.2.b or E.2.d.</p>	

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E2a-1 PROVISION E.2.a: Non-Storm Water Discharges	
<p>COMMENT: <i>Request to allow the Copermitees to "encourage" instead of "require" air conditioning condensate non-storm water discharges be directed to landscaped areas or other impervious surfaces.</i></p> <p>The City of National City, the San Diego County Copermitees, the San Diego Unified Port District, and the San Diego Port Tenants Association each submitted comments expressing concerns with requiring air conditioning condensate non-storm water discharges to be directed to landscaped areas or other permeable surfaces, if feasible.</p> <p>The City of National City, the San Diego County Copermitees, and the San Diego Unified Port District requested the language of Provision E.2.a.(4)(a) be revised to encourage instead of require air conditioning condensate non-storm water discharges be directed to landscaped areas or other permeable surfaces. The San Diego County Copermitees also requested the addition of "or to the sanitary sewer" at the end of the requirement. The City of National City opposed this addition.</p> <p>The San Diego Port Tenants Association requested that the requirement be limited to development or re-development projects.</p>	<p>Copermitees City of National City San Diego County Copermitees San Diego Unified Port District</p> <p>Societies/Associations/Coalitions San Diego Port Tenants Association</p>
<p>RESPONSE: The San Diego Water Board agrees to revise the requirements to encourage instead of require air conditioning condensate non-storm water discharges be directed to landscaped areas or other permeable surfaces. The San Diego Water Board also agrees to add "to the sanitary sewer" as an additional option.</p> <p>The San Diego Water Board disagrees with limiting the requirement to development or re-development projects. Air conditioning condensate non-storm water discharges originate primarily from existing development, and the Clean Water Act requires the Copermitees to effectively prohibit non-storm water discharges to the MS4.</p> <p>Please see Provision E.2.a.(4)(a) in the revised Tentative Order to see the revisions.</p>	

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E2a-2 PROVISION E.2.a: Non-Storm Water Discharges	
<p>COMMENT: <i>Requests for modifications to requirements of fire-fighting non-storm water discharges.</i></p> <p>The Orange County, Riverside County, and San Diego County Copermittees each submitted comments objecting to the requirement to encourage the implementation of BMPs for emergency firefighting discharges and/or the requirement to address non-emergency firefighting discharges from building fire suppression systems as illicit discharges. The County of San Diego and San Diego County Fire Authority also objected to the requirement to encourage implementation of BMPs for emergency firefighting discharges. San Diego Gas and Electric, the Southern California Gas Company, and the San Diego Port Tenants Association also objected to the requirement to address non-emergency firefighting discharges from building fire suppression systems as illicit discharges.</p> <p>The Orange County and Riverside County Copermittees recommended removing Provision E.2.a.(5)(b) and specifying that emergency firefighting non-storm water discharges do not require BMPs and are not prohibited. The San Diego County Fire Authority recommended maintaining the existing requirements in Order No. R9-2007-0001, which is supported by the County of San Diego.</p> <p>The San Diego County Copermittees recommended revising Provision E.2.a.(5)(a)(i) to require the Copermittees to address non-emergency firefighting discharges from building fire suppression systems as illicit discharges “unless BMPs are implemented to prevent the discharge of pollutants to the MS4.” The Riverside County Copermittees, County of San Diego, San Diego County Fire Authority, San Diego Gas and Electric, Southern California Gas Company, and San Diego Port Tenants Association supported the recommendation. The Orange County Copermittees did not provide a similar comment, but recommended that other non-emergency firefighting discharges be addressed by a program developed and implemented by the Copermittee “in conjunction with the local Fire Authority/District.”</p>	<p>Building Industry / Industry San Diego Gas and Electric Southern California Gas Company</p> <p>Copermittees County of San Diego Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego County Fire Authority</p> <p>Societies/Associations/Coalitions San Diego Port Tenants Association</p>
<p>RESPONSE: The San Diego Water Board has review and considered the recommendations from the commenters.</p> <p>The San Diego Water Board disagrees that the language in Provision E.2.a.(5)(b) requires the implementation of BMPs for emergency fire fighting discharges, or prohibits emergency fire fighting discharges to the MS4. Provision E.2.a.(5)(b) only requires the Copermittees to “encourage” the implementation of BMPs. Provision E.2.a.(5)(b) is a recommendation for the Copermittees to implement, not a requirement for compliance.</p>	

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E2a-2	PROVISION E.2.a: Non-Storm Water Discharges
	<p>The San Diego Water Board agrees to the recommended revision to Provision E.2.a.(5)(a)(i). The San Diego Water Board does not agree that the recommended revision to Provision E.2.a.(5)(a)(ii) is necessary. The Copermitees would have to develop and implement the program to address non-emergency fire fighting discharges in conjunction or coordination with the local fire authority or fire district.</p> <p>Please see Provision E.2.a.(5) in the revised Tentative Order to see the revisions.</p>

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E2a-3 PROVISION E.2.a: Non-Storm Water Discharges	
	<p>COMMENT: Clarify that non-storm water discharges authorized by a separate NPDES permit are authorized to be discharged to the MS4.</p> <p>The San Diego Port Tenants Association, San Diego Gas and Electric, and the Southern California Gas Company each submitted comments requesting language in the Tentative Order to specify that non-storm water discharges authorized by separate NPDES permits are authorized to discharge to the MS4.</p>
	<p>Building Industry / Industry San Diego Gas and Electric Southern California Gas Company</p> <p>Societies/Associations/Coalitions San Diego Port Tenants Association</p>
	<p>RESPONSE: The San Diego Water Board disagrees that revision to the language in the Tentative Order are necessary or appropriate.</p> <p>Provision A.1.b has been revised to refer to Provision E.2, which is the illicit discharge detection and elimination program requirements that must be implemented by each Copermittee within its jurisdiction to effectively prohibit non-storm water discharges to its MS4. Provision A.1.b also specifies that the Copermittees are required to effectively prohibit non-storm water discharges to the MS4 <i>unless</i> such discharges are authorized by a separate NPDES permit.</p> <p>The San Diego Water Board did not revise the Tentative Order to include additional language.</p>

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E2a-4 PROVISION E.2.a: Non-Storm Water Discharges	
<p>COMMENT: <i>Objections to addressing non-storm water discharges related to extraction of groundwater as illicit discharges.</i></p> <p>The Orange County, Riverside County, and San Diego County Copermittees each submitted comments objecting to the requirements to address non-storm water discharges related to extraction of groundwater as illicit discharges if they are not identified as sources of pollutants. The City of National City also submitted a comment with a similar objection. The Copermittees also objected to requiring non-storm water discharges related to extraction of groundwater to be enrolled under the General Groundwater Extraction NPDES Permits issued by the San Diego Water Board.</p> <p>The Copermittees recommended several revisions to Provisions E.2.a.(1) and E.2.a.(3) to modify, remove, and/or reorganize the requirements pertaining to non-storm water discharges related to groundwater extraction.</p>	<p>Copermittees City of National City Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees with the recommendations.</p> <p>The Clean Water Act requires NPDES permit for MS4s to effectively prohibit non-storm water discharges to the MS4. As explained in the Fact Sheet, the Phase I Final Rule clarifies that non-storm water discharges through an MS4 are not authorized under the CWA (55 FR 47995): <i>“Today’s rule defines the term “illicit discharge” to describe any discharge through a municipal separate storm sewer system that is not composed entirely of storm water and that is not covered by an NPDES permit. Such illicit discharges are not authorized under the Clean Water Act. Section 402(p)(3)(B) requires that permits for discharges from municipal separate storm sewers require the municipality to “effectively prohibit” non-storm water discharges from the municipal separate storm sewer...Ultimately, such non-storm water discharges through a municipal separate storm sewer must either be removed from the system or become subject to an NPDES permit.”</i></p> <p>Thus, all non-storm water discharges that do not have authorization under an NPDES permit must ultimately be removed (i.e. prevented or eliminated) from the MS4 or become subject to an NPDES permit.</p> <p>The requirements under Provisions E.2.a.(1) and E.2.a.(3) are consistent with the Clean Water Act, the Code of Federal Regulations and the clarification in the Phase I Final Rule for non-storm water discharges. The non-storm water categories listed under Provision E.2.a.(1) can be authorized by an NPDES permit because they are extracting groundwater for the purpose of dewatering, and the San Diego Water Board has two NPDES permits that can authorize these types of non-storm water discharges. These are not “conditionally exempt”</p>	

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E2a-4	PROVISION E.2.a: Non-Storm Water Discharges	
	<p>non-storm water discharges as the Copermittees have asserted. If there are non-storm water discharges that result from groundwater extraction for dewatering and do not have authorization under an NPDES permit, the discharge is an illicit discharge.</p> <p>The non-storm water categories listed under Provision E.2.a.(3) generally are expected to be discharged from natural, uncontrollable, or unanticipated sources. Non-storm water discharges from foundation drains and footing drains designed to be above the groundwater table are not generally expected to occur. If they do occur, the Copermittee is expected to implement its illicit discharge detection and elimination program to determine if the discharge is transient or persistent, a source of pollutants or not, and whether the discharge must be eliminated in accordance with its priorities.</p> <p>In general, the requirements under Provision E.2 are focused on the ultimate removal of unauthorized non-storm water discharges to the MS4 to “effectively prohibit” non-storm water discharges to the MS4, as required by the Clean Water Act. The San Diego Water Board is not requiring the Copermittee to enforce any NPDES permits issued by the San Diego Water Board or State Water Board. The Copermittees are only required to enforce their legal authority to prohibit illicit discharges to their MS4s established pursuant to Provision E.1.a.(1).</p> <p>The San Diego Water Board did not revise Provisions E.2.a.(1) or E.2.a.(3).</p>	

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E2a-5	PROVISION E.2.a: Non-Storm Water Discharges	
	<p>COMMENT: <i>Request to allow the Copermittees to focus on elimination of "non-storm water discharges that are a source of pollutants" not "non-storm water discharges."</i></p> <p>The Orange County and Riverside County Copermittees each requested that the requirements under Provision E.2.a be revised to allow the Copermittees to focus on eliminating non-storm water discharges that are a source of pollutants and not require the elimination of all non-storm water discharges.</p> <p>In contrast, the Los Penasquitos Lagoon Foundation requested that the requirements under Provision E.2 provide the Copermittees a mechanism to address illicit discharges regardless of whether or not constituents of concern are present within the flows.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees</p> <p>Environmental Organizations Los Penasquitos Lagoon Foundation</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the Copermittees' request. Provision E.2 does provide the Copermittees a mechanism to address illicit discharges regardless of whether or not constituents of concern are present within the flows. However, the Copermittees are required to prioritize the non-storm water discharges that they will address, and eliminate the highest priority non-storm water discharges first.</p> <p>Please see the response to comment E2a-4.</p>	

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E2a-6	PROVISION E.2.a: Non-Storm Water Discharges	
	<p>COMMENT: <i>Request to allow the Copermitees to encourage the control of residential car washing non-storm water discharges through public education.</i></p> <p>The San Diego County Copermitees submitted a comment requesting the requirements of Provision E.2.a.(4)(b) be revised to allow the Copermitees to encourage the control of residential car washing non-storm water discharges through public education.</p>	<p>Copermitees San Diego County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board reviewed and considered the requested revisions.</p> <p>The San Diego Water Board did not revise Provision E.2.a.(4)(b) as requested, but did make revisions to provide the flexibility to encourage the control of residential car washing non-storm water discharges through public education.</p>	

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E2a-7 PROVISION E.2.a: Non-Storm Water Discharges		
	<p>COMMENT: Request for modification to requirements for swimming pool non-storm water discharges.</p> <p>The San Diego County Copermittees requested a minor modification to Provision E.2.a.(4)(c) to add the phrase “should be managed as to:” for the non-storm water discharge requirements related to dechlorinated swimming pool discharges.</p>	<p>Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board reviewed and considered the requested revision.</p> <p>The revision to Provision E.2.a.(4)(c) does not provide any additional clarify and is not necessary. The San Diego Water Board did not revise Provision E.2.a.(4)(c) as requested.</p>	

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E2a-8 PROVISION E.2.a: Non-Storm Water Discharges	
<p>COMMENT: <i>Objections to requiring the prohibition of over-irrigation non-storm water discharges.</i></p> <p>The Riverside County Copermittees and the County of San Diego each submitted comments objecting to eliminating the non-storm water discharge categories associated with over-irrigation, which results in requiring the Copermittees to prohibit over-irrigation non-storm water discharges to the Copermittees' MS4s. The Copermittees requested that the non-storm water discharge categories associated with over-irrigation be put back into Provision E.2.a.</p> <p>In contrast, the Los Penasquitos Lagoon Foundation and the South Laguna Civic Association each submitted comments expressing concerns about the impacts on receiving water due to dry weather flows associated with over-irrigation. The Los Penasquitos Lagoon Foundation noted that dry weather discharges can create serious impacts to the beneficial uses of receiving waters that support salt marsh habitats. The South Laguna Civic Association noted that elevated creek flows originating from over-irrigation result in the discharge of several pollutants to protected creek, estuary and coastal receiving waters.</p>	<p>Copermittees County of San Diego Riverside County Copermittees</p> <p>Environmental Organizations Los Penasquitos Lagoon Foundation South Laguna Civic Association</p>
<p>RESPONSE: The San Diego Water Board disagrees with the Copermittees' request.</p> <p>The Riverside County Copermittees assert that the Copermittees must identify the categories that are sources of pollutants that should be prohibited, not the San Diego Water Board. The San Diego Water Board disagrees. This is the responsibility of both the San Diego Water Board and/or the discharger. Either the San Diego Water Board or the discharger may identify categories that should be prohibited. The Phase I Rule (55 FR 48037) specifies that "<i>the Director [i.e. San Diego Water Board] may include permit conditions that either require municipalities to prohibit or otherwise control any of these types of discharges where appropriate.</i>"</p> <p>In this case, the San Diego Water Board has identified non-storm water runoff from landscape irrigation, irrigation water, and lawn watering (collectively, "over-irrigation") as a significant source of pollutants discharging to the MS4. The Fact Sheet cites a number of documents, from the state and all three counties of the San Diego Region, to justify the removal of these categories from the list of categories of non-storm water discharges into the MS4 not required to be prohibited. The San Diego Water Board maintains that the documentation cited in the Fact Sheet supports that removal of these categories. However, the comments from the Los Penasquitos Lagoon Foundation and the South Laguna Civic Association also support this conclusion.</p> <p>In addition, the removal of the non-storm water discharge categories associated with over-irrigation has already</p>	

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E2a-8	PROVISION E.2.a: Non-Storm Water Discharges	
	<p>been adopted in the Orange County and Riverside County MS4 Permits (Order Nos. R9-2009-0002 and R9-2016-0016). The Riverside County Copermittees are already subject to the requirement to prohibit non-storm water discharge categories associated with over-irrigation, so the removal of these categories in the Tentative Order is consistent with their current requirements.</p> <p>Furthermore, the removal of the non-storm water discharge categories associated with over-irrigation is consistent with what is already required to be implemented by the Copermittees. The prohibition is consistent with the Water Conservation in Landscaping Act (AB1881), which required cities and counties to adopt landscape water conservation ordinances prohibiting runoff from inefficient landscape irrigation by January 1, 2010. The cities and counties were required to adopt ordinances that prohibit runoff from "the target landscape" to "adjacent property, non-irrigated areas, walks, roadways, parking lots, or structures." The Copermittees should have already adopted these ordinances and are required to enforce these ordinances to prohibit runoff associated with over-irrigation.</p> <p>The San Diego Water Board did not revise Provision E.2.a to include the non-storm water discharge categories associated with over-irrigation.</p>	

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E2a-9 PROVISION E.2.a: Non-Storm Water Discharges	
<p>COMMENT: <i>Objection to requirement to reduce or eliminate non-storm water discharges whether or not a non-storm water discharge has been identified as an illicit discharge.</i></p> <p>The Orange County, Riverside County, and San Diego County Copermittees each submitted comments objecting the requirement under Provision E.2.a.(7) to reduce or eliminate non-storm water discharges whether or not a non-storm water discharge has been identified as an illicit discharge. The San Diego County Copermittees recommended removing the phrase “whether or not the non-storm water discharge has been identified as an illicit discharge” and the Orange County and Riverside County Copermittees recommended removing Provision E.2.a.(7).</p> <p>In contrast, the Los Penasquitos Lagoon Foundation requested that the requirements under Provision E.2 provide the Copermittees a mechanism to address illicit discharges regardless of whether or not constituents of concern are present within the flows. The Los Penasquitos Lagoon Foundation noted that dry weather freshwater flows themselves can create serious impacts to the beneficial uses of receiving waters that support salt marsh habitats, especially when those flows have been changed from ephemeral to perennial.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Los Penasquitos Lagoon Foundation</p>
<p>RESPONSE: The San Diego Water Board disagrees with the request to remove Provision E.2.a.(7), but agrees to modify the language.</p> <p>Provision E.2.a.(7) is consistent with Clean Water Act, the Code of Federal Regulations and the clarification in the Phase I Final Rule for non-storm water discharges. Please see response to comment E2a-4.</p> <p>The San Diego Water Board has revised Provision E.2.a.(7). Please see the revisions in the revised Tentative Order.</p>	

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E2a-10 PROVISION E.2.a: Non-Storm Water Discharges		
	<p>COMMENT: <i>Request for modifications to the requirements for water line flushing and water main breaks non-storm water discharges.</i></p> <p>The Metropolitan Water District of Southern California submitted a request to modify Provision E.2.a.(2) to specify that non-storm water discharges from water purveyors and community water systems are authorized discharges and not illicit discharge if enrolled or regulated under NPDES Permit No. CAG 679001 (Order No. R9-2010-0003).</p>	<p>Other Entities Metropolitan Water District of Southern California</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request.</p> <p>Provision E.2.a.(2) is specific to the requirement for the Copermittees to identify whether or not a non-storm water discharge resulting from water line flushing or water main breaks are illicit discharges. These are two non-storm water discharge categories specifically identified in the Code of Federal Regulations that the Copermittees are required to address as illicit discharges if they are identified as a source of pollutants.</p> <p>The introductory paragraph to Provision E.2.a already specifies that non-storm water discharges authorized by a separate NPDES permit is not required to be addressed as an illicit discharge. Provision E.2.a.(2) further specifies that water line flushing and water main breaks covered under NPDES Permit No. CAG 679001 (Order No. R9-2010-0003) are not illicit discharges.</p> <p>The San Diego Water Board did not revise Provision E.2.a.(2).</p>	

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E2a-11	PROVISION E.2.a: Non-Storm Water Discharges	
	<p>COMMENT: <i>Request to allow the Copermittees to designate BMPs to be implemented if a category of non-storm water discharges is found to be a source of pollutants instead of requiring a prohibition of the category of non-storm water discharges.</i></p> <p>San Diego Gas and Electric and the Southern California Gas Company each submitted comments requesting Provision E.2.a.(6) be modified to provide an alternative that would allow the Copermittees to designate BMPs to be implemented if a category of non-storm water discharges is found to be source of pollutants, instead of requiring a prohibition of the category of non-storm water discharges.</p>	<p>Building Industry / Industry San Diego Gas and Electric Southern California Gas Company</p>
	<p>RESPONSE: The San Diego Water Board reviewed and considered the requested revision.</p> <p>The San Diego Water Board has revised Provision E.2.a.(6) to allow the Copermittees to propose controls to be implemented if a category of non-storm water discharges is found to be a source of pollutants. Please see Provision E.2.a.(6) in the revised Tentative Order.</p>	

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E3-1 PROVISION E.3: Development Planning		
	<p>COMMENT: <i>Requests for "clarifications" for development planning requirements.</i></p> <p>The Copermitees and others have submitted numerous recommendations for revisions to provide "clarity," improve readability, or correct the language in Provision E.3 of the Tentative Order.</p>	<p>Building Industry / Industry Building Industry Association of Southern California San Diego Green Building Council</p> <p>Copermitees City of Chula Vista Orange County Copermitees Riverside County Copermitees San Diego County Copermitees</p> <p>Engineering/Design Consultants Contech Engineered Solutions</p>
	<p>RESPONSE: The San Diego Water Board has reviewed and considered all the recommendations submitted by the commenters.</p> <p>In cases where the San Diego Water Board agreed that the recommendations would improve readability and were consistent with the intent of language or requirement, the recommendations were incorporated. In instances where the San Diego Water Board disagreed with the recommendations, the language in the Tentative Order was not changed.</p>	

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E3-2 PROVISION E.3: Development Planning		
	<p>COMMENT: <i>Requests for revisions to allow the construction of BMPs in waters of the state.</i></p> <p>The San Diego County Copermittees and the BIA Regulated Community Coalition have requested that Provision E.3.a.(1)(b) be revised to allow the implementation of structural BMPs within waters of the state, since the definition of waters of the state is broad and could be interpreted to prohibit storm drain inserts and other common BMPs. The requested revision that “BMPs must not be constructed within a waters of the U.S. unless authorized by the San Diego Water Board Executive Officer” is consistent with the San Diego Water Board’s 401 Certification Program and would protect natural receiving waters from construction and the use of such waters to transport pollutants.</p>	<p>Building Industry / Industry Copermittees BIA Regulated Community Coalition City of Chula Vista San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees with this comment and has modified the language in the Tentative Order accordingly.</p>	

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E3-3 PROVISION E.3: Development Planning	
	<p>COMMENT: <i>Requests for revisions to Priority Development Project inventory requirements.</i></p> <p>The San Diego County Copermittees have requested that the Tentative Order be revised such that updates to Priority Development Project databases occur “regularly” instead of “at least annually.” Additionally, the City of Chula Vista requested the start date for Priority Development Project inventory begin December 2002 instead of January 2002, to reflect the start date for the San Diego County Copermittees’ regulatory oversight process pursuant to Order No. 2001-01.</p>
	<p>Copermittees City of Chula Vista San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the frequency of updates to project inventories should be less frequent than on an annual basis. However, the San Diego Water Board agrees with the request that the start date be changed for San Diego County Copermittees and has revised the language in the Tentative Order appropriately.</p>

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E3b-1 PROVISION E.3.b: Priority Development Projects	
<p>COMMENT: <i>Requests for revisions to development planning requirements to include different requirements for transportation projects.</i></p> <p>The San Diego County and Orange County Copermittees, the Riverside County Transportation Department, and others commented that transportation projects should be exempt from the requirement to implement pollutant control and hydromodification management BMPs set forth in the Tentative Order. Commenters contend that transportation projects should be allotted special consideration because, unlike other types of projects, they must also consider various design constraints having to do with limited right-of-way, utilities, street trees, fire truck access, and general public safety. Commenters recommended that transportation projects be held to USEPA Green Streets guidance as the design requirement.</p>	<p>Building Industry / Industry San Diego Green Building Council</p> <p>Copermittees City of Dana Point City of Imperial Beach Orange County Copermittees Riverside County Transportation Department</p>
<p>RESPONSE: The San Diego Water Board generally agrees with the commenters regarding the unique constraints associated with existing roadways.</p> <p>The Tentative Order has been revised to provide an exemption from the Priority Development Project designation for projects where retrofitting of existing paved alleys, streets, or roads are designed and constructed in accordance with USEPA Green Street guidance. However, this exemption is only allowed for existing road and not new ones. This is because new roads are not yet spatially constrained and should be able to incorporate the pollutant control and hydromodification management BMPs during the planning stages. The Tentative Order also allows the Copermittees to incorporate alternative compliance options during the planning stages of the new road projects. The San Diego Water Board maintains that controlling pollutants and managing flows coming from roads is critical because roads are significant sources of pollutants and add significant new impervious surfaces.</p> <p>Commenters should also note that routine maintenance activities associated with transportation projects such as maintaining original line and grade, or repairing potholes, is not considered a Priority Development Project and is not subject to any structural BMP requirements.</p>	

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E3b-2 PROVISION E.3.b: Priority Development Projects		
	<p>COMMENT: Request for a clear definition of "directly discharges to" an Environmentally Sensitive Area (ESA).</p> <p>The San Diego County Copermitees and the City of Imperial Beach have requested that Provision B.3.b.(1) be revised to clearly define "directly discharges to" an ESA. The Copermitees are concerned that language in the Tentative Order is confusing and can be misinterpreted.</p>	<p>Copermitees City of Imperial Beach San Diego County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the comment.</p> <p>The San Diego Water Board revised the language in Provision B.3.b.(1) to more clearly define "directly discharges to."</p>	

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E3b-3	PROVISION E.3.b: Priority Development Projects
	<p>COMMENT: <i>Requests for modifications to the types of projects defined as Priority Development Projects and subject to the storm water pollutant control and hydromodification management structural BMP requirements.</i></p> <p>The San Diego County, Orange County, and Riverside County Copermittees, several individual Copermittees, members of the Building Industry, Industry, Clean Water Now, and Engineering/Design Consultants submitted comments regarding the types of projects defined as Priority Development Projects. Clean Water Now expressed concern with the types of projects that are considered Priority Development Projects. The Copermittees, Building Industry, and Engineering/Design Consultants provided recommendations for the types of projects that should be defined as Priority Development Projects and therefore subject to the storm water pollutant control and hydromodification management structural BMP requirements, and the types of projects that should be exempt from those requirements.</p> <p>The Copermittees made several comments on this topic, which are summarized below:</p> <ul style="list-style-type: none"> ● Single family residences should be exempt because the requirements are complex and difficult for the regular homeowner to understand, and that the potential for pollutant generation is considerably less than an industrial or commercial site; ● Driveways should not be included as Priority Development Projects because, unlike roads, driveways experience low daily trips. The Copermittees suggest implementing a lower performance standard for BMPs implemented on driveways than other Priority Development Projects; ● The Tentative Order should include qualifiers for parking lots that would trigger Priority Development Project status only if they were uncovered; ● Maintenance access roads should be exempt; ● The Tentative Order should allow exemptions for parking lots and other projects that are constructed with permeable surfaces; ● The Tentative Order should allow exemptions for flood control and emergency projects; ● The exemptions allowed for LEED certified single family residences is inappropriate because the program encompasses other environmental considerations, and are outside the scope of storm water permitting; ● Triggers for Priority Development status should be simultaneously based on soil type and square footage of impervious surface; ● The Tentative Order should allow exemptions for “Watershed Protection Projects” that are undertaken to rehabilitate or prevent environmental, social, and economic damage to the watershed;
	<p>Building Industry / Industry American Society of Landscape Architects San Diego Green Building Council San Diego Gas and Electric Company Southern California Gas Company</p> <p>Copermittees City of Chula Vista City of Imperial Beach City of Poway Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Clean Water Now</p> <p>Engineering/Design Consultants Contech Engineered Solutions Project Design Consultants</p>

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E3b-3	PROVISION E.3.b: Priority Development Projects	
	<ul style="list-style-type: none"> The hillside development category should be removed because it is not needed. <p>Some Engineering/Design Consultants suggested that Priority Development Projects be exempt if they are designed and constructed with specific materials or a voluntary certification program. San Diego Gas and Electric and the Southern California Gas Company commented that linear underground/overhead (utility) projects should be exempt from Priority Development Project status due to the nature of their construction.</p>	
	<p>RESPONSE: The San Diego Water Board generally disagrees with the requests to remove some project categories from Provision E.3.b, or to exempt certain types of projects from the requirement to implement storm water pollutant control and hydromodification management BMPs. Such BMPs are needed to protect water quality. The list of project categories in Provision E.3.b represents projects that result in the creation of significant areas of impervious surface and/or are pollutant generating in nature, which in turn contributes to pollutants in storm water discharges and altered flow regimes that cause accelerated erosion of channel bed and banks, and consequently degraded stream conditions.</p> <p>With the exception of driveways, the Priority Development Project categories have not changed substantially in San Diego Water MS4 permits. Provision E.3.b of the Tentative Order is consistent with the Fourth Term MS4 permits adopted by the San Diego Water Board for Orange County and Riverside County.</p> <p>Driveways were added as to the Priority Development Project categories because, although they experience much less traffic than roads, they still generate pollutants and create significant impervious surfaces that can impact downstream receiving waters, and must be mitigated. Similarly, even covered parking lots cause impacts for which mitigation is needed because rooftops also add to the impervious surface footprint. Research shows that even incremental increases in impervious surface, as low as 3-5 percent of the watershed area in the semi-arid climate of southern California, can result in degradation of receiving streams (Stein, E. and Zaleski, S., 2005. Technical Report 475, Managing Runoff to Protect Natural Streams: The Latest Development on Investigation and Management of Hydromodification in California. December 30, 2005.).</p> <p>Creation of impervious surface is a concern to the San Diego Water Board and construction with pervious materials that allow infiltration and other natural hydrologic processes are preferred. There is no need to exempt parking lots and other projects constructed with pervious materials from Priority Development Project status because they are not considered Priority Development Projects in the first place. Similarly, maintenance access roads as well as the majority of linear utility projects are not Priority Development Projects because they do not necessarily result in the placement of impervious surfaces above the threshold square footages</p>	

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E3b-3	PROVISION E.3.b: Priority Development Projects	
	<p>associated with Priority Development Projects.</p> <p>Priority Development Project status is based on both the type of project being built and associated pollutants anticipated to be generated, and a threshold for the creation or replacement of impervious surface. Soil type comes into play in terms of meeting the retention requirement, which is discussed in the response to comment E3c1-1. The San Diego Water Board disagrees with the recommendation to define Priority Development Projects by soil type because this is accounted for in the size and type of BMPs as dictated by the retention requirement.</p> <p>The San Diego Water Board disagrees that hillside development projects should be exempt. These projects are susceptible to causing accelerated erosion and therefore must implement structural BMPs. The San Diego Water Board further disagrees that there should be exemptions for emergency projects or flood control projects. Provision E.3 describes requirements that pertain to development planning. Emergency situations, by definition, are not planning exercises and therefore do not involve the design and construction of a building or structure. The San Diego Water Board believes that it may be suitable to relax the structural BMP standards for, or exempt flood control projects, but not before projects are evaluated on a case-by-case basis. In many instances, environmentally friendly practices may be appropriate for implementation in flood control projects, but a variety of options would not be evaluated if the Tentative Order provided a blanket exemption.</p> <p>The San Diego Water Board disagrees that an exemption from the Priority Development Project structural BMP requirements should be provided for all single family residences. The definition of Priority Development Projects in the Tentative Order already excludes a majority of single family residences that may be developed or redeveloped. New single family residences must create 10,000 square feet or more of impervious surface, or 5,000 square feet or more of impervious surface as a Hillside Development, or 2,500 square feet or more of impervious surface if discharging directly to an Environmental Sensitive Area to be defined as a Priority Development Project. Redevelopment single family residence projects must create or replace 5,000 square feet or more of impervious surface, or 2,500 square feet or more of impervious surface if discharging directly to an Environmental Sensitive Area to be defined as a Priority Development Project. Single family residences that are defined as Priority Development Projects can have a significant impact on receiving water quality and it is appropriate for these projects to implement the Priority Development Project structural BMP requirements.</p> <p>The San Diego Water Board removed language pertaining to the option for single family residences to be designed and constructed with LEED certification to qualify as exempt from Priority Development Project status.</p>	

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E3b-3	PROVISION E.3.b: Priority Development Projects	
	<p>This is because several commenters stated that including this requirements was outside the scope of water quality regulation, and that the LEED program was too specific of a certification requirement. To avoid any inconsistency regarding equivalent certification programs and for more streamlined requirements, this option, and hence the exemption allowed for single family residences, was removed. Single family residences large enough to trigger the size thresholds associated with Priority Development Projects are a source of pollutants and altered flow regimes, and therefore must be required to implement structural BMPs. The Copermittees must inspect such BMPs as part of their oversight programs to ensure that homeowners are properly maintaining the BMPs and the BMPs continue to operate as designed in order for the Copermittees to meet the MEP standard of the Clean Water Act.</p> <p>Finally, the San Diego Water Board disagrees that there should be an exemption for “Watershed Protection Projects.” The commenters should note that Priority Development Projects are not only defined by square footage of impervious surface, but also the type of project being constructed. The types of projects described in the comment, such as erosion mitigation, restoration of rivers and ecosystems, or groundwater recharge, do not need to be explicitly provided exemptions because they would not be considered Priority Development Projects in the first place if they do not create or replace impervious surface in exceedance of the thresholds in the Tentative Order.</p> <p>The San Diego Water Board has also revised the Tentative Order to allow the Copermittees to provide exemptions for all types of projects. The Copermittees have the ability to exempt projects from meeting the hydromodification management requirements in areas where they have deemed it appropriate to do so. However, in order to utilize this option, Copermittees must first perform the optional Watershed Management Area Analysis described in Provision B.3.b.(4). Please see the response to Comment E3c-2 for further discussion of this option.</p>	

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E3b-4 PROVISION E.3.b: Priority Development Projects	
<p>COMMENT: <i>Redevelopment Priority Development Projects that were subject to previous structural BMP requirements should not be subject to new structural BMP requirements.</i></p> <p>The San Diego County, Orange County, and Riverside County Copermittees each submitted comments requesting that language be added to the Tentative Order that would specify structural BMP requirements are not applicable to Priority Development Projects (or portions thereof) if the project already has implemented structural BMPs pursuant to requirements of prior MS4 permits.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees in concept with the Copermittees' request.</p> <p>Although some projects may already have structural BMPs onsite, the performance requirements of those BMPs do not necessarily meet the requirements of the Tentative Order. Order No. R9-2007-0001 does not have the numerical storm water pollutant control retention performance standard, therefore redevelopment sites that were subject to Order No. R9-2007-0001 must update their BMPs during the design phase. In some cases, redevelopment projects will already have BMPs that meet the storm water pollutant control and hydromodification management BMP requirements. In these instances, the requirements of the Tentative Order are met and there is no need to change the language.</p>	

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E3c-1 PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
E3c-1	<p>COMMENT: <i>The Tentative Order ignores regional comprehensive plans developed by municipalities and SANDAG.</i></p> <p>The Jamul Dulzura Community Planning Group and Julian Community Planning Group assert that the requirements in the Tentative Order are contradictory to plans developed by SANDAG and subsequently included in General Plans that include sound principles such as encouraging redevelopment. The Tentative Order's requirements amount to punishing or dis-incentivizing urban infill projects.</p>
	<p>Community Planning Groups Jamul Dulzura Community Planning Group Julian Community Planning Group</p>
	<p>RESPONSE: The San Diego Water Board strongly disagrees that the requirements in the Tentative Order are contradictory to principles advocated in regional planning documents. In fact, the Tentative Order is heavily based on planning at the watershed scale, as represented in the Water Quality Improvement Plan requirements. The Tentative Orders increases flexibility for the Copermitees to address urban infill and redevelopment projects by not mandating only on-site BMPs.</p> <p>Redevelopment projects will be required to implement structural BMP requirements that are needed to protect downstream water quality. However, if a Copermitee finds that implementation of the required BMPs fully onsite will not result in meaningful improvements in either pollutant control or hydromodification management, then that Copermitee has the option to allow compliance elsewhere in the watershed where more substantial improvements can take place. There are no additional requirements for redevelopment projects versus new projects, therefore redevelopment projects are not being penalized, as suggested by the commenters.</p> <p>Furthermore, the Tentative Order has been revised to include an exemption from hydromodification management BMP requirements for Priority Development Projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. Additionally, more exemptions could be included on a watershed-specific basis if the Copermitees in the Watershed Management Area elect to perform the optional Watershed Management Area Analysis as described in Provision B.3.b.(4). Please see the response to Comment E3c-2 for further discussion of these options.</p>

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E3c-2 PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements		
E3c-2	<p>COMMENT: Request for requirements that allow development of watershed-specific structural BMP performance standards in Water Quality Improvement Plans.</p> <p>The Orange County and San Diego County Copermittees assert that the Tentative Order requires a “one-size-fits-all” approach and request that the Tentative Order allows for watershed-specific performance requirements for structural BMPs. Members of the Building Industry, the City of Imperial Beach, Engineering/Design Consultants, Societies/Associations/Coalitions, and Other Entities requested or expressed support for a similar concept. The Environmental Groups support including alternative compliance options that provide “off-ramps” for the baseline “one size fits all” structural BMP performance requirements.</p>	<p>Building Industry / Industry American Society of Landscape Architects</p> <p>Copermittees City of Imperial Beach Orange County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Environmental Groups</p> <p>Engineering/Design Consultants Latitude 33 Planning and Engineering Project Design Consultants</p> <p>Societies/Associations/Coalitions BIOCOM</p> <p>Other Entities Carol Crossman Gable PR Hughes Marino Marston+Marston Nuffer, Smith, and Tucker San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton LLP Southern Cross Property Consultants Transition IT</p>
E3c-2	<p>RESPONSE: The San Diego Water Board disagrees that the Tentative Order requires a “one-size-fits-all” approach for the implementation of structural BMPs.</p> <p>For the Priority Development Project structural BMP performance requirements, site specific conditions must be taken into account upon selecting appropriate BMPs. Provision E.3.c.(1)(a), which describes requirements for storm water pollutant control, the Tentative Order states that: “Each Priority Development Project must be required to implement LID BMPs that are designed to retain (i.e. intercept, store, infiltrate, evaporate, and evapotranspire) onsite the volume of storm water runoff produced from a 24-hour 85th percentile storm event (design capture volume).” While each Priority Development Project must retain the volume of storm water runoff produced from the 24-hour 85th percentile storm, the actual volume retained will vary based on site specific factors, namely soil type and associated infiltration rates. The requirement to retain the volume of water associated with this size storm is appropriate for the reasons stated in the response to comment E3c1-1.</p>	

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E3c-2	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
	<p>Similarly, Provision E.3.c.(2)(a), which describes requirements for hydromodification management, states that: <i>“Post-project runoff flow rates and durations must not exceed pre-development runoff flow rates and durations by more than 10 percent (for the range of flows that result in increased potential for erosion, or degraded instream habitat conditions downstream of Priority Development Projects).”</i> This requirement involves implementing BMPs for “the range of flows that result in increased potential for erosion,...” which is necessarily a site-specific requirement. The range of flows that cause downstream erosion from one Priority Development Project may be different than the range of flows that cause erosion from another Priority Development Project located in a different area in the watershed. Therefore, very different BMPs might be required from the two sites.</p> <p>The San Diego Water Board agrees that greater improvements to water quality in the watersheds may be realized if Priority Development Projects were allowed to implement some requirements offsite, as opposed to strictly onsite. For this reason, the Tentative Order allows for “alternative compliance” in instances where the Copermittee determines that offsite measures will have a greater overall water quality benefit for the Watershed Management Area than if the Priority Development Project were to implement structural BMPs onsite. Consequently, watershed-specific structural BMP requirements are present in the Tentative Order in the form of allowable compliance offsite. The “alternative compliance program” has been substantially re-written for simplicity, and also to better align this program with the planning efforts of the Copermittees in the Water Quality Improvement Plans.</p> <p>The alternative compliance program, which is described in Provision E.3.c.(3), is an option for Priority Development Projects where the Copermittee has participated in the development of a Watershed Management Area Analysis as part of the Water Quality Improvement Plan (described in Provision B.3.b.(4)). Such an approach is consistent with the latest findings in hydromodification management by the scientific community. In the Southern California Coastal Water Research Project (SCCWRP) Technical Report No. 667, authors state: <i>“An effective [hydromodification] management program will likely include combinations of on-site measures (e.g., low-impact development techniques, flow-control basins), in-stream measures (e.g., stream habitat restoration), floodplain and riparian zone actions, and off-site measures. Off-site measures may include compensatory mitigation measures at upstream locations that are designed to help restore and manage flow and sediment yield in the watershed.”</i></p> <p>Consistent with the ideas brought forth by the SCCWRP report, in the Watershed Management Area Analysis of Provision B.3.b.(4), which is optional, the Copermittees will develop watershed maps that include as much detail</p>	

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E3c-2	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
	<p>about factors that affect the hydrology of the watersheds as is available. Such factors included identification of areas suitable for infiltration, coarse sediment supply areas, and locating stream channel structures and constrictions. Once these factors are mapped and studied, the Copermittees can identify areas in the watersheds where “candidate projects” may be implemented that are expected to improve water quality in the watershed by providing more opportunity for infiltration, slowing down storm water flows, or attenuation of pollutants naturally via healthy stream habitat. These projects may be in the form of retrofitting existing development, rehabilitating degraded stream segments, identifying regional BMPs, purchasing land to preserve valuable floodplain functions, and any other projects that the Copermittees identify.</p> <p>Under the alternative compliance program, Priority Development Projects may be allowed to fund, partially fund, or implement a candidate project, in lieu of implementing structural BMPs onsite, if they enter into a voluntary agreement with the Copermittee permitting this arrangement. If compliance involves funding or implementing a project that is outside the jurisdiction of the Copermittee, then that Copermittee may enter into an inter-agency agreement with the appropriate jurisdiction(s).</p> <p>In response to several comments, the Tentative Order has been revised to include an exemption from hydromodification management BMP requirements for Priority Development Projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. Provision B.2.b.(4) provides an optional Watershed Management Area Analysis that may allow the Copermittees to identify additional areas within the watershed where it is appropriate to exempt Priority Development Projects from implementing hydromodification management BMPs. Exemptions other than the ones specified in the Tentative Order, then, would be applicable on a watershed basis, and would require supporting rationale.</p> <p>In summary, the Tentative Order includes requirements for site-specific structural BMP requirements and exemptions. In order for them to be realized, the Copermittees must perform up-front analysis to support both the alternative compliance program and watershed-specific hydromodification management BMP exemptions. The San Diego Water Board believes that this approach will allow for meaningful improvement to water quality in the watersheds, as well as the efficient use of resources for innovative projects, as opposed to requiring structural BMPs to be fully implemented on all sites.</p>	

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E3c-3 PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
	<p>COMMENT: Request for modifications to Priority Development Project structural BMP infiltration and groundwater protection pre-treatment requirements.</p> <p>The San Diego County Copermittees and the City of National City commented that pre-treatment for infiltration BMPs on areas of industrial or light industrial activity should only be required if significant pollutant levels are present or if source control BMPs will not provide pre-treatment. Contech Engineer Solutions expressed concern that without clear and specific pre-treatment standards for infiltration BMPs, the Copermittees will accept pre-treatment systems that will require significant maintenance to ensure proper operation. Contech Engineer Solutions recommended very specific design standards for pre-treatment systems.</p>
	<p>Copermittees City of National City San Diego County Copermittees</p> <p>Engineering/Design Consultants Contech Engineered Solutions</p>
	<p>RESPONSE: The San Diego Water Board agrees with the Copermittees comments. The San Diego Water Board conceptually agrees with Contech Engineered Solutions, but disagrees that including such specific design standards are necessary.</p> <p>The San Diego Water Board has revised Provision E.3.c.(5)(a)(vi) to allow infiltration BMPs on industrial or light industrial areas if source control BMPs will not expose groundwater to activities that are a high threat.</p> <p>The San Diego Water Board did not revise Provision E.3.c.(5)(a)(i). The Copermittees are required to inspect BMPs at Priority Development Projects to confirm they continue to operate as designed. If structural BMPs on Priority Development Projects are not properly maintained, the Copermittees must enforce its ordinances to achieve compliance with its ordinances and the requirements of the Tentative Order.</p>

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E3c-4 PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements		
E3c-4	<p>COMMENT: <i>General concerns associated with the development planning structural BMP performance requirements.</i></p> <p>Comments from members of the Building Industry, Community Planning Groups, the Copermittees, Environmental Organizations, State Government, Societies/Associations/Coalitions, and Other Entities expressed various concerns about the development planning structural BMP performance requirements for Priority Development Projects.</p> <p>Several commenters expressed concerns with the potential costs associated with enforcing and implementing the changing requirements for development projects, or the uncertainty of the impacts of those new requirements. The South Laguna Civic Association expressed concern that the current development planning requirements are already resulting in the degradation and destruction of creeks, wetlands, and coastal habitats. David Akers, P.E., expressed concern with current practices and supports requirements that will result in sustainable development. The City of Chula Vista questioned what should be done water collected in rain barrels and other retention facilities if there is a lack of demand during the rainy season.</p>	<p>Building Industry / Industry Associated General Contractors of America</p> <p>Community Planning Groups Julian Community Planning Group Ramona Community Planning Group</p> <p>Copermittees City of Chula Vista County of San Diego Orange County Copermittees</p> <p>Environmental Organizations Clean Water Now South Laguna Civic Association</p> <p>Engineering/Design Consultants David J. Akers, P.E.</p> <p>State/Federal Government Senator Mark Wyland</p> <p>Societies/Associations/Coalitions San Diego Association of Realtors South County Economic Development Council</p> <p>Other Entities Carol Crossman Continental Maritime of San Diego Nuffer, Smith, and Tucker Sheppard, Mullin, Richter & Hampton LLP Southern Cross Property Consultants</p>
	<p>RESPONSE: The San Diego Water Board understands the concerns that have been expressed by the commenters.</p> <p>Most of the requirements in the Tentative Order are not new to the San Diego Region. The Tentative Order incorporates many existing requirements from the MS4 permits in Orange and Riverside Counties. However, the Tentative Order also provides the Copermittees with more flexibility to use their limited resources in the most effective and efficient manner to protect the quality of the San Diego Region's receiving waters.</p> <p>The commenters generally are concerned with the costs of implementing the development planning structural BMP performance requirements, but do not consider the costs of not addressing impacts that have been caused by existing development, and may be caused by future development. The San Diego Water Board has significantly modified the structure and focus of the requirements in the Tentative Order to allow the</p>	

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E3c-4	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
	<p>Copermittees to more efficiently and cost effectively utilize their resources, which is expected to result in the realization of significant cost savings that could not be realized in the existing MS4 permits.</p> <p>The development planning structural BMP performance requirements have also evolved significantly since 2001 because of the degradation and destruction of creeks, wetlands, and coastal habitats that have been observed as developed areas have expanded. Thus, the Tentative Order not only includes development planning requirements to protect against impacts to receiving waters that may be caused by future development, but also includes requirements that begin to address impacts that are being caused by existing development. The Tentative Order will allow the Copermittees to address existing development and new develop with a watershed-scale approach that is expected to lead to more sustainable configurations of the watersheds in the San Diego Region over the long term.</p> <p>The question posed regarding the use of retained storm water if there is a lack of demand is not new. The municipalities and several agencies in the San Diego Region have also posed questions about what can be done to address the sustainable water supply concerns that are being expressed as the population grows and demand for water increases. There may be ways to potentially link the two issues to create solutions to address the problems. The Tentative Order was developed to provide the flexibility that will allow the Copermittees to work with other agencies to perhaps identify solutions with mutual benefits.</p>	

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E3c1-1 PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements	
<p>COMMENT: <i>Objections with storm water pollutant control retention BMP performance requirements for Priority Development Projects.</i></p> <p>The San Diego County, Orange County, and Riverside County Copermittees and Engineering/Design Consultants contend that the storm water pollutant control retention requirement is infeasible for many Priority Development Projects due to poor soil types and other factors. The Industrial Environmental Association asserts that the Tentative Order does not provide sufficient detail for consistency among Copermittees in evaluating conditions for technical infeasibility. The Copermittees have requested that the term “runoff” be included in the description of “design capture volume.”</p> <p>Other commenters stated that the retention standard will result in runoff “starved” receiving waters. Commenters also stated that the requirement to increase bioretention by 25 percent is arbitrary and without basis.</p> <p>Conversely, Natural Resources Defense Council argues that retention of the 85th percentile storm event is an appropriate performance standard and should be required at all sites, regardless of the specific site conditions. David Aker, P.E., also supports the requirement to retain storm water and contends that it is essential for sustainable development.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition Building Industry Association of Southern California, Inc. Industrial Environmental Association Otay Land Company Otay Ranch New Homes San Diego Green Building Council</p> <p>Copermittees City of Chula Vista City of Vista County of San Diego Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District</p> <p>Environmental Organizations Natural Resources Defense Council</p> <p>Engineering/Design Consultants Contech Engineered Solutions David J. Akers, P.E.</p> <p>State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board disagrees with the Copermittees that the retention standard, as written in the Tentative Order, is inappropriate.</p> <p>The San Diego Water Board has recognized that the retention of the 85th percentile storm event is MEP, and already incorporated the performance standard in both the Orange County and Riverside County MS4 permits. Other MS4 permits in southern California (e.g., Ventura County, Los Angeles County) incorporate similar performance standards, and it is supported by USEPA.</p> <p>Commenters should note that under the Alternative Compliance Program described in Provision E.3.c.(3), Priority Development Projects will have the option to perform mitigation offsite “<i>if the Copermittee determines that the offsite project will have a greater overall water quality benefit for the Watershed Management Area than implementing BMPs onsite.</i>” Theoretically, a Priority Development Project could make the case that retention of the design capture storm is not feasible, or that doing so would result in an unnatural water balance, therefore</p>	

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<p>offsite compliance is preferred. This option is only available to the Priority Development Project if the Copermittee elects to offer it. The San Diego Water Board disagrees that the Tentative Order should provide detail on what constitutes infeasibility because the Copermittees have the experience to make these determinations, and are free to develop consistency standards if the need arises.</p> <p>Language regarding the application of a site specific retention standard was removed because several commenters argued, and the San Diego Water Board agreed, that the analyses could be subjective and introduce uncertainty for the Copermittees in terms of determining compliance. Moreover, comparing the volume of runoff produced from an undeveloped site to that of a Priority Development Project would not be comparing equivalent pollutant levels, because the pollutants expected to be generated from a Priority Development Project would not have been present in runoff from undeveloped land. For simplicity, the language pertaining to site specific retention standards was removed. The word “runoff” was added to the description of “design capture volume” per the Copermittees’ requests.</p> <p>Similarly, the language pertaining to biofiltration LID BMPs was removed because the Alternative Compliance Program was restructured to better coincide with the Copermittee’s planning efforts in the Water Quality Improvement Plan.</p>	

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E3c2-1 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
<p>COMMENT: <i>Allow San Diego Copermittees to continue implementation of current San Diego Hydromodification Management Plan, as approved under Resolution No. R9-2010-0066.</i></p> <p>The San Diego County Copermittees and several other commenters have requested that the <i>Hydromodification Management Plan for San Diego County</i> (HMP), which was approved by the San Diego Water Board in 2010 under Resolution No. R9-2010-0066, be memorialized in the Tentative Order as the standard for hydromodification management.</p>	<p>Building Industry / Industry Building Industry Association of Southern California, Inc. Otay Land Company Otay Ranch New Homes</p> <p>Community Planning Groups Jamul Dulzura Community Planning Group Pala Pauma Valley Community Sponsor Group</p> <p>Copermittees City of Chula Vista City of Del Mar City of Poway City of San Diego County of San Diego County of San Diego Office of County Counsel San Diego County Copermittees</p> <p>Societies/Associations/Coalitions East Otay Mesa Property Owners Association Otay Mesa Property Owners Association</p> <p>Other Entities National Enterprises Inc.</p>
<p>RESPONSE: The San Diego Water Board disagrees with commenters that it is appropriate to reference the San Diego County HMP in the Tentative Order.</p> <p>The San Diego HMP does not include standards that are currently included in the Fourth Term MS4 permits for Orange and Riverside Counties. However, commenters should note that the requirements in the Tentative Order allow the San Diego Copermittees to use the information and analysis that was used to develop the San Diego HMP. In addition, the San Diego HMP will remain in effect until the Water Quality Improvement Plans are accepted by the San Diego Water Board.</p> <p>The San Diego Water Board is aware that the San Diego County Copermittees spent over \$1 million to develop the HMP. This investment is not lost because the Tentative Order allows the Copermittees to build upon the</p>	

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E3c2-1 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements

findings in the HMP; thus, the information developed is not irrelevant. For example, the San Diego HMP used an analysis to determine the range of flows for which Priority Development Projects must implement hydromodification management BMPs. This analysis includes evaluation of site specific conditions, including the level of susceptibility of the downstream receiving water to erosion. Further, the analysis includes a mechanism for Priority Development Projects to determine appropriately sized BMPs, depending on the condition of the downstream receiving water. This analysis is the crux of the San Diego HMP, and the Tentative Order allows its continued use.

There are two important changes in the Tentative Order from Order No. R9-2007-0001 that the San Diego County HMP must make adjustments for. Firstly, the Tentative Order includes a requirement that Priority Development Projects use the "predevelopment" condition for evaluating the baseline hydrology for a specific site. The San Diego HMP, as written, can still be used because this requirement only affects the input variables used in the analysis. The San Diego Water Board is requiring the use of the pre-development condition for the reasons discussed in the Response to Comment E3c2-2.

Secondly, in response to several comments, the Tentative Order has been revised to include an exemption from hydromodification management requirements for Priority Development Projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. Additional exemptions may be allowed on a watershed-basis only if the Copermittees perform a watershed-specific analysis, as part of the Water Quality Improvement Plan that justifies inclusion of exemptions. Much of this work has already been done by the San Diego County Copermittees in the HMP, as the HMP contains many exemptions above and beyond those described in Order No. R9-2007-0001. Again, the investment made in the HMP is not lost; the Copermittees must develop the Watershed Management Area Analysis described in Provision B.3.b.(4) of the Tentative Order and include the exemptions and rationale therein.

Finally, the San Diego County Copermittees were notified before completion of the HMP that requirements pertaining to hydromodification management would likely change. As part of the development of the HMP, the Copermittees submitted a first draft on May 1, 2009. In a comment letter dated June 29, 2009, the San Diego Water Board stated that: *"Although the Permit (R9-2007-0001) does not specifically interpret "pre-project" conditions to reference pre-development (naturally occurring) conditions, the Copermittees are not restricted from implementing this more conservative standard. Tentative Order No. R9-2009-0002 (the draft Orange County Municipal Permit) dated June 18, 2009 contains this more restrictive language. The San Diego*

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E3c2-1 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements
<p><i>Copermittees should be aware that the next iteration of the Permit may contain similar language. Additionally, the exceptions for hydromodification management measures included in the Permit (provision D.1.g.(3) for discharges into hardened channels will also likely be eliminated.”</i></p> <p>Although this quote referred to text in the draft Orange County MS4 Permit, the requirements for using the pre-development baseline hydrology for hydromodification management were eventually included in the final versions of the MS4 permits for both Orange and Riverside Counties. Therefore the San Diego County Copermittees were well aware of the evolving requirements before their HMP was finalized.</p>

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E3c2-2 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
<p>COMMENT: <i>Objections with requiring pre-development versus pre-project hydrology for hydromodification management BMP performance standards.</i></p> <p>Comments submitted by Copermittees, Building Industry, Community Planning Groups, Engineering/Design Consultants, Societies/Associations/Coalitions, and Other Entities objected to the use of pre-development hydrology as a baseline for hydrograph matching (and therefore, BMP design) in the case of redevelopment projects, and that the pre-project design standard is the appropriate standard. Commenters argue that including the pre-development standard would be tantamount to requiring a Priority Development Project to mitigate beyond its impacts.</p>	<p>Building Industry / Industry San Diego Green Building Council</p> <p>Community Planning Groups Julian Community Planning Group Pala Pauma Valley Community Sponsor Group</p> <p>Copermittees City of National City City of Poway City of San Diego City of San Diego City Attorney County of San Diego County of San Diego Office of County Counsel Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District</p> <p>Engineering/Design Consultants Project Design Consultants</p> <p>Societies/Associations/Coalitions East Otay Mesa Property Owners Association Otay Mesa Property Owners Association</p> <p>Other Entities National Enterprises Inc.</p>
<p>RESPONSE: The San Diego Water Board disagrees with the commenters that pre-project hydrology should be used as the baseline hydrology for redevelopment projects.</p> <p>The “pre-development” language in the Tentative Order has not been removed, but the qualifier “naturally occurring” has been removed from the text because some commenters stated that it caused confusion rather than providing clarity. The definition for “pre-development runoff condition” has been revised in Attachment C and discussion pertaining to this definition and how the San Diego Water Board expects Copermittees to interpret this phrase has been added to the Fact Sheet.</p> <p>Fundamentally, the San Diego Water Board believes that using a hydrology baseline that approximates that of an undeveloped, natural watershed is the only way to facilitate the return of more natural hydrological conditions</p>	

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E3c2-2 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements

to already built-out watersheds. Using the pre-project hydrology as a baseline for redevelopment projects results in propagating the unnatural hydrology of urbanized areas, which is largely made up of impervious surfaces. Flows from impervious surfaces are highly erosive and consequently have detrimental effects on receiving waters in the San Diego Region. Furthermore, propagating the urbanized flow regime does not support conditions for restoring degraded or channelized stream segments, and would forever sentence such streams to the degraded state. Rehabilitating or restoring degraded stream segments is a critical component of the Tentative Order and is expected to be incorporated into Copermittee's strategies for improving water quality in the watersheds. Finally, the predevelopment standard is not requiring Priority Development Projects to mitigate beyond its impacts because the project would be perpetuating impacts that originated upon initial land alteration (i.e., the project would continue to cause accelerated erosion).

Commenters have stated that it is impracticable to require hydromodification management BMPs to mimic the "pre-Columbian" hydrology because it would be impossible to know the historical conditions with any certainty. However, estimating the conditions of historical conditions is not the intent of this requirement. Rather, using the characteristics of a more natural hydrological condition than that of an urbanized setting is the intent.

In terms of using a pre-development condition for the baseline hydrology, a Priority Development Project has a number of options for estimating this condition when it is not known. For example, a Priority Development Project may consult soil maps, such as those published by the National Resources Conservation Service (NRCS). These readily available maps show the soil types in a given area, regardless of whether or not the land has been developed. This information, along with information regarding existing grade, constitute sufficient data needed to approximate the pre-development condition and intent of the Tentative Order.

Another option is for Priority Development Projects to use characteristics of a nearby open space area as an equivalent baseline. Or, a Priority Development Project may be able to research the geotechnical report associated with a structure upon its development. In any case, the San Diego Water Board asserts that the pre-development hydrology of the area in question can be roughly estimated. However, using the hydrology of a more natural condition, even if not precisely known, will provide significant benefit to receiving waters over using the hydrology associated with pervious (developed) surfaces. Therefore in order to support the basic objectives of the Clean Water Act, which are to restore and maintain the chemical, physical, and biological integrity of the nation's waters [emphasis added], the most appropriate standard to use for hydromodification management is the standard associated with the pre-development runoff condition.

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E3c2-3 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
<p>COMMENT: <i>Include exemptions from the implementation of hydromodification management BMPs where there is no threat of erosion to downstream receiving waters or there are special circumstances.</i></p> <p>The Copermittees, Building Industry, Engineering/Design Consultants, and others have commented that the Tentative Order should restore exemptions for the implementation of hydromodification management BMPs where there is no threat of erosion to downstream receiving waters, such as concrete-lined or otherwise hardened channels. Commenters also argue that exemptions should be allowed for emergency projects or flood control projects.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition Building Industry Association of Southern California</p> <p>Copermittees City of Chula Vista City of Dana Point City of Del Mar City of Imperial Beach City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Juan Capistrano Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District</p> <p>Engineering/Design Consultants Contech Engineered Solutions Project Design Consultants</p> <p>Societies/Associations/Coalitions East Otay Mesa Property Owners Association Otay Mesa Property Owners Association South County Economic Development Council</p> <p>Other Entities National Enterprises Inc.</p>
<p>RESPONSE: The San Diego Water Board disagrees conceptually that blanket exemptions from hydromodification management BMP requirements should be granted to all redevelopment projects that discharge to hardened channels.</p> <p>Although the San Diego Water Board has not been advocating for the implementation of expensive BMPs to protect stream reaches that are not susceptible to erosion, the idea was to use the resources obtained from these low-threat Priority Development Projects on separate projects located elsewhere in the watershed, where protection from hydromodification is critical. In the most recent findings regarding hydromodification management, found in Southern California Coastal Water Research Project (SCCWRP) Technical Report No. 667, authors state: <i>“The exemption of many small projects from hydromodification controls can result in cumulative impacts to downstream waterbodies...”</i></p>	

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SCCWRP Technical Report No. 667 further states that: “An effective management program will likely include combinations of on-site measures (e.g., low-impact development techniques, flow-control basins), in-stream measures (e.g., stream habitat restoration), floodplain and riparian zone actions, and off-site measures. Off-site measures may include compensatory mitigation measures at upstream locations that are designed to help restore and manage flow and sediment yield in the watershed [Emphasis added].”

The Tentative Order released on October 31, 2012 was written to incorporate these important watershed-based concepts. Nevertheless, several commenters voiced concern over the elimination of exemptions to hardened channels and other non-susceptible receiving waters. After careful consideration, the San Diego Water Board revised the Tentative Order to accommodate the re-introduction of exemptions. Provision E.3.c.(2) has been revised to include an exemption from hydromodification management requirements for Priority Development Projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. Additional exemptions may be allowed; however, they would occur on a watershed-specific basis, and must be defined and defended by the Copermittees.

Under the newly created Provision B.3.b.(4), the Copermittees have been provided the option to perform a Watershed Management Area Analysis for the purpose of 1) characterizing the watersheds, 2) identifying alternative compliance projects that Priority Development Projects may use in lieu of implementing structural BMPs onsite, and 3) identifying areas within the watershed where it is appropriate to exempt Priority Development Projects from implementing hydromodification management BMPs. Exemptions, then, would be applicable on a watershed-specific basis, and would require supporting rationale.

One reason why the San Diego Water Board has reservations regarding the idea of blanket exemptions is that allowing them without some sort of analysis is short-sighted. SCCWRP Technical Report 667 discusses the importance of watershed-based planning. The report states: “There is usually also an exemption for projects discharging to hardened channels or waterbodies; however these exemptions may not be supportive of future stream restoration possibilities...”

Although the San Diego Water Board understands that hardened channels may sometimes provide essential flood control, there are situations where stream rehabilitation can take place, and concrete segments can be removed. For this reason, if the Copermittees choose to perform the Watershed Management Area Analysis,

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<p>they may be able to differentiate between hardened stream segments where the concrete will likely never be removed, and other stream segments where there is a possibility for future rehabilitation. Nevertheless, an exemption for concrete-lined channels has been added to the Tentative Order.</p> <p>Finally, the Copermittees commented that there should be exemptions allowed for emergency projects or flood control projects. The San Diego Water Board disagrees with the Copermittees in either case. Provision E.3 describes requirements that pertain to development planning. Emergency situations, by definition, are not planning exercises and therefore do not involve the design, approval, and construction of a building or structure. The San Diego Water Board believes that it may be appropriate to relax the structural BMP standards for, or altogether exempt flood control projects, but not before projects are evaluated on a case-by-case basis. In many instances, environmentally friendly practices may be appropriate for implementation in flood control projects, but a variety of options would not be evaluated by the project proponent if the Tentative Order allowed a blanket exemption.</p>

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E3c2-4 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>Objections with requirements to compensate for sediment supply.</i></p> <p>The Copermittees, Building Industry, and Engineering/Design Consultants have commented that management of sediment supply is a complicated and challenging issue, and more direction regarding the Tentative Order's intent should be provided. Commenters have also stated that it is inappropriate to require analysis of sediment supply on a site-by-site basis, and that it is better addressed at the regional level.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermittees City of Chula Vista County of San Diego San Diego County Copermittees</p> <p>Engineering/Design Consultants Contech Engineered Solutions Project Design Consultants</p>
	<p>RESPONSE: The San Diego Water Board agrees with the commenters that addressing the sediment supply issue when a Priority Development Project is under review is complicated and challenging. The intent of the Tentative Order is to protect the coarse sediment supply and ensure that Priority Development Projects will not impact the supply. Therefore, language pertaining to "compensating for" sediment supply has been removed.</p> <p>Instead, where a Copermittee is aware of areas where coarse sediment is naturally discharged to downstream receiving waters, then the San Diego Water Board expects the Copermittee to ensure the protection of this natural process by conditioning the Priority Development Project to either avoid the area, or implement measures that would allow the natural hydrologic process to continue.</p> <p>Please see Provision E.3.c.(2)(b) in the revised Tentative Order for the revisions.</p>	

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E3c2-5 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>Monitoring and assessment program requirements will not provide information necessary to re-define the range of flows causing erosion.</i></p> <p>The City of Chula Vista commented that water quality monitoring as described in Provision D of the Tentative Order will not provide the necessary information to re-define the range of flows thought to cause erosion to receiving waters.</p>	<p>Copermittees City of Chula Vista</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the monitoring and assessment program requirements cannot provide information necessary to re-evaluate or re-define the range of flows causing erosion.</p> <p>The water quality monitoring described in Provision D.1.a.(2) represents the minimum level of monitoring needed to comply with the Tentative Order. If the Copermittees elect to re-evaluate the range of flows that are thought to cause erosion to downstream receiving waters, as defined in the San Diego County HMP, then they may design a monitoring program that will provide the necessary information to do so.</p>	

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E3c2-6 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>The low-flow thresholds included in the San Diego County HMP need to be revised.</i></p> <p>Project Design Consultants submitted comments suggesting that the schedule for development of the San Diego County HMP was extremely rushed, and technical expertise was ignored. The HMP should be revised and included in the Tentative Order.</p>	<p>Engineering/Design Consultants Project Design Consultants</p>
	<p>RESPONSE: The San Diego Water Board does not object to revising the low-flow thresholds included in the San Diego County HMP, provided that revisions are based on data acquired by the Copermittees. However, the process for updating this design standard in the HMP will occur on an ad-hoc basis and need not be referenced in the Tentative Order.</p>	

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E3c2-7 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>The hydromodification management BMP performance standards should allow the use of the erosion potential (Ep) method and in-stream metrics for compliance.</i></p> <p>The Building Industry Association of Southern California requests that the performance standards for hydromodification management allow the use of the Ep method. Requiring project-by-project flow duration control may not be as effective as a regionally-coordinated approach that combines upland control with in-stream remedies.</p>	<p>Building Industry / Industry Building Industry Association of Southern California</p>
	<p>RESPONSE: The San Diego Water Board considered the request and found that changes are not necessary.</p> <p>Although the language in Provision E.3.c.(2) does not specifically reference the concept of erosion potential, the Copermittees are not prohibited from using such an approach. Provision E.3.c.(2)(a) requires the Copermittees to require implementation of BMPs to ensure that post-project runoff flow rates and durations do not exceed pre-development runoff flow rates and durations by more than 10 percent (for the range of flows that are deemed to cause erosion).</p> <p>However, Provision E.3.c.(2)(c) allows a Priority Development Project to utilize the alternative compliance program in lieu of complying with the requirement to implement structural BMPs onsite. Priority Development Projects are allowed to comply with the hydromodification management requirements by funding, partially funding, or implementing an offsite project, such as stream rehabilitation (which can include stream stabilization). The San Diego Water Board agrees that a regionally-coordinated approach that includes in-stream remedies is more effective than requiring flow duration control BMPs on every Priority Development Project, and for this reason has written the Tentative Order to allow these metrics. However, ultimately, administration of the Alternative Compliance Program is at the discretion of the Copermittees. If the Copermittees find that administering the Alternative Compliance Program is too difficult, costly, or is not in a Copermittee's best interest, than they are not obligated to do so.</p>	

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E3c2-8 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
<p>COMMENT: <i>There is insufficient data to suggest a need to change the hydromodification management requirements.</i></p> <p>The City of Mission Viejo, Orange County and San Diego County Copermittees have commented that there is no need to include new requirements for hydromodification management, as no new data has emerged suggesting a need for change and the Copermittees have only begun to implement their current HMPs.</p>	<p>Copermittees City of Mission Viejo Orange County Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees that there have been any fundamental changes to the hydromodification management requirements from those included in the Fourth Term storm water permits. The basic premise, which is requiring hydromodification management for erosive flows as defined by the Copermittees, has not changed. The San Diego County Copermittees spent considerable funds and effort to define the range of flows that cause erosive effects, and the Tentative Order does not trump those efforts.</p> <p>The San Diego Water Board disagrees with the notion that no new data has emerged regarding hydromodification management. Several commenters have referenced Southern California Coastal Water Research Project's latest findings in <i>Hydromodification Assessment and Management in California</i> (Technical Report 667). SCCWRP Technical Report 667 clearly states that: <i>"An effective management program will likely include combinations of on-site measures...in-stream measures...and offsite measures...."</i></p> <p>Further, SCCWRP Technical Report 667 states that: <i>"The exemption of many small projects from hydromodification controls can result in cumulative impacts to downstream waterbodies."</i></p> <p>The requirements in the Tentative Order are consistent with the findings in this report and MS4 permits in Orange and Riverside Counties. The San Diego Water Board agrees with the underlying premise advocated in this report, which is that effective hydromodification programs begin with watershed-scale analysis and planning.</p> <p>Although the Copermittees have just recently begun implanting their HMPs, the changes needed to incorporate the requirements of the Tentative Order will not undermine the mechanics of the HMPs and therefore will not require substantial revisions. The incorporation of the pre-development baseline standards and inclusion of only qualified exemptions, resulting from thorough watershed analyses, is essential for protecting receiving streams from erosion caused by altered flow regimes.</p>	

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E3c3-1 PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements		
	<p>COMMENT: <i>Objections to the onsite LID biofiltration treatment control BMP performance standards.</i></p> <p>The San Diego County, Orange County, and Riverside County Copermittees and Engineering/Design Consultants have commented that there is no need to include a 1.5 times multiplier on biofiltration LID BMPs, and that doing so is technically unjustified.</p>	<p>Building Industry / Industry Building Industry Association of Southern California</p> <p>Copermittees City of Vista Orange County Copermittees Riverside County Copermittees</p> <p>Engineering/Design Consultants Contech Engineered Solutions Project Design Consultants</p>
	<p>RESPONSE: Provision E.3.c.(3) describing the Alternative Compliance Program has been substantially revised so that it coincides better with the watershed planning efforts of the Copermittees in the Water Quality Improvement Plans. As a result, the requirements related to LID biofiltration BMPs has been removed.</p>	

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E3c3-2 PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements		
E3c3-2	<p>COMMENT: <i>Modify requirements and process to implement alternative compliance options.</i></p> <p>The San Diego County, Orange County, and Riverside County Copermittees, Engineering/Design Consultants, and Environmental Organizations have expressed concern with the process associated with the Alternative Compliance Program to Onsite Structural BMP Implementation. The Copermittees assert that this program should be administered by the San Diego Water Board, that more time than 4 years should be granted for alternative compliance project completion, and that the administrative costs would be prohibitive. The Environmental Organizations suggest that language be added to the Tentative Order to clearly indicate that the Copermittees are responsible for ensuring that alternative compliance projects are completed within the 4 year timeframe, and also expressed concerns as to whether the alternative compliance project would provide equal water quality benefits as implementing structural BMPs onsite. Engineering/Design Consultants submitted recommendations regarding how administration of the Alternative Compliance Program would work.</p>	<p>Building Industry / Industry American Society of Landscape Architects BIA Regulated Community Coalition Building Industry Association of Southern California San Diego Green Building Council</p> <p>Copermittees City of Imperial Beach County of San Diego Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Environmental Groups Natural Resources Defense Council</p> <p>Engineering/Design Consultants Project Design Consultants</p>
E3c3-2	<p>RESPONSE: The San Diego Water Board disagrees with the Copermittees that the Alternative Compliance Program should be administered by the San Diego Water Board and not by the Copermittees. The Alternative Compliance Program is provided as an option to the Copermittees. The Copermittees are not required to implement the Alternative Compliance Program. If, however, the Copermittees do implement the Alternative Compliance Program, it is expected to coincide with the Copermittees' watershed planning efforts and assist the Copermittees in reaching their goals of reducing pollutants in storm water runoff leaving their MS4s. This is because the alternative compliance projects consist of projects such as retrofitting existing development, where pollutant treatment can be an added benefit where no treatment currently exists; or stream rehabilitation, where natural attenuation of pollutants can occur as an ancillary benefit to improved stream habitat. Other example projects are regional BMPs that receive runoff from multiple areas, or the preservation or purchase of critical floodplain land.</p> <p>The Tentative Order establishes requirements for the Copermittees and not the San Diego Water Board. Therefore, it would inappropriate for the San Diego Water Board administer this program, but could assist in its implementation by streamlining permits for stream rehabilitation and restoration... The San Diego Water Board understands that the initial costs for administering this program could be significant; however, there are fiscal benefits in that Priority Development Projects could provide the funding for projects that are expected to improve water quality, thereby negating the need for Copermittees to expend their resources on BMPs to accomplish the</p>	

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E3c3-2 PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements
<p>same thing. Finally, the Copermittees are not required to administer this program and can elect to administer BMPs strictly onsite. Provision E.3.c.(3) has been substantially revised for simplicity and to better coincide with the Copermittees' planning efforts, and all references to LEED certification have been removed.</p> <p>The San Diego Water Board further disagrees that more than 4 years should be granted for alternative compliance project completion. First of all, pollutants from the Priority Development Project are being discharged without treatment and there is not necessarily any equivalent treatment until the alternative compliance project is constructed (although temporal mitigation is required when there is a lag between the two projects). Second of all, the Tentative Order explicitly allows more time for projects where the Executive Officer approves additional time.</p> <p>The San Diego Water Board disagrees with the recommendation that the Tentative Order specify that the Copermittees are responsible for ensuring that the alternative compliance projects are completed within the 4 year time frame. The Tentative Order is issued to the San Diego County, Orange County, and Riverside County Copermittees; therefore all of these entities are responsible for complying with the requirements, and further discussion would be redundant.</p> <p>Finally, the San Diego Water Board agrees that the alternative compliance program presents some uncertainty regarding "greater water quality benefit" expected to come from these projects versus implementation of structural BMPs onsite. If the Copermittees elect to implement an Alternative Compliance Program, they are required to develop a list of potential candidate projects that can be implemented with the Watershed Management Area. The candidate projects will be included in the Water Quality Improvement Plans, which will be reviewed by the public and the San Diego Water Board before implementation takes place. The water quality benefits that can be achieved by implementing those candidate projects will likely be made evident during the public participation process in the development of the Water Quality Improvement Plans.</p>

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E3c3-3 PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements		
	<p>COMMENT: <i>Request for modifications to the alternative compliance water quality credit system option.</i></p> <p>The Orange County Copermittees have requested that language pertaining to the water quality credit system be revised to remove the no-net impact limitations because certain projects may offer significant environmental benefits that are not necessarily related to water quality.</p> <p>The BIA Regulated Community Coalition recommended that any water quality credit system exercised by the Copermittees be included in the Water Quality Improvement Plans and be approved by the San Diego Water Board and not by its Executive Officer.</p>	<p>Building Industry / Industry Copermittees BIA Regulated Community Coalition Orange County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the Orange County Copermittees that the no-net impact language should be removed from the Tentative Order. The optional credit system described in Provision E.3.c.(3)(d) is based on meeting the structural BMP performance standards as they pertain to protecting and improving water quality. A credit system that would allow other environmental benefits cannot necessarily ensure that water quality would be protected to the MEP standard, for which the performance standards are structured to achieve.</p> <p>The San Diego Water Board disagrees that a water quality credit system requires approval from San Diego Water Board instead of the Executive Officer because the provisions for such a credit system are clearly outlined in the Tentative Order. The Executive Officer will be able to determine whether or not the Copermittee has met the requirements as dictated in the Tentative Order. However, the public may request that any action taken by the Executive Officer be considered by the San Diego Water Board at any time.</p>	

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E3c3-4	PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements	
	<p>COMMENT: <i>Define a list of preferred or "best-in-class" BMPs and include specific guidance regarding evaluation of treatment systems in the Tentative Order.</i></p> <p>The San Diego Green Building Council commented that the Tentative Order should clearly define the best-in-class BMPs and require the creation of a system to catalogue the implementation strategies used by the various Copermittees, and that the database should include the measured water quality impacts from each site. Such information can be used as a resource for future projects and development.</p> <p>Contech Engineered Solutions recommended that the Tentative Order include specific guidance regarding evaluation of proprietary treatment systems, and that the Copermittees need to conduct a performance and feasibility assessment of such systems.</p>	<p>Building Industry / Industry San Diego Green Building Council Engineering/Design Consultants Contech Engineered Solutions</p>
	<p>RESPONSE: The San Diego Water Board disagrees with this comments because 1) the San Diego Water Board cannot dictate the manner of compliance with any requirements or regulation for any of the programs it administers, and 2) a "best-in-class" BMP cannot be concretely defined because the MEP standard is dynamic (see Appendix C for the definition of MEP). The Copermittees may choose to share information regarding BMP performance and evaluation of proprietary treatment systems via the Regional Clearinghouse or other mechanism. The Copermittees have the experience and expertise to define what are the appropriate BMPs.</p>	

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E3c3-5 PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements		
	<p>COMMENT: <i>Mitigation should not be required if flow-thru biofiltration LID BMPs are used.</i></p> <p>The Building Industry Association of Southern California submitted comments stating that the Tentative Order should not require mitigation for the portion of the design storm volume that is not retained onsite if this volume is treated by biofiltration LID BMPs prior to discharge. This requirement penalizes and dis-incentivizes the use of these BMPs.</p>	<p>Building Industry / Industry Building Industry Association of Southern California</p>
	<p>RESPONSE: The San Diego Water Board has included the requirement that mitigation is necessary for the portion of the design storm volume that is not retained onsite because, although this remaining volume of storm water would be treated, the MEP standard as represented by the structural BMP performance requirements would not have been met. The requirement for mitigation is not limited to the use of biofiltration BMPs; mitigation is required no matter what type of flow-thru treatment BMP is utilized by the Priority Development Project. Therefore the San Diego Water Board disagrees that this requirement is penalizing the Priority Development Project for the use of biofiltration LID BMPs, as suggested by the commenter.</p> <p>Retention of the 85th percentile storm is clearly the MEP standard for storm water pollutant control, as represented by the Tentative Order and recently adopted MS4 permits in the San Diego Region, other areas of southern California, and elsewhere in the United States. Retention of anything less than the design storm volume must be mitigated because the MEP standard has not been met.</p>	

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E4-1	PROVISION E.4: Construction Management	
	<p>COMMENT: <i>Requests for "clarifications" for construction management requirements.</i></p> <p>The San Diego County and Riverside County Copermittees submitted requests for specific modifications to the language of Provision E.4 attempting to increase clarity to what is required of the Copermittees and what the Copermittees are to require of private party construction sites within their jurisdiction. The USEPA provided general comments on the need for the construction requirements to include enough specificity to determine compliance with the Tentative Order.</p>	<p>Copermittees Riverside County Copermittees San Diego County Copermittees State and Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board generally agreed with the specific language modifications requested by the Copermittees and in many instances adjusted the language of Provision E.4 as requested.</p> <p>Specific changes were made to Provision E.4 to:</p> <ol style="list-style-type: none"> 1) Remove the requirement for the Copermittees to verify a project applicant has obtained coverage under permits, other than the State Water Board's General Construction Storm Water Permit, 2) Use the term 'pollution control plan' consistently; 3) Require the Copermittees to conduct inspections and require BMPs at inventoried construction sites (based on the priority set in Provision E.4.b.2) to 'confirm' rather than 'ensure' the controls at the site reduce the discharge of pollutants in storm water from the site to the MEP; and 4) Require the Copermittees to conduct inspections and require BMPs at inventoried construction sites (based on the priority set in Provision E.4.b.2) that effectively prohibits non-storm water discharges from the site from entering the MS4. <p>Modifications were also made to the opening paragraph of Provision E.4 requiring each Copermittee to implement a construction management program in accordance with the strategies in the Water Quality Improvement Plan described pursuant to Provision B.3.b.(1).</p> <p>Additionally, the San Diego Water Board made adjustments to Provision E.4 requirements setting minimum inspection frequencies equivalent to the amount required to confirm compliance with the Clean Water Act. Provision E.4.d(1)(a) specifically requires the Copermittees to conduct inspections at all inventoried sites, including high threat to water quality sites, at an frequency appropriate to confirm the site reduces the discharge of pollutants in storm water from the construction site to the MEP, and effectively prohibits non-storm water</p>	

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E4-1	PROVISION E.4: Construction Management
	discharges from entering the MS4. The San Diego Water Board supports the adaptive management approach in the Tentative Order and has structured the construction inspections to focus on those sites that represent a high priority to maintaining or protecting downstream surface water quality.

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E4-2 PROVISION E.4: Construction Management		
	<p>COMMENT: <i>Requests for modifications to construction site inventory, tracking, recordkeeping requirements.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting changes to the construction management requirements that specific construction sites to be inventoried would include only those sites that involve any ground disturbance or soil disturbing activities, include a process for confirming adequate BMP implementation on inventoried sites, specify project 'completion' date not "anticipated completion" date; and 'weather condition during inspection' not 'approximate amount of rainfall since last inspection' on inspection forms, and require construction inventories to be updated quarterly not monthly.</p> <p>The Riverside County Copermittees provided recommended revisions to the construction requirements.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agreed with most of the changes requested by the commenters and modified Provision E.4 accordingly.</p> <p>However, the request to remove the requirement to include 'approximate amount of rainfall since last inspection' on the inspection forms, and the suggestion to include a process for confirming adequate construction BMP implementation for non-inventoried construction site were not incorporated into the revised Tentative Order. The San Diego Water Board is interested in site conditions after a significant rain event(s) therefore documenting the approximate amount of rainfall since the last inspection is required rather than the weather conditions during the inspection. A process for confirming adequate construction BMP implementation for non-inventoried sites can be developed and included in the jurisdictional program, but is not a requirement of the Tentative Order.</p> <p>The San Diego Water Board reviewed all of the recommended revisions provided by the Riverside County Copermittees. See Provision E.4 for those requested revisions that were incorporated into the Tentative Order.</p>	

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E4-3 PROVISION E.4: Construction Management	
<p>COMMENT: <i>Request to only require verification of coverage under Construction General Permit, not "applicable permits."</i></p> <p>The Copermitees commented that the requirement to verify permits other than the State Water Board's Construction General Permit is unnecessary because applicable permits are included as attachments to a construction projects SWPPP, and redundant with other environmental regulations.</p>	<p>Copermitees City of Chula Vista Orange County Copermitees Riverside County Copermitees San Diego County Copermitees</p>
<p>RESPONSE: The San Diego Water Board agrees with the commenters.</p> <p>The San Diego Water Board modified the language in Provision E.4.a to require verification that the project applicant has obtained coverage under the Construction General Permit, only.</p>	

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E5-1 PROVISION E.5: Existing Development Management		
	<p>COMMENT: <i>Concerns with inspections by volunteers.</i></p> <p>The San Diego County Copermittees expressed concern with exposure to significant liability should a volunteer be injured in the course of an unauthorized inspection, or if private property is damaged during that inspection, or other unforeseen legal issues that result from volunteer groups conducting inspections of inventoried existing developments sites. Similar concerns were expressed by the Industrial Environmental Association and the San Diego Port Tenants Association.</p>	<p>Building Industry / Industry Industrial Environmental Association</p> <p>Copermittees San Diego County Copermittees</p> <p>Societies/Associations/Coalitions San Diego Port Tenants Association</p>
	<p>RESPONSE: The San Diego Water Board understands the position presented by the commenters and agrees that changes to the language in Provision E.5.c are necessary.</p> <p>Provision E.5.c was modified to restrict the use of Copermittee-trained volunteer monitoring or patrol programs to visual inspections of those inventoried facilities or areas that are publicly accessible. Additionally, the San Diego Water Board incorporated the Industrial Environmental Association’s suggested change to the language of Provision E.5.c.(2). The ability of the Copermittee to use volunteer monitoring or patrol programs was included in the Tentative Order to give the Copermittees additional resources to accomplish the inspection requirements of Provision E.5.c. The Copermittees retain sole discretion on using volunteer monitoring or patrol programs to augment their inspection programs. The Copermittees also retain sole discretion to stipulate conditions (insurance, training, etc.) for which a volunteer monitoring or patrol program must comply in order assist them with inspections.</p>	

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E5-2 PROVISION E.5: Existing Development Management	
	<p>COMMENT: <i>Requests for modifications to existing development inventory and tracking requirements.</i></p> <p>The San Diego County Copermittees and City of Santee each requested removal of 'mobile home parks' from the list of residential areas that should be included in its existing development inventory, citing the Mobile Home Park Act preempts a municipality's ability to regulate within the mobile home park. The Copermittees further requested modification to the language of Provision E.5.a to replace the phrase 'may discharge pollutants' with 'has the reasonable potential to discharge pollutants,' claiming that the term 'may' is too broad and limits the Copermittees' ability to focus on those sites in their inventories identified as jurisdictional and watershed priorities. A specific comment was submitted by the City of Chula Vista asking that the Tentative Order allow use of more than one data management system to track the required information.</p>
	<p>Copermittees City of Chula Vista City of Santee San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board understands that a city does not have full access to regulate mobile home parks pursuant to the Mobile Home Park Act, but disagrees that the Copermittees do not have the legal authority to regulate discharges from and require BMPs at mobile home parks to their MS4s.</p> <p>The requirements of the Tentative Order are that each Copermittee maintain an inventory of its existing development that may discharge a pollutant load to and from the MS4. If a Copermittee has mobile home parks in its jurisdiction it must be included in its inventory so that the mobile home park gets considered in the Water Quality Improvement Plan priorities and strategies to address sources of pollutants. The comments included a description of what a city is allowed to regulate via its police powers, at mobile home parks. This list included access 'streets and roads' and parking. These are areas where potentially BMPs could be located if, through the Water Quality Improvement Plan process, it was determined that pollutants discharged from mobile home parks were a high priority water quality condition. Additionally, other scenarios could exist where discharges from mobile home parks are not considered a high priority, and inspections would occur much less often. Therefore, mobile home parks must remain within a Copermittee's existing development inventories, but can be dealt with according to the priorities, schedules and goals of the Water Quality Improvement Plan. Therefore, no change to the Tentative Order was made.</p> <p>The San Diego Water Board disagrees with the comment that the term 'may' should be replaced with 'reasonable potential.' The term 'may' is used to indicate possibility or probability that a pollutant load is discharged from an inventoried existing development facility or area. The term reasonable potential can imply the need to conduct a reasonable potential analysis, which is a far more involved process than a Copermittee making the determination that a facility possibly or probably discharges a pollutant load into its MS4. Nothing in</p>

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E5-2	PROVISION E.5: Existing Development Management
	<p>the Tentative Order prevents a Copermittee from conducting a more robust analysis of the potential for pollutant loads to be discharged from its inventoried existing facilities or areas. Therefore, no change to the Tentative Order was made.</p> <p>The use of a GIS database to track inventoried facilities is only “highly recommended” in the Tentative Order, it is not explicitly required. Therefore a Copermittee can use one or more than one data management system to track the required information.</p>

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E5-3 PROVISION E.5: Existing Development Management	
<p>COMMENT: <i>Requests for modifications to existing development BMP implementation and maintenance requirements.</i></p> <p>The Riverside County and San Diego County Copermittees submitted comments requesting a modification to the language of Provision E.5.b to specify each Copermittee only be required to designate a minimum set of BMPs for all inventoried existing development with the reasonable potential to discharge pollutant loads to their MS4. Commenters further suggest clarifying language for the required use of pollutant prevention methods (i.e. designated BMPs) in Provision E.5.b.</p> <p>A specific comment was made by the City of Chula Vista to removed 'freeways' from list of existing facilities the Copermittees are required to properly operate and maintain BMPs. The City of Chula Vista notes that freeways are under the jurisdiction of Caltrans, not a city.</p>	<p>Copermittees City of Chula Vista Riverside County Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees with the commenters request to modify the language of Provision E.5.b to specify each Copermittee only be required to designate a minimum set of BMPs for all inventoried existing development with the reasonable potential to discharge pollutant loads to their MS4.</p> <p>Provision E.5.b states that each Copermittee must designate a minimum set of BMPs required for all inventoried existing development, including special event venues. Any existing development that gets inventoried has been identified as a facility that may generate pollutant loads to and from the MS4 under Provision E.5.a. Therefore, if a facility is on the inventory, a Copermittee has already made the determination that the existing development possibly or probably generates a pollutant load. Therefore, no change to the Tentative Order was made.</p> <p>The San Diego Water Board agrees with the requests to clarify the language in Provisions E.5.b.(1)(b) and (d) to specify when a Copermittee must require implementation of BMPs at inventoried existing development not owned by the Copermittee, and when a Copermittee must implement BMPs on their own municipal facilities.</p> <p>The San Diego Water Board also agrees with the City of Chula Vista's request to remove 'freeways' from the list of existing facilities the Copermittees are required to properly operate and maintain BMPs.</p>	

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E5-4 PROVISION E.5: Existing Development Management		
E5-4	<p>COMMENT: <i>Requests for modifications to existing development inspection requirements.</i></p> <p>The County of San Diego commented on the need for an exemption from the minimum annual inspection requirement of 20 percent for inventoried linear municipal facilities. Riverside County Copermitees requested the requirement to inspect at least 20 percent of its existing development inventory be deleted.</p> <p>The Tentative Order requires each inventoried existing development be inspected once every five years. Both San Diego County and Riverside County Copermitees commented on this minimum. San Diego County Copermitees want it changed to once per permit term, conversely Riverside County Copermitees support existing language of once per five years. The USEPA does not support relaxation to inspection frequencies because it weakens enforceability and the ability to determine compliance.</p> <p>The San Diego County Copermitees requested clarifying language be added to what must be included in a visual inspection of existing development.</p>	<p>Copermitees County of San Diego Riverside County Copermitees San Diego County Copermitees State and Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board agrees with the County of San Diego's comment concerning the need for exempting linear municipal facilities from the existing development annual inspection requirements due to the number of inspections required if such facilities are considered when calculating 20 percent of the existing development inventory. To address their comments, the language in Provision E.5.c.(1)(a)(iv) includes a footnote, which excludes linear municipal facilities (i.e. MS4 linear channels, sanitary sewer collections systems, streets, roads, and highways). MS4 inlets and basins are not mentioned in this footnote and are still required to be considered when determining 20 percent of inventoried development for the purposes of annual inspections. The San Diego Water Board expects MS4 inlets and basins to be inspected in order to confirm that BMPs are being implemented and maintained to reduce the discharge of pollutants in storm water from the MS4 to the MEP. Comments provided by the USEPA support leaving MS4 inlets and basins in the existing development inventory to strengthen permit enforceability and compliance determinations.</p> <p>The San Diego Water Board kept the existing development minimum inspection requirement of once every five years. This requirement is consistent with comments received by USEPA to include minimum requirements to strengthen permit enforceability and compliance determinations.</p>	

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E5-5 PROVISION E.5: Existing Development Management		
	<p>COMMENT: <i>Requests to limit existing development requirements to existing development with "reasonable potential" to discharge pollutants.</i></p> <p>The San Diego County Copermittees requested the existing development requirements be limited to those existing facilities and areas of development with "reasonable potential" to discharge pollutants.</p>	<p>Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that replacing the term 'may' with the phrase 'reasonable potential' in Provisions E.5.a-c will give a Copermittee more flexibility to focus on jurisdictional and watershed priorities. The Water Quality Improvement Plan will establish the priority water quality conditions within a Watershed Management Area to which a Copermittee will customize its jurisdictional program (i.e. inspection location and frequencies, pollutant reduction efforts (BMP implementation), retrofit opportunities, etc.).</p> <p>The term 'may' is used to indicate possibility or probability that a pollutant load is discharged from an inventoried existing development facility or area. The term 'reasonable potential' can imply the need to conduct a reasonable potential analysis, which is a far more involved process than a Copermittee making the determination that a facility or developed area possibly or probably discharges a pollutant load into its MS4. Nothing in the Tentative Order prevents a Copermittee from conducting a more robust analysis of the potential for existing development to discharge pollutant loads to and from the MS4. Therefore, no change to the Tentative Order was made.</p>	

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E5-6 PROVISION E.5: Existing Development Management		
	<p>COMMENT: Request to allow the Copermitees to reallocate resources required for monitoring for retrofit and/or rehabilitation projects.</p> <p>The San Diego County Copermitees requested an addition to the requirements of Provision E.5.e to allow the Copermitees to reallocate resources required for monitoring for retrofit and/or rehabilitation projects.</p>	<p>Copermitees Riverside County Copermitees San Diego County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request and no change to the Tentative Order was made.</p> <p>Temporarily suspending the monitoring requirements of Provision D to fund a retrofit and/or rehabilitation process is inappropriate. The monitoring requirements in Provision D are the minimum necessary for the Copermitees to demonstrate that the water quality improvement strategies being implemented as part of the Water Quality Improvement Plan are making progress toward achieving the numeric goals.</p>	

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E5e2-1 PROVISION E.5.e.(2): Retrofitting Areas of Existing Development		
	<p>COMMENT: <i>Retrofit existing development to improve water quality.</i></p> <p>The San Diego Green Building Council and South Laguna Civic Association support retrofitting areas of existing development as a means to achieve mandated water quality objectives.</p>	<p>Building Industry / Industry San Diego Green Building Council</p> <p>Environmental Organizations South Laguna Civic Association</p>
	<p>RESPONSE: The San Diego Water Board agrees with the commenters and has developed requirements to encourage retrofitting to achieve reductions in pollutants discharged from MS4s and improved water quality conditions in the receiving waters.</p>	

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E5e2-2 PROVISION E.5.e.(2): Retrofitting Areas of Existing Development	
	<p>COMMENT: <i>Requests to remove or modify retrofitting of existing development requirements.</i></p> <p>The Riverside County Copermittees generally requested the removal of the retrofit and stream/channel/habitat rehabilitation project requirements. However, the Riverside County Copermittees also submitted requests for specific retrofit language changes.</p>
	<p>Copermittees Riverside County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the requests to remove or modify the retrofitting of existing development requirements.</p> <p>The San Diego Water Board reviewed the requested language changes and did not make any of the revisions recommended as they were not necessary or changed the intent of the requirement.</p> <p>The requirements in the Tentative Order do not require any Copermittee to implement or require the implementation of a retrofitting project. The Tentative Order requires each Copermittee to describe a program that identifies those areas (public, private, or both) as good candidates for retrofitting. In areas where retrofitting projects within certain areas of existing development cannot be implemented by the Copermittee because of ownership (i.e. private property) or permitting, the Copermittee must develop strategies to facilitate the implementation of retrofitting projects if and when the opportunities become available.</p> <p>The San Diego Water Board did not remove or modify the requirements of Provision E.5.e.(2), but the requirements are now under Provision E.5.e.(1) in the revised Tentative Order.</p>

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E5e3-1 PROVISION E.5.e.(3): Stream, Channel and/or Habitat Rehabilitation in Areas of Existing Development		
	<p>COMMENT: <i>Rehabilitate receiving waters to improve water quality.</i></p> <p>The Laguna Bluebelt Coalition and South Laguna Civic Association expressed support for rehabilitating high value coastal receiving waters to improve water quality.</p>	<p>Environmental Organizations Laguna Bluebelt Coalition South Laguna Civic Association</p>
	<p>RESPONSE: The San Diego Water Board agrees with the commenters that rehabilitation of coastal wetlands and estuaries are important to the improvement of water quality within the San Diego Region.</p>	

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E5e3-2 PROVISION E.5.e.(3): Stream, Channel and/or Habitat Rehabilitation in Areas of Existing Development		
	<p>COMMENT: <i>Create map to identify creeks and coastal receiving waters impacted by discharges from storm drains and candidate areas for restoration.</i></p> <p>The Laguna Bluebelt Coalition and South Laguna Civic Association expressed support for the creation of maps to show water quality impacted areas of all creeks and coastal receiving waters within the region. The commenters also supported identifying degraded land elements, offending storm drain outlets and candidate areas for re-forestation and estuarine/coastal restoration.</p>	<p>Environmental Organizations Laguna Bluebelt Coalition South Laguna Civic Association</p>
	<p>RESPONSE: The San Diego Water Board agrees that maps identifying candidate areas for restoration would be useful.</p> <p>The Copermittees have been provided an opportunity to create maps to assist in their efforts to comply with the requirements of the Tentative Order. Specifically, the Copermittees will have the option to generate a map and list of candidate projects, including stream, channel and habitat rehabilitation projects, which could potentially be used as alternative compliance options for Priority Development Projects, to be implemented in lieu of onsite structural BMP performance requirements. The optional Watershed Management Area Analysis is provided in Provision B.3.b.(4).</p>	

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E5e3-3 PROVISION E.5.e.(3): Stream, Channel and/or Habitat Rehabilitation in Areas of Existing Development		
	<p>COMMENT: Request for modifications to existing development stream, channel and/or habitat rehabilitation requirements.</p> <p>The Orange County Copermittees requested a modification to the requirements of Provision E.5.e.(3) to allow a Copermittee to identify stream, channel, and/or habitat rehabilitation projects downstream of its jurisdiction. The Orange County Copermittees also requested the removal of Provision E.5.e.(3)(a) requiring each Copermittee to identify streams, channels, and/or habitats in areas of existing development as candidates for rehabilitation.</p>	<p>Copermittees Orange County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the requests.</p> <p>The requirements of Provision E.5.e.(3) are to be implemented by each Copermittee within its jurisdiction. Allowing a Copermittee to identify stream, channel, and/or habitat rehabilitation projects downstream of its jurisdiction is not appropriate for this requirement. The Copermittee will, however, be able to identify stream, channel, and/or habitat rehabilitation projects downstream of its jurisdiction as potential alternative compliance options for Priority Development Projects if the Copermittees in the Watershed Management Area perform the optional Watershed Management Area Analysis and include it in the Water Quality Improvement Plan.</p> <p>The removal of Provision E.5.e.(3)(a) is not appropriate because without this requirement, the subsequent requirements could not be implemented by the Copermittee.</p> <p>The San Diego Water Board did not modify the requirements of Provision E.5.e.(3), but the requirements are now under Provision E.5.e.(2) in the revised Tentative Order.</p>	

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E6-1 PROVISION E.6: Enforcement Response Plans	
	<p>COMMENT: <i>Specify criminal penalties are limited to intentional or criminally negligent acts.</i></p> <p>The Riverside County and San Diego County Copermittees each submitted comments requesting Provision E.6.b.(5) be modified to specify criminal penalties are limited to intentional or criminally negligent acts.</p>
	<p>Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the revision is necessary.</p> <p>Provision E.6.b requires each Copermittee to list the enforcement response approaches that the Copermittee will implement within its jurisdiction to compel compliance with its statutes, ordinances, permits, contracts, order, or similar means, and the requirements of the Order. The Copermittee may specify in its Enforcement Response Plan that criminal penalties are limited to intentional or criminally negligent acts.</p> <p>The San Diego Water Board did not revise Provision E.6.b.(5).</p>

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E6-2 PROVISION E.6: Enforcement Response Plans		
	<p>COMMENT: Notification to San Diego Water Board for "escalated" enforcement should be consistent with Construction General Permit.</p> <p>The Riverside County and San Diego County Copermitees each submitted comments requesting Provision E.6.e.(1) be modified to be consistent with the notification requirements of the Construction General Permit.</p>	<p>Copermitees Riverside County Copermitees San Diego County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the request.</p> <p>Provision E.6.e.(1) has been revised as requested.</p>	

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E6-3 PROVISION E.6: Enforcement Response Plans		
	<p>COMMENT: <i>Revise the term "escalated enforcement" to "progressive enforcement."</i></p> <p>The Orange County and Riverside County Copermitees each submitted comments requesting Provision E.6.d be modified to be "Progressive Enforcement" instead of "Escalated Enforcement" because the term is more appropriate.</p>	<p>Copermitees Orange County Copermitees Riverside County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request.</p> <p>The Copermitees are expected to implement "progressive enforcement" in all cases of enforcement. For enforcement issues that are associated with the highest priority water quality conditions identified by the Copermitees in the Watershed Management Area, the Copermitees are expected to implement the enforcement more swiftly, meaning escalating its enforcement measures and resources to compel compliance with its statutes, ordinances, permits, contracts, order, or similar means, and the requirements of the Order as soon as possible. The term "escalated enforcement" correctly reflects this added level of urgency and focus to compel compliance.</p> <p>The San Diego Water Board did not revise Provision E.6.d.</p>	

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E6-4 PROVISION E.6: Enforcement Response Plans		
	<p>COMMENT: <i>Allow the Copermitees to utilize existing guidelines and procedures for enforcement.</i></p> <p>The Orange County and Riverside County Copermitees each submitted comments requesting the introductory paragraph of Provision E.6 be modified to specify that a Copermitee may utilize and implement established, equivalent guidelines and procedures for enforcement.</p>	<p>Copermitees Orange County Copermitees Riverside County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request.</p> <p>The Copermitees are allowed to utilize and implement their existing procedures if they meet the requirements of Provision E.6. Provision E.6, however, requires each Copermitee to develop an Enforcement Response Plan, included as part of its jurisdictional runoff management program document, which the San Diego Water Board and the public may utilize to determine if the Copermitee is indeed implementing its enforcement program according to its procedures. The Enforcement Response Plan is expected to be a tool the Copermitee can refer to when issuing enforcement actions to compel compliance with its statutes, ordinances, permits, contracts, order, or similar means, and the requirements of the Order. The Enforcement Response Plan is also expected to result in more consistent enforcement and enforcement actions by the Copermitee within its jurisdiction.</p> <p>The San Diego Water Board did not revise the introductory paragraph to Provision E.6.</p>	

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E7a-1	PROVISION E.7.a: Public Education	
	<p>COMMENT: <i>Requests for modifications to public education requirements.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting the requirements in Provision E.7.a be modified to allow the Copermittees to focus their public education efforts on the highest priority water quality conditions, and remove or reduce the emphasis in the language that focuses on pesticides, herbicides and fertilizers.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the requested modifications.</p> <p>The public education requirements under Provision E.7.a provide the Copermittees the flexibility to focus their public education efforts on the highest priority water quality conditions, while being consistent with federal regulations.</p> <p>Provision E.7.a.(1) is consistent with 40CFR122.26(d)(2)(iv)(A)(6), which requires each Copermittee to provide “A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides and fertilizer which will include...educational activities...” Provision E.7.a.(1) has been expanded to include “other pollutants of concern...as determined and prioritized by the Copermittee(s) by jurisdiction and/or watershed to address the highest priority water quality conditions...” To be consistent with 40CFR122.26(d)(2)(iv)(A)(6), however, each Copermittee must have a program of educational activities to reduce pollutants associated with pesticides, herbicides and fertilizers to the MEP.</p> <p>The San Diego Water Board did not modify Provision E.7.a.</p>	

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E8-1 PROVISION E.8: Fiscal Analysis	
	<p>COMMENT: <i>Request to remove requirement to secure resources to meet requirements of the Tentative Order.</i></p> <p>The Riverside County Copermittees requested that Provision E.8.a, requiring each Copermittee to secure the resources necessary to meet all the requirements of the Order, be removed. The Riverside County Copermittees assert this requirement exceeds the requirements of the Clean Water Act.</p>
	<p>Copermittees Riverside County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request.</p> <p>The Copermittees are responsible for securing the resources necessary to meet the requirements of the Tentative Order. Without securing the resources necessary to meet all requirements of the Tentative Order, the Copermittee would be unable to meet the requirements of the Tentative Order.</p> <p>Additionally, CWA section 402(p)(3)(B)(iii) requires that NPDES permits for storm water discharges from MS4s to “<i>require controls to reduce the discharge of pollutants [in storm water] to the maximum extent practicable [MEP], including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.</i>” The requirement for each Copermittee to secure the resources necessary to meet all the requirements of the Order is considered “<i>such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.</i>”</p> <p>The San Diego Water Board did not remove the requirement.</p>

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F1-1 PROVISION F.1: Water Quality Improvement Plans	
<p>COMMENT: <i>Requests for modifications to Water Quality Improvement Plan development process and schedule.</i></p> <p>Comments from the Building Industry and the Copermitees requested modifications to the schedules for developing and updating the Water Quality Improvement Plans. Generally, the requests were for more time because of several different factors. The San Diego County Copermitees also requested several modifications to the content of the submittal required for each element of the Water Quality Improvement Plan.</p> <p>Comments from the Environmental Groups and USEPA were primarily concerned with the public participation process during the development of the Water Quality Improvement Plans. The concern was that the requirements of the Tentative Order did not allow for enough public participation, and they requested that additional opportunities be provided during the Water Quality Improvement Plan development and updates. The Environmental Groups also requested that the Water Quality Improvement Plans be required to be developed consecutively instead of concurrently.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermitees Orange County Copermitees Riverside County Copermitees San Diego County Copermitees San Diego Unified Port District</p> <p>Environmental Organizations Environmental Groups</p> <p>State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board agrees with the request to provide additional time to develop the Water Quality Improvement Plans, but disagrees with requiring the Water Quality Improvement Plans to be developed consecutively instead of concurrently. The San Diego Water Board also agrees with including additional opportunities for public participation during the Water Quality Improvement Plan development and update processes.</p> <p>The San Diego Water Board has modified the requirements of Provision F.1 to provide the Copermitees up to 24 months, instead of 18 months, to develop the Water Quality Improvement Plans. The schedules for developing and submitting the elements of the Water Quality Improvement Plan have also been modified to provide additional time, and additional flexibility to stagger the development of the Water Quality Improvement Plans to provide the public sufficient opportunity to provide data, information and recommendations.</p> <p>Please also see the response to comment B-3.</p>	

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F3b-1	PROVISION F.3.b: Annual Reports	
	<p>COMMENT: <i>Recommendations for modifications to Annual Report requirements.</i></p> <p>Several commenters provided recommendations for modifications to the Annual Report requirements to clarify the requirements, include different requirements, or remove requirements.</p> <p>Ecolayers and the San Diego County Copermittees are concerned with the requirements related to uploading data to the California Environmental Data Exchange Network (CEDEN). Uploading data to CEDEN is not necessary according to Ecolayers. The Copermittees would like to limit the data uploads only to data generated by the Copermittees and not third parties.</p> <p>The Orange County, Riverside County, and San Diego County Copermittees all expressed concern about the transitional reporting period between the time the Tentative Order becomes effective and the date that the first Water Quality Improvement Plan Annual Reports are required. The Orange County Copermittees also expressed concern with the use of the Jurisdictional Runoff Management Program Annual Report Form (Form) in Attachment D to the Tentative Order. The Orange County Copermittees requested continuing the use of the current jurisdictional runoff management program annual reporting format instead of the Form.</p> <p>The Environmental Groups also expressed concern with the Form. The Environmental Groups are concerned that the Form would not adequately reflect the activities that each Copermittee was implementing within its jurisdiction and allow the public to understand how the Copermittees were implementing effective water quality improvement strategies.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Environmental Groups</p> <p>Other Entities Ecolayers</p>
	<p>RESPONSE: The San Diego Water Board agrees that modifying the Annual Report requirements is necessary to clarify transitional reporting requirements and Water Quality Improvement Plan reporting requirements. The San Diego Water Board does not agree that uploading data to CEDEN is unnecessary. Finally, the San Diego Water Board disagrees with replacing the Form with the current jurisdictional runoff management program annual reporting format.</p> <p>The San Diego Water Board has revised the Annual Report requirements under Provision F.3.b to include (1) Transitional Jurisdictional Runoff Management Program Annual Reports, (2) Transitional Monitoring and Assessment Program Annual Reports, and (3) Water Quality Improvement Plan Annual Reports. The Transitional Jurisdictional Runoff Management Program Annual Reports and Transitional Monitoring and</p>	

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F3b-1	PROVISION F.3.b: Annual Reports	
	<p>Assessment Program Annual Reports will be submitted by the Copermittees until the first Water Quality Improvement Plan Annual Reports are required.</p> <p>The Form is required for each Copermittee within each Watershed Management Area during the transitional reporting permit. Each Copermittee has the option to continue utilizing the current jurisdictional runoff management program annual reporting format in addition to the Form until the Water Quality Improvement Plan Annual Reports are required. The Form will continue to be required as part of the Water Quality Improvement Plan Annual Reports, but they are expected to be included as an appendix or attachment to the report.</p> <p>The San Diego Water Board will review the Forms to ensure that the Copermittees have certified that they are implementing their jurisdictional runoff management programs in compliance with the requirements. The San Diego Water Board will also utilize the Forms during audits of the Copermittees' jurisdictional runoff management programs and their records.</p> <p>The Water Quality Improvement Plan Annual Reports will provide the information that the Environmental Groups are interested in seeing as part of the annual reporting requirements. Provision F.3.b.(3)(d) requires each Copermittee to report the water quality improvement strategies that were implemented and/or no longer implemented by each of the Copermittees during the reporting period and previous reporting periods, and are planned to be implemented during the next reporting period.</p> <p>Finally, the San Diego Water Board has not removed the requirements to upload data to CEDEN, but has limited the data that is required to be uploaded to CEDEN to just data generated by the Copermittees.</p>	

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F3c-1 PROVISION F.3.c: Regional Monitoring and Assessment Report	
	<p>COMMENT: <i>Requests for modifications to Regional Monitoring and Assessment Report requirements.</i></p> <p>The Riverside County and San Diego County Copermittees each submitted requests for modifications to the Regional Monitoring and Assessment Report requirements.</p> <p>The Riverside County Copermittees recommended aligning the requirements with the Integrated Assessment of the Water Quality Improvement Plans. The San Diego County Copermittees recommended removing the requirement for the Regional Monitoring and Assessment Report as it appears to be duplicative with the Integrated Assessment of the Water Quality Improvement Plans. The San Diego County Copermittees also requested, if the Regional Monitoring and Assessment Report requirements remain, that data uploaded to the Regional Clearinghouse be limited only to data generated by the Copermittees and not third parties.</p>
	<p>Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the requests to modify the Regional Monitoring and Assessment Report requirements. The San Diego Water Board agrees with limiting the data uploaded to the Regional Clearinghouse only to data generated by the Copermittees.</p> <p>The Regional Monitoring and Assessment Report is for the entire San Diego Region, not specific to each Watershed Management Area. The Regional Monitoring and Assessment Report may utilize the findings from the Integrated Assessments of the Water Quality Improvement Plans, but the Regional Monitoring and Assessment Report is intended to provide a “snapshot” of the conditions of the entire San Diego Region.</p> <p>The San Diego Water Board did not remove Provision F.3.c from the requirements. The San Diego Water Board did, however, revise Provision F.3.c.(3) to limit the data that is required to be uploaded to the Regional Clearinghouse to just data generated by the Copermittees.</p>

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F4-1 PROVISION F.4: Regional Clearinghouse		
	<p>COMMENT: <i>Request to allow the Copermittees to utilize existing mechanisms and linkages as part of the Regional Clearinghouse.</i></p> <p>The Orange County and San Diego County Copermittees each submitted comments requesting the requirements in Provision F.4 be modified to allow the Copermittees to utilize their existing web-based systems. The Orange County and San Diego County Copermittees requested that language be added to Provision F.4 that specifies a Copermittee may elect to develop and maintain clearinghouses provided by other Copermittees or agencies.</p>	<p>Copermittees Orange County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees that the Copermittees should be allowed to utilize their existing web-based systems.</p> <p>Provision F.4.a allows the Copermittees to link the Regional Clearinghouse “<i>to other internet-based data portals and databases where the original documents are stored.</i>” The Regional Clearinghouse, however, must be a single website that is linked to the other web-based systems. Provision G.2.d requires the Principal Watershed Copermittees to coordinate and develop the Regional Clearinghouse.</p> <p>The San Diego Water Board has added a footnote to the opening paragraph of Provision F.4 as requested by the San Diego County Copermittees, which is consistent with the language requested by the Orange County Copermittees.</p>	

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G-1 PROVISION G: PRINCIPAL WATERSHED COPERMITTEE RESPONSIBILITIES	
G-1	<p>COMMENT: <i>Request for "clarifications" of Copermittee responsibilities.</i></p> <p>The San Diego County Copermittees requested that Provision G "clarifies" that all Copermittees have some responsibilities to implement the requirements of the permit, not just the Principal Watershed Copermittees. The San Diego County Copermittees also requested removal of the language recommending that an individual Copermittee should not be designated a Principal Watershed Copermittee for more than two Watershed Management Areas.</p>
	<p style="text-align: right;">Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees to clarify that all Copermittees are responsible for implementing the requirements. The San Diego Water Board disagrees that it is necessary to remove the recommendation that an individual Copermittee should not be designated a Principal Watershed Copermittee for more than two Watershed Management Areas.</p> <p>Provision G states that an individual Copermittee "should not" be designated a Principal Watershed Copermittee for more than two Watershed Management Areas. "Should not" indicates that it is a recommendation, not a requirement. The recommendation has been included to express the San Diego Water Board's desire for, as well as encourage, more Copermittees to assume leadership positions in developing Water Quality Improvement Plans and coordinating water quality improvement strategies among Copermittees in a Watershed Management Area and in the San Diego Region. The recommendation is not a requirement. Removal of a recommendation is not necessary.</p> <p>The San Diego Water Board has added Provision G.3 to specify that the Principal Watershed Copermittees are not responsible for ensuring that the other Copermittees in the Watershed Management Area are in compliance with the requirements, and that each Copermittee is responsible for implementing the requirements of the Tentative Order.</p>

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H-1 PROVISION H: MODIFICATION OF PROGRAMS		
	<p>COMMENT: <i>Request for an explicit re-opener provision in permit for TMDLs.</i></p> <p>The Orange County and San Diego County Copermittees and several individual Copermittees requested an explicit re-opener provision be included in the Tentative Order for when TMDLs may be amended.</p>	<p>Copermittees City of Dana Point City of Imperial Beach City of Laguna Niguel City of Mission Viejo City of Poway City of Rancho Santa Margarita City of San Diego Orange County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the request.</p> <p>The San Diego Water Board has revised Provision H.4 to explicitly state when the San Diego Water Board will re-open the Order for modifications. Provision H.4.c explicitly states that the San Diego Water Board will re-open the Order if any of the TMDLs in Attachment E are amended in the Basin Plan by the San Diego Water Board, and the amendment is approved by the State Water Board, Office of Administrative Law, and the USEPA.</p>	

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H-2 PROVISION H: MODIFICATION OF PROGRAMS	
	<p>COMMENT: <i>Request to include language that the permit may be amended outside of the Water Quality Improvement Plan process.</i></p> <p>The San Diego County Copermittees have requested the San Diego Water Board include language in Provision H.3 that explicitly states the Tentative Order may be modified outside of the Water Quality Improvement Plan development and implementation process. The San Diego County Copermittees indicated that there may be frequent modifications to the permit requirements based on the Water Quality Improvement Plan development and implementation process.</p>
	<p>Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request.</p> <p>The Tentative Order has been structured to allow the iterative and adaptive management process to occur within the Water Quality Improvement Plan development and implementation process. The San Diego Water Board does not anticipate any need to modify the Order's requirements as a result of the implementation of the Water Quality Improvement Plans.</p> <p>In the event that the Order's requirements do need to be modified, the language currently in Provision H.3 is adequate for this purpose. Thus, the San Diego Water Board did not revise Provision H.3 as requested by the San Diego County Copermittees.</p>

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AttA-1 ATTACHMENT A: Discharge Prohibitions and Special Protections		
	<p>COMMENT: <i>Requests for modifications to Areas of Special Biological Significance (ASBS) Special Protections requirements.</i></p> <p>San Diego Gas and Electric and Southern California Gas Company requested modifications to Provision I.A.1.e.(2)(ii) of the Special Protections for Areas of Special Biological Significance, Governing Point Source Discharges of Storm Water and Nonpoint Source Waste Discharges (Special Protections) in Attachment A to the Order. San Diego Gas and Electric and Southern California Gas Company requested Provision I.A.1.e.(2)(ii) be revised to include a reference to Finding 32 of the Order to be consistent with their comments regarding authorized non-storm water discharges to MS4s that discharge to ASBS (see comment Fnd-14).</p>	<p>Building Industry / Industry San Diego Gas and Electric Southern California Gas Company</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request.</p> <p>The Special Protections in Attachment A to the Tentative Order were adopted under Resolution No. 2012-0012 by the State Water Board, and are provided verbatim as a reference. Revising the provisions of the Special Protections, which are part of a resolution issued by the State Water Board, is not appropriate or necessary.</p> <p>The San Diego Water Board did not revise the Special Protections in Attachment A.</p>	

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AttB-1 ATTACHMENT B: Standard Permit Provisions and General Provisions	
	<p>COMMENT: <i>Requests for modifications to Standard Permit Provisions.</i></p> <p>The Riverside County and San Diego County Copermittees each submitted comments requesting Standard Permit Provision 1.m be removed from the Standard Permit Provisions in Attachment B. The Copermittees are concerned that the bypass provisions of Standard Permit Provision 1.m would require the Copermittees to notify the San Diego Water Board whenever there is an anticipated or unanticipated bypass of storm water treatment BMPs.</p>
	<p>Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request.</p> <p>The Standard Permit Provisions in Attachment B are required to be included in all NPDES permits. Thus, it is inappropriate to remove any of the Standard Permit Provisions.</p> <p>Standard Permit Provision 1.m(1)(a) defines a bypass as the intentional diversion of waste streams from any portion of a treatment facility. As most storm water treatment BMPs are not expected to be attended and expected to operate without oversight, there are unlikely to be “intentional” diversions of waste streams. If, however, one or more Copermittees operate a storm water treatment control BMP that requires an “intentional” diversion of the waste stream, the San Diego Water Board expects the Copermittee(s) to comply with the requirements of Standard Permit Provision 1.m.</p> <p>The San Diego Water Board did not revise the Standard Permit Provisions in Attachment B.</p>

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AttB-2 ATTACHMENT B (Standard Permit Provisions and General Provisions)	
<p>COMMENT: <i>Requests for "clarifications" to the General Provisions.</i></p> <p>The Riverside County and San Diego County Copermittees each submitted comments requesting "clarifications" to the General Provisions in Attachment B. The Copermittees requested that General Provision 2.h include language that specifies the Copermittees are not responsible for pollutants in its MS4 discharges originating from an NPDES-permitted non-storm water discharge. The Copermittees also requested that recordkeeping requirements of General Provision 2.i.(2) be deleted or revised to be consistent with Standard Permit Provision 1.j.(2).</p>	<p>Copermittees Riverside County Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees with the requests.</p> <p>Discharges to the Copermittees' MS4s authorized by a separate NPDES permit do not have to be prohibited, as specified in the requirements of Provisions A.1.b and E.2. The Copermittees, however, are responsible for identifying the sources of the discharges from its MS4 if it causes or contributes to exceedances of water quality standards in receiving waters. Please see the response to comment E2-3.</p> <p>The recordkeeping requirements of General Provision 2.i.(2) are not inconsistent with Standard Permit Provision 1.j.(2). Standard Permit Provision 1.j.2 requires records to be kept for a minimum of 3 years unless the San Diego Water Board extends this period, consistent with the Code of Federal Regulations requirement. The San Diego Water Board has extended the recordkeeping requirements of Standard Permit Provision 1.j.(2) with General Provision 2.i.(2) to a period of 5 years. Thus, there is no conflict or inconsistency.</p> <p>The San Diego Water Board did not revise the General Provisions in Attachment B.</p>	

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AttC-1 ATTACHMENT C: Acronyms, Abbreviations, and Definitions	
<p>COMMENT: <i>Requests for additional or modified definitions.</i></p> <p>Several comments were submitted by the Copermittees and Building Industry / Industry requesting modifications to existing definitions and/or the addition of new definitions to Attachment C to the Tentative Order.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition San Diego Gas and Electric Southern California Gas Company</p> <p>Copermittees City of Chula Vista Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board reviewed and considered the requested modifications to existing definitions and additional definitions.</p> <p>Where the San Diego Water Board determined a modification to a definition requested by a commenter was appropriate and necessary to clarify a definition or make it consistent with other revisions made in the Tentative Order, the San Diego Water Board made a revision. Where the San Diego Water Board determined the addition of a definition requested by a commenter was appropriate and necessary, the San Diego Water Board added the definition. In several cases, the requested modification or addition was not appropriate, not necessary, or both. In such cases, the San Diego Water Board did not modify or add the definition as requested.</p> <p>Please see Attachment C in the revised Tentative Order to see the revisions that were made.</p>	

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AttE-1 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
<p>COMMENT: <i>Link compliance with TMDL requirements to development and implementation of Water Quality Improvement Plans.</i></p> <p>The San Diego County Copermittees submitted comments requesting that the development and implementation of the Water Quality Improvement Plans be a compliance mechanism for the TMDL requirements of Attachment E. The San Diego Unified Port District submitted separate comments in support of the request. The Orange County Copermittees submitted comments requesting that Provision A.1 and A.2 include language that specifies that compliance with the discharge prohibitions and receiving water limitations will be achieved through implementing the requirements of Attachment E.</p> <p>Comments from Environmental Groups were not in support of allowing compliance with the TMDL requirements through a “reasonable assurance analysis” included in the Water Quality Improvement Plan.</p>	<p>Copermittees City of San Diego Orange County Copermittees San Diego County Copermittees San Diego Unified Port District</p> <p>Environmental Organizations Environmental Groups</p>
<p>RESPONSE: The San Diego Water Board agrees with the comments from the Copermittees. The San Diego Water Board disagrees with the comments from the Environmental Groups.</p> <p>The San Diego Water Board acknowledges that monitoring all MS4 outfalls or all receiving waters at all times to demonstrate compliance with the final WQBELs is difficult, likely to be cost prohibitive, and likely to be infeasible. Thus, the San Diego Water Board has included an option to the Compliance Determination requirements allowing the utilization of the Water Quality Improvement Plan to demonstrate compliance with the interim and final TMDL requirements. The compliance determination option provides the Copermittees a mechanism through an analysis to demonstrate that there is “reasonable assurance” that the interim and final numeric WQBELs are being achieved through the implementation of BMPs. Because the Water Quality Improvement Plans will undergo a public participation and review process, the San Diego Water Board is confident that a Water Quality Improvement Plan that includes such an analysis will allow the Copermittees to demonstrate that the final TMDL requirements are being achieved and will be acceptable to the public and the San Diego Water Board.</p> <p>For the interim TMDL compliance determination requirements, the Copermittees are allowed to demonstrate compliance by implementing a Water Quality Improvement Plan that has been accepted by the San Diego Water Board, with a “reasonable assurance” that the implementation of the BMPs will achieve the interim TMDL WQBELs within the interim compliance dates. The Copermittees will be provided considerable flexibility for</p>	

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AttE-1	ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
	<p>demonstrating compliance with achieving the interim WQBELs.</p> <p>For the final TMDL compliance determination requirements, the Copermittees are allowed to demonstrate compliance with the final WQBELs by implementing a Water Quality Improvement Plan that includes an analysis to demonstrate that the implementation of the BMPs required by the TMDL achieves compliance with one or more of the final numeric WQBELs. The Water Quality Improvement Plan must include monitoring and assessments to confirm that the Water Quality Improvement Plan is achieving the final TMDL requirement. The San Diego Water Board must accept and continue to accept the Water Quality Improvement Plan and analysis, and the Copermittees must continue to implement the BMPs and demonstrate through the analysis that the final numeric WQBELs are being achieved.</p>	

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AttE-2 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
<p>COMMENT: <i>Requests for including TMDL requirements consistent with the TMDLs as developed or "as originally intended."</i></p> <p>Several Copermitees submitted comments that the TMDLs have not been incorporated "as originally written and intended" or somehow inconsistent with the TMDLs as they were developed. The Orange County Copermitees specifically referred to the Baby Beach Bacteria TMDLs and the Beaches and Creeks Bacteria TMDLs, noting examples that they identified as "inconsistent" with the TMDLs in the Basin Plan.</p> <p>A comment from Clean Water Now seemed to imply that there was some inconsistencies present in the TMDL requirements "in light of recent legal renderings" though no specific legal interpretations or decisions were provided.</p> <p>The USEPA noted that the Beaches and Creeks Bacteria TMDLs included additional WLAs and compliance endpoints that were not included in Attachment E.</p>	<p>Copermitees City of Dana Point City of Imperial Beach City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Juan Capistrano Orange County Copermitees San Diego Unified Port District</p> <p>Environmental Organizations Clean Water Now</p> <p>State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board disagrees that the TMDL requirements in Attachment E are inconsistent with the TMDLs as developed or "as originally intended."</p> <p>The comments from the Copermitees and USEPA noted that several aspects of the TMDLs as they are in the Basin Plan are not included in the Tentative Order. The omission of those aspects of the TMDLs, however, does not mean that the TMDL requirements in Attachment E are inconsistent with the TMDLs as developed or "as originally intended." The TMDLs as developed are all intended to restore the water quality standards in receiving waters impaired by specific pollutants. The WLAs and LAs as developed are all intended to ensure that discharges from point and nonpoint sources to receiving waters will not cause or contribute to exceedances of water quality standards in receiving waters. The TMDL requirements in Attachment E are consistent with the intent of the TMDLs, and the WLAs for MS4s. In other words, the TMDL requirements in Attachment E are intended to ensure that discharges from the Responsible Copermitees' MS4s will not cause or contribute, and will continue to not cause or contribute to exceedances of water quality standards in receiving waters. According to each TMDL, when all point sources and nonpoint sources achieve their WLAs and LAs, including the WLAs for MS4s, the water quality standards in receiving waters will be restored.</p> <p>The San Diego Water Board included TMDL requirements in Attachment E that are entirely consistent with the requirements of the TMDLs as adopted and incorporated into the Basin Plan. The implementation plans of the</p>	

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AttE-2 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
	<p>TMDLs in the Basin Plan are essentially “instructions” for the San Diego Water Board to incorporate the requirements into the regulatory mechanisms that will implement the requirements of the TMDL to attain the water quality standards that are being impaired by a pollutant in a water body. In each case, the “instructions” provide the permit writer considerable flexibility in how to express the WLAs as WQBELs in the permit, but not as much flexibility in the compliance schedules for achieving the WLAs.</p> <p>Nonetheless, the San Diego Water Board has revised the TMDL requirements in Attachment E to include some of the additional aspects of the TMDLs as developed and included in the Basin Plan. Please see the following responses to comments pertaining to Attachment E.</p>

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AttE-3 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
<p>COMMENT: <i>Objections with how the Water Quality Based Effluent Limitations are included or expressed in the Tentative Order.</i></p> <p>The Orange County and San Diego County Copermittees each submitted comments that objected to how the WQBELs for the TMDLs in Attachment E are included or expressed.</p> <p>The San Diego County Copermittees object to including receiving water limitations as a component of the WQBELs, and requested a clearer linkage between receiving water limitations and effluent limitations. The Orange County Copermittees had a similar objection. The San Diego County Copermittees also requested that the WQBELs expressed as effluent limitations specify that the concentration-based effluent limitations be applied on a watershed basis and not outfall by outfall.</p> <p>The Orange County Copermittees questioned the feasibility of the numeric WQBELs, and asserted that compliance with WQBELs should be based on implementation of BMPs. The Orange County Copermittees assert that a Reasonable Potential Analysis (RPA) is required before including WQBELs into the permit. The Orange County Copermittees also assert that the WQBELs for the Baby Beach Bacteria TMDLs and Beaches and Creeks Bacteria TMDLs are not consistent with the assumptions and requirements of the WLAs.</p> <p>In contrast, the USEPA generally supported the San Diego Water Board's approach for incorporating the TMDL requirements into the Tentative Order.</p>	<p>Copermittees Orange County Copermittees San Diego County Copermittees</p> <p>State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board has included WQBELs that are consistent with the requirements and assumptions of the TMDLs.</p> <p>WQBELs can be expressed as (1) conditions in receiving waters that are to be attained to restore or protect water quality standards in receiving waters, (2) conditions in discharges that will not cause or contribute to exceedances of water quality standards in receiving waters, (3) BMPs that will ensure discharges will not cause or contribute to exceedances of water quality standards in receiving waters, or (4) a combination of one or more of (1)-(3).</p> <p>The San Diego Water Board has incorporated (1)-(3) under the WQBEL requirements for each of the TMDLs in Attachment E. In most cases, if the WQBEL expressed as a receiving water limitation is achieved, the discharges from the MS4s are assumed to be in compliance with the TMDL requirements. If not, then the</p>	

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AttE-3 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads
<p>Copermittees must demonstrate that discharges from the MS4s are not causing or contributing to the exceedances in the receiving waters by achieving the WQBELs expressed as effluent limitations. In every case, the Copermittees are required to implement BMPs to ensure that discharges from their MS4s do not cause or contribute to exceedances of water quality standards in receiving waters.</p> <p>Because there are TMDLs in the Basin Plan that have identified the MS4s as causing or contributing to exceedances of water quality standards, an RPA is not necessary to establish WQBELs. RPAs are only necessary if the San Diego Water Board decides to develop and incorporate WQBELs into an NPDES permit absent a TMDL.</p> <p>The WQBELs are also consistent with the assumptions and requirements of the WLAs. In each case, the WLAs are calculated based on numeric targets that are assumed to be able to restore or protect water quality standards in receiving waters and/or ensure discharges from the Responsible Copermittees' MS4s will not cause or contribute to exceedances of water quality standards in receiving waters. The numeric targets are required to be based on water quality objectives in the Basin Plan. Discharges from the MS4s are required to achieve the numeric targets for their discharges to protect water quality standards in receiving waters to meet the WLAs. The WQBELs for the TMDLs in Attachment E are consistent with the numeric targets, and thus consistent with the underlying assumptions and requirements of the numeric targets that are the basis of the WLAs.</p> <p>For the Baby Beach Bacteria TMDLs and Beaches and Creeks Bacteria TMDLs, the San Diego Water Board has not revised the concentration-based WQBELs, but has included WQBELs expressed as load-based effluent limitations. The Copermittees may utilize the load-based effluent limitations to demonstrate that the BMPs they are implementing are achieving their effluent limitations and not causing or contributing to exceedances of water quality standards in receiving waters. Please see the response to comment AttE-1.</p>

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AttE-4 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
	<p>COMMENT: <i>Recommendation to reorganize the Specific Provisions for the TMDLs.</i></p> <p>The San Diego County Copermittees recommended reorganizing the Specific Provisions of the TMDLs in Attachment E. To clearly outline the interim and final requirements and schedules, the San Diego County Copermittees recommended organizing the compliance dates, WQBELs, and compliance determination by final TMDL requirements and interim TMDL requirements.</p>
	<p>Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the recommendation.</p> <p>The San Diego Water Board reorganized the Specific Provisions for the TMDLs in Attachment E as recommended.</p>

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AttE-5 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads		
	<p>COMMENT: <i>The San Diego Water Board does not have the authority to establish TMDLs for non-pollutants (surrogates).</i></p> <p>The BIA Regulated Community Coalition requested that that San Diego Water Board revise the TMDLs to conform with a U.S. District Court for the Eastern District of Virginia decision that TMDLs could not be established to regulate non-pollutants as surrogates for pollutants.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the TMDLs need to be revised.</p> <p>The TMDLs in Attachment E are all based on reducing pollutant loads in MS4 discharges to ensure the Copermittees' MS4s will not cause or contribute to exceedances of water quality standards in receiving waters. The TMDLs in Attachment E do not establish any requirements to regulate non-pollutants as surrogates for pollutants.</p>	

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AttE6-1 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads		
	<p>COMMENT: Recommendation to add a provision to address TMDLs approved during the term of the Tentative Order.</p> <p>The USEPA recommended adding a provision to the requirements of the Tentative Order to address TMDLs approved during the term of the permit to expedite implementation of the TMDLs by the Copermittees.</p>	<p>State/Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board agrees with the recommendation.</p> <p>The San Diego Water Board has revised Provision F.2.c to include a requirement for the Copermittees to initiate an update to the applicable Water Quality Improvement Plans to incorporate the requirements of any TMDL Basin Plan amendments, applicable to the Copermittees, approved by the Office of Administrative Law and USEPA within the term of the Tentative Order.</p>	

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AttE1-1 ATTACHMENT E 1: Chollas Creek Diazinon TMDL	
<p>COMMENT: <i>Request to revise WQBELs for Chollas Creek Diazinon TMDL based on recalculated criteria.</i></p> <p>The San Diego County Copermittees assert that the Chollas Creek Diazinon TMDL is based on erroneous numeric targets due to an error discovered in the criteria used to develop the TMDL. The San Diego County Copermittees requested that the WQBELs for the Chollas Creek Diazinon TMDL be revised based on recalculated criteria, or remove the TMDL until the WQBELs can be “corrected.”</p>	<p>Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees with the request.</p> <p>The Chollas Creek Diazinon TMDL was incorporated into the Basin Plan in September 2003. Until the Basin Plan is revised to include the “corrected” criteria as part of the numeric targets, the San Diego Water Board is required to include the TMDL requirements in the Tentative Order consistent with the requirements of the TMDL in the Basin Plan.</p> <p>The criteria utilized in the development of the Chollas Creek Diazinon TMDL are more protective than the “corrected” criteria cited by the commenter. Implementation of the Chollas Creek Diazinon TMDL with the WQBELs consistent with the numeric targets in the TMDL in the Basin Plan is protective of the water quality standards in receiving waters.</p> <p>According to the commenter, the “corrected” criteria were discovered in 2004. The commenter has had almost 9 years to approach the San Diego Water Board to request a revision to the TMDL in the Basin Plan. If the commenter would like to revise the numeric targets of the TMDL in the Basin Plan, the commenter must approach the TMDL and Basin Planning staff of the San Diego Water Board to request the change. Requesting the change through the MS4 permit development process is not the appropriate forum.</p> <p>The WQBELs for the Chollas Creek Diazinon TMDL were not revised.</p>	

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AttE2-1 ATTACHMENT E 2: Shelter Island Yacht Basin Dissolved Copper TMDLs	
<p>COMMENT: Request to include San Diego Unified Port District as MS4 operator in SIYB Dissolved Copper TMDL.</p> <p>The City of San Diego requested that the San Diego Unified Port District be listed as a Responsible Copermitee under the dissolved copper TMDL for Shelter Island Yacht Basin.</p>	<p>Copermitees City of San Diego</p>
<p>RESPONSE: The San Diego Water Board disagrees that the San Diego Unified Port District should be listed as a Responsible Copermitee under the Shelter Island Yacht Basin dissolved copper TMDL.</p> <p>The Shelter Island Yacht Basin dissolved copper TMDL adopted under Resolution No. R9-2005-0019 only listed the City of San Diego as an owner or operator of an MS4 that discharges to Shelter Island Yacht Basin. The TMDL provides a wasteload allocation (WLA) of 30 kg/yr for MS4 discharges by the City of San Diego only.</p> <p>This means that if the San Diego Unified Port District does in fact have MS4 discharges to Shelter Island Yacht Basin, the TMDL currently has assigned MS4 discharges from the San Diego Unified Port District a WLA of 0 kg/yr. Any discharge of dissolved copper from MS4s owned or operated by the San Diego Unified Port District to Shelter Island Yacht Basin would be in violation of its WLA and WQBELs expressed as effluent limitations.</p>	

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AttE2-2 ATTACHMENT E 2: Shelter Island Yacht Basin Dissolved Copper TMDLs	
<p>COMMENT: <i>Request to revise WQBELs expressed as receiving water limitations for the Shelter Island Yacht Basin Dissolved Copper TMDL to include Water Effects Ratio.</i></p> <p>The San Diego County Copermittees noted that the Water Effects Ratio (WER) term was incorporated into the Chollas Creek Dissolved Metals TMDLs and requested that the WQBELs expressed as receiving water limitations for the Shelter Island Yacht Basin Dissolved Copper TMDL include the WER term.</p>	<p>Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board agrees with the request.</p> <p>The San Diego Water Board has included a WER multiplier to the WQBELs expressed as receiving water limitations for the Shelter Island Yacht Basin Dissolved Copper TMDL. The WER is assumed to be 1.0 unless there is a site-specific and chemical-specific WER. The WER must be incorporated into the Basin Plan before it can be utilized in the calculation for the WQBELs expressed as receiving water limitations. The footnote includes this clarification.</p> <p>The San Diego Water Board also revised the footnotes for the WER term in the Chollas Creek Dissolved Metals TMDLs to clarify that the WER is assumed to be 1.0 unless a site-specific and chemical-specific WER is provided in the Basin Plan.</p>	

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AttE2-3 ATTACHMENT E 2: Shelter Island Yacht Basin Dissolved Copper TMDLs	
<p>COMMENT: <i>Revise Shelter Island Yacht Basin Dissolved Copper TMDL requirements to allow for BMP-based compliance.</i></p> <p>The San Diego County Copermittees requested that the Shelter Island Yacht Basin Dissolved Copper TMDL requirements be revised to allow for BMP-based compliance.</p>	<p>Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board agrees with the request to include a BMP-based compliance determination option.</p> <p>Please see the response to comment AttE-1.</p>	

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AttE3-1 ATTACHMENT E 3: Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs	
<p>COMMENT: <i>Request to remove the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs from the Tentative Order.</i></p> <p>The County of San Diego and San Diego County Copermittees requested the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs be removed from Attachment E to the Tentative Order. The Copermittees noted that the TMDL, as it is incorporated in the Basin Plan, only identified a wasteload allocation (WLA) for Caltrans. The TMDL only assigns load allocation (LAs) for land uses to the County of San Diego. The Copermittees assert that only requirements for WLAs can be incorporated into an NPDES permit.</p> <p>The San Diego County Copermittees also requested, if the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs are not removed from Attachment E, that one of the compliance determination options allow the Responsible Copermittee to demonstrate compliance by “using its legal authority to reduce nutrient discharges from the land uses identified...to the maximum extent practicable.”</p>	<p>Copermittees County of San Diego San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees with the request to remove the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs from Attachment E. The San Diego Water Board also disagrees with allowing compliance by only achieving MEP.</p> <p>The Basin Plan states in the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs, “<i>In the event that a nonpoint source becomes a permitted discharge, the portion of the load allocation that is associated with the source can become a wasteload allocation</i>” (page 7-17 of the Basin Plan). The Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs include several LAs that have been assigned to land uses that fall within the jurisdiction of the County of San Diego and discharge non-storm water and storm water to and from its MS4. Because these “nonpoint sources” are discharges subject to the requirements of an NPDES permit, they are permitted discharges. Thus they are effectively and appropriately considered WLAs that must be incorporated into the Tentative Order.</p> <p>The San Diego Water Board has revised and reorganized the format of the TMDL requirements in Attachment E, as requested by the Copermittees (see response to comment AttE-4). The reformatting and reorganization also resulted in the removal of the WLA term from the TMDL requirements. The introductory paragraph has been revised to specify that the TMDLs in Attachment E incorporate provisions that implement the LAs and WLAs applicable to discharges regulated under the Tentative Order.</p>	

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AttE3-1 ATTACHMENT E 3: Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs

The request by the Copermittees to include a compliance determination option of allowing compliance only by achieving MEP is not appropriate for a TMDL. TMDLs require the achievement of WQBELs when technology-based effluent limitations (TBELs) cannot achieve the attainment of water quality standards in receiving waters. The MEP standard is a TBEL. The Responsible Copermittee must achieve the WQBELs to either restore or protect water quality standards in receiving waters, or ensure discharges from the MS4 do not cause or contribute to exceedances of water quality standards in receiving waters.

The San Diego Water Board did not remove the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs from Attachment E. The San Diego Water Board did not include a compliance determination option that allows compliance only by achieving MEP.

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AttE4-1 ATTACHMENT E 4: Chollas Creek Dissolved Copper, Lead, and Zinc TMDLs		
	<p>COMMENT: <i>Request to revise the Chollas Creek Dissolved Copper, Lead, and Zinc TMDL requirements to allow for BMP-based compliance.</i></p> <p>The San Diego County Copermitees requested that the Chollas Creek Dissolved Copper, Lead, and Zinc TMDL requirements be revised to allow for BMP-based compliance.</p>	<p>Copermitees San Diego County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the request to include a BMP-based compliance determination option.</p> <p>Please see the response to comment AttE-1.</p>	

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AttE5-1 ATTACHMENT E 5: Baby Beach and Shelter Island Shoreline Park Bacteria TMDLs	
<p>COMMENT: <i>Request to revise the WQBELs of the Baby Beach and Shelter Island Shoreline Park Bacteria TMDL requirements to allow for load-based compliance.</i></p> <p>The Orange County and San Diego County Copermittees, Environmental Groups, and the USEPA each commented that the bacteria TMDLs included load-based WLAs, expressed as mass loads, percent load reductions, or both, and recommended including load-based WQBELs. The Orange County and San Diego County Copermittees requested the WQBELs include load-based effluent limitations and allow compliance to be demonstrated with load-based effluent limitations instead of concentration-based effluent limitations. The Environmental Groups did not support allowing compliance determination solely through mass-loading numbers.</p>	<p>Copermittees Orange County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Environmental Groups</p> <p>State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board agrees with the request to include requirements that allow for load-based compliance with the Baby Beach and Shelter Island Shoreline Park Bacteria TMDLs.</p> <p>Please see the responses to comment AttE-1 and AttE-3.</p>	

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AttE6-1 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
<p>COMMENT: <i>Water bodies no longer listed on the 303(d) List should not be required to implement or comply with the requirements of the Beaches and Creeks Bacteria TMDLs.</i></p> <p>The Orange County and San Diego County Copermitees and the Cities of Carlsbad, Del Mar and Encinitas submitted comments noting that the Beaches and Creeks Bacteria TMDLs included language that beach segments that were delisted from the 303(d) list are not subject to further action and not required to submit Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) as long as monitoring continues to support compliance with REC-1 water quality standards. The Copermitees requested that the Beaches and Creeks Bacteria TMDLs be modified so the beach segments that are not included on the 303(d) list are not required to implement or comply with the Beaches and Creek Bacteria TMDLs requirements.</p>	<p>Copermitees City of Carlsbad City of Del Mar City of Encinitas Orange County Copermitees San Diego County Copermitees</p>
<p>RESPONSE: The San Diego Water Board disagrees that beach segments that are not on the 303(d) List should not be required to implement or comply with the Beaches and Creek Bacteria TMDLs requirements.</p> <p>The Beaches and Creeks Bacteria TMDLs have been incorporated into the Basin Plan and apply to all the water bodies listed in the TMDL. The Copermitees cite the following from the introduction to the Beaches and Creeks TMDLs: <i>“Specific beach segments from some of the Pacific Ocean shorelines listed in the above table have been delisted from the 2008 303(d) list that was approved by the San Diego Board on December 16, 2009, and therefore are not subject to any further action as long as monitoring data continues to support compliance with water quality standards”</i> (Basin Plan page 7-60). This does not mean that the TMDLs do not apply to these segments, only that the current BMPs are working and additional actions (i.e. additional BMPs) are not necessary at this time.</p> <p>Under the TMDL Compliance Schedule for the Beaches and Creeks Bacteria TMDLs, the Basin Plan states: <i>“The TMDLs that address the Pacific Ocean shorelines identified in the 2002 303(d) List are assumed to be applicable to all the beaches located on the shorelines of the hydrologic subareas (HSAs), hydrologic areas (HAs), and hydrologic units (HUs) listed above, or as listed individually in the 2008 and future 303(d) Lists”</i> (Basin Plan page 7-106). This means that the TMDLs apply to the entire Pacific Ocean Shorelines identified in the TMDL and is not only where there are beach segments that are listed on the 303(d) List. Thus, it does not matter if a particular segment has been delisted, the TMDLs still apply to the entire Pacific Ocean Shoreline identified in the TMDL.</p>	

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AttE6-1 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs

The TMDL Compliance Schedule also states, *"In some cases, receiving water limitations are already being met, resulting in the delisting of those segments or areas from the 2006 and/or 2008 303(d) Lists. The protection of the REC-1 beneficial use of those delisted segments or areas, however, must also be maintained, and those segments or areas must remain off future iterations of the 303(d) List... If receiving water limitations are exceeded in the future in those locations, the BLRPs or CLRPs must include the implementation of a BMP program that will ensure that the TMDLs will be achieved by the end of the TMDL compliance schedules."* (Basin Plan page 7-106). The Basin Plan continues, *"For watersheds in Table 7-52 where there are no longer any impairments listed on the 2008 303(d) List, the Phase I MS4s and Caltrans are not required to submit a BLRP or CLRP within 18 months of the effective date of these TMDLs. If, however, any segment of a waterbody for the watershed (Pacific Ocean shoreline, creek, or mouth as shown in Table 7-36) is re-listed on a future 303(d) List for any type of indicator bacteria, the Phase I MS4s and Caltrans will be required to submit a BLRP or CLRP within 6 months of the adoption of the 303(d) List by the San Diego Regional Board"* (page 7-107). This means that a BLRP or CLRP is not required by the Basin Plan to be submitted within 18 months of the effective date of the TMDLs, but it also does not mean that the San Diego Water Board cannot require a BLRP or CLRP to be submitted.

The Beaches and Creeks Bacteria TMDLs were developed when it was unknown when the Orange County and San Diego County MS4 Permits would be renewed to incorporate the requirements of the TMDLs. At the time the TMDLs were adopted, the Orange County MS4 Permit had just been renewed in 2009, and the San Diego County MS4 Permit was unlikely to be renewed before 2012. The San Diego Water Board wanted the implementation of the TMDLs to begin with the submittal of BLRPs or CLRPs, before the Orange County and San Diego County MS4 permits were expected to be renewed. Thus, the TMDL included the 18 month period of time for the Copermittees to develop the BLRPs or CLRPs to be required by the San Diego Water Board through an appropriate regulatory mechanism. The regulatory mechanism to compel the submittal of the BLRPs or CLRPs from the Copermittees could have been in the form of an investigative order, enforcement action, or a modification to the existing MS4 permits.

The San Diego Water Board removed the 18 month BLRP or CLRP submittal requirement only for the watersheds where there were no bacteria impairments on the 2008 303(d) List because there was not the same level of urgency to begin implementation of the TMDL requirements as for those watersheds where there continue to be bacteria impairments. The removal of the 18 month BLRP or CLRP submittal requirement did not mean that a BLRP or CLRP would not be required to be developed as part of the TMDL requirements in the MS4 permit.

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-1 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs

The fact that the Beaches and Creeks Bacteria TMDLs are now part of the Basin Plan means that the TMDLs and the requirements of the TMDLs must be implemented through a regulatory mechanism to restore water quality standards in receiving waters and/or ensure discharges are not causing or contributing to exceedances of water quality standards in receiving waters. In this case, the Tentative Order is the regulatory mechanism that is implementing the requirements of the Beaches and Creeks Bacteria TMDLs to ensure that discharges from the Copermittees' MS4s will comply with the WLAs in the TMDL and not cause or contribute to exceedances of water quality standards in receiving waters.

For segments or areas where there is no bacteria impairment identified on the 303(d) List, implementation of the Beaches and Creeks Bacteria TMDL requirements in the Tentative Order will ensure that discharges from the Copermittees' MS4s will continue to not cause or contribute to exceedances of water quality standards in receiving waters and remain off the 303(d) List. The Copermittees will be required to include the monitoring and assessments that are necessary to demonstrate that discharges from the Copermittees MS4s continue to not cause or contribute to exceedances of water quality standards in receiving waters and remain off the 303(d) List. The Copermittees will not be required to include additional BMPs in the Water Quality Improvement Plans if the existing BMPs are allowing the Copermittees to achieve the bacteria TMDL requirements. If, however, bacteria impairments result in the re-listing of any of these beach segments on the 303(d) List, the incorporation of the TMDL requirements in the Water Quality Improvement Plan will fulfill the CLRP requirements, and the Copermittees will be required to update the Water Quality Improvement Plan to ensure that discharges from the Copermittees' MS4s will not cause or contribute to exceedances of water quality standards in receiving waters by the final TMDL compliance date.

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-2 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
<p>COMMENT: <i>Estimated costs to implement Beaches and Creeks Bacteria TMDLs are very high, and TMDLs may not be attainable.</i></p> <p>Several community planning groups, the County of San Diego and the San Diego Taxpayers Association expressed concerns with the estimated costs of implementing the Beaches and Creeks Bacteria TMDLs. There were also concerns expressed about the feasibility of attaining the TMDLs. The commenters generally objected to including the Beaches and Creeks Bacteria TMDLs in the Tentative Order until there was some certainty that the expenses associated with implementing the TMDLs will result in the achievement of the TMDLs.</p>	<p>Community Planning Groups Pala Pauma Valley Community Sponsor Group Jamul Dulzura Community Planning Group Ramona Community Planning Group Julian Community Planning Group</p> <p>Copermittees County of San Diego County of San Diego Office of County Counsel</p> <p>Societies/Associations/Coalitions San Diego Taxpayers Association</p>
<p>RESPONSE: The San Diego Water Board understands the concerns with the potential costs of implementing the requirements of the TMDLs, as well as the concerns with the feasibility of attaining the TMDLs.</p> <p>The costs associated with achieving the requirements of the Beaches and Creeks Bacteria TMDLs were considered during Basin Plan amendment process. The Beaches and Creeks Bacteria TMDL Basin Plan amendment was made available for public review and comment on several occasions. The San Diego Water Board adopted the Beaches and Creeks Bacteria TMDLs after considering the potential costs. The State Water Board, Office of Administrative Law, and the USEPA also approved the Beaches and Creeks Bacteria TMDLs.</p> <p>At this time it is difficult to predict the actual costs of complying with the Beaches and Creeks Bacteria TMDL requirements. Even the estimates that have been provided by the County of San Diego and the City of San Diego in their Comprehensive Load Reduction Plans acknowledge there is significant uncertainty in their cost estimates. While the cost estimates do provide some idea of the magnitudes of the potential costs for implementing BMPs and programs to achieve the TMDLs, the cost estimates fail to include or consider the potential cost savings or cost benefits that may be achieved or realized by implementing the Beaches and Creeks Bacteria TMDLs.</p> <p>The Beaches and Creeks Bacteria TMDL requirements provide the Copermittees a compliance schedule of up to 20 years. The Copermittees have not truly begun implementing the requirements of the TMDLs and have only questioned and raised concerns over the potential costs and feasibility of attaining the TMDLs before developing any information to demonstrate the TMDLs cannot, in fact, be attained or that the costs exceed the benefits of implementing the TMDLs.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-2 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
	<p>The San Diego Water Board is implementing the requirements of the federal Clean Water Act. The incorporation of the requirements of the Beaches and Creeks Bacteria TMDLs in the Tentative Order is required to implement the WLAs that have been assigned to the MS4s, which is supported by the USEPA. The San Diego Water Board has not removed the Beaches and Creeks Bacteria TMDLs from Attachment E to the Order.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-3 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
<p>COMMENT: <i>Request to revise the WQBELs of the Beaches and Creeks Bacteria TMDL requirements to allow for load-based compliance.</i></p> <p>The Orange County and San Diego County Copermittees, the City of Laguna Niguel, Environmental Groups, and the USEPA each commented that the bacteria TMDLs included load-based WLAs, expressed as mass loads, percent load reductions, or both, and recommended including load-based WQBELs. Several Copermittees submitted separate letters that supported the inclusion load-based WQBELs. The Orange County and San Diego County Copermittees requested the WQBELs include load-based effluent limitations and allow compliance to be demonstrated with load-based effluent limitations instead of concentration-based effluent limitations. The Environmental Groups did not support allowing compliance determination solely through mass-loading numbers.</p>	<p>Copermittees City of Dana Point City of Imperial Beach City of Laguna Niguel City of Mission Viejo City of Poway City of Rancho Santa Margarita City of San Diego Orange County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Environmental Groups</p> <p>State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board agrees with the request to include requirements that allow for load-based compliance with the Beaches and Creeks Bacteria TMDLs.</p> <p>Please see the responses to comment AttE-1 and AttE-3.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-4 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs		
	<p>COMMENT: <i>Request to revise the Beaches and Creeks Bacteria TMDL requirements to allow for BMP-based compliance.</i></p> <p>The Orange County and San Diego County Copermittees requested that the Beaches and Creeks Bacteria TMDL requirements be revised to allow for BMP-based compliance. Several Copermittees submitted separate comments supporting the concept.</p> <p>Comments from Environmental Groups were not in support of allowing BMP-based compliance with the TMDL requirements through a “reasonable assurance analysis.”</p>	<p>Copermittees City of Imperial Beach City of Poway City of San Diego Orange County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Environmental Groups</p>
	<p>RESPONSE: The San Diego Water Board agrees with the Copermittees’ request. The San Diego Water Board disagrees with the Environmental Groups that BMP-based compliance option should not be provided.</p> <p>Please see the response to comment AttE-1.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-5 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
<p>COMMENT: <i>Request to revise the Beaches and Creeks Bacteria TMDL requirements to allow for adjustment of interim TMDL compliance dates.</i></p> <p>The Orange County and San Diego County Copermittees and the City of San Diego submitted comments noting that the Beaches and Creeks Bacteria TMDL included a provision that allows for the Copermittees to propose interim compliance dates if they develop a Comprehensive Load Reduction Plan, and requested the TMDL requirements be modified to allow for the interim TMDL compliance dates to be adjusted. The City of Imperial Beach supported the concept. The Environmental Groups requested that there be an assessment of progress toward achieving the interim goals within the term of the permit.</p>	<p>Copermittees City of Imperial Beach City of San Diego Orange County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Environmental Groups</p>
<p>RESPONSE: The San Diego Water Board agrees with the Copermittees to allow for the interim TMDL compliance dates to be adjusted. The San Diego Water Board also agrees that there should be an assessment or progress toward achieving interim goals within the term of the permit.</p> <p>The Water Quality Improvement Plan is essentially the same as a CLRP. Including language allowing the Copermittees to adjust the interim TMDL compliance dates in the Water Quality Improvement Plan would not be inconsistent with the requirements of the Beaches and Creeks Bacteria TMDLs in the Basin Plan. Thus, the San Diego Water Board has included language in Specific Provision 6.c.(1) of the revised Tentative Order that allows the Copermittees to propose alternative interim TMDL compliance dates in the Water Quality Improvement Plan.</p> <p>The requirements of Provision B.3.a.(2)(b) in the revised Tentative Order also require the Copermittees to establish an interim goal that the Copermittees will work toward achieving within the term of the permit.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-6 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
<p>COMMENT: <i>Requests to revise the WQBELs of the Beaches and Creeks Bacteria TMDLs requirements.</i></p> <p>The City of Laguna Niguel submitted comments with information from a study being conducted by the Southern California Coastal Waters Research Project (SCCWRP) in cooperation with the Copermittees regarding bacteria loads that can be attributed to natural sources. The information provided by the City of Laguna Niguel was provided to support a request to include load-based WQBELs based on load reductions. The City of Laguna Niguel also requested that the load reductions be calculated using a baseline of 1996-2002 data instead of 2002-2011 data.</p> <p>The San Diego County Copermittees submitted comments noting that the total coliform water quality objectives only apply to ocean waters and should not be applied to creeks. The San Diego County Copermittees requested that the WQBELs expressed as receiving water limitations specify that the total coliform receiving water limitations only apply to beaches and not creeks.</p>	<p>Copermittees City of Laguna Niguel San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board agrees with the requests from the City of Laguna Niguel and the San Diego County Copermittees.</p> <p>The San Diego Water Board has incorporated WQBELs expressed as load-based effluent limitations based on percent load reductions. Please see the response to comments AttE-1 and AttE-3.</p> <p>The San Diego Water Board revised the tables with the WQBELs expressed as receiving water limitations to be consistent with the tables in the Beaches and Creeks Bacteria TMDLs.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-7 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs		
	<p>COMMENT: <i>Request to revise the Beaches and Creeks Bacteria TMDLs monitoring and assessment requirements to be consistent with TMDL Basin Plan amendment.</i></p> <p>The San Diego County Copermitees submitted comments requesting that the Beaches and Creeks Bacteria TMDLs monitoring and assessment requirements in the Order include the procedures to calculate wet weather exceedance frequencies as provided in the TMDL Basin Plan amendment.</p>	<p>Copermitees San Diego County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the request.</p> <p>Specific Provisions 6.d.(1)(c) and 6.d.(2)(c) have been modified to include the procedures for calculating the dry weather and wet weather exceedance frequencies for beaches and creeks.</p>	

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ATTACHMENT

27

**California Regional Water Quality Control Board
San Diego Region**

Response to Comments Report

Tentative Order No. R9-2015-0001

***An Order Amending Order No. R9-2013-0001, NPDES No. CAS010266
National Pollutant Discharge Elimination System (NPDES) Permit
and Waste Discharge Requirements for Discharges From the Municipal
Separate Storm Sewer Systems (MS4s) Draining the Watersheds Within
the San Diego Region***

January 21, 2015

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

2375 Northside Drive, Suite 100, San Diego, California 92108

Phone • (619) 516-1990 • Fax (619) 516-1994

<http://www.waterboards.ca.gov/sandiego>

Documents are available at: <http://www.waterboards.ca.gov/sandiego>

**California Regional Water Quality Control Board
San Diego Region**

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Vacant

David W. Gibson, *Executive Officer*
James Smith, *Assistant Executive Officer*

Catherine Hagan, *Senior Staff Counsel, Office of Chief Counsel*

This report was prepared under the direction of

David T. Barker, *P.E., Supervising Water Resource Control Engineer, Surface Water Protection Branch*
Eric Becker, *P.E., Senior Water Resource Control Engineer, Storm Water Management Unit*

By

Laurie Walsh, *P.E., Water Resource Control Engineer*
Christina Arias, *P.E., Water Resource Control Engineer*

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Response to Comments on Tentative Order No. R9-2015-0001

January 21, 2015

Introduction

This report contains responses to written comments timely received on Tentative Order No. R9-2015-0001, *An Order Amending Order No. R9-2013-0001, NPDES No. CAS010266, National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region*. The Tentative Order and its attachments were available for public review and comment for 60 days, with the comment period ending on November 19, 2014. Specifically, the San Diego Water Board requested comments on the following three documents:

- Tentative Order No. R9-2015-0001;
- Attachment No. 1 – Revised Order No. R9-2013-0001; and
- Attachment No. 2 – Revised Fact Sheet to Order No. R9-2013-0001.

The phrases “Tentative Order” and “Tentative Order as it amends Order No. R9-2013-0001” in the following response to comments table refers to both Tentative Order No. R9-2015-0001 and the two attachments. Comments and responses are organized by the section of either Attachment 1 or Attachment 2 that is being referenced. Wherever possible, comments are grouped based on content and summarized by the San Diego Water Board. The actual comment letters can be accessed on the San Diego Water Board website at:

http://www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/oc_stormwater.r.shtml.

List of Commenters:

Comments were submitted by the following organizations, public agencies, or individuals:

1. City of Aliso Viejo
2. City of Del Mar
3. City of Lake Forest
4. City of San Diego
5. Coalition (San Diego Building Industry Association, Building Industry Association of Southern California, Associated General Contractors, Associated Builders and Contractors, San Diego Regional Chamber of Commerce, Business Leadership Alliance, San Diego Association of Realtors, San Diego Apartment Association, National Association of Industrial & Office Properties, Building Office & Management Association, San Diego Chapter of the American Society of Landscape Architects)
6. Coastal Environmental Rights Foundation
7. Construction Industry Coalition on Water Quality (The Associated General Contractors of California, Building Industry Association of Southern California,

Engineering Contractors Association, Southern California Contractors Association, and the United Contractors located in San Ramon in Northern California)

8. County of Orange
9. County of San Diego
10. County of Riverside
11. Industrial Environmental Association
12. San Diego Coastkeeper
13. San Diego Unified Port District
14. Tory R. Walker Engineering, Inc.

Acronyms and Abbreviations

The following acronyms and abbreviations are used in the response to comments table.

ASBS	Area(s) of Special Biological Significance
BMP	Best Management Practice
Basin Plan	Water Quality Control Plan for the San Diego Basin
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
CWC	California Water Code
LID	Low Impact Development
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
NAL	Non-Storm Water Action Level
NPDES	National Pollutant Discharge Elimination System
ROWD	Report of Waste Discharge (application for NPDES reissuance)
SAL	Storm Water Action Level
San Diego Water Board	California Regional Water Quality Control Board, San Diego Region
State Water Board	State Water Resources Control Board
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
WLA	Waste Load Allocation
WQBEL	Water Quality Based Effluent Limitation

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ON TENTATIVE ORDER NO. R9-2015-0001**

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ATTACHMENT F: Fact Sheet / Technical Report

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AttF-2: Modify Fact Sheet to include language explaining the iterative approach and TMDLs. 125
AttF-3: Modify Fact Sheet to include language explaining the incorporation of New TMDLs into the WQIPs. 126

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

PR- 1 PREVIOUSLY SUBMITTED COMMENT LETTERS	
<p>COMMENT: <i>All prior comments, evidence, and objections made during adoption of Order No. R9-2013-0001 are applicable to Tentative Order No. R9-2015-0001 are requested to be incorporated during consideration of Tentative Order No. R9-2015-0001.</i></p> <p>Because of the uncertainty of the legal impact the anticipated adoption of Tentative Order No. R9-2015-0001 might have upon pending appeals with the State Water Resources Control Board (State Board) of the Order being amended (Order No. R9-2013-0001), the commenters wish to renew all objections to various aspects of the Tentative Order as described in any petition already before the State Board and further wish to incorporate all evidence pertaining to those objections.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District • County of San Diego Concurring Cities: Petitioners in proceeding A-2254 • San Diego Unified Port District • Riverside County Copermittees • City of San Diego
<p>RESPONSE: The San Diego Water Board understands the concerns expressed by the commenters.</p> <p>The San Diego Water Board reviewed Tentative Order No. R9-2015-0001 and its Attachments and has determined that the March 27, 2013 responses to comments document prepared during the 2013 adoption process of Order No. R9-2013-0001 and the oral responses to comments during the workshop and hearings during that process address the renewed comments. The San Diego Water Board incorporates its written responses to comments and oral responses to comments raised during the workshops and hearing on Order No. R9-2013-0001 into these responses. To the extent commenters incorporate issues and objections raised in petitions for review of Order No. R9-2013-0001 filed with the State Board in SWRCB/OCC File A-2254(a)-(p), the San Diego Water Board notes that it has not yet had an opportunity to submit written responses to those petitions for review and is not specifically addressing those petitions for review in these responses to comments. The San Diego Water Board will submit written responses to the petitions for review at the appropriate time in the State Board's petition proceeding. No changes to the Tentative Order or its Attachments were made based on the renewed comments.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

PR-2 PREVIOUSLY SUBMITTED COMMENT LETTERS		
	<p>COMMENT: <i>The Construction Industry Coalition on Water Quality resubmits its comment letters on hydromodification management cited in letters dated September 14, 2012 and January 11, 2013, which were submitted as part of the May 2013 adoption process of Order No. R9-2013-0001.</i></p>	<p>Construction Industry Coalition on Water Quality</p> <ul style="list-style-type: none"> • San Diego Building Industry Association • Building Industry Association of Southern CA • Associated General Contractors • Associated Builders and Contractors • San Diego Regional Chamber of Commerce • Business Leadership Alliance • San Diego Association of Realtors • San Diego Apartment Association • National Association of Industrial & Office Properties • Building Office & Management Association • San Diego Chapter of American Society of Landscape Architects
	<p>RESPONSE: The San Diego Water Board understands the concerns expressed by the commenter.</p> <p>The San Diego Water Board reviewed Tentative Order No. R9-2015-0001 and its Attachments and has determined that the March 27, 2013 responses to comments document prepared during the 2013 adoption process of Order No. R9-2013-0001 and the oral responses to comments during the workshop and hearings during that process address the renewed comments. The San Diego Water Board incorporates its written responses to comments and oral responses to comments raised during the workshops and hearing on Order No. R9-2013-0001 into these responses. To the extent commenters incorporate issues and objections raised in petitions for review of Order No. R9-2013-0001 filed with the State Board in SWRCB/OCC File A-2254(a)-(p), the San Diego Water Board notes that it has not yet had an opportunity to submit written responses to those petitions for review and is not specifically addressing those petitions for review in these responses to comments. The San Diego Water Board will submit written responses to the petitions for review at the appropriate time in the State Board's petition proceeding. No changes to the Tentative Order or its Attachments were made based on the renewed comments.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Gnl-1 GENERAL COMMENTS		
	<p><u>COMMENT:</u> <i>Remove City of Lake Forest from Table 1b and the associated footnote.</i></p> <p>The City of Lake Forest requests changes to the Tentative Order to clarify regulation of the City of Lake Forest by a single water board as described in the agreement between the Santa Ana Water Board and the San Diego Water Board.</p>	City of Lake Forest
	<p><u>RESPONSE:</u> The San Diego Water Board generally agrees with the City's comment.</p> <p>The City of Lake Forest was removed from the list of Copermitees in Table 1b and a footnote to the Table was added to identify the requirements of the Order that apply to the City of Lake Forest.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Gnl-2 GENERAL COMMENTS	
	<p>COMMENT: <i>The Tentative Order toxicity requirements do not take into account information presented in the Orange County Copermittees ROWD.</i></p> <p>The County of Orange and Concurring Cities, and Orange County Flood Control District comment that toxicity occurs sporadically in streams and creeks in south Orange County and toxicity is encountered in open (undeveloped) areas at levels equivalent to those in urban areas. They also comment that there is a greater prevalence of toxicity in wet weather and pesticides are implicated as the principal source of this toxicity. This pattern suggests that dry weather toxicity is not caused by urban sources of pollutants. Moreover pesticide use, presents a moving target for MS4 management efforts due to the continuous introduction of new products. Regulation of pesticide use is exclusively within the jurisdiction of state and federal agencies and not the role of MS4s.</p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the comment. The San Diego Water Board reviewed and considered the information pertaining to toxicity within the Copermittees' ROWD.</p> <p>Generally speaking, numerous sources of potential pollutants in storm water runoff exist, including contributions from urban activities such as industry, transportation, and residential development or from agricultural activities. Runoff from pervious and impervious areas (i.e., streets, parking lots, lawns, golf courses and agricultural land) carries accumulated contaminants (i.e., atmospheric dust, trace metals, street dirt, hydrocarbons, fertilizers and pesticides) into receiving waters. This problem is exacerbated in Southern California, where urbanization dominates most watersheds. In southern California, the runoff from urbanized watersheds contributes substantial loadings of a variety of constituents to receiving water environments. For example, the Southern California Coastal Water Research Project (SCCWRP) has estimated the cumulative loads of lead and zinc from all of the urbanized watersheds in the Southern California Bight to the coastal oceans represent over half of the combined mass emissions from all sources, which include traditional point sources such as publicly owned treatment works, industrial facilities, and power generating stations.</p> <p>Because of the additive and antagonistic interactions of the many chemical constituents found in storm water runoff, there is a strong potential for receiving water quality impacts related to toxicity. Moreover, the varied structural BMPs in use to reduce pollutant levels in urban runoff are not capable of reducing the most toxic fraction of runoff, the dissolved phase. Metals typically associated with fine particles in storm water runoff also have the potential to accumulate in the sediments of downstream receiving waters where they may contribute to the risk of toxicity. Therefore, even when BMPs have been shown to reduce the larger particulates found in runoff, it cannot be assumed that treatment processes are also reducing toxicity. Consequently, direct</p>

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Gnl-2	GENERAL COMMENTS
	<p>measurement of toxicity in storm water runoff and receiving water sediments is needed.</p> <p>The requirements for toxicity sampling were updated during the adoption of Order No. R9-2013-0001 in response to comments provided by USEPA to make the toxicity requirements more consistent with recently adopted MS4 permits (i.e. Caltrans and Los Angeles County MS4 Permits). The recently adopted Caltrans and Los Angeles County MS4 Permits include updated toxicity data collection procedures and data analysis methods that are consistent with the Draft State Water Resources Control Board Policy for Toxicity Assessment and Control, June 2012 (Draft State Board Toxicity Policy). See also response to comment D-1. Sediment monitoring requirements were also updated in Water Quality Control Plan for Enclosed Bays and Estuaries, Part 1 Sediment Quality (State Plan).</p> <p>Based on these considerations, no revisions to the Tentative Order are needed.</p>

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Gnl-3 GENERAL COMMENTS		
	<p>COMMENT: <i>Numbering in Tentative Order should explicitly identify the major sections to help the reader.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board agrees that the Tentative Order should explicitly identify the major permit sections to increase readability.</p> <p>Footers throughout the Tentative Order indicate the subsections, e.g. A.1, A.2, to orient the reader. Additionally, the electronic PDF version of the Tentative Order has bookmarks for the major provisions to assist in navigating the requirements. Therefore, the San Diego Water Board did not make the requested revisions because existing footers and navigation capabilities address the comment.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Gnl-4	GENERAL COMMENTS	
	<p>COMMENT: <i>The Tentative Order provides an overly broad interpretation of the storm water regulations by requiring MS4s to “enhance” and “restore” beneficial uses as the CWA only requires that Copermittees protect beneficial uses and prevent nuisance.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that the Tentative Order provides an overly broad interpretation of the storm water regulations.</p> <p>The San Diego Water Board reviewed and considered this comment during the adoption process of Order No. R9-2013-0001 (Regional MS4 Permit), making changes that replaced language which referred to “restoring water quality standards in receiving water” to language that required protection of water quality standards in receiving water from MS4 discharges. The Fact Sheet, pages 114-115 to Tentative Order No. R9-2015-0001 clearly states that Provisions E.5.e.(1)-(2) do not require the implementation of channel, streams, and/or habitat rehabilitation projects, but do require the Copermittees to develop a program with strategies to facilitate the implementation of these types of projects in areas of existing development. The strategies are expected to include allowing and encouraging Priority Development Projects to implement retrofitting types of projects as a means of compliance with the structural BMP performance criteria requirements of Provisions E.3.c.(1) and E.3.c.(2). Therefore, no revisions were made to Tentative Order No. R9-2015-0001 or its Attachments.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Gnl-5 GENERAL COMMENTS	
	<p>COMMENT: <i>The Tentative Order includes language that provides an overly broad use of the term “prohibit.”</i></p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that the Tentative Order provides an overly board use of the term prohibit.</p> <p>The Clean Water Act requires MS4 permits to include a requirement that non-storm water discharges are to be “effectively prohibited” to the MS4. The Code of Federal Regulations requires each Copermittee to have the legal authority to “prohibit” non-storm water discharges to the MS4. The Phase I Final Rule clarifies what “effectively prohibit” means (55 FR 47995): “Section 402(p)(3)(B) requires that permits for discharges from municipal separate storm sewers require the municipality to “effectively prohibit” non-storm water discharges from the municipal separate storm sewer...Ultimately, such non-storm water discharges through a municipal separate storm sewer must either be removed from the system or become subject to an NPDES permit (other than the permit for the discharge from the municipal separate storm sewer.)”</p> <p>During the 2013 adoption process for Order No. R9-2013-0001, where appropriate, the language in Order No. R9-2013-0001 was revised to be consistent with the language of the Clean Water Act to include the term “effectively prohibit” instead of “prohibit” or “reduce and eliminate.” In other cases, the language was maintained to be consistent with the requirements of the Code of Federal Regulations requiring the Copermittees to establish the legal authority to “prohibit” non-storm water discharges to their MS4s and enforce that legal authority. The establishment and enforcement of the legal authority to “prohibit” non-storm water discharges to their MS4s is how the Copermittees will “effectively prohibit” non-storm water discharges to their MS4s.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Gnl-6	GENERAL COMMENTS	
	<p>COMMENT: <i>The Tentative Order's WQBELs were improperly formulated.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: There are TMDLs in the Basin Plan that established wasteload allocations for MS4 discharges causing or contributing to exceedances of water quality standards in specified impaired water bodies. The San Diego Water Board has included WQBELs that are consistent with the requirements and assumptions and requirements of the TMDLs wasteload allocations (WLAs) in accordance with applicable federal regulations at 40 CFR 122.44(d)(1) (vii)(B) and 40 CFR 122.44(k)(2)-(4). TMDLs included in Attachment 1 to the Tentative Order have been approved by USEPA during the TMDL development process and again reviewed by USEPA as part of the Regional MS4 2013 Permit adoption process.</p> <p>NPDES permits must limit and control all pollutants that are or may be discharged at a level that "will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard including narrative criteria." (See 40 CFR 122.44(d)(1)(i)). The analysis that is performed to determine what pollutants require WQBELs is commonly referred to as the "reasonable potential analysis." NPDES permits must include WQBELs for all pollutants with "reasonable potential." (see 40 CFR 122.44(d)(1)(i))</p> <p>Where a WLA has been assigned to a discharge in a TMDL, it is concluded that there is reasonable potential for the discharger to cause or contribute to an excursion of water quality standards. Because there are TMDLs in the Basin Plan that have identified the established WLAs for MS4s as discharges causing or contributing to exceedances of water quality standards, demonstration of reasonable potential is presumed for the purposes of establishing a WQBEL based on an applicable WLA. (see 40 CFR 122.44(d)(1)(ii))</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Gnl-7 GENERAL COMMENTS	
	<p>COMMENT: <i>WQBELs should only be defined as effluent limitations.</i></p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board has included WQBELs that are consistent with the assumptions and requirements of TMDL wasteload allocations in accordance with applicable federal regulations at 40 CFR 122.44(d)(1)(vii)(B).</p> <p>WQBELs can be expressed as (1) conditions in receiving waters that are to be attained to restore or protect water quality standards in receiving waters, (2) conditions in discharges that will not cause or contribute to exceedances of water quality standards in receiving waters, (3) BMPs that will ensure discharges will not cause or contribute to exceedances of water quality standards in receiving waters, or (4) a combination of one or more of (1)-(3). This is consistent with 40 CFR 122.44(d)(1)(vii)(B) and 122.44(k)(2)-(4).</p> <p>The San Diego Water Board has incorporated options (1)-(3) under the WQBEL requirements for each of the TMDLs in Attachment E. In most cases, if the WQBEL expressed as a receiving water limitation is achieved, the discharges from the MS4s are assumed to be in compliance with the TMDL requirements. If not, then the Copermittees must demonstrate that discharges from the MS4s are not causing or contributing to the exceedances in the receiving waters by achieving the WQBELs expressed as effluent limitations. In every case, the Copermittees are required to implement BMPs to ensure that discharges from their MS4s do not cause or contribute to exceedances of water quality standards in receiving waters.</p>

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Lgl-1	LEGAL COMMENTS	
	<p>COMMENT: <i>Land Development requirements expose Copermittees to significant litigation risk and will be largely unenforceable. Therefore, predevelopment runoff reference conditions and stream, channel and habitat restoration requirements should be eliminated in their entirety.</i></p> <p>Commenters generally expressed concerns with the Copermittees' legal authority to imposed requirements on development projects where a nexus between impact on the receiving water and the project cannot be established. The Copermittees assert that they would be subject to liability under takings clauses of the US and California Constitutions and the Mitigation Fee Act for requiring hydromodification management BMP requirements on new development or redevelopment projects that discharge to hardened channels where a hydromodification impact would be questionable and difficult to establish.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board recognizes the concerns of the Copermittees' legal authority to impose hydromodification management requirements on development that causes no hydromodification impacts and responded to nearly identical comments during the adoption process for Order No. R9-2013-0001. As stated in response to comment Gnl-1, the San Diego Water Board incorporates those responses into this response to comments document. As stated in the 2013 responses to comments document:</p> <p>Federal law mandates that permits issued to MS4s require management practices that will result in reducing pollutants to the maximum extent practicable. The state is required, by law, to select the BMPs. (See NRDC v. USEPA (9th Cir. 1992) 966 F.2d 1292; Environmental Defense Center v. USEPA (9th Cir. 2002) 344 F.3d 832, 855; Rancho Cucamonga v. Regional Water Quality Control Bd., Santa Ana Region (2006) 135 Cal.App.4th 1377, 1389.) The Tentative Order's requirements for Low Impact Development and hydromodification management controls are authorized by federal law. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) provides that Copermittees develop and implement a management program which is to include "A description of planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment. Such plans shall address controls to reduce pollutants in discharges from municipal separate storm sewers after construction is completed."</p> <p>The Tentative Order does not impose land use regulations, nor does it restrict or control local land-use decision-making authority. Rather, the Tentative Order requires the permittees to fulfill Clean Water Act requirements and protect water quality in their land use decisions. The requirements in the Tentative Order</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Lgl-1	LEGAL COMMENTS
	<p>allow for flexibility in compliance options to the extent allowable under the Clean Water Act. The substantive regulatory requirements of the Clean Water Act are a valid exercise of the federal government's enumerated powers and authority over navigable waters. (NRDC v. USEPA (9th Cir. 1998) 863 F.2d 1420, 1436.)</p> <p>Environmental regulation is not land use regulation, and therefore does not infringe upon local authority over land use decisions. (California Coastal Commission v. Granite Rock (1987) 480 U.S. 572. In addition, local land use planning must be consistent with general statewide laws. (County of Los Angeles v. California State Water Resources Control Board (2006) 143 Cal.App.4th 985, 1003.) Article 11, section 7, of the California Constitution states that a county or city may not enact laws that conflict with general laws. The Porter-Cologne Water Quality Control Act contains the California Legislature's finding that water quality is a matter of state-wide concern, requiring a statewide program administered at a regional level. (See, e.g., Wat. Code, § 13000; see also generally Southern California Edison v. State Water Resources Control Board (1981) 116 Cal.App.3d 751, 758.) Section 101 of the CWA has a companion policy statement, where Congress found that water quality is a matter of federal concern.</p> <p>The Tentative Order also does not dictate specific methods of compliance or dictate the manner in which the Copermittees use their land. Where the Tentative Order includes detailed requirements, it is to comply with the Clean Water Act and its regulations. USEPA's regulations mandate that certain requirements be included in MS4 permits in order to achieve the requirements of the Clean Water Act. Thus, federal law mandates that permits issued for MS4s require certain actions that will result in the elimination or reduction of pollutants to receiving waters and the state is required, by federal law, to select the controls necessary to meet this standard. (See NRDC v. USEPA (9th Cir. 1992) 966 F.2d 1292, 1308; City of Rancho Cucamonga v. Regional Water Quality Control Bd., Santa Ana Region (2006) 135 Cal.App.4th 1377, 1389-90.)</p> <p>The requirement that the Copermittees require Priority Development Projects to control post-project runoff flow rates and durations so that they do not exceed pre-development runoff flow rates and durations by more than ten percent is appropriate and necessary to reduce erosion and the discharge of pollutants into receiving waters. It does not require mitigation beyond redevelopment project impacts because the requirement lessens (although does not eliminate) the perpetuating impacts that originated upon initial land alteration (i.e., the project would continue to cause accelerated erosion) absent improved controls of post-project runoff flow rates and durations. The San Diego Water Board maintains that the Copermittees have authority to implement this requirement, and that if implemented it would not rise to the level of a taking of private property. The pre-development condition provision is also consistent with the requirements in both the current Orange County and Riverside County MS4 permits.</p>

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Lgl-1	LEGAL COMMENTS
	<p>To remove the question of the nexus between a project's impacts on an already hardened channel, the Tentative Order includes a hydromodification management exemption for projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.</p>

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January 21, 2015

Lgl-2 LEGAL COMMENTS	
	<p>COMMENT: <i>Tentative Order numeric WQBELs violate the requirements of law because they are infeasible.</i></p> <ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that including numeric WQBELs for the TMDLs in the Tentative Order violate the requirements of law.</p> <p>The federal regulations under 40 CFR 122.44(d)(1)(vii)(B) require that NPDES permit requirements incorporate WQBELs that must be consistent with the requirements and assumptions of any available wasteload allocations (WLAs) developed under TMDLs. The federal regulations under 40 CFR 122.44(k) do not require WQBELs to be BMP-based if numeric effluent limitations are infeasible, but only that WQBELs that implement WLAs <u>may</u> be expressed in the form of BMPs. BMP-based WQBELs may be allowed if BMPs alone adequately implement WLAs, and additional controls are not necessary. This is consistent with a 2002 USEPA memorandum for <i>“Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs.”</i> WQBELs are required for point source discharges that have the reasonable potential to cause or contribute to an excursion of water quality standards and technology based effluent limitations or standards are not sufficient to achieve water quality standards. Where a WLA has been assigned to a discharge in a TMDL, it is concluded that there is reasonable potential for the discharger to cause or contribute to an excursion of water quality standards.</p> <p>The memorandum <i>“Revisions to the November 22, 2002 Memorandum ‘Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs)’ issued by USEPA on November 26, 2014 states, “Where the NPDES authority determine that MS4 discharges have a reasonable potential to cause or contribute to a water quality standard excursion, EPA recommends that, where feasible, the NPDES permitting authority exercise its discretion to include numeric effluent limitations necessary to meet water quality standards.”</i> The “where feasible” in the memorandum applies to the NPDES permitting authority’s discretion to include numeric effluent limitations necessary to meet water quality standards, not to the feasibility of achieving the numeric effluent limitations. The State Water Board, in Order WQ 2006-0012 (Boeing), has made clear that “infeasibility” in the context of numeric effluent limitations refers to “the ability or propriety of establishing” numeric limits, as</p>

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Lgl-2	LEGAL COMMENTS
	<p>opposed to the feasibility of compliance.</p> <p>The Caltrans MS4 permit is issued by the State Water Board. Even though the Caltrans MS4 permit may allow for BMP-based WQBELs, this does not require the San Diego Water Board to include BMP-based WQBELs in the Tentative Order regardless of any potential or apparent conflict. The San Diego Water Board will issue additional requirements to Caltrans with numeric WQBELs when and where warranted.</p> <p>The San Diego Water Board considered the feasibility of incorporating numeric WQBELs to implement the requirements of each of the TMDLs and has determined that they are feasible, and necessary, to include to meet water quality standards, consistent with the 2014 USEPA memorandum. Numeric WQBELs are also "additional controls" necessary to implement the WLAs, consistent with the 2002 USEPA memorandum.</p> <p>Each of the TMDLs in the Tentative Order, however, includes BMP-based WQBELs which must be implemented to achieve the numeric WQBELs. The Tentative Order requires the Copermittees to implement the BMP-based WQBELs to achieve the numeric WQBELs. This is consistent with the 40 CFR 122.44(d)(1)(vii)(B) and 40 CFR 122.44(k), and the recommendations of the 2014 USEPA memorandum. The Tentative Order has also been revised to include interim and final TMDL compliance determination options that allow the Copermittees to demonstrate that the BMP-based WQBELs will achieve the numeric WQBELs. The numeric WQBELs are necessary for the Copermittees to quantitatively demonstrate that the BMPs implemented are achieving the WLAs of the TMDLs.</p> <p>Thus, the Tentative Order appropriately includes numeric WQBELs and does not violate any requirements of law.</p>

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Lgl-3 LEGAL COMMENTS	
<p>COMMENT: <i>San Diego Water Board does not have the legal authority to issue a regional MS4 permit.</i></p> <p>The County of Orange and Concurring Cities and Orange County Flood Control District request that they be issued an individual permit. The Commenters claim the San Diego Water Board does not have the legal authority to include Orange County in a Regional Permit because there is no system-wide, jurisdiction-wide, or common watershed basis to do so.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
<p>RESPONSE: The San Diego Water Board incorporates its responses to comments for the adoption of Order No. R9-2013-0001 and other documents in the record including the September 7, 2012, legal memorandum prepared by San Diego Water Board counsel. The San Diego Water Board disagrees with the commenters that the federal regulations do not authorize the issuance of a region-wide MS4 permit coextensive with the jurisdictional boundaries of the San Diego Region.</p> <p>The San Diego Water Board reviewed and considered this comment during the adoption process of Order No. R9-2013-0001 (Regional MS4 Permit) and reaffirms its position that despite the geographic separation, the San Diego Water Board has legal authority to issue a regional MS4 permit through its authority in the Clean Water Act. (September 7, 2012 Letter from San Diego Water Board Counsel on Legal Authority Supporting Issuance of a Regional MS4 Permit) Section 402, subpart (p)(3)(B) of the Clean Water Act states that "Permits for discharges from municipal storm sewers – (i) may be issued on a system- or jurisdiction-wide basis" The federal storm water regulations in 40 CFR at Part 122.26, subdivision (a)(1)(v) also state that the Director (the San Diego Water Board) may designate dischargers from municipal separate storm sewers on a system-wide or jurisdiction-wide basis, taking into consideration the following factors: (A) location of the discharge with respect to waters of the United States; (B) the size of the discharge; (C) the quantity and nature of the pollutants discharged to waters of the United States and (D) other relevant factors. Consideration of these factors provides wide discretion to the San Diego Water Board in issuing MS4 permits.</p> <p>More specifically, the regulations permit issuance of system-wide permits covering all MS4s in "adjacent . . . large or medium separate storm sewer systems." (See 40 CFR sec. 122.26(a)(3)(iv). The regulations also support issuance of MS4 permits on watershed or "other basis" contemplating that such permits may "specify different conditions relating to different discharges covered by the permit, including different management programs for different drainage areas" (40 CFR Part 122.26(a)(3)(v).)</p> <p>The USEPA responses to comments for the above regulations also make clear that the permitting authority, in</p>	

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Lgl-3	LEGAL COMMENTS
	<p>this case, the San Diego Water Board, has flexibility to establish system- or region-wide permits. In the Final Rule published in the Federal Register and containing USEPA's responses to comments, USEPA notes that paragraph (iv) of section 122.26(a)(3) would allow an entire system in a geographical region under the purview of a state agency to be designated under a permit. (National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges, 55 Fed. Reg. 47990, 48030-48042 (Nov. 16, 1990).)</p> <p>It is important to note that a regional MS4 permit does not expand the requirements for each municipality beyond its borders as the federal regulations make clear that MS4 permittees need only comply with permit conditions relating to discharges from the MS4s for which they are operators. (40 CFR Part 122.26(a)(3)(vi).) See also September 7, 2012, memorandum from Jessica Jahr and Catherine Hagan, State Water Board's Office of Chief Counsel, to Ryan Baron and David Huff, counsels for Orange and Riverside Counties, respectively.</p>

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Lgl-4	LEGAL COMMENTS	
	<p>COMMENT: <i>The Requirements in the Tentative Order are more stringent than federal law, requiring an economic analysis.</i></p> <p>The County of Orange and Concurring Cities and Orange County Flood Control District assert that several requirements of Tentative Order go beyond the requirements of Federal law, thus an analysis pursuant to California Water code section 13241 is required. The commenters also make several assertions about deficiencies in the economic considerations discussed in the Fact Sheet, and assert that a cost-benefit analysis needs to be included in the Fact Sheet discussion.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that "several requirements of Tentative Order go beyond the requirements of Federal law."</p> <p>The San Diego Water Board is charged with construction of and administration of the Clean Water Act in the San Diego Region. In issuing MS4 permits, "[t]he permitting agency has discretion to decide what practices, techniques, methods and other provisions are appropriate and necessary to control the discharge of pollutants." (City of Rancho Cucamonga v. Regional Water Quality Control Board-Santa Ana Region (2006) 135 Cal.App.4th 1377,1389.) However, the "Regional Board must comply with federal law requiring detailed conditions for NPDES permits." (Ibid.)</p> <p>Further, USEPA expects the permitting authority to develop the specific practices that comply with the Clean Water Act on a permit-by-permit basis. (NRDC v. USEPA (9th Cir. 1992) 966 F.2d 1292, 1308.) To the extent the Board is exercising discretion in including certain permit requirements, the Board is exercising discretion required and/or authorized by federal law, not state law. (See City of Rancho Cucamonga, supra, 135 Cal.App.4th at 1389; Building Industry Association of San Diego County v. State Water Resources Control Bd. (2004) 124 Cal.App.4th 866, 882-883.) Further, the MEP standard is a flexible standard that balances a number of considerations, including technical feasibility, cost, public acceptance, regulatory compliance, and effectiveness. (Id. at pp. 873, 874, 889.) Such considerations change over time with advances in technology and with experience gained in storm water management. (55 Fed. Reg. 47990, 48052 (Nov. 16, 1990).)</p> <p>Accordingly, a determination of whether the conditions contained in Tentative Order exceed the requirements of federal law cannot be based on a point by point comparison of the permit conditions with federal law. The appropriate focus is whether the permit conditions as a whole exceed the MEP standard. The commenters assert that provisions of the Tentative Order are more stringent than the requirements of the Clean Water Act and therefore require an analysis of the factors, including economic considerations, in Water Code section</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Lgl-4	LEGAL COMMENTS
	<p>13241 before the San Diego Water Board can approve such provisions. As indicated above, the San Diego Water Board disagrees that provisions of the Tentative Order are more stringent than requirements of the Clean Water Act. Because the Tentative Order is not more stringent than federal law, its adoption does not require the San Diego Water Board to consider Water Code section 13241 factors. The California Supreme Court in <i>City of Burbank v. State Water Resources Control Board, et al.</i>, ((2005) 35 Cal.4th 613) (<i>Burbank</i>), held: [Water Code] section 13377 specifies that wastewater discharge permits must meet the federal standards set by federal law. In effect, section 13377 forbids a regional board's consideration of any economic hardship on the part of the permit holder if doing so would result in the dilution of the requirements set by Congress in the Clean Water Act. That act prohibits the discharge of pollutants into the navigable waters of the United States unless there is compliance with federal law (33 U.S.C. § 1322(a)), and publicly operated wastewater treatment plants such as those before us here must comply with the act's clean water standards, regardless of cost [citations]. Because [Water Code] section 13263 cannot authorize what federal law forbids, it cannot authorize a regional board, when issuing a wastewater discharge permit, to use compliance costs to justify pollutant restrictions that do not comply with federal clean water standards." (<i>Burbank</i>, 35 Cal.4th at 625.)</p> <p>While the <i>Burbank</i> decision does require an analysis of Water Code section 13241 factors when the state adopts permit conditions that are more stringent than federal law (<i>id.</i> at 618) Tentative Order No. R9-2015-0001 reflects that all of the challenged provisions are necessary to implement federal law. Thus, the San Diego Water Board is not required to consider economic information to justify a "dilution of the requirements" established in federal law. Even when applicable, consideration of economic information pursuant to section 13241 does not require a cost-benefit analysis, as some commenters suggest. And section 13241 neither specifies how regional water boards must consider its enumerated factors nor does it require that regional water boards may specific findings documenting consideration of the factors. (See <i>California Ass'n of Sanitation Agencies, et al. v. State Water Resources Control Board, et al.</i>, (208 Cal.App.4th 1438, 1464 (2012).) Nonetheless, the Fact Sheet and Response to Comments reflect economic information that has either been developed or gathered by the San Diego Water Board or has been submitted by Copermittees. To the extent that economic information in connection with compliance and other costs associated with challenged permit provisions, the San Diego Water Board has fully considered this information. Under these circumstances, <i>Burbank</i> does not require more.</p> <p>See also comment response Fnd-8.</p>

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Lgl-5 LEGAL COMMENTS	
	<p>COMMENT: <i>The San Diego Water Board cannot determine whether a particular mandate is unfunded.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District assert that the San Diego Water Board does not have the legal authority to determine whether any provisions in the Tentative Order constitute a state mandate, and only the Commission on State Mandates can make the determination.</p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: In proposing Tentative Order No. R9-2015-0001, the San Diego Water Board proposes amendments to Order No. R9-2013-0001 which includes Finding 31 and corresponding discussion in the Fact Sheet setting forth the San Diego Water Board's conclusion and supporting reasoning that Order No. R9-2013-0001 does not constitute an unfunded state mandate requiring subvention. The San Diego Water Board incorporates its responses to comments on the adoption of Order No. R9-2013-0001 into this response. The San Diego Water Board does not dispute that the Commission on State Mandate ultimately has jurisdiction to determine whether the State has imposed a mandate requiring state subvention. However, it remains entirely appropriate for the San Diego Water Board to set forth its legal basis to support its conclusion Order No. R9-2013-0001, as amended by Tentative Order No. R9-2015-0001, contains provisions the Board finds to be necessary and appropriate to meet the federal Clean Water Act standards.</p> <p>While the Commission may be expert in state mandates, it has no expertise in the field of water law. As indicated in response to comment Lgl-5, above, the San Diego Water Board does not agree that Order No. R9-2013-0001 as amended by Tentative Order No. R9-2015-0001 exceed federal requirements of the Clean Water Act. The San Diego Water Board is charged by law with administering and constructing the Clean Water Act's requirements and is entitled to considerable deference in its interpretation of the Act. (See Building Industry Association of San Diego, supra, 124 Cal.App.5th at pp. 873, 879 fn.9; County of Los Angeles v. California State Water Resources Control Bd. (2006) 143 Cal.App.4th 985, 997.) In issuing MS4 permits, "[t]he permitting agency has discretion to decide what practices, techniques, methods and other provisions are appropriate and necessary to control the discharge of pollutants." (City of Rancho Cucamonga v. Regional Water Quality Control Board-Santa Ana Region (2006) 135 Cal.App.4th 1377,1389.) However, the "Regional Board must comply with federal law requiring detailed conditions for NPDES permits." (Ibid.) Further, USEPA expects the permitting authority to develop the specific practices that comply with the Clean Water Act on a permit-by-permit basis. (NRDC v. USEPA (9th Cir. 1992) 966 F.2d 1292, 1308.) To the extent the Board is exercising discretion in including certain permit requirements, the Board is exercising discretion required and/or authorized by federal law, not state law. (See City of Rancho Cucamonga, supra, 135 Cal.App.4th at 1389;</p>

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Lgl-5	LEGAL COMMENTS
	<p>Building Industry Association of San Diego County v. State Water Resources Control Bd. (2004) 124 Cal.App.4th 866, 882-883.)</p> <p>Further, the MEP standard is a flexible standard that balances a number of considerations, including technical feasibility, cost, public acceptance, regulatory compliance, and effectiveness. (Id. at pp. 873, 874, 889.) Such considerations change over time with advances in technology and with experience gained in storm water management. (55 Fed. Reg. 47990, 48052 (Nov. 16, 1990).) The San Diego Water Board's findings are the expert conclusions of the principal state agency charged with implementing the NPDES program in California. (Cal. Wat. Code §§ 13001, 13370.) The San Diego Water Board is not precluded from including provisions in Tentative Order No. R9-2015-0001 which commenters may contend are state mandates and it is well within the San Diego Water Board's authority to conclude, based on its expertise in administering the Clean Water Act, Tentative Order No. R9-2015-0001 does not exceed federal law and is therefore not a state mandate subject to subvention.</p>

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Fnd-1	FINDINGS	
	<p>COMMENT: <i>Modify findings and/or Fact Sheet to include additional key findings from the Report of Waste Discharge (including the State of the Environment) and use this information as the basis for the Draft Order's requirements.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District are concerned that the San Diego Water Board did not review and consider the "State of the Environment" discussion in their ROWD based on the Findings and Fact Sheet amendments presented in the Tentative Order and its Attachments.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the comment.</p> <p>The San Diego Water Board reviewed and considered all information in the Copermittees ROWD, as is documented in the Findings of Tentative Order No. R9-2015-0001 (i.e. Findings 1 through 4). Based on the ROWD review newly proposed requirements specific to southern Orange County Copermittees (i.e. interim hydromodification exemptions for large rivers and engineered channels) are presented in Attachment No. 1 to the Tentative Order (i.e. Order No. R9-2013-0001 as Amended by Order No. R9-2015-0001). San Diego Water Board reviewed the ROWD, including the "State of the Environment" discussion and the San Diego Water Board concluded that many of the ROWD recommendations could be accommodated by the requirements in Order No. R9-2013-0001 with only a limited number of changes required. The new flexible regulatory approach (described in the Fact Sheet for Order No. 2013-0001) and proposed requirements, puts more control in the hands of the Copermittees to develop a watershed-based planning approach. As described in Finding 2 of the Tentative Order, development of a watershed-based planning approach is portrayed in the ROWD as the most important next step to take in the development of the storm water programs in Orange County. The Tentative Order also provides the Copermittees with the flexibility to continue taking advantage of opportunities to reduce dry weather flows (a repeated recommendation throughout the ROWD).</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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Fnd-2 FINDINGS	
	<p>COMMENT: <i>Modify Finding 7 - In-Stream Treatment Control Systems to allow for the implementation of stream restoration or stream rehabilitation projects and constructed wetlands, or maintenance or reconstruction of existing stream restoration or rehabilitation projects, constructed wetlands, and regional BMPs.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District suggest modify the language in Finding 7 to allow for full flexibility to identify creative solutions that meet the Tentative Order's alternative compliance goals through implementation of stream restoration or rehabilitation.</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the language in Finding 7 of Order No. R9-2013-0001 stifles Copermittee ability to meet the Tentative Order's alternative compliance goals through creative solutions such as implementation of stream restoration or stream rehabilitation projects and constructed wetlands, or prevents maintenance or reconstruction of existing stream restoration or rehabilitation projects, constructed wetlands, and regional BMPs.</p> <p>Finding 7 states that pursuant to federal regulations (40CFR 131.10(a)) states cannot adopt waste transport or waste assimilation as a designated use for any waters of the U.S. Authorizing the construction of a runoff treatment facility within a water of the U.S., or using the water body itself as a treatment system or for conveyance to a treatment system, would be tantamount to accepting waste assimilation as an appropriate use for that water body. Finding 7 concludes that treatment control best management practices (BMPs) must not be constructed in waters of the U.S. The language of Finding 7 does not impinge upon a Copermittees ability to take full advantage of the flexibility provided in the Tentative Order's alternative compliance option.</p> <p>Permit Provision II.E.3.c.(3) of Order No. R9-2013-0001 enables each Copermittee, at its own discretion, to allow Priority Development Projects (POPs) to participate in an alternative compliance program in lieu of implementing the onsite structural BMP performance requirements of Provisions II.E.3.c.(1) and II.E.3.c.(2). Alternative compliance is only allowed if the Copermittee determines that implementation of an alternative compliance project will result in a greater overall water quality benefit for the Watershed Management Area than fully complying with the onsite performance requirements.</p> <p>This alternative compliance option establishes a mechanism for Copermittees to provide alternative candidate projects for those land development projects that are unable to fully implement controls onsite. Copermittees can develop and make available a variety of candidate alternative compliance projects, including stream restoration and rehabilitation projects within a water body, as long as such projects do not entail placement of a treatment facility or treatment control BMPs within the water body. A vast variety of candidate projects could</p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District

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Fnd-2	FINDINGS
	<p>be proposed under Permit Provision II.E.3.c.(3) and it is expected that candidate projects will not include projects that entail construction, operation, and maintenance of a pollution treatment control facilities or BMPs in a water body. The placement of structures of this type in a water body is contrary to the intent of 40CFR 131.10(a) and; therefore the Tentative Order does not propose any modifications to Finding 7. Many candidate project options exist that could a) achieve the greater overall water quality benefit envisioned by the alternative noncompliance permit provision, and b) support the physical, chemical, and biological integrity, as well as the beneficial uses of a particular water body, and c) not entail constructing treatment facilities or BMPs within a water body.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Fnd-3 FINDINGS	
	<p>COMMENT: <i>Modify Finding 8, 16, and 17 to remove presumption that discharges from MS4s always contain waste.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District object to Finding 8 of Order No. R9-2013-0001 stating that discharges from the MS4s contain waste, and that Finding 8 does not acknowledge that there may not be pollutants in the discharges from the MS4s. The commenters requested revisions to Findings 8, 16 and 17 to reflect this position.</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the commenters that Findings 8, 16, or 17 need revision.</p> <p>The Tentative Order implements the requirements of the California Water Code as well as the requirements of the Clean Water Act. Under California Water Code section 13376, any person discharging waste, or proposing to discharge wastes to waters of the State is not authorized to discharge waste unless issued waste discharge requirements. The requirements of the Clean Water Act, specific to discharges of pollutants to waters of the U.S. are also included in the California Water Code, Chapter 5.5 of Division 7. Thus, under the California Water Code, any person discharging pollutants, or proposing to discharge pollutants to waters of the U.S. is not authorized to discharge pollutants unless issued waste discharge requirements that include NPDES requirements. Waste discharge requirements that include NPDES requirements is also an NPDES permit under the Clean Water Act. The Clean Water Act and the California Water Code requires municipalities to obtain and comply with NPDES permits for authorized discharges of pollutants to waters of the U.S. from their MS4s. Municipalities proposing to discharge pollutants from an MS4 must obtain an NPDES permit before they can lawfully discharge.</p> <p>Comments received assert that the definition of “waste” in California Water Code section 13050 does not include storm water or any discharge that is not created by human activity. Comments received also assert that waste discharge requirements and NPDES permits cannot regulate the discharge of “pure storm water” and that not all discharges from the MS4 contain pollutants.</p> <p>Discharges from the MS4 are not “pure storm water.” Storm water that flows over the surface of any developed area, which includes the MS4 itself, do not enter or discharge from the MS4 without coming into contact with pollutants or constituents that alter the storm water such that it is no longer “pure storm water.” Thus, storm water discharges from the MS4 contains pollutants and contain waste. It is well-known and documented that urban runoff and storm water contains pollutants. (See, e.g., State Water Board Order WQ</p>

- **County of Orange**
Concurring Cities:
Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo
- **Orange County Flood Control District**

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Fnd-3	FINDINGS
	<p>2001-015 ("As we stated in Board Order WQ 95-2, the requirement to adopt permits for urban runoff is undisputed, and Regional Water Boards are not required to obtain any information on the impacts of runoff prior to issuing a permit (citation). It is also undisputed that urban runoff contains 'waste' within the meaning of Water Code section 13050(d), and that the federal regulations define 'discharge of a pollutant' to include 'additions of pollutants into waters of the United States from surface runoff which is collected or channeled by man.' (40 C.F.R. § 122.2.) But it is the waste or pollutants in the runoff that meet these definitions of 'waste' and 'pollutant.' And not the runoff itself. [fn]. (p. 5.))</p> <p>Tentative Order No. R9-2015-0001 (like the current adopted version of Order No. R9-2013-0001) does not regulate "pure storm water." The Tentative Order regulates the discharge of storm water that is being discharged as a waste and contains pollutants. Finding 8 of Order No. R9-2013-0001 accurately states that discharges from the MS4s contain waste, as defined in the California Water Code. Finding 8 also accurately states that discharges from MS4s contain pollutants that adversely affect the quality of waters of the state. Findings 16 and 17 also accurately conclude that BMPs and implementation of BMPs are necessary to remove waste and pollutants in storm water discharges from MS4s.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Fnd-4	FINDINGS	
	<p>COMMENT: <i>Delete Finding 11. Natural waters cannot legally be classified as part of the MS4, and a part of both MS4 and receiving water.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District assert that Finding 11 is inaccurate and the San Diego Water Board cannot classify natural waters as part of the MS4.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with this comment.</p> <p>An MS4 is defined in the federal regulations as a conveyance or system of conveyances owned or operated by a Copermittee, and designed or used for collecting or conveying runoff. Therefore, the San Diego Water Board considers natural drainages that are used by the Copermittees as conveyances of runoff, as both part of the MS4 and as receiving waters.</p> <p>The State Water Board supports this approach. In reviewing a Petition on Order No. R9-2001-0001, the State Water Board stated "<i>We also agree with the Regional Water Board's concern, as stated in its response, that there may be instances where MS4s use 'waters of the United States as part of their sewer system [...]</i>" State Water Resources Control Board Order WQ 2001-15.</p> <p>Furthermore, the U.S. Supreme Court's 2006 <i>Rapanos</i> decision supports the conclusion that natural streams in developed areas can be both receiving waters and MS4s by confirming that ephemeral and intermittent streams can be waters of the U.S. subject to regulation under Clean Water Act section 404 and also be considered point sources of pollution discharges regulated under Clean Water Act section 402. (See <i>Rapanos, et al. v. United States and Carabell et al. v. United States Army Corps of Engineers, et al. (2006) 547 U.S. 715, 743-744.</i>)</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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Fnd-5	FINDINGS	
	<p>COMMENT: <i>Modify Finding 12 to more accurately describe that Copermittees do not accept free and open access to MS4s, and are not responsible for all discharges not prohibited.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District object to Finding 12 stating that the Copermittees provide free and open access to MS4s. The Copermittees assert that they are not responsible for discharges from their MS4s that are from third parties that are subject to the jurisdiction of the San Diego Water Board</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that Finding 12 is inaccurate.</p> <p>The Copermittees have the option to request the authority to discharge from their MS4s under an NPDES permit or comply with the complete prohibition against the discharge of pollutants pursuant to Clean Water Act section 301(a) (33 U.S.C. § 1311(a)). These choices are provided by the federal Clean Water Act, not state laws.</p> <p>The Copermittees have opted to discharge from their MS4s under an NPDES permit. In doing so, they are responsible for discharges from the MS4s. Thus, Finding 12 correctly establishes that the Copermittees provide free and open access for third party discharges to their MS4s and that in doing so the Copermittees are responsible for discharges into the MS4 that they do not prohibit or otherwise control. Finding 12 also correctly concludes that the Copermittees cannot passively receive and discharge pollutants from third parties.</p> <p>The Copermittees have the responsibility of identifying the sources of discharges and pollutants from their MS4s. If the Copermittees are not actively identifying sources and cannot identify sources of discharges and pollutants to and from their MS4s, then the Copermittees are the source of the MS4s discharges and pollutants to receiving waters, even if they believe third parties are responsible for the discharges and pollutants.</p> <p>If, however, the Copermittees identify the sources of discharges and pollutants to or from the MS4s as outside of their legal authority to prohibit or otherwise control, then they are not passively receiving and discharging pollutants, even if they are providing free and open access to the MS4s. The data and information that the Copermittees collect to identify the third party sources can provide the evidence that the Copermittees are not responsible for the discharges and pollutants from the MS4s that can be attributed to third parties. Until the data and information are provided to identify those third parties, and demonstrate those parties are not subject to the Copermittees' legal authority, then the Copermittees are responsible for all of the discharges to and from their MS4s unless such discharges are authorized by a separate NPDES permit.</p>	

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Fnd-5	FINDINGS
	Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.

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Fnd-6	FINDINGS	
	<p>COMMENT: <i>Modify Finding 15 to recognize that the discharge of all pollutants from the MS4 is subject to the MEP standard.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District assert Finding 15 is inaccurate. The Copermittees assert that the Tentative Order is inconsistent with the Clean Water Act and the MEP standard applies to both non-storm and water storm water, not just storm water.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the comment and incorporates its responses to comments on this topic from the San Diego Water Board's adoption proceedings on Order No. R9-2013-0001.</p> <p>The San Diego Water Board disagrees that the MEP standard applies to both non-storm water and storm water. The San Diego Water Board also disagrees that Finding 15 of Order No. R9-2013-0001 should be revised. Finding 15 accurately states the requirements of the Clean Water Act. The San Diego Water Board maintains that MEP standard only applies to pollutants in storm water. See also, Memorandum from San Diego Water Board Counsel to San Diego Water Board dated 5 November 2009, incorporated by reference herein.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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Fnd-7	FINDINGS	
	<p>COMMENT: <i>Modify Finding 29 to clarify single water board regulations of Cities of Lake Forest, Laguna Woods, Laguna Hills.</i></p> <p>The City of Lake Forest provided suggested language changes to Finding 29 of the Tentative Order to clarify single water board regulation of the Cities of Lake Forest, Laguna Woods, and Laguna Hills.</p> <p>Suggested language changes were for the most part accepted by the San Diego Water Board.</p>	City of Lake Forest
	<p>RESPONSE: The San Diego Water Board agrees with most of the suggested language changes proposed by the City of Lake Forest.</p> <p>The City of Lake Forest provided suggested language changes to Finding 29 of the Tentative Order to clarify single water board regulation of the Cities of Lake Forest, Laguna Woods, and Laguna Hills.</p> <p>The Tentative Order was modified to reflect, for the most part, the City's recommended changes. The word "wholly" was not added as requested by City of Lake Forest because it is unnecessary to clarify the terms of the Water Code section 13228 agreement. The permit language and the Water Code section 13228 designation agreement specify in detail how the Santa Ana Water Board and the San Diego Water Board will, respectively, regulate the City of Lake Forest as well as the Cities of Laguna Hills and Laguna Woods under each Region's respective MS4 permits. The San Diego Water Board notes that the current Riverside County MS4 permit (Order No. R9-2010-0016) includes the term "wholly" but the San Diego Water Board will consider removing that term when it considers the County of Riverside and Riverside Copermittees' Report of Waste Discharge for the reason set forth above.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Fnd-8 FINDINGS	
	<p>COMMENT: <i>Modify Finding 31 to state the Tentative Order is more stringent than Federal Law, requiring an analysis of the factors pursuant to Water Code Section 13241.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District assert that several requirements of the Tentative Order go beyond the requirements of Federal law, thus an analysis pursuant to California Water code section 13241 is required. The commenters also make several assertions about the deficiencies they perceive with the economic considerations discussed in the Fact Sheet, and assert that a cost-benefit analysis needs to be included in the Fact Sheet discussion.</p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with this comment and incorporates its responses to comments on this topic from the San Diego Water Board's adoption proceedings on Order No. R9-2013-0001.</p> <p>The provisions of the Tentative Order do not go beyond the requirements of the Clean Water Act or Code of Federal Regulations. The San Diego Water Board again considered economic information in developing the Tentative Order No. R9-2015-0001 using the best available information, but did not do so in accordance with an analysis pursuant to California Water code section 13241. The provisions of the Tentative Order No. R9-2015-0001 are based on and fully supported by federal requirements, as demonstrated by the legal authority provided by the Clean Water Act and Code of Federal Regulations sections cited in the Fact Sheet. Thus, the San Diego Water Board maintains that an analysis pursuant to California Water Code section 13241 is not required. Federal NPDES regulations do not require that the San Diego Water Board conduct a cost-benefit analysis.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p> <p>Please also see response to comment Lgl-4 and Lgl-5.</p>

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Fnd-9	FINDINGS	
	<p>COMMENT: <i>Delete Finding 32. The San Diego Water Board has no legal ability to determine whether a particular mandate is unfunded.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District assert that the San Diego Water Board does not have the legal authority to determine whether any provisions in the Tentative Order constitute a state mandate, and only the Commission on State Mandates can make the determination.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: See response to comment Lgl-5.</p>	

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A-1 PROVISION A: PROHIBITIONS AND LIMITATIONS		
A-1	<p>COMMENT: <i>Tentative Order needs to include language that shows a clear pathway to compliance with the discharge prohibitions, receiving water limitations, and effluent limitations in Provision A. 1.</i></p> <p>Orange County and Concurring Cities, the Orange County Flood Control District, Riverside County Copermittees and the City of San Diego each submitted comments requesting that the requirements of Provision A be modified to provide a clear linkage between the prohibitions and limitations of Provisions A.1 to A.3 with the iterative process required under Provision A.4 to be demonstrated through the implementation of the Water Quality Improvement Plans. The commenters are concerned that the language of Provision A, if not modified, will be interpreted as requiring strict and immediate compliance with the prohibitions and limitations, and the implementation of the iterative process would not be enough to demonstrate compliance with the prohibitions and limitations. Among the many recommended modifications to the requirements of Provision A, the commenters are generally requesting that the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a specifically state that implementation of Provision A.4 constitutes compliance. Furthermore, the Copermittees have requested that Provision A.4 explicitly state that the implementation of the iterative process constitutes compliance with any of the prohibitions and limitations under Provision A.1 to A.3, including compliance with the effective prohibitions of non-storm water discharges to the MS4s, and the TMDL requirements.</p> <p>During adoption of Order No. R9-2013-0001, commenters from environmental organizations were strongly in support of maintaining the existing language and asserted that modifications to Provision A would “weaken” the requirements, or provide “safe harbor” and would violate federal anti-backsliding requirements.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District • Riverside County Copermittees • City of San Diego
	<p>RESPONSE: The San Diego Water Board understands the concerns that the Copermittees have expressed regarding the requirements of Provision A and the apparent lack of a linkage between the iterative process under Provision A.4 and the strict compliance with the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a. This language, however, is consistent with the precedential language that was issued under State Water Board Order WQ-1999-05 and has been implemented in all MS4 permits issued by the San Diego Water Board since 2001. The State Water Board has not yet issued an order or taken other action to supersede this precedential language. Recently, the State Water Board issued a Draft Order on November 21, 2014 in response to petitions challenging the 2012 Los Angeles MS4 Permit in which compliance with receiving water limitations is a major focus. Although the State Water Board's Draft Order generally upholds the Los Angeles Water Board Order, no final decision has been made. The State Water Board held a December 16, 2014 public workshop to receive comments and discuss the Draft Order with</p>	

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A-1	PROVISION A: PROHIBITIONS AND LIMITATIONS
	<p>Copermittees and interested persons. No decision was made at the workshop. The State Water Board did not indicate when a final Order might be issued.</p> <p>Under the Porter-Cologne Water Quality Control Act, waste discharge requirements must implement applicable water quality control plans, including water quality objectives. The discharge prohibitions and receiving water limitations of Provision A.1.a, A.1.c and A.2.a are consistent with this requirement, and are included in all NPDES permits and Waste Discharge Requirements issued by the San Diego Water Board. These are the fundamental requirements that protect water quality by ensuring that discharges comply with applicable water quality standards to ensure protection of receiving water beneficial uses. The San Diego Water Board does recognize an increasing body of monitoring data indicates that water quality standards are in fact not being met by many of the Copermittees' MS4 discharges. The San Diego Water Board has as a matter of practice not sought to enforce the discharge prohibitions and receiving water limitations of Provision A.1.a, A.1.c or A.2.a where the Copermittees are actively engaged in implementing the other requirements of the MS4 permit. The focus of the previous MS4 permits and the San Diego Water Board has been on compliance with implementation of the actions required by the permit, rather than the water quality outcomes that are expected to be achieved.</p> <p>As noted by the Copermittees, however, the approach of the Tentative Order is a significant departure from the approach of previous MS4 permits. Previous MS4 permits did not provide the Copermittees enough flexibility to truly implement an iterative process to adaptively manage their programs to identify innovative new ways to improve the quality of discharges from their MS4s or in the receiving waters, because the actions required by the permit were relatively fixed and prescriptive. In contrast, the Tentative Order is structured to allow the Copermittees to take advantage of the iterative process and adaptively manage their programs to focus on achieving outcomes.</p> <p>Since the State Water Board has yet to issue a final decision response to the petitions challenging the 2012 Los Angeles Water Board MS4 Permit, the San Diego Water Board did not revise Provisions A.1.a, A.1.c, A.2.a and A.4, and the language of Provision A remains consistent with the language in precedential State Water Board Order No. WQ 1999-05. However, the San Diego Water Board supports the concept of an alternative compliance option and considered it during the adoption of the Regional MS4 Permit in 2013.</p> <p>The San Diego Water Board will consider incorporation of the Riverside County Copermittees into the Regional MS4 Permit in late 2015 or early 2016. As part of this process, the San Diego Water Board will also consider the incorporation of a well-defined, transparent, and finite alternative compliance option similar to the option</p>

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A-1	PROVISION A: PROHIBITIONS AND LIMITATIONS
	<p>proposed in 2013, but also consistent with any decisions/guidance from the State Water Board. A rigorous alternative compliance option would allow the Copermittees that are willing to pursue significant receiving water quality improvements beyond the iterative process to be deemed in compliance with the receiving water limitations. Inclusion of the alternative compliance option during the extensive public process for the Riverside County Copermittees will provide the stakeholders the necessary opportunity to discuss, comment, and suggest changes to any proposed language.</p> <p>An administrative finding documenting the San Diego Water Board's intent to consider incorporation of an alternative compliance option during the MS4 NPDES permit reissuance proceedings for the Riverside County Copermittees has been added to the Tentative Order.</p>

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B-1 PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
	<p>COMMENT: <i>Water Quality Improvement Plans should be the foundation for a BMP-based compliance approach.</i></p> <p>Orange County and Concurring Cities, the Orange County Flood Control District, Riverside County Copermittees and the City of San Diego request that Copermittees be allowed to utilize the development and implementation of the Water Quality Improvement Plans as a compliance mechanism for the prohibitions and limitations of Provisions A.1 to A.3.</p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District • Riverside County Copermittees • City of San Diego
	<p>RESPONSE: The San Diego Water Board understands the concerns raised by the comments from the Copermittees.</p> <p>The Tentative Order includes the State Water Board precedential language. At this time the San Diego Water Board has chosen to keep the State Water Board precedential language in Attachment 1 to the Tentative Order until the State Water Board takes action with regards to this issue. Should the State Water Board decide to issue revised precedential language regarding mechanisms for compliance with Provision A.1 to A.3, the San Diego Water Board will then update the Regional MS4 Permit as necessary.</p> <p>Additionally, the discussion in the Fact Sheet under Provision B6 describes the San Diego Water Boards intentions to use the Water Quality Improvement Plans as functionally equivalent documents to TMDL Load Reduction Plans.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p> <p>See also response to comment A-1.</p>

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B-2	PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
	<p>COMMENT: <i>Water Quality Improvement Plans need to be based on regionally appropriate water quality standards that reflect sustainable conditions for beneficial uses.</i></p>	Riverside County Copermittees
	<p>RESPONSE: The San Diego Water Board understands the concerns raised by the Riverside County Copermittees, however the proceedings on the Tentative Order are not the proper forum for addressing proposals to modify Basin Plan water quality standards.</p> <p>Water quality standards and beneficial uses are established in the San Diego Water Board's Basin Plan and not the Tentative Order /. The San Diego Water Board suggests the Riverside County Copermittees bring the comment forth during the San Diego Water Boards process for conducting the Triennial Review of Basin Plan water quality standards which is currently underway. . It is within the Triennial Review process that the San Diego Water Board reviews the Basin Plan water quality standards and beneficial uses. Information on the Triennial Review process can be accessed on the San Diego Water Board website at: http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/tri_review.shtml</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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B1-1	PROVISION B.1: Watershed Management Areas	
	<p><u>COMMENT:</u> <i>Revise footnote 2 to Table B-1 to clarify single water regulation of City of Lake Forest.</i></p> <p>The City of Lake forest suggests revision to footnote 2 to Table B-1 to clarify single board regulation.</p>	City of Lake Forest
	<p><u>RESPONSE:</u> The San Diego Water Board understands the City's comment and has modified the footnote language to be consistent with the language in Finding 29. Please see response to Comment Fnd-7.</p>	

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B1-2 PROVISION B.1: Watershed Management Areas		
B1-2	<p>COMMENT: <i>Revise language in Tentative Order to clarify NPDES permit is applicable to discharges from Copermittees MS4s.</i></p> <p>The City of San Diego requests that the requirements of the Tentative Order “clarify” the responsibilities of the Copermittees to develop a Water Quality Improvement Plan “for their MS4 discharges within” each of the Watershed Management Areas.</p>	City of San Diego
	<p>RESPONSE: The San Diego Water Board disagrees with the comment that clarification is necessary.</p> <p>The San Diego Water Board did not revise the language with the qualifying phrases requested by the Copermittees. The Copermittees are required to establish the legal authority to implement the requirements of the Tentative Order. The Tentative Order does not require the Copermittees to implement requirements outside of their jurisdictions or outside of their legal authority.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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B3-1 PROVISION B.3: Water Quality Improvement Goals, Strategies and Schedules		
	<p>COMMENT: <i>Provision B.3.a should explicitly state that the action levels, interim goals and final goals are not enforceable limitations.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the comment.</p> <p>After further clarification with the commenters on their references to footnotes in Provision B and C, Footnote 8 to Provision C.1 for Non-Storm Water Action Levels (NALs) and Footnote 10 to Provision C.2 Storm Water Action Levels (SALs) clearly state NALs and SALs incorporated in the Water Quality Improvement Plans are not considered by the San Diego Water Board to be enforceable effluent limitations, unless the NAL or SAL is based on a WQBEL expressed as an interim or final effluent limitation for a TMDL in Attachment E and the interim or final compliance date has passed.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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C-1 PROVISION C: ACTION LEVELS		
C-1	<p>COMMENT: <i>The Tentative Order should enable the Copermittees to apply NALs/SALs based on the priorities of the Water Quality Improvement Plan and/or the IDDE program.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District are concerned that the Tentative Order contradicts itself by stating Copermittees must develop and incorporate numeric NALs and SALs into the Water Quality Improvement Plan and/or IDDE program, then mandates Copermittees include all of the numeric action levels identified in tables C-1 to C-5. The Copermittees expressed concern that requiring the prescribed NALs and SALs under Provision C would result in unnecessary analyses for constituents that are not a priority identified in the Water Quality Improvement Plan.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the request to modify the requirements as suggested.</p> <p>The NALs and SALs under Provision C have been included to support the development and prioritization of the water quality strategies that will be implemented based on the highest priority water quality conditions identified by the Copermittees in the Water Quality Improvement Plans.</p> <p>The NALs and SALs have been included as a tool that the Copermittees and the San Diego Water Board can utilize to determine if the Copermittees are implementing the requirements of the Clean Water Act for MS4 permits to <i>effectively prohibit non-storm water discharges to the MS4 and reduce pollutants in storm water discharges from the MS4 to the MEP.</i> The NALs and SALs are not new, and are included in both of the current MS4 permits issued to Orange County (Order No. R9-2009-0002) and Riverside County (Order No. R9-2010-0016).</p> <p>The Copermittees are required to effectively prohibit non-storm water discharges to their MS4s, which in turn should result in little to no discharges from their MS4s to receiving waters. If there are non-storm water discharges from the Copermittees' MS4s to receiving waters, those discharges should only be NPDES permitted discharges. Even if those discharges are NPDES permitted discharges, the Copermittees are responsible for demonstrating that those discharges are not illicit discharges by identifying the sources as NPDES permitted discharges.</p> <p>The prescribed NALs in Table C-1 through C-4 are associated with most if not all the pollutants that are known</p>	

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C-1	PROVISION C: ACTION LEVELS
	<p>or suspected to be causing or contributing to impairments in water bodies on the 303(d) List for the San Diego Region. The NALs are appropriately based on water quality objectives because non-storm water discharges that do not contain pollutants at levels in exceedance of the NALs are not expected to cause or contribute to exceedances of water quality standards in receiving waters.</p> <p>Thus, the prescribed NALs have been included to allow the Copermittees to prioritize their efforts in effectively prohibiting unpermitted non-storm water discharges to their MS4s, demonstrate that they have effectively prohibited non-storm water discharges to their MS4s that could cause or contribute to exceedances of water quality standards, or identify NPDES permitted sources that are resulting in discharges from their MS4s that are causing or contributing to exceedances of water quality standards in receiving waters. In any case, the prescribed NALs are necessary to allow the San Diego Water Board to determine if the Copermittees are effectively prohibiting non-storm water discharges to the MS4. The Tentative Order also allows Copermittees the flexibility to develop and include NALs, for which values are not already included provision C-1, for those pollutants that are causing or contributing, or threatening to cause or contribute to a condition of pollution or nuisance in receiving waters associated with the highest priority water quality conditions related to non-storm water discharges from the MS4s into the Water Quality Improvement Plans and IDDE Program. The Tentative Order does not prohibit the Copermittees from using any “previously established NALs” in addition to those listed in C-1 to C-4.</p> <p>In contrast, the prescribed SALs are not based on water quality objectives, but set at higher levels because the San Diego Water Board recognizes that reducing pollutants in wet weather discharges from the MS4s to water quality objectives is challenging. The prescribed SALs, however, will allow the Copermittees to prioritize their efforts in reducing pollutants in storm water discharges from their MS4s, and allow the San Diego Water Board to determine if the Copermittees are reducing pollutants in storm water discharges from their MS4s to the MEP.</p> <p>The San Diego Water Board disagrees with the concerns about monitoring for constituents that are not associated with the highest priority water quality conditions. Periodically analyzing non-storm water and storm water discharges from the Copermittees’ MS4 for pollutants other than those associated with the highest priority water quality conditions is necessary if the Copermittees would like to re-prioritize or identify new priority water quality conditions that will be addressed. The San Diego Water Board does recognize that there is a cost associated with analyzing for additional constituents. Thus, the San Diego Water Board has modified the MS4 outfall monitoring requirements to reduce the number of dry weather MS4 outfall monitoring stations that must be analyzed (see Provision D.2.b.(2)(b) of Order No. R9-2013-0001) and provided the Copermittees some flexibility to modify the analytes for the wet weather MS4 outfall monitoring stations (see Provision</p>

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C-1	PROVISION C: ACTION LEVELS
	<p>D.2.c.(5)(f).</p> <p>As for the concerns about the chemically-based NALs and the biologically- or physically-based numeric goals for receiving waters, the San Diego Water Board disagrees that they cannot be linked or may be incompatible. Biologically- or physically-based numeric goals will likely be measured in the receiving waters. The chemically-based NALs apply to the MS4 outfalls. The quality of the MS4 discharges and the improvement of biological or physical measurements can be linked. Both are likely necessary to demonstrate that MS4 discharges are either not causing or contributing to a biological or physical impairment of the receiving water, or an improvement in MS4 discharges is resulting in improvements in the biological or physical conditions of the receiving water.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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D-1 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS		
	<p>COMMENT: <i>Copermittees need to have the flexibility to adjust analytical monitoring in the water quality improvement plans based on assessments of current sources that may contribute to the section 303(d) water body impairments.</i></p> <p>The County of Orange and Concurring Cities and Orange County Flood Control District requested relief of analytical monitoring requirements if supporting information can be provided to document the current pollutant concentrations or may provide historic information to support the absence of usage of these constituents in the MS4 drainage area.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the suggested revisions to the Tentative Order.</p> <p>Monitoring required in Provision D of Attachment No. 1 to the Tentative Order describes the minimum monitoring required to inform the Copermittees, San Diego Water Board, and the public on the progress the Copermittees make within their Phase 1 storm water programs to: 1) effectively prohibit non-storm water discharges to the MS4 and reduce pollutants in storm water from the MS4 to the maximum extent practicable; and 2) implement strategies to control the discharge of pollutants in MS4 discharges and improve receiving water quality. These minimum monitoring requirements do not prohibit the Copermittees from conducting monitoring for which it considers necessary to identify constituents contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan.</p> <p>Each Copermittee is required to achieve compliance with the Basin Plan prohibitions and receiving water limitations (Provision A.1.a, A.1.c, and A.2.a, in Attachment 1 to the Tentative Order) through implementation of control measures and other actions as specified in the Tentative Order. The monitoring and assessment information collected and reported is expected to be key to the iterative approach and adaptive management process required by the Tentative Order (Provision A.4 of Attachment 1). Under the adaptive management provision, Copermittees are expected to change their monitoring programs to collect the necessary data for them to be able to demonstrate that their jurisdictional storm water management programs are making measurable progress towards achieving compliance with Basin Plan prohibitions and receiving water limitations. Changes to the monitoring programs would be presented during the development of or subsequent updates to the Water Quality Improvement Plan. All Copermittees are required to conduct the minimum monitoring described in Provision D, however through the adaptive management approach in Provision A of Attachment 1 to the Tentative Order, Copermittees are allocated sufficient flexibility to make changes to their monitoring program to collect the data most necessary to that their control strategies and other actions are</p>	

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D-1	PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS
	<p>making measurable progress towards effectively eliminating non-storm water discharges, and reducing pollutants in storm water to the maximum extent practicable to ultimately achieve compliance with the Basin Plan prohibitions and receiving water limitations (Provision A in Attachment 1 to the Tentative Order).</p> <p>Based on this consideration no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p> <p>See also response to comment Gnl-2.</p>

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D-2 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS		
	<p><u>COMMENT:</u> <i>Modify Tentative Order requirements to be consistent with language in the South Orange County Wastewater Authority permit language.</i></p> <p>The San Diego Water Board Monitoring and Assessment staff requests the Tentative Order be modified to update the Unified Beach Water Quality Monitoring language.</p>	<p align="center">San Diego Water Board Staff of the Monitoring and Assessment Group</p>
	<p><u>RESPONSE:</u> The San Diego Water Board agrees with the comment and has made the suggested language changes to the Tentative Order</p> <p>The Tentative Order language was revised to be consistent with the December 5, 2014 Executive Officer's letter directive, issued pursuant to California Water Code section 13383, requiring Copermittee participation in and shared responsibility for implementation of the Unified Beach Water Quality Program. Effective April 1, 2015, the requirements established through issuance of this Water Code section 13383 letter directive will become an enforceable component of the monitoring and reporting requirements in the Tentative Order.</p>	

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E-1 PROVISION E: JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS		
E-1	<p>COMMENT: <i>Water Quality Improvement Plans and related Jurisdictional Runoff Management Programs should be streamlined and focus on the watershed's highest priorities.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District commented that the Tentative Order, Attachment 1 at Provision E deviates from the strategic and adaptive approach of the Water Quality Improvement Plan concept, and is instead a "one-size-fits-all" approach. The commenters recommend modifying the Tentative Order so that the Water Quality Improvement Plans and jurisdictional runoff management programs can be streamlined and focus on the highest priorities within the watersheds.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board agrees that the Water Quality Improvement Plan framework allows for the identification and development of a storm water management program built around the highest priority water quality conditions within a specific watershed. The Tentative Order is structured so that the Water Quality Improvement Plan identifies the highest priority conditions of concern for a particular watershed, and also strategies, numeric goals, and schedules for making improvements for those conditions of concern. The jurisdictional runoff management programs are meant to be the implementing mechanism for the Water Quality Improvement Plans, i.e. they must incorporate the strategies identified in the Water Quality Improvement Plans.</p> <p>The San Diego Water Board disagrees that the requirements of Provision E deviate from the strategic and adaptive approach of the Water Quality Improvement Plan concept and that modifications are needed. The commenters should note that the requirements of the Provision E of the Tentative Order are substantially less prescriptive than those of the previous Fourth Term MS4 permits. Whereas the requirements of the Fourth Term MS4 permits were very specific, detailed, and prescriptive, the requirements of the Tentative Order include only basic program elements that meet the minimum requirements of 40 CFR 122.26(d)(2)(iv), but include much more flexibility in how the Copermittees implement their programs. The Copermittees can emphasize or de-emphasize different aspects of their programs to accomplish the overarching goals of the Water Quality Improvement Plans. For example, a Copermittee may choose to emphasize a certain program element by increasing the frequency of BMP inspections for discharges that are likely to contribute to the priority conditions of concern, while maintaining other program elements at the minimum required levels. Unlike the Fourth Term MS4 permits, the Tentative Order allows each Copermittee to specify, for example, the minimum inspection frequency for each specific program element. In this way, Copermittees are allowed to run their programs at minimum baseline levels, but also direct their resources where needed to achieve improvements in water quality and to address the highest priority conditions of concern.</p>	

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E-1	PROVISION E: JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS
	Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.

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E1-1 PROVISION E.1: Legal Authority Establishment and Enforcement		
	<p>COMMENT: <i>The Copermittees are only responsible for administering and enforcing the codes and ordinances applicable to their jurisdictions.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request that the requirements of Provision E.1 be modified to specify that the legal authority established by the Copermittees applies only to discharges within their jurisdictions, and that it is unnecessary to include language pertaining to discharges regulated by the Statewide Industrial and Construction General Permits.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that it is necessary to specify that the legal authority established by the Copermittees is only applicable to their jurisdictions.</p> <p>The requirements of Provision E.1 are consistent with the requirements under 40 CFR 122.26(d)(2)(i)(A)-(F) and do not go beyond those requirements. The legal authority that each Copermittee is required to establish for its jurisdiction is logically only expected to apply to its jurisdiction.</p> <p>Provision E.1.a.(2) is consistent with 40 CFR 122.26(d)(2)(i)(A), which requires the Copermittee to <i>“Control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity.”</i> 40 CFR 122.26(d)(2)(i)(A) does not make a distinction between industrial activity (which includes construction activity according to 40 CFR 122.26(b)(14)(x) that is regulated by an NPDES permit, such as the Statewide Industrial and Construction General Permits, and those that are not. Even if there are industrial and construction sites regulated by the Statewide Industrial or Construction General Permits, those sites are still subject to the Copermittees ordinances and the Copermittee must have the legal authority to control discharges from those sites.</p> <p>Provision E.1.a.(10) is consistent with 40 CFR 122.26(d)(2)(i)(F), which requires the Copermittee to <i>“Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer.”</i> Therefore no modifications are warranted, and the San Diego Water Board did not make revisions to the requirements of Provision E.1 requested by the Commenters.</p>	

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E1-2	PROVISION E.1: Legal Authority Establishment and Enforcement	
	<p>COMMENT: <i>The requirement for third party BMP effectiveness documentation is duplicative.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District state that Provision E.1.a.(8) of the Tentative Order requires the Copermittees to obtain legal authority to require documentation of the effectiveness of BMPs, and that this requirement sets up a process for the establishment of multiple third party monitoring programs and expenditure of public funds to monitor the effectiveness of BMPs. The commenters state that this requirement ignores the fact that Copermittees have already established legal authority for their development standards, and is therefore redundant.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that Provision E.1.a.(8) sets up a process for the establishment of multiple third party monitoring programs and expenditure of significant public funds to monitor the effectiveness of BMPs. The Provision simply states that each Copermittee must establish legal authority that authorizes the Copermittee to require documentation on the effectiveness of BMPs from any of its dischargers. The Copermittee is not required to exercise this legal authority, but the legal authority must be established and available to the Copermittees in the event that the Copermittee could benefit from obtaining this type of information. The requirement is not duplicative because the legal authority to impose development standards is separate from the legal authority to require documentation on BMP effectiveness.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E2-1 PROVISION E.2: Illicit Discharge Detection and Elimination		
	<p>COMMENT: <i>Modify the Illicit Discharge Detection and Elimination Program provisions so as not to negate the very intent and purpose of the watershed approach and the focus on the highest priorities within each watershed management area.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request modification to the introductory paragraph of the Illicit Discharge Detection and Elimination Provisions to better reflect the watershed approach and program focus on highest priority conditions of concern.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that modifications to the Illicit Discharge Detection and Elimination Program Provisions are needed for the reasons stated in the Response to Comment E1-1.</p> <p>Copermittees are afforded flexibility in meeting the requirements of Provision E.2. They are required to meet a minimum baseline program (with limited prescriptiveness compared to previous Fourth Term MS4 permits) as stated in the Tentative Order, and within that framework may focus on the highest priority conditions of concern as described in the Water Quality Improvement Plans. All illicit discharges are to be actively detected and eliminated in a prioritized manner.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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E2a-1 PROVISION E.2.a: Non-Storm Water Discharges	
	<p>COMMENT: <i>Copermittees should be given flexibility to prioritize their IDDE program to focus on non-storm water discharges likely to be a source of pollutants.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request that the requirements under Provision E.2.a be revised to allow the Copermittees to focus on eliminating non-storm water discharges that are a source of pollutants and not require the elimination of all non-storm water discharges.</p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the commenter's request. Provision E.2 does provide the Copermittees with a mechanism to address illicit discharges regardless of whether or not constituents of concern are present within the flows. The Copermittees are required to prioritize the non-storm water discharges that they will address, and eliminate the highest priority non-storm water discharges first.</p> <p>The Clean Water Act requires NPDES permit for MS4s to effectively prohibit non-storm water discharges to the MS4. As explained in the Fact Sheet, the Phase I Final Rule clarifies that non-storm water discharges through an MS4 are not authorized under the CWA (55 FR 47995): <i>"Today's rule defines the term "illicit discharge" to describe any discharge through a municipal separate storm sewer system that is not composed entirely of storm water and that is not covered by an NPDES permit. Such illicit discharges are not authorized under the Clean Water Act. Section 402(p)(3)(B) requires that permits for discharges from municipal separate storm sewers require the municipality to "effectively prohibit" non-storm water discharges from the municipal separate storm sewer... Ultimately, such non-storm water discharges through a municipal separate storm sewer must either be removed from the system or become subject to an NPDES permit."</i></p> <p>Thus, all non-storm water discharges that do not have authorization under an NPDES permit or are a category of non-storm water discharges that have been identified as a source of pollutants must ultimately be removed (i.e. prevented or eliminated) from the MS4 or become subject to an NPDES permit. The requirements under Provisions E.2.a.(1) and E.2.a.(3) are consistent with the Clean Water Act, the Code of Federal Regulations and the clarification in the Phase I Final Rule for non-storm water discharges.</p> <p>The non-storm water categories listed under Provision E.2.a.(3) generally are expected to be discharged from natural, uncontrollable, or unanticipated sources. Non-storm water discharges from foundation drains and footing drains designed to be above the groundwater table are not generally expected to occur. If they do occur, the Copermittee is expected to implement its illicit discharge detection and elimination program to</p>

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E2a-1	PROVISION E.2.a: Non-Storm Water Discharges
	<p>determine if the discharge is transient or persistent, a source of pollutants or not, and whether the discharge must be eliminated in accordance with its priorities.</p> <p>In general, the requirements under Provision E.2 are focused on the ultimate removal of unauthorized non-storm water discharges to the MS4 to "effectively prohibit" non-storm water discharges to the MS4, as required by the Clean Water Act. The San Diego Water Board is not requiring the Copermittee to enforce any NPDES permits issued by the San Diego Water Board or State Water Board. The Copermittees are only required to use their legal authority to prohibit illicit discharges to their MS4s established pursuant to Provision E.1.a.(1).</p> <p>The San Diego Water Board did not revise Provision E.2 as recommended by the commenters.</p>

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E2a-2	PROVISION E.2.a: Non-Storm Water Discharges	
	<p>COMMENT: <i>Modify Provision E.2.a.(5) to reflect the language previously adopted by the Regional Board in Order No. R9-2009-0002 regarding emergency firefighting discharges.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request that the Tentative Order be modified to clarify that there should not be a circumstance in which the Copermittees or the San Diego Water Board would identify emergency firefighting discharges as illicit discharges or a significant source of pollutants, and therefore in no instance would require BMP implementation.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that the language in Provision E.2.a.(5) requires revision. This Provision does not require the implementation of BMPs for emergency firefighting discharges, nor does it prohibit emergency firefighting discharges to the MS4. Provision E.2.a.(5)(b) only requires the Copermittees to “encourage” the implementation of BMPs in emergency situations. Provision E.2.a.(5)(b) is a recommendation for the Copermittees to implement, not a requirement for compliance.</p>	

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E2a-3 PROVISION E.2.a: Non-Storm Water Discharges		
	<p>COMMENT: <i>The Tentative Order should not require the elimination of non-storm water discharges as a part of the IDDE Program.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District state that Provision E.2.a.(7) misapplies the federal regulations that require the Copermittees to identify non-storm water discharges as illicit discharges prior to having an obligation to effectively prohibit it, and therefore the Provision should be removed.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that it is appropriate to remove Provision E.2.a.(7) because it is consistent with Clean Water Act, the Code of Federal Regulations and the clarification in the Phase I Final Rule for non-storm water discharges. Please see the response to comment E2a-1 for further discussion.</p>	

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January 21, 2015

E3-1 PROVISION E.3: Development Planning		
	<p>COMMENT: <i>The Development Planning Provisions must be modified so as not to negate the very intent and purpose of the watershed approach and the focus on the highest priorities within each Watershed Management Area.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request modification to the introductory paragraph of the Development Planning Provisions to better reflect the watershed approach and program focus on highest priority conditions of concern.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that modifications to the Development Planning Program Provisions are needed for the reasons stated in the Response to Comment E1-1.</p> <p>Copermittees are afforded flexibility in meeting the requirements of Provision E.3. They are required to meet a minimum baseline program (with limited prescriptiveness compared to Fourth Term MS4 permits) as stated in the Tentative Order, and within that framework may focus on the highest priority conditions of concern as described in the Water Quality Improvement Plans.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

E3b-1 PROVISION E.3.b: Priority Development Projects		
	<p>COMMENT: <i>Portions of redevelopment projects that already have water quality treatment BMPS should not be subject to the new PDP requirements.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request that language be added to the Tentative Order that would specify structural BMP requirements are not applicable to Priority Development Projects (or portions thereof) if the project already has implemented structural BMPs pursuant to requirements of prior MS4 permits.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees in concept with the Copermittees' request.</p> <p>Although some projects may already have structural BMPs onsite, the performance requirements of those BMPs do not necessarily meet the MEP requirements of the Tentative Order. Priority Development Projects subject to the requirements of older MS4 permits may not have BMPs that meet the numerical storm water pollutant control retention performance standard, or the flow control hydromodification performance standard. Therefore, when redevelopment sites, that were subject to older MS4 permit requirements, want to create and/or replace 5,000 square feet or more of impervious surface on the project site (collectively over the entire project site on an existing site with 10,000 square feet or more of impervious surfaces), the redevelopment site must update the BMPs during the design phase.</p> <p>Furthermore, the commenter should note that the pollutant control and hydromodification management BMP requirements of the Tentative Order are the same as the previous South Orange County MS4 permit, Order No. R9-2009-0002. Therefore Priority Development Projects that were subject to these requirements developed in 2009 should already be in compliance with the requirements of the Tentative Order.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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January 21, 2015

E3b-2 PROVISION E.3.b: Priority Development Projects		
	<p>COMMENT: <i>Tentative Order should include a priority development project exemption for flood control and stream restoration projects.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request that the Tentative Order should include exemptions for flood control and stream restoration projects from the requirement to implement structural BMPs since they are not a source of pollutants.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board believes that it may be suitable to relax the structural BMP standards for, or exempt flood control projects, but not before projects are evaluated on a case-by-case basis. In many instances, water quality protective measures may be appropriate for implementation in flood control projects, but such options would not be evaluated if the Tentative Order provided a blanket exemption. Furthermore, 40 CFR 122.26(d)(2)(iv)(A)(4) requires Copermittees to include in their applications mechanisms “to assure that flood management projects assess the impacts on the water quality of receiving water bodies and that existing structural flood control devices have been evaluated to determine if retrofitting the device to provide additional pollutant removal from storm water is feasible.” Such evaluations would not occur if flood control projects were provided blanket exemption from Priority Development Project status, therefore a blanket exemption is not appropriate.</p> <p>Stream restoration projects do not fit any of the Priority Development Project categories, therefore no exemptions are needed.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E3b-3 PROVISION E.3.b: Priority Development Projects		
	<p>COMMENT: <i>Tentative Order should include a priority development project exemption for emergency public safety projects.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request the Tentative Order include exemptions for emergency public safety projects from the requirement to implement structural BMPs because <i>a delay due to the development and approval of a Standard Stormwater Mitigation Plan (SSMP) would compromise public safety, public health and/or the environment.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that modifications to the Tentative Order to exempt emergency public safety projects from the requirement to implement structural BMPs is necessary.</p> <p>The Commenters state that emergency projects will be implemented immediately where public safety, public health, and/or the environment is threatened, and that there will be no time for the development, processing, and plan check for these projects. The San Diego Water Board agrees. Provision E.3 describes requirements that pertain to development <i>planning</i>. Emergency situations, by definition, are not planned projects and therefore do not involve the design, approval, and construction of a building or structure. Therefore an explicit exemption is not needed. Regardless of the conditions (i.e. emergency conditions) under which a public safety project requires installation, if a public safety project meets the Priority Development Project criteria of Provision E.3.b, then the public safety project needs to include the structural BMP controls of Provision E.3.c.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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January 21, 2015

E3c-1 PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements		
	<p>COMMENT: <i>Modify the Tentative Order to allow flexibility in the structural BMP performance standards if watershed-specific performance standards are developed in the water quality improvement plans.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District submitted comments stating that the Copermittees should be given the opportunity to develop alternative BMP performance standards consistent with the goals of the Water Quality Improvement Plans.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board agrees that greater improvements to water quality in the watersheds may be realized if Priority Development Projects were allowed to implement some requirements offsite, as opposed to strictly onsite. For this reason, the Attachment No. 1 of the Tentative Order allows for “alternative compliance” in instances where the Copermittee determines that offsite measures will have a greater overall water quality benefit for the Watershed Management Area than if the Priority Development Project were to implement structural BMPs onsite. Consequently, watershed-specific structural BMP requirements are present in Attachment No. 1 to the Tentative Order that provide for allowable compliance offsite. Therefore no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p> <p>The alternative compliance program, which is described in Provision E.3.c.(3), is an option for Priority Development Projects where the Copermittee has participated in the development of a Watershed Management Area Analysis as part of the Water Quality Improvement Plan (described in Provision B.3.b.(4)). Such an approach is consistent with the latest findings in hydromodification management by the scientific community. In the Southern California Coastal Water Research Project (SCCWRP) Technical Report No. 667, the authors state: <i>“An effective [hydromodification] management program will likely include combinations of on-site measures (e.g., low-impact development techniques, flow-control basins), in-stream measures (e.g., stream habitat restoration), floodplain and riparian zone actions, and off-site measures. Off-site measures may include compensatory mitigation measures at upstream locations that are designed to help restore and manage flow and sediment yield in the watershed.”</i></p> <p>Consistent with the ideas brought forth by the SCCWRP report, in the optional Watershed Management Area Analysis of Provision B.3.b.(4), the Copermittees must develop watershed maps that include as much detail about factors that affect the hydrology of the watersheds as is available. Such factors included identification of areas suitable for infiltration, coarse sediment supply areas, and locating stream channel structures and constrictions. Once these factors are mapped and studied, the Copermittees can identify areas in the</p>	

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E3c-1	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements
	<p>watersheds where “candidate projects” may be implemented that are expected to improve water quality in the watershed by providing more opportunity for infiltration, slowing down storm water flows, or attenuation of pollutants naturally via healthy stream habitat. These projects may be in the form of retrofitting existing development, rehabilitating degraded stream segments, identifying regional BMPs, purchasing land to preserve valuable floodplain functions, and any other projects that the Copermittees identify.</p> <p>Under the alternative compliance program, Priority Development Project applicants may be allowed to fund, partially fund, or implement a candidate project, in lieu of implementing structural BMPs onsite, if they enter into a voluntary agreement with the Copermittee permitting this arrangement. If compliance involves funding or implementing a project that is outside the jurisdiction of the Copermittee, then that Copermittee may enter into an inter-agency agreement with the appropriate jurisdiction(s).</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

E3c1-1 PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements		
	<p>COMMENT: <i>Terminology is inconsistent with the use of "Low Impact Development" BMPs.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request modification to the Provision E.3 to provide consistency with the use of "Low Impact Development" terminology.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board has reviewed the suggested edits to Provision E.3 and did not find any suggestions pertaining to Low Impact Development terminology.</p> <p>Based on this consideration no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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January 20, 2015

E3c1-2 PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements		
	<p>COMMENT: <i>The San Diego Water Board is requiring increasingly stringent onsite storm water retention requirements.</i></p> <p>The Construction Industry Coalition on Water Quality (CICWQ) submitted comments stating that the San Diego Water Board is requiring increasingly stringent onsite storm water retention requirements without evidence that existing requirements under Order No. R9-2009-0002 are not working to protect water quality and beneficial uses. The commenter asserts that the San Diego Water Board is proposing to enact the most stringent onsite requirements for storm water runoff anywhere in California, and that the requirements are less flexible than earlier MS4 permits.</p>	<p>Construction Industry Coalition on Water Quality</p> <ul style="list-style-type: none"> • San Diego Building Industry Association • Building Industry Association of Southern CA • Associated General Contractors • Associated Builders and Contractors • San Diego Regional Chamber of Commerce • Business Leadership Alliance • San Diego Association of Realtors • San Diego Apartment Association • National Association of Industrial & Office Properties • Building Office & Management Association • San Diego Chapter of American Society of Landscape Architects
	<p>RESPONSE: The commenter incorrectly asserts that Attachment No. 1 to Tentative Order requires increasingly stringent onsite storm water retention requirements over and above the requirements of Order No. R9-2009-0002, the Fourth Term MS4 permit for Orange County Copermittees. The purpose of the onsite retention requirement in both the Tentative Order and Order No. R9-2009-0002 is to retain onsite the pollutants contained in the volume of storm water runoff produced from a 24-hour 85th percentile storm event. This requirement has not changed from Order No. R9-2009-0002, and therefore the commenter is incorrect in stating that the San Diego Water Board is requiring additional prescriptive performance measures for retaining storm water runoff. This is the MEP standard recognized by the San Diego Water Board and is consistent with the Fourth Term Permits for Orange County and Riverside County (Order Nos. R9-2009-0002 and R9-2010-0016, respectively), as well as Santa Ana Water Board Order Nos. R8-2009-0030 and R8-2010-0033 (Orange County and Riverside County MS4 Permits, respectively), Los Angeles Water Board Order No. R4-2010-0108 (Ventura County MS4 Permit), and Los Angeles Water Board Order No. R4-2012-0175 (Los Angeles County MS4 Permit).</p> <p>Additionally, the San Diego Water Board disagrees with the commenter's assertion that the retention standard</p>	

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January 20, 2015

E3c1-2	PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements
	<p>is less flexible in the Tentative Order than in Order No. R9-2009-0002. In fact, the pollutant control and hydromodification management BMP requirements are more flexible in the Tentative Order than in the Fourth Term MS4 permits because the Tentative Order allows Priority Development Projects to comply by mitigating offsite, if doing so would provide greater water quality benefit for the watershed.</p> <p>Please see the response to Comment No. E3c1-2 for a discussion of the Watershed Management Analysis and the ability to perform offsite mitigation.</p>

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January 21, 2015

E3c1-3 PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements	
	<p>COMMENT: <i>The Tentative Order and Fact Sheet ignore the findings of the Copermittee's Report of Waste Discharge.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District submitted comments stating that there is little justification for the requirements of the Tentative Order based on the successes of the Copermittee's storm water programs, as reported in the Report of Waste Discharge (ROWD). The Copermittees report successes in reducing bacterial contamination in coastal waters during dry weather, and also assert that exceedances of total dissolved solids (TDS) and nutrients are unlikely due to urban sources. The commenters also state that the Tentative Order should recognize this uncertainty and not mandate on-site retention of runoff in the first instance where it may exacerbate the exfiltration of shallow groundwater with elevated TDS and nutrients.</p> <p>Finally, the commenters state that toxicity occurs sporadically in receiving waters in Orange County, indicating that the causes are not urban in nature, and that pesticide regulation is not within the Copermittees' jurisdictions.</p>
	<p>RESPONSE: The San Diego Water Board recognizes that the Copermittees have made great strides in improvements in water quality and attainment of beneficial uses through rigorous implementation of their storm water management programs, but disagrees that the requirements of Attachment No. 1 to the Tentative Order should be removed.</p> <p>The Copermittees note that bacterial contamination is low during dry weather, but concede that achieving reductions in bacteria concentrations in wet weather is challenging. The San Diego Water Board is charged with protecting the beneficial uses of receiving waters at all times, regardless of season or weather conditions. The fact that there are still impairments with bacterial contamination in the receiving waters during the rainy season is exactly why the requirements in the Tentative Order are necessary.</p> <p>The San Diego Water Board agrees that it is worthwhile to understand the environmental significance TDS and nutrients and their relationship, or lack thereof, to urban sources. The San Diego Water Board disagrees, however, that the Tentative Order does not recognize the need to protect shallow groundwater from exfiltration of TDS and nutrients. Although the Tentative Order at Provision E.3.c.(1)(a) requires onsite retention of the design capture volume, this can be accomplished via several physical mechanisms such as interception, storage, evaporation, and evapotranspiration, in addition to infiltration. Therefore the Tentative Order does not automatically mandate on-site retention of runoff in the form of infiltration in every instance, as the commenter</p>

- **County of Orange**
Concurring Cities:
Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo
- **Orange County Flood Control District**

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E3c1-3	PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements	
	<p>asserts.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p> <p>See also response to comment Gnl-2.</p>	

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January 21, 2015

E3c1-4 PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements		
	<p>COMMENT: <i>If priority development projects use alternative compliance, onsite conventional BMPs should not also be required.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District state that there is not adequate technical justification for requiring onsite conventional BMPs when a Priority Development Project is allowed alternative compliance offsite. The commenters state that requiring both is double mitigation that goes well beyond the MEP standard.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with this comment.</p> <p>Onsite pollutant treatment using conventional BMPs is a minimum general requirement to remove pollutants from runoff prior to its discharge to any receiving water. The storm water pollutant control BMP requirement for Priority Development Projects is to retain, onsite, the pollutants contained in the volume of storm water runoff produced from a 24-hour 85th percentile storm event (design capture volume). If it is not technically feasible to retain pollutants within the design capture volume, onsite, then the Tentative Order provides for an alternative means of compliance. If the Priority Development Project proponent is allowed to implement BMPs offsite, then the portion of the design capture volume that is not reliably retained onsite must be treated prior to discharging pollutants into the receiving water. 40 CFR 131.10(a) prohibits use of the receiving water as a treatment system and therefore, requires treatment of runoff to occur prior to the discharge of runoff to receiving waters (See Finding 7 in Attachment 1 of the Tentative Order). If Priority Development Projects are allowed to forgo onsite conventional treatment of runoff, then the Priority Development Projects would discharge untreated runoff from their site into receiving waters which is prohibited under 40 CFR.</p> <p>Retention of the 85th percentile storm is clearly the MEP standard for storm water pollutant control, as represented by the Tentative Order and its Attachments, recently adopted MS4 permits in the state (R8-2009-0030 and R8-2010-0033; North Orange and Riverside County MS4 permits, R4-2010-0108 and R4-2012-0175; Ventura County and Los Angeles County MS4 permits, and San Diego Water Board Order Nos. R9-2009-0030 and R9-2010-0016; South Orange County and Riverside County MS4 permits), and elsewhere in the United States. Retention of anything less than the design storm volume must be mitigated because the MEP standard has not been met. Therefore, Attachment 1 to the Tentative Order includes a requirement that mitigation is necessary for the portion of the design storm volume that is not retained onsite because, although this remaining volume of storm water would be treated to some level, the MEP standard as represented by the structural BMP performance requirements would not have been met.</p>	

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E3c1-4	PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements
	Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.

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E3c-5	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
	<p>COMMENT: <i>Biofiltration BMPs should be sized for the design capture volume.</i></p> <p>The County of Orange and Concurring Cities and Orange County Flood Control District assert that the requirement to oversize biofiltration BMPs to treat 1.5 times the design capture volume, if used to meet the pollutant control BMP requirements, is an increase over the prior Orange County MS4 permit. The commenters state that the Fact Sheet provides no technical justification for the sizing factor, and that biofiltration should be considered equivalent to onsite retention.</p> <p>The commenters also assert that Priority Development Projects that use biofiltration BMPs must also implement conventional BMPs, effectively requiring double mitigation when it is not needed.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The commenter incorrectly states that the requirement to size biofiltration BMPs to treat 1.5 times the design capture volume not reliably retained onsite is an increase from the prior Orange County MS4 permit (Order No. R9-2009-0002). This methodology of sizing the BMP was included in the Tentative Order <i>in addition to</i>, and not <i>in replacement of</i>, the methodology of sizing the BMP in Order No. R9-2009-0002. As a result, Priority Development Projects have two options for sizing biofiltration BMPs: 1.5 times the design capture volume not reliably retained onsite, OR a flow-thru design that has a total volume, including pore spaces and pre-filter detention volume, sized to hold at least 0.75 times the portion of the design capture volume not reliably retained onsite. The 1.5 sizing factor was included in the Tentative Order to offer more than one method of complying with the requirement. As described in the Fact Sheet, the 1.5 multiplier is based on the finding in the Ventura County Technical Guidance Manual that biofiltration of 1.5 times the design capture volume not retained onsite will provide approximately the same pollutant removal as retention of the design capture volume on an annual basis. This standard is consistent with the Los Angeles Water Board's Los Angeles County and Ventura County municipal storm water permits (Order Nos. R4-2012-0175 and R4-2010-0108, respectively).</p> <p>The commenter argues that biofiltration should be considered equivalent to other retention BMPs and therefore the 1.5 sizing factor is not needed. However, biofiltration is a flow-thru system, and therefore is not capable of retaining pollutants onsite (and preventing discharges of pollutants to receiving waters) in the equivalent manner as retention BMPs. The commenter compares the performance of harvest and use BMPs to biofiltration BMPs for the removal of total suspended solids, but fails to evaluate the performance of a range of retention BMPs, such as infiltration or evapotranspiration, which are widely accepted as effective pollutant control strategies.</p>	

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E3c-5	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements
	<p>The commenter incorrectly asserts that Priority Development Projects that use biofiltration as an alternative compliance option must also implement conventional BMPs, and in effect requires double mitigation. Provision E.3.c.(1)(a)(i) of the Tentative Order allows for the use of biofiltration BMPs where retention of the full design capture volume is not technically feasible, but does not also require the use of conventional treat-and-release BMPs.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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E3c2-1	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	<p>COMMENT: <i>Hydromodification requirements are based on faulty foundational assumptions.</i></p> <p>Tory Walker, PE, submitted comments stating that the hydromodification requirements of the Tentative Order are based on faulty foundational assumptions. The commenter states that 1) the requirements cannot be based on a category of stream being either stable or highly dynamic, 2) flow rate reductions caused by dams reduces channel degradation, and runoff from Priority Development Projects may compensate for this and promote a more natural condition, and 3) as a result, the Tentative Order needs to accommodate more site-specific flexibility.</p>	Tory Walker Engineering
	<p>RESPONSE: The San Diego Water Board disagrees that the hydromodification management requirements in the Tentative Order are based on faulty assumptions that preclude the accommodation of site-specific conditions. In fact, the Tentative Order incorporates the ability to accommodate site-specific conditions much more so than previous Fourth Term MS4 permits.</p> <p>The requirements in the Tentative Order provide that post-project runoff conditions must not exceed pre-development runoff conditions by more than 10 percent (for the range of flows that result in increased potential for erosion or degraded instream habitat downstream of the Priority Development Project). Note that the requirement is not to control <i>all</i> flows, but only those flows that are expected to cause erosion downstream. Because the downstream receiving water may or may not be susceptible to erosion, then the BMPs needed upstream, on the Priority Development Project will necessarily vary. In essence, when configuring BMPs for a particular Priority Development Project, the project proponent must evaluate both site-specific conditions and runoff conditions expected from the project, as well as the receiving water's susceptibility to erosion. The requirements in the Tentative Order do not specify that channels are to be treated as either stable or highly dynamic.</p> <p>The commenter states that hydromodification impacts caused by dams could actually be offset by runoff from Priority Development Projects. The San Diego Water Board recognizes this possibility, therefore the Tentative Order allows for offsite compliance in lieu of implementing hydromodification management BMPs onsite, where the Copermittee finds offsite compliance to provide a greater water quality benefit to the watershed. In this example, if the Copermittees in the watershed complete the optional Watershed Management Area Analysis described in Provision B.3.b(4) and find that flows generated from Priority Development Projects would actually help offset the runoff impounded by upstream dams, then the Copermittees could allow the Priority Development Projects located downstream of the dams the ability to comply offsite. For these reasons, the</p>	

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E3c2-1	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements
	<p>San Diego Water Board disagrees that the hydromodification management requirements of the Tentative Order should be modified.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted</p>

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E3c2-2 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>Hydromodification management requirements should be based on a watershed management approach, be consistent with the WQIPs, and consider the current Copermittee HMPs.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District state that hydromodification management should be based on the conditions of receiving waters and on the impacts and potential impacts from development projects, and the basis for management should be an understanding of the watershed and specific receiving waters. The commenters state that hydromodification management objectives should be watershed specific and developed through a stakeholder process. The commenters assert that the hydromodification management requirements in the Tentative Order are a one-size-fits-all approach that does not allow consideration of watershed analysis or receiving water information.</p> <p>The commenters state that requirement to use the pre-development runoff conditions as the performance standard goes beyond federal law by taking the Clean Water Act's purpose to restore waters out of context of section 402(p). The requirement does not reflect the developed urban environment and negates the engineering efforts to date to protect life and property from floods.</p> <p>The commenters also state that identifying "naturally occurring" conditions for redevelopment sites is difficult; raising the technical question as to how far back a Copermittee goes historically in determining the proper predevelopment timeframe. The commenters conclude by suggesting an approach to hydromodification management that is consistent with the intent of the Water Quality Improvement Plan approach, and considers the Copermittee's current Hydromodification Management Plans.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that the hydromodification management requirements in the Tentative Order are a one-size-fits all approach and that the requirements do not allow consideration of watershed analysis or receiving water information.</p> <p>The requirements of the Tentative Order provide that post-project runoff conditions must not exceed pre-development runoff conditions by more than 10 percent (for the range of flows that result in increased potential for erosion, or degraded instream habitat downstream of Priority Development Projects). Note that the requirement is not to control <i>all</i> post-project flows, but only those that are expected to <i>cause erosion or degraded habitat</i> downstream of the Priority Development Project. The performance standards of the Tentative Order are the same as those of the Commenters existing Order No. R9-2009-0002.</p>	

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E3c2-2	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	<p>Since each Priority Development Project is expected to result in a specific post-project runoff condition, and the susceptibility of the receiving water to erosion could vary substantially based on location within a watershed, then the range of flows to control, and hence the specific BMPs required, will necessarily vary and is not a one-size-fits all requirement. In this way, the requirements in the Tentative Order specifically address both watershed and receiving water information.</p> <p>The Tentative Order allows for hydromodification management BMP implementation, and also exemptions, specific to the San Juan Watershed Management Area based on Copermittee's analysis of the watershed. See the response to Comment No. E3c1-1 regarding the Watershed Management Area Analysis as part of Water Quality Improvement Plan development, and how the Copermittees can use the results of the analysis to allow watershed-specific offsite mitigation in lieu of structural BMP implementation onsite, and also allow exemptions from the requirements.</p> <p>The Commenters incorrectly assert that the requirements in the Tentative Order attempt to restore waters to pre-Columbian conditions because of the requirement to use pre-development runoff conditions rather than pre-project runoff conditions in evaluating the need for hydromodification management BMPs. The Tentative Order requires the use of pre-development runoff conditions as a means of restoring a more natural hydrology to allow for stream rehabilitation, but there is no requirement to return the landscape to pre-Columbian conditions, nor is there a need to speculate how far back a Copermittee must go in determining the appropriate timeframe. Because pre-development runoff conditions cannot be precisely known for a redevelopment project, the Tentative Order allows the use of any readily available information to estimate pre-development runoff conditions. Pre-development runoff conditions for redevelopment projects are defined in Attachment C to the Tentative Order as "runoff conditions from the project footprint assuming infiltration characteristic of the underlying soil, and existing grade." A Priority Development Project must use available information to estimate these parameters, and there is no need to perform extensive historical assessments, as the commenter asserts.</p> <p>The requirement to use pre-development runoff conditions as the performance standard is needed because using a hydrology baseline that approximates that of an undeveloped, natural watershed is the only way to facilitate the return of more natural hydrological conditions to already built-out watersheds. Using the pre-project hydrology as a baseline for redevelopment projects results in propagating the unnatural hydrology of urbanized areas, which is largely made up of impervious surfaces. Flows from impervious surfaces are highly erosive and consequently have detrimental effects on receiving waters in the San Diego Region. Furthermore, propagating the urbanized flow regime does not support conditions for restoring degraded or channelized</p>	

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E3c2-2	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	<p>stream segments, and would forever sentence such streams to the degraded state. Identification of areas suitable for rehabilitating degraded stream segments is a critical component of the Tentative Order and is expected to be incorporated into Copermittee's strategies for improving water quality in the watersheds.</p> <p>Finally, the Copermittees will be allowed to use the Hydromodification Management Plan developed under Order No. R9-2009-0002. The performance standards of the Tentative Order are the same as those of Order No. R9-2009-0002, therefore there is no need for the Copermittees to develop new requirements or methodologies, or otherwise update their Hydromodification Management Plan.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E3c2-3 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
E3c2-3	<p>COMMENT: <i>The San Diego Water Board is eliminating exemptions for hydromodification control when storm water runoff is conveyed to significantly hardened or engineered channels.</i></p> <p>The Construction Industry Coalition on Water Quality (CICWQ) assert that regulations are tending to require hydromodification controls for Priority Development Projects, regardless of receiving water susceptibility. CICWQ states that this direction is driven by environmental advocacy for removal of all concrete lined channels regardless of existing land uses and feasibility, and that such efforts ignore the vital role that flood control facilities play in urban infrastructure and the protection of life and property. The alignment, grade, and cross section of many urban streams have been irrevocably altered, and a regulatory requirement to return flows to pre-development conditions will not allow stream restoration to occur.</p> <p>CICWQ and the Riverside County Copermittees both submitted comments stating that the interim exemptions from hydromodification controls allowed for engineered channels should be granted outright without further study from the Copermittees.</p>	<p>Construction Industry Coalition on Water Quality</p> <ul style="list-style-type: none"> • San Diego Building Industry Association • Building Industry Association of Southern CA • Associated General Contractors • Associated Builders and Contractors • San Diego Regional Chamber of Commerce • Business Leadership Alliance • San Diego Association of Realtors • San Diego Apartment Association • National Association of Industrial & Office Properties • Building Office & Management Association • San Diego Chapter of American Society of Landscape Architects <p>Riverside County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the hydromodification management requirements in the Tentative Order mandate controls on Priority Development Projects, regardless of receiving water susceptibility.</p> <p>The requirements of the Tentative Order provide that post-project runoff conditions must not exceed pre-development runoff conditions by more than 10 percent (for the range of flows that result in increased potential for erosion, or degraded instream habitat downstream of Priority Development Projects). Note that the requirement is not to control <i>all</i> post-project flows, but only those that are expected to <i>cause erosion or degraded habitat</i> downstream of the Priority Development Project. Since each Priority Development Project is expected to result in a specific post-project runoff condition, and the susceptibility of the receiving water to erosion could vary substantially based on location within a watershed, then the range of flows to control, and hence the specific BMPs required, will necessarily vary and is not a one-size-fits all requirement. In this way, the requirements in the Tentative Order specifically address the susceptibility of the receiving water.</p>	

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E3c2-3	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	<p>The commenter correctly asserts that the driver behind the requirement to use the pre-development performance standard is the sustainability of geomorphically stable channels and the ability to return urbanized streams to a more natural state. As explained in the response to Comment No. E.3.c2-2, the requirement to use pre-development runoff conditions as the performance standard is needed because using a hydrology baseline that approximates that of an undeveloped, natural watershed is the only way to facilitate the return of more natural hydrological conditions to already built-out watersheds, which in turn supports conditions for rehabilitating degraded or channelized stream segments.</p> <p>Contrary to what the commenter asserts, the Tentative Order does not require Copermittees to remove concrete from channels that are engineered to relieve flooding and protect life and property. The Tentative Order provides exemptions for Priority Development Projects that discharge to receiving waters where there is little threat of erosion, and subsequently implementing BMPs onsite would do little to protect the beneficial uses of such receiving waters. The commenter correctly states that the exemption for engineered channels is temporary. However, the commenter should note that there is a high likelihood that exemptions for engineered channels will become permanent. The Tentative Order allows for the Copermittees to recommend permanent exemptions based on completion of an optional Watershed Management Area Analysis pursuant to Provision B.3.b.(4). As part of this effort, the Copermittees would identify, for example, areas in the watershed suitable for urban retrofitting, and areas suitable for stream rehabilitation. The Copermittees would also identify areas suitable for exemptions for hydromodification management, such as engineered channels that are needed for the protection of life and property. The interim exemption for engineered channels is not granted outright as permanent exemptions because the areas have not yet been analyzed in the context of stream rehabilitation opportunities. The San Diego Water Board does not anticipate the Watershed Management Area Analysis to be burdensome on the Copermittees because they have already completed a Watershed Management Planning Tool, with similar goals as the Watershed Management Area Analysis, as part of their storm water management programs.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E3c2-4 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>Hydromodification control requirements to avoid critical sediment yield areas are unnecessarily restrictive.</i></p> <p>The Construction Industry Coalition on Water Quality (CICWQ) assert that the hydromodification management requirements of the Tentative Order to “avoid critical sediment yield areas” are unnecessarily restrictive. The commenters state that several Priority Development Projects have been significantly delayed or stopped because of the inability to comply with this requirement.</p>	<p>Construction Industry Coalition on Water Quality</p> <ul style="list-style-type: none"> • San Diego Building Industry Association • Building Industry Association of Southern CA • Associated General Contractors • Associated Builders and Contractors • San Diego Regional Chamber of Commerce • Business Leadership Alliance • San Diego Association of Realtors • San Diego Apartment Association • National Association of Industrial & Office Properties • Building Office & Management Association • San Diego Chapter of American Society of Landscape Architects
	<p>RESPONSE: The San Diego Water Board disagrees that the requirements to avoid critical sediment yield areas are unnecessarily restrictive. The requirements are necessary to protect receiving waters from erosive flows caused by land development. As explained in the Fact Sheet to the Tentative Order, hydromodification, which is caused by both altered storm water flow and altered sediment flow regimes, is largely responsible for degradation of creeks, streams, and associated habitats in the San Diego Region. In an ongoing study by the Stormwater Monitoring Coalition to assess the health of streams throughout Southern California, researchers found that three of the four highest risk stressors to creeks (percent sands and fines present, channel alteration, and riparian disturbance) were related to physical habitat (Assessing the Health of Southern California Streams, Stormwater Monitoring Coalition, Fact Sheet). Researchers studying flood frequencies in Riverside County have found that increases in watershed imperviousness of only 9-22 percent can result in increases in peak flow rates for the two-year storm event of up to 100 percent (Schueler and Holland, 2000. Storm Water Strategies for Arid and Semi-Arid Watersheds, (Article 66). The Practice of Watershed Protection). Such changes in runoff have significant impacts on channel morphology.</p> <p>Placement of impervious surfaces as a result of urbanization is largely responsible for erosional impacts to</p>	

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E3c2-4	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements
	<p>streams because placement of impervious surfaces encapsulates "good" sediment (such as sand, gravel, rocks and cobbles) that would normally replenish creek beds and banks to help stabilize them. For this reason, the Tentative Order requires Priority Development Projects to avoid critical sediment yield areas, as defined by the Copermittees, or implement measures to allow coarse sediment to be discharged to receiving waters. Such measures are designed to protect receiving waters and avoid impacts experienced by past land development practices.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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E3c2-5 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>Modify Tentative Order to clarify that the interim hydromodification exemptions are in place until the San Diego Water Board approves the BMP Design Manual.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District recommend that the interim timeframe exemptions for engineered channels and large rivers from hydromodification management remain in place until the BMP Design Manual is approved by the San Diego Water Board, as opposed to when the BMP Design Manual has been updated. The commenters have made this request so that there is no timing gap in coverage for the exemptions.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that any changes are needed to the language in Provision E.3.c.(2)e. The Tentative Order requires the Copermittees to update their BMP Design Manuals in accordance with Provision F.2.b. The Copermittees are required to update their BMP Design Manual, but there is no requirement to seek San Diego Water Board approval before the BMP Design Manual goes into effect 180 days after completing the update. If there is a discrepancy in approving the Water Quality Improvement Plan with recommended exemptions before the BMP Design Manual goes into effect, then the San Diego Water Board could direct the Copermittees to delay implementation of the BMP Design Manual.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E3c3-1	PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Implementation	
	<p>COMMENT: <i>Requests for the Water Quality Equivalency calculations be included as an optional Copermittee deliverable.</i></p> <p>The County of San Diego requests that the Water Quality Equivalency calculations and methodologies currently under development by the Copermittees in support of the Alternative Compliance Program be included in the Tentative Order as an optional deliverable for review and acceptance by the San Diego Water Board's Executive Officer.</p>	County of San Diego
	<p>RESPONSE: The San Diego Water Board agrees with this comment and has modified the Tentative Order at Provision E.3.c.(3) to incorporate the recommendation.</p>	

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E3c3-2	PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Implementation	
	<p>COMMENT: <i>Copermittees should be allowed flexibility to develop a trading and water quality credit system.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District requests that language pertaining to the water quality credit system be revised to remove the no-net impact limitations because certain projects may offer significant environmental benefits that are not necessarily related to water quality, and that any water quality trading system should be implemented in accordance with EPA's 2003 Final Water Quality Trading Policy.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the commenters that the no-net impact language should be removed from the Tentative Order. The optional credit system described in Provision E.3.c.(3)(d) is based on meeting the structural BMP performance standards as they pertain to protecting and improving water quality. A credit system that would allow other environmental benefits cannot necessarily ensure that water quality would be protected to the MEP standard, for which the performance standards are structured to achieve.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E3e-1 PROVISION E.3.e: Priority Development Project BMP Implementation and Oversight		
	<p><u>COMMENT:</u> <i>Include the date the BMP manual will be implemented to provide clarity.</i></p> <p>The City of San Diego requests that the date that the BMP Manual will go into effect for the San Diego County Copermittees (December 24, 2015) be explicitly expressed in the Tentative Order.</p>	City of San Diego
	<p><u>RESPONSE:</u> The San Diego Water Board disagrees that including the date when the BMP Manual will go into effect is appropriate, because this date will be different for the various Copermittees covered under the Tentative Order (i.e. San Diego County Copermittees, South Orange County Copermittees, and eventually Riverside County Copermittees).</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E3e-2 PROVISION E.3.e: Priority Development Project BMP Implementation and Oversight		
	<p>COMMENT: <i>Revise the Tentative Order to define when a priority development project has prior lawful approval.</i></p> <p>The City of San Diego requests a definition of prior lawful approval be added to the Tentative Order to clarify when it is appropriate to allow Priority Development Projects to comply with BMP standards of previous MS4 permits. The City of San Diego recommends including a definition that can 1) provide a clear, bright line; 2) provide a backstop to ensure that older projects with approvals comply with new requirements unless those approvals confer vested rights; 3) protect vested rights; and 4) preserve Copermittee's land use authority. Similarly, the Coalition provided comments requesting that the Tentative Order be modified to include a definition of prior lawful approval, stating that clarifying the intent of the San Diego Water Board will assist all interested parties in understanding the factors that the Copermittees need to balance in applying their discretion with Provision E.3.e.(1)(a) of the Tentative Order.</p> <p>In contrast, the Coastal Environmental Rights Foundation and San Diego Coastkeeper submitted comments that it is not necessary to take any action to define prior lawful approval, stating that doing so could allow for vested rights that run counter to widely accepted law.</p>	<p>Construction Industry Coalition on Water Quality</p> <ul style="list-style-type: none"> • San Diego Building Industry Association • Building Industry Association of Southern CA • Associated General Contractors • Associated Builders and Contractors • San Diego Regional Chamber of Commerce • Business Leadership Alliance • San Diego Association of Realtors • San Diego Apartment Association • National Association of Industrial & Office Properties • Building Office & Management Association • San Diego Chapter of American Society of Landscape Architects <p>San Diego Coastkeeper Coastal Environmental Rights Foundation</p> <p>City of San Diego</p>
	<p>RESPONSE: The San Diego Water Board has carefully considered the comments received regarding prior lawful approval, and whether or not it is appropriate to define this term in the Tentative Order.</p> <p>The San Diego Water Board understands the concerns regarding the difficulty the Copermittees face in applying their discretion to the concept of prior lawful approval in a consistent manner that complies with the intent of Provision E.3.e.(1)(a). Therefore, for the reasons presented by the commenters, the San Diego Water Board agrees that clarification regarding the intent of the Provision and the San Diego Water Board's expectation in how the Copermittees use their discretion, would be helpful to all parties.</p> <p>The Tentative Order has been modified to include a definition for prior lawful approval for both private and public Priority Development Projects that is intended to provide guidance and clarification to Copermittees in</p>	

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E3e-2	PROVISION E.3.e: Priority Development Project BMP Implementation and Oversight
	<p>exercising their discretion in this matter. For private development projects, prior lawful approval is a development approval or construction permit that complies with the Priority Development Project requirements of the Fourth Term MS4 permits (Order Nos. R9-2007-0001 for San Diego County, R9-2009-0002 for south Orange County, or R9-2010-0016 for Riverside County) and includes the design of the storm water drainage system for the project in its entirety as accepted by the Copermittee. Alternatively, prior lawful approval is a development approval or construction permit that confers a vested right to Priority Development Projects to proceed under storm water structural BMP requirements of prior MS4 permits. If a Copermittee grants prior lawful approval to a Priority Development Project based on one of the two aforementioned conditions, then the Copermittee must ensure that 1) any subsequent project approvals must be issued within 5 years of the effective date of the BMP Design Manual, and 2) BMP installation under subsequent approvals must remain in substantial conformity with the design of the storm water drainage system included in the initial approval.</p> <p>For public projects, prior approval allowing implementation of Fourth Term MS4 Permit structural BMP requirements in lieu of the requirements of the Tentative Order is acceptable if the storm water drainage system for the project, in its entirety, has been stamped by the City or County Engineer by the time the BMP Design Manual goes into effect.</p> <p>The San Diego Water Board recognizes that the Copermittees will need to determine whether or not a project has prior lawful approval under the Order based on the circumstances of each project. Nevertheless, the San Diego Water Board expects each Copermittee to require the implementation of Provision E.3 of the Tentative Order wherever it can lawfully do so. Some projects will have received prior lawful approval by the effective date of the BMP Design Manual and hence the requirements of the Fourth Term MS4 permits will govern. The San Diego Water Board expects that very few Priority Development Projects, if any, will be allowed to implement BMP requirements from prior MS4 permits. In cases where BMP requirements from the Fourth Term (or earlier) MS4 permits govern the structural BMP design requirements of a Priority Development Project, the San Diego Water Board expects the Copermittees to be able to demonstrate, in a programmatic audit or other means, that the project has prior lawful approval within the meaning of Provision E.3 of this Order. The San Diego Water Board has conducted and will continue to conduct programmatic audits of the Copermittee's land development programs to evaluate MS4 permit compliance. In all cases the San Diego Water Board expects the Copermittees to only approve projects with adequate post construction BMPs that are protective of water quality.</p> <p>In summary, Attachment 1 of the Tentative Order has been modified at Provision E.3.e.(1) to include a definition of the term "prior lawful approval." This language is intended to provide clarity on how the term</p>

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E3e-2	PROVISION E.3.e: Priority Development Project BMP Implementation and Oversight
	should be interpreted in determining structural BMP requirements for Priority Development Projects, and will also assist the San Diego Water Board in assessing Copermittee compliance with implementing the structural BMP requirements for Priority Development Projects to the maximum extent practicable (MEP) standard.

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E4-1 PROVISION E.4: Construction Management		
	<p>COMMENT: <i>Modify Construction Management Program provisions so as not to negate the very intent and purpose of the watershed approach and the focus on the highest priorities within each watershed management area.</i></p> <p>The County of Orange and Concurring Cities and Orange County Flood Control District requests the introductory paragraph of the Construction Management Provisions be modified to better reflect the watershed approach and program focus on highest priority conditions of concern.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that modifications to the Construction Management Program Provisions are needed for the reasons stated in the Response to Comment E1-1.</p> <p>Copermittees are afforded flexibility in meeting the requirements of Provision E.4. They are required to meet a minimum baseline program (with limited prescriptiveness compared to Fourth Term MS4 permits) as stated in the Tentative Order, and within that framework focus on the highest priority conditions of concern as described in the Water Quality Improvement Plans.</p> <p>Based on this consideration no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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E5-1 PROVISION E.5: Existing Development Management		
	<p>COMMENT: <i>Modify Existing Development Program provisions so as not to negate the very intent and purpose of the watershed approach and the focus on the highest priorities within each watershed management area.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request modification to the introductory paragraph of the Existing Development Provisions to better reflect the watershed approach and program focus on highest priority conditions of concern.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that modifications to the Existing Development Management Program Provisions are needed for the reasons stated in the Response to Comment E1-1.</p> <p>Copermittees are afforded flexibility in meeting the requirements of Provision E.5. They are required to meet a minimum baseline program (with limited prescriptiveness compared to Fourth Term MS4 permits) as stated in the Tentative Order, and within that framework focus on the highest priority conditions of concern as described in the Water Quality Improvement Plans.</p> <p>Based on this consideration no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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E5-2	PROVISION E.5: Existing Development Management	
	<p>COMMENT: <i>Delete the requirement to evaluate retrofit of stream channels.</i></p> <p>The County of Orange and Concurring Cities and Orange County Flood Control District requested removal of the requirement to evaluate retrofit of stream channels from the Tentative Order because it is not the Copermittee's responsibility to restore receiving waters.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board agrees that it is not the responsibility of the Copermittees to restore receiving waters. None of the provisions in the Tentative Order requires the Copermittees to perform stream restorations.</p> <p>The Tentative Order at Provision E.5.e.(2) requires the Copermittees to describe a program to rehabilitate streams, channels, and habitats in existing developed areas by first identifying viable candidates, then developing a strategy to facilitate the implementation of the rehabilitations. Rehabilitation of streams, channels, and habitats may also serve as candidates for alternative compliance (to implementation of structural BMPs; see Tentative Order at Provision E.3.c.(3)), and is an important element of the Tentative Order in achieving improvements in water quality and watershed functions.</p> <p>Based on this consideration no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E6-1 PROVISION E.6: Enforcement Response Plans		
	<p>COMMENT: <i>Copermittees should be allowed to utilize existing guidelines and procedures for enforcement.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request Provision E.6 be modified to specify that a Copermittee may utilize and implement established, equivalent guidelines and procedures for enforcement.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that any changes to the Tentative Order are needed. A Copermittee will be able to continue using and implementing existing enforcement guidelines and procedures if the Copermittee demonstrates the procedures and guidelines comply with the requirements of Provision E.6. Provision E.6 requires each Copermittee to document enforcement processes and procedures in an Enforcement Response Plan, as part of its jurisdictional runoff management program document and specifically describes what must be included in the Plan. The Enforcement Response Plan will promote transparency and accountability by ensuring that Copermittee enforcement programs and procedures are clear and accessible to the San Diego Water Board and the public, and can be used to evaluate the adequacy of Copermittee enforcement programs and progress towards meeting enforcement goals. Because the Copermittees already have procedures in place for enforcement, there will likely only be minor modifications needed to the programs to meet the requirements of Provision E.6.</p> <p>The Enforcement Response Plan is expected to be a tool the Copermittee can refer to when issuing enforcement actions to compel compliance with its statutes, ordinances, permits, contracts, order, or similar means, and the requirements of the Tentative Order. The Enforcement Response Plan is also expected to result in more consistent enforcement and enforcement actions by the Copermittee within its jurisdiction.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E6-2	PROVISION E.6: Enforcement Response Plans	
	<p>COMMENT: <i>The definition for "Escalated Enforcement" should be redefined.</i></p> <p>The County of Orange and Concurring Cities, and the Orange County Flood Control District request Provision E.6.d be modified to be "Progressive Enforcement" instead of "Escalated Enforcement" because the process should reflect a standard progressive approach.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the recommendation to modify the language in Provision E.6.d from "escalated enforcement" to "progressive enforcement".</p> <p>The Copermittees are expected to implement "progressive enforcement" in all cases of enforcement. For enforcement issues that are associated with the highest priority water quality conditions identified by the Copermittees in the Watershed Management Area, the Copermittees are expected to implement enforcement swiftly. "Escalated enforcement" refers to the Copermittee escalating its enforcement measures and resources to a) ensure compliance with local statutes, ordinances, permits, contracts, order, or similar means, and the requirements of the Tentative Order, b) compel prompt correction of violations and the conditions that led to the violations, and c) deter future violations. The term "escalated enforcement" correctly reflects this added level of urgency and focus to compel compliance.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E7-1	PROVISION E.7: Public Education and Participation	
	<p>COMMENT: <i>The Public Education Program provisions must be modified so as not to negate the very intent and purpose of the watershed approach and the focus on the highest priorities within each watershed management area.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request modification to the introductory paragraph of the Public Education Program Provisions to better reflect the watershed approach and program focus on highest priority conditions of concern.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that modifications to the Public Education Program Provisions are needed for the reasons stated in the Response to Comment E1-1.</p> <p>Copermittees are afforded flexibility in meeting the requirements of Provision E.7. The Copermittees are required to meet a minimum baseline program (with limited prescriptiveness compared to Fourth Term MS4 permits) as stated in the Tentative Order, and within that framework focus on the highest priority conditions of concern as described in the Water Quality Improvement Plans.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted</p>	

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F-1 PROVISION F: REPORTING		
	<p>COMMENT: <i>Modify Tentative Order to better align reporting requirements with the process for development and updates of the various plans to allow for the time necessary to complete the work and to submit the ROWD.</i></p> <p>The County of Orange and Concurring Cities and Orange County Flood Control District suggest the due dates for development of each component of the Water Quality Improvement Plan be linked to the development step that precedes it and not to the commencement of coverage under the Order. The commenters also suggest the timeframe for development of the Water Quality Improvement Plan incorporate adequate time for the Copermittees to review and respond to comments received on the current action before moving on to the next step of development. The Copermittees are also concerned that the schedule proposed in the Tentative Order would impart an overly burdensome schedule on members of the public participating in the Consultation Panels and reviewing documents during the public review periods and do not allow for adequate time to conduct CEQA.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The Tentative Order accommodates the commenters concerns with the amount of time needed to develop the Water Quality Improvement Plan and submit the deliverables by providing a flexible range within which the Copermittees may submit each component of the Water Quality Improvement Plan. Copermittees may submit the requirements of Provision B.2 (i.e. priority water quality conditions, source of conditions, and potential water quality improvement strategies) as early as 6 months and no later than 12 months after commencement of coverage and Provision B.3 (i.e. goals, strategies, and schedules) as early as 9 months, and no later than 18 months after commencement of coverage. By including this range within which the deliverable can be submitted, the San Diego Water Board is allowing adequate time and adequate flexibility for the Copermittees to a) create the deliverable, b) accept and review comments received on the deliverable during development of the Water Quality Improvement Plan, and c) complete any CEQA compliance as the Copermittee determines to be necessary. The San Diego Water Board expects each partial deliverable to be well thought out and complete but also realizes that additional time exists in the process to further incorporate comments and input received during the public comment period and San Diego Water Board staff review. As such the Tentative Order requires the final version of the Water Quality Improvement Plan to be submitted within 24 months after commencement of coverage under the Tentative Order as it amends Order No. R9-2013-0001.</p> <p>By requiring submittal of individual components of the Water Quality Improvement Plan, members of the Consultation Panel, the public, and the San Diego Water Board will be able to provide input early on in the Plan</p>	

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F-1	PROVISION F: REPORTING
	<p>development. The San Diego Water Board expects that any deficiencies in the Water Quality Improvement Plan will be identified early on either during the public review and comment period or during the review by the San Diego Water Board. The Orange County Copermittees may wish to consult with San Diego County Copermittees to benefit from their experience in developing the Water Quality Improvement Plans.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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H-1 PROVISION H: MODIFICATION OF PROGRAMS		
	<p>COMMENT: <i>Modify Tentative Order to include an explicit re-opener provision.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that additional revisions to the explicit re-opener provisions in the Tentative Order are necessary.</p> <p>Provision H.4.c of the Tentative Order already explicitly states that the San Diego Water Board will re-open the Order if any of the TMDLs in Attachment E are amended in the Basin Plan by the San Diego Water Board, and the amendment is approved by the State Water Board, Office of Administrative Law, and the USEPA.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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AttA-1	ATTACHMENT A: Discharge Prohibitions and Special Protections	
	<u>COMMENT:</u> <i>The City supports the proposed changes to the Areas of Special Biological Significance.</i>	City of San Diego
	<u>RESPONSE:</u> The San Diego Water Board acknowledges the City's support of this change.	

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AttC-1 ATTACHMENT C: Acronyms, Abbreviations, and Definitions		
	<p><u>COMMENT:</u> <i>Request for additional or modified definitions.</i></p> <p>Several comments were submitted requesting modifications to existing definitions and/or the addition of new definitions to Attachment C to the Tentative Order.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p><u>RESPONSE:</u> The San Diego Water Board reviewed and considered the requested modifications to existing definitions and additional definitions.</p> <p>All of the requested additions or modifications were submitted during the 2013 adoption process for Order No. R9-2013-0001. The San Diego Water Board reconsidered the requested additions or modifications and determined, in all cases, that the requested modifications or additions were still not appropriate, not necessary, or both.</p> <p>Therefore, no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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AttE-1 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads		
	<p>COMMENT: <i>Compliance determination for final WQBELs should be based on implementation of BMPs and not numeric effluent limitations.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board has already included a compliance determination option for final WQBELs based on implementation of BMPs in the Tentative Order.</p> <p>WQBELs can be expressed as (1) conditions in receiving waters that are to be attained to restore or protect water quality standards in receiving waters, (2) conditions in discharges that will not cause or contribute to exceedances of water quality standards in receiving waters, (3) BMPs that will ensure discharges will not cause or contribute to exceedances of water quality standards in receiving waters, or (4) a combination of one or more of (1)-(3). This is consistent with 40 CFR 122.44(d)(1)(vii)(B) and 122.44(k)(2)-(4).</p> <p>The San Diego Water Board has incorporated options (1)-(3) under the WQBEL requirements for each of the TMDLs in Attachment E. In most cases, if the WQBEL expressed as a receiving water limitation is achieved, the discharges from the MS4s are assumed to be in compliance with the TMDL requirements. If not, then the Copermittees must demonstrate that discharges from the MS4s are not causing or contributing to the exceedances in the receiving waters by achieving the WQBELs expressed as effluent limitations. In every case, the Copermittees are required to implement BMPs to ensure that discharges from their MS4s do not cause or contribute to exceedances of water quality standards in receiving waters.</p> <p>For the interim TMDL compliance determination requirements, the Copermittees are allowed to demonstrate compliance by implementing a Water Quality Improvement Plan that has been accepted by the San Diego Water Board, with a "reasonable assurance" that the implementation of the BMPs will achieve the interim TMDL WQBELs within the interim compliance dates. The Copermittees will be provided considerable flexibility for demonstrating compliance with achieving the interim WQBELs.</p> <p>For the final TMDL compliance determination requirements, the Copermittees are allowed to demonstrate compliance with the final WQBELs by implementing a Water Quality Improvement Plan that includes an</p>	

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AttE-1	ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads
	<p>analysis to demonstrate that the implementation of the BMPs required by the TMDL achieves compliance with one or more of the final numeric WQBELs. The Water Quality Improvement Plan must include monitoring and assessments to confirm that the Water Quality Improvement Plan is achieving the final TMDL requirement. The San Diego Water Board must accept and continue to accept the Water Quality Improvement Plan and analysis, and the Copermittees must continue to implement the BMPs and demonstrate through the analysis that the final numeric WQBELs are being achieved.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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AttE-2 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
	<p>COMMENT: <i>Modify Tentative Order to include a compliance mechanism prior to approval of the Water Quality Improvement Plans.</i></p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that it is necessary to include a compliance mechanism prior to approval of the Water Quality Improvement Plan.</p> <p>If a TMDL in Attachment E includes interim or final compliance dates that have passed, the Copermittees are expected to have data to demonstrate that one or more of the compliance determination options have already been met. If interim or final TMDL compliance dates have not passed, compliance with the interim or final TMDL compliance requirements do not have to be demonstrated yet, thus a compliance determination mechanism is not yet required.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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AttE5-1 ATTACHMENT E 5: Baby Beach and Shelter Island Shoreline Park Bacteria TMDL		
	<p>COMMENT: <i>Correct discrepancies between adopted TMDLs in the Basin Plan and provisions in the Tentative Order.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that there are discrepancies between the TMDLs in the Basin Plan and the provisions in the Tentative Order.</p> <p>The TMDLs as developed are all intended to restore the water quality standards in receiving waters impaired by specific pollutants. The WLAs and LAs as developed are all intended to ensure that discharges from point and nonpoint sources to receiving waters will not cause or contribute to exceedances of water quality standards in receiving waters. The TMDL requirements in Attachment E are consistent with the intent of the TMDLs, and the WLAs for MS4s. In other words, the TMDL requirements in Attachment E are intended to ensure that discharges from the Responsible Copermittees' MS4s will not cause or contribute, and will continue to not cause or contribute to exceedances of water quality standards in receiving waters. According to each TMDL, when all point sources and nonpoint sources achieve their WLAs and LAs, including the WLAs for MS4s, the water quality standards in receiving waters will be restored.</p> <p>The San Diego Water Board included TMDL requirements in Attachment E that are entirely consistent with the requirements of the TMDLs as adopted and incorporated into the Basin Plan. The implementation plans of the TMDLs in the Basin Plan are essentially "instructions" for the San Diego Water Board to incorporate the requirements into the regulatory mechanisms that will implement the requirements of the TMDL to attain the water quality standards that are being impaired by a pollutant in a water body. In each case, the "instructions" provide the permit writer considerable flexibility in how to express the WLAs as WQBELs in the permit, but not as much flexibility in the compliance schedules for achieving the WLAs.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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AttE5-2 ATTACHMENT E 5: Baby Beach and Shelter Island Shoreline Park Bacteria TMDL	
	<p>COMMENT: <i>WQBELs for Baby Beach TMDL inappropriately include TMDL numeric targets.</i></p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board has included WQBELs that are consistent with the requirements and assumptions of the TMDLs.</p> <p>The federal regulations under 40 CFR 122.44(d)(1)(vii)(B) require that NPDES permit requirements incorporate WQBELs that must be consistent with the requirements and assumptions of any available WLAs developed under TMDLs.</p> <p>WQBELs can be expressed as (1) conditions in receiving waters that are to be attained to restore or protect water quality standards in receiving waters, (2) conditions in discharges that will not cause or contribute to exceedances of water quality standards in receiving waters, (3) BMPs that will ensure discharges will not cause or contribute to exceedances of water quality standards in receiving waters, or (4) a combination of one or more of (1)-(3). This is consistent with 40 CFR 122.44(d)(1)(vii)(B) and 122.44(k)(2)-(4).</p> <p>The San Diego Water Board has incorporated options (1)-(3) under the WQBEL requirements for each of the TMDLs in Attachment E. In most cases, if the WQBEL expressed as a receiving water limitation is achieved, the discharges from the MS4s are assumed to be in compliance with the TMDL requirements. If not, then the Copermittees must demonstrate that discharges from the MS4s are not causing or contributing to the exceedances in the receiving waters by achieving the WQBELs expressed as effluent limitations. In every case, the Copermittees are required to implement BMPs to ensure that discharges from their MS4s do not cause or contribute to exceedances of water quality standards in receiving waters.</p> <p>The WQBELs are also consistent with the assumptions and requirements of the WLAs. In each case, the WLAs are calculated based on numeric targets that are assumed to be able to restore or protect water quality standards in receiving waters and/or ensure discharges from the Responsible Copermittees' MS4s will not cause or contribute to exceedances of water quality standards in receiving waters. The numeric targets are required to be based on water quality objectives in the Basin Plan. Discharges from the MS4s are required to</p>

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AttE5-2 ATTACHMENT E 5: Baby Beach and Shelter Island Shoreline Park Bacteria TMDL	
	<p>achieve the numeric targets for their discharges to protect water quality standards in receiving waters to meet the WLAs. The WQBELs for the TMDLs in Attachment E are consistent with the numeric targets, and thus consistent with the underlying assumptions and requirements of the numeric targets that are the basis of the WLAs.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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AttE6-1 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDL		
	<p>COMMENT: <i>Correct discrepancies between adopted TMDL Basin Plan and provision in Tentative Order.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that there are discrepancies between the TMDLs in the Basin Plan and the provisions in the Tentative Order.</p> <p>The TMDLs as developed are all intended to restore the water quality standards in receiving waters impaired by specific pollutants. The WLAs and LAs as developed are all intended to ensure that discharges from point and nonpoint sources to receiving waters will not cause or contribute to exceedances of water quality standards in receiving waters. The TMDL requirements in Attachment E are consistent with the intent of the TMDLs, and the WLAs for MS4s. In other words, the TMDL requirements in Attachment E are intended to ensure that discharges from the Responsible Copermittees' MS4s will not cause or contribute, and will continue to not cause or contribute to exceedances of water quality standards in receiving waters. According to each TMDL, when all point sources and nonpoint sources achieve their WLAs and LAs, including the WLAs for MS4s, the water quality standards in receiving waters will be restored.</p> <p>The San Diego Water Board included TMDL requirements in Attachment E that are entirely consistent with the requirements of the TMDLs as adopted and incorporated into the Basin Plan. The implementation plans of the TMDLs in the Basin Plan are essentially "instructions" for the San Diego Water Board to incorporate the requirements into the regulatory mechanisms that will implement the requirements of the TMDL to attain the water quality standards that are being impaired by a pollutant in a water body. In each case, the "instructions" provide the permit writer considerable flexibility in how to express the WLAs as WQBELs in the permit, but not as much flexibility in the compliance schedules for achieving the WLAs.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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AttE6-2 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDL		
	<p>COMMENT: <i>Modify Attachment E.5, WQBELs for Beaches and Creeks TMDL inappropriately include TMDL numeric targets.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board has included WQBELs that are consistent with the requirements and assumptions of the TMDLs.</p> <p>The federal regulations under 40 CFR 122.44(d)(1)(vii)(B) require that NPDES permit requirements incorporate WQBELs that must be consistent with the requirements and assumptions of any available WLAs developed under TMDLs.</p> <p>WQBELs can be expressed as (1) conditions in receiving waters that are to be attained to restore or protect water quality standards in receiving waters, (2) conditions in discharges that will not cause or contribute to exceedances of water quality standards in receiving waters, (3) BMPs that will ensure discharges will not cause or contribute to exceedances of water quality standards in receiving waters, or (4) a combination of one or more of (1)-(3). This is consistent with 40 CFR 122.44(d)(1)(vii)(B) and 122.44(k)(2)-(4).</p> <p>The San Diego Water Board has incorporated options (1)-(3) under the WQBEL requirements for each of the TMDLs in Attachment E. In most cases, if the WQBEL expressed as a receiving water limitation is achieved, the discharges from the MS4s are assumed to be in compliance with the TMDL requirements. If not, then the Copermittees must demonstrate that discharges from the MS4s are not causing or contributing to the exceedances in the receiving waters by achieving the WQBELs expressed as effluent limitations. In every case, the Copermittees are required to implement BMPs to ensure that discharges from their MS4s do not cause or contribute to exceedances of water quality standards in receiving waters.</p> <p>The WQBELs are also consistent with the assumptions and requirements of the WLAs. In each case, the WLAs are calculated based on numeric targets that are assumed to be able to restore or protect water quality standards in receiving waters and/or ensure discharges from the Responsible Copermittees' MS4s will not cause or contribute to exceedances of water quality standards in receiving waters. The numeric targets are required to be based on water quality objectives in the Basin Plan. Discharges from the MS4s are required to</p>	

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AttE6-2 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDL	
	<p>achieve the numeric targets for their discharges to protect water quality standards in receiving waters to meet the WLAs. The WQBELs for the TMDLs in Attachment E are consistent with the numeric targets, and thus consistent with the underlying assumptions and requirements of the numeric targets that are the basis of the WLAs.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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AttE7-1 ATTACHMENT E 7: Los Peñasquitos Lagoon Sediment TMDL		
	<p><u>COMMENT:</u> <i>Modify the Tentative Order to allow individual jurisdictional compliance with TMDLs.</i></p> <p>The City of San Diego requests the Tentative Order be modified so that Final TMDL Compliance Determination using the Water Quality Improvement Plan pathway is based on individual jurisdictional compliance instead of all Copermittees collectively.</p>	City of San Diego
	<p><u>RESPONSE:</u> The San Diego Water Board disagrees that modifications are needed to the language pertaining to TMDL compliance determination. The commenter correctly asserts that the intent of the language, and in fact, the intent of the Water Quality Improvement Plan concept, is that the Copermittees develop the Water Quality Improvement Plans collectively and evaluate water quality improvement strategies on a watershed basis. The San Diego Water Board recognizes that the Copermittees have no authority over other Copermittees to compel TMDL compliance; therefore, the Tentative Order has multiple compliance pathways available to each Copermittee to achieve compliance. These pathways are presented in each of the 7 Specific (TMDL) Provisions at X.b.(3). These alternative compliance pathways do not rely on actions or inactions of other Copermittees.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

AttE7-2 ATTACHMENT E 7: Los Peñasquitos Lagoon Sediment TMDL		
	<p>COMMENT: <i>Clarify that waste load allocations include discharges from other responsible parties in addition to Responsible Copermittees.</i></p> <p>The City of San Diego, City of Del Mar, and Industrial Environmental Association submitted comments requesting the final effluent limitations expressed in Table 7.1, which were derived from waste load allocations, recognize the contribution of sediment loading to the Los Penasquitos Watershed from dischargers other than the Copermittees. Without this recognition, the other dischargers would have a zero sediment loading allocation, contrary to the intent of the TMDL.</p>	<p>Industrial Environmental Association City of San Diego City of Del Mar</p>
	<p>RESPONSE: Although the Tentative Order is an NPDES permit specifically issued to the Phase I MS4 Copermittees, the San Diego Water Board has nonetheless modified Table 7.1 to state that the effluent limitation of 2,580 tons/year is shared amongst all dischargers identified in Resolution No. R9-2012-0033. Provision 7.b.(2)(c)(ii) has likewise been modified to clarify that the Responsible Copermittees must implement BMPs to achieve only their portion of the effluent limitations, as opposed to other discharger's contributions.</p> <p>The City of San Diego suggested dividing up the collective load in proportion to land area occupied by each discharger, but the San Diego Water Board cannot impose a TMDL distribution methodology through the permitting process that has not been peer reviewed and vetted through the TMDL development stakeholder process. Assigning a waste load allocation and subsequent effluent limitation applicable to all dischargers within a watershed collectively, is consistent with the San Diego Water Board's approach to TMDL expression for other waterbodies and constituents.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

AttE7-3 ATTACHMENT E 7: Los Peñasquitos Lagoon Sediment TMDL		
	<p>COMMENT: <i>Revise the Final TMDL compliance determination to be consistent with the Basin Plan Amendment and other TMDLs.</i></p> <p>The City of Del Mar and the City of San Diego submitted comments requesting the language pertaining to final TMDL compliance determination be modified to be consistent with the Basin Plan Amendment adopted by the San Diego Water Board under Resolution No. R9-2012-0033, and offer multiple compliance pathways similar to other TMDLs.</p>	<p>City of Del Mar City of San Diego</p>
	<p>RESPONSE: The San Diego Water Board agrees to modify the language of Provision 7.b.(3)(a) to match the language of the Basin Plan Amendment (page A-16). However, the San Diego Water Board disagrees that the suggested revisions to add additional language to incorporate a compliance pathway related to “implementation actions” is necessary. Specifically, both the City of San Diego and City of Del Mar requested the following language to be added:</p> <p>“Demonstrate that implementation actions are active on and/or affecting 346 acres with continued monitoring to ensure 80 percent target achievement”</p> <p>This language is not needed because Provision 7.b.(3)(b) regarding the development of the Water Quality Improvement Plan as a compliance pathway serves the same purpose as the suggested language. The phrase “implementation actions” has been added to Provision 7.b.(3)(b)(ii) to incorporate all ideas from the Basin Plan Amendment language into the Water Quality Improvement Plan concept.</p> <p>The San Diego Water Board considered the request to add two additional compliance pathways similar to those included in other TMDLs. As this sediment TMDL is different than other adopted TMDLs because the primary focus is lagoon saltmarsh restoration, as opposed to the quality of the MS4 discharges, the San Diego Water Board did not incorporate the suggested modifications. The intent of the TMDL efforts was to facilitate successful restoration of 346 acres of saltmarsh vegetation, and the Tentative Order appropriately uses this metric as the primary compliance pathway.</p> <p>The schedule to achieve compliance is 20 years, as established by the TMDL. In contrast, the NPDES permit as represented by the Tentative Order is on a 5-year cycle. Revisions to the compliance pathways available to the Responsible Parties can be revisited upon reissuance of the NPDES permit at a later date. The San Diego Water Board believes it is more appropriate to offer multiple compliance pathways after data have been collected showing the effects of sediment reduction efforts on lagoon restoration. If a positive linkage can be</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

AttE7-3 ATTACHMENT E 7: Los Peñasquitos Lagoon Sediment TMDL	
	established between the reduction in sediment discharges and the successful restoration of the lagoon, then the Responsible Parties can make this request at subsequent permit reissuance proceedings.

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 20, 2015

AttE7-4 ATTACHMENT E 7: Los Peñasquitos Lagoon Sediment TMDL		
	<p>COMMENT: <i>Correct references in the Los Penasquitos final TMDL compliance determination.</i></p> <p>The City of San Diego requested modifications to Specific Provision 7.b(3)(b) to correct errors.</p>	City of San Diego
	<p>RESPONSE: The San Diego Water Board has reviewed the recommendation to change the text to reference 7.b.(2)(a) and has not made changes because the references to Specific Provision 7.b.(3)(a) are correct. The incorrect reference to Specific Provision 2 has been changed to Specific Provision 7</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

AttE7-5 ATTACHMENT E 7: Los Peñasquitos Lagoon Sediment TMDL		
	<p>COMMENT: <i>Revise the interim TMDL compliance determination to be consistent with the Basin Plan Amendment and other TMDLs.</i></p> <p>The City of Del Mar and the City of San Diego submitted comments requesting that the language pertaining to interim TMDL compliance determination be modified to be consistent with the Basin Plan Amendment adopted by the San Diego Water Board under Resolution No. R9-2012-0033, and offer multiple compliance pathways similar to other TMDLs.</p>	<p>City of Del Mar City of San Diego</p>
	<p>RESPONSE: The San Diego Water Board agrees with the recommendation and has added multiple compliance options for interim TMDL compliance at Specific Provision 7.c.(2), as suggested by the commenters.</p> <p>Interim TMDL compliance, on or after the interim compliance dates shown in Table 7.2, may be demonstrated via one of the following methods:</p> <ul style="list-style-type: none"> (a) There is no direct or indirect discharge from the Responsible Copermittee's MS4s to the receiving water; OR (b) The final receiving water limitation under Specific Provision 7.b.(2)(a) is met; OR (c) There are no exceedances of the Copermittee's portion of interim effluent limitations under Table 7.2 at the Responsible Copermittee's MS4 outfalls; OR (d) The Responsible Copermittees have submitted and is fully implementing a Water Quality Improvement Plan, accepted by the San Diego Water Board, which provides reasonable assurance that the Copermittee's portion of the interim TMDL compliance requirements will be achieved by the interim compliance date. 	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

AttE7-6 ATTACHMENT E 7: Los Peñasquitos Lagoon Sediment TMDL		
	<p>COMMENT: <i>Revise Tables 7.1 and 7.2 in Specific Provision 7 to Reflect the Basin Plan Amendment.</i></p> <p>The City of San Diego and the City of Del Mar submitted comments requesting modifications to Tables 7.1 and 7.2 to 1) change the heading from interim effluent limitations in tons/year to tons/wet season, and 2) add a footnote acknowledging that the effluent limitation is shared by all Responsible Parties identified in Resolution R9-2012-0033.</p>	<p>City of Del Mar City of San Diego</p>
	<p>RESPONSE: The San Diego Water Board reviewed the wasteload allocations in the Basin Plan Amendment and notes that they are reported in tons/year on both page A-6 and the Table on page A-17. Nevertheless, Table 7.2 has been modified to report the effluent limitations in tons per wet season, as the commenters requested. A footnote was also added to acknowledge the other Responsible Parties identified in Resolution R9-2012-0033.</p> <p>The San Diego Water Board agrees that the third column of Table 7.2 is misleading and not useful, therefore it was deleted.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

AttE7-1 ATTACHMENT E 7: Los Peñasquitos Lagoon Sediment TMDL		
	<p>COMMENT: <i>Revise monitoring start date to be the first full wet season after the Water Quality Improvement Plan is accepted.</i></p> <p>The City of San Diego and the City of Del Mar submitted comments requesting that the Assessment and Reporting Requirements in Specific Provision 7.d.(3) be revised so that the first data collection occurs after the San Diego Water Board acceptance of the Water Quality Improvement Plan.</p>	<p>City of Del Mar City of San Diego</p>
	<p>RESPONSE: The San Diego Water Board agrees that the start date for the monitoring requirements should be delayed, but disagrees that acceptance of the Water Quality Improvement Plan is needed first. The language has been changed so that the start date occurs in the 2015-2016 wet season.</p> <p>The monitoring requirements were developed as part of the TMDL Basin Plan Amendment that was adopted by the San Diego Water Board in 2012. The TMDL became effective, and the compliance timeline started, when it was approved by the Office of Administrative Law in July, 2014. The Responsible Parties need not wait for acceptance of the Water Quality Improvement Plan to begin implementing their required monitoring program under the TMDL.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

AttF-1 ATTACHMENT F: Fact Sheet / Technical Report	
	<p>COMMENT: <i>Based on the successes of the Orange County Storm Water Program, there is little justification for much of the Tentative Order.</i></p> <ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: Attachment F to the Tentative Order includes the Fact Sheet. The Fact Sheet sets forth a brief summary of the basis for the draft permit conditions, the principal facts and the significant factual, legal, methodological, and policy questions the San Diego Water Board considered in preparing the Tentative Order. The Fact Sheet. In accordance with the Code of Federal Regulations (CFR) Title 40 Parts 124.8 and 124.56 (40 CFR 124.8 and 40 CFR 124.56), this Fact Sheet includes, but is not limited to, the following information:</p> <ol style="list-style-type: none"> 1. Contact information 2. Public process and notification procedures 3. Background of municipal storm water permits 4. Regional MS4 Permit approach 5. Economic considerations 6. Applicable statutes, regulations, plans and policies 7. Discussion of the provisions in the Order <p>The Fact Sheet also references the Permit Reissuance Process specific to Orange County Copermittees, and references the San Diego Water Board receipt and consideration of the Report of Waste Discharge during development of the Tentative Order. Based on San Diego Water Board review of the Report of Waste Discharge and consideration of the State of Environment discussion, very few changes to Order No. R9-2013-0001 (Regional MS4 Permit) were necessary in the Tentative Order to accommodate the recommendations made in the Report of Waste Discharge. The Fact Sheet was modified to include a brief summary of the basis for any change made in the Tentative Order either related to the State of the Environment discussion in the Report of Waste Discharge or the comments included herein. The Tentative Order requirements reflect the progress made by the Orange County Copermittees' programs and provides them with considerably more flexibility to further improve water quality.</p> <p>See also comment E3c-1 and Gnl-2.</p>

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

AttF-1	ATTACHMENT F: Fact Sheet / Technical Report
	Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

AttF-2 ATTACHMENT F: Fact Sheet / Technical Report		
	<p>COMMENT: <i>Modify Fact Sheet to include language explaining the iterative approach and TMDLs.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that additional language is necessary to explain the iterative approach and TMDLs.</p> <p>The iterative approach is for NPDES storm water discharges that are not subject to requirements set forth in TMDLs and are causing or contributing to exceedances of water quality standards in receiving waters. Attachment E to the Tentative Order includes requirements that must be met to be in compliance with the TMDLs. For most of the TMDLs in Attachment E, the requirements also include provisions that provide additional flexibility for determining and achieving compliance with the interim TMDL requirements. The Fact Sheet accurately describes the difference between the iterative approach of the MS4 Permit and compliance with TMDL requirements.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

AttF-3 ATTACHMENT F: Fact Sheet / Technical Report	
	<p>COMMENT: <i>Modify Fact Sheet to include language explaining the incorporation of new TMDLs into the Water Quality Improvement Plans.</i></p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that additional language is necessary to explain the incorporation of new TMDLs into the Water Quality Improvement Plans.</p> <p>Going forward, the San Diego Water Board is assuming that the Copermittees will be involved as a stakeholder in the development of any new TMDLs that may include the MS4 as a source of pollutants contributing to impairment. As a stakeholder, the Copermittees are expected to work with the San Diego Water Board TMDL development staff to identify appropriate WLAs and implementation measures to address MS4 discharges.</p> <p>Because of this knowledge, the Copermittees will have the background and information that will be useful during the re-opening of the MS4 Permit to include the new TMDL requirements. Provision F.2.c.(2) requires the Copermittees to "initiate" an update to the Water Quality Improvement Plans after Office of Administrative Law (OAL) and USEPA approval. The Copermittees may "initiate" the update by working with San Diego Water Board MS4 permitting staff to re-open the Regional MS4 Permit and concurrently begin the process of incorporating any new water quality improvement strategies that may be necessary to include into the Water Quality Improvement Plan. In addition, the expectation is that the Water Quality Improvement Plans will reduce the need for new TMDLs in the future.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

ATTACHMENT

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**California Regional Water Quality Control Board
San Diego Region**

Response to Comments Report

Tentative Order No. R9-2015-0100

*An Order Amending Order No. R9-2013-0001, NPDES No. CAS010266,
As Amended by Order No. R9-2015-0001
National Pollutant Discharge Elimination System (NPDES) Permit
and Waste Discharge Requirements for Discharges from the
Municipal Separate Storm Sewer Systems (MS4s) Draining the
Watersheds within the San Diego Region*

November 4, 2015

Revised November 10, 2015

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

2375 Northside Drive, Suite 100, San Diego, California 92108
Phone • (619) 516-1990 • Fax (619) 516-1994
<http://www.waterboards.ca.gov/sandiego>

Documents are available at: <http://www.waterboards.ca.gov/sandiego>

**California Regional Water Quality Control Board
San Diego Region**

Henry Abarbanel, *Chair*
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Eric Anderson
Tomas Morales
Stefanie Warren
Betty Olson
Vacant

David W. Gibson, *Executive Officer*
James Smith, *Assistant Executive Officer*

Catherine Hagan, *Senior Staff Counsel, Office of Chief Counsel*

This report was prepared under the direction of

David T. Barker, *P.E., Supervising Water Resource Control Engineer, Surface Water Protection Branch*
Laurie Walsh, *P.E., Senior Water Resource Control Engineer, Storm Water Management Unit*

By

Wayne Chiu, *P.E., Water Resource Control Engineer*
Christina Arias, *P.E., Water Resource Control Engineer*

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**Responses to Comments on
Tentative Order No. R9-2015-0100**
November 4, 2015
Revised November 10, 2015

Introduction

This report contains responses to written comments timely received on Tentative Order No. R9-2015-0100, *An Order Amending Order No. R9-2013-0001, NPDES No. CAS010266, as Amended by Order No. R9-2015-0001, National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region* (Tentative Order). The Tentative Order and its attachments were available for public review and comment for 46 days, with the comment period ending on September 14, 2015. Specifically, the San Diego Water Board requested comments on the following three documents:

- Tentative Order No. R9-2015-0100;
- Attachment No. 1 – Revised Order No. R9-2013-0001; and
- Attachment No. 2 – Revised Fact Sheet to Order No. R9-2013-0001.

The phrases “Tentative Order” and “Regional MS4 Permit” in the following response to comments table refers to both Tentative Order No. R9-2015-0100 and the two attachments. Comments and responses are organized by the section of either Attachment 1 or Attachment 2 that is being referenced. Wherever possible, comments are grouped based on content and summarized by the San Diego Water Board. The actual comment letters can be accessed on the San Diego Water Board website at:

http://www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/index.shtml

List of Commenters:

Comments were submitted by the following organizations, public agencies, or individuals (listed alphabetically):

1. City of Dana Point
2. City of Escondido
3. City of Laguna Beach
4. City of Lake Forest
5. City of Menifee
6. City of San Clemente
7. City of San Diego
8. City of San Juan Capistrano
9. City of Santee
10. Construction Industry Coalition on Water Quality (CICWQ)
11. County of San Diego
12. Environmental Groups (San Diego Coastkeeper, Coastal Environmental Rights Foundation, and Surfrider Foundation San Diego Chapter)
13. Orange County Copermittees
14. Riverside County Copermittees
15. San Diego Coastkeeper and Coastal Environmental Rights Foundation
16. San Diego County Copermittees
17. San Diego Unified Port District
18. South Laguna Civic Association
19. [Safari Highlands Ranch](#)

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RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2015-0100

November 4, 2015 / Revised November 10, 2015

Gnl-1 GENERAL COMMENTS	
	<p>COMMENT: <i>Request to incorporate previous written comments and testimony in the record for this Tentative Order.</i></p> <p>The Copermitees and other stakeholders requested that previous written comments and testimony be incorporated into the record for this Tentative Order. The comment letters also included copies of the written comments previously submitted during the proceedings to adopt Order No. R9-2013-0001, and the proceedings to adopt Order No. R9-2015-0001 to amend Order No. R9-2013-0001.</p>
	<p>Riverside County Copermitees Orange County Copermitees City of Dana Point City of San Diego San Diego Unified Port District South Laguna Civic Association Construction Industry Coalition on Water Quality</p>
	<p>RESPONSE: The San Diego Water Board is incorporating the previous written comments and testimony provided during the proceedings to adopt Order No. R9-2013-0001, and the proceedings to adopt Order No. R9-2015-0001 to amend Order No. R9-2013-0001 into the record for this Tentative Order.</p> <p>The San Diego Water Board reviewed Tentative Order No. R9-2015-0100 and its Attachments and has determined that the March 27, 2013 responses to comments document prepared during the 2013 adoption process of Order No. R9-2013-0001, the January 21, 2015 responses to comments document prepared during the adoption process of Order No. R9-2015-0001, and the oral responses to comments during the workshops and hearings during those proceedings address the previously submitted comments and testimony. The San Diego Water Board is incorporating by this reference as if set forth in full herein its written responses to comments and oral responses to comments raised during the workshops and hearings on Order Nos. R9-2013-0001 and R9-2015-0001 into these responses.</p> <p>To the extent commenters incorporate issues and objections raised in petitions for review of Order No. R9-2013-0001 filed with the State Water Board in SWRCB/OCC File A-2254(a)-(p), or in petitions for review of Order No. R9-2015-0001, amending Order No. R9-2013-0001 (SWRCB/OCC File A-2367(a)-(i)), the San Diego Water Board notes that it has not yet had an opportunity to submit written responses to those petitions for review and is not specifically addressing those petitions for review in these responses to comments. The San Diego Water Board will submit written responses to the petitions for review at the appropriate time in the State Water Board's petition proceeding.</p> <p>No changes to the Tentative Order or its Attachments were made based on the renewed comments.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2015-0100

November 4, 2015 / Revised November 10, 2015

Gnl-2 GENERAL COMMENTS	
	<p>COMMENT: <i>Request for clarification of implementation requirements for the Riverside County Copermittees as a result of late entry into the Regional MS4 Permit.</i></p> <p>The Riverside County Copermittees noted that several provisions of the Regional MS4 Permit, including requirements to submit certification of legal authority, assessment and subsequent Water Quality Improvement Plan revision requirements, and requirements to submit a regional monitoring and assessment report, which either require data gathered under a Water Quality Improvement Plan that has been accepted by the San Diego Water Board, or are due for submittal outside of the Regional MS4 Permit's term. The Riverside County Copermittees wanted clarification that: 1) the certification of legal authority which was submitted by the Riverside County Copermittees under Order No. R9-2010-0016 will remain effective until a new certification is submitted with the first Water Quality Improvement Plan Annual Report (after the current Regional MS4 Permit term has ended), 2) any provisions regarding assessments or requiring data gathered under an accepted Water Quality Improvement Plan will not be due until such time that the necessary data are gathered and the assessments made under time periods described in the Regional MS4 Permit, and 3) the regional monitoring and assessment report for the current Regional MS4 Permit term should be completed utilizing data gathered during the transitional monitoring period, as these will be the only data that will be available at that time.</p>
	Riverside County Copermittees
	<p>RESPONSE: The San Diego Water Board agrees that: 1) the certification of legal authority which was submitted by the Riverside County Copermittees under Order No. R9-2010-0016 will remain effective until a new certification is submitted with the first Water Quality Improvement Plan Annual Report (after the current Regional MS4 Permit term has ended), 2) any provisions regarding assessments or requiring data gathered under an accepted Water Quality Improvement Plan will not be due until such time that the necessary data are gathered and the assessments made under time periods described in the Regional MS4 Permit, and 3) the regional monitoring and assessment report for the current Regional MS4 Permit term should be completed utilizing data gathered during the transitional monitoring period, as these will be the only data that will be available at that time.</p>

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Gnl-3 GENERAL COMMENTS	
	<p>COMMENT: <i>Request to remove the City of Menifee from Water Quality Improvement Plan development and implementation.</i></p> <p>The Riverside County Copermittees and the City of Menifee requested several modifications to the Regional MS4 Permit that would remove the City of Menifee from the requirement to develop and implement the Water Quality Improvement Plan for the Santa Margarita River Watershed Management Area. The Riverside County Copermittees and the City of Menifee assert that the City of Menifee does not own or operate any MS4 within the Santa Margarita River Watershed Management Area, and provided a map showing the City’s jurisdictional boundary and MS4.</p>
	<p>Riverside County Copermittees City of Menifee</p>
	<p>RESPONSE: The San Diego Water Board reviewed the information provided by the commenters and disagrees that the City of Menifee does not own or operate any MS4 within the Santa Margarita Watershed Management Area.</p> <p>The maps provided by the commenters show a portion of MS4 along Scott Road within the Santa Margarita Watershed Management Area that is indicated to be owned by the City of Menifee. In addition, the maps provided by the commenters show that there is a residential area within the City of Menifee and within the Santa Margarita River Watershed Management Area with streets, curb, and gutter that drain to MS4 owned by the Riverside County Flood Control and Water Conservation District, which discharges to a tributary of Warm Springs Creek. Warm Springs Creek is an impaired water body in the Santa Margarita River Watershed Management Area and may become subject to the requirements of a TMDL in the future. The streets, curb, and gutter in the residential area are also considered part of the City of Menifee’s MS4. The maps provided confirm that it is appropriate for the City of Menifee to be required to participate in the development and implementation of the Water Quality Improvement Plan for the Santa Margarita River Watershed Management Area.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>

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Gnl-4 GENERAL COMMENTS		
	<p>COMMENT: <i>Stakeholder workshops have been effective.</i></p> <p>The Orange County Copermittees expressed appreciation for the efforts of the San Diego Water Board staff to collaboratively engage the Copermittees and other stakeholders through the use of mediated workshops. The workshop format allowed all viewpoints to be expressed with sufficient time provided for discussion of issues regarding the Regional MS4 Permit.</p>	<p>Orange County Copermittees City of Dana Point City of Laguna Beach</p>
	<p>RESPONSE: The San Diego Water Board agrees that the collaborative approach utilized during the Regional MS4 Permit development and amendment processes has been beneficial for the San Diego Water Board staff to better understand the issues of concern to the stakeholders.</p>	

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Gnl-5	GENERAL COMMENTS	
	<p>COMMENT: <i>Requests for the Regional MS4 Permit to acknowledge the potential benefit of developing site specific water quality objectives in concert with development of the Water Quality Improvement Plan.</i></p> <p>The Cities of Dana Point and Laguna Beach requested that the Regional MS4 Permit and Fact Sheet specifically acknowledge the benefit of developing site specific objectives in concert with the development of the Water Quality Improvement Plans, even if development of the site specific objectives may extend the period to complete development of the Water Quality Improvement Plans.</p>	<p>City of Dana Point City of Laguna Beach</p>
	<p>RESPONSE: The San Diego Water Board acknowledges that developing site specific water quality objectives (site specific objectives) may be appropriate where there are data that are available to support site specific objectives. The San Diego Water Board, however, disagrees that it is appropriate to delay development and implementation of any Water Quality Improvement Plans with an expectation that site specific objectives will be developed.</p> <p>Any action taken by the San Diego Water Board to establish site specific objectives would require amendment of the Basin Plan to incorporate the site specific objectives before they could be implemented in any NPDES permits or waste discharge requirements issued by the San Diego Water Board. The Basin Planning process requires separate proceedings that need to include the public, the San Diego Water Board, the State Water Board, the Office of Administrative Law, and the USEPA. This process will take much longer to complete than developing the Water Quality Improvement Plan.</p> <p>However, the San Diego Water Board encourages the Copermittees to utilize the Water Quality Improvement Plan development process to identify areas within the Watershed Management Area where developing site specific objectives may be appropriate and include special studies to collect data that can be used to support development of site specific objectives.</p>	

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Gnl-6 GENERAL COMMENTS	
<p>COMMENT: <i>Request for clarification that location of a MS4 within the Port's jurisdictional boundaries does not render the Port an owner or operator of the MS4.</i></p> <p>The San Diego Unified Port District (Port) asserts that just because a MS4 facility falls within its jurisdictional boundaries, which overlap with the Cities of San Diego, National City, Chula Vista, Imperial Beach, and Coronado (Member Cities), that does not mean the Port owns or operates the MS4 facility, and thus the Port would not be responsible for discharges from those MS4 facilities. Therefore, the Port requested revisions to the Tentative Order that clarify this distinction.</p>	<p>San Diego Unified Port District</p>
<p>RESPONSE: The San Diego Water Board disagrees that the Tentative Order should be revised to include additional clarification. The Port owns and operates MS4 facilities (streets, curbs and gutters, catch basins, etc.) and lands within the tidelands that either convey or discharge storm water runoff into MS4 facilities owned or operated by Member Cities, or directly to receiving waters. The Port is responsible for complying with permit conditions pertaining to discharges from MS4 facilities and lands the Port owns or operates that discharge into MS4 facilities of Member Cities or directly to receiving waters. The Port must provide the evidence to demonstrate that it does not own or operate MS4 facilities or lands that discharge storm water runoff directly or indirectly into the MS4 facilities owned by the Member Cities.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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Gnl-7 GENERAL COMMENTS		
	<p>COMMENT: <i>Compliance with all the discharge prohibitions in the Regional MS4 Permit under all circumstances is likely impossible.</i></p> <p>The Cities of Dana Point and Laguna Beach asserts that compliance with all the discharge prohibitions in the Regional MS4 Permit under all circumstances is not practicable and likely impossible. The Cities go on to assert that the Cities are in a position of being required to comply with the discharge prohibitions under all circumstances, or are being required to meet a “zero discharge standard,” both of which are impossible to achieve.</p>	<p>City of Dana Point City of Laguna Beach</p>
	<p>RESPONSE: The San Diego Water Board does not disagree with the assertion that the Copermittees are not in compliance with all the discharge prohibitions in the Regional MS4 Permit under all circumstances. The San Diego Water Board disagrees that it is not practicable and likely impossible to comply with all of the discharge prohibitions under all circumstances. The cases cited in support of the commenters’ argument are inapposite and factually distinguishable from Order No. R9-2013-0001 (as amended) and the discharge prohibitions and receiving water limitations provisions therein.</p> <p>To date, the Copermittees have not implemented programs that are capable of complying with all of the discharge prohibitions under all circumstances, but that does not mean it is not practicable nor impossible. The assertion that complying with all the discharge prohibitions in the Regional MS4 Permit under all circumstances is not practicable and impossible cannot be supported without first demonstrating that the Copermittees have implemented all of their programs to effectively prohibit non-storm water discharges to the MS4 and reduce pollutants in storm water discharges to the maximum extent practicable (MEP). Moreover, several audits conducted recently by the San Diego Water Board indicate that the Copermittees may not be adequately implementing their basic jurisdictional runoff management program (JRMP) requirements to reduce pollutants in storm water discharges to the MEP standard. Even if the Copermittees implemented the basic JRMP requirements to the MEP standard, the Copermittees can also implement additional practicable actions or programs to comply with all of the discharge prohibitions in the Regional MS4 Permit.</p>	

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Gnl-8 GENERAL COMMENTS		
	<p>COMMENT: <i>Request for clarification by City of Lake Forest for applicability of the Water Quality Improvement Plan development requirements.</i></p> <p>The City of Lake Forest requested clarification on its participation in development of the Water Quality Improvement Plan, based on the agreement that discharges from its MS4 in the San Diego Region will be regulated by the Santa Ana Water Board.</p>	City of Lake Forest
	<p>RESPONSE: The San Diego Water Board expects the City of Lake Forest to contribute to development of the Water Quality Improvement Plan and describe the water quality improvement strategies that will be implemented by the City to comply with TMDL requirements. The strategies implemented by the City of Lake Forest are only expected to implement the requirements of the Phase I MS4 Permit issued by the Santa Ana Water Board, except when and where additional strategies (known as optional jurisdictional strategies or Watershed Management Area strategies in the Regional MS4 Permit) may be necessary to achieve TMDL requirements.</p> <p>Likewise, if the Water Quality Improvement Plan includes final numeric goals that are not based on TMDL requirements, the City of Lake Forest is expected to include descriptions of the water quality improvement strategies that the City may implement to contribute toward achieving those final numeric goals.</p>	

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Gnl-8 GENERAL COMMENTS		
	<p>COMMENT: <i>Recommendations for actions that can be implemented to improve water quality.</i></p> <p>The South Laguna Civic Association provided several recommended actions that may result in improvements to water quality.</p>	<p>South Laguna Civic Association</p>
	<p>RESPONSE: The San Diego Water Board appreciates the recommendations. The recommendations, however, appear to be actions that could be implemented as part of water quality improvement strategies by the Copermittees, and not necessarily appropriate to include into the requirements of the Tentative Order. The recommended actions provided by the commenter can be brought to the attention of the south Orange County Copermittees during the development of the Water Quality Improvement Plan.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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Gnl-10 GENERAL COMMENTS		
	<p>COMMENT: <i>The Regional MS4 Permit illegally authorizes compliance schedules for CTR-based TMDLs beyond May 18, 2010.</i></p> <p>The Environmental Groups assert the Tentative Order and the Regional MS4 Permit illegally authorize compliance schedules for TMDLs to achieve compliance with the CTR as required by the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP).</p>	Environmental Groups
	<p>RESPONSE: The San Diego Water Board disagrees that the Tentative Order or the Regional MS4 Permit are in conflict with the SIP. The Tentative Order and Regional MS4 Permit are consistent with the TMDLs and the SIP. The Regional MS4 Permit establishes requirements for the regulation of storm water discharges, and the compliance schedule requirements of the SIP do not apply to storm water discharges.</p> <p>Please refer to footnote 1 on page 3 of the SIP which states, “<i>This Policy does not apply to regulation of storm water discharges. The SWRCB has adopted precedential decisions addressing regulation of municipal storm water discharges in Orders WQ 91-03, 91-04, 96-13, 98-01, 99-05, and 2001-15.</i>”</p>	

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A-1 PROVISION A: PROHIBITIONS AND LIMITATIONS		
	<p>COMMENT: <i>Requests to include language in the prohibitions and limitations of Provision A that is linked to the alternative compliance pathway under Provision B.3.c.</i></p> <p>The Orange County and San Diego County Copermittees, as well as several individual Copermittees, requested the addition of language to Provision A that explicitly states the implementation of the alternative compliance pathway under Provision B.3.c constitutes compliance with the discharge prohibitions and receiving water limitations in Provision A.</p>	<p>Orange County Copermittees City of Lake Forest City of San Clemente City of San Juan Capistrano San Diego County Copermittees City of Santee County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board disagrees that it is appropriate or necessary to include additional language to Provision A. Provision A is consistent with the precedential language that was issued under State Water Board Order WQ 99-05. State Water Board Order WQ 2015-0075, which supports the inclusion of the alternative compliance pathway under Provision B.3.c, also states that Phase I MS4 permits should continue to use the receiving water limitations provisions as directed by Order WQ 99-05.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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A1-1	PROVISION A.1: Discharge Prohibitions	
	<p>COMMENT: <i>Request to correct State Water Board Resolution No. 2012-0012 reference in Provision A.1.d to Resolution No. 2012-0031.</i></p> <p>The City of San Diego requested that the reference to State Water Board Resolution No. 2012-0012 in Provision A.1.d be changed to Resolution No. 2012-0031.</p>	City of San Diego
	<p>RESPONSE: The San Diego Water Board agrees that the correction is appropriate.</p> <p>The reference to “State Water Board Resolution No. 2012-0012” under Provision A.1.d has been revised to “State Water Board Resolution No. 2012-0012, <u>as amended by State Water Board Resolution No. 2012-0031.</u>”</p>	

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A2-1 PROVISION A.2: Receiving Water Limitations		
	<p>COMMENT: <i>Request for removal of receiving water limitations language from Regional MS4 Permit.</i></p> <p>The County of San Diego requested that the San Diego Water Board use its discretion to remove the requirements to comply with receiving water limitations in Provision A.2 of the Regional MS4 Permit.</p>	County of San Diego
	<p>RESPONSE: The San Diego Water Board disagrees that it is appropriate to remove the requirements to comply with receiving water limitations in Provision A.2 of the Regional MS4 Permit. The receiving water limitations are consistent with precedential State Water Board Orders WQ 99-05 and WQ 2015-0075.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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B-1 PROVISION B: WATER QUALITY IMPROVEMENT PLANS		
	<p>COMMENT: <i>Request to revise the language in Provision B.1 to specify the Water Quality Improvement Plans are to address discharges from the MS4.</i></p> <p>The City of San Diego requested Provision B.1 be revised to state that the Copermittees must develop a Water Quality Improvement Plan <u>for their MS4 discharges</u> within each of the Watershed Management Areas in Table B-1.</p>	City of San Diego
	<p>RESPONSE: The San Diego Water Board disagrees that the Water Quality Improvement Plans should be specific to just addressing discharges from the MS4.</p> <p>The Regional MS4 Permit is for the regulation of the Copermittees' MS4 discharges, but the Water Quality Improvement Plan is a planning document that requires the Copermittees to evaluate and identify all water quality conditions of concern within a Watershed Management Area. The Copermittees then determine what conditions of concern are the priorities that should be addressed by their individual jurisdictional strategies and/or through watershed-wide strategies. The Water Quality Improvement Plan development process provides the Copermittees flexibility in determining how to address priority issues through establishment of goals that directly improve receiving water quality impacted by MS4 discharges, instead of only limiting goals to MS4 discharges.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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B2-1 PROVISION B.2: Priority Water Quality Conditions	
<p>COMMENT: <i>Request for revisions to the requirements for identifying priority water quality conditions under Provision B.2.</i></p> <p>The South Laguna Civic Association provided proposed revisions to the requirements for identifying priority water quality conditions under Provision B.2. The proposed revisions appeared to include mapping of areas, incorporating areas of concern specific to south Orange County, and identifying issues that may be a concern specific to south Orange County.</p>	<p>South Laguna Civic Association</p>
<p>RESPONSE: The San Diego Water Board reviewed the requested revisions to the requirements for identifying priority water quality conditions under Provision B.2. The San Diego Water Board did not identify any proposed revisions that were appropriate or necessary. The information requested to be included as part of the proposed revisions is information that should be brought to the attention of the south Orange County Copermittees during the development of the Water Quality Improvement Plan.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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B3c-1 PROVISION B.3.c: Prohibitions and Limitations Compliance Option		
	<p>COMMENT: <i>Support for the inclusion of the receiving water limitations alternative compliance pathway in the Regional MS4 Permit.</i></p> <p>The Riverside County, Orange County, and San Diego County Copermittees, as well as several individual Copermittees submitted comments that support the inclusion of the receiving water limitations alternative compliance pathway proposed to be incorporated into the Regional MS4 Permit as Provision B.3.c.</p>	<p>Riverside County Copermittees Orange County Copermittees City of Lake Forest City of San Clemente City of San Juan Capistrano City of San Diego City of Santee County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board appreciates the support to include the receiving water limitations alternative compliance pathway into the Regional MS4 Permit.</p>	

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B3c-2 PROVISION B.3.c: Prohibitions and Limitations Compliance Option		
	<p>COMMENT: <i>Requests for revisions to the requirement for developing and incorporating annual milestones into the schedules for the alternative compliance pathway.</i></p> <p>The Riverside County, Orange County, and San Diego County Copermittees, as well as several individual Copermittees requested revisions to the requirement to develop and incorporate annual milestones into the schedules for the alternative compliance pathway under Provision B.3.c. The Copermittees assert that annual milestones are burdensome, unworkable, and not meaningful. The Copermittees requested that milestones be limited to one or two milestones per permit term.</p>	Riverside County Copermittees Orange County Copermittees City of Lake Forest City of San Clemente City of San Juan Capistrano San Diego County Copermittees City of San Diego City of Santee
	<p>RESPONSE: The San Diego Water Board considered the proposed revisions and rationale provided and determined that revisions to the requirement for developing and incorporating annual milestones are appropriate. However, the San Diego Water Board does not agree that milestones should be limited to just one or two per permit term.</p> <p>The development and incorporation of annual milestones into the alternative compliance pathway is necessary for a Copermittee to be able to demonstrate to the San Diego Water Board and the public that there is a commitment to implementing a credible, rigorous, ambitious, and transparent plan to improve the quality of its MS4 discharges and/or receiving waters within its jurisdiction. The San Diego Water Board agrees, however, that annual milestones may become less meaningful after 5 or 10 years. Therefore, Provision B.3.c.(1)(a)(vii) and footnote 9 have been revised as follows:</p> <p><u>Provision B.3.c.(1)(a)(vii)</u> For each final numeric goal developed pursuant to Provisions B.3.a and B.3.c.(1)(a)(i)-(v), at least one annual milestones⁹ and <u>the dates for its</u> their achievement must be included within each <u>of the next five (5) Water Quality Improvement Plan Annual Report reporting periods, or until the final numeric goal is achieved. Annual milestones and the dates for their achievement for the 5 Water Quality Improvement Plan Annual Report reporting periods of the next permit term, or until the final numeric goal is achieved, must be provided as part of the Report of Waste Discharge required pursuant to Provision F.5.</u></p> <p><u>Footnote 9</u> Annual milestones for each final numeric goal must build upon previous milestones and lead to be clearly and directly linked to, or demonstrate progress is being made toward, the achievement of the final numeric</p>	

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B3c-2	PROVISION B.3.c: Prohibitions and Limitations Compliance Option	
	<p>goal. The annual milestones may consist of water quality improvement strategy implementation phases, interim numeric goals, and other acceptable metrics. <u>The annual milestones may address multiple numeric goals and/or multiple water bodies, as applicable and appropriate.</u></p>	

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B3c-3 PROVISION B.3.c: Prohibitions and Limitations Compliance Option		
	<p>COMMENT: <i>Requests for revisions to provide additional clarifying language for when a Copermittee is deemed in compliance with receiving water limitations.</i></p> <p>The Riverside County Copermittees requested revisions to the alternative compliance pathway requirements under Provision B.3.c.(2) and the iterative process requirements under Provision A.4 to clarify when a Copermittee is deemed in compliance with receiving water limitations, especially relative to other Copermittees if updates are needed. The Environmental Groups requested revisions to Provision B.3.c.(2) to strictly require achievement of annual milestones and remove the potential for updates as a clearer way of determining when a Copermittee is no longer deemed in compliance.</p>	<p>Riverside County Copermittees Environmental Groups</p>
	<p>RESPONSE: The San Diego Water Board disagrees that revisions to Provision B.3.c.(2) are necessary to clarify when a Copermittee is deemed in compliance. The requirements under Provision B.3.c.(2) are clear criteria that the San Diego Water Board will use to determine if a Copermittee can be deemed in compliance with Provisions A.1.a, A.1.c, A.1.d, A.2, and A.3.b.</p> <p>The commenters did, however, identify a scenario during the period of time a Copermittee has submitted “acceptable rationale and recommends appropriate modifications” and the San Diego Water Board accepts the rationale and recommended modifications where it may not be clear if a Copermittee is or is not in compliance. The intent was to continue deeming the Copermittee in compliance with Provisions A.1.a, A.1.c, A.1.d, A.2, and A.3.b during this period of time. To clarify this intent, the following has been added to the last paragraph of the discussion of Provision B.3.c on page F-62 in the Fact Sheet:</p> <p style="margin-left: 40px;"><u>The Copermittee continues to be deemed in compliance with the requirements of Provisions A.1.a, A.1.c, A.1.d, A.2, and A.3.b during the time the San Diego Water Board reviews the rationale and recommended modifications to the interim numeric goals, and/or water quality improvement strategies, and/or schedules. If and when the San Diego Water Board determines that it does not accept the rationale or recommendations, the Copermittee will be notified they are no longer deemed in compliance with Provisions A.1.a, A.1.c, A.1.d, A.2, and A.3.b.</u></p>	

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B3c-4 PROVISION B.3.c: Prohibitions and Limitations Compliance Option		
	<p>COMMENT: <i>Requests to include compliance with receiving water limitations during the Water Quality Improvement Plan planning and development process.</i></p> <p>The Riverside County and Orange County Copermittees, several Orange County cities, as well as the County of San Diego requested that the requirements under Provision B.3.c be revised to include compliance with the prohibitions and limitations of Provision A during the development of the Water Quality Improvement Plans. Several of the comments also assert that including compliance during development of the Water Quality Improvement Plan is consistent with State Water Board Order WQ 2015-0075.</p>	<p>Riverside County Copermittees Orange County Copermittees City of Dana Point City of Laguna Beach City of Lake Forest City of San Clemente City of San Juan Capistrano County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board disagrees that it is appropriate to deem a Copermittee in compliance with any of the prohibitions and limitations under Provision A before a Water Quality Improvement Plan has been submitted and accepted by the San Diego Water Board. The San Diego Water Board also disagrees that State Water Board Order WQ 2015-0075 communicates that the State Water Board expects or requires in any way that Regional Water Boards allow for compliance with receiving water limitations during development of watershed management plans.</p> <p>The San Diego Water Board is concerned that allowing for compliance during the development of the Water Quality Improvement Plan would remove the motivation or incentive for Copermittees to develop a credible, rigorous, ambitious, and transparent plan. Before the San Diego Water Board can make a determination that a Copermittee has a credible, rigorous, ambitious, and transparent plan that can demonstrate discharges from a Copermittee’s MS4 will not cause or contribute to exceedances of water quality standards in receiving waters, or that receiving waters will be protected from MS4 discharges, the San Diego Water Board must first have an opportunity to review the proposed plan.</p> <p>In response to the assertion that State Water Board Order WQ 2015-0075 encourages or mandates alternative compliance pathways to include compliance during development of the Water Quality Improvement Plan, the commenters failed to provide a clear citation of this direction. There is nothing within the State Water Board Order that explicitly requires the inclusion of an alternative compliance pathway in Phase I MS4 Permit, let alone compliance during development of the plan for alternative compliance. State Water Board Order WQ 2015-0075 only requires the San Diego Water Board to <u>consider</u> inclusion of an alternative compliance pathway, and include findings in the permit if the San Diego Water Board chooses not to include the alternative compliance pathway. In this case, the San Diego Water Board has chosen to incorporate an alternative compliance</p>	

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B3c-4 PROVISION B.3.c: Prohibitions and Limitations Compliance Option
<p>pathway, but without compliance during the development of the Water Quality Improvement Plan.</p> <p>Furthermore, the San Diego Water Board notes that USEPA has provided written comments to the Los Angeles Water Board (click here and here for links to letters), the Santa Ana Water Board (click here for link to letter), and the State Water Board click here for link to letter) that support the San Diego Water Board's approach to alternative compliance with receiving water limitations, specifically supporting the San Diego Water Board's decision not to include compliance during the development period for the Water Quality Improvement Plan. Based on this expressed support from USEPA, and the other reasons cited above, the San Diego Water Board is not allowing for a Copermittee to be deemed in compliance with the prohibitions and limitations under Provision A during the development of the Water Quality Improvement Plans.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>

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B3c-5 PROVISION B.3.c: Prohibitions and Limitations Compliance Option		
	<p>COMMENT: <i>Request to include receiving water limitations for ASBS under Provision A.2.b as part of alternative compliance pathway.</i></p> <p>The City of San Diego requested that the alternative compliance pathway be revised to also include compliance with the ASBS receiving water limitations required under Provision A.2.b.</p>	City of San Diego
	<p>RESPONSE: The San Diego Water Board considered the request to include the receiving water limitations for ASBS under Provision A.2.b as part of the alternative compliance pathway under Provision B.3.c and agree it is appropriate.</p> <p>References to “Provisions A.1.a, A.1.c, A.1.d, A.2.a, and A.3.b” under Provision B.3.c have been revised to “Provisions A.1.a, A.1.c, A.1.d, A.2.a, and A.3.b.”</p>	

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B3c-6 PROVISION B.3.c: Prohibitions and Limitations Compliance Option		
	<p>COMMENT: <i>Requests for revisions to alternative compliance pathway numeric goal requirements proposed under Provision B.3.c.(1)(a)(iii).</i></p> <p>The City of San Diego requested a revision to combine Provisions B.3.c.(1)(a)(iii) and B.3.c.(1)(a)(iv) to reduce confusion regarding whether the categories of numeric goals are mandatory or optional. The County of San Diego requested additional language to be added to Provision B.3.c.(1)(a)(iii) to limit the numeric goals for MS4 discharges only to pollutants or conditions where MS4 discharges are causing or contributing to the impairment.</p>	<p>City of San Diego County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the revisions requested are appropriate or necessary.</p> <p>The City of San Diego’s requested revision does not provide more clarity, and actually reduces the available options for numeric goals. Provisions B.3.c.(1)(a)(iii) and B.3.c.(1)(a)(iv) allow a Copermittee to choose interim and final numeric goals applicable to the Copermittee’s MS4 outfalls, OR interim and final numeric goals applicable to the receiving waters, OR a combination of both. The City’s proposed revisions would only allow a Copermittee to choose interim and final numeric goals applicable to the Copermittee’s MS4 outfalls, OR interim and final numeric goals applicable to the receiving waters, but NOT a combination of both.</p> <p>The San Diego Water Board disagrees that the County’s proposed revision is necessary because if a Copermittee’s MS4 discharges do not contain pollutants that are causing or contributing to an impairment listed on the Clean Water Act Section 303(d) List of Water Quality Impaired Segments, the Copermittee should not have difficulty developing and including final numeric goals that can demonstrate their discharges are not causing or contributing to the impairment. The Copermittee will also have to collect data to demonstrate that the final numeric goals have been achieved and continue to be achieved. The data collected, assessed, and reported will demonstrate that the Copermittee is not causing or contributing to the impairment listed on the Clean Water Action Section 303(d) List.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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B3c-7 PROVISION B.3.c: Prohibitions and Limitations Compliance Option		
	<p>COMMENT: <i>The alternative compliance pathway would result in safe harbor protection and should be removed from the Regional MS4 Permit.</i></p> <p>The Environmental Groups assert that providing the alternative compliance pathway provides the Copermittees with safe harbor protection, and requested the alternative compliance pathway be removed from the Regional MS4 Permit.</p>	Environmental Groups
	<p>RESPONSE: The San Diego Water Board does not agree that the alternative compliance pathway provides the Copermittees with safe harbor protection that “simply mimics the failed iterative approach.” Compliance with the alternative compliance pathway means, for compliance determination purposes, that the San Diego Water Board would deem a Copermittee that has fulfilled the requirements of the alternative compliance pathway as in compliance with the receiving water limitations. As long as the Copermittee is in compliance with the requirements under Provision B.3.c, the San Diego Water Board can consider the Copermittee in compliance with the prohibitions and limitations. Complying with the requirements of Provision B.3.c, however, will require a significant commitment, level of effort, and resources from any Copermittee that chooses to implement it. Any Copermittee that can comply with the requirements of Provision B.3.c will also be demonstrating a well defined and transparent commitment to improve water quality.</p> <p>Please also see responses to comments Gnl-10 and B3c-8.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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B3c-8 PROVISION B.3.c: Prohibitions and Limitations Compliance Option		
	<p>COMMENT: <i>The alternative compliance pathway is inconsistent with the State Water Board's Order.</i></p> <p>The Environmental Groups assert that the alternative compliance pathway in the Tentative Order is inconsistent with State Water Board Order WQ 2015-0075. The Environmental Groups assert that the alternative compliance pathway proposed in the Tentative Order is inconsistent because a) it does not contain specific guidance or protocols for a “well defined” and “transparent” analysis, b) it does not require a “finite” period of time to achieve receiving water limitations, and c) it does not include requirements for multi-benefit or storm water resource projects.</p>	<p>Environmental Groups</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the alternative compliance pathway proposed in the Tentative Order is inconsistent with the State Water Board Order. The alternative compliance pathway in the Tentative Order is consistent with the State Water Board Order for the following reasons:</p> <p>a) In response to the assertion that the alternative compliance pathway in the Tentative Order does not include specific guidance or protocols for a “well defined” and “transparent analysis, the approach of the alternative compliance pathway in the Tentative Order is actually more “well defined” and “transparent” than the example provided by the commenter. The commenter provides permit language from the Los Angeles MS4 Permit as an example of specific guidance and protocols for a reasonable assurance analysis. While there is more description as to what components the reasonable assurance analysis must include, fundamentally the analysis is based on a computer model consisting of equations with assumptions which utilize data that are entered into and processed by a computer. Many of the variables in the equations will be based on assumptions, and members of the public may not know or understand how those variables may impact the results. The Los Angeles MS4 Permit does not include provisions that allows for or requires public participation or review of the model, its assumptions, and inputs.</p> <p>In contrast, the alternative compliance pathway in the Tentative Order does require an analysis with “clearly stated assumptions” which must go through a public participation process that allows the public to review and provide comments on the analysis methodology and the assumptions included in the analysis. The main difference in the approaches is that the Copermittee has more flexibility with how to do the analysis, and as long as there is understanding and support from the public and the San Diego Water Board. The Copermittee is not just limited to one or two “acceptable” models, but also is not precluded from the use of those models. The Tentative Order alternative compliance pathway is a truly transparent process for the public and provides for the public to participate in how the analysis is defined. Based on these</p>	

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	<p>considerations, the analysis requirement is “well defined” and “transparent” consistent with the State Water Board Order.</p> <p>b) In response to the assertion that the alternative compliance pathway in the Tentative Order does not require a “finite” period of time to achieve compliance with receiving water limitations, the alternative compliance pathway requires a Copermittee to provide a schedule for when receiving water limitations are expected to be achieved. Any schedule with an expected end date is “finite.” However, “finite” should not mean there is not room for making adjustments to the schedule if conditions warrant it.</p> <p>Absent the alternative compliance pathway, no assessments would necessarily be conducted to determine if or when receiving water limitations have been fully achieved. The San Diego Water Board prefers a permit that will provide support, incentive, and motivation for the Copermittees to achieve compliance with receiving water limitations within a foreseeable future rather than a permit that only has the threat of enforcement in the present and the foreseeable future. However, while the alternative compliance pathway removes the immediate threat of enforcement for violations of receiving water limitations, it also includes additional requirements that can be used to hold the Copermittee more accountable for implementing strategies to achieve compliance with receiving water limitations. In the end, the San Diego Water Board believes that the alternative compliance pathway provides a path to compliance with receiving water limitations that is “finite” compared to the “iterative process” that was previously required, consistent with the State Water Board Order.</p> <p>c) In response to the assertion that the alternative compliance pathway in the Tentative Order does not include requirements for multi-benefit or storm water resource projects, the San Diego Water Board acknowledges there is no text in Provision B.3.c that includes the term “multi-benefit.” However, the Tentative Order does include several provisions that encourage multi-benefit and regional storm water resource projects without using the term “multi-benefit.”</p> <p>The commenter should first review Provisions B.3.b.(1)(b) and B.3.b.(2). While these provisions are not specifically mentioned under Provision B.3.c, they are required to be included in the Water Quality Improvement Plan, which is where the alternative compliance pathway requirements of Provision B.3.c must be included. Provision B.3.b.(1)(b) requires each Copermittee to identify strategies to retrofit areas of existing development and rehabilitate conditions of channels or habitats within its jurisdiction, which are considered multi-benefit strategies. Provision B.3.b.(2) also requires the Copermittees in the Watershed Management Area to identify strategies to retrofit areas of existing development and rehabilitate conditions of</p>

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	<p>channels or habitats that are regional or multi-jurisdictional.</p> <p>Tied to Provisions B.3.b.(1)(b) and B.3.b.(2) are also the jurisdictional runoff management program (JRMP) requirements under Provisions E.3.c.(3) and E.5.e. Provision E.5.e requires each Copermittee to identify areas of existing development within its jurisdiction for retrofit and rehabilitation projects, and to identify strategies to facilitate implementation of those projects. Provision E.3.c.(3) provides each Copermittee the option to allow development projects to implement candidate projects identified as part of the optional Watershed Management Area Analysis allowed pursuant to Provision B.3.b.(4), also included in the Water Quality Improvement Plan. The candidate projects include several types of multi-benefit and storm water resource type projects, including but not limited to stream or riparian area rehabilitation, retrofitting existing infrastructure to incorporate storm water retention or treatment, regional BMPs, groundwater recharge projects, water supply augmentation, and land purchases to preserve floodplain functions. Therefore, while the alternative compliance pathway requirements under Provision B.3.c do not include the term “multi-benefit” in the text, the Tentative Order includes several provisions that require or encourage the implementation of multi-benefit and storm water resource projects consistent with the State Water Board Order.</p>	

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B3c-9 PROVISION B.3.c: Prohibitions and Limitations Compliance Option		
	<p>COMMENT: <i>The Tentative Order violates anti-backsliding requirements and the rationale provided does not support an anti-backsliding exception.</i></p> <p>The Environmental Groups assert that the Tentative Order violates the anti-backsliding provisions of the Clean Water Act and its implementing regulations because the San Diego Water Board's findings related to the alternative compliance pathway fail to support the use of anti-backsliding exceptions.</p>	Environmental Groups
	<p>RESPONSE: The San Diego Water Board disagrees that the Tentative Order violates anti-backsliding provisions of the Clean Water Act and the federal regulations. The Clean Water Act generally prohibits the relaxation of effluent limitations in a reissued permit. However, as discussed in the Fact Sheet, it remains unresolved whether anti-backsliding provisions are applicable to the incorporation of an alternative compliance pathway into a regional MS4 permit. (please see page F-32 of the Fact Sheet; <i>please also see State Board Order WQ 2015-0075 at pp 18-21, stating "it is unnecessary, however, to resolve the ultimate applicability of the regulatory anti-backsliding provisions"</i>).</p> <p>Even if the anti-backsliding provisions do apply, the alternative pathway provisions fit squarely within an exception. There are numerous exceptions to the Clean Water Act's backsliding provisions based on new information. See, e.g., 33 U.S.C. § 1342(o)(2)(B)(i), 40 C.F.R. § 122.44(l)(i)(B)(1). Additionally, Under 40 C.F.R. section 122.44(l), anti-backsliding provision do not apply if the circumstances on which the previous permit was based have materially and substantially changed since the time the previous permit was issued and would constitute cause for permit modification or revocation or reissuance under 40 C.F.R. section 122.62. Section 122.62 in turn states that new information not available at the time the previous permit was issued is cause for modification. 40 C.F.R. § 122.62(a)(2).</p> <p>Furthermore, the San Diego Water Board disagrees with the assertion that the new information from the lessons learned and experiences of the Los Angeles Water Board are somehow "unique" to the Los Angeles Region. To the extent that the permitting history in Los Angeles may be considered "unique" in any way, it is still consistent with the San Diego Water Board's experience with storm water permitting over the last decade. The transition to a Regional MS4 Permit in the Fifth Term Permit was driven, in part, by a growing recognition that a watershed management approach required regional action. In the Regional MS4 permit, the San Diego Water Board seeks to provide a consistent set of permit requirements for all of the Copermittees and to promote the efficiencies gained from collective action in jurisdictional runoff management.</p>	

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The San Diego Water Board structured the Regional MS4 Permit to incorporate new information because there has been a statewide paradigm shift with respect to stormwater management. In June 2015, the State Water Board issued a precedential water quality order, Order WQ 2015-0075. This Order directed all of the Regional Water Boards to consider the Los Angeles Water Board's alternative compliance path to receiving water limits in all Phase I MS4 permits going forward (State Water Board Order WQ 2015-0075 at p 51). Moreover, the State Water Board made it clear that all regional water boards had been informed by the lessons learned in Los Angeles, stating "[f]urther, we [the State Water Board] find that all regional water boards are informed by the information gained in the Los Angeles Region, so that any regional water board that adopts an alternative compliance path in a subsequent Phase I permit would not be in violation of anti-backsliding requirements, regardless of the particular storm water permitting history of that region." *Id.* at p. 22 fn. 74. Thus, while the State Water Board Order relies heavily on the information and evidence related to the Los Angeles County MS4 Permit and its version of an alternative compliance pathway, the information and evidence are also applicable to and are expected to be utilized in the San Diego Region if an alternative compliance pathway is incorporated into the San Diego Regional MS4 Permit.

For all of the reasons stated above, the alternative compliance path provisions do not violate federal anti-backsliding provisions. To clarify, however, the discussion on Anti-Backsliding Requirements on page F-32 in the Fact Sheet has been revised as follows:

CWA sections 402(o) and 303(d)(4) and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations or conditions may be relaxed. While this Order allows implementation of an alternative compliance pathway option in Provision B.3.c to constitute compliance with receiving water limitations under certain circumstances, the availability of that alternative and the corresponding availability of additional time to come into compliance with receiving water limitations does not violate the antbacksliding provisions. The receiving water limitations provisions of this Order are imposed under section 402(p)(3)(B) of the Clean Water Act rather than based on best professional judgment, or based on section 301(b)(1)(C) or sections 303(d) or (e), and are accordingly not subject to the anti-backsliding requirements of section 402(o). Although the non-applicability is less clear with respect to the regulatory anti-backsliding provisions in 40 CFR 122.44(l), the regulatory history suggests that USEPA's intent was to establish the anti-backsliding regulations with respect to evolving technology standards for traditional point sources. (See, e.g., 44 Fed.Reg. 32854, 32864 (Jun. 7, 1979)). It

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is unnecessary, however, to resolve the ultimate applicability of the regulatory anti-backsliding provisions, because the alternative compliance pathway option in Provision B.3.c qualifies for an exception to backsliding as based on new information.

The alternative compliance pathway option in Provision B.3.c of this Order was informed by new information available to the Board from experience and knowledge gained through storm water permitting at the Regional Water Boards in the last ten years. There has been a statewide paradigm shift in storm water management. State Water Board Order WQ 2015-0075 directed all of the Regional Water Boards to consider the Los Angeles Water Board's alternative compliance path to receiving water limitations in all Phase I MS4 permits going forward (State Water Board Order WQ 2015-0075 at page 51) ~~It~~, and the Los Angeles Water Board's process of developing over 30 watershed-based TMDLs and implementing several TMDLs since the adoption of the previous permits. In particular, the Los Angeles Water Board recognized the significance of allowing time to plan, design, fund, operate and maintain watershed-based BMPs necessary to attain water quality improvements and additionally recognized the potential for municipal storm water to benefit water supply. Similarly, the San Diego Water Board's experience developing and implementing the Fourth Term MS4 Permits and TMDLs that apply on a regionwide scale (i.e. TMDLs for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region) has resulted in a similar recognition of the need for a watershed-based approach that allows time to plan, design, fund, operate and maintain BMPs to address impaired waters that have been impacted by MS4 discharges. Thus, even if the receiving water limitations are subject to anti-backsliding requirements, they were revised based on new information that would support an exception to the anti-backsliding provisions. (33 U.S.C. § 1342(o)(2)(B)(i); 40 C.F.R. § 122.44(l)(1); 40 C.F.R. §122.44(l)(2)(i)(B)(1)).

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B3c-10	PROVISION B.3.c: Prohibitions and Limitations Compliance Option	
	<p>COMMENT: <i>The Tentative Order violates anti-degradation requirements and the anti-degradation findings are unsupported by evidence.</i></p> <p>The Environmental Groups assert that the Tentative Order violates anti-degradation requirements and there is no evidence to support the anti-degradation findings. The Environmental Groups generally assert that anti-degradation findings from State Water Board Order WQ 2015-0075 are not applicable to the Tentative Order and the findings in the Tentative Order are unsupported by evidence.</p>	Environmental Groups
	<p>RESPONSE: Consistent with the direction of the State Water Board Order WQ 2015-0075 adopted in June 2015, the San Diego Water Board considered the inclusion of an alternative compliance pathway into the Regional MS4 Permit. With the inclusion of this new permit component, the federal and state antidegradation policies were considered in light of the evidence in the record and information about the nature of municipal storm water discharges, evolving municipal storm water permits and the State Water Board’s precedential order. The Regional MS4 Permit and Fact Sheet were revised to be consistent with all of these considerations.</p> <p>The San Diego Water Board disagrees that the antidegradation findings in the Tentative Order are inadequate and unsupported by evidence in the record. The San Diego Water Board considered relevant information unique to the San Diego Region such as its own storm water permitting history and TMDL adoption and implementation through municipal storm water permits. The San Diego Water Board has adopted seven TMDL Basin Plan amendments that cover at least 30 waterbody-pollutant combinations, similar to the Los Angeles Region. The implementation of these 7 TMDLs through the Regional MS4 Permit is essential for achieving water quality standards in the region. Moreover, the State Water Board’s discussion of appropriate antidegradation considerations for the Los Angeles MS4 Permit is equally applicable in the context of the San Diego Water Board’s Tentative Order that incorporates an alternative compliance pathway. In its consideration of antidegradation, the State Water Board acknowledges that the Los Angeles MS4 permit “improves on past practices that have been inadequate to protect water quality, and includes a monitoring and assessment program that will identify any changes in water quality. [fn.] In general, under the Los Angeles MS4 Order, we expect to see a trajectory away from any past degradation, even if there may be some continued short-term degradation.” (Order WQ 2015-0075, p. 26.) Likewise, the Regional MS4 Permit now requires Copermitees to design watershed based monitoring and assessment programs that promote and track progress towards meeting the relevant water quality objectives. As such, were the State Water Board considering the Tentative Order, it likely would reach the same conclusion about the San Diego Regional MS4 Permit.</p>	

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The commenters incorrectly assert that the San Diego Water Board is required, but has failed, to follow procedures and requirements set forth in a USEPA document titled “*Interim Economic Guidance for Water Quality Standards Workbook*” (March 1995) (Workbook). USEPA’s Workbook provides guidance that states may choose, but are not required, to follow. Although the Workbook does provide some information that states may use to consider whether degradation of high-quality waters is warranted from an economic impacts perspective, the guidance was not crafted to be used in the context of permitting of MS4 discharges. (See USEPA Workbook, cover memo, pp. 1-2 and Workbook, p. 1-1.) Instead, the San Diego Water Board has considered available guidance provided by the State Water Board in the Administrative Procedures Update (APU) 90-004 in conjunction with, among other things, available evidence about the quality of the receiving waters for discharges of storm water in finding that the Tentative Order complies with federal and state anti-degradation policies¹. The antidegradation findings in the Tentative Order, like those adopted in the State Water Board Order for the final Los Angeles MS4 Permit, are supported by substantial evidence in the record for the Regional MS4 Permit.

In the stormwater context, a generalized antidegradation analysis is appropriate. As the State Water Board acknowledges, guidance provided in the APU 90-004 “may be construed to exempt [a regional water board] from conducting an extensive pollutant by pollutant analysis for each water body in the region” where, as here, there is insufficient data available to carry out a complete antidegradation analysis for each water body-pollutant combination.” (See Order WQ 2015-0075, p. 25.) The State Water Board notes the APU-90-004 “contemplates the appropriate antidegradation analysis for a discrete discharge or facility. It has limited value when considering anti-degradation in the context of storm water discharges from diffuse sources, conveyed through multiple outfalls, with multiple pollutants impacting multiple water bodies within a municipality, or in this case, a region, especially given that reliable data on the baseline water quality from 1968 is not available.” (Id., p. 27; see also id., p. 27, n. 90 [“We note that USEPA did not conduct a detailed antidegradation analysis in issuing NPDES Permit No. DC00000221 for MS4 discharges to the District of Columbia, presumably for similar reasons. The court in *Asociacion de Gente Unida* also relied on APU 90-004 in part in rejecting an antidegradation analysis conducted by the Central Valley Regional Water Quality Control Board for discharges of pollutants to groundwater from dairy facilities region-wide, but the court’s objection was to the regional water board’s reliance on an illusory prohibition of discharge to groundwater in finding that no antidegradation analysis

¹ See, e.g., 1996, 1998, 2002, 2006, 2010 Clean Water Action section 303(d) Lists for the San Diego Region, and monitoring reports from the San Diego County, Orange County, and Riverside County Copermittees since the First Term MS4 Permits issued in 1990.

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	<p>was required, not to the sufficiency of any generalized antidegradation analysis the Board might have conducted in lieu of its reliance on the prohibition. (210 Cal.App.4th at pp. 1271-1273.]” Despite the commenters’ assertions, the San Diego Water Board provides a clear statement of the basis for finding that the Tentative Order is consistent with the federal and state antidegradation policies.</p> <p>No revisions to the Tentative Order were made in response to these comments.</p>

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B5-1 PROVISION B.5: Iterative Approach and Adaptive Management Process		
	<p>COMMENT: <i>Request for clarification of timing and conditions for alternative compliance pathway analysis updates.</i></p> <p>The San Diego County Copermittees and the County of San Diego requested the addition of a provision under the Iterative Approach and Adaptive Management Process requirements of Provision B.5 to clarify the timing and conditions for when the analysis required for the alternative compliance pathway under Provision B.3.c.(1)(b) has to be updated.</p>	<p>San Diego County Copermittees County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board has considered the requested additional language and determined that adding clarifying language is appropriate.</p> <p>The following text has been added as Provision B.5.d:</p> <p><u>d. ADAPTATION OF PROHIBITIONS AND LIMITATIONS COMPLIANCE OPTION</u></p> <p><u>If a Copermittee has implemented the Prohibitions and Limitations Compliance Option allowed to be included in the Water Quality Improvement Plan pursuant to Provision B.3.c, the Copermittee must re-evaluate and adapt the numeric goals, water quality improvement strategies, schedules, and annual milestones required under Provision B.3.c.(1) when significant new information becomes available, or with the Report of Waste Discharge required pursuant to Provision F.5. Significant changes in the numeric goals, water quality improvement strategies, schedules, or annual milestones requires an update to the analysis required under Provision B.3.c.(2).</u></p>	

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D4a-1	PROVISION D.4.a: Receiving Waters Assessments	
	<p>COMMENT: <i>Recommended revisions to transitional assessment requirements under Provision D.4.a.(1)(a).</i></p> <p>The Riverside County Copermittees noted that Provision D.4.a.(1)(a) prescribes that assessments required to be made under Provision D.4.a.(2) must be included in each Copermittees' transitional monitoring and assessment reports; however, Provision D.4.a.(2)(e) requires determination of whether strategies identified in the Copermittees' Water Quality Improvement Plan are progressing towards achieving interim and final numeric goals described in the Water Quality Improvement Plan. The Riverside County Copermittees provided their understanding that transitional monitoring and assessment applies to the time period when the Copermittees' Water Quality Improvement Plan is being developed, and therefore assessments made during this time period cannot provide information on the progress of the Water Quality Improvement Plan. Based on their observations, the Riverside County Copermittees recommended revisions to Provision D.4.a.(1)(a).</p>	Riverside County Copermittees
	<p>RESPONSE: The San Diego Water Board disagrees that the revisions to Provision D.4.a.(1)(a) are necessary.</p> <p>It is true that the transitional monitoring and assessment applies to the time period when the Water Quality Improvement Plan is being developed. The commenters can fulfill the assessment requirement of Provision D.4.a.(2)(e) by either stating that they cannot make a determination until the Water Quality Improvement Plan is accepted and implemented, or assess the strategies that are currently being implemented at the time of the assessment and are expected to be included in the Water Quality Improvement Plan. The San Diego Water Board expects the assessments reported during the transitional period to serve as a baseline for improvements in water quality as the Water Quality Improvement Plans are implemented over time.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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E2-1 PROVISION E.2: Illicit Discharge Detection and Elimination		
	<p>COMMENT: <i>Requests for revisions to clarify implementation of the illicit discharge and detection program under Provision E.2 is compliance with the requirement to effectively prohibit non-storm water discharges to the MS4.</i></p> <p>The Orange County Copermittees, as well as the Cities of Dana Point and Laguna Beach, requested revisions to Provision E.2 to explicitly state that implementation of the illicit discharge detection and elimination requirements under Provision E.2 constitutes compliance with effective prohibition of non-storm water discharges to the MS4 required under Provision A.1.b.</p>	<p>Orange County Copermittees City of Dana Point City of Laguna Beach</p>
	<p>RESPONSE: The San Diego Water disagrees that revisions to Provision E.2 are necessary. Provision A.1.b explicitly states that Copermittees are required to effectively prohibit non-storm water discharges to the MS4 “through the implementation of Provision E.2.” The Copermittees are already expected to demonstrate compliance with Provision A.1.b through the implementation of Provision E.2. If a Copermittee has not adequately implemented Provision E.2, then the Copermittee is not only, not in compliance with the requirements of Provision E.2, but by default will also not be in compliance with Provision A.1.b.</p> <p>The San Diego Water Board, however, recognizes that additional clarification may be helpful in understanding that implementing the requirements of Provision E.2 is how the San Diego Water Board will assess a Copermittee’s compliance with the requirement to effectively prohibit non-storm water discharges to the MS4 under Provision A.1.b. Therefore, the San Diego Water Board has revised the opening paragraph of the discussion for Provision E.2 in the Fact Sheet (page F-81) to the following:</p> <p style="padding-left: 40px;">Provision E.2.(Illicit Discharge Detection and Elimination) requires each Copermittee to implement an illicit discharge detection and elimination program to effectively prohibit non-storm water discharges to the MS4 by actively detecting and eliminating illicit discharges and disposal into its MS4. <u>If the San Diego Water Board finds that a Copermittee is fully implementing the requirements of Provision E.2, then the Copermittee is deemed in compliance with the effective prohibition of non-storm water discharges to the MS4 required under Provision A.1.b.</u></p>	

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E2-2 PROVISION E.2: Illicit Discharge Detection and Elimination		
	<p>COMMENT: <i>Request for clarification of discharges of potable water sources under Provision E.2.a.(3)(f).</i></p> <p>The Cities of Dana Point and Laguna Beach requested a clarification of the definition of “discharges from potable water sources” under Provision E.2.a.(3)(f). It is not clear to the Cities whether “potable discharges” are intended to include runoff derived from turf or ornamental plant irrigation.</p>	<p>City of Dana Point City of Laguna Beach</p>
	<p>RESPONSE: Discharges from potable water sources are sources of water that have been treated to drinking water standards and discharged to the MS4. Discharges of potable water that are applied to turf or ornamental plant irrigation before running off to the MS4 are not qualified as discharges of potable water under Provision E.2.a.(3)(f).</p>	

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E3b1-1 PROVISION E.3.b.(1): Definition of Priority Development Project		
	<p>COMMENT: <i>Request for revisions to the definition of Priority Development Projects under Provision E.3.b.(1).</i></p> <p>The City of San Diego requested revisions to combine Provisions E.3.b.(1)(c) and E.3.b.(1)(e) under the provisions defining Priority Development Projects.</p>	<p>City of San Diego</p>
	<p>RESPONSE: The San Diego Water Board disagrees that combining sub-sections (c) and (e) of Provision E.3.b.(1) is appropriate. Sub-section (c) has a minimum square footage trigger for both new development projects and redevelopment projects. In contrast, subsection (e) has a minimum square footage trigger for redevelopment projects only; new development projects consisting of automotive repair shops and retail gasoline outlets are considered Priority Development Projects regardless of size.</p>	

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E3b3-1 PROVISION E.3.b.(3): Priority Development Project Exemptions		
	<p><u>COMMENT:</u> <i>Request for Priority Development Project exemption for “self-remediating” projects.</i></p> <p>The Orange County Copermittees requested that the list of Priority Development Project Exemptions under Provision E.3.b.(3) be revised to include projects that are effectively self-remediating (i.e. all rainfall is retained) including, but not limited to, reservoirs and swimming pools.</p>	<p>Orange County Copermittees</p>
	<p><u>RESPONSE:</u> The San Diego Water Board disagrees that the requested change is necessary. If all rainfall is retained on a project, then the project has met the design standard, and an exemption is not needed.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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E3c1-1 PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements		
	<p>COMMENT: <i>Request for revisions to clarify the biofiltration storm water pollutant control BMP performance criteria.</i></p> <p>The County of San Diego requested a revision to Provision E.3.c.(1)(a)(i)[b] to clarify the intent and applicability of the biofiltration BMP design criteria.</p>	County of San Diego
	<p>RESPONSE: The San Diego Water Board disagrees that the proposed change is necessary. The wording describing the design requirements adequately describe the intent and applicability of the biofiltration BMP design criteria. Any proposed change incorporated during the adoption proceedings of the Tentative Order could be interpreted as a change in the requirement, when in fact there is no change.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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E3c1-2 PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements		
	<p>COMMENT: <i>The San Diego Water Board is requiring increasingly stringent on-site storm water retention without evidence that the 2010 Southwest Riverside MS4 Permit requirements are not working.</i></p> <p>CICWQ asserts that the Tentative Order has more stringent on-site storm water retention requirements than the 2010 Southwest Riverside County MS4 Permit (Order No. R9-2010-0016) requirements without any evidence that the requirements of Order No. R9-2010-0016 are not working to protect water quality and maintain beneficial uses.</p>	<p>Construction Industry Coalition on Water Quality (CICWQ)</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the assertion that the Tentative Order has more stringent on-site storm water retention requirements over and above the requirements of Order No. R9-2010-0016.</p> <p>The purpose of the on-site retention requirement in both the Tentative Order and Order No. R9-2010-0016 is to retain on-site the pollutants contained in the volume of storm water runoff produced from a 24-hour 85th percentile storm event. This requirement has not changed from Order No. R9-2010-0016, and therefore the commenter is incorrect in stating that the San Diego Water Board is requiring additional prescriptive performance measures for retaining storm water runoff. This is the maximum extent practicable (MEP) standard recognized by the San Diego Water Board and is consistent with the Fourth Term MS4 Permits for Orange County and Riverside County (Order Nos. R9-2009-0002 and R9-2010-0016, respectively), as well as Santa Ana Water Board Order Nos. R8-2009-0030 and R8-2010-0033 (Orange County and Riverside County MS4 Permits, respectively), Los Angeles Water Board Order Nos. R4-2010-0108 and R4-2012-0175 (Ventura County and Los Angeles County MS4 Permits, respectively).</p> <p>Additionally, the storm water pollutant control and hydromodification management BMP requirements in the Tentative Order are more flexible than in Order No. R9-2010-0016 by providing an optional Alternative Compliance Program under Provision E.3.c.(3) of the Regional MS4 Permit. The Alternative Compliance Program, if developed by a Copermittee, would allow Priority Development Projects to fully comply with storm water pollutant control and hydromodification management BMP requirements either on-site, offsite, or a combination of both, if doing so would provide greater water quality benefit to the watershed.</p>	

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E3c2-1 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: Request for revisions to requirements to manage critical coarse sediment yield areas.</p> <p>CICWQ asserts that the Tentative Order requirements for Priority Development Projects to “avoid critical sediment yield areas” are unnecessarily restrictive. The County of San Diego requested that the requirement to manage critical course sediment yield areas be moved from the hydromodification management BMP performance standard requirements under Provision E.3.c.(2)(b) to Provision E.3.d as part of the BMP Design Manual update to be addressed regionally.</p>	<p>County of San Diego Construction Industry Coalition on Water Quality (CICWQ)</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the requirements to avoid critical sediment yield areas are unnecessarily restrictive or that they should be moved from under Provision E.3.c.(2)(b) to Provision E.3.d. The requirements are necessary to protect receiving waters from erosive flows caused by land development.</p> <p>As explained in the Fact Sheet to the Tentative Order, hydromodification, which is caused by both altered storm water flow and altered sediment flow regimes, is largely responsible for degradation of creeks, streams, and associated habitats in the San Diego Region. In an ongoing study by the Stormwater Monitoring Coalition to assess the health of streams throughout Southern California, researchers found that three of the four highest risk stressors to creeks (percent sands and fines present, channel alteration, and riparian disturbance) were related to physical habitat (<i>Assessing the Health of Southern California Streams, Stormwater Monitoring Coalition, Fact Sheet</i>). Researchers studying flood frequencies in Riverside County have found that increases in watershed imperviousness of only 9-22 percent can result in increases in peak flow rates for the two-year storm event of up to 100 percent (Schueler and Holland, 2000. <i>Storm Water Strategies for Arid and Semi-Arid Watersheds</i>, (Article 66). <i>The Practice of Watershed Protection</i>). Such changes in runoff have significant impacts on channel morphology, and given the current state of science the San Diego Water Board has included these requirements to reduce these potential impacts to receiving waters that may be caused by development projects.</p> <p>Placement of impervious surfaces as a result of urbanization is largely responsible for erosional impacts to streams because placement of impervious surfaces encapsulates “good” sediment (such as sand, gravel, rocks and cobbles) that would normally replenish creek beds and banks to help stabilize them. For this reason, the Tentative Order requires Priority Development Projects to avoid critical sediment yield areas, as defined by the</p>	

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E3c2-1 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	<p>Copermittees, or implement measures to allow coarse sediment to be discharged to receiving waters, such that there is no net impact to the receiving water. Such measures are designed to protect receiving waters and avoid impacts experienced as a result of past land development practices.</p> <p>The San Diego Water Board recognizes that implementation of new requirements is challenging, and is supportive of the Copermittees' efforts to develop guidance for land developers in meeting this requirement. Until this guidance is widely available, Copermittees and land developers should recognize that strict avoidance of critical sediment yield areas is not mandated and that compliance may be achieved by other methods, provided that the stream experiences "no net impact."</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>

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E3c2-2 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>Request for interim timeframe exemptions for hydromodification management BMP requirements to be granted outright without any additional study or consideration.</i></p> <p>CICWQ asserts that the Tentative Order is eliminating exemptions for hydromodification control, even when stormwater runoff is conveyed in the MS4 system to significantly hardened or engineered channels. CICWQ requested that the San Diego Water Board revise the Tentative Order to make the interim timeframe exemptions under Provision E.3.c.(2)(e) part of the exemptions under Provision E.3.c.(2)(d) without any additional study or consideration.</p>	<p>Construction Industry Coalition on Water Quality (CICWQ)</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the interim timeframe exemptions for hydromodification management BMP requirements should be granted outright without any additional study or consideration.</p> <p>The commenter correctly deduced that the driver behind the requirement to use the pre-development performance standard is the sustainability of geomorphically stable channels and the ability to return urbanized streams to a more natural state. The requirement to use pre-development runoff conditions as the performance standard is needed because using a hydrology baseline that approximates that of an undeveloped, natural watershed is the only way to facilitate the return of more natural hydrological conditions to already built-out watersheds, which in turn supports conditions for rehabilitating degraded or channelized stream segments.</p> <p>Contrary to what the commenter asserts, the Tentative Order does not require Copermittees to remove concrete from channels that are engineered to relieve flooding and protect life and property. The Tentative Order provides exemptions for Priority Development Projects that discharge to receiving waters where there is little threat of erosion, and subsequently implementing BMPs on-site would do little to protect the beneficial uses of such receiving waters. The commenter correctly states that the exemption for engineered channels is temporary. However, the commenter should note that there is a high likelihood that exemptions for engineered channels can become accepted as applicable for a Watershed Management Area. The Tentative Order allows for the Copermittees to recommend exemptions based on completion of an optional Watershed Management Area Analysis pursuant to Provision B.3.b.(4). As part of this effort, the Copermittees would identify, for example, areas of existing development in the watershed suitable for retrofitting, and areas suitable for stream rehabilitation. The Copermittees would also identify areas suitable for exemptions for hydromodification management, such as engineered channels that are needed for the protection of life and property. The interim</p>	

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E3c2-2	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements
	<p>timeframe exemption for engineered channels is not granted outright as permanent exemptions because the areas have not yet been analyzed in the context of stream rehabilitation opportunities.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>

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E3c2-3	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	<p>COMMENT: <u>The requirement in the Regional MS4 Permit for Priority Development Projects to avoid coarse sediment yield areas results in a potential “taking” of private property.</u></p> <p>Safari Highlands Ranch asserts that the requirement under Provision E.3.c.(2)(b) of the Regional MS4 Permit for Priority Development Projects to avoid critical coarse sediment yield areas known to the Copermittees or identified by the optional Watershed Management Area Analysis will result in a “taking” of the total land value of private property that is located in areas identified as critical coarse sediment yield areas.</p>	<p><u>Safari Highlands Ranch</u></p>
	<p>RESPONSE: <u>The San Diego Water Board disagrees with the assertion that the requirements under Provision E.3.c.(2)(b) results in a “taking” of private property if the development project is located in area identified by the Copermittees as a critical coarse sediment area.</u></p> <p><u>Provision E.3.c.(2)(b) does not require the Copermittees to prohibit a development project from going forward if it cannot avoid critical coarse sediment yield areas. Provision E.2.c.(2)(b) states that Priority Development Projects are required to avoid critical sediment yield areas OR implement measures that allow critical coarse sediment to be discharged to receiving water, such that there is no net impact to the receiving waters.</u></p> <p><u>Provision E.3.c.(2)(b) provides the Copermittees the ability to allow Priority Development Projects to implement measures other than avoiding coarse sediment yield areas to achieve no net impact to the receiving waters. The Copermittees allows this is through the requirements in their BMP Design Manuals. The San Diego Water Board has reviewed the San Diego County Copermittees’ Final Model BMP Design Manual (click here for link), dated June 2015, and found that it allows for a development project proponent to “propose project-specific onsite measures to ensure that critical coarse sediment can be discharged to receiving waters, such that there is no net impact to the receiving water” (see section 6.2.4.2 of Model BMP Design Manual). The Final Model BMP Design Manual does not require avoidance of critical coarse sediment areas as the only option for Priority Development Projects and is in compliance with Provision E.3.c.(2)(b) of the Regional MS4 Permit.</u></p> <p><u>Please also see response to comment E3c2-1.</u></p> <p><u>No changes were made to the Tentative Order as a result of this comment.</u></p>	

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E3d-1 PROVISION E.3.d: BMP Design Manual Update		
	<p>COMMENT: <i>Request for additional time for San Diego County Copermittees to update and implement their BMP Design Manuals.</i></p> <p>The San Diego County Copermittees and the County of San Diego requested revisions to Provision E.3.d which would grant Copermittees up to 180 days to incorporate corrections to the definition of Priority Development Projects under Provision E.3.b.(1) and begin implementing their BMP Design Manuals.</p>	<p>San Diego County Copermittees County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board disagrees that more time is needed to update and implement the BMP Design Manuals. In a letter dated May 29, 2015, the San Diego Water Board forewarned the San Diego County Copermittees that changes to the Priority Development Project categories were necessary in order to clearly reflect the intended definitions. At that time, the San Diego Water Board provided the language that is now proposed in the Tentative Order.</p> <p>The Copermittees have had ample opportunity to initiate and complete their local adoption processes in order to meet the BMP Design Manual implementation date. For this reason, more time is not necessary and a delay in BMP Design Manual implementation is not warranted. However, the San Diego Water Board will use Provision F.2.b.(4) to grant the Copermittees an extra 90 days beyond the original BMP Design Manual implementation date of December 24, 2015 to complete the update and begin implementation of the BMP Design Manual. Please also see response to comment F2b-1.</p>	

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E3d-2 PROVISION E.3.d: BMP Design Manual Update		
	<p>COMMENT: <i>Request for revisions to clarify the effective date of the BMP Design Manual is the same as the implementation date.</i></p> <p>The San Diego County Copermittees, the City of San Diego, and the County of San Diego requested revisions to Provision E.3.d to include language that clarifies the effective date of the BMP Design Manual is the same as when the BMP Design Manual begins implementation.</p>	<p>San Diego County Copermittees City of San Diego County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board agrees that the proposed modification would clarify the San Diego Water Board's intention. Provision E.3.d has been modified as follows:</p> <p style="margin-left: 40px;">a. Each Copermittee must update its BMP Design Manual pursuant to Provision F.2.b. Until the Copermittee has updated its BMP Design Manual pursuant to Provision F.2.b.(1), the Copermittee must continue implementing its current BMP Design Manual. The Copermittee must implement the updated BMP Design Manual within 180 days following completion of the update pursuant to Provision F.2.b.(1), unless directed otherwise by the San Diego Water Board Executive Officer. <u>The date the BMP Design Manual is implemented is the "effective date" of the BMP Design Manual.</u></p>	

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E3e1-1	PROVISION E.3.e.(1): Structural BMP Approval and Verification Process	
	<p>COMMENT: <i>Requests for revisions to the proposed language to define projects with prior lawful approval under Provision E.3.e.(1)(a).</i></p> <p>The City of San Diego requested a revision to the proposed language to define projects with prior lawful approval to also include projects that have received development approvals.</p> <p>San Diego Coastkeeper and Coastal Environmental Rights Foundation requested revisions that would allow a Priority Development Project to proceed under previous land development requirements only if the Copermittee demonstrates that, among other required conditions, construction activities on the Priority Development Project commenced prior to the effective date of the new BMP Design Manual and that all approvals and permits necessary to complete the implementation of the initially approved design also be obtained prior to the effective date of the new BMP Design Manual.</p>	<p>City of San Diego San Diego Coastkeeper and Coastal Environmental Rights Foundation</p>
	<p>RESPONSE: The San Diego Water Board disagrees that any changes are needed to the proposed language in Provision E.3.e.(1)(a). Specifically, reliance on issuance of a development approval alone is not consistent with the San Diego Water Board's goal of requiring most new Priority Development Projects to be subject to the requirements in the new BMP Design Manual unless limited conditions are met. Nor is it consistent with the <i>Avco</i> line of cases, which requires commencement of construction and substantial reliance on the permit as the determining factors for grandfathering projects under previous development requirements. Reliance on issuance of a development approval alone may also result in many fewer Priority Development Projects implementing projects based on the new BMP Design Manual required in Order No. R9-2013-0001 as amended.</p> <p>With regard to the Environmental Groups' comment, the San Diego Water Board believes it is appropriate for the Copermittees to have the ability to allow a Priority Development Project meeting all other required conditions in Provision E.3.e.(1)(a) to proceed under previous land use development requirements if the Copermittee demonstrates that construction activities have commenced before, or within 180 days after, the effective date of the new BMP Design Manual. The Board believes it is appropriate to include a grace period of 180 days after the effective date of the BMP Design Manual in order to provide certainty of requirements for projects in process, and allow for scheduling of construction activities under optimal conditions, such as outside of nesting season, or during the dry season, when impacts from storm water runoff are minimized. And, as long as development projects complete construction of all phases in substantial conformity with the approved design, which includes storm water pollutant control and hydromodification management BMPs approved by the</p>	

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E3e1-1 PROVISION E.3.e.(1): Structural BMP Approval and Verification Process	
<p>municipality, it is appropriate that prior lawful approval (the ability to proceed with development in accordance with the previous land use development requirements) remain valid during issuance of subsequent permits that may be necessary to complete the project within 5 years after the effective date of the new BMP Design Manual. Five years is an appropriate and reasonable period of time for those projects meeting all other conditions to be completed.</p> <p>No changes were made to the Tentative Order as a result of these comments.</p>	

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E4-1	PROVISION E.4: Construction Management	
	<p>COMMENT: <i>Request for revisions to construction management program inventory and tracking requirements.</i></p> <p>The City of San Diego requested that Provisions E.4.b and E.4.d.(3) be combined because both sections contain information that needs to be collected, inventoried, and tracked.</p>	City of San Diego
	<p>RESPONSE: The San Diego Water Board considered the requested revision and determined that it was not necessary. The Copermittees can implement an inventory and tracking system that may be utilized to manage the data that are collected and needed to fulfill the requirements of both Provision E.4.b and E.4.d.(3).</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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E5c-1	PROVISION E.5.c: Existing Development Inspections	
	<p>COMMENT: <i>Request to include an optional third-party certification program into the existing development inspection provisions.</i></p> <p>Section F.3.b.(4)(c) of Order No. R9-2010-0016 allowed the Riverside County Copermittees the option to propose a third-party certification program for commercial and industrial inspection programs, subject to San Diego Water Board Executive Officer acceptance. The Riverside County Copermittees noted that a similar provision does not exist in the Tentative Order, and requested inclusion of this option in the Regional MS4 Permit.</p>	Riverside County Copermittees
	<p>RESPONSE: At this time the San Diego Water Board does not support the inclusion of a third-party certification program as part of the existing development inspection provisions.</p> <p>The San Diego Water Board has conducted audits of several Copermittees' existing development and post construction BMP inspection programs in the San Diego Region that utilize self certifications or third-party certifications to verify the proper operation and maintenance of post construction BMPs. These audits have found such programs have not adequately confirmed that BMPs are being properly operated and maintained so they are effective at removing pollutants in storm water discharges from commercial and industrial sites to the MEP.</p> <p>However, the Regional MS4 Permit provides the Copermittees significant flexibility in the implementation of their existing development inspection programs, and does not preclude the use of third-party certification programs during years where inspections are not necessarily required. If the Copermittees can develop a third-party certification program that can demonstrate such a program can be implemented in a way that will ensure BMPs are being properly operated and maintained so they are effective at removing pollutants in storm water discharges from commercial and industrial sites to the MEP, the San Diego Water Board may reconsider including such an option into the Regional MS4 Permit during the renewal process anticipated to begin in early 2018.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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F2b-1 PROVISION F.2.b: BMP Design Manual Updates		
	<p>COMMENT: <i>Request for revisions to clarify the effective date of the BMP Design Manual.</i></p> <p>The San Diego County Copermittees, the City of San Diego, and the County of San Diego requested revisions to Provision F.2.b.(4) to include language that clarifies the effective date of the BMP Design Manual if an update to the BMP Design Manual is required.</p>	<p>San Diego County Copermittees City of San Diego County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board agrees that the proposed modification to the text in Provision F.2.b.(4) would clarify that the BMP Design Manual effective date is no later than 90 days after the San Diego Water Board adopts amendments to Provisions E.3.a-d. Provision F.2.b.(4) will be modified as follows:</p> <p style="margin-left: 40px;">(4) If the San Diego Water Board amends Provisions E.3.a-d during the permit term but after the Copermittee has completed the update pursuant to Provision F.2.b.(1), the Copermittee must revise its BMP Design Manual to incorporate the amended Provision E.3.a-d requirements as soon as possible but not later than 90 days after the date the San Diego Water Board adopts the amendments to Provisions E.3.a-d, unless otherwise directed by the San Diego Water Board Executive Officer. <u>Under these circumstances, the effective date of the BMP Design Manual is not later than 90 days after the date the San Diego Water Board adopts the amendments to Provisions E.3.a-d, unless otherwise directed by the San Diego Water Board Executive Officer.</u></p>	

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AttC-1 ATTACHMENT C: Acronyms, Abbreviations, and Definitions	
<p>COMMENT: <i>Request for revisions to definition of Construction Activities.</i></p> <p>The City of Escondido requested revisions to the definition of Construction Activities in Attachment C to the Regional MS4 Permit. The commenter requested the removal of the term “phase” from the definition because the term introduces artificial phases during a construction project that cannot be readily tracked.</p>	<p>City of Escondido</p>
<p>RESPONSE: The San Diego Water Board agrees that the revisions are appropriate.</p> <p>The definition of Construction Activities in Attachment C has been revised as follows:</p> <p>Construction Activities – Actions implemented during construction of development or redevelopment projects during the Preliminary <u>Tasks</u> Phase (including rough grading and/or disking, clearing and grubbing operations, or any soil disturbance prior to mass grading), Grading or Land Development Phase (including topography and slope reconfiguration, alluvium removals, canyon cleanouts, rock undercuts, keyway excavations, land form grading, and stockpiling of select material for capping operations), Streets and Utility <u>Installation</u> Phase (including excavation and street paving, lot grading, curbs, gutters and sidewalks, public utilities, public water facilities including fire hydrants, public sanitary sewer systems, storm sewer systems and/or other drainage improvements), or Vertical Construction Phase (including the build out of structures from foundations to roofing, including rough landscaping).</p>	

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AttC-2 ATTACHMENT C: Acronyms, Abbreviations, and Definitions	
	<p>COMMENT: <i>Request for revisions to definition of Redevelopment.</i></p> <p>The City of San Diego requested revisions to the definition of Redevelopment in Attachment C to the Regional MS4 Permit to improve the clarity of the definition.</p>
	<p align="right">City of San Diego</p>
	<p>RESPONSE: The San Diego Water Board agrees that revisions would provide additional clarity in the definition of Redevelopment.</p> <p>The definition of Redevelopment in Attachment C has been revised as follows:</p> <p>Redevelopment – The creation and/or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition to or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Redevelopment does not include <u>routine maintenance activities, such as</u> trenching and resurfacing associated with utility work; <u>pavement grinding</u>; resurfacing existing roadways; new sidewalks construction, pedestrian ramps, or bike lanes on existing roads; and routine replacement of damaged pavement, such as pothole repair.</p>

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AttE-1 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
	<p>COMMENT: <i>Request for revisions to TMDL requirements in Attachment E to the Regional MS4 Permit to allow independent jurisdictional compliance with TMDLs.</i></p> <p>The City of San Diego requested revisions to the TMDL requirements in Attachment E to the Regional MS4 Permit that would allow independent jurisdictional compliance instead of requiring all the Copermittees named as responsible to comply with the TMDL requirements.</p>
	<p style="text-align: right;">City of San Diego</p>
	<p>RESPONSE: The San Diego Water Board disagrees that modifications are needed to the language pertaining to TMDL compliance determination. The commenter correctly asserts that the intent of the language, and in fact, the intent of the Water Quality Improvement Plan concept, is that the Copermittees develop the Water Quality Improvement Plans collectively and evaluate water quality improvement strategies on a watershed basis. The San Diego Water Board recognizes that the Copermittees have no authority over other Copermittees to compel TMDL compliance; therefore, the Tentative Order has multiple compliance determination pathways available to each Copermittee to achieve compliance. The final compliance determination pathways are presented in Attachment E Specific (TMDL) Provisions 1.b.(3), 2.b.(3), 3.b.(3), 4.b.(3), 5.b.(3), 6.b.(3), and 7.b.(3). There are several compliance determination pathways that allow a Copermittee to demonstrate independent jurisdictional compliance with water quality based effluent limitations (WQBELs).</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>

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AttE6-1 ATTACHMENT E.6: Beaches and Creeks Bacteria TMDLs	
	<p>COMMENT: <i>Requests for revisions to clarify that water bodies de-listed from the 303(d) List are not subject to the Beaches and Creeks TMDL requirements.</i></p> <p>The Orange County Copermittees requested revisions to the Beaches and Creeks Bacteria TMDLs requirements in Attachment E to state that specific water bodies or beach segments included in Table 6.0 that have been delisted from the 2008 Clean Water Act Section 303(d) List of Water Quality Impaired Segments are not subject to any further action as long as monitoring data continues to support compliance with water quality standards.</p>
	<p align="right">Orange County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that any revisions are necessary or appropriate. The Orange County Copermittees correctly state that the water bodies listed in Table 6.0 must be in compliance with the final TMDL compliance requirements (and WQBELs). If a water body or beach segment has been de-listed, then the MS4 discharge WQBELs and/or receiving water WQBELs should already be achieved, but the BMP WQBELs and the monitoring and assessment requirements are still required to be implemented to maintain the achievement of the MS4 discharge WQBELs and/or receiving water WQBELs in the de-listed water body or beach segment.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>

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AttE6-2 ATTACHMENT E.6: Beaches and Creeks Bacteria TMDLs	
	<p>COMMENT: <i>Request for revisions to compliance dates for the Beaches and Creeks Bacteria TMDLs.</i></p> <p>The San Diego County Copermittees, the City of San Diego, and the County of San Diego requested that the compliance dates proposed to be added to Tables 6.1 and 6.4 be removed. The commenters assert that the compliance dates proposed to be added are inconsistent with the requirements of the Beaches and Creeks Bacteria TMDLs. The commenters also assert that the Beaches and Creeks Bacteria TMDLs do not require the development of a Bacteria Load Reduction Plan (BLRP) or Comprehensive Load Reduction Plan (CLRP) for segments of beaches or creeks de-listed from the Clean Water Act Section 303(d) List of Water Quality Limited Segments.</p>
	<p>San Diego County Copermittees City of San Diego County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the addition of the compliance dates is inconsistent with the Beaches and Creeks Bacteria TMDLs requirements. The San Diego Water Board also disagrees that segments of beaches or creeks de-listed from the Clean Water Act Section 303(d) List of Water Quality Limited Segments are not required to develop a BLRP or CLRP.</p> <p>The compliance date for the Beaches and Creeks Bacteria TMDLs is specified on page 7-107 of the Basin Plan as follows:</p> <p><i>“Full implementation of the TMDLs for indicator bacteria shall be completed as soon as possible, but no later than 10 years from the effective date for both the dry weather and wet weather TMDLs, unless an alternative compliance schedule is approved as part of a Comprehensive Load Reduction Plan, as described in the following section. The effective date of these TMDLs is April 4, 2011.</i></p> <p><i>The San Diego Water Board will require the Phase I MS4s to submit Bacteria Load Reduction Plan (BLRPs) outlining the proposed BMP program that will be capable of achieving the necessary load reduction required to attain the bacteria TMDLs in the receiving water, acceptable to the Regional Board within 18 months after the effective date of these TMDLs....”</i></p> <p>Tables 7-53 and 7-54 on page 7-108 in Chapter 7 of the Basin Plan present the compliance schedules that apply if the Copermittees develop a BLRP. Page 7-109 of the Basin Plan describes the potential for the Copermittees to develop CLRPs. If the Copermittees choose to develop a CLRP, the compliance date and schedule for the Beaches and Creeks Bacteria TMDLs is specified on page 7-109 of the Basin Plan in Table 7-55 and as follows:</p>

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“...the dischargers may develop and submit a CLRP for all constituents of concern in lieu of the BLRP, and to propose an appropriately tailored alternative compliance schedule. Proposed alternative compliance schedules tailored under this provision may not extend beyond 10 years for the dry weather bacteria TMDLs and 20 years for the wet weather bacteria TMDLs from the effective date”

Tables 6.1 and 6.4 were revised in the Tentative Order to be consistent with the compliance schedules of Tables 7-53, 7-54, and 7-55 of the Beaches and Creeks Bacteria TMDLs in the Basin Plan. Therefore, the addition of the compliance dates proposed to be added to Tables 6.1 and 6.4 are consistent with the requirements of the Beaches and Creeks Bacteria TMDLs.

As for the assertion that the Beaches and Creeks Bacteria TMDLs do not require BLRPs or CLRPs for segments of beaches or creeks de-listed from the Clean Water Act Section 303(d) List of Water Quality Limited Segments, the commenters appear to be citing text from the TMDL Compliance Schedule section instead of the TMDL Implementation Plan section of the Beaches and Creeks Bacteria TMDLs. It is true that on page 7-107 of the Basin Plan, includes a statement that:

“For watersheds in Table 7-52 where there are no longer any impairments listed on the 2008 303(d) List, the Phase I MS4s and Caltrans are not required to submit a BLRP or CLRP within 18 months of the effective date of the TMDLs.”

However, this statement is under the TMDL Compliance Schedule requirements and was only included to indicate that the San Diego Water Board would not require a BLRP or CLRP to be submitted within 18 months of the effective date. It was not intended to mean that a BLRP or CLRP would never be required. If the commenters look under the TMDL Implementation Plan requirements for Phase I MS4s, which begins on page 7-85 of the Basin Plan, there is no statement that a BLRP or CLRP will not be required for “watersheds ... where there are no longer any impairments listed on the 2008 303(d) List.” The TMDL Implementation Plan for Phase I MS4 does, however, state the following on page 7-86 of the Basin Plan:

“The WQBELs will likely consist of receiving water limitations (based on the numeric targets) and require the implementation of a BMP program to achieve the TMDLs in receiving waters. The Phase I MS4s will be required to submit Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) outlining a proposed BMP program capable of achieving the necessary load reductions required to attain the TMDLs in receiving waters, acceptable to the San Diego Water, within 18 months after the effective date of these TMDLs. The San Diego Water Board will require the BLRPs or CLRPs to be developed on a watershed or region wide scale. The BLRPs or CLRPs should be developed and

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incorporated as part of the Watershed Runoff Management Programs required under the Phase I MS4 NPDES requirements....”

The TMDL Implementation Plan requirements clearly state the BLRPs or CLRPs are required and do not have any exceptions. The TMDL Compliance Schedule requirements do allow an exception from submitting a BLRP or CLRP within 18 months of the effective date, but do not state that a BLRP or CLRP will never be required. Specific Provision 6.b.(2)(c)(i) is consistent with the TMDL Implementation Plan requirements in the Basin Plan by requiring a CLRP to be on a watershed scale and incorporated into the Water Quality Improvement Plans (i.e. Watershed Runoff Management Program), which includes a BMP implementation program capable of achieving the necessary load reductions required to attain the TMDLs in receiving waters for all the applicable Watershed Management Areas in Table 6.0. Table 6.0 lists all the beaches and areas included in the Beaches and Creeks Bacteria TMDLs from the Basin Plan. Please also see the response to comment AttE6-1.

However, the San Diego Water Board recognizes that Specific Provision 6.b.(2)(c)(i) only allows for the Copermitees to incorporate CLRPs into the Water Quality Improvement Plans. Therefore, to be consistent with the Beaches and Creeks Bacteria TMDLs, which allows for BLRPs to be developed and submitted, Specific Provision 6.b.(2)(c)(i) has been revised as follows:

- (i) The Water Quality Improvement Plans for the applicable Watershed Management Areas in Table 6.0 must incorporate the Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) required to be developed pursuant to Resolution No. R9-2010-0001.

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AttE6-3 ATTACHMENT E.6: Beaches and Creeks Bacteria TMDLs	
<p>COMMENT: <i>Request for revisions to clarify that compliance with receiving water limitations in the Beaches and Creek Bacteria TMDLs will be assessed at the compliance points identified in the TMDL Monitoring Plan.</i></p> <p>The County of San Diego requested revisions to the Beaches and Creeks Bacteria TMDLs requirements to specify that compliance with receiving water limitations can be determined at the compliance points identified in the TMDL Monitoring Plans that are included in the Water Quality Improvement Plans.</p>	<p>County of San Diego</p>
<p>RESPONSE: The San Diego Water Board disagrees that the revision is necessary. The Beaches and Creeks Bacteria TMDLs interim and final compliance determination requirements includes a pathway that allows the Copermittees to demonstrate that there are no exceedances of the final (or interim) receiving water limitations in the receiving water <i>“at, or downstream of the Responsible Copermittee’s MS4 outfalls.”</i></p> <p>The Specific Monitoring and Assessment Requirements of the Beaches and Creeks Bacteria TMDLs specifies the locations where monitoring is required to determine compliance. For beaches, the required monitoring locations are <i>“at, or downstream of the Responsible Copermittee’s MS4 outfalls.”</i> For creeks, the monitoring locations are required to be at or near the mouth and one or more locations upstream of the mouth, both of which should be <i>“at, or downstream of the Responsible Copermittee’s MS4 outfalls.”</i> If the receiving waters are not exceeding the final (or interim) receiving water limitations expressed as exceedance frequencies at the required receiving water monitoring locations, then the Copermittees have demonstrated compliance with the receiving water WQBELs <i>“at, or downstream of the Responsible Copermittee’s MS4 outfalls.”</i> If, however, there are exceedances at a receiving water monitoring location, then the upstream Copermittees will need to demonstrate compliance with another compliance determination pathway.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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AttE7-1 ATTACHMENT E.7: Los Penasquitos Lagoon Sediment TMDL		
	<p>COMMENT: <i>Request for revisions to incorporate a land use-based compliance pathway into the Los Penasquitos Lagoon Sediment TMDL.</i></p> <p>The County of San Diego requested revisions to the Total Maximum Daily Load for Sediment in Los Penasquitos Lagoon (Los Penasquitos Sediment TMDL) in Attachment E to incorporate a land use-based compliance pathway.</p>	<p>County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board disagrees that changes are needed to accommodate a land use-based compliance pathway for the Los Penasquitos Lagoon Sediment TMDL.</p> <p>The commenter states that if the land use has not changed significantly from the 1970s baseline, the timeframe at which water quality standards in the lagoon were met, then the sediment loads from the Copermittee's MS4s are expected to be approximately the same as the baseline levels and within the amount allowed in the wasteload allocation. The San Diego Water Board agrees that under this scenario in which land use has not changed significantly, the sediment levels would be approximately the same as baseline levels. If this is confirmed through water quality monitoring, then the Copermittee has likely met its portion of the final effluent limit described in Provision 7.b.(2)(b) and has achieved compliance. For this reason, changes to the TMDL compliance pathways are not needed or warranted.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

ATTACHMENT

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Report of Waste Discharge

Submitted by

The County of Orange, Orange County Flood Control District and Cities of Aliso Viejo, Dana Point, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, Mission Viejo, Rancho Santa Margarita, San Clemente, and San Juan Capistrano

May 20, 2014



Signed Certified Statement

Report of Waste Discharge

Prepared for the California Regional Water Quality Control Board

May 20, 2014

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Mary Anne Skorpanich, Deputy Director
OC Public Works

2014 County of Orange Report of Waste Discharge for the San Diego Region

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PREPARED BY:

Chris Crompton, Manager, Water Quality Compliance

Stormwater-External Section:

Richard Boon, Chief

Jennifer Shook, Environmental Resources Specialist

Christy Suppes, Environmental Resources Specialist

Jenna Voss, Environmental Resources Specialist

Stormwater-Internal Section:

Duc Nguyen, Environmental Resources Specialist

Water Quality Planning Section:

Kacen Clapper, Environmental Resources Specialist

Grant Sharp, Manager, Environmental Monitoring

Environmental Data Management Section:

Mike Fennessy, Chief

Rita Abellar, Environmental Resources Specialist

Justin Grewal, Environmental Resources Specialist

Bryan Pastor, Environmental Resources Specialist

Gheorghe Simionescu, Environmental Resources Specialist

Jordan Meraz, Environmental Resources Specialist

Monitoring Programs:

Robert Rodarte, Environmental Resources Specialist

Jonathan Humphrey, Environmental Resources Specialist

Jon Lewengrub, Environmental Resources Specialist

Joel Magsalin, Environmental Resources Specialist

Jon Curry, Environmental Resources Specialist

Mai Au, Engineering Technician

Technical Assistance Provided By:

Brock Bernstein

AMEC

RBF

Larry Walker Associates

Cover photo courtesy of: Nathan French Photography

Executive Summary

The Orange County Stormwater Program (the Program) is a cooperative municipal regulatory compliance initiative focused on the management of urban and stormwater runoff for the protection and enhancement of Orange County's creeks, rivers, streams, and coastal waters. The primary objective of the Program is to fulfill the commitment of the County of Orange, the Orange County Flood Control District and the cities of Orange County (collectively, the "Permittees"), to develop and implement a program that satisfies the requirements of area-wide Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) Permits.

The purpose of this document is to comply with the requirement for submittal of a "Report of Waste Discharge" (ROWD). This report discusses the Permittees' Fourth Term MS4 Permit compliance activities and accomplishments over the period June, 2009 to June, 2013. It identifies all of the activities, research and pilot studies the Permittees propose to undertake during the next permit term based upon a consideration of the effectiveness of the Program and need for additional pollutant control initiatives. The report requests coverage under a Fifth Term Permit that is specific to south Orange County.

The Permittees also consider a series of performance metrics to further enable the effectiveness of the Program's elements to be evaluated. This assessment of program effectiveness, comprising consideration of both the state of the aquatic environment and program performance metrics, is the basis for identifying the specific program activities and pilot studies the Permittees propose to undertake during the next permit

term. These activities, which are identified as recommendations for program continuation, program enhancements, or program modifications, together with the Fifth Term MS4 Permit compliance milestones, are noted in each section of the report and are summarized in Section 7.0. The deliberate emphasis on program enhancement, rather than policy and programmatic change, is emblematic of a mature municipal stormwater program that is protective of water quality and is achieving meaningful environmental outcomes.

State of the Environment – Key Findings

This report includes an analysis of the state of water quality in Orange County and explores trends for four primary water quality issues on which the Permittees intend to focus during the Fifth Term. Key findings and trends are discussed for bacteria, total dissolved solids, nutrients and toxicity.

Bacteria

- The County's beaches support concentrated recreational activities for both residents and visitors and are important contributors to the local and regional economy.
- Concern about swimming safety is consistently high and epidemiology studies in dry weather show that some illness (for example, gastroenteritis) is associated with full immersion swimming in contaminated water.
- Contamination is very low during dry weather and has dropped steadily over time; beach report card grades are consistently high.

- Sources of contamination have been reduced through targeted actions; remaining issues during dry weather are localized and may have natural components.
- Contamination is more widespread during wet weather; wet weather flows are larger and qualitatively different.
- Health risks associated with wet weather flows are uncertain, but ongoing research and development focuses on improved monitoring tools and wet weather epidemiology studies.
- Progress on managing dry weather contamination demonstrates the efficacy of targeted BMPs appropriate to specific situations that may include natural sources (e.g., birds).

Dissolved Solids

- Persistent and widespread exceedances of total dissolved solids occur in channels and at discharge outfalls.
- Dissolved solids are a challenging to address because a large portion of these elevated levels derive from natural sources in regional groundwater.
- Understanding local geology is key to understanding sources of dissolved solids and the pathways they travel in the watershed.
- While the flood control system provides one pathway for dissolved solids in groundwater to reach the surface, other natural pathways (such as artesian springs) exist and there is evidence of historically elevated dissolved solids levels in surface water in the region.

Nutrients

- Nutrient levels in South Orange County streams and channels are frequently above commonly used thresholds that suggest increased likelihood of nutrient impacts. In contrast, there are much less frequent occurrences of impacts, such as macroalgal overgrowth, due to excessive nutrient levels.
- Nutrient issues are not limited to the urban portion of the County; regional monitoring data show nutrient enrichment and impacts such as increased macroalgal cover and/or lower dissolved oxygen in streams and estuaries in undeveloped regions.
- The major point sources of nutrients have been controlled. Therefore, nonpoint and diffuse sources such as leaching from upland soils and intrusions from shallow groundwater are increasingly important.
- Nutrients can be readily transported in and out of various reservoirs (e.g., sediments, groundwater) and undergo complex biological transformation and cycling. This makes traditional pollutant control strategies less effective for nutrients.

Improved management strategies may contribute to further progress, particularly in streams and channels, by accounting for site-specific conditions, promoting Low Impact Development, and accounting for broader regional sources.

Toxicity

- Toxicity in freshwater channels in all conditions (aquatic, sediment, wet and dry weather) occurs at low levels and is

sporadic, occurring at different locations at different times and varying unpredictably across test species.

- Aquatic toxicity in dry weather occurs in open (undeveloped) areas at levels equivalent to those in urban areas; suggesting that dry weather toxicity is not driven predominantly by urban pollutants.
- There are no apparent trends in toxicity over time.
- Metals, except for some instances of elevated copper, are at low levels and do not appear to contribute to aquatic toxicity in freshwater.
- The primary source of toxicity appears to be pesticides, with evidence that pyrethroids contribute to sediment toxicity.
- Use of organophosphate pesticides has declined virtually to zero but use of pyrethroid pesticides has increased and exceedances of thresholds for pyrethroid pesticides are high.
- Reported pesticide use in the County has declined from just over 2 million pounds a year in 1998 to just under 1 million pounds in 2011, due primarily to reduced use of indoor fumigants.
- There is a large data gap in our knowledge of retail pesticide sales and use.
- Pesticide use (which is regulated directly at the state and federal levels) presents a moving target for management because of the continued introduction of new products; the most effective management strategies are to continue to reduce dry weather runoff/flows and support education and outreach efforts to reduce pesticide use and runoff.

Controlling Pollutant Sources - Countywide/Jurisdictional Programs: Accomplishments

The management of sources of pollution from diffuse urban areas involves the strategic application of Best Management Practices (BMPs) to activities and drainage systems within the urban environment. The purpose of BMPs is to protect water quality by reducing pollutant loads and concentrations and by reducing discharges (volumetric flows and flow rates) causing stream channel erosion. Municipal efforts to prioritize, inspect and manage existing and new development, educate the public to encourage adoption of behaviors protective of water quality and to respond to illegal discharges or illicit connections are discussed in this section.

- The Model Municipal Activities Program ensures that BMPs are implemented and maintained at over 1,700 municipal facilities.
- The Model Integrated Pest Management Program ensures municipal conformance with an Integrated Pest Management Policy developed in partnership with University of California Cooperative Extension. Implementation of the policy is resulting in reductions in municipal fertilizer and pesticide use.
- Public awareness surveys conducted approximately every three years demonstrate increased levels of awareness regarding stormwater concerns and several positive behavior changes regarding car washing, use of landscape management products, and pet waste.

- The Program achieved over 155 million impressions through various forms of paid media, and over 5.5 million impressions at outreach events from 2008 to 2013.
- The Permittees initiated a strategic behavior-specific outreach program in 2012.
- Reductions in outdoor water use, retrofitting the residential environment to reduce outdoor water demand and elimination of runoff from irrigation are the foci of action-based outreach efforts initiated in 2013.
- The Permittees developed a significantly revised Model Water Quality Management Plan (WQMP) and Technical Guidance Document (TGD) to implement new requirements for the implementation of Low Impact Development (LID) BMPs.
- The Permittees implemented the new Model WQMP and TGD for all priority projects in north Orange County starting on August 17, 2011, and in south Orange County starting on December 20, 2013.
- During the permit term (through the FY2012-13 reporting period) 1,369 WQMPs for public and private projects were approved across all of Orange County for a total of 18,749 acres of development now that are now subject to Project WQMPs.
- South Orange County was mapped and a geodatabase was developed that includes conveyance systems, infiltration constraints, land use, and soil types. The County is using the geodatabase to evaluate channel susceptibility to hydromodification, and opportunities and constraints for infiltration and treatment BMP implementation at various scales.
- The Construction Program maintained an inventory of up to 12,060 construction sites, prioritized these sites regarding their threat to water quality, and inspected them at the frequency specified by the permit. Non-compliant sites were educated and required to implement BMPs as required.
- The Industrial/Commercial Program inventoried 14,000 sites and conducted inspections of these sites at frequencies specified by the permit.
- A new Mobile Business Pilot Model Program was developed and implemented.
- Residential sources of pollutants were addressed through the Model Residential Program, which included development of new outreach materials and continued outreach to Common Interest Areas and Homeowner's Associations.
- The Permittees continued to aggressively detect and eliminate Illicit Discharges and Illegal Connections (ID/IC) through discharge monitoring, source investigation, and enforcement.
- A spill reporting hotline (1-877-89-SPILL) provides a resource for public spill and water pollution reporting, and an iPhone reporting application was developed. All reports were responded to and resolved.

- The *Model Investigative Guidance for Orange County Illegal Discharges and Illicit Connections Program* was updated for the Non-stormwater Action Levels (NALs) based monitoring program by inclusion of a new *San Diego Region Dry Weather Numeric Action Level (NAL) Source Identification Guide*.
- Essential elements of the Countywide Area Spill Control Program were completed and implemented.
- The NALs monitoring program was fully implemented.

Controlling Pollutant Sources - Watershed Programs: Accomplishments

In addition to countywide and jurisdictional programs, the Permittees participated in water quality planning on the watershed scale. These efforts have led to multi-jurisdictional solutions to problems that cut across programs and jurisdictional boundaries. While the focus of watershed planning in south Orange County is on specific pollutants of concern associated with urban stormwater, particularly TMDLs, this management approach is also supportive of broader objectives such as watershed habitat restoration, consistent with the Practical Vision, and integrated water resource management.

- Extensive watershed mapping of hydromodification susceptibility, infiltration feasibility and regional BMP opportunity sites for the entire south Orange County area has been completed.
- Watershed Workplans for all six San Diego Region

Watersheds were developed and implemented. These workplans describe the Watershed Permittees' collective watershed strategies to assess, prioritize and address water quality challenges within each watershed.

- Comprehensive Load Reduction Plans (CLRPs) were developed for Aliso Creek, San Juan Creek and San Clemente Coastal Streams Watersheds. These watershed CLRPs were developed to address bacteria pollutants and other watershed 303(d) listed constituents.
- Dana Point harbor was delisted for Indicator Bacteria and 17 shoreline stations were delisted for Enterococcus, Fecal Coliform and Total Coliform.
- Baby Beach TMDL dry weather load reductions have been achieved for total coliform and the 50% load reduction milestones for fecal coliform and Enterococcus have also been achieved. Wet weather data also supports the conclusion that TMDL load reductions have been achieved for total coliform and fecal coliform. Further reductions are needed for Enterococcus.

Plan Development

The Permittees have developed a strategic approach to stormwater management that is a cyclical process of measurement, analysis and program improvement.

- The Permittees have been implementing a strategic management approach that includes model programs specified in the permit and the DAMP, and watershed programs focused on specific water bodies and pollutants.

- The Program employs an iterative, adaptive management approach that includes monitoring, evaluation, program revision, BMP implementation adjustment/enhancement, and continued monitoring.
- The Program conducts annual and permit term (i.e. ROWD) using the guidance from CASQA approach.
- The ROWD recommends an evolution to a more holistic watershed management approach to support integrated water resource management and the optimization of watershed ecosystem services.

Program Management and Financing: Accomplishments

Program management includes maintaining a committee structure, participation in regional and statewide groups and tracking costs for compliance.

- The Program continued to operate with the County of Orange as the Principal Permittee during the permit term.
- The Program operated under a four-tier committee structure with participation at all levels by Permittee staff and management.
- An Implementation Agreement establishes responsibilities and provides a funding mechanism for cooperative activities. Funding has been sufficient to complete common program activities.
- The Program benefitted strongly from cooperation and representation among several regional and statewide

groups including the California Stormwater Quality Association and the Southern California Coastal Water Research Project.

- Coordination with Orange County Transportation Authority (OCTA) on development of a Structural BMP Prioritization and Analysis Tool (SBPAT) to support disbursement of Measure M2 funding for water quality projects. SBPAT is a GIS-based decision support tool that is being used to identify and prioritize potential structural BMP retrofit projects throughout Orange County. To date Tier 1 funding of \$8.6 million has been awarded to 85 projects and Tier 2 funding of \$12.7 million has been awarded to 8 projects.

1.0 Introduction

The Story: Introduction

- Established in 1990, the Orange County Stormwater Program (the Program) is a cooperative regulatory partnership among the cities of Orange County, the County of Orange and the Orange County Flood Control District (collectively the Permittees) who operate an interconnected municipal storm drain system. Discharges of stormwater and urban runoff from this system are authorized by National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permits.
- The Program is focused on maintaining regulatory compliance of the Permittees with Clean Water Act mandates and mitigating the water quality impacts to streams, creeks and coastal waters that can arise from the imprint of urban development on the landscape.
- This Report of Waste Discharge (ROWD) constitutes the Permittees' application for a Fifth Term of NPDES Municipal Stormwater Permit that is specific to South Orange County and presents specific recommendations for the continuation and future development of the Program.

1.1 Overview

The Program is a cooperative regulatory partnership among the cities of Aliso Viejo, Dana Point, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, Mission Viejo, Rancho Santa Margarita, San Clemente, San Juan Capistrano, the County of Orange and the Orange County Flood Control District (collectively the Permittees - See **Attachment 1.1 - Primary Permittee Contacts**) who operate an interconnected municipal storm drain system which

discharges stormwater and urban runoff pursuant to National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System Permit (MS4 Permit). Clean Water Act Section 402(p) stipulates that MS4 permits must require the Permittees to:

- Effectively prohibit non-stormwater discharges to the storm drain system, and
- Implement controls to reduce the discharge of pollutants in stormwater to the Maximum Extent Practicable (MEP).

In anticipation of the expiration of the South Orange County MS4 Permit on December 16, 2014, this Report of Waste Discharge (ROWD):

- Describes the regulatory basis and environmental rationale for the Program and requests issuance of a Fifth Term Permit that is specific to south Orange County (see - "Introduction");
- Presents an assessment of the state of the environment for South Orange County with specific reference to swimming safety and aquatic ecosystem health and makes recommendations for the future allocation of monitoring resources (see - "State of the Environment");
- Evaluates jurisdictional pollutant control program effectiveness and makes recommendations for enhancing future program implementation (see - "Controlling Pollutant Sources: Jurisdictional Management Programs");
- Describes watershed-based planning in Orange County and makes recommendations for integrating Total Maximum Daily Load requirements into the Fifth Term Permit (see - "Controlling Pollutant Sources: Watershed Programs");
- Reviews the Program's jurisdictional and watershed planning processes and makes recommendations for a shift toward a "watershed management approach"

supportive of the restorative goals of the Clean Water Act (see – “Plan Development”);

- Reviews the Program’s management structure and describes current program financing including recommendations for future cost studies (see – “Program Management and Financing”); and
- Summarizes recommendations for the future direction of the Program with recommendations (see – “Summary and Conclusions”).

In combination these discussions are intended to fulfill the requirements for the content of the Report of Waste Discharge (see R9-2009-0002 – Section K.2.b), which must include:

- Proposed changes to the Permittees’ runoff management programs;
- Proposed changes to monitoring programs;
- Justification for proposed changes;
- Permittee and primary contact information; and
- Any other information for the reissuance of the Order.

1.2 Background

Urban Runoff and Water Quality

The Program is focused on mitigating the adverse impacts to creeks, streams, estuaries and coastal waters that can arise from the imprint of urban development on the landscape. Urbanization creates rooftops, driveways, roads and parking lots (Schueler and Holland, 2000) use the term *imperviousness* as the unifying theme for understanding the adverse hydrologic impacts of urbanization), which (1) increase the flow rate and volume of rainfall runoff (compared to pre-development conditions) and (2) provide a source of pollutants that are flushed or leached by rainfall runoff into surface water systems. These pollutants can include

pathogens (disease causing bacteria, viruses and protozoan cysts from fecal sources), nutrients (bio-stimulatory substances such as nitrogen and phosphorus from fertilizers and organic wastes), sediments (sands and silts eroded from construction sites) and toxic organic and inorganic constituents (metals from automotive wear surfaces and pesticides applied to structures and landscapes).

There are four interrelated but separable effects of land-use changes on the hydrology of an area: changes in peak flow characteristics, changes in total runoff, changes in quality of water, and changes in the hydrologic amenities
Luna Leopold, 1968

For streams, creeks and coastal waters, urban runoff can result in:

- Water quality degradation from increased loadings of sediment, nutrients, metals, hydrocarbons, pesticides, and bacteria;
- Stream channel modification and habitat loss due to erosion or channel realignment for flood protection;
- Increased water temperatures resulting from solar energy absorption by urban surfaces and elimination of riparian shading; and
- Loss of groundwater recharge.

Water quality can be defined by both a set of concentrations, speciations, and physical partitions of organic and inorganic substances, and the composition and state of aquatic biota found in a waterbody (Meybeck and Helmer, 1992). Understanding these alternate definitions is highly significant to the ongoing development of the Program, the regulatory framework that impels it and the San Diego RWQCB’s “Practical Vision (SDRWQCB 2013).”

Section 2.0 presents a comprehensive assessment of the “state of the environment” for South Orange County based on the results of long-term water quality monitoring and related special studies. However, from a regulatory compliance perspective the 303(d) has particular significance in setting the Program’s specific pollutant priorities.

Regulatory History

The Program was initiated in 1990 as a cooperative local government response to a 1987 amendment to the federal Clean Water Act (CWA) that established National Pollutant Discharge System (NPDES) permit requirements for municipal operators of storm drain systems. This amendment was intended to specifically address the adverse water quality impacts of urban runoff. Permit application requirements were promulgated by US Environmental Protection Agency (EPA) in 1990 (40 CFR 122) and form the basis of the current program. There are two fundamental requirements:

- Effectively prohibit non-stormwater discharges to the storm drain system; and
- Implement controls to reduce the discharge of pollutants in stormwater to the Maximum Extent Practicable (MEP).

Orange County’s first NPDES Permits were issued in 1990 with renewals in 1996, 2002 and 2009. The Permits require that surface water quality protection be a key consideration in local governments’ oversight of construction and development, its regulation of industry and commerce, and in its construction, operation and maintenance of the public urban infrastructure.

There are separate NPDES Permits administered by the Santa Ana and San Diego Regional Water Quality Control Boards (RWQCBs). City and county jurisdictional boundaries rarely

coincide with watershed boundaries and in Orange County five jurisdictions within the Program (County of Orange, Orange County Flood Control District and the cities of Lake Forest, Laguna Hills and Laguna Woods) are subject to both permits. For these jurisdictions, the designation provision in Water Code Section 13228 is an option for seeking a single set of permit requirements in instances, such as Orange County, where there is a trend of increasing divergence in permitting approaches between the Regional Boards. The adoption of the Fifth Term Permit will be an opportunity for the two of the split jurisdictions (Cities of Lake Forest and Laguna Hills) who have requested coverage under a single permit to have resolution of this issue.

"Maximum extent practicable (MEP) means to the maximum extent possible, taking into account equitable considerations of synergistic, additive, and competing factors, including but not limited to, gravity of the problem, fiscal feasibility, public health risks, societal concern, and social benefits."

Elizabeth Miller Jennings, 1993

Management Approach

The management of water pollution arising from landscapes involves the strategic application of Best Management Practices (BMPs). The purpose of BMPs is to protect the beneficial uses of water resources principally through the reduction of pollutant loads and concentrations.

The Program’s management approach is a process that involves:

1. Selecting and implementing BMPs to address site specific water quality problems based upon a consideration of

regulatory requirements and technical, institutional and economic feasibility;

2. Conducting comprehensive program effectiveness assessments to ensure that the BMPs are correctly implemented and to determine the effectiveness of BMPs in achieving water quality standards; and
3. Revising and/or enhancing BMPs if water quality standards are not being achieved.

This management approach is applied at two distinct scales: (1) activities conducted by the Permittees implementing jurisdictional programs based on the model programs in the Drainage Area Management Plan (DAMP); and (2) activities conducted by the Permittees and others participating in watershed programs addressing specific waterbody-pollutant combinations including the restorative goals of the Clean Water Act.

Drainage Area Management Plan

The **Drainage Area Management Plan (DAMP)** is the principal policy and program guidance document for the *Program*. The DAMP describes the agreements, structures and programs that:

- Identify urban impacts on receiving waters; produce environmental quality information to direct management activities, including prioritization of pollutants to support the development of specific controls to address these problems; and determine if aquatic resources are being protected;
- Improve existing municipal pollution prevention and removal best management practices (BMPs) to further reduce the amount of pollutants entering the storm drain system;
- Educate the public about the issues of urban stormwater

and non-stormwater pollution and obtain their support in implementing pollution prevention BMPs;

- Ensure that all new development and significant redevelopment incorporates appropriate Site Design, Source Control, Treatment Control and LID BMPs to address specific water quality issues;
- Ensure that construction sites implement control practices that address control of construction related pollutants discharges including an effective combination of erosion and sediment controls and on-site hazardous materials and waste management;
- Ensure that existing development addresses discharges from industrial facilities, selected commercial businesses, residential development and common interest areas/homeowner associations.
- Detect and eliminate illegal discharges/illicit connections to the municipal storm drain system;
- Assess constituents of concern and manage urban runoff on a watershed basis with an emphasis on Total Maximum Daily Load (TMDL) obligations and the restorative goals of the Clean Water Act;
- Provide the framework for the program management activities and plan development, and
- Provide the legal authority for prohibiting unpermitted discharges into the storm drain system and for requiring

Best Management Practices

BMPs are defined as "schedules of activities, prohibitions of practices, maintenance procedures, and structural and/or managerial practices, that when used singly or in combination, prevent or reduce the release of pollutants to receiving waters." The types of BMPs are source control, runoff treatment, and flow control.

BMPs in new development and significant redevelopment;

The model programs in the DAMP are implemented individually by each of the Permittees according to jurisdictional DAMP/Local Implementation Plans (LIPs). The ongoing development of the DAMP is informed by annual and five year (i.e. ROWD) program effectiveness assessments.

Orange County - Physical Landscape

Orange County comprises 790 square miles of land area, beginning on a coastal plain and rising to an elevation of over 5,000 feet in the Puente Hills and Santa Ana Mountains to the north and east. The northwestern part of the county lies on the coastal plain of the Los Angeles Basin, while the southeastern end rises into the foothills of the Santa Ana Mountains. The landscape of Orange County presents urbanized watersheds encompassing 34 cities and a total population of 3.1 million people.

Most of Orange County's population resides in one of two shallow coastal valleys either the Santa Ana Valley or the Saddleback Valley. The County has a history of large planned communities, the most notable being the City of Irvine, City of Mission Viejo, City of Aliso Viejo, Coto de Caza, Anaheim Hills, Tustin Ranch, Tustin Legacy, Ladera Ranch, Talega and City of Rancho Santa Margarita. Population growth has slowed as the County has become largely built out (**Figures 1.1 - 1.5**).

Before urbanization, Orange County was drained by ephemeral streams and agricultural drainage ditches which were dry most of the year and carried measurable flow primarily during short duration flash floods and longer duration general winter storms. As urbanization progressed, man-made agricultural drainage ditches were enlarged to

flood control channels and the few natural streams such as Santa Ana River, San Diego Creek and San Juan Creek were constrained within levees to provide flood protection (**Figures 1.6 -1.10**). Ephemeral flows in some of the man-made and natural channels have been replaced with continuous low flows created from urban and agricultural irrigation and shallow groundwater.

South Orange County comprises five principal watersheds (Laguna Coastal Streams, Aliso Creek, Dana Point Coastal Streams, San Juan Creek and San Clemente Coastal Streams). In addition, small areas of largely undeveloped land in the City of San Clemente and unincorporated Orange County extend into the San Mateo Creek Watershed. These watersheds are hydrologically separate from North Orange County and physically, hydrologically and jurisdictionally isolated from the adjacent counties of Riverside and San Diego by mountain ranges and/or large swaths of federal land.

Across south Orange County, residential land uses, spread across characteristically modified topography, predominate. Beneath the urbanized landscapes, mostly clay-rich soils overlie marine sediments such as the Monterey and Capistrano Formations. Shallow groundwater from these formations is likely the major determinant of dry weather stream water chemistry and the cause of phosphorus, chloride, sulfates and total dissolved solids (TDS) being identified as the cause of water quality impairments.

Fifth Term Permit

The complexion of the south Orange County landscape is distinct both within Orange County and across the region. For the Program, this landscape presents a number of unique water quality challenges. For example, to enable the Program to effectively prohibit non-stormwater discharges, efforts to

abate dry weather discharges must be allowed to distinguish and prioritize between shallow groundwater influences and genuinely aberrant urban conditions.

In the absence of large areas of industrial and commercial enterprise and little residential redevelopment, addressing pollutant wash-off from impervious surfaces in predominantly residential landscapes requires an emphasis on public infrastructure solutions complemented with education and outreach. This approach ensures that both modifications to drainage infrastructure and public support for the Program will be sustained over the long term.

The history and nature of South Orange County's development also has implications for stormwater regulation and permitting if the broader ecological outcomes contemplated in the Practical Vision and recent imperatives for integrated water resource management are to be achieved. For example, the highly modified stream systems that have been reconstructed to protect historic floodplain development and high land values mean that opportunities for alternate channel configurations will need to be identified through a watershed analysis and cannot be assumed to be presented by every modified channel segment.

For reasons identified above and which are discussed in greater detail in the subsequent sections of this report, this ROWD constitutes the request by the Permittees for a Fifth Term Permit that is unique to South Orange County.

Figure 1.1: Laguna Coastal Streams - Land Use

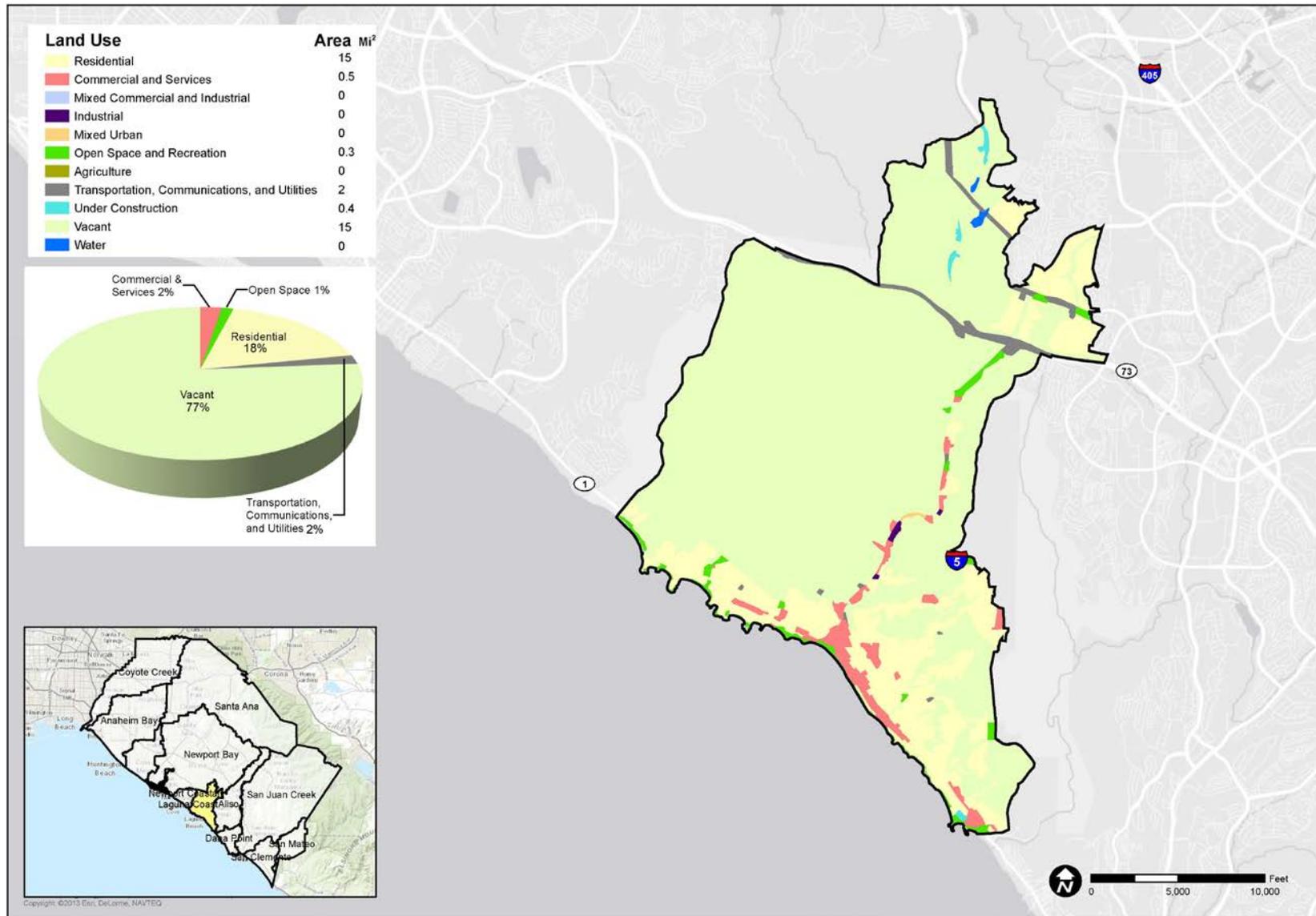


Figure 1.2: Dana Point Coastal Streams - Land Use

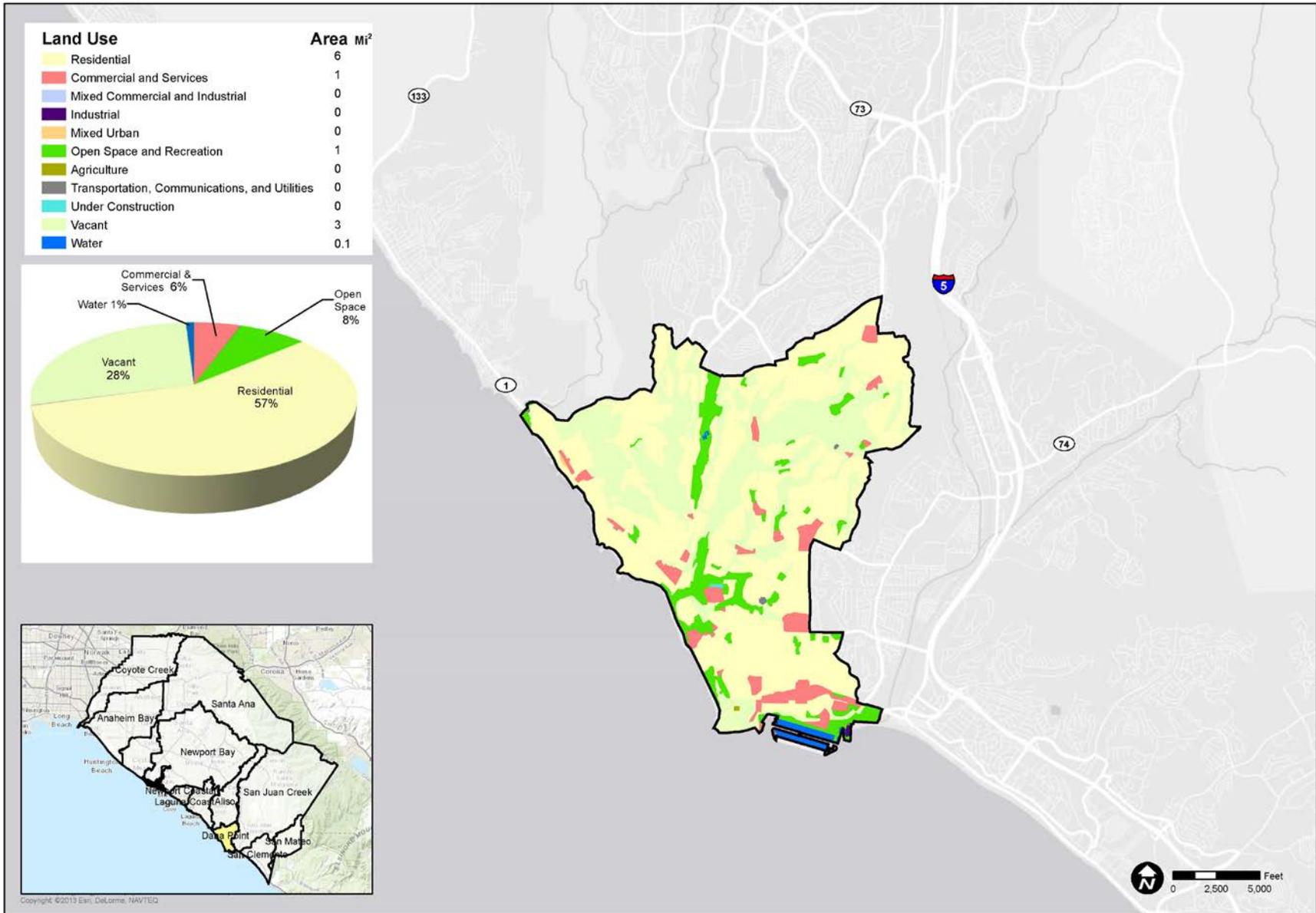


Figure 1.3: Aliso Creek - Land Use

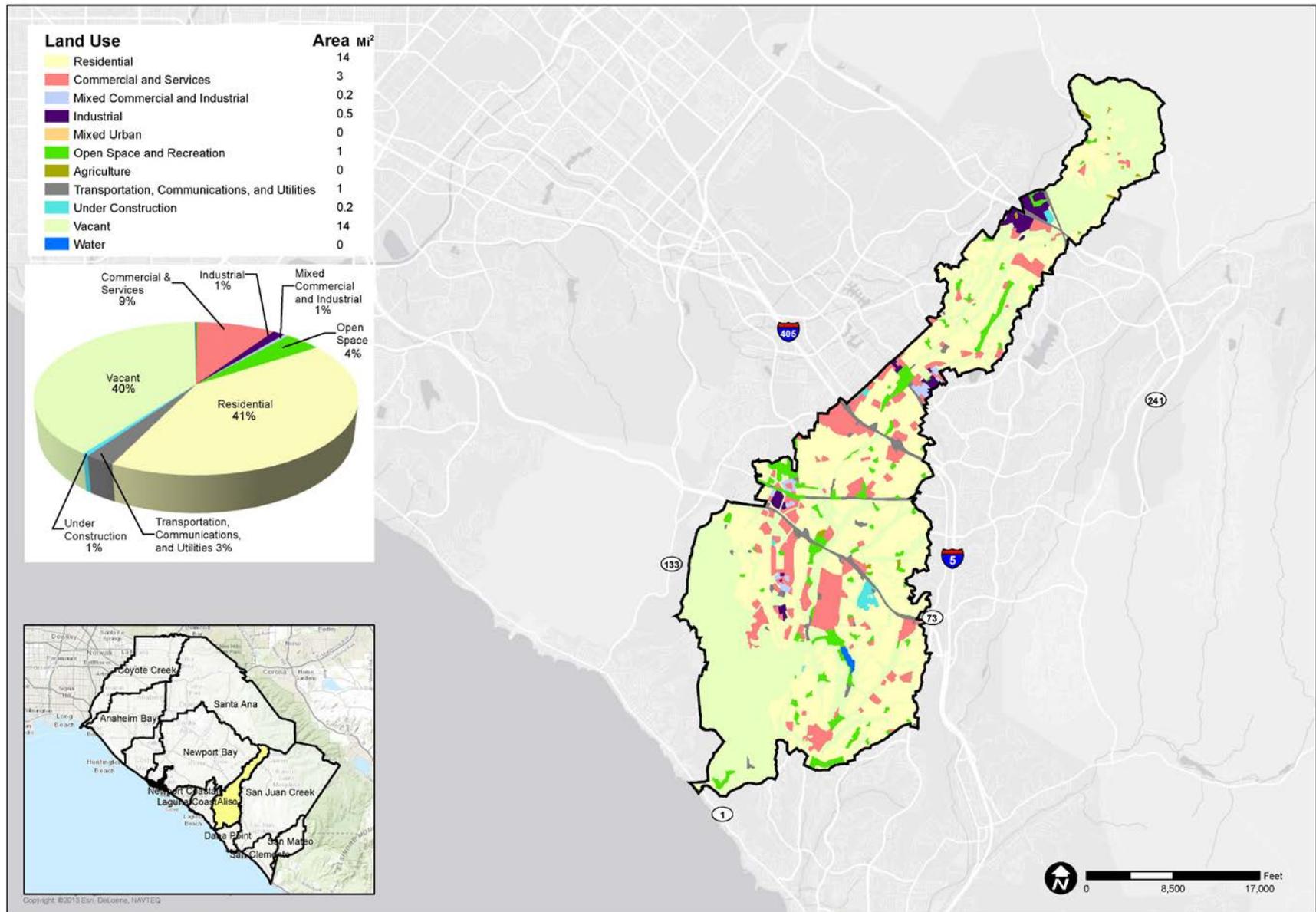


Figure 1.4: San Juan Creek - Land Use

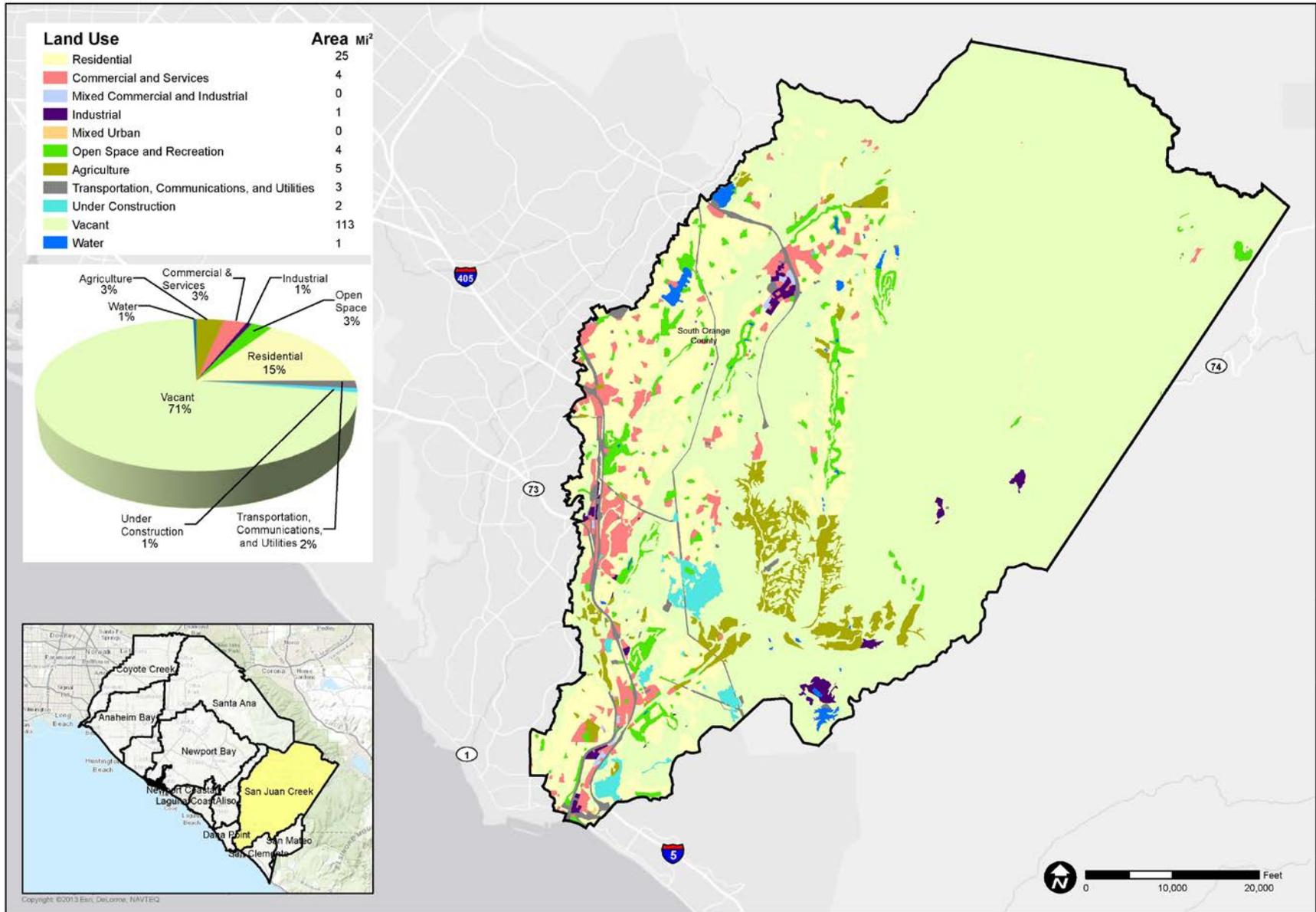


Figure 1.5: San Clemente Coastal Streams - Land Use

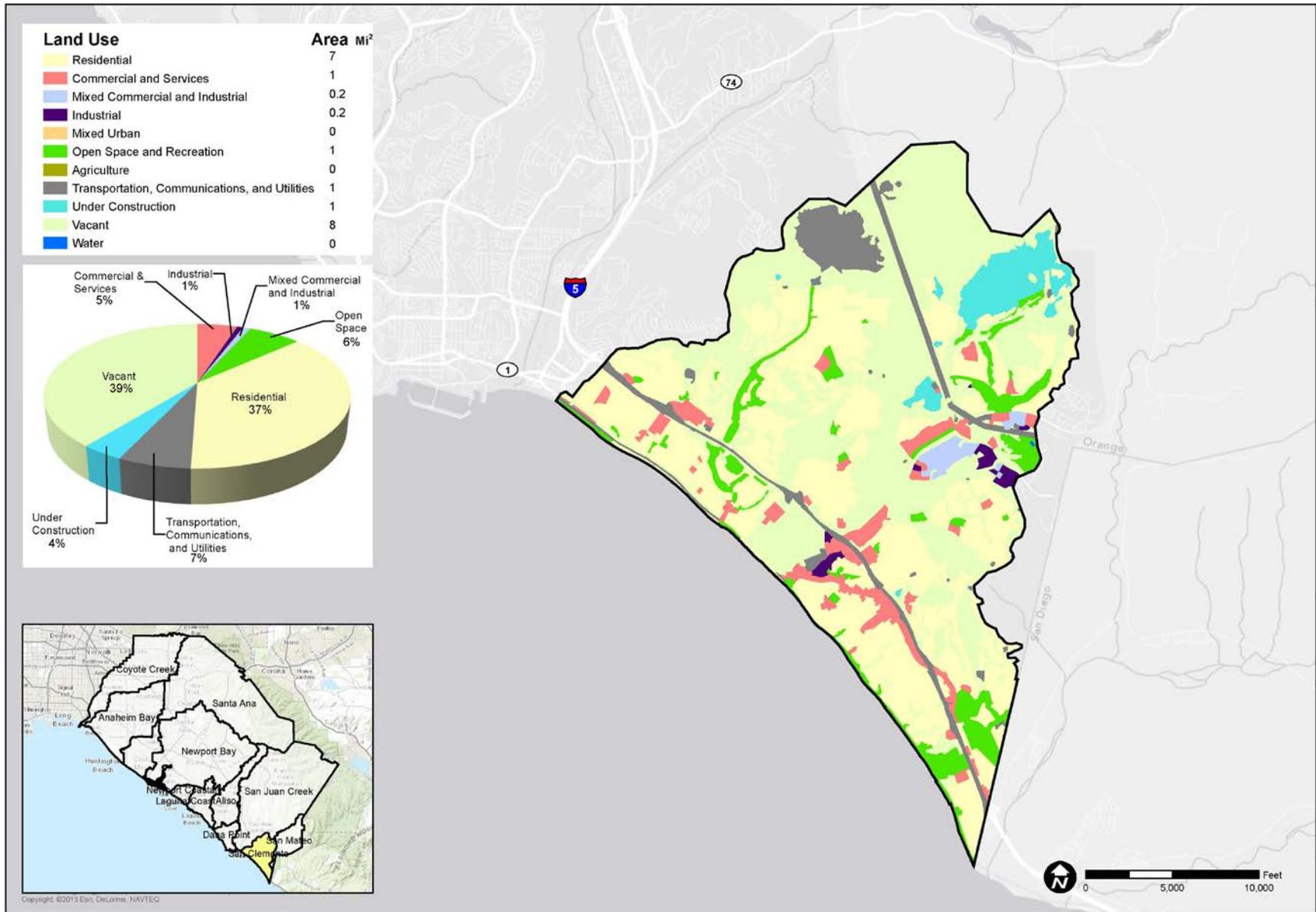


Figure 1.6: San Mateo Creek - Land Use

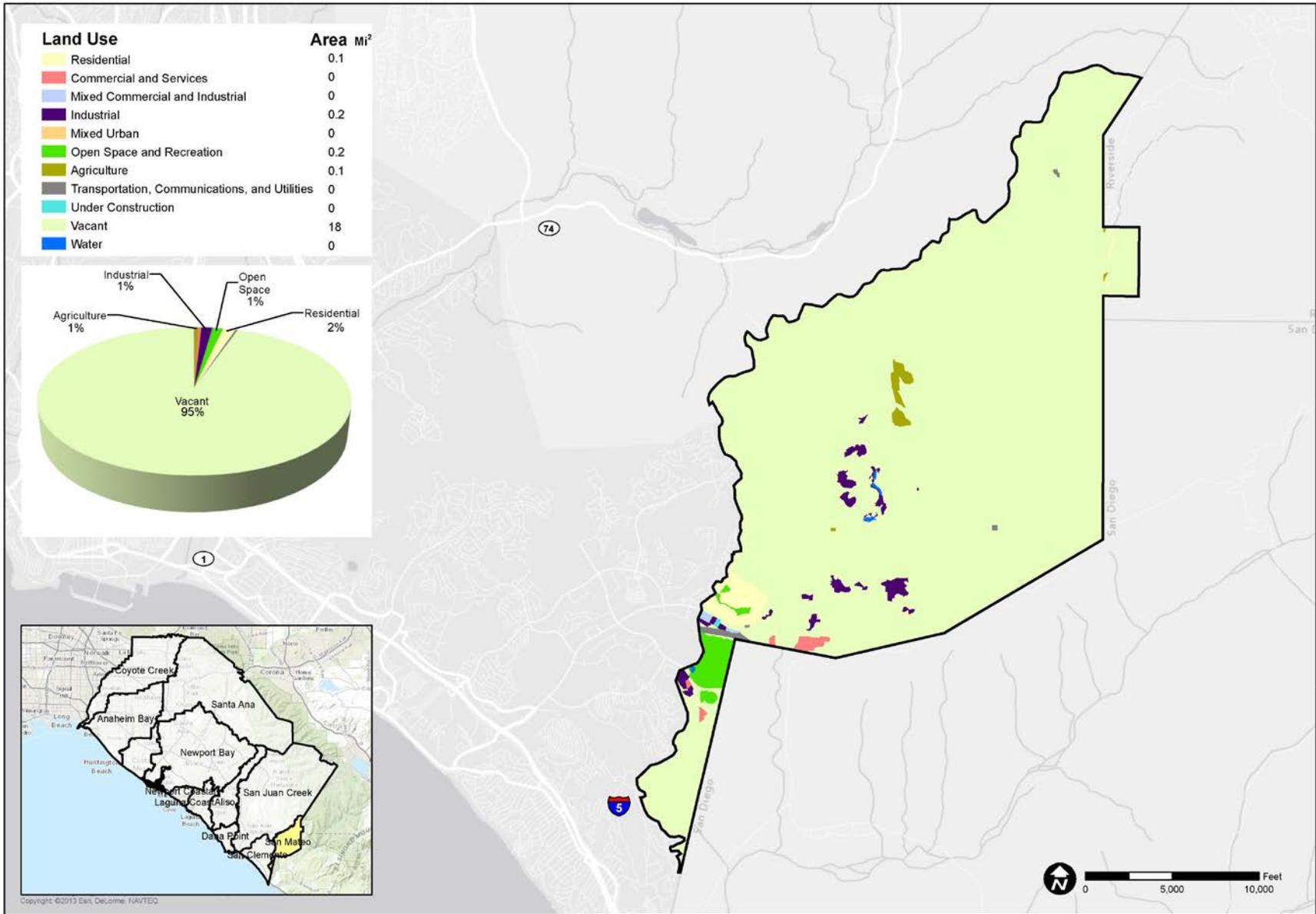


Figure 1.7: Laguna Coastal Streams - Main Stem Channel Type

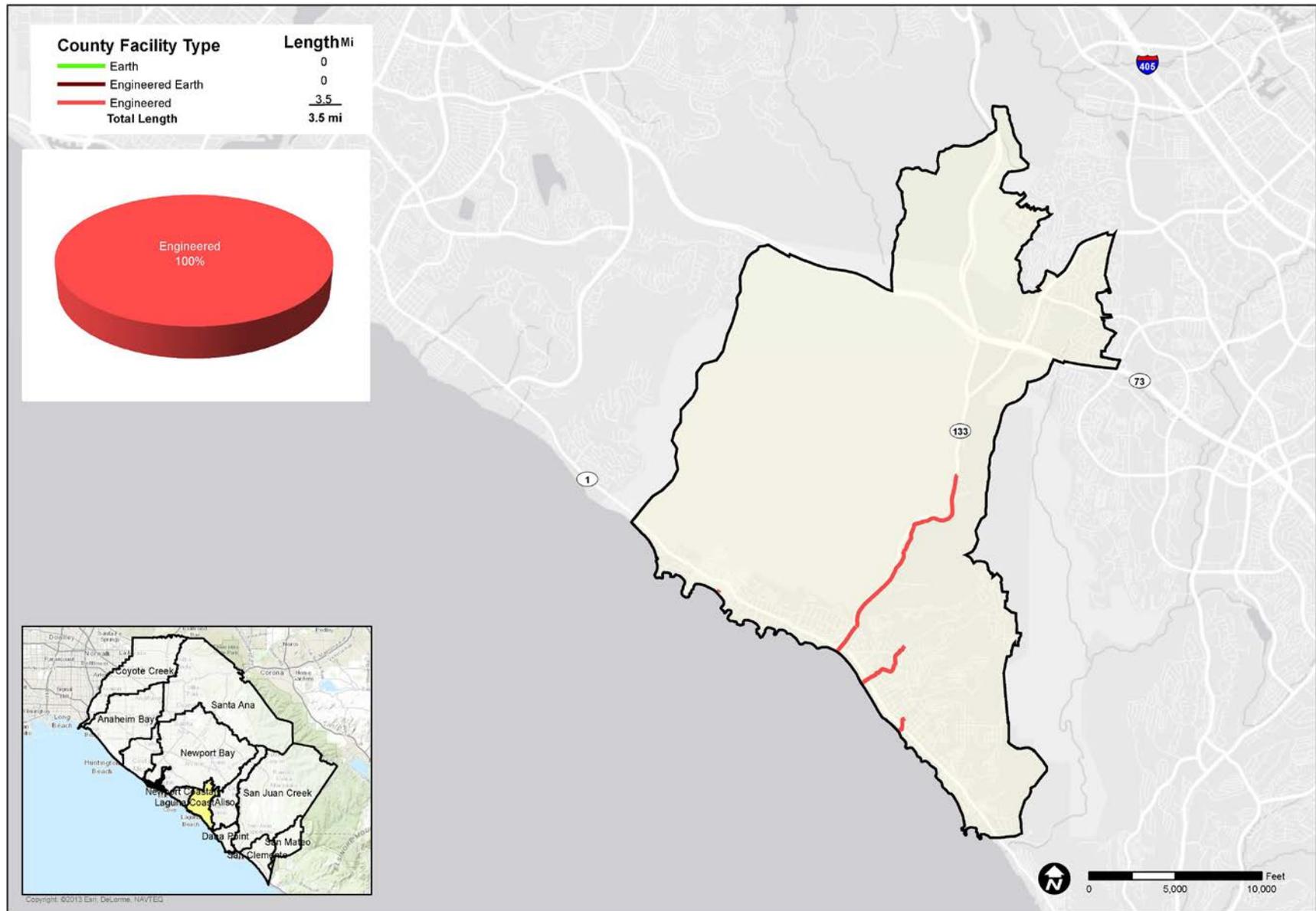


Figure 1.8: Dana Point Coastal Streams - Main Stem Channel Type

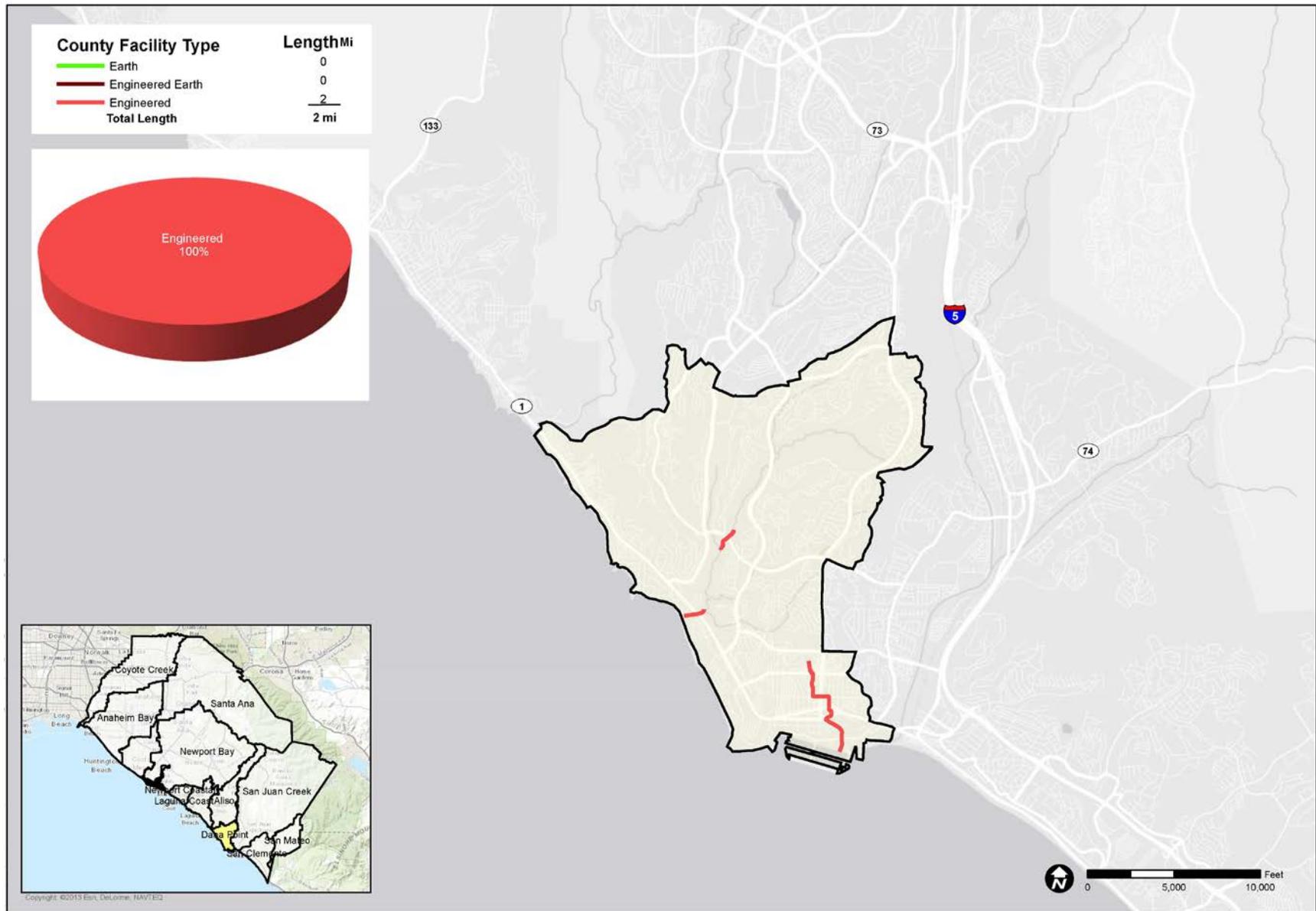


Figure 1.9: Aliso Creek - Main Stem Channel Type

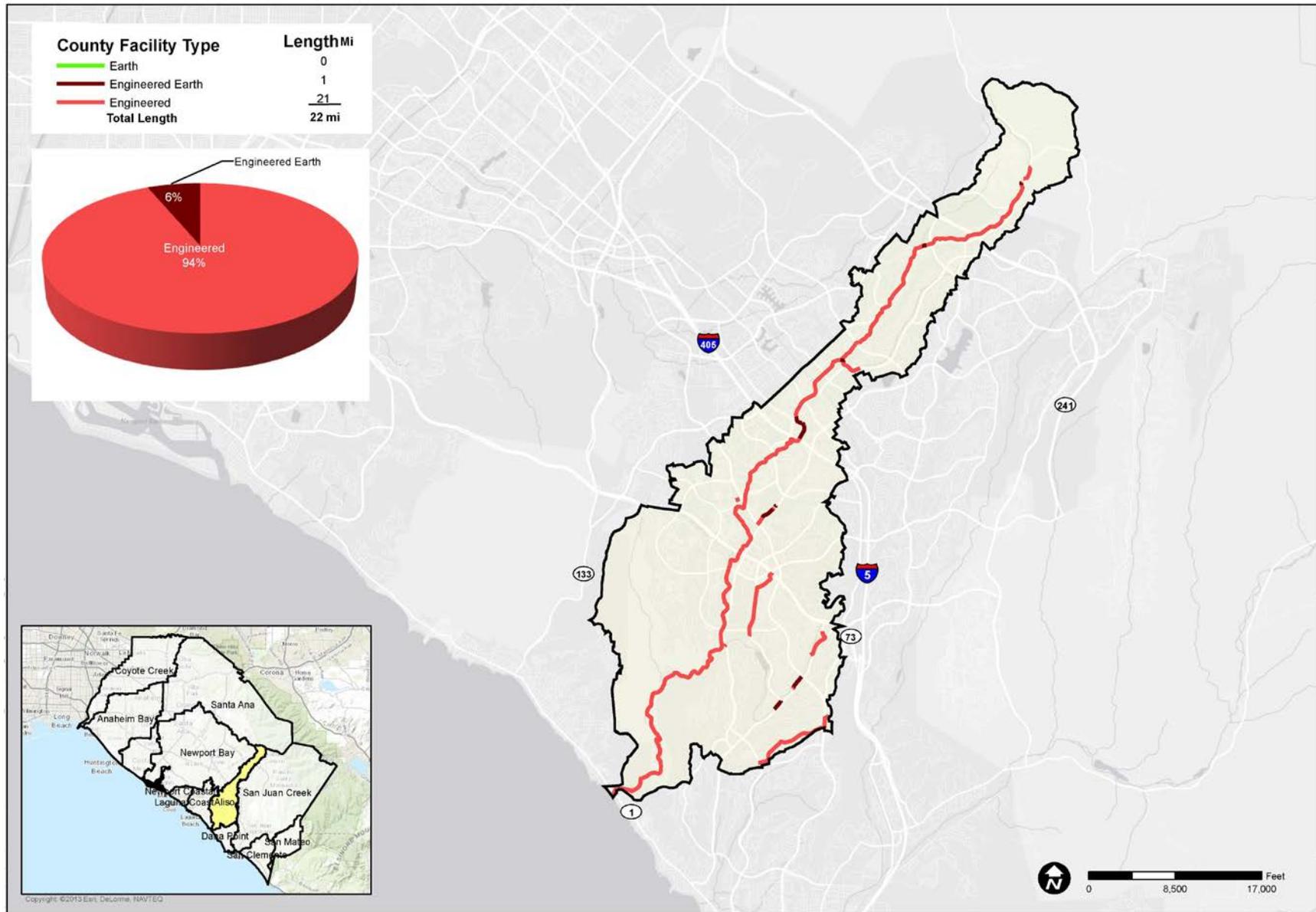


Figure 1.10: San Juan Creek - Main Stem Channel Type

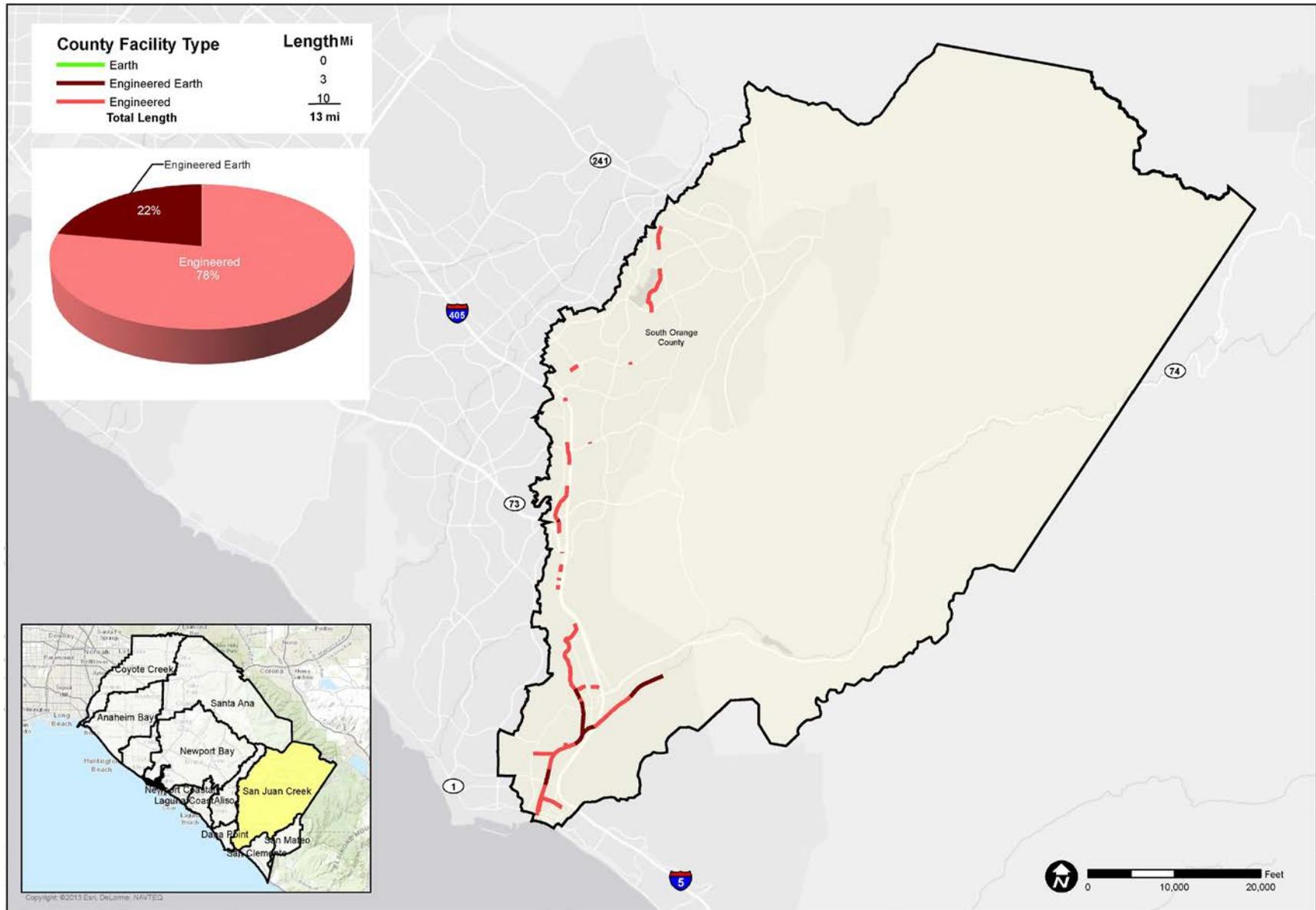
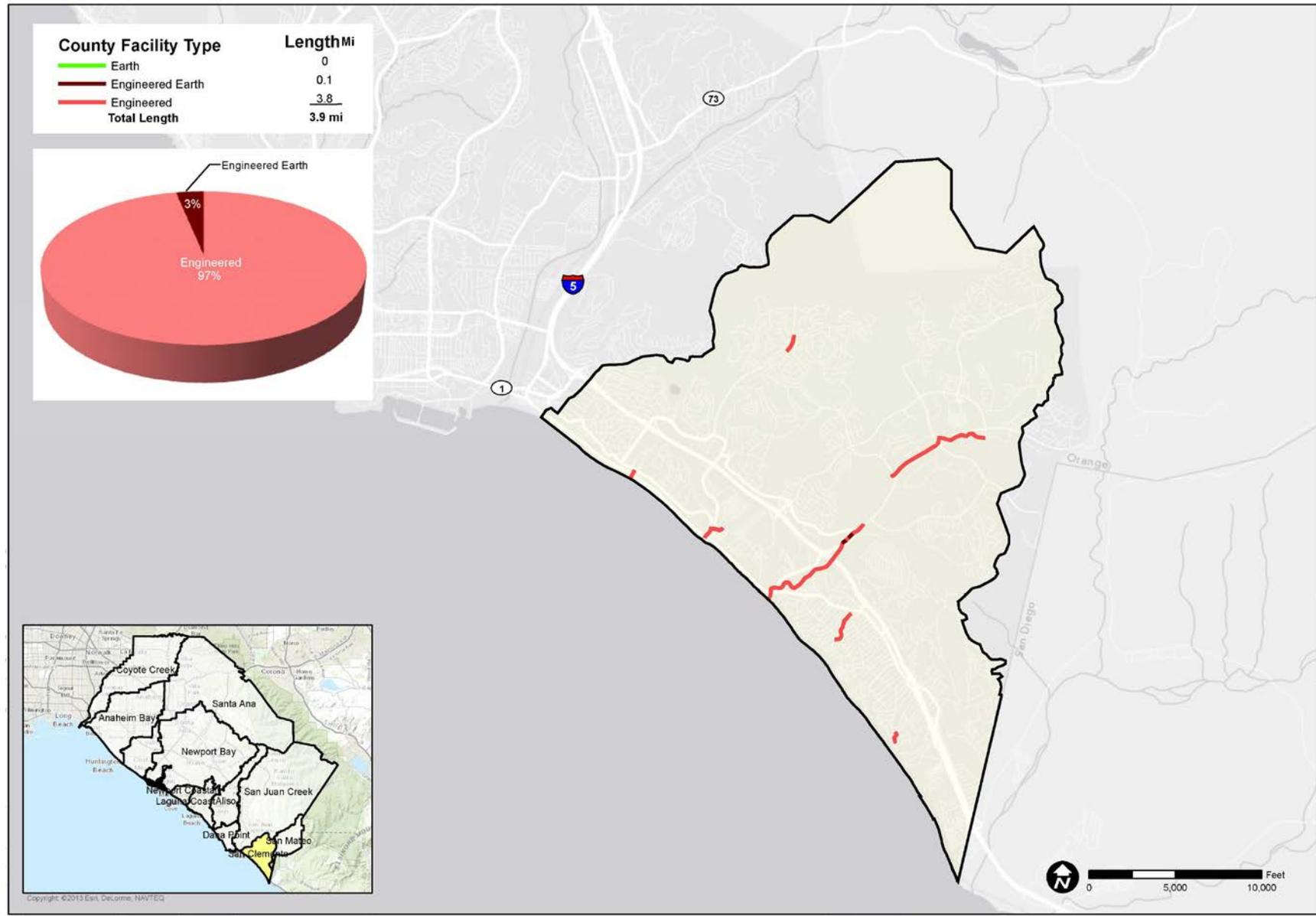


Figure 1.11: San Clemente Coastal Streams - Main Stem Channel Type



Orange County - Public Interest

A public that is informed and motivated to adopt practices protective of water quality can be a significant form of pollution source control. However, continually increasing public knowledge of and willingness to prevent water pollution at home and work is an ever-evolving process and significant challenge. In spite of this, public opinion surveys conducted in 2003, 2005, 2009 and 2012 indicate that Orange County residents have already become both more knowledgeable of environmental quality and are increasingly engaged in environmentally protective behaviors.

Preservation of the environment out of concern for future generations is the number one environmental concern reported by respondents in the most recent opinion survey. A notable eighty-eight percent of respondents reported being concerned about preserving the environment for their children. As a powerful motivator, the connection to future generations can help communicate *why* a particular issue is important and supplement *how* the individual can personally help prevent pollution. Perhaps not surprisingly, parents of children who brought home water quality information were also substantially more likely to perform a greater number of "stormwater safe" behaviors. Of the seven behaviors measured, parents of informed students were more than three times as likely to perform all seven behaviors (22 percent compared to only seven percent).

Orange County residents are clearly concerned about the environment and can be motivated to adopt practices that protect water quality. The Permittees intend to respond to this interest by supplementing continued investment in mass-media education campaigns with targeted outreach that zeroes

in on key pollutants and addresses behaviors that most regularly contribute to that source of pollution. This supplemental approach will use Community Based Social Marketing (CBSM) to encourage target audiences to adopt specific BMPs; the process of CBSM is explained further in **Section 3.3.4**. This two pronged approach provides the Permittees the ability to foster long-term engagement while continuing to provide mass media communication that reaches the entire Orange County population.

1.3 Approach to Preparing Report of Waste Discharge

The ROWD assesses the current Program and identifies revisions to the management program in response to the information learned. Indeed, it is a basic requirement of the Permits' receiving water limitations provisions that the Program continue to adapt and evolve when urban runoff is determined to be causing or contributing to impairments of beneficial uses.

The development of the DAMP is informed by two discrete, yet related water quality planning processes: "countywide/jurisdictional," and "watershed-based" water quality management (see - "Plan Development"). Each process incorporates findings from annual assessments focused on determining whether desired programmatic outcomes are being achieved. Specifically:

- Are program elements being implemented effectively?
- Are environmental improvements being realized?

In this ROWD, the assessment of the Program has produced three types of "Recommendations":

1. **Program Continuation** – Requires no changes in implementation approach, policy or permitting
2. **Program Enhancements** – Requires shift in implementation approach
3. **Program Modifications** – Requires adjustments in policy and permitting

The “Recommendations” are presented throughout the ROWD and are summarized in “Recommendations for Fifth Term Permit.”

1.4 References

San Diego Regional Water Quality Control Board (SDRWQCB). *San Diego Regional Water Board Practical Vision: Healthy Waters, Healthy People*. 2000.
http://www.swrcb.ca.gov/sandiego/water_issues/Practical_Vision/docs/PV.pdf

Thomas R. Schuler and Heather K. Holland. *The Practice of Watershed Protection: Techniques for protecting our nation’s streams, lakes, rivers and estuaries* (Maryland: Center for Watershed Protection, 2000).

2.0 State of the Environment

2.1 Overview

The Program's monitoring, assessment, and environmental research efforts are intended to track progress toward solving existing issues, identify emerging issues that could become issues in the future, and support research and development that improves our understanding of key processes and advances the efficiency and effectiveness of monitoring methods.

Monitoring is most often seen as a response to regulatory requirements, which it is, but it also provides information that guides the use of important resources and answers a set of fundamental questions of keen interest to both managers and the public. The State Water Resources Control Board has articulated the following four questions (based on the intent of the federal Clean Water Act) that provide a broad context for water quality monitoring in the state:

- Is our water safe to drink?
- Is it safe to swim in our waters?
- Is it safe to eat fish and shellfish from our waters?
- Are our aquatic ecosystems healthy?

This current assessment of the state of the environment for south Orange County (**Figure 2.1.1**) summarizes the results of long-term monitoring and related special studies that address the second and fourth of these questions (related to swimming safety and aquatic ecosystem health). These two issues are directly related to stormwater management priorities. The safety of drinking water is addressed by other agencies and

programs that produce independent reports on drinking water quality. The safety of consuming local fish and shellfish is directly managed by the California Office of Environmental Health Hazard Assessment (OEHHA), supported by data and assessments conducted by the California Surface Water Ambient Monitoring Program (SWAMP) and others (the Beaches and Creeks TMDL for bacteria did not address the shellfish recreational use standard). In addition, the State Water Resources Control Board is in the process of conducting a statewide assessment of the potential contribution of contaminated sediments in enclosed bays and estuaries to the levels of contaminants in seafood tissue as well as shell beneficial use (SWRCB 2011).

Figure 2.1.1: The portion of South Orange County that is under the jurisdiction of the San Diego Regional Water Quality Control Board and is the focus of this Report. Blue lines represent watershed boundaries.



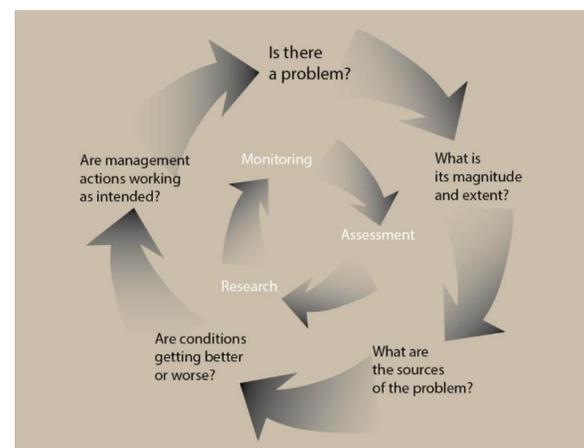
This Report therefore focuses on the two core management questions that are within the Stormwater Program’s area of responsibility and that are not currently being assessed by other agencies. For each major question (e.g., Is it safe to swim in our waters?), monitoring and assessment should, over time, answer the following assessment questions:

- Is there a problem?
- If so, what is its magnitude and extent?
- What are the sources of the problem?
- Are conditions getting better or worse?
- Are management actions working as intended?

Monitoring, assessment, and research efforts should be tightly focused on one or more of these questions and be managed to ensure that resources are reallocated when questions are answered and new ones arise (**Figure 2.1.2**). Monitoring, assessment, and research should therefore be managed as a portfolio of resources invested in creating the information needed to meet the Program’s goals, with the allocation of resources adjusted as needed. Assessment and research are included as a package with monitoring for two reasons. First, the information produced by ongoing monitoring programs is most useful when it is carefully analyzed, evaluated in the context of other related information, and applied to the basic questions motivating monitoring (i.e., assessed). Second, not all questions can be answered by routine monitoring and targeted special studies (i.e., research) are often needed to fill critical data gaps, develop more effective monitoring tools, and/or lay the groundwork for new management approaches. This approach follows the guidance contained in the Regional Board’s recently adopted *Framework for Monitoring and Assessment* (RWQCB 2012), which emphasizes the importance

of a sequential, question-driven approach supported by appropriate monitoring and assessment efforts that are adapted over time as knowledge improves and priorities shift.

Figure 2.1.2: Monitoring, assessment, and research provide the data and information required to answer the five key assessment questions. Attention should shift among questions as information improves and priorities change, and the mix of monitoring, assessment, and research activities should be adjusted to correspond.



The Program has identified three themes that help structure the assessment of the status and trends of environmental conditions in south Orange County and the accompanying recommendations for restructuring current monitoring programs:

- Theme 1: Focus on priority areas and constituents rather than trying to monitor all constituents, potential issues, and locations.

- Theme 2: Increase the integration of data from a wider range of sources in order to leverage the value and impact of the Program's efforts to address the five assessment questions.
- Theme 3: Continue evolving from a strictly discharge-specific approach to a risk prioritization approach that can highlight problem areas and support more flexible monitoring designs that include data driven adaptive triggers.

These three Report themes inform the following the section of progress toward meeting management goals for the four critical areas of concern (bacteria, dissolved solids, nutrients and toxicity). In these areas, there is a substantial amount of data available to support conclusions about progress, highlight remaining problem areas, and reexamine current monitoring designs to improve efficiency and effectiveness.

This Report begins with an evaluation of available data from the past ten years of monitoring in the region's water bodies in order to identify constituents whose concentrations and impacts have been successfully reduced, as well as those that remain of concern. This initial prioritization is then expanded and examined in greater detail in subsequent sections of this Report.

Subsequent sections examine these constituents in greater depth, the progress made and factors that contribute to continuing issues. Each section ends with recommendations for improving monitoring's effectiveness. A final section evaluates the study designs for the Dry Weather and the Coastal Ambient monitoring efforts, to assess whether their goals could be better met with different approaches.

2.2 Prioritization

The Story: Prioritization

- Prioritization is a valuable tool for the Program to use its resources wisely to focus on the most important issues.
- Initial prioritization is based on the overall frequency and magnitude of exceedances of compliance standards and other measures of problem severity.
- In inland channels, bacteria, dissolved solids, and nutrients are persistent issues over time, particularly in wet weather.
- For coastal discharges, there are no persistent issues in wet weather, while bacteria and nutrients are issues in dry weather.
- Some elevated toxicity is present in inland channels during wet weather, but overall toxicity is not different from that described for background conditions by the Stormwater Monitoring Coalition (SMC).
- There are no persistent issues in the coastal surfzone due to discharges, other than localized bacteria contamination at a handful of problem beaches and localized and moderate nutrient exceedances in wet weather.

The Program has measured a broad suite of contaminants and other measures of condition (i.e., toxicity, bioassessment) and the accumulated data from many years of monitoring provides a valuable opportunity to compare the severity of impacts and adjust their relative priority. In order to provide a consistent basis of comparison across indicators (with the exceptions of toxicity and bioassessment), an overall index of the extent to which indicators meet regulatory standards is used.

The index, developed by the Canadian Council of Ministers of the Environment (CCME) was used in the Report of Waste Discharge (ROWD) for the northern portion of the County and such frequency-based indices are widely used in water quality assessment (e.g., by the Central Coast Regional Water Quality Control Board and the Ventura Countywide Stormwater Quality Management Program). It provides a measure, scored from 0 – 100, of the frequency and magnitude of exceedances that can be tracked over time, with lower scores representing worse conditions and higher scores better conditions. This index which is a more effective means of communicating water quality results accounts for the number of indicators within each category (e.g., bacteria, metals) that exceed standards in each year, the percentage of individual samples that exceed standards, and the average magnitude of any such exceedances (CCME 2001).

Table 2.2.1: Overall summary of results of prioritization analysis. Red represents persistent and widespread exceedances of regulatory thresholds, yellow occasional exceedances, and green few if any exceedances. Measures of exceedance used in this analysis accounted for both the frequency and the magnitude of exceedance. Note: Bacteria, dissolved solids, and nutrients may be problem constituents in channels, and bioassessment scores in urban areas are generally low.

	Bacteria	Dissolved solids	Nutrients	Toxicity	Pesticides	Metals	Bioassessment
<i>Channels</i>							
Dry	Red	Red	Red	Green	Green	Green	Red
Wet	Red	Red	Red	Yellow	Green	Green	NA
<i>Coastal</i>							
Dry	Green	NA	Green	Green	Green	Green	NA
Wet	Yellow	NA	Yellow	Green	Green	Green	NA

2.2.1 Inland Channels

For inland channels, bacteria, dissolved solids, and nutrients are persistent issues over time. Toxicity is somewhat higher in wet than in dry weather, but is not substantially above background conditions described in SMC studies. Biological condition (i.e., bioassessment) is generally poor and is in the lower 50% of the distribution compared to other urban areas in southern California. The following figures present results of

the prioritization analysis for these core constituents, beginning with **Figure 2.2.1**'s overall summary ranking of constituents based on monitoring data from receiving waters in inland channels.

Figure 2.2.2 presents a slightly different perspective with data collected from stormwater discharge points into inland channels prior to mixing with receiving water. No constituents in wet weather exceeded Stormwater Action Levels (SALs) (**Figure 2.2.2a**) which are higher than the Water Quality Objectives (WQO) that apply to dry weather discharges (**Figure 2.2.2b**) and receiving waters in channels (**Figure 2.2.1**). Nutrients and bacteria are persistent issues for dry weather discharges.

While toxicity is present in urban channels (**Table 2.2.2**), it is not higher, overall, in dry weather than the toxicity documented in the open (undeveloped) landuse by the SMC's regional monitoring program. Wet weather toxicity in the County's channels is higher in wet than in dry weather, and is somewhat higher in wet weather for *Americamysis bahia* than seen in the northern portion of the County, patterns discussed further in the subsequent section on toxicity.

Figure 2.2.1: Overall exceedance index for core monitoring constituents in inland channels, summarized over the 2003 – 2013 monitoring period. The bar charts rank constituents based on their respective CCME exceedance indices in both dry and wet weather, with higher values indicating fewer and smaller exceedances. Note: pesticides and metals had considerably lower exceedance rates and magnitudes of exceedance than bacteria, dissolved solids, and nutrients.

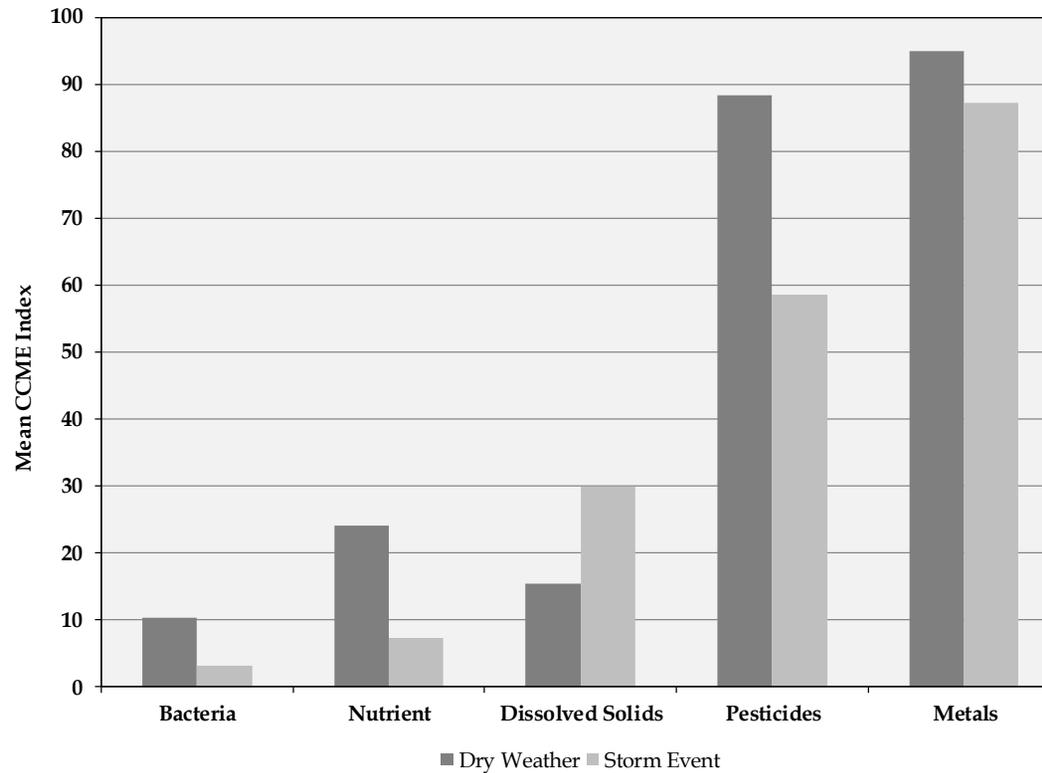
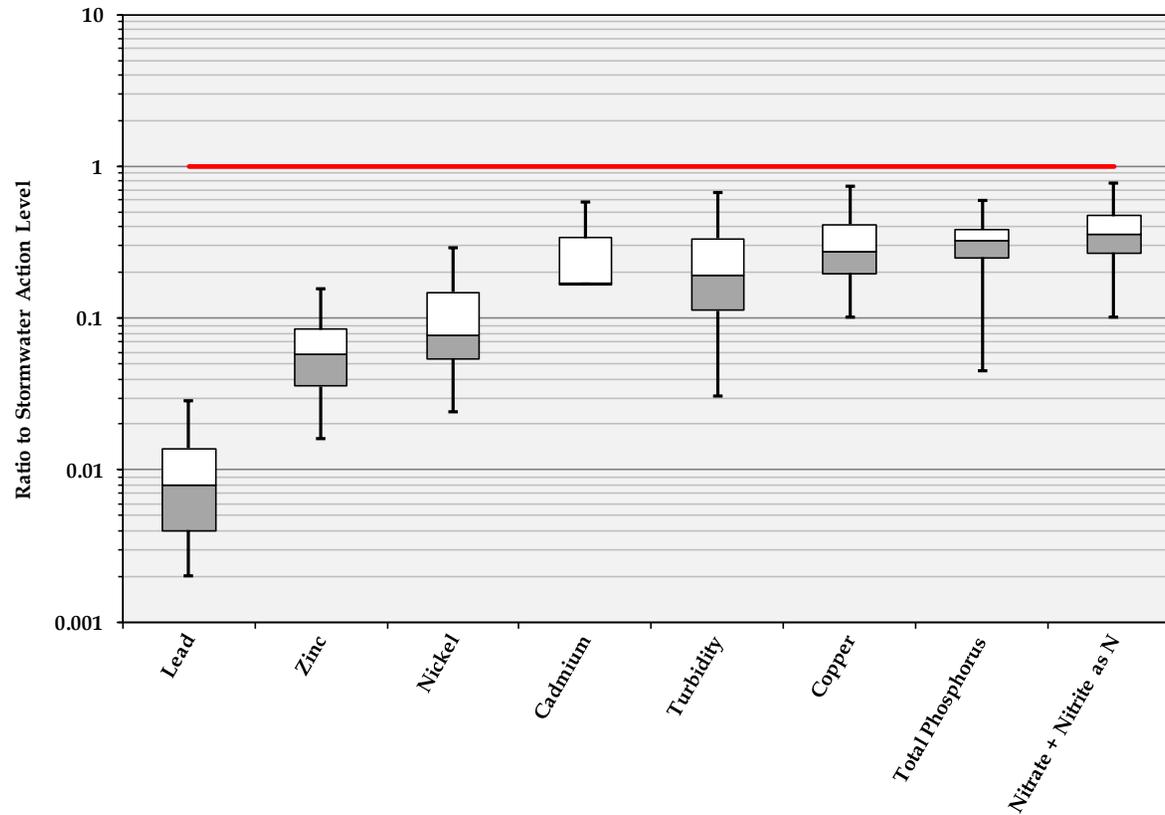


Figure 2.2.2: Comparison of individual constituent concentrations with a) stormwater action levels (SALs) for wet weather and b) water quality objectives (WQOs) for dry weather. In the box and whiskers plot, the horizontal bar represents the median, with the upper and lower edge of the box the 75th and 25th percentiles of the distribution, respectively, and the whiskers the maximum and minimum values. Note: All constituents are below SALs in wet weather and only nutrients and bacteria are above NALs in dry weather.

a)



b)

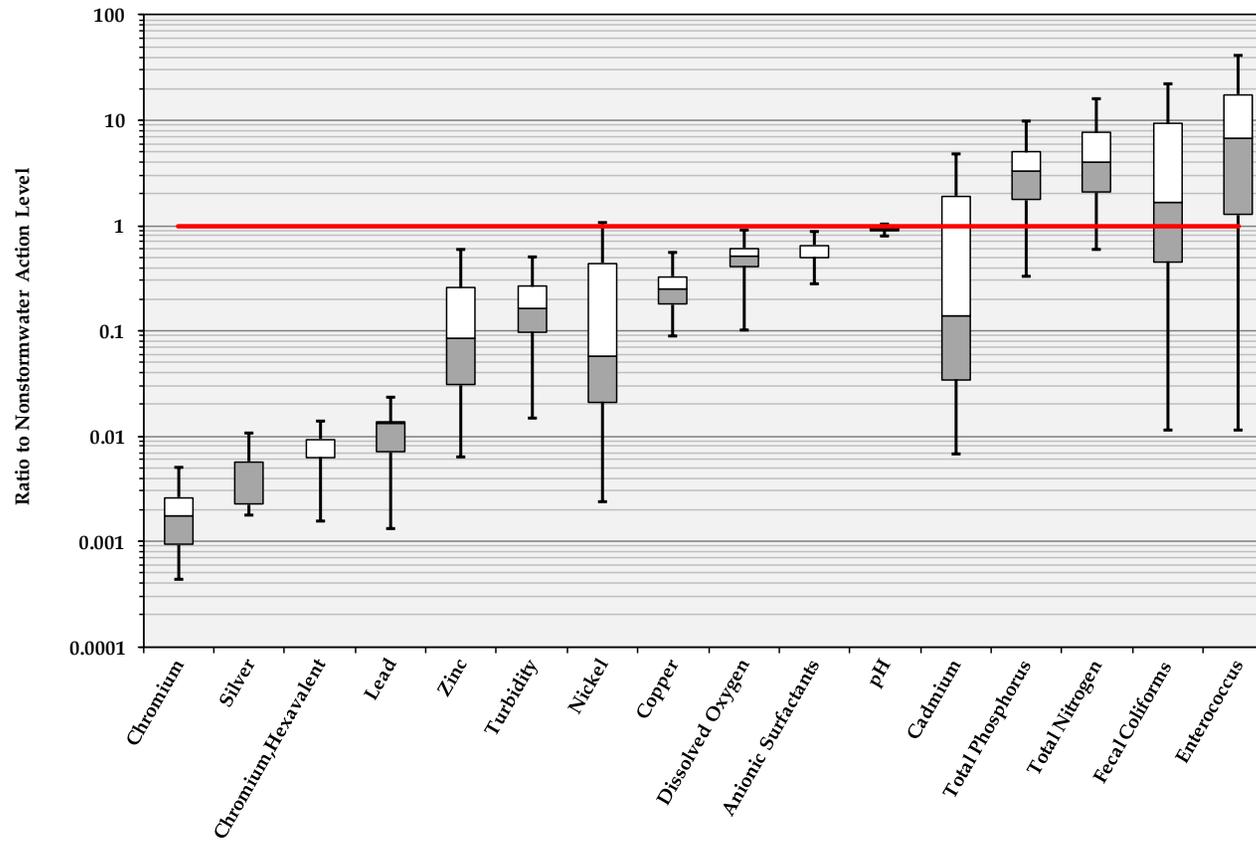


Table 2.2.2: Summary of the Program’s toxicity testing in South Orange County from 2003 – 2012, an effort that includes 2548 tests on multiple species from a range of times, locations, and conditions. *Note: Toxicity levels are generally low except for one organism in wet weather that is susceptible to pesticides.*

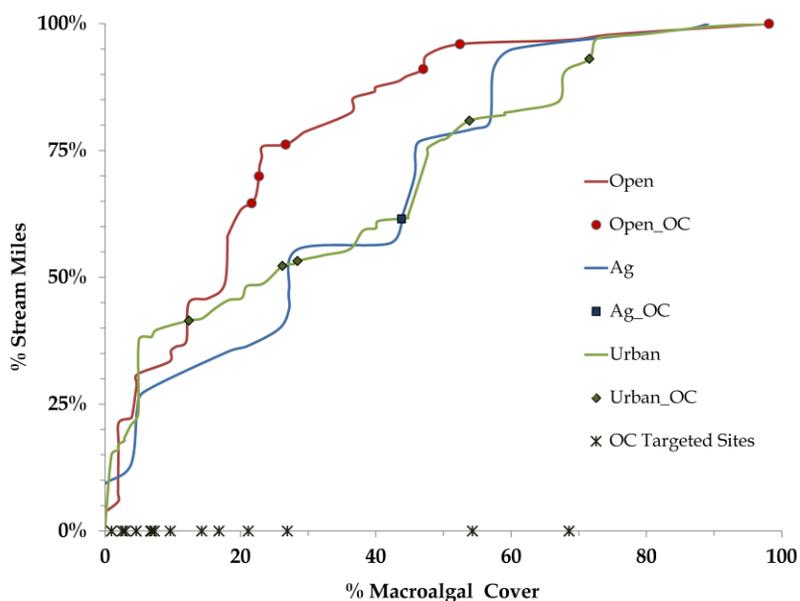
Test Species	Dry Weather			Wet Weather			Sediment		
	n	Toxic	Nontoxic	n	Toxic	Nontoxic	n	Toxic	Nontoxic
<i>Americamysis bahia</i>	391	34%	66%	573	45%	55%			
<i>Strongylocentrotus purpuratus</i>	179	5%	95%	293	24%	76%			
<i>Ceriodaphnia dubia</i>	569	20%	80%	51	12%	88%			
<i>Pimephales promelas</i>	64	9%	91%	1	0%	100%			
<i>Hyalella azteca</i>	224	11%	89%	17	53%	47%	9	0%	100%
Overall	1593	18%	82%	946	36%	64%	9	0%	100%

Biological condition, as measured by macroinvertebrate bioassessment results, is uniformly poor at targeted monitoring sites in South Orange County channels (**Figure 2.2.3**). Studies conducted as part of the State Water Resources Control Board’s effort to develop a statewide Biological Integrity policy indicate that alterations to physical habitat are a major cause of degraded biological conditions. The somewhat elevated toxicity in wet weather (**Table 2.2.3**) might be another contributing factor. Because the Biological Integrity policy, with its new scoring protocol, is still under development, and its technical background studies have not been completed and released, the Program will defer a more detailed consideration of biological condition for now. At that point, however, a causal assessment, using the approach recommended by the State Water Board, would be appropriate and informative.

Table 2.2.3: Summary of aquatic toxicity results from the past five years of Stormwater Monitoring Coalition (SMC) samples from random sites across the southern California region. *Sites were located in both open (i.e., undeveloped) and urban landuse types. The large majority of stream miles were nontoxic for acute toxicity (i.e., survival), with an equivalent amount of sporadic background toxicity, in both open and urban landuses. The majority of stream miles were toxic for chronic toxicity (i.e., reproduction) in the open landuse, a strikingly different pattern than seen in the urban landuse. Note: Toxicity patterns in open undeveloped areas are not substantially from those in urban areas.*

	% Stream Miles	
	Open	Urban
Ceriodaphnia Survival		
Toxic	2.1	2.4
Nontoxic	97.9	97.6
Ceriodaphnia Reproduction		
Toxic	63.0	37.4
Nontoxic	37.0	62.6

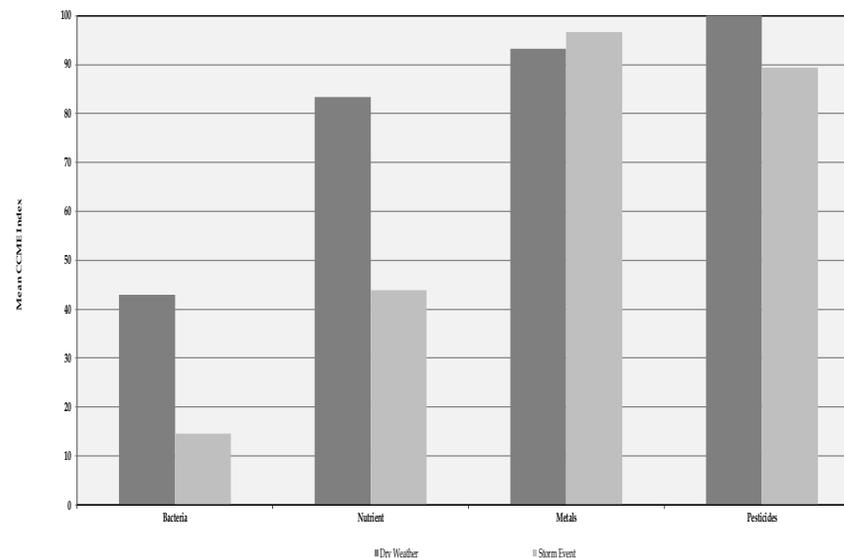
Figure 2.2.3: Cumulative frequency distribution of SMC bioassessment monitoring results across southern California in three distinct landuses. The random sites within Orange County sampled as part of the SMC program are indicated on the curves for urban and open landuses. Targeted channel sites are shown along the X axis and Index of Biotic Integrity (IBI) scores for these sites, with one exception, fall in the lower 50% of the distribution compared to all urban landuse sites sampled as part of the SMC regional study. Note: Bioassessment IBI scores in urban areas are in the lower half of scores for urban areas in southern California.



2.2.2 Coastal Surfzone

For the coastal surfzone, nutrients and bacteria are mild to moderate issues in wet weather, with most bacteria issues due to a small number of persistent problem beaches (Figure 2.2.4). Elevated nutrient concentrations in wet weather are a concern because they may contribute to regional eutrophication in coastal estuaries and to harmful algal blooms along the coast.

Figure 2.2.4: Overall exceedance index for core monitoring constituents in the coastal surfzone, summarized over the 2003 - 2013 monitoring period. Note: Constituents measured at coastal discharge points rarely exceed standards, except occasionally for bacteria and nutrients in wet weather.

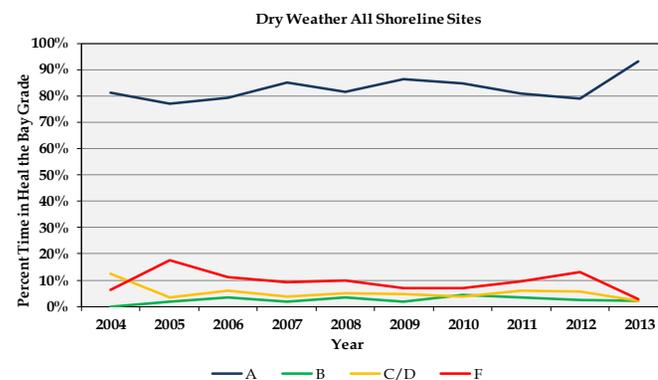


While **Figure 2.2.4** suggests that bacteria contamination is a moderate problem, particularly in wet weather, two other datasets present a different perspective. The data in **Figure 2.2.4** are drawn from the Program’s monitoring at large coastal discharges, all of which are more likely to have elevated bacteria levels and thus represent a worst case estimate. In contrast, Heal the Bay beach report grades for a much larger set of South Orange County swimming beaches (**Figure 2.2.5**) show that the large majority of grades are in the A condition, even in wet weather and a more detailed examination of individual beaches (**Figure 2.2.6**) shows that bacteria shows continued improvement at some beaches over the past five years. However, **Figure 2.2.6** does not reflect recent dramatic improvements at these beaches because it summarizes data over the entire 2005 – 2013 period (see **Section 2.3** which reflects on the recent changes and provides a perspective of trends over time). The issues that do exist are localized to a few persistent problem beaches. For example, Heal the Bay has recently removed both Poche and Doheny beaches from its Beach Bummer list of the top 10 problem beaches in southern California. Thus, the data summarized for **Figure 2.2.4** do not provide the entire context for evaluating bacterial contamination at coastal beaches.

Figure 2.2.4 shows that nutrients may be a moderate issue in wet weather. However, unlike bacteria which cause relatively localized issues because they die off in seawater, nutrients can be a more regional concern due to their potential to contribute to plankton blooms and eutrophication both in local estuaries and the larger coastal ocean. A fuller assessment of potential nutrient impacts will depend on the developing state policy on Nutrient Numeric Endpoints (NNE) for coastal estuaries and Bight Program assessments of nutrients’ potential contribution to plankton blooms in the coastal ocean.

Figure 2.2.5: Percentage of the time that swimming beaches are in each Heal the Bay report card category, averaged across all monitored beaches. During dry weather beaches are in the A grade between 80 and 90% of the time. During wet weather the percentage of A grades drops, but has remained at about 80% for the past two years.

a)



b)

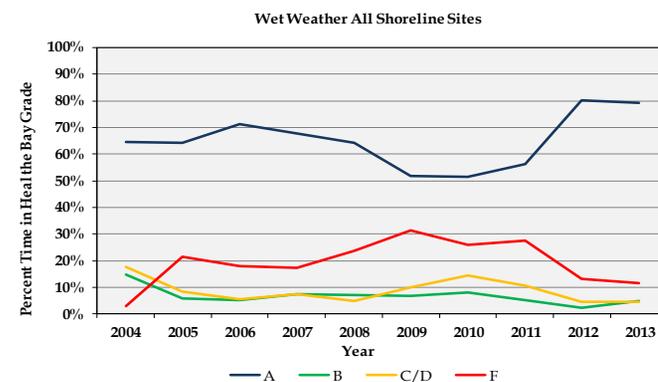
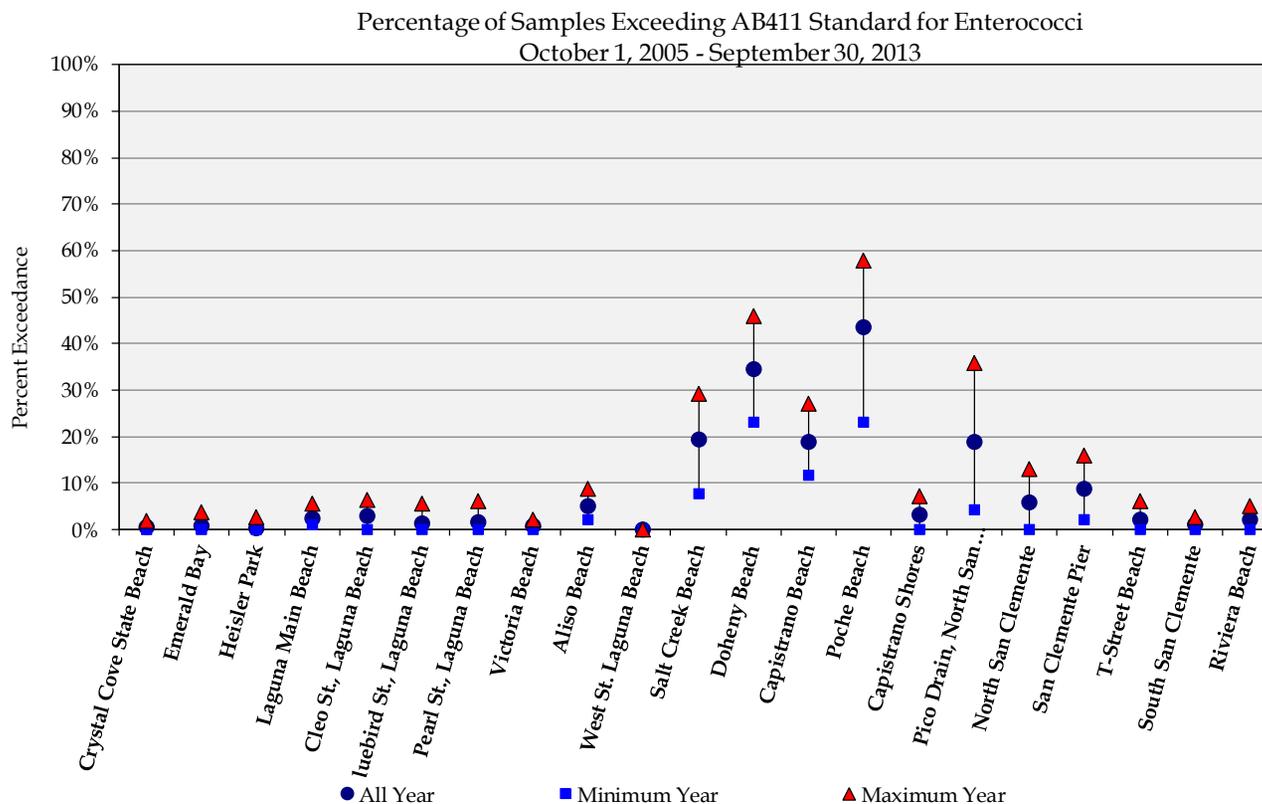


Figure 2.2.6: The overall percent exceedance of the AB411 *Enterococcus* standard over the time period 2005 - 2013. Poche and Doheny, and to a lesser extent Pico, are the only persistent problem beaches and this summary figure overstates the problem because it does not clearly reflect significant recent improvements. This figure focuses on *Enterococcus* because it is the only one of the three AB411 indicators with any meaningful level of exceedance. Note: Exceedances of the *Enterococcus* standard occur at only a few problem beaches, which have improved dramatically in recent years.



2.3 Bacteria

The Story: Bacteria

- The County's beaches support concentrated recreational activities for both residents and visitors and are important contributors to the local and regional economy.
- Concern about swimming safety is consistently high and epidemiology studies in dry weather show that some illness (for example, gastroenteritis) is associated with full immersion swimming in contaminated water.
- Contamination is very low during dry weather and has dropped steadily over time; beach report card grades are consistently high.
- Sources of contamination have been reduced through targeted actions; remaining issues during dry weather are localized and may have natural components.
- Contamination is more widespread during wet weather; wet weather flows are larger and qualitatively different.
- Health risks associated with wet weather flows are uncertain, but ongoing research and development focuses on improved monitoring tools and wet weather epidemiology studies.
- Progress on managing dry weather contamination demonstrates the efficacy of targeted BMPs appropriate to specific situations that may include natural sources (e.g., birds).

2.3.1 A Valued Resource

South Orange County's beaches (**Figure 2.3.1**) have been used for recreation at least as far back as the early 20th Century, and the local population as well as visitors from outside the region have enjoyed the opportunities they provide for sightseeing, picnicking, sunbathing, swimming, and surfing. The acceleration of urbanization and population growth in the last century increased beach usage at the same time as growing environmental awareness intensified concerns about contamination and its potential health impacts. The nexus of these two trends was illustrated dramatically in 1999 when persistent closures of Huntington State Beach due to contamination resulted in substantial economic impacts, anxiety about potential health effects, and concerted efforts to find and control the sources of contamination. While this event occurred in the north County, it affected perceptions among managers and the public throughout southern California. With over 100 million visits annually to southern California's beaches (nearly 40 million of which occur in Orange County) (Dwight et al. 2007) that contribute billions of dollars to the regional economy, the stakes related to contamination and public health are higher than ever.

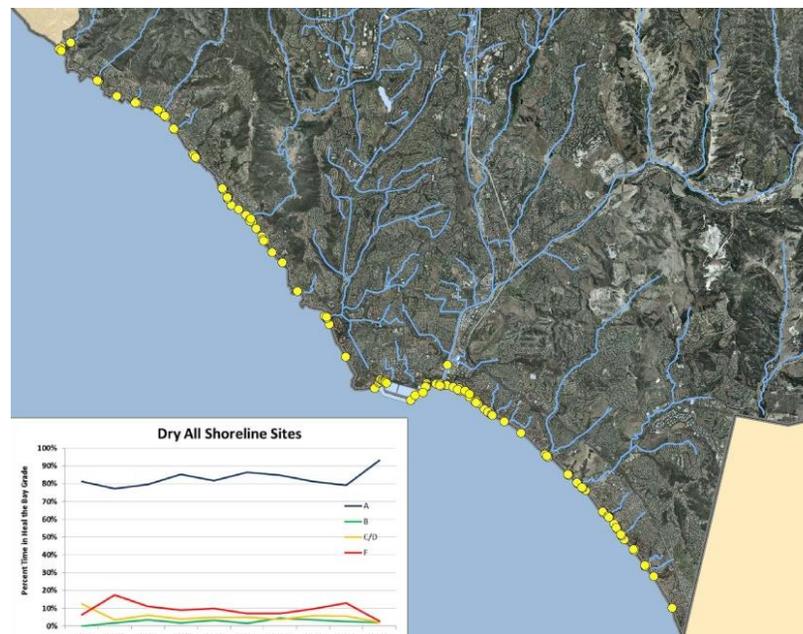
The intensity of recreational use at beaches has stimulated a large amount of research, monitoring, and regulation at the federal, state, and local levels. These efforts have identified bacterial, protozoan, and viral pathogens that could be present when contaminated runoff and untreated sewage are released into the ocean (HCA 2012). Epidemiology studies in Santa Monica Bay (1995 & 2007/08) and at Doheny Beach (Colford et al. 2012) documented higher illness rates (e.g., gastroenteritis) among swimmers, especially near flowing stormdrains.

Figure 2.3.1: The beach is a popular recreational destination across the region.



These illnesses are not life threatening. However, the past history of beach contamination due to untreated sewage discharges (prior to passage of the federal Clean Water Act), along with current concerns about sewage spills and untreated storm-drain discharges, has led to constant vigilance and one of the preeminent beach water quality monitoring and improvement programs in the state (Figure 2.3.2). A unified monitoring program that improves coordination among monitoring efforts conducted by the Program and the water treatment agencies has been approved by the Regional Water Board and will be implemented shortly.

Figure 2.3.2: A Coordinated beach monitoring program conducted by the County Health Care Agency, the Program, and wastewater treatment agencies regularly monitors a large number of swimming sites. Heal the Bay prepares weekly beach report card grades (inset figure and expanded Figure 2.2.5) that are made available on their website (www.healthebay.org).



2.3.2 Progress during Dry Weather

Beach use and body contact recreation occur predominantly during the summer and in dry weather, although there is some use, mainly by surfers, during wet weather in the winter storm season. As a result, most regulation and monitoring focuses on dry weather conditions, using three bacterial indicators that indicate the presence of fecal pollution. These indicators are only indirect indicators of illness risk and not themselves pathogens, or disease agents. Thus, they do not provide a direct measure of potential health risk. However, they have been correlated with illness rates in dry weather when sewage contamination is present. They are more easily sampled and analyzed than the larger number of pathogens themselves. Long-term monitoring based on these indicators shows that exceedances of regulatory standards are also low and have been dropping over time and that the percentage of Heal the Bay report card grades of A has been at or above 80% in dry weather since 2004 (Figure 2.3.2).

This improvement in conditions during dry weather has been mirrored by a decrease over the past several years in beach closures due to contamination, as measured by Beach Mile Days (Figure 2.3.3). This metric is calculated by multiplying the length in days of each closure by the length (in miles) of beach affected and is a more accurate measure of the impact on beach users than the simple number of closures.

The improvement over time in these several measures of beach condition has resulted from a better understanding of contamination sources and targeted efforts to address the most severe of these sources. These efforts (Figure 2.3.4) initially focused on wastewater treatment plant improvements and treatment upgrades and have more recently expanded to

include a wide range of localized BMPs (Figure 2.3.5) that have dramatically reduced the level of contamination at beaches and in the streams that discharges to the coastline. For example, the percent of *Enterococcus* exceedances at Salt Creek in Dana Point and the Pico stormdrain in San Clemente have dropped from 23 to 10% and from 22 to 4%, respectively, since 2005.

Figure 2.3.3: The total number of Beach Mile Days (the product of the length of beach posted times the length of beach posted) posted due to exceedances of standards during the April 1 – October 31 summer swimming season. Beach Mile Days have declined substantially since 2000 and reached an all-time low in 2013. Adapted from HCA (2012).

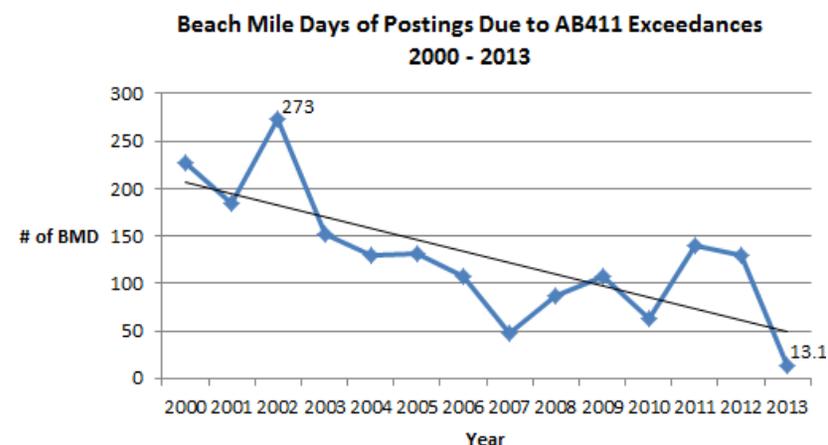


Figure 2.3.4: Timeline of significant actions in several categories that have contributed significantly to improved beach water quality.

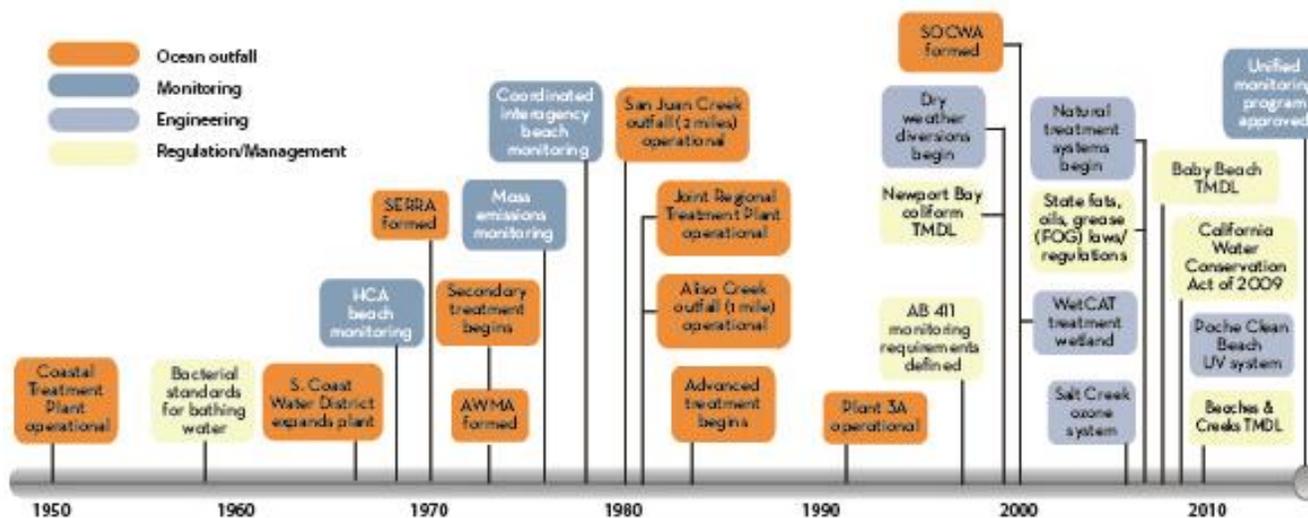
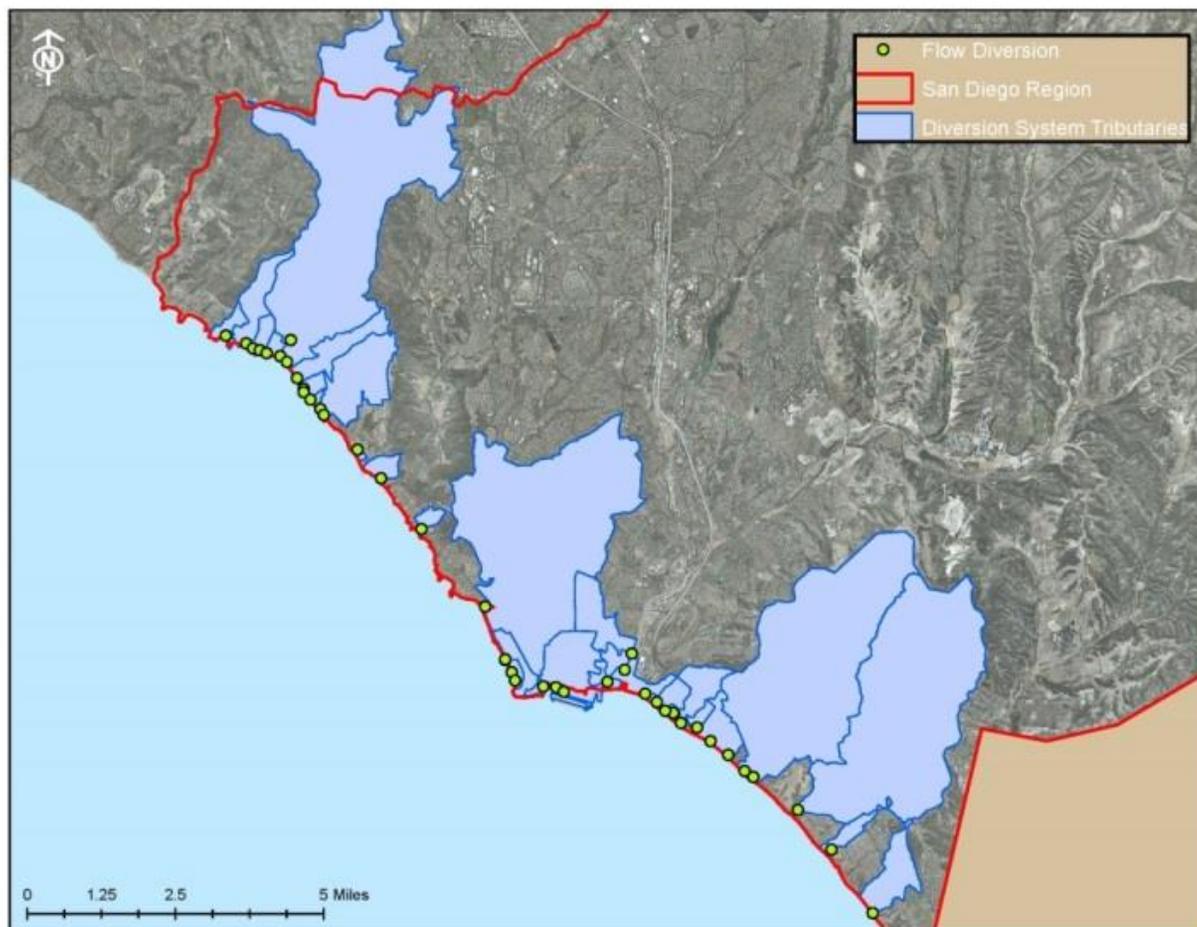


Figure 2.3.5: Coastal flow diversions that reroute dry weather flow to treatment plants that affect flow and/or bacterial loads.

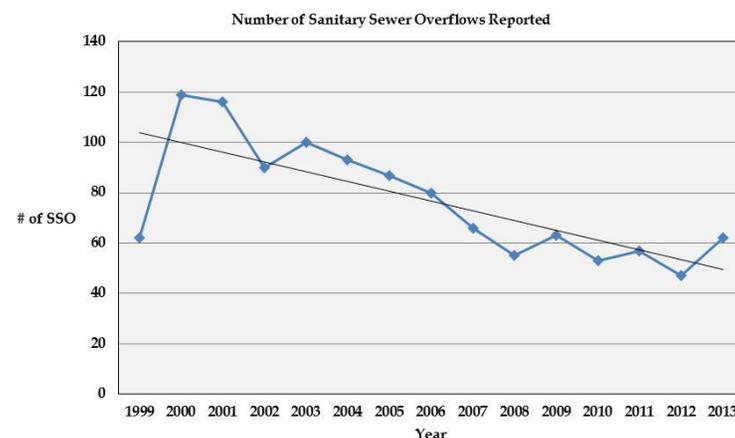


Beginning around 2000, County agencies and individual cities began improving their spill response and prevention capability, supported by a number of state laws and policies targeted at the discharge of FOG (fats, oils and grease, which can clog sewer lines), with the result that the numbers of spills and beach closures due to spills have declined dramatically (Figure 2.3.6).

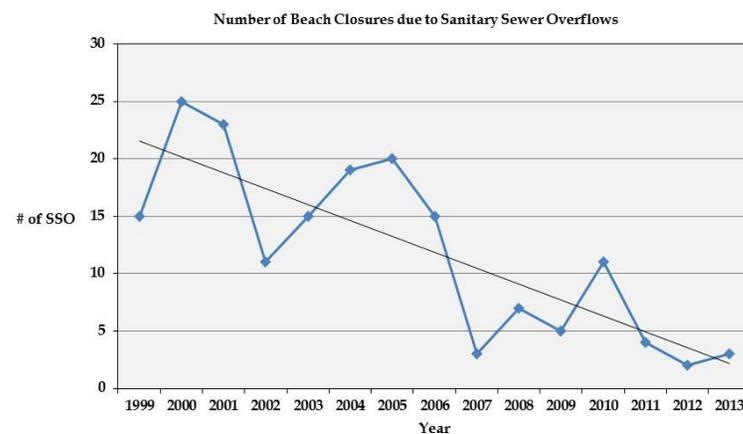
Attention also focused on urban runoff from rivers, creeks, and stormdrains, which can contain high levels of bacterial indicators. A notable regional example is the long-term effort to document and reduce levels of bacterial contamination in Aliso Creek which has been ongoing since the late 1990s.

Figure 2.3.6: Two key metrics track the decreasing impact of sewage spills on beach condition in South Orange County over time. a) The number of reported sewage spills from 1999 through 2013. The number of spills peaked in 2000 and has declined steadily since then (regression significant at $p = 0.001$), reflecting increased attention to the causes of spills (primarily line blockages); b) the number of beach closures from 1999 through 2011 resulting from sewage spills. After peaking in 2000, the number of closures has declined steadily (regression significant at $p < 0.001$), reflecting the reduction in the number of sewage spills and in the percentage of spills reaching the beach. Peaks in 2005 and 2010 are due to an unusual number of larger spills over 1000 gallons. Adapted from HCA (2012).

a)



b)



2.3.3 Problem Beaches and Creeks

In response to persistent bacterial contamination issues at a number of creeks and beaches in the San Diego region, the San Diego Regional Water Board in 2007 adopted a Total Maximum Daily Loads for Indicator Bacteria, Project I - Beaches and Creeks in the San Diego Region, commonly referred to as the Beaches and Creeks TMDL. In the southern portion of the County, the primary focus of the TMDL was on a handful of persistent problem beaches (**Figure 2.2.6**). The TMDL was preceded by other individual actions, such as the Aliso Creek Directive issued by the Regional Water Board in 2001, also in response to elevated bacteria concentrations in the Aliso Creek watershed. These regulatory actions, combined with increased public and management attention to bacterial contamination (e.g., reduced sewage spills (**Figure 2.3.6**), have resulted in significant improvements to beach water quality. For example, both Poche and Doheny Beaches were recently removed from Heal the Bay's Beach Bummer list of the ten worst beaches in the region.

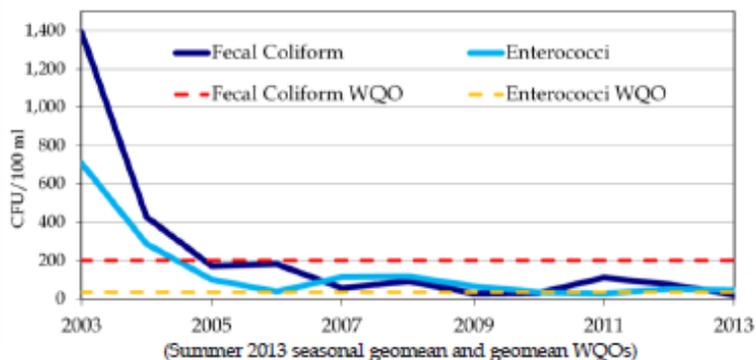
While actions to reduce bacterial inputs and improve water quality span the region (**Figure 2.3.5**), Aliso Creek and Poche and Doheny Beaches provide representative examples of the diversity of monitoring, assessment, prevention, and treatment efforts that combine to produce improvements over the past several years.

In addition to water conservation efforts that include the entire urbanized portion of the Aliso Creek watershed, four specific types of Best Management Practices (BMPs) have been implemented, including:

- **Treatment systems** such as sand filters, cartridge media filters, disinfection (ozone or Ultraviolet (UV) light, and dry weather diversions that send stormdrain flow to the sanitary sewer for treatment
- **Wetlands/channel restoration** that enhances a stream's natural capacity to absorb pollutant loads and restores riparian habitat
- **Landscape retrofits** such as weather-based irrigation controllers, edgescaping that replaces irrigated lawn area along the edge of a sidewalk, street curb, driveway, etc. with lower impact landscaping and permeable ground covering, and other irrigation improvements to improve water efficiency and reduce runoff
- **Catch basin retrofits** such as debris gates and in line baskets or filters that reduce the potential for bacterial growth by keeping trash out of catch basins

These actions have had noticeable effects, reducing fecal coliform levels below the regulatory standard at a key monitoring station in the lower watershed and reducing *Enterococcus* levels to near the standard (**Figure 2.3.7**).

Figure 2.3.7: Fecal indicator bacteria concentrations at Aliso Creek monitoring site CTPJ01 have significantly declined and now meet recreational water quality objectives (WQOs) for fecal coliform.

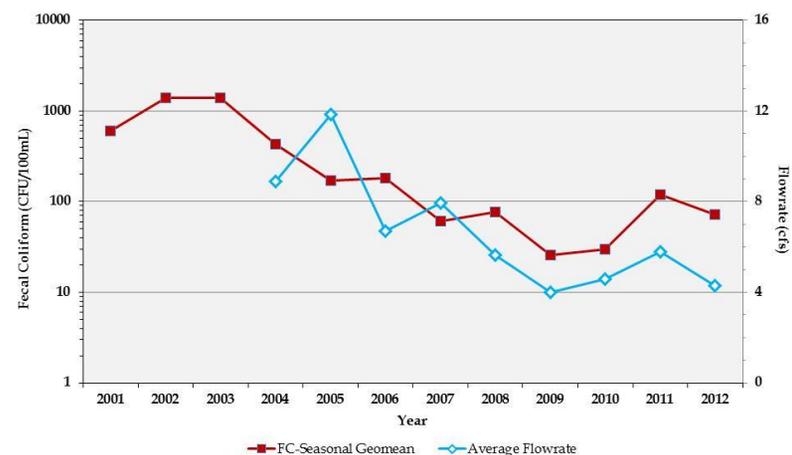


Bacterial indicator levels in the Aliso Creek watershed have declined over the past several years in concert with a decline in the average flowrate from urban discharges to the creek (Figure 2.3.8). While correlation of course does not necessarily equal causality, in this instance there is a strong case that the reduced flow of water contaminated with urban pollutants (including bacteria) has contributed to the reduced levels seen in the creek monitoring program.

The story of success at Poche and Doheny Beaches is equally dramatic but involves a different set of studies and BMPs. In concert with the epidemiology study at Doheny Beach in 2008-08, a source identification pilot project (or SIPP) identified leaking sanitary sewer infrastructure as a source of human fecal markers seen in the surfzone. Targeted repair efforts essentially removed this source. A parallel program at Poche Beach, the Poche Clean Beach Project, used state grant funds to construct a filtration and UV treatment system that reduced

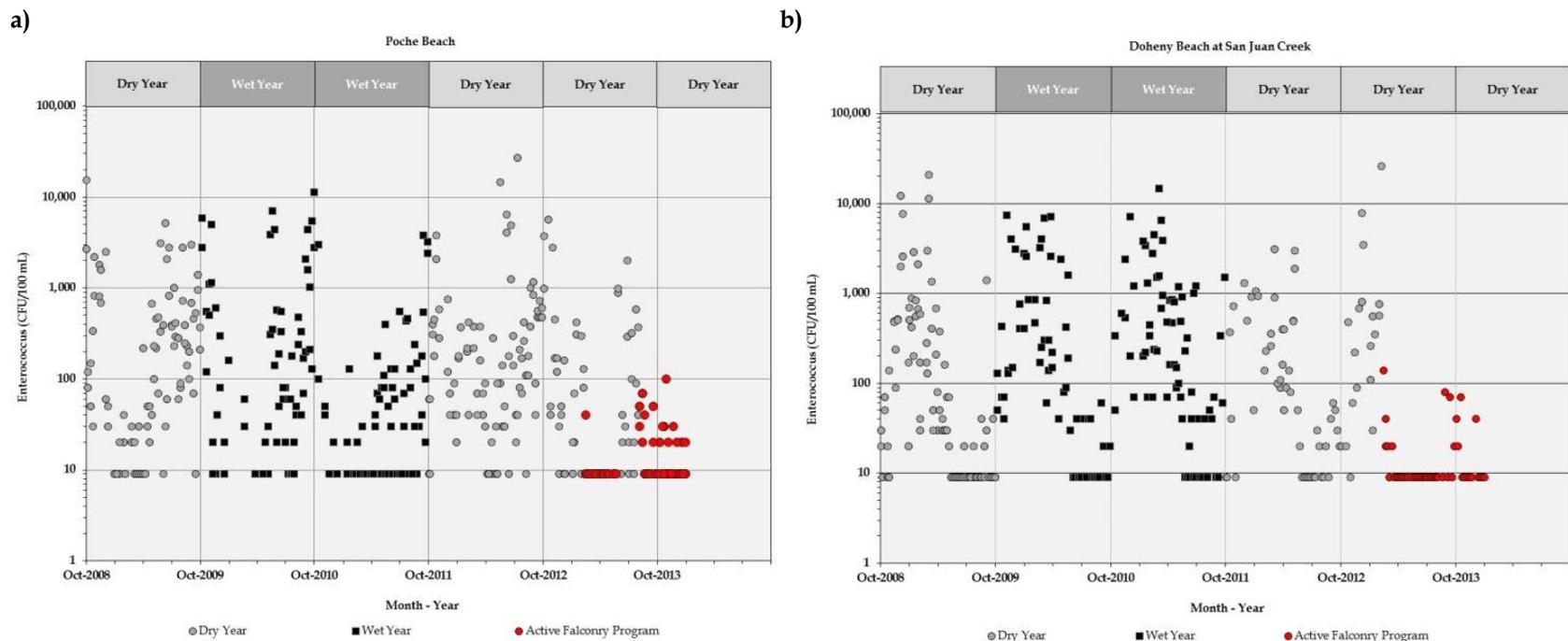
input of bacterial contamination from the the channel discharging to the beach.

Figure 2.3.8: The fecal coliform seasonal geomean in the Aliso Creek watershed plotted in comparison to the average dry weather flow rate in the creek. Note: Fecal coliforms have declined in concert with reductions in flow of urban runoff to Aliso Creek.



Additional studies identified another source of human fecal makers, this one airborne. Projects that involved genetic characterization as well as behavioral studies of seagulls found that seagulls feeding at the Prima Deshecha landfill in the upper watershed constituted a separate pathway for contamination. Better landfill maintenance, combined with falconry programs at both the landfill and the beach significantly reduce this source of contaminant input (Figure 2.3.9). Thus, the combination of modern genetics methods and the ancient practice of falconry provided an effective solution at Poche and Doheny Beaches.

Figure 2.3.9: The presence of an active falconry program to deter seagulls is associated with significant declines in bacterial contamination levels at both Poche (a) and Doheny (b) beaches. Note: Falconry programs help reduce contaminant inputs from seagulls.



Ongoing efforts by cities and their stormwater programs to improve water conservation and reduce nuisance runoff have begun to ameliorate this problem. While concentrations of indicator bacteria in channels in both wet and dry weather combined continue to be elevated, the diversion of dry weather stormdrain and stream flows to treatment plants and other actions (**Figure 2.3.5**) has significantly reduced the volume of contaminated flows to beaches. Such efforts, along with the targeted identification and removal of specific

problem sources, have also helped the County and watershed permittees make substantial progress toward improving conditions at the few problem beaches in the region. As a result of the effectiveness of these complementary actions, Orange County's beaches meet regulatory standards for the large majority of the time in dry weather and the health risks of swimming during dry weather conditions are very low, well understood, and well managed.

2.3.4 Continued Challenges in Wet Weather

In contrast to the progress achieved in maintaining clean beaches during dry weather conditions, significant challenges remain during wet weather. Channel flows during and immediately after wet weather storms are substantially higher than during dry weather (**Figure 2.3.11a vs. 2.3.11b**) which makes it infeasible to apply the management practices (e.g., diversion to treatment plants) that have been so successful in dry weather. In addition, these flows reach the beach more frequently (**Figure 2.3.10c**), which means that their loads of bacteria and other pathogens are delivered directly to the coastal ocean, with the result that beach grades worsen and exceedances of standards increase during wet weather (**Figure 2.3.11**). Nevertheless, the annual percentage of A grades for wet weather on the Heal the Bay report card has reached 70% in recent years (**Figure 2.3.11**). As a result of these characteristics of wet weather flow, the Orange County Health Care Agency issues routine health advisories recommending that the public stay out of the ocean during and for 72 hours after storms in order to avoid contact with potentially contaminated discharge. Despite this, there is significant recreational use during storms (**Figure 2.3.10d**), primarily by surfers taking advantage of the larger surf that often accompanies winter storms.

Figure 2.3.10: Photographs showing examples of the changes in flows during dry and wet weather and the subsequent changes in ocean water quality. a) Dry weather flows are much smaller than b) wet weather flows; c) wet weather flows from stormdrains and channels typically reach the ocean in wet weather, in contrast to dry weather flows which rarely reach the ocean; d) surfers often take advantage of the large waves caused by winter storms, despite the increased exposure to contamination this may involve.

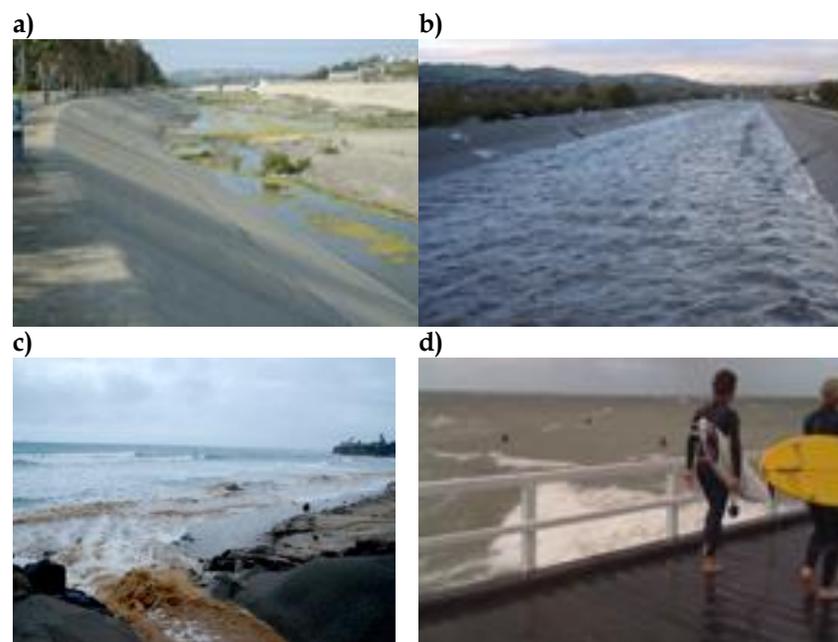
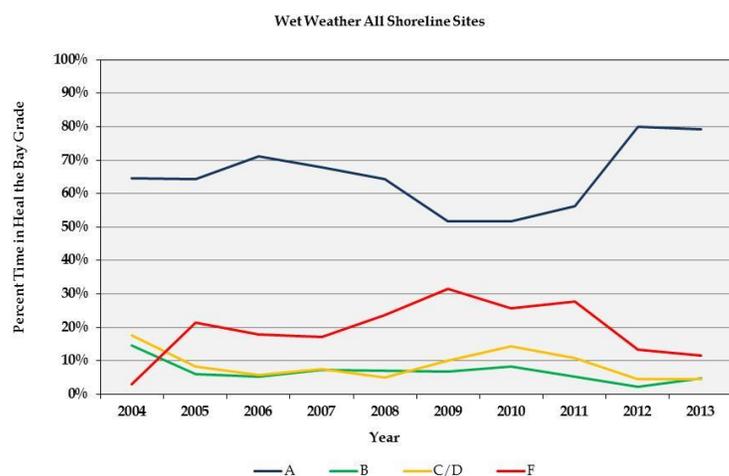


Figure 2.3.11: The percentage of poor Heal the Bay report card grades at swimming beaches is much higher in wet weather than in dry weather (see insert in Figure 2.10), although the annual percentage of A grades has increased gradually in recent years to 80% and the percentage of F grades has dropped to 10% in the most recent monitoring year (2013). Note: Heal the Bay beach grades in wet weather have improved recently and are mostly A.



In addition to the higher flows in wet weather, there are two other aspects of this issue that complicate efforts to reduce wet weather contamination and its resultant potential health risks:

- Bacterial contamination in wet weather flows stems from a much wider range of sources than in dry weather
- Limitations in existing monitoring tools make it difficult to know when there is actually human fecal contamination and a resultant health problem

Rainfall and the resulting runoff from land surfaces mobilizes indicator bacteria from a wide range of sources, including

humans and animals, soils, vegetation debris, and persistent bacterial films in gutters and stormdrains. These loads stem from sources in both urban and open areas, as documented in a number of studies that have correlated bacterial loading with rainfall and measured loading from both urban and natural landscapes. Controlling this large range of sources and the very large volumes of wet weather flow would present a daunting engineering problem. For example, the long-term (1986 – 2013) mean monthly flow of San Juan Creek in January, February, and March is approximately 6175, 9201, and 5095 acre feet, respectively. Because treating these runoff volumes is infeasible, approaches such as Low Impact Development (which reduces runoff) and amendments to the Basin Plan that include changing bacteria objectives, delisting of some concrete channels, and suspending objectives in highly modified flood control channels during periods of high flow may be called for.

Because of the different nature of wet weather flows and the indirect nature of monitoring indicators, it is impossible to draw firm conclusions about health risk in wet weather. Wet weather flows may actually include a large proportion of true pathogens or they may simply be mobilizing non-pathogenic indicator bacteria from multiple sources across the landscape and diluting a stable pool of human fecal pathogens. Epidemiological studies in dry weather, including in Santa Monica Bay in 1995 and 2007 - 08, and at Doheny Beach (Colford et al. (2012) have established a relationship between levels of indicator bacteria and health risk, as well as documenting that full immersion swimming closer to flowing stormdrains increases risk. In contrast, there are no epidemiological studies in wet weather that can help resolve the fundamental uncertainties that have so far precluded significant management actions.

New studies planned and underway should, over the next few years, provide significant insight into the nature and magnitude of health risks in wet weather as well as more powerful and targeted monitoring tools to support improved regulation and decision making.

2.3.5 Monitoring Methods

Current indicators do not measure pathogens directly and do not separate human vs. animal and other sources. This is problematic, especially in wet weather when higher flows mobilize indicator bacteria from a multitude of sources distributed widely across the landscape. The current bacterial indicators are present in soils, leaf litter, other forms of rotting biomass, biofilms in gutters and stormdrains, as well as in both domesticated animals and wildlife, and often recover and grow in the environment even after disinfection. In contrast, the pathogens responsible for human illness (about 90% of which are viruses) all derive from human fecal contamination. These shortcomings of traditional indicators make it difficult to reliably separate human from nonhuman sources, estimate health risk, and accurately track the sources of actual pathogens.

Recent research has led to new tools that resolve some of these handicaps, although further development remains to be done over the next few years. Ongoing research falls into three categories:

- Development of genetic markers that more reliably identify the presence of human fecal material
- Monitoring methods that directly measure the presence and abundance of pathogens, particularly viruses

- Wet weather epidemiology studies that will improve estimates of health risk from exposure to ocean waters during wet weather conditions

We now have the technology to reliably determine if there is a human fecal component to bacterial contamination, using the HF183 genetic marker from a *Bacteriodes* species that is present in large quantities in humans but not in other species. This marker is not itself a pathogen but does enable relatively accurate estimates of the percentage of time human fecal material is present. At present, it is most useful as a means of confirming / eliminating the presence of human sources, a key first step in microbial source tracking studies. However, it is not yet a suitable basis for revised regulatory standards because its persistence in the environment and its behavior compared to that of actual pathogens is poorly understood. A component of Bight '13 aims to improve our understanding of HF183's utility by measuring it, along with traditional indicators, in a number of coastal drainages across southern California in both wet and dry weather.

New monitoring methods that utilize digital polymerase chain reaction (dPCR) technology enable quantification of pathogenic viruses at very low detection limits. Researchers can now test for the presence of adenoviruses, noroviruses, and rotaviruses in environmental samples, although substantial further development is needed before these methods are available for routine application. Rotaviruses are related predominantly to gastrointestinal illness and some adenoviruses affect a broader range of membranes, including those in the nose and bronchia. Some noroviruses cause intense but shortlived (24 - 48 hour) illnesses that are not life threatening but are extremely unpleasant. With funding from the state of CA, the Southern California Coastal Water

Research Project is working with the Monterey Bay Aquarium Research Institute (MBARI) and researchers at Arizona State University to develop mobile digital PCR equipment that could enable new approaches to beach water quality monitoring, such as in situ sensors that provide a stream of real-time data. There are technical complications related to sample processing but once these are resolved, the digital PCR methods could provide the basis for updated standards.

The third area of research is the investigation of health effects associated with swimming and surfing in the ocean during wet weather conditions. SCCWRP is cooperating with the City and County of San Diego and USEPA this winter on a pilot wet weather epidemiology study that will follow a large sample of surfers to estimate the relationship between illness rates and the levels in ocean water of a number of indicator bacteria and pathogens. Plans are in place for a full epidemiology study at more locations during the winter of 2014/15. The results of these studies, in combination with quantitative risk assessment methods, could show that health risk is either lower or higher than the assumptions built into current regulations. In either case, the epidemiology studies, in combination with new monitoring methods, will provide the basis for improved regulations and more informed management decisions.

2.3.6 Recommendations

Past progress in identifying and controlling sources of contamination, the availability of a long time series of monitoring data, and the development of new monitoring and assessment tools provide the basis for this review of existing bacteria monitoring programs with the goal of improving their utility and efficiency. The following recommendations stem

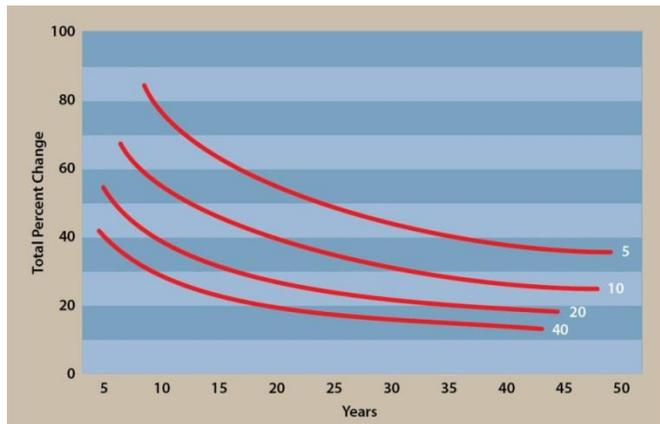
from a data-driven, risk prioritization approach that views monitoring, assessment, research, and management actions as a portfolio of related actions.

- Continue targeted data analyses of monitoring data to prioritize problem areas. Conduct additional source tracking studies as needed, using new monitoring methods based on genetic markers to identify potential sources of these issues such as infiltration into the MS4 from sewage lines. This effort should build on results of the Bight '13 Microbiology Study.
- Continue identifying opportunities to reduce and prevent flows in dry weather, where monitoring and source tracking data suggest the presence of human fecal contamination.
- Conduct statistical power analysis and optimization studies to improve existing monitoring program designs to improve efficiency and take advantage of available information about patterns and trends of contamination. **Figure 2.3.12** illustrates how statistical power analysis can provide information that can reduce and/or better target monitoring resources.
- Shift resources from routine monitoring to targeted source tracking and adaptive response, using new tools such as genetic markers of human fecal contamination as these become available.
- Continue supporting regional and collaborative research into better monitoring and source tracking tools.
- Improve understanding of health risk related to high wet weather flows, for example, through the Bight '13 Microbiology Study; follow results of the pilot wet weather epidemiology study planned for San Diego and consider

supporting the larger, follow-on study planned for 2014/2015.

- Conduct pilot mass balance studies to determine their utility for improving the prioritization of management actions.

Figure 2.3.12: Example analysis run with pesticide data to demonstrate statistical power analysis for a trend monitoring program. *The number of years of data required to detect varying amounts of change with different numbers of samples per year (5, 10, 20, 40) next to respective curves). This figure illustrates that increased sampling intensity often produces diminishing returns and that such analyses can inform tradeoffs among different types of sampling effort and the amount of change managers with to detect and/or the amount of time they can wait to detect a change. The figure also shows that the inherent variability in a system may make it impossible to detect small amounts of change with even large amounts of sampling effort.*



2.4 Dissolved Solids

The Story: Dissolved Solids

- Persistent and widespread exceedances of total dissolved solids occur in channels and at discharge outfalls.
- Dissolved solids are a challenging to address because a large portion of these elevated levels derive from natural sources in regional groundwater.
- Understanding local geology is key to understanding sources of dissolved solids and the pathways they travel in the watershed.
- While the flood control system provides one pathway for dissolved solids in groundwater to reach the surface, other natural pathways (such as artesian springs) exist and there is evidence of historically elevated dissolved solids levels in surface water in the region.

2.4.1 Natural Geology is Key

Dissolved solids refers to the amount of salt in water and can be a difficult water quality problem to address when concentrations are elevated. They can be toxic to fish and plants and require expensive processing in water reclamation systems to make the water drinkable or usable for irrigation. Dissolved solids, as general description of the amount of salt in water, consists of several other constituents including

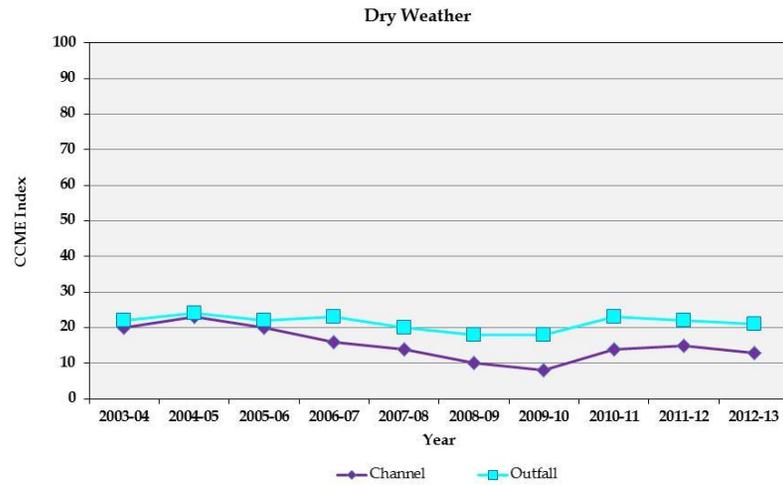
chloride, sulfate, nitrate, phosphate, calcium, magnesium, sodium, potassium, and sometimes a few trace metals such as cadmium, nickel, selenium, and zinc.

Total dissolved solids (TDS) consistently exceed the Basin Plan Objective (**Figure 2.4.1**) and these levels create the potential for detrimental impacts on the aquatic ecosystem; for example, TDS has been suspected as a causal factor in poor benthic macroinvertebrate community condition.

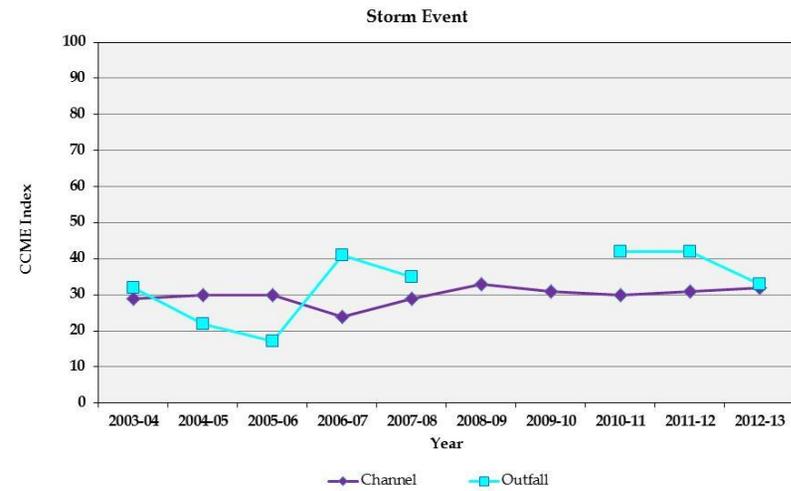
The key issue in deciding whether elevated dissolved solids represent a water quality problem, and thus a priority for management, depends directly on the source of these solids and the appropriate benchmark for comparison (**Figure 2.4.2**). Many creeks in South Orange County have elevated levels of dissolved solids that do not appear to be related to the urban sources. For example, the dissolved solids from common urban potable sources such as imported water from the Colorado River or northern California, or locally generated drinking water from deep groundwater supplies or from recycled water, are often at levels much lower than those measured in South Orange County creeks. Similarly, the shallow groundwater tables that provide most of the water to these streams are often much higher in dissolved solids than water from urban sources.

Figure 2.4.1: An overall exceedance index of the extent to which total dissolved solids meet regulatory standards in both a) wet and b) wet conditions is low (which means poor conditions) and has remained fairly steady since 2004.

a)



b)



Local geology is the primary reason South Orange County creeks have dissolved solids higher than those in common urban sources of water. The coastal areas of South Orange County have salt-rich native soils, commonly referred to as marine sedimentary geology, with the result that creeks have elevated dissolved solids. Further, the creeks with elevated dissolved solids are not limited only to water bodies within urbanized areas. Natural reference creeks in coastal areas with this type of unique geology and little to no urban influence have levels of dissolved solids substantially above those in urban water sources (**Figure 2.4.2a**).

In contrast, the parts of South Orange County with geology more closely related to bedrock (i.e., igneous geology) and those soils found in the upland higher elevations closer to the Santa Ana mountains are much less related to marine sediments and thus have lower levels of dissolved solids (**Figure 2.4.2b**).

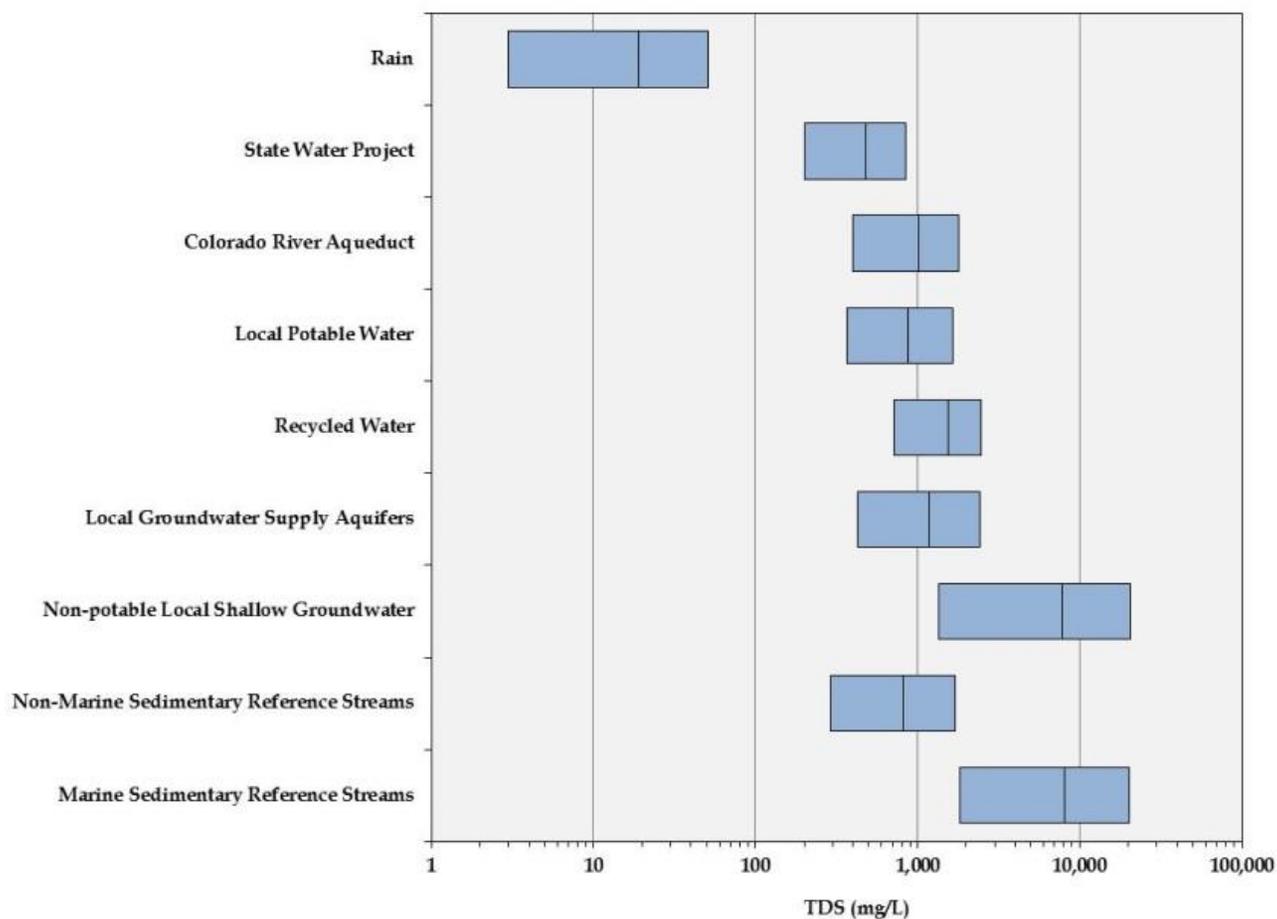
The Program has conducted several special studies to improve understanding of the relationships between natural and urban sources of dissolved solids in creeks. Studies in Oso Creek, which has elevated dissolved solids levels showed that dissolved solids concentrations in this Creek were comparable to those in three reference streams (**Figure 2.4.3a**), although loads of dissolved solids to Oso Creek were higher than those in natural streams (**Figure 2.4.3b**).

The Program has also conducted collaborative studies with researchers in the Geochemistry Group at University of Southern California's Department of Earth Sciences, using specialized testing of stable isotopes of hydrogen and oxygen. Physiographic conditions under which rain falls in the Sierra Nevada or Colorado River watersheds are very different from

those in the County's low elevation coastal watersheds. These differences impart unique isotopic signatures that can help to uniquely identify the contribution from various sources. This study compared the isotopic signatures of groundwater emerging from weeps and springs in the urbanized areas of South Orange County to those from a range of potential sources including rain, natural groundwater, and urban sources (e.g., potable or recycled water). The stable isotopic signature for shallow groundwater from weeps and springs in urban areas is more similar to that of local rain water and natural reference streams and much less similar to the imported water that is the primary source of potable water in south Orange County.

Figure 2.4.2: Means and ranges of dissolved solids concentration in a) various water sources including rainwater, local potable, Colorado River potable, recycled, groundwater, and b) streams. Data from these sources provide context as to which water source(s) most closely resemble surface waters with elevated dissolved solids.

a)



b)

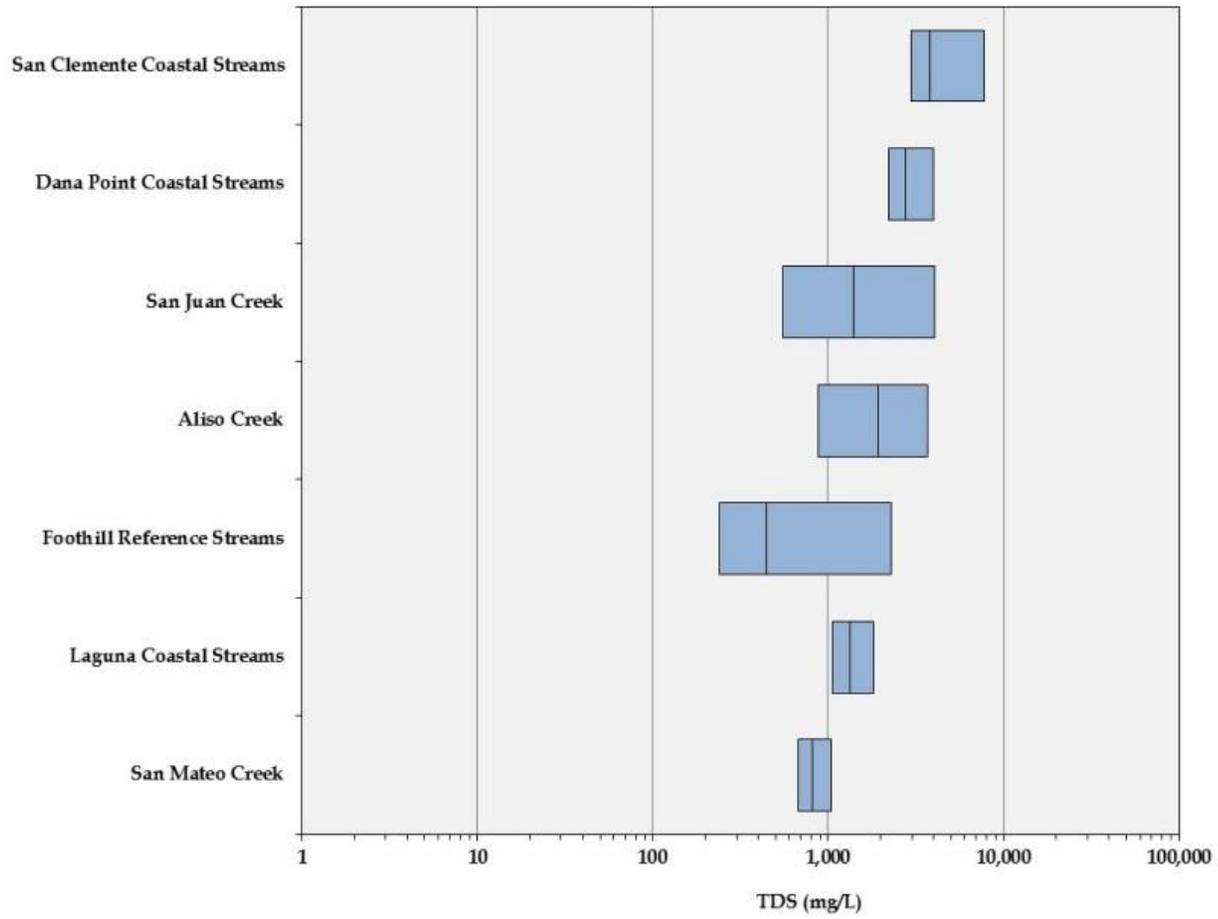
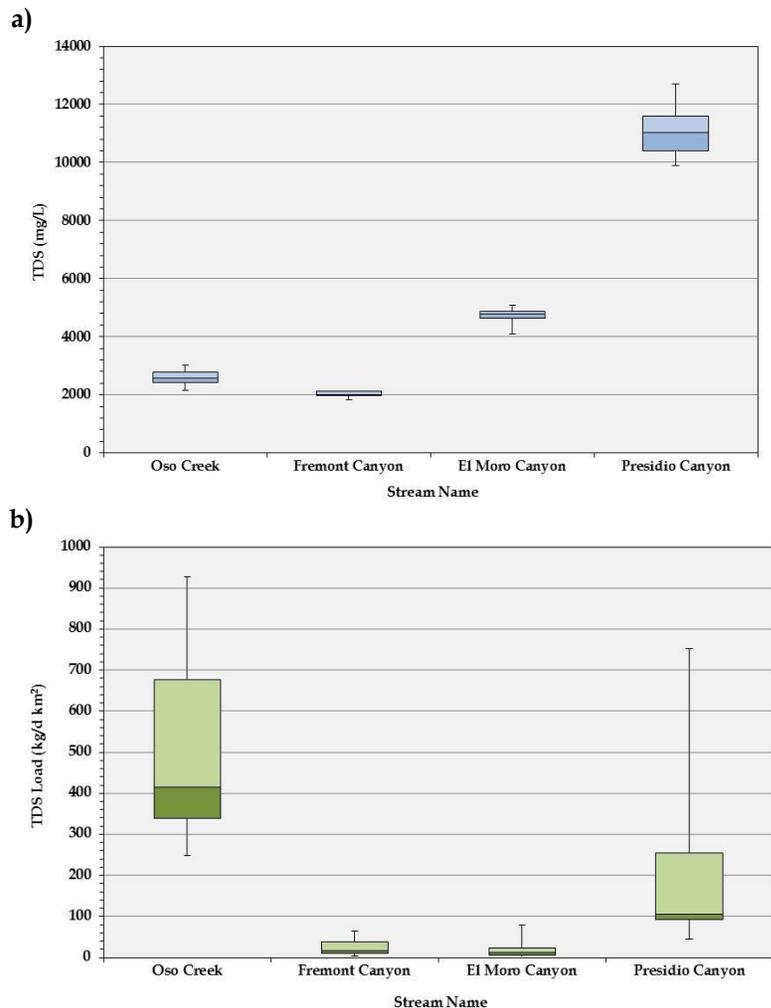
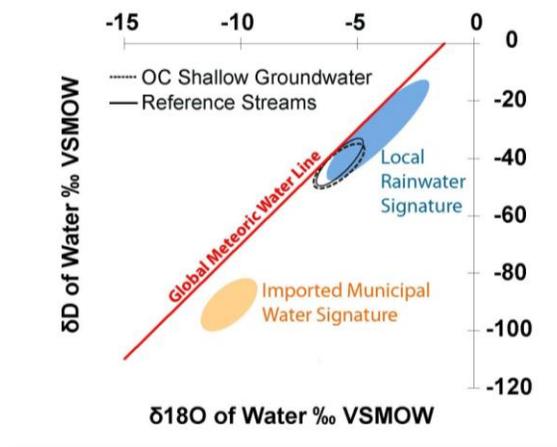


Figure 2.4.3: Ranges of dissolved solid concentrations (a) and loads (b) in Oso Creek in comparison to three reference streams of similar geology.



This study also compared shallow groundwater to the global meteoric water line, which describes the mean relationship between hydrogen and oxygen isotopes in water which has not been exposed to evaporation (Figure 2.4.4). The shallow groundwater in urban areas reflects conditions more similar to rainwater and reference streams than to an imported source of water.

Figure 2.4.4: Hydrogen and oxygen stable isotope compositions of shallow groundwater in urban creeks across south Orange County in comparison to rain, water from reference streams in undeveloped watersheds, and imported municipal water from Colorado River and the Sierra Nevada mountains.



These three pieces of information have important implications for the Program's efforts to identify sources of dry weather flow, understand the underlying natural conditions in streams in the urbanized portions of South Orange County, and to then determine whether elevated dissolved solids in a particular watershed are an important management priority for the future.

2.4.2 Recommendations

- Conduct a mass balance study, even if at a crude level, to determine the extent to which the MS4 contributes to dissolved solid levels in the creeks
- Prepare a summary report on historic and contemporary conditions of dissolved solids across south Orange County
- Invest effort into understanding whether dissolved solids are important stressor on macroinvertebrate communities in the creeks to evaluate the environmental significance of elevated dissolved solid concentrations
- Continue evaluating changes in dissolved solids at key locations such as Oso Creek in concert with water conservation efforts to track changes in dissolved solids over time.

2.5 Nutrients

The Story: Nutrients

- Nutrient levels in South Orange County streams and channels are frequently above commonly used thresholds that suggest increased likelihood of nutrient impacts. In contrast, there are much less frequent occurrences of impacts, such as macroalgal overgrowth, due to excessive nutrient levels.
- Nutrient issues are not limited to the urban portion of the County; regional monitoring data show nutrient enrichment and impacts such as increased macroalgal cover and/or lower dissolved oxygen in streams and estuaries in undeveloped regions.
- The major point sources of nutrients have been controlled. Therefore, nonpoint and diffuse sources such as leaching from upland soils and intrusions from shallow groundwater are increasingly important.
- Nutrients can be readily transported in and out of various reservoirs (e.g., sediments, groundwater) and undergo complex biological transformation and cycling. This makes traditional pollutant control strategies less effective for nutrients.
- Improved management strategies may contribute to further progress, particularly in streams and channels, by accounting for site-specific conditions, promoting Low Impact Development, and accounting for broader regional sources.

2.5.1 A Complex Regional Problem

Elevated levels of nutrients have become an increasing national and regional concern in recent years because of their impacts on lakes, streams and estuaries. Nutrient enrichment leads to the overgrowth of algae in streams, (**Figure 2.5.1**) and estuaries (**Figure 2.5.2**) that can reduce dissolved oxygen, sometimes to the point of causing mortality to fish and other aquatic organisms. Dense algal mats can also cause aesthetic (visual and odor) impacts and impair beneficial uses such as boating and swimming. There is also concern that nutrient runoff has contributed to the observed increased incidence and severity of harmful algal blooms (HABs) in California and their toxic effects in the coastal ocean (**Figure 2.5.3**). For example, the Bight '08 Program found that anthropogenic nutrient inputs are co-located with algal bloom hotspots at subregional and seasonal / daily scales and ongoing regional studies are further investigating this potential connection. Finally, nutrients are involved in geochemical processes that can amplify ocean acidification impacts in estuaries.

Unlike most other pollutants, nutrients are involved in complex biological transformation and cycling processes (**Figure 2.5.4**) and storage in a variety of reservoirs. This complicates nutrient assessment and management in two important ways. First, nutrient impacts can persist even after inputs have been reduced or ended because nutrients stored in sediments, groundwater, and plants can move in and out of these reservoirs on a range of time scales. For example, studies conducted by the Southern California Coastal Water Research Project and others have shown that nutrients cycle in and out of the sediments in bays and estuaries on a seasonal basis and (Fenn et al. 2010) showed that large portions of several vegetation types in California (e.g., chaparral, oak woodlands,

coastal sage scrub, annual grassland) exceed the “critical load” for nitrogen deposition. Excess loading of nitrogen from aerial deposition can cause shifts in the plant community by, for example, changing conditions to favor invasive grasses and other nutrient sensitive species. Where loadings exceed the amount that can be assimilated by plants, rainfall can more easily wash excess nutrients out of soils and into streams.

Figure 2.5.1: Nutrient enrichment causes overgrowth of algae in streams, particularly in warmer, low flow conditions. a) algal mats in a slow moving stream. Urban and natural watershed areas can supply excessive nutrients, so algal overgrowth and its secondary impacts (e.g., low dissolved oxygen) occur in both urban channels (b) and streams in undeveloped open space (c).

a)



b)



c)



Figure 2.5.2: Almost all estuarine segments in the Southern California Bight show some degradation on at least one of the three response indicators of eutrophication: macroalgal cover, phytoplankton, and dissolved oxygen concentration. *Adapted from Bight '08 program data.*

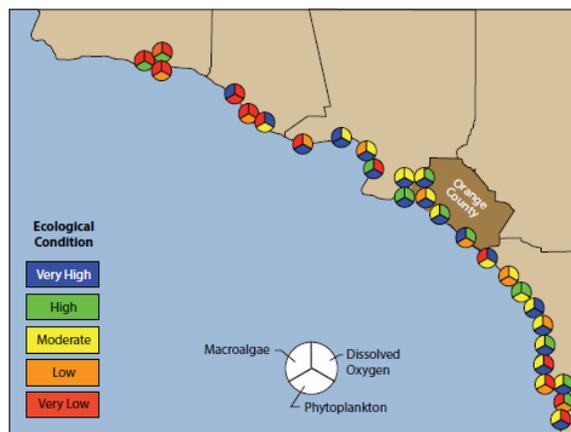


Figure 2.5.3: Bloom of the alga *Lingulodinium polyhedrum* in the coastal ocean off southern California. *This alga can be toxic to marine organisms.*



Figure 2.5.4: A graphical conceptual model of nutrient dynamics in a generalized estuarine system. *Nutrients derive from multiple sources, both natural and anthropogenic, spread across the watershed. Atmospheric deposition can exceed the carrying capacity of upland soils, leading to nutrient loading to streams during storm events. Nutrient loadings are higher in wet weather and they can be stored in and move through sediments, groundwater, and riparian and aquatic plants on different timescales. Because of these reservoirs, nutrients can require a lengthy period to move through the system and their impacts can continue long after inputs have been shut off. Note: Nutrients enter coastal systems through a variety of sources and pathways.*



The second way in which nutrients differ from most other pollutants is that complex bio- and geochemical dynamics can cause very different effects at different locations or times in response to the same nutrient concentration or load. As a result, there is no consistent functional relationship between the exceedance of a single, numeric regulatory standard for nitrogen or phosphorus and the presence or severity of impacts from nutrient overenrichment.

2.5.2 Nutrient Patterns in South Orange County

The Program collects three types of data that help document the extent, severity, and changes over time in nutrient issues:

- Concentrations of nutrients and comparison of these data to commonly used thresholds (1 mg/l for total Nitrogen; 0.1 mg/L for total Phosphorus) that indicate likelihood of impacts
- The percent cover of algae, a measure of nutrient impacts on biological conditions in waterbodies
- Mass loads of nutrients at key mass emission stations

Figure 2.5.5a and **2.5.5b** shows that nutrients (total nitrogen and total phosphorus) commonly exceed thresholds in channels and that a frequency-based water quality index widely used in a number of monitoring and assessment programs has improved only slightly since 2000. While conditions are slightly better in dry weather in most years, the index values are consistently low (i.e., poor condition) in all years in both dry and wet weather.

However, this is not strictly an urban problem (see **Figures 2.5.1c** and **2.5.6**). The Stormwater Monitoring Coalition (SMC) has for the past five years collected data from sites across southern California in urban, agricultural, and open

(undeveloped) natural areas. The locations of SMC sites are selected randomly each year so that they can provide a statistically valid picture of regional conditions, which forms a valuable context for interpreting data from north County. **Figure 2.5.6** shows that targeted monitoring sites in South Orange County channels clustered in the lower end of the distribution (less than about 30% macroalgal cover) for the urban landuse. In other words, about half of the stream miles in southern California in the urban land use had a greater degree of macroalgal cover than did sites in channels in South Orange County. **Figure 2.5.6** also shows about half of the stream miles in southern California in the open (undeveloped) landuse had up to 20% macroalgal cover. Thus, while macroalgal cover is greater in the urban landuse, this problem also occurs in undeveloped streams in the region.

Figure 2.5.5 shows that elevated nutrient levels are pervasive in south County channels but **Figure 2.5.6** documents that the primary nutrient impact monitored in these channels, percent macroalgal cover, is at the lower end of the cumulative frequency distribution for the urban landuse in the region. Thus, nuisance algal growth is not always evident in streams when nutrients are above thresholds, which reflects the lack of a one-to-one correspondence between nutrient levels and impacts such as macroalgal cover and dissolved oxygen. Recognition of this issue is at the heart of the State Water Resources Control Board's attempt to develop a new approach to setting nutrient thresholds (see **Section 2.5.4** *New Management Approaches* below).

Figure 2.5.5: An overall index of the extent to which nutrients (total nitrogen and total phosphorus) meet thresholds in channels and outfalls, in both dry (a) and wet (b) weather is low (which means poor conditions) and has remained low over the monitoring period. The index integrates the number of indicators and the percentage of samples higher than thresholds in each year, and the average magnitude of such excursions (CCME 2001). It provides a score, scaled from 0 - 100, that can readily be tracked over time. Note: Nutrients regularly exceed standards in channels in both wet and dry weather.

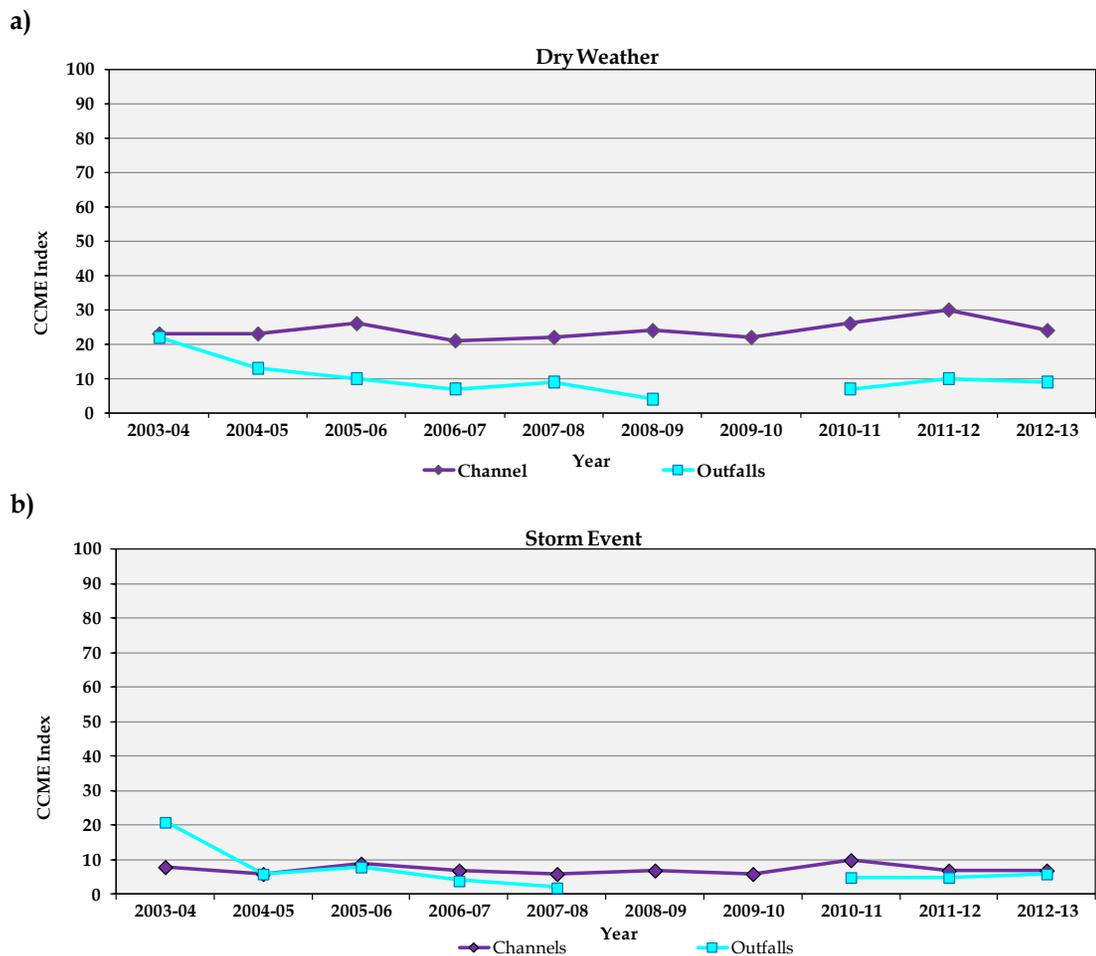
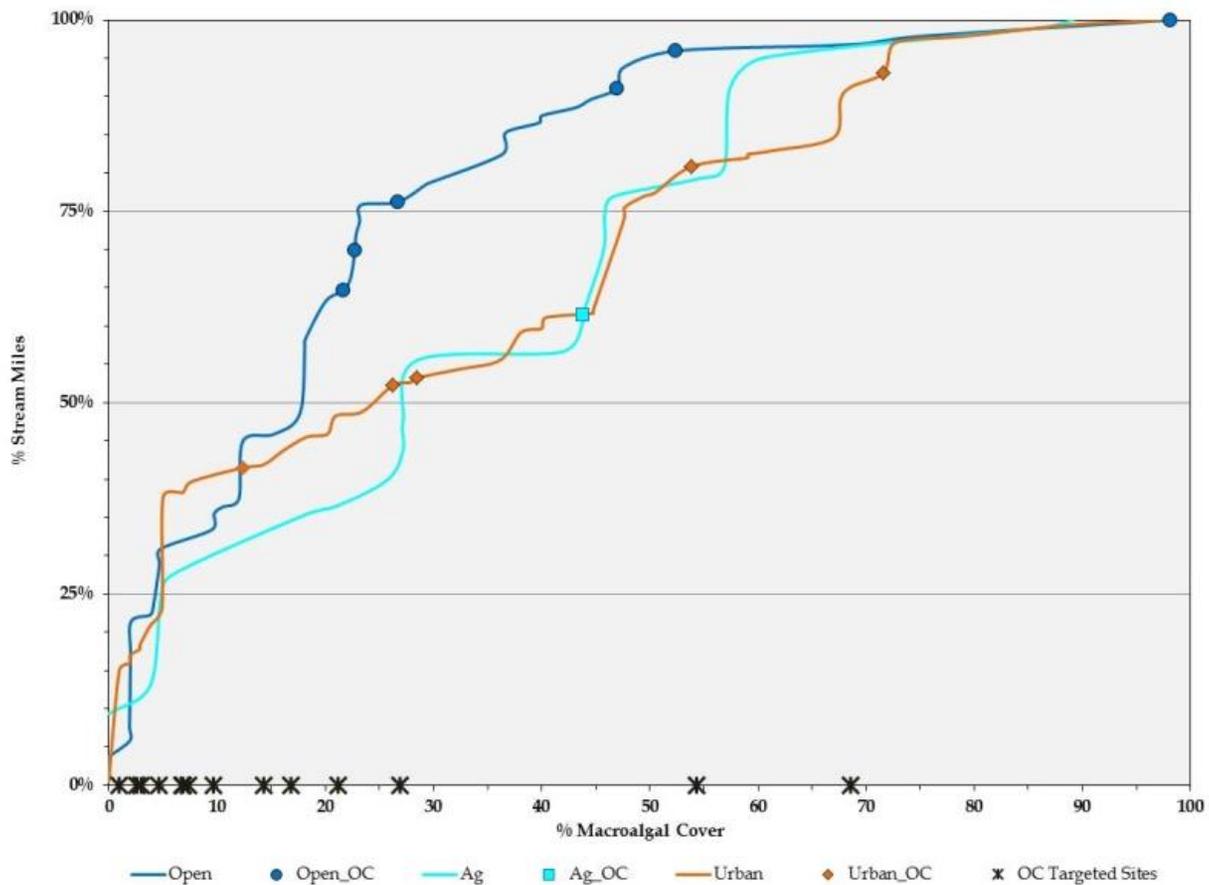


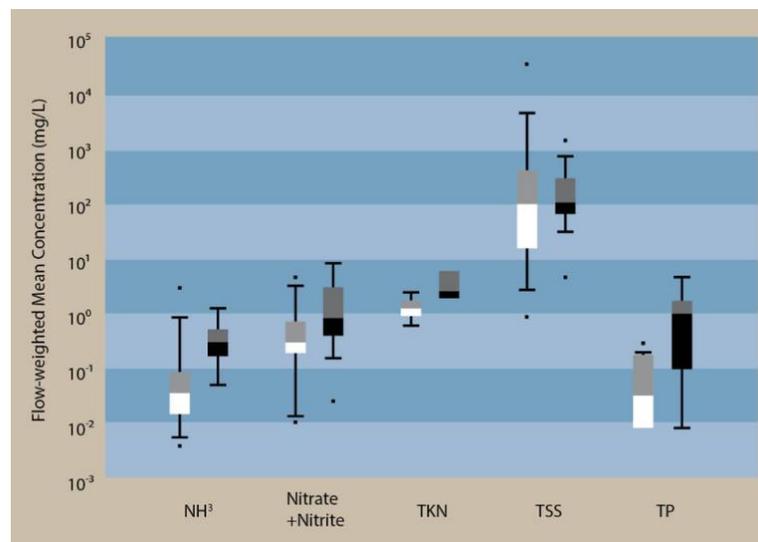
Figure 2.5.6: The cumulative frequency distribution function of macroalgal cover in the three landuse types sampled by the Stormwater Monitoring Coalition’s (SMC) regional program. Fifty percent of the stream miles in the open landuse had about 20% or less macroalgal cover, while about 50% of the stream miles in the urban landuse had about 30% or less macroalgal cover. The majority of the County’s targeted sites (situated along the X axis) had less than 30% macroalgal cover.



2.5.3 Nutrient Sources

As with many pollutants, the focus on sources of nutrient inputs has gradually shifted from distinct point sources to more widespread and diffuse sources as point sources have been identified, targeted for management action, and removed or reduced. Natural areas such as chaparral, oak woodlands, coastal sage scrub, and annual grassland can also be important sources of nutrient loading, particularly in wet weather. These areas have accumulated excess nutrients from aerial deposition (e.g., nitrogen oxides in smog) which can leach from soils during rain events. **Figure 2.5.7** shows that concentrations of nutrients in wet weather runoff from undeveloped open space are similar to those in runoff from urban sites. As a result, a narrow focus on urban sources of nutrients will miss an important category of inputs.

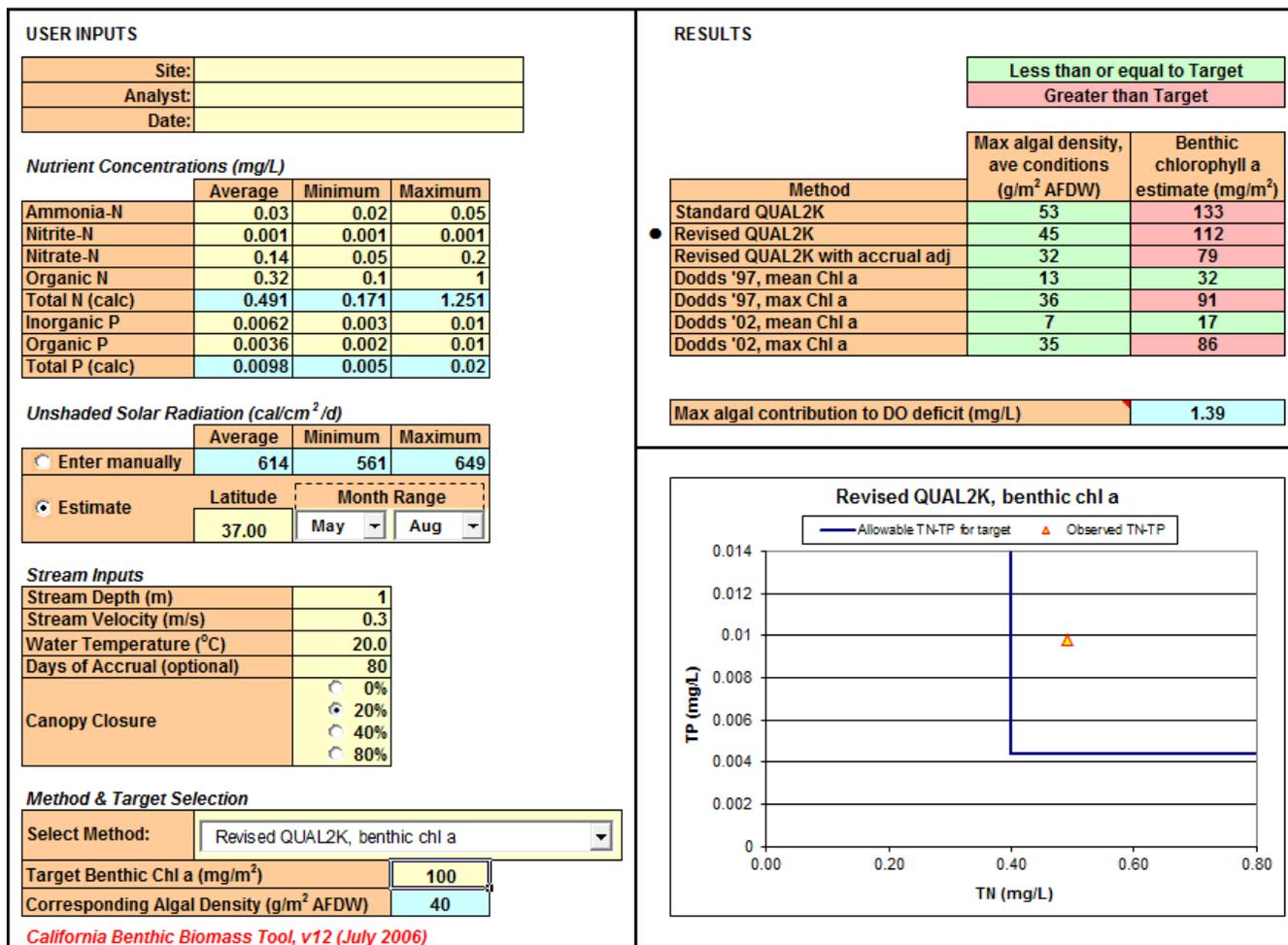
Figure 2.5.7: Wet weather flow-weighted mean concentrations of several forms of nutrients at urban (shaded boxes) and undeveloped open space (clear boxes) sites, as measured in the SCCWRP Natural Loadings Study. *These data document that natural areas are sources of nutrients at concentrations that are similar in some cases to those in runoff from urban sites. Boxes indicate the 25th and 75th percentiles and error bars indicate the 10th and 89th percentiles. From Stein and Yoon (2007).*



2.5.4 New Management Approaches

Improved knowledge about the lack of a tight correlation between nutrient levels and nutrient impacts, and about the importance of diffuse sources in open areas and in groundwater, has prompted the development of new management approaches at both the statewide and regional / local levels that more accurately measure and address the risk of impairment. For example, the State Water Resources Control Board’s Nutrient Numeric Endpoint (NNE) project is developing methods (**Figure 2.5.8**) to derive a maximum allowable nutrient concentration in a particular stream reach, reservoir, or estuary based on local factors such as temperature, irradiance, and flow. The NNE’s goal is to ensure that the key ecological indicators of macroalgae and dissolved oxygen remain within acceptable bounds.

Figure 2.5.8: The main user interface for the current version of the freshwater Nutrient Numeric Endpoint (NNE) biomass estimation spreadsheet tool. In this figure, data fields are loaded with example data for illustrative purposes.



2.5.5 Recommendations

Past progress in identifying and controlling sources of contamination, the availability of a long time series of monitoring data, and the development of new monitoring and assessment tools provide the basis for this review of existing nutrient programs with the goal of improving their utility and efficiency. The following recommendations stem from a data-driven, risk prioritization approach that views monitoring, assessment, research, and management actions as a portfolio of related actions.

- Conduct an assessment of sources and practices that input to the MS4, to assess the significance of each to downstream issues.
- Continue identifying opportunities to reduce and prevent flows in dry weather.
- Pilot a regional mass balance nutrient model, even if elementary, to help prioritize monitoring and management attention; the Newport Bay watershed and SCCWRP coastal ocean nutrient mass balance models provide useful examples.
- Use available time series of data to streamline monitoring to improve its statistical and economic efficiency. Sampling effort could be reduced by identifying stations that essentially mimic each other and/or by reducing the spatial and/or temporal intensity of sampling. Monitoring could shift to a sentinel program with a lower frequency of monitoring intended to ensure conditions do not worsen.

2.6 Toxicity

The Story: Toxicity

- Toxicity in freshwater channels in all conditions (aquatic, sediment, wet and dry weather) occurs at low levels and is sporadic, occurring at different locations at different times and varying unpredictably across test species.
- Aquatic toxicity in dry weather occurs in open (undeveloped) areas at levels equivalent to those in urban areas; suggesting that dry weather toxicity is not driven predominantly by urban pollutants.
- There are no apparent trends in toxicity over time.
- Metals, except for some instances of elevated copper, are at low levels and do not appear to contribute to aquatic toxicity in freshwater.
- The primary source of toxicity appears to be pesticides, with evidence that pyrethroids contribute to sediment toxicity.
- Use of organophosphate pesticides has declined virtually to zero but use of pyrethroid pesticides has increased and exceedances of thresholds for pyrethroid pesticides are high.
- Reported pesticide use in the County has declined from just over 2 million pounds a year in 1998 to just under 1 million pounds in 2011, due primarily to reduced use of indoor fumigants.
- There is a large data gap in our knowledge of retail pesticide sales and use.
- Pesticide use (which is regulated directly at the state and federal levels) presents a moving target for management

because of the continued introduction of new products; the most effective management strategies are to continue to reduce dry weather runoff/flows and support education and outreach efforts to reduce pesticide use and runoff.

2.6.1 Low but Puzzling Patterns in Toxicity

Since the publication of Rachel Carson's *Silent Spring* in 1962, concerns about the potentially destructive impacts of chemicals released into the environment have expanded, supported by an increasingly sophisticated understanding of their impacts and modes of action. Environmental monitoring now provides a range of tools, including sensitive sampling for specific chemicals at very low levels and toxicity tests (Figure 2.6.1) that integrate the effects on organisms of multiple chemicals in ambient water and sediments. These tools can indicate the potential for toxic effects before they become major events and provide the means for tracking and managing the distribution and impacts of anthropogenic chemicals.

Figure 2.6.1: The water flea *Ceriodaphnia* which is commonly used as a laboratory test organism in both acute and chronic aquatic toxicity tests



The Program’s monitoring efforts to assess aquatic ecosystem health include a range of toxicity tests (**Table 2.2.2**) including aquatic tests in both dry and wet weather as well as toxicity tests on sediment collected from streams and channels. These tests use a variety of test organisms sensitive to different types of chemicals include and assess both acute (i.e., survival / death) and chronic (i.e., reproduction / growth) endpoints to document a range of potential toxic effects. **Table 2.2.2** summarizes the results of 2548 separate toxicity tests performed since 2003. The overall level of toxicity is low but is highest in wet weather. Winter storms wash accumulated contaminants off land surfaces and the first flush of storms is

Table 2.2.2 (Repeated): Summary of the Program’s toxicity testing in South Orange County since from 2003 - 2012, an effort that includes 2548 tests on multiple species from a range of times, locations, and conditions. *Note: Toxicity levels are generally low except for one organism in wet weather that is susceptible to pesticides.*

Test Species	Dry Weather		
	n	Toxic	Nontoxic
<i>Americamysis bahia</i>	391	34%	66%
<i>Strongylocentrotus purpuratus</i>	179	5%	95%
<i>Ceriodaphnia dubia</i>	569	20%	80%
<i>Pimephales promelas</i>	64	9%	91%
<i>Hyalella azteca</i>	224	11%	89%
Overall	1593	18%	82%

The Program also has the benefit of comparing data from its sites in South Orange County to a collection of sites from across southern California sampled by the regional Stormwater Monitoring Coalition (SMC). The locations of SMC sites are selected randomly each year so that they can provide a statistically valid picture of regional background

known to have higher levels of contamination. In addition, some contaminants, particularly synthetic pyrethroids, which are an increasingly common pesticide, bind to sediments where, depending on their solubility, they may be a primary cause of aquatic and/or sediment toxicity in urban streams (Holmes et al. 2008). However, the occurrence of toxicity is highly variable, shifting from site to site at different sampling times; a careful examination of the Program’s data shows no consistent spatial patterns or trends over time. The relatively low level of toxicity, combined with the fact it appears sporadically, makes it difficult to control.

conditions, which forms a valuable context for interpreting data from South Orange County.

A summary of the past five years of SMC aquatic toxicity testing data (**Table 2.2.3**, repeated below for convenience) shows puzzling patterns. Acute toxicity (i.e., mortality) occurs in only a small fraction of stream miles in both open and urban landuses. In contrast, chronic toxicity (i.e., reduced reproduction) is more prevalent in the open landuse than the urban landuse. There is chronic toxicity present in the urban landuse, but in a much smaller portion of stream miles than in undeveloped open space. These results suggest that there are sources of toxicity that are more widely spread throughout the region and may not necessarily be directly associated with urban runoff. Speculation has focused on aerial deposition of airborne contaminants or natural factors such as high conductivity or turbidity. For example, a special study conducted by the Program in the Oso Creek watershed found that high levels of dissolved solids (see **Section 2.4** on dissolved solids, above), which can be toxic to aquatic species, derived from natural geologic formations and had increased in recent decades as development patterns caused the

groundwater table to rise. However, no regionwide followup studies on the SMC's findings have to date been planned or conducted.

In addition to the generally low toxicity found in inland channels, the Program's toxicity testing in the surfzone up- and downcoast of stormwater discharge points has found virtually no toxicity in the nearshore marine environment.

Table 2.2.3: Summary of aquatic toxicity results from the past five years of Stormwater Monitoring Coalition (SMC) samples from random sites across the southern California region. Sites were located in both open (i.e., undeveloped) and urban landuse types. The large majority of stream miles were nontoxic for acute toxicity (i.e., survival) in both landuse categories, with an equivalent amount of sporadic background toxicity in both open and urban landuses. The majority of stream miles were toxic for chronic toxicity (i.e., reproduction) in the open landuse, a strikingly different pattern than seen in the urban landuse.

	% Stream Miles	
	Open	Urban
Ceriodaphnia Survival		
Toxic	2.1	2.4
Nontoxic	97.9	97.6
Ceriodaphnia Reproduction		
Toxic	63.0	37.4
Nontoxic	37.0	62.6

2.6.2 Metals not a Source of Toxicity

Toxicity is a useful indicator of ecological impacts but toxicity test results by themselves do not identify the specific pollutants or other stressors responsible for toxicity. Instead they can indicate the general category of pollutants, such as metals or organic pesticides, contributing to toxicity. The

Program therefore combines three complementary lines of evidence to attempt to isolate the cause(s) of toxicity:

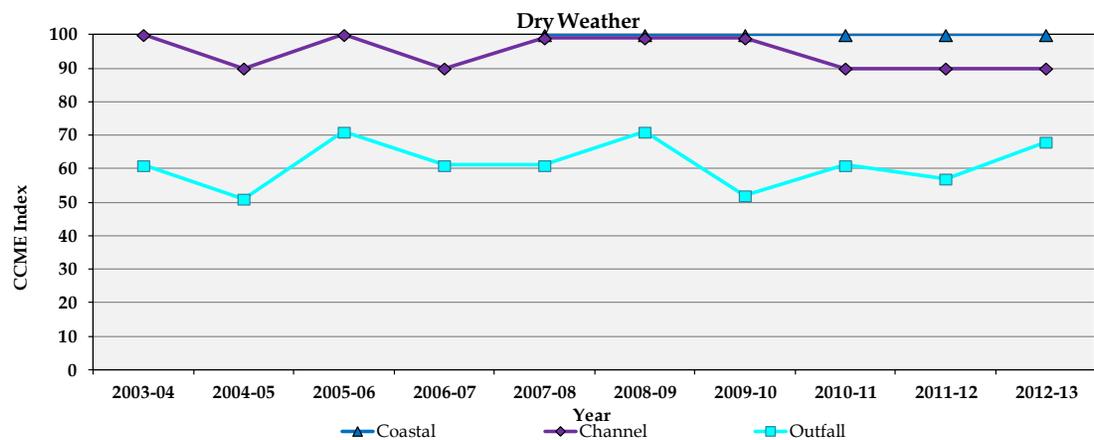
- Correlation between toxicity test results and chemical concentrations in the waters and sediments collected for toxicity tests
- Comparison of these chemical concentrations to regulatory standards in the California Toxics Rule (CTR) which are based on laboratory studies of test organisms' sensitivity to specific chemicals
- More detailed analyses of ambient water and sediments, called Toxicity Investigation Evaluations (TIEs), that sequentially remove classes of chemicals to determine whether toxicity drops in concert

Unfortunately, these studies have not succeeded in clearly identifying the sources of toxicity in the County's streams and channels. The sporadic nature of the toxicity signal makes it difficult to follow up on, correlations are inconsistent, and TIE methods have technical limitations that make their results less specific than desired. However, these methods have succeeded in ruling out metals as a source of toxicity and suggesting that the observed persistent toxicity patterns in the test species evaluated in urban streams and channels is due to organic compounds, likely pesticides.

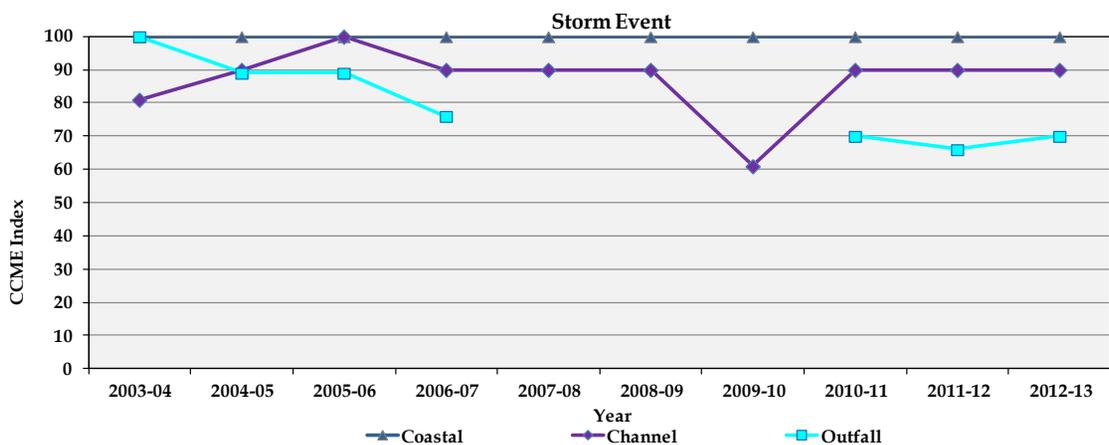
Exceedances of CTR standards for metals are consistently low in both dry and wet weather (**Figure 2.6.2**) and there is no apparent trend over time. While copper and cadmium account for the large majority of these limited exceedances, neither metal is correlated with the occurrence of toxicity in streams and channels and has not been identified as a cause of freshwater toxicity in TIEs. This conclusion matches findings from the SMC's regional program (see **Table 2.2.3**), a regional

Figure 2.6.2: An overall index of the extent to which metals meet regulatory standards in channels and embayments is high (meaning few exceedances) and has remained steady since 2003, in all samples for both dry (a) and wet (b) weather. This index accounts for the number of metals that exceed standards in each year, the percentage of individual samples that exceed standards, and the average magnitude of any such exceedances (CCME 2001). It provides a score, scaled from 0 - 100, that can readily be tracked over time.

a)



b)



study of loadings from natural areas (Figure 2.6.3), as well as from watershed monitoring programs in the San Gabriel River and Los Angeles River watersheds.

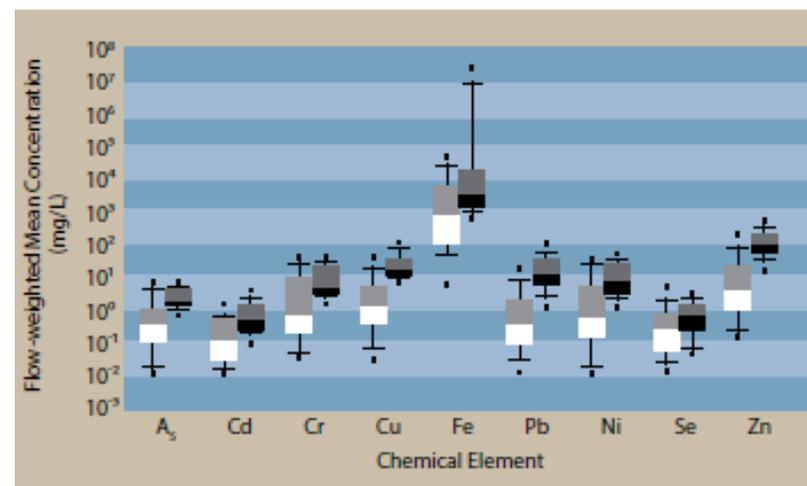
While copper is a concern in harbors, the 2002 TMDL for Toxic Pollutants in San Diego Creek and Newport Bay estimated that antifouling paint on boat hulls represents nearly 90% of the loading of copper to the Bay. In addition, a Bight '08 study of discharges to Areas of Special Biological Significance (ASBS) (Schiff et al. 2011) found no significant differences between post storm metals concentration at ASBS discharge sites and at reference drainages. There was some evidence for a slight increase in copper at ASBS discharge sites but this may be due to particular coastal sources such as harbors and coastal developments with copper architectural features.

2.6.3 A Localized Source of Copper

A history of persistent exceedances of regulatory thresholds for copper in the Irvine Cove community triggered a detailed, two-year special study to identify and prioritize sources of copper for future source control efforts. This cooperative effort between the County and the City of Laguna Beach included additional sampling of stormwater runoff at multiple locations along with field reconnaissance to identify potential sources of copper. This information helped focus targeted sampling at specific potential sources to rule them in or out and characterize their contribution to copper levels in runoff. The study showed that copper was concentrated in runoff from Irvine Cove below the Pacific Coast Highway, a spatial pattern that ruled out brake pad dust as a major source. Further reconnaissance focused attention on residential architectural copper uses such as roofs, rain gutters, and flashing (Figure

2.6.4). Sampling during a storm event of runoff from homes with and without architectural copper features showed that the average level of copper in runoff from homes with copper features was nearly ten times higher than copper in runoff

Figure 2.6.3: Wet weather flow-weighted mean concentrations of metals at urban (shaded boxes) and undeveloped open space (clear boxes) sites, as measured in the regional study of runoff characteristics from natural drainages. These data document that natural areas are sources of metals, although concentrations in runoff from natural drainages are somewhat lower than those at urban sites. Boxes indicate the 25th and 75th percentiles and error bars indicate the 10th and 89th percentiles. Dots represent extreme values.



from homes without copper, and nearly six times the regulatory action level. Maximum levels of copper were more than 1000 times higher. This information is useful in ruling out other sources and highlights the difficulty of controlling all sources of contaminants from urbanized watersheds.

Figure 2.6.4: Aerial photograph of a portion of the Irvine Cove drainage area identifying various types of structural architectural copper uses.



2.6.4 Trends in Pesticide Use

While pesticides have been implicated as a cause of both aquatic and sediment toxicity, it has been extremely difficult to confirm their role largely because of technical challenges associated with TIEs. There are hundreds of pesticides in current use, neither certified laboratory methods nor toxic thresholds exist for many of these, and legacy pesticides such as DDT are still present in the environment. In addition, the population of pesticides in use changes continually over time in response to new regulatory requirements and increasing knowledge of their targets' physiology (**Figure 2.6.5**).

Organochlorine pesticides (e.g., DDT, chlordane) were banned and replaced by organophosphate pesticides (e.g., diazinon and chlorpyrifos), whose use was tightly restricted and were in turn replaced by the synthetic pyrethroids (e.g., permethrin). Most recently, policies have tightened the use of pyrethroids, opening a door for increased use of fipronil. Newer pesticides are often toxic at much lower levels than older pesticides (e.g., pyrethroids exhibit toxic effects at the parts per trillion level), requiring the development of increasingly sensitive methods with lower detection limits. In addition, new pesticides often change the nature of toxicity and the types of organisms affected. This illustrates a core problem in pesticide monitoring, assessment, and management – the ever-changing cast of characters that pose a constant challenge to monitoring methods and the understanding of toxic processes.

Figure 2.6.5 shows that the use of organophosphate pesticides (chlorpyrifos and diazinon) has declined substantially since the early 1990s, even before their use in residential applications was banned in 2001 and 2004, respectively. Available data from the Program's monitoring efforts shows that, as a result, the exceedance index for organophosphate pesticides has increased (i.e., improved conditions) significantly in dry weather and to a lesser degree in wet weather (**Figure 2.6.6**). The slower rate of improvement in wet weather suggests that there may be reservoirs of these pesticides still present. Because agricultural uses must be reported and the reported use of these pesticides has declined to virtually zero (**Figure 2.6.5**), it is unlikely that still-permitted uses of these two pesticides are the source of the remaining wet weather exceedances. In contrast, the exceedance index for pyrethroid pesticides in wet weather is quite low (i.e., poor conditions), reflecting their increased use.

Figure 2.6.5: Trends in the use of the two most widely used organophosphate pesticides, diazinon and chlorpyrifos, and permethrin, the most widely used of the newer synthetic pyrethroids. *The organophosphates have virtually disappeared from the County after their residential use was banned by the USEPA, in 2001 for chlorpyrifos and 2004 for diazinon. Trends for all three pesticides are significant at the $p < 0.001$ level.*

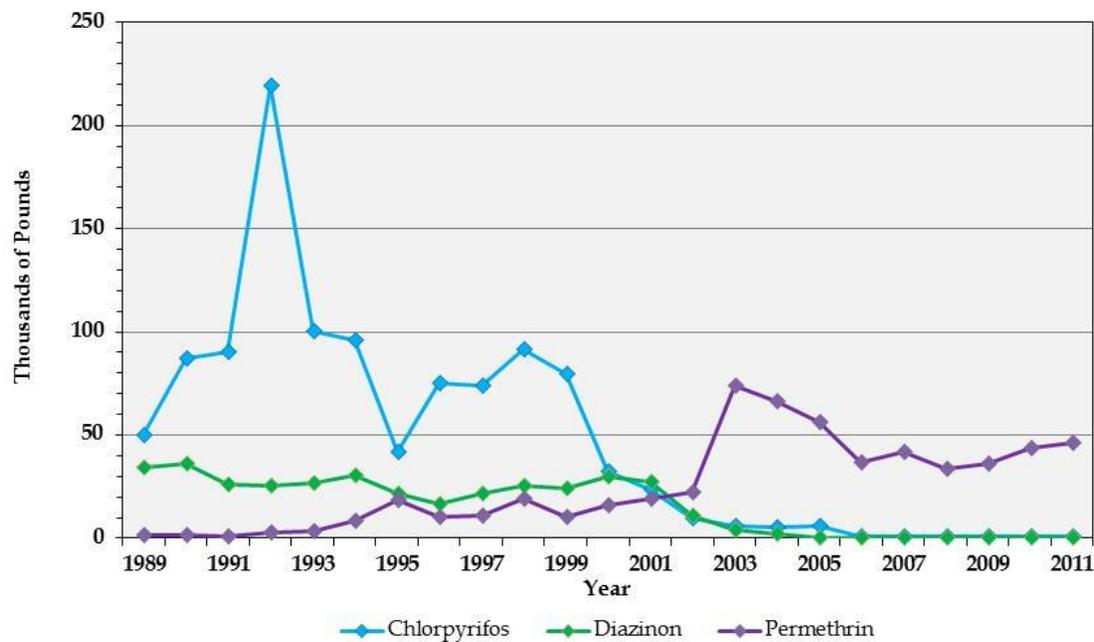
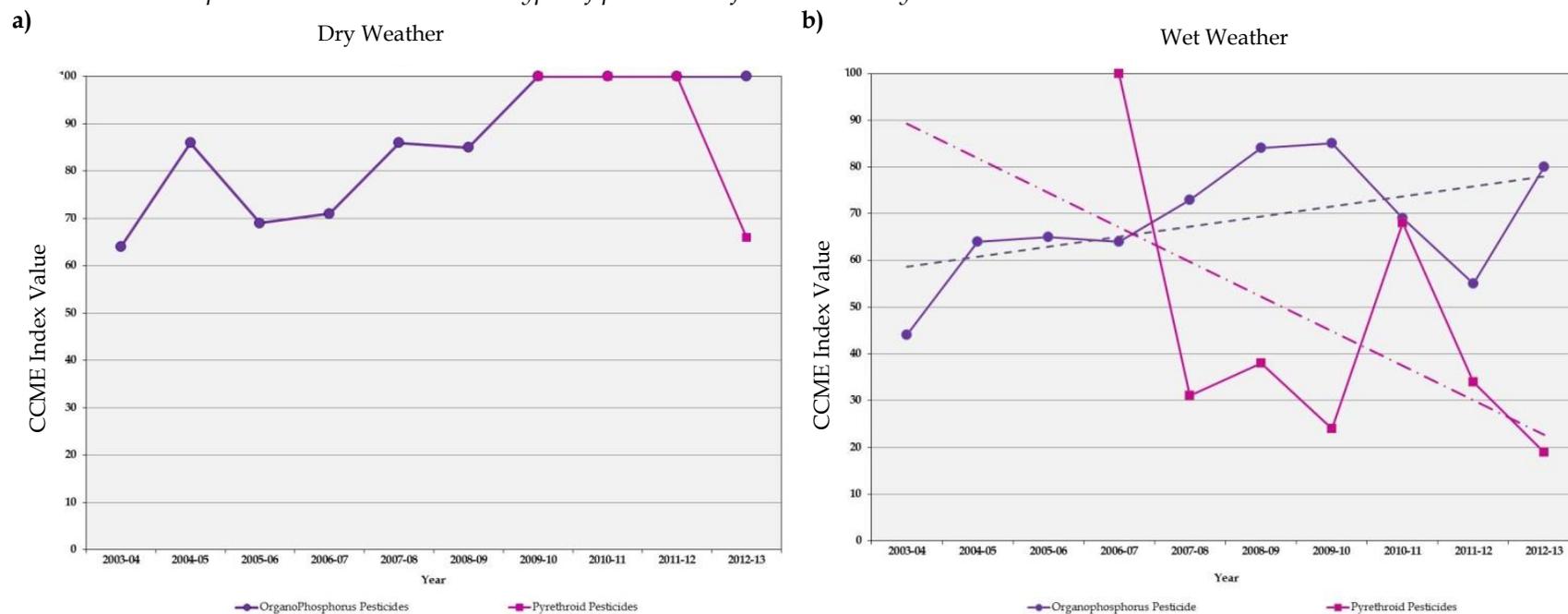


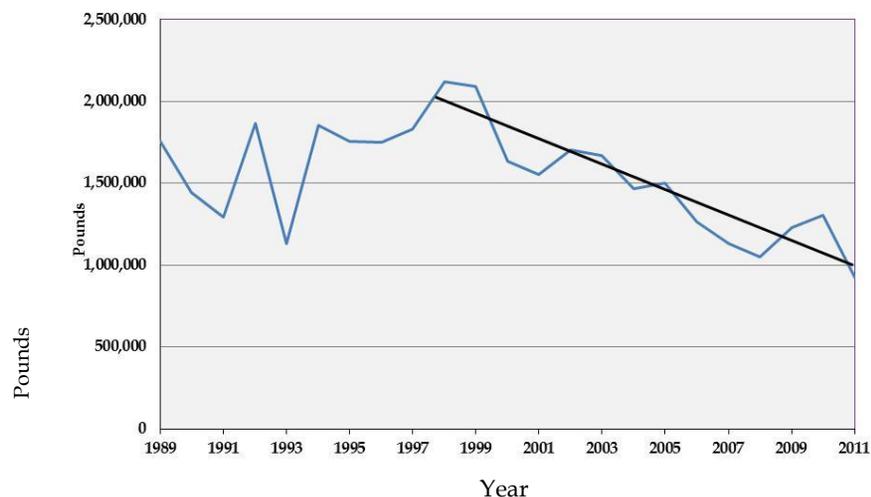
Figure 2.6.6: Trends over time in the exceedance index for a) organophosphate pesticides in dry weather and b) both organophosphate and pyrethroid pesticides in wet weather. Higher values of the index indicate better conditions. Organophosphate pesticides reach an index value of 100 (no exceedances) in dry weather (a) and remain there, a trend significant at the $p < 0.001$ level; pyrethroid exceedances appear in 2010 and increase quickly. While there are remaining exceedances for organophosphate pesticides in wet weather (b), the overall relationship between trends in the two types of pesticides reflects that in dry weather.



Despite the challenges of assessing pesticides' impacts in waterbodies, we do know that total reported pesticide use in Orange County has declined dramatically since 1998 (**Figure 2.6.7**). Inspection of detailed annual reports on the California Department of Pesticide Regulation's (CDPR) website shows this is due to declines in the use of glyphosate (i.e., Roundup) and a set of indoor fumigants used, for example, in termite treatment of homes and other structures. Glyphosate is an herbicide that is applied in the environment and there are some concerns about its potential water quality impacts. Indoor fumigants, in contrast, are not applied outdoors, degrade relatively quickly, and vent to the atmosphere. Because it has extended over nearly 15 years, this decline is likely due to a combination of causes, including changes in the real estate market (fumigation is required as a condition of sale), growing concern about health effects of toxic compounds, the greater use of spot applications of pesticides, and the increased availability of alternative non-pesticide treatments for indoor and structural pests.

The CDPR data show that large declines in pesticide use are possible, and provide promise that continued education and improved policy can contribute to environmental improvement. However, the chemicals that contributed most to the decline shown in **Figure 2.6.7** are not those (e.g., pyrethroids, fipronil) most often implicated in environmental toxicity. Further examination of the CDPR database would be needed to determine whether the aggregate amount of reported environmentally toxic pesticide applications has also declined in recent years. More importantly, there is a large and significant data gap related to retail purchases at hardware, gardening, and home improvement stores. Sales at these outlets are not reported to the CDPR and methods to reliably

Figure 2.6.7: Total reported pesticide use in Orange County, drawn from the California Department of Pesticide Regulation's website (www.cdpr.ca.gov). *The amount applied annually has declined by over 50% since 1998 (regression significant at $p < 0.001$). Note: Overall pesticide use appears to be declining.*



capture these data have not yet been developed. Continued efforts to expand the scope of pesticide sales / use reporting and to improve education on proper application and the use of effective alternatives (e.g., botanical oils) could reduce the loading of pesticides to the County's water bodies. For example, CDPR has developed new regulations for pyrethroid application that should substantially reduce pyrethroids in urban runoff. Such efforts will be amplified by the continuing focus on water conservation to reduce dry weather runoff (e.g., through Low Impact Development practices) and on reducing overuse to minimize or prevent toxicity in wet weather runoff, which are the two delivery

pathways for moving pesticides from the landscape to water bodies.

2.6.5 Recommendations

Past progress in identifying and controlling sources of contamination, the availability of a long time series of monitoring data, and the development of new monitoring and assessment tools provide the basis for this review of existing toxicity monitoring programs with the goal of improving their utility and efficiency. The following recommendations stem from a data-driven, risk prioritization approach that views monitoring, assessment, research, and management actions as a portfolio of related actions.

- Reassess management concerns and priorities about metals impacts in freshwater channels, bays and estuaries, and the nearshore coastal zone.
- To the extent that metals, particularly copper, remain a concern because of potential impacts in bays and harbors, recognize that inputs from antifouling paint, which are not an urban runoff issue, are likely a more important source than watershed input.
- Improve information on the use of pesticides in the County, particularly by the largest applicators
- Work with other interested parties to fill the data gap related to retail sales of pesticides.
- Examine the CDPR database to develop a more thorough picture of trends in reported pesticide use.
- Use this information to expand and focus cooperate outreach efforts about proper pesticide application and the

use of alternatives such as botanical oils that are effective, but nonlethal, insect deterrents.

- Use available data to streamline monitoring and improve its statistical and economic efficiency. Consider reducing the current focus on metals monitoring and targeting pesticide monitoring on less expensive representative constituents or surrogates. Consider reducing the frequency of sampling for sediment associated constituents to the Bight Program's sampling frequency.
- Given the overall low level of observed toxicity, consider increasing the use of adaptive responses (e.g., TIEs and other types of causal assessment) in place of intensive routine monitoring.
- Continue taking advantage of opportunities to reduce dry weather runoff to channels.
- Continue the productive relationship the University of California's South Coast Research and Extension Center and take advantage of opportunities for its Director to communicate the stormwater management perspective to CDPR.

2.7 Reconsideration of Monitoring Program Elements

The Story: Revisiting Program Designs

- The designs of two program elements deserve reconsideration because of increased knowledge, improved monitoring and assessment tools, and shifting management priorities.
- Such reconsideration and adaptation is fully in the spirit of the Regional Board's recently adopted Framework for Monitoring and Assessment.
- The Coastal Ambient Program has served its purpose and documented that coastal stormwater discharges are not causing any meaningful exceedances or impacts in the very nearshore coastal zone.
- The Bight Program's regional assessment of the effects of stormwater discharges on protected areas at larger spatial scales is a more effective approach to answering questions about the potential impacts of stormwater discharges.
- Efforts to reduce dry weather flow, in part through water conservation and reclamation efforts have produced substantial declines in the amount of dry weather stormwater discharge.
- These reductions have resulted in concomitant reductions in the loads of a range of problematic constituents and represent an effective means of controlling pollution from urban runoff.

2.7.1 Coastal Ambient Monitoring has Served Its Purpose

The potential impacts of coastal stormwater discharges on the marine ecosystem have long been a concern because of the pollutants they carry to the ocean. Impacts could occur at the point of initial discharge where they are most concentrated and/or at larger distances as discharge plumes mix into the coastal ocean.

The Program's Coastal Ambient monitoring effort samples directly in front of and at a short distance up- and downcoast of key discharge points. It is designed to determine whether stormwater pollutants are reaching the surfzone in concentrations that exceed water quality objectives and are causing measurable toxicity. However, the prioritization analysis shows that this is not the case, with only minor exceedances and virtually no toxicity detected. The length of time this monitoring has continued and its consistent results in both wet and dry years suggests these findings are robust and reliable.

While the Coastal Ambient monitoring has confirmed that nearfield effects in the immediate vicinity of coastal discharges are not occurring, questions about the possibility of farfield effects, particularly on protected areas (ASBSs and MPAs), have not yet been resolved. This requires a more substantial effort and is being addressed by a Bight Program study that integrated several types of information on a regional scale. The Bight study included three main parts:

- A pollution index of the likely intensity of stormwater pollution at specific protected areas
- A fishing pressure index of the effects of commercial and recreational fishing on key species

- A new assessment tool for measuring the condition of biological communities on rocky reefs

The pollution index was based on a plume dispersion model (**Figure 2.7.1**) (Rogowski et al. 2014) that estimated the probability that stormwater discharge plumes would overlap with specific protected areas. This was combined with a measure of pollutant loads to develop an estimated index of pollution intensity. The regional assessment will then compare the relative effects of fishing pressure (**Figure 2.7.2**) and pollution on the status of biological communities.

Figure 2.7.1: Illustration of the use of coastal discharge flow and coastal current data to produce probability exposure maps for a series of discharges and nearby protected areas in southern California. The figure is organized by rows for (A) Newport Bay, and (B) Santa Ana River. Additionally, each column represents a different temporal model run including (a) annual, (b) the February 22, 2008 storm event, and (c) the December 15, 2008 storm event. Local ASBS are also displayed in all figures and defined in column (b). The X-axis is longitude and the Y-axis latitude. Colors represent probability of plume exposure as indicated at the bottom of the the figure. These probability exposure maps are then combined with estimates of pollutant loads for each discharge to derive a pollutant index for each protected area. From Figure 3, Rogowski et al. (2014).

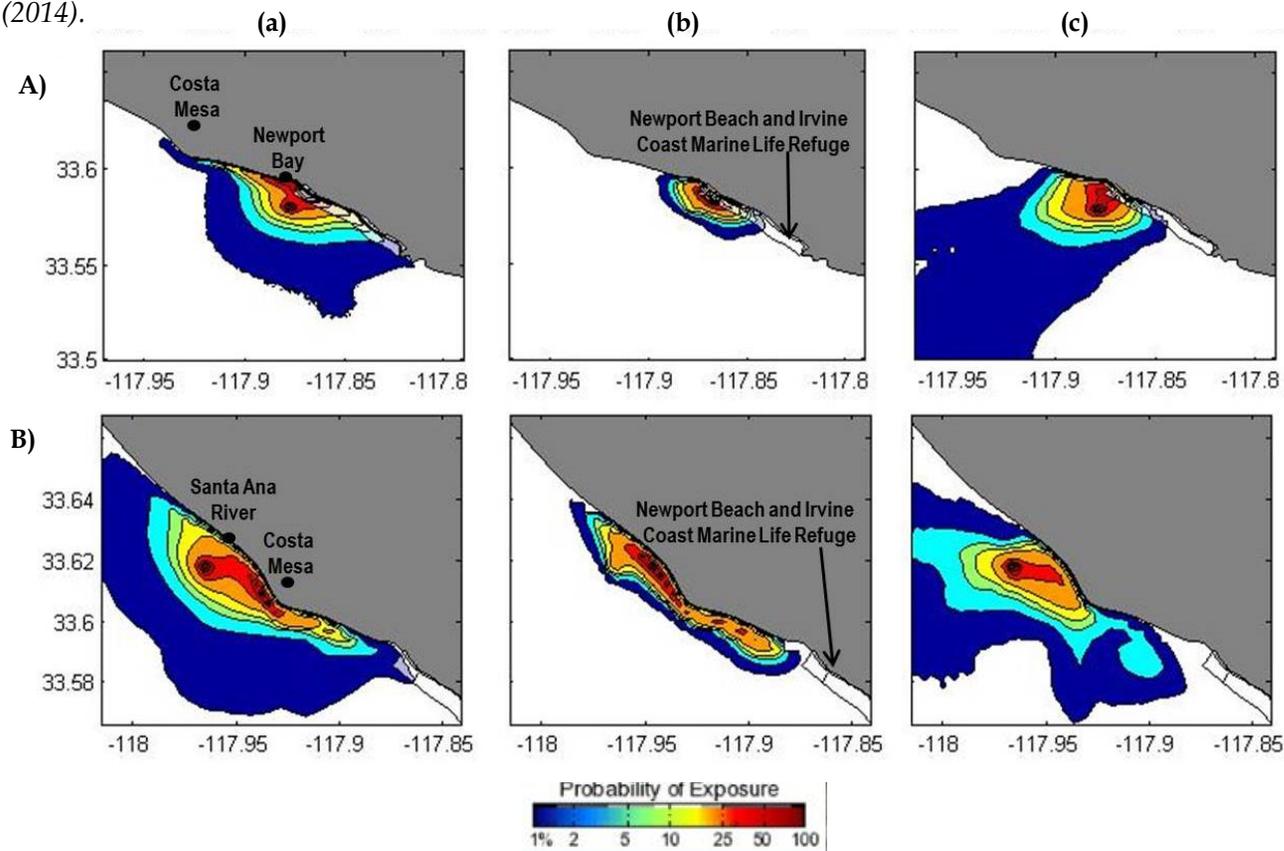
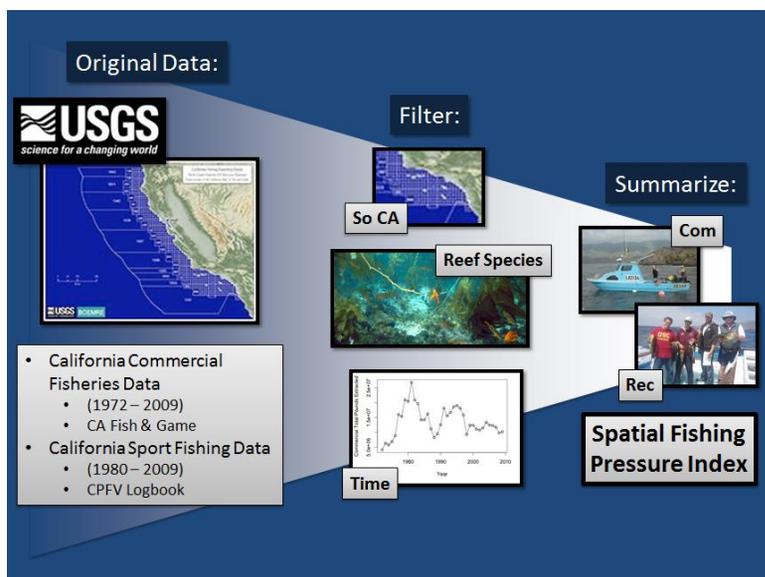


Figure 2.7.2: Schematic of the data integration and synthesis steps involved in producing an index of fishing pressure on protected areas in southern California. *From Update on Fishing Pressure Index presentation by SCCWRP, Ocean Science Trust, and Occidental College Vantuna Research Group, March 2, 2014.*

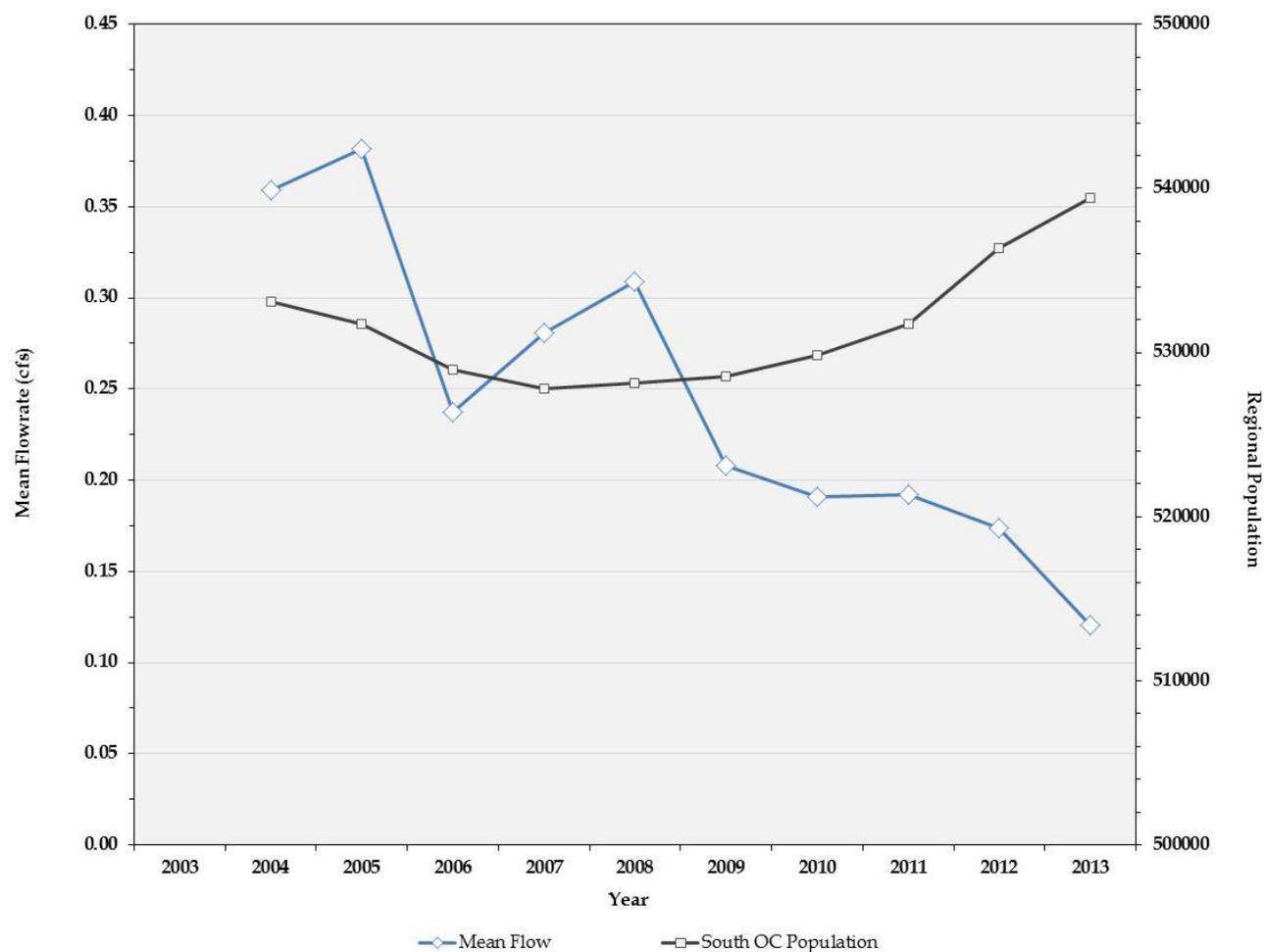


2.7.2 Runoff Reduction, a Powerful All-Around Tool

Evidence from a number of the Program’s monitoring efforts documents the value of water conservation and reduced urban runoff (i.e., discharge flow into streams and channels) in reducing pollutant inputs and their impacts. Water conservation and related efforts to reduce urban runoff therefore represent a potentially powerful all-around tool for addressing impacts of urban runoff. While water conservation efforts motivated by state and local policies provide the underlying impetus, pollutant control could add another important rationale for pursuing such policies as part of a larger, coordinated strategy. The effectiveness of such programs is dramatically illustrated by the declining trend of dry weather discharge flow to channels and streams from urban outfall (Figure 2.7.3).

The integrated regional approach includes a more much more powerful and relevant set of questions and methods to address the potential impacts of coastal stormwater discharges on marine ecosystems. The Program’s future efforts to assess the potential impacts of coastal discharges should therefore focus on contributing to this regional effort rather than continuing to monitor at extremely local scales in the vicinity of each discharge point.

Figure 2.7.3: Discharge of dry weather flow to channels and creeks from urban outfalls has declined dramatically despite an increase in regional population. *The decline spans both wet and dry years and is therefore not simply a result of drought conditions.*



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3.0 Controlling Pollutant Sources: Jurisdictional Programs

3.1 Overview

The management of sources of pollution from diffuse urban areas involves the strategic application of Best Management Practices (BMPs) to activities and drainage systems within the urban environment. The purpose of BMPs is to protect water quality by reducing pollutant loads and concentrations and by reducing discharges (volumetric flows and flow rates) causing stream channel erosion.

The DAMP is the principal policy and program guidance document for the *Program*. At its core is a series of Model Programs that are individually implemented by the Permittees in accordance with DAMP/Local Implementation Plans (LIPs). These Model Programs are intended to enable the Permittees to:

- Improve existing municipal pollution prevention and removal BMPs to further reduce the amount of pollutants entering the storm drain system (**Model Municipal Activities and Model IPM Program**);
- Educate the public about the issues of urban stormwater and non-stormwater pollution and obtain their support in implementing pollution prevention BMPs (**Model Education and Outreach Program**);
- Ensure that all new development and significant redevelopment incorporates appropriate Site Design, Source Control and Treatment Control BMPs to address specific water quality issues (**Model Land Development Program**);
- Ensure that construction sites implement an effective

combination of erosion and sediment controls and on-site hazardous materials and waste management (**Model Construction Program**);

- Ensure that existing development addresses discharges from industrial facilities, selected commercial businesses, residential development and common interest areas/homeowner associations (**Model Existing Development**), and
- Detect and eliminate illegal discharges/illicit connections to the municipal storm drain system (**Model ID/IC Program**).

3.2 Municipal Infrastructure and Integrated Pest Management

The Story: Municipal

- The Model Municipal Activities Program ensures that BMPs are implemented and maintained at over 1,700 municipal facilities.
- Municipal services, including trash and debris removal, solid waste collection, household hazardous waste disposal and street sweeping were established prior to the First Term MS4 Permits but are monitored and contribute to water quality protection.
- The Model Integrated Pest Management Program ensures municipal conformance with an Integrated Pest Management Policy developed in partnership with University of California Cooperative Extension. Implementation of the policy is resulting in reductions in municipal fertilizer and pesticide use.

3.2.1 Overview

The Permittees own and operate facilities and build and maintain much of the transportation, drainage and recreational infrastructure of the urban environment. To ensure that BMPs are incorporated into municipal areas and infrastructure maintenance programs, the Permittees have followed a systematic process of BMP evaluation of municipal areas, activities and drainage facilities since the First Term Permits. The Permittees also implement Integrated Pest Management (IPM) approaches at municipal sites to address sources of toxicity from municipal activities.

3.2.2 Municipal Activities Program Implementation and Assessment

The Model Municipal Activities Program has been implemented since 2002-03. It requires the Permittees to:

- Inventory municipal sites
- Prioritize municipal areas and maintenance activities based upon water quality threat
- Prepare BMP guidance
- Conduct inspections of municipal areas/facilities
- Implement Model Maintenance Procedures
- Conduct training
- Implement an IPM Policy
- Examine retrofit opportunities for municipal facilities

Site Inventories

Annually, the Permittees inspect over 1,700 municipal facilities comprising 27% high priority sites, 11% medium priority sites and 62% low priority sites.

BMP Guidance

The Permittees have produced BMP factsheets for the Model Municipal Program that are available at www.ocwatersheds.com. In addition to training, these BMP factsheets serve as the primary guidance for Permittee municipal maintenance procedures. The Permittees will complete a review of the municipal BMP factsheets in late 2014 or early 2015.

Training

Municipal training materials for “Municipal 101” were available for Permittee use as a “train the trainer” tool covering the minimum required BMPs discussed in the fact sheets. The focus of municipal training during the permit term was on development and implementation of jurisdictional IPM programs (Table 3.2.1).

In the Fifth Term MS4 Permit, the Permittees will examine opportunities to enhance training formats with “flip the classroom” approaches that emphasize in-classroom discussion and hands-on application of concepts.

Table 3.2.1: Municipal Training

Date	Subject Matter/Title	Target Audience	Permittee Staff in Attendance
September 15, 2010	Integrated Pest Management (IPM) Training	Stormwater Program Managers	23
May 17, 2012	Implementing Integrated Pest Management Policy Within Local Jurisdictions: The Impacts of Pesticide Formulations and Exotic Pests	Municipal Training Instructors and Field Staff	52
May 15, 2013	Implementing Integrated Pest Management Policy Within Local Jurisdiction: The Who, What, Where and Why	Stormwater Program Managers and Field Staff	32

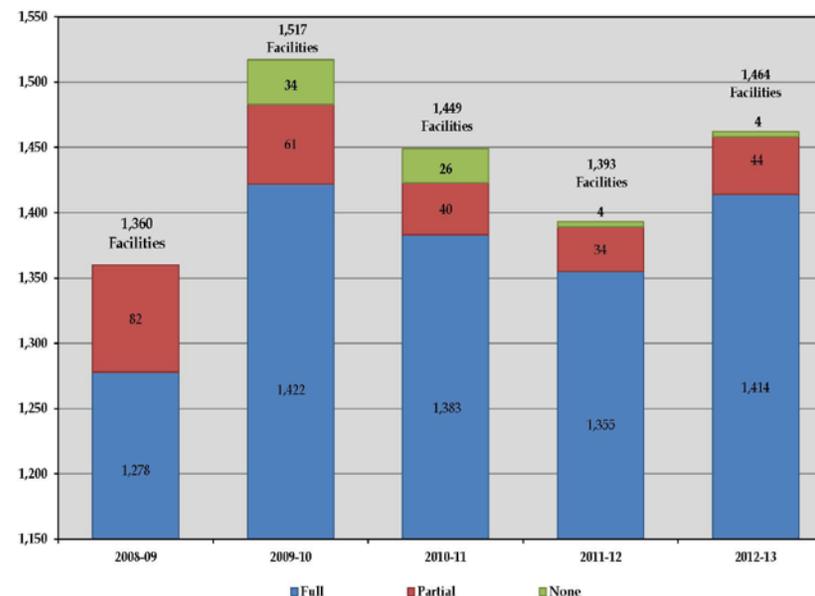
Inspection and BMP Implementation

Municipal Facilities

Inspectors implement the Model Municipal Program by ensuring implementation of the Model Maintenance Procedures. For each facility, inspectors categorize the degree of BMP implementation on site as “fully implemented,” “partially implemented” or “not implemented.”

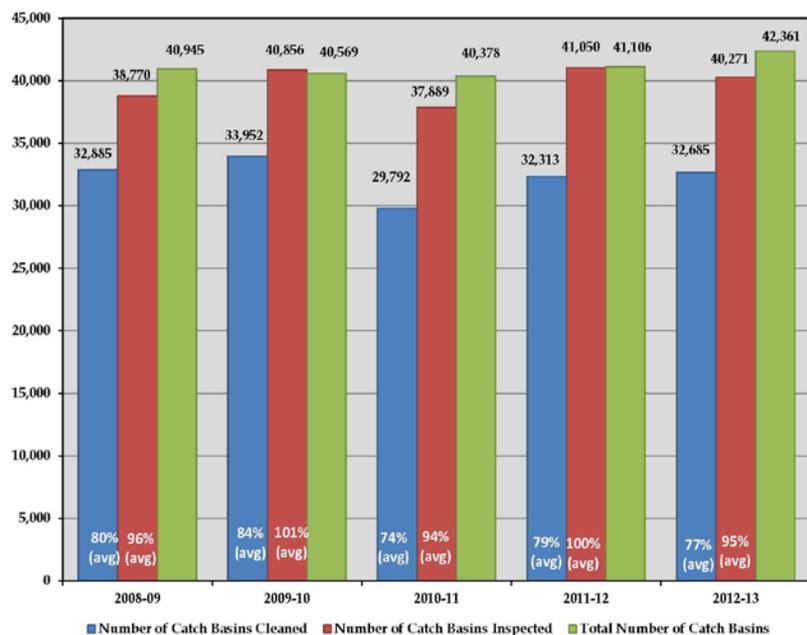
Since 2008, more than 90% of facilities have consistently implemented all required BMPs. In addition, the number of facilities with no BMP implementation has decreased since 2009 from 2.4% to 0.28% of facilities (Figure 3.2.1).

Figure 3.2.1: Municipal Area Inspections and BMP Implementation from 2008-09 to 2012-13



Between 2008 and 2013, a majority of Permittees reported inspecting an average of more than 90% of catch basins on an annual basis and 100% of catch basins on a bi-annual basis (Figure 3.2.2). The percentage of drainage facilities requiring cleaning as a result of inspections has remained approximately 80% (Figure 3.2.2).

Figure 3.2.2: Catch Basin Inspections Performed from 2008-09 to 2012-13



Municipal Services (Baseline BMPs)

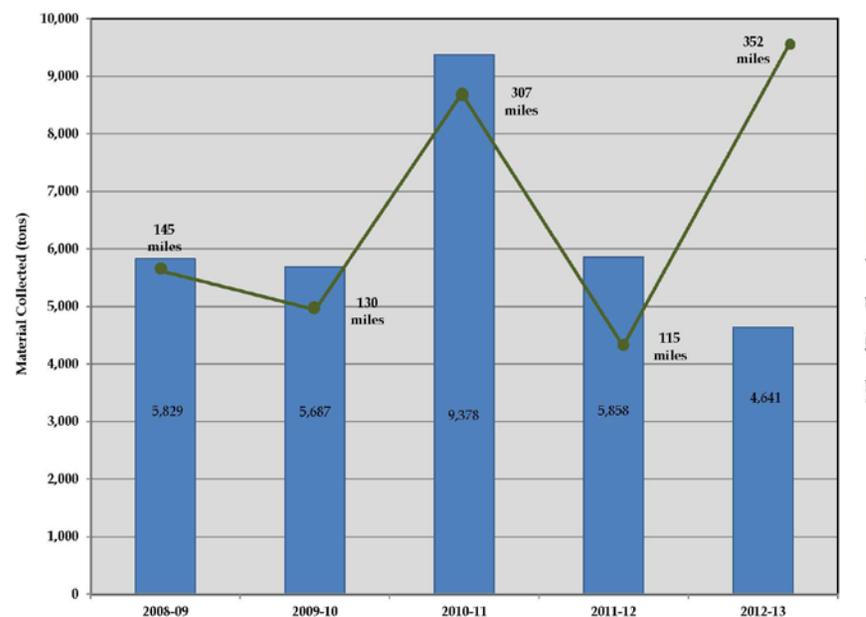
Permittees collect data on a number of municipal activities that pre-date the adoption of MS4 permits for Orange County, but nonetheless contribute significantly to water quality protection. These “baseline BMPs” include storm drain

cleaning, street sweeping, solid waste and household hazardous waste collection, used oil grant participation and trash and debris control.

Storm Drain Maintenance

The Permittees inspected and cleaned an average of 210 miles of storm drain and removed an average of 6,279 tons of material on an annual basis (Figure 3.2.3).

Figure 3.2.3: Drainage Facility Maintenance and Material Removed from 2008-09 to 2012-13

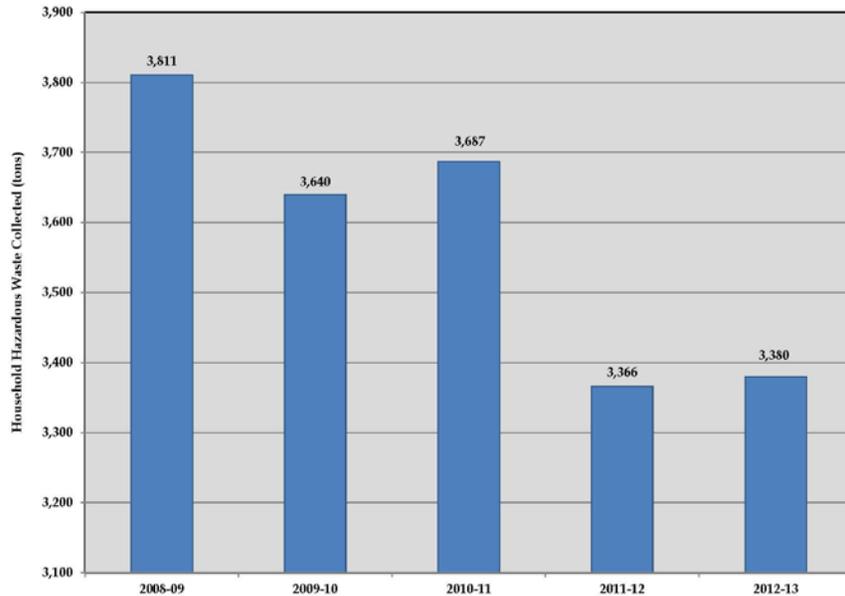


Household Hazardous Waste (HHW) Collection

OC Public Works finalized a memorandum of understanding

with OC Waste and Recycling on June 23, 2010 to ensure that household hazardous waste collection, transfer and disposal practices do not cause or contribute to water quality problems. The County, on behalf of the Permittees has collected an annual average of almost 3,600 tons of household hazardous waste since 2008 (Figure 3.2.4).

Figure 3.2.4: Tons of Household Hazardous Waste Collected from 2008-09 to 2012-13

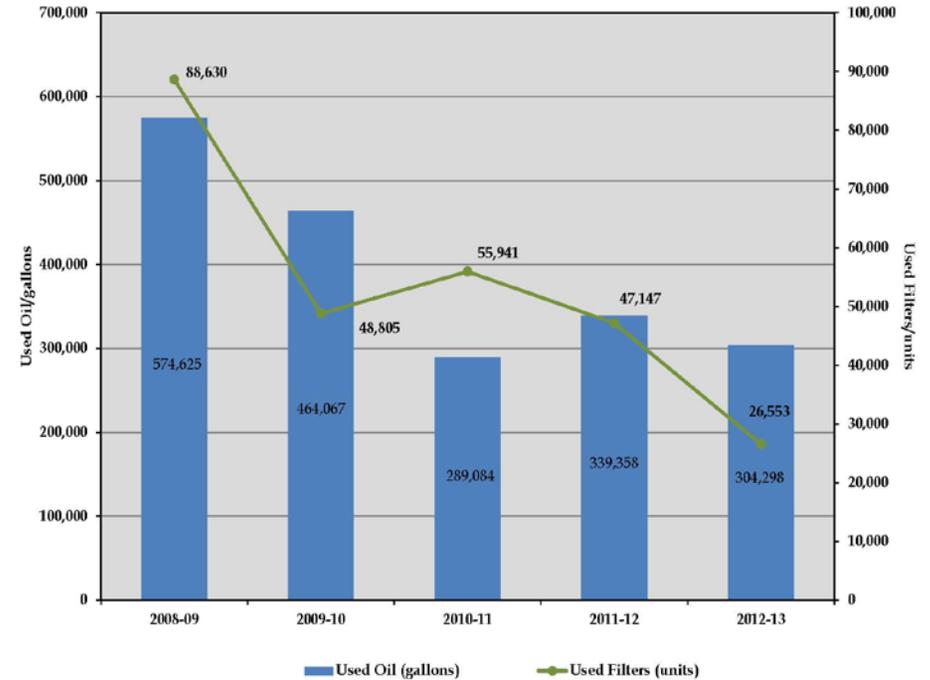


Used Oil Grant Participation

Nearly all of the Permittees and the County’s Health Care Agency participated in the Used Oil Grant program during the past five years. Through these programs, hundreds of thousands of gallons of used oil and tens of thousands of used oil filters have been collected and disposed of properly,

preventing these contaminants from entering the environment (Figure 3.2.5).

Figure 3.2.5: Used Oil and Filters Collected from 2008-09 to 2012-13



Trash & Debris Control

Trash can degrade surface water quality and negatively impact aquatic habitat. The Permittees utilize a combination of trash and debris controls to address this issue. Controls include structural BMPs such as debris booms, catch basin inserts and continuous deflection separation (CDS) units and source control BMPs such as public education and street sweeping. The Orange County Stormwater Program GIS Cloud layer includes locations of all trash and debris booms

<http://oc.giscloud.com/map/242085/orange-county-stormwater-program-san-diego-region>).

The Permittees also engage the public in cleanup events throughout the year when requested and annually every September for Inner-Coastal & Watershed and Coastal Cleanup Day, resulting in the removal of thousands of pounds of trash and debris. The County also initiated a pilot Adopt A Channel program in 2012 whereby Disneyland Resort adopted a 2-mile segment of Anaheim Barber City Channel and a debris boom. Though the pilot adoption was within the Santa Ana Region, the County is in the process of expanding the program county-wide to promote community involvement in keeping trash out of local waterways and to supplement jurisdictional resources.

Additionally, ongoing efforts to characterize the flux of trash and debris through the County's urban watersheds may ultimately produce recommendations for enabling management and maintenance approaches to be more effectively prioritized. These efforts include the Newport Bay Trash Management Plan and South Orange County Trash and Litter Special Study described in Section 3.2.4 of the 2012-13 Unified Annual Report. Also, the Permittees collaborated on the Stormwater Monitoring Coalition's (SMC) Regional Bioassessment Study to incorporate trash and debris data from multiple sampling sites throughout southern California in 2012 and 2013. As a result of ongoing watershed and regional trash monitoring efforts, the Permittees would like to see the opportunity retained for jurisdictions to leverage the information arising from these studies to prioritize control efforts consistent with the MEP standard established by the statute.

Model Integrated Pest Management Program

Since pesticide-related water column toxicity is a priority issue of countywide concern, Integrated Pest Management (IPM) will continue to be a focus of the Program. A key component of an effective Integrated Pest Management (IPM) Program is an emphasis on maintaining plant health through proper fertilizer and pest management. Reducing unnecessary fertilizer and pesticide applications reduces the opportunity for these chemicals to inadvertently enter local waters through irrigation and rain events.

The Permittees formally adopted individual IPM Policies during the 2010-2011 reporting period based on an IPM Policy template developed with assistance from University of California Cooperative Extension (UCCE). The result has been the adoption of a set of basic IPM guidelines implemented by each public agency.

Fertilizer

Fertilizer usage is tracked and reported by total nitrogen, phosphorus and potassium applied per acre. Since 2010, the amount of all three nutrients applied per acre has decreased; nitrogen per acre decreased 49%, phosphorus per acre decreased 60% and potassium decreased by 55% (**Figure 3.2.6**).

Figure 3.2.6: Fertilizer Applied per Acre 2008-09 to 2012-13

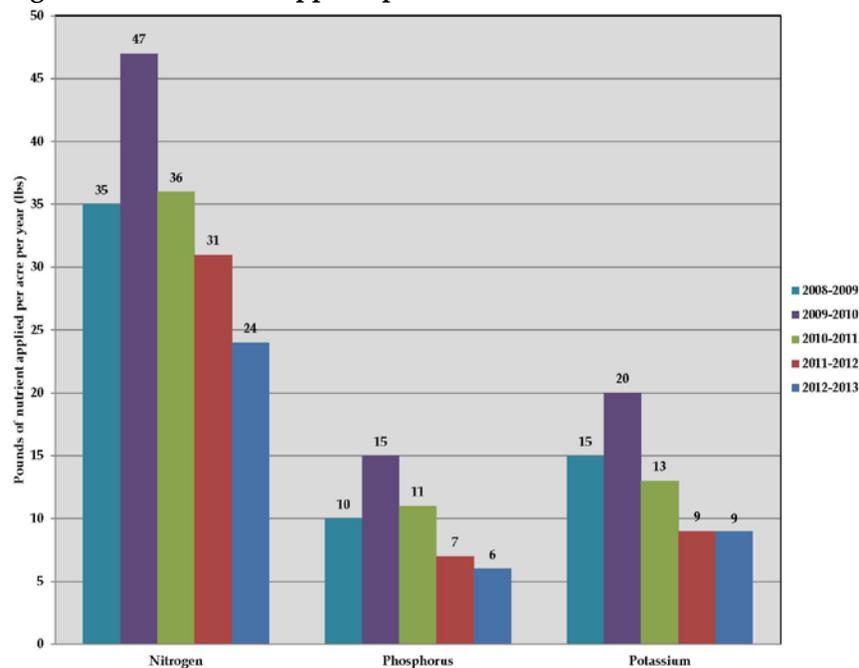
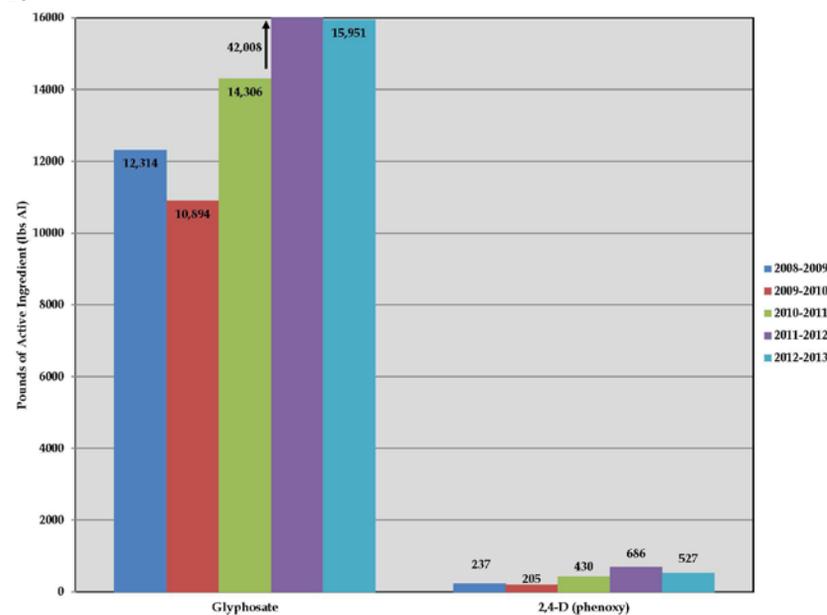


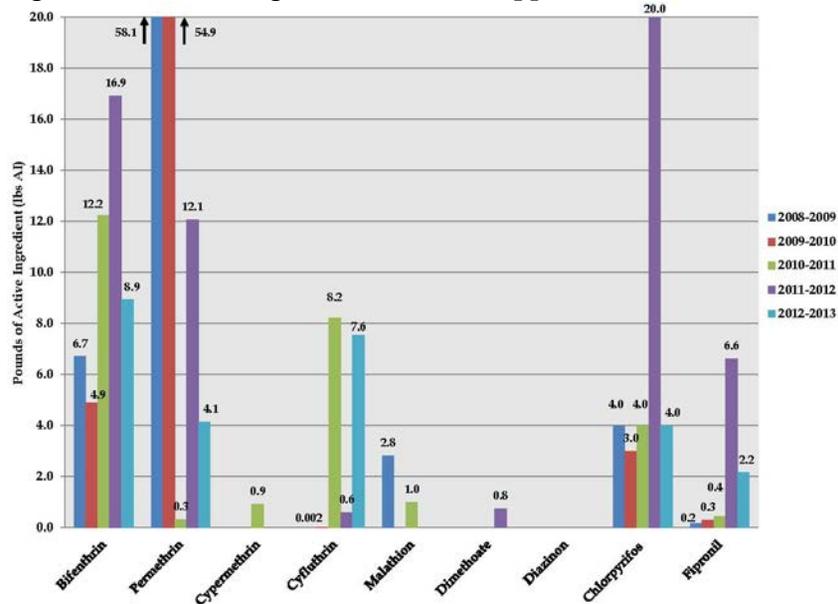
Figure 3.2.7: Active Ingredient Herbicide Applied 2008-09 to 2012-13



Pesticides

Permittees have utilized fewer pounds of insecticides on an annual basis since 2010, especially those recognized by research as having the greatest potential for causing aquatic toxicity. For the 2012-13 reporting year, Permittees reduced application of the herbicide glyphosate by 62% (**Figure 3.2.7**). Additionally, Permittees reduced overall application of pyrethroid, organophosphate and phenylpyrazole pesticides by 47% collectively between 2012 and 2013 (**Figure 3.2.8**).

Figure 3.2.8: Active Ingredient Pesticide Applied 2008-09 to 2012-13



3.2.3 Municipal Retrofit Opportunities & the Practical Vision for Sustainable Water Supply

Municipal Retrofitting

Municipal stormwater retrofits and specifically regional stormwater retrofits are potentially an important tool in the municipal stormwater tool box. Municipal stormwater retrofits provide an opportunity to implement BMPs to provide treatment for existing urban areas, assist with achieving TMDL compliance, serve as offset mitigation for land development and contribute toward integrated water resource management.

Through the Orange County BMP Retrofit Opportunities

Study numerous potential stormwater BMP retrofit sites were identified in various municipal right-of-ways. Water quality models have also been developed for some of the watersheds in Orange County that can help identify the water quality benefits of the proposed BMP sites. The Permittees will continue to identify public land suitable for stormwater retrofitting and projects supportive of the “*Practical Vision – A Vision for Achieving a Sustainable Local Water Supply* (SDRWQCB 2013).”

OCTA Environmental Cleanup Grant Program

The Permittees have also implemented trash and debris controls and regional retrofit projects through the Orange County Transportation Authority (OCTA) Measure M Environmental Cleanup Program. The structure of the Environmental Cleanup Program, its management and coordination with the Permittees was discussed in Section C-3.2.6.1 of the 2012-13 Unified Annual Report. **Section 6.0** of this report summarizes the two-tier grant process which provides funding for BMPs, including catchbasin screens and regional multi-jurisdictional projects.

Green Infrastructure

Green infrastructure is also an important tool in the municipal stormwater tool box. Green infrastructure incorporates LID concepts to help achieve stormwater management goals of improving water quality and reducing volume of stormwater runoff while also meeting infrastructure needs of municipalities in a sustainable manner. Opportunities exist for implementation of green infrastructure either as a part of municipal capital improvement projects (CIP) or as part of Green Street retrofit projects. Evaluation of how green

infrastructure can be incorporated into CIP or as part of green street retrofit projects will be undertaken.

3.2.4 Recommendations

Based upon consideration of the water quality priorities of the Program (bacteria, nutrients and pesticide related toxicity) and the evaluation of program implementation, the recommendations are:

1. **Enhance municipal training** to address common issues encountered through municipal related complaints and to utilize innovative education formats to encourage effective discussion-based learning. The four most common issues that occur are: trash/debris, pathogen/bacteria, hydrocarbons and exempt discharges (County of Orange PNIR data, n=205 municipal related complaints, 2008-2012). Training will focus on in-classroom engagement of concepts learned prior to the training session and focus on reducing issues and pollutants of concern through specific actions (e.g. runoff reduction to reduce bacteria loading).
2. **Develop a municipal green infrastructure program** that could include evaluation of opportunities for pilot green street projects of different land use/density configurations and development of a green street guidance manual.
3. **Examine public land retrofit opportunities** for regional BMPs and propose a program to evaluate previously identified regional retrofit opportunities in jurisdictionally owned areas for use in TMDL compliance and LID and/or hydromodification management alternative compliance. This effort will involve the development of watershed models and evaluation of the previously identified
- potential BMP retrofit sites. Previous reviews (e.g. 2005 RBF retrofit study) will be integrated with current mapping.
4. **Develop and initiate the implementation of individualized IPM Guidelines for each Permittee** with the goal of demonstrating significant and consistent reductions in fertilizer and pesticide applications based on the mission and goals outlined in jurisdictional IPM Policies.
5. **Conduct pilot soil and/or leaf tissue analysis to guide fertilizer use** to ensure nitrogen is not applied at annual rates above those recommended by UCCE research. The Permittees would identify the most fertilizer-intensive area by type (e.g. sports fields) and select one site for analysis. The analysis would assist Permittees in fine-tuning nitrogen application based on the needs of plants at the highest use areas.
6. **Improve methods for documenting usage of fertilizer and active ingredient of pesticide on an annual basis** to allow for more reliable data on the acreage receiving fertilizer applications. In collaboration with the UCCE, a standardized reporting method would be developed, improving reporting accuracy on both the amount of nitrogen and pesticides applied by Permittees on an annual basis. The objective would be to minimize fertilizer applications where annual rates exceed those recommended by UC research (174 -261 lbs. N/acre) while more accurately capturing the acreage to which fertilizer is applied.
7. **Expand training to include peer-reviewed online training**

courses offered by University of California IPM (UC IPM) and UCCE to ensure the IPM and water quality message reaches as many field staff as possible. Possible options include the UC IPM Urban Pesticide Runoff and Mitigation online training series developed by UC academics across the state to provide a more suitable method to reach field staff unable to attend in-person training. The online training consists of a series of courses directly addressing the impacts of pesticides on water quality as well as practices to mitigate these impacts (<http://www.ipm.ucdavis.edu/training/upr-mitigation.html>).

3.2.5 References

San Diego Regional Water Quality Control Board (SDRWQCB). *San Diego Regional Water Board Practical Vision: Healthy Waters, Healthy People*. 2000.
http://www.swrcb.ca.gov/sandiego/water_issues/Practical_Vision/docs/PV.pdf

Implementation Schedule - Municipal Infrastructure & IPM

Proposed Municipal Program Actions	Recommendation ¹	Implementation Schedule ²				
		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Municipal Facility Inventory						
Update and maintain GIS based storm drain conveyance inventory	C					
Inspection and Best Management Practice (BMP) Implementation at Municipal Facilities						
Inspect fixed facilities according to established prioritization	C					
Inspect municipal operations/activities annually	C					
Install, inspect and maintain basin inlet markings as necessary	C					
Implement and Track Baseline BMPs - Operations and Activities						
Conduct and track street sweeping activities	C					
Promote, facilitate, and track proper disposal of solid waste	C					
Promote, facilitate, and track HHW collection activities	C					
Promote, facilitate, and track proper collection and disposal of used oil	C					
Maintain debris booms as necessary	C					
Promote, facilitate, and track clean up events	C					
Municipal Training						
Conduct training for staff	C					

Proposed Municipal Program Actions	Recommendation ¹	Implementation Schedule ²				
		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Develop and update BMP Fact Sheet and other training materials as necessary	C					
Develop an Integrated Pest Management Policy						
Develop and initiate the implementation of individualized IPM Guidelines for each Permittee	N			X		
Conduct pilot soil and/or leaf tissue analysis to guide fertilizer use	N			X		
Improve methods for documenting usage of fertilizer and active ingredient of pesticide on an annual basis	E	X				
Expand training to include peer-reviewed online training courses offered by UC IPM and UCCE	E		X			
Municipal Green Infrastructure Program						
Evaluation of opportunities for the development of pilot green street projects for different land use/density configurations	N	X				
Development of a green street WQMP template	N		X			
Development of green streets standard design specifications	N			X		
Implementation of one green street pilot project in the 5th term permit term.	N					X
Examine Retrofit Opportunities BMPs at Municipal Facilities						
Develop water quality models	N			X		
Integration of the previously identified potential BMP retrofit sites into the models and evaluation of use for TMDL compliance and/or LID and/or hydromodification management offset	E					X

1. C = Continue; E = Enhance; N = New

2. X = Performance Standard will be completed during this fiscal year. Gray shaded cells indicate ongoing implementation.

3.3 Public Outreach

The Story: Public Outreach

- Public awareness surveys conducted approximately every three years demonstrate increased levels of awareness regarding stormwater concerns and several positive behavior changes regarding car washing, use of landscape management products, and pet waste.
- The Program achieved over 155 million impressions through various forms of paid media, and over 5.5 million impressions at outreach events from 2008 to 2013.
- Outreach to school-age children provided water pollution prevention education to over 125,000 students and the Permittees helped support several targeted academic programs throughout the Fourth MS4 Permit term.
- The Permittees initiated a strategic behavior-specific outreach program in 2012.
- The Program enhanced partnerships with the Municipal Water District of Orange County, Chapman University and the University of California Cooperative Extension (UCCE) during the Fourth MS4 Permit term.
- Reductions in outdoor water use, retrofitting the residential environment to reduce outdoor water demand and elimination of runoff from irrigation are the foci of action-based outreach efforts initiated in 2013.

3.3.1 Overview

Ongoing education of the public about environmentally protective behaviors is essential foundational to improving water quality. The goal of the Education Program is to build engagement with residents, encourage and document the adoption of BMPs and increase the overall knowledge of Orange County residents and businesses regarding water quality protection. The Education Program was strategically re-branded from “Project Pollution Prevention” to “H₂OC” in 2012 to stress the importance to Orange County residents of water resource stewardship.

3.3.2 Public Outreach Program Accomplishments and Assessment

For the past decade, H₂OC (previously Project Pollution Prevention) has used public awareness surveys to assess awareness of and behavior change regarding stormwater issues. Survey results indicate small but significant increases in awareness around causes and prevention of stormwater pollution and increased levels of participation in BMPs. Most notably, survey results indicate several positive behavior changes among Orange County residents since 2003 including:

- Willingness to use a commercial car wash facility in lieu of home car washing (five percent increase);
- Proper use of lawn and garden fertilizers and pesticides (five percent increase); and
- Picking up waste and droppings from their pet (nine percent increase).

The Permittees will continue to conduct public awareness surveys to measure and assess awareness of Orange County

residents on water quality issues. These surveys will seek to measure water quality knowledge, current participation in stormwater safe behaviors, and willingness to participate in the same. Additional tracking of specific behavior campaigns, as discussed below, will be measured with pre-initiation and post-completion surveys to better evaluate effectiveness. Finally, the Permittees will continue to measure impressions garnered from the mass media campaigns. Collectively, these measures will help evaluate the success of the various public outreach efforts.

Media Outreach and Impressions

The Permittees have consistently improved the reach of paid advertising since the program began in 2003 and exceeded goals for achievement of impressions through media. The Permittees achieved the following from 2008 through 2013:

- 155 million total paid media impressions including traditional print (e.g. newspaper) ads, bus shelter and bus side posters, billboards, internet banner ads, radio, movie theater and television public service announcements, and gas pump banners; and
- More than 5.5 million grassroots impressions including outreach events like environmental fairs, beach and channel clean-up days, newsletters and workshops.

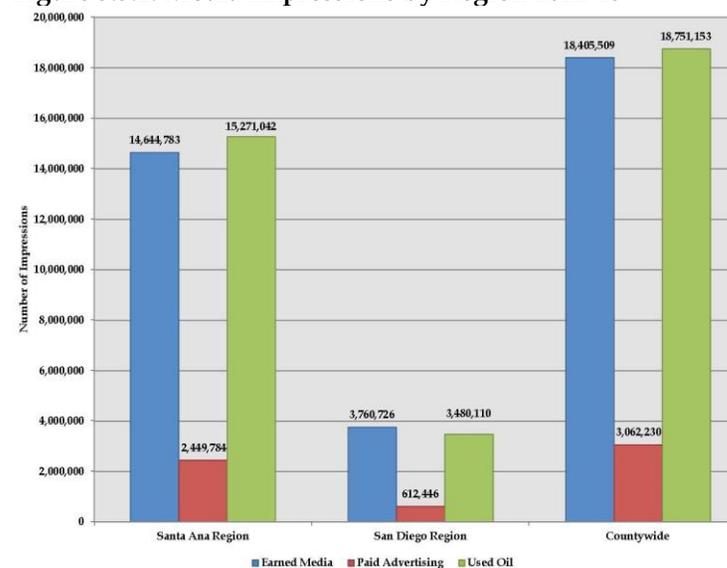
During the 2012-13 reporting year, the Permittees garnered a total of 40,218,892 impressions through various forms of media (**Figure 3.3.1**).

Earned Media

Earned media includes any unpaid publicity through sources like television (e.g. news reports), newspaper articles, social media (e.g. Facebook, Twitter, or blogs), or other media platform (e.g. podcasts, YouTube, etc). The inclusion of earned media into the total impression count provides a more accurate assessment of the true number of impressions earned, and helps increase public trust in the program overall. The Permittees garnered a total of 18,405,509 impressions from earned media during the 2012-13 reporting year (**Figure 3.3.1**).

The Permittees will examine methods for increasing program presence on social media in the Fifth Term Permit to encourage residential adoption of specific BMPs associated with *action campaigns*. Development and implementation of these campaigns is described in **Section 3.3.4**.

Figure 3.3.1: Media Impressions by Region 2012-13



3.3.3 Youth Outreach

Children are crucial to the dissemination of water quality information as key messengers and influencers of parents' behavior. The 2012 Public Awareness Survey indicated that forty-six percent (46%) of adults with school-aged children at home received information about water pollution prevention, an increase of 20% over the 2009 Survey. Additionally, parents of students who brought home information were three times more likely to engage in 7 out of 7 identified "stormwater safe" behaviors (22% to 7%).

The Permittees have maintained and enhanced a robust school outreach program since 2008, including:

- Direct outreach to more than 125,000 students through provision of workbooks, support and assistance designing watershed education programs and funding of programming focused on addressing water quality issues;
- Achieved more than 400,000 total impressions through programs to educate teachers (i.e. Project WET) and the general public at the Discovery Science Center; and
- Development and support of targeted academic programs through partnerships with educational institutions in the community to ensure a consistent message and increase breadth of outreach (e.g. Municipal Water District of Orange County, Chapman University).

3.3.4. Behavior Specific Campaigns

There are a variety of actions an Orange County resident can take to help protect water quality, ranging from picking up

after their dog to reporting illegal dumping. However, studies have shown that people can become easily overwhelmed when presented with multiple options, leading to inaction.

Through behavior-specific campaigns the Permittees will target narrow behaviors most likely to have a positive impact on water quality. Target behaviors will be selected by assessing public awareness survey data, water quality monitoring results and the needs of the Permittees.

Behavior-specific campaigns began in 2012; assessment of these efforts will serve as a robust foundation from which future campaigns are determined. Specific achievements include:

- Development of a comprehensive strategic plan in 2012 (2012 Strategic Plan) including extensive analysis of Orange County residents, ongoing biennial surveys, and independent research; and
- Prioritization of target behaviors based on public awareness surveys and water quality monitoring data.

The Permittees intend to employ best practices to implement behavior-specific campaigns using the Community Based Social Marketing (CBSM) model. CBSM steps include:

- Identifying barriers and motivators to an activity;
- Developing a strategy that utilizes tools to leverage those barriers and motivators in order to affect behavior change;
- Pilot the strategy; and
- Evaluate the strategy and refine it for broader implementation.

The Permittees will use these principles in tandem with mass media outreach efforts to continue fostering general public awareness of stormwater issues.

Targeted Outreach Campaigns

The 2012 Strategic Plan concluded that existing outreach efforts should be supplemented by targeted outreach to small, community-based groups in *action campaigns*. Evaluation of each *action campaign* includes setting baseline measures and conducting follow-up assessments using the CBSM model to create long term engagement and to track success.

Each *action campaign* focus is determined by assessing the following variables:

- *Identification of key pollutants* – the Permittees will examine and prioritize key pollutants based on level of harm they pose to the environment and prevalence in water quality data. Once identified, constituents of concern will be further prioritized by likelihood of education impacting the presence of these pollutants;
- *Determine return on investment (ROI)* – the Permittees will assess which behaviors would produce the largest ROI, predicted by assessing the number of people performing that action (i.e. prevalence) and the likelihood that those people would change that action. This step balances ease of performing a behavior and the potential environmental impact; and
- *Consideration of external opportunities and needs* – the final step considers opportunities to leverage campaign messages and tactics with existing programs and/or messaging elsewhere in the Orange County Stormwater Program or by other agencies or groups.

3.3.5 Runoff Reduction and Water Use Efficiency

Runoff reduction stresses onsite retention of runoff by utilizing BMPs to intercept, capture, and infiltrate rainwater to reduce runoff and pollutant loading. The Permittees will continue to build upon partnerships with water purveyors to marry water use efficiency and runoff reduction messaging, increasing message consistency and breadth. Since 2008, the Permittees have nurtured relationships with other agencies and community groups to accomplish the following:

- Collaborated with water utility providers on water use efficiency messaging by participating in stakeholder meetings and providing presentations on key stormwater pollution issues (e.g. Municipal Water District of Orange County).
- Utilized partnerships with the University of California Cooperative Extension (UCCE) to outreach to plant nursery owners and operators and other landscape representatives.

The Permittees will continue to foster these relationships to promote reductions in runoff and overall water use. Investment in coordination of programs and specific action campaigns will continue with campaigns such as the [“Overwatering is Out”](#) initiative launched in 2013.



3.3.6 Website Content and Usability

Public awareness surveys indicate that the number of residents seeking information about watersheds and water pollution prevention from the internet continues to increase. In order to ensure water quality data, watershed information and public education materials are available to the public in an easily accessible online format is important to the success of the program.

Building off of the San Diego Regional Water Quality Control Board *Practical Vision for Proactive Public Outreach and Communication* (SDRWQCB 2013), the Principal Permittee will review the ocwatersheds.com website to assess usability and with the goal of increasing access to mapping tools, water quality data and BMPs to prevent water pollution and urban runoff.

3.3.7 Recommendations

The Permittees intend to focus on the following:

1. **Emphasize outreach to school-age children** to continue building upon existing partnerships and increasing knowledge of the Orange County community as a whole through increasing knowledge of youth.
2. **Incorporate current strategic approach of using public awareness survey results to prioritize outreach efforts** based on behaviors of concern in tandem with water quality results to document small-scale behavior change over time.
3. **Coordinate with water supply agencies** to incorporate water use efficiency and runoff reduction messaging to maximize program reach and ensure requested behavior changes align with water use efficiency techniques supported by other agencies. Coordinate to encourage behaviors and develop programs supportive of building a sustainable local water supply as identified in the Practical Vision; including building social norms around water use efficiency and elimination of irrigation runoff.
4. **Develop focused outreach campaigns based on water quality and survey results** utilizing CBSM techniques to document changes in targeted behaviors. The Permittees will develop focused campaigns supportive of a singular message with the goal of reducing competing messaging that may lead to inaction. CBSM tactics will be utilized to target behaviors associated with water quality priorities identified by the Permittees.
5. **Encourage greater public participation in stormwater pollution prevention and elimination of non-stormwater discharges** through the use of CBSM and increased availability to online resources. *Action campaigns* would encourage residents to take an identified action and to share efforts with others.
6. **Social media calendars will synchronize outreach efforts and encourage direct participation in and sharing of program messaging.** Social media forms of earned media will complement *action campaign* elements by encouraging direct residential participation in programs. Activity on social media significantly increases with boosted posts and paid advertising; these unpaid and paid tools will support CBSM programs.
7. **Review website for usability and revise structure as needed to meet goals of increasing public use of web content.** The goal of the review will be to increase access to mapping tools, water quality data and BMPs to prevent water pollution

3.3.8 References

San Diego Regional Water Quality Control Board (SDRWQCB). *San Diego Regional Water Board Practical Vision: Healthy Waters, Healthy People*. 2000.
http://www.swrcb.ca.gov/sandiego/water_issues/Practical_Vision/docs/PV.pdf

Implementation Schedule - Public Outreach

Proposed Public Outreach Actions	Recommendation ¹	Implementation Schedule ²				
		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Foundational Program Elements						
Conduct public awareness surveys	C		X			X
Earned and Paid Media						
Develop and place paid media	C					
Develop social media channels	N	X				
Promote programs through social media channels	N					
Outreach to School Age Children						
Support outreach programs for school age children	C					
Website Content and Usability						
Review ocwatersheds.com website for usability	E	X	X			
Explore options for making water quality data more accessible and webpages are user-friendly	E	X	X			
Behavior Specific Campaigns						
Conduct Overwatering Is Out campaign	N					
Assess progress of Overwatering Is Out campaign	N	X	X			
Assess public awareness survey and water quality results	N		X			
Prioritize behaviors for Outreach	N		X			
Develop action campaign #2	N			X		

1. C = Continue; E = Enhance; N = New

2. X = Recommendations will be completed during this fiscal year.

Gray shaded cells indicate ongoing implementation.

3.4 New Development/Significant Redevelopment

The Story: New Development/Significant Redevelopment

- The Permittees developed a significantly revised Model Water Quality Management Plan (WQMP) and Technical Guidance Document (TGD) to implement new requirements for the implementation of Low Impact Development (LID) BMPs.
- The Permittees implemented the new Model WQMP and TGD for all priority projects in north Orange County starting on August 17, 2011, and in south Orange County starting on December 20, 2013.
- The Permittees are implementing region-specific approaches to hydromodification management.
- During the permit term (through the 2012-13 reporting period) 1,369 WQMPs for public and private projects were approved across all of Orange County for a total of 18,749 acres of development now that are now subject to Project WQMPs.
- South Orange County was mapped and a geodatabase was developed that includes conveyance systems, infiltration constraints, land use, and soil types. The County is using the geodatabase to evaluate channel susceptibility to hydromodification, and opportunities and constraints for infiltration and treatment BMP implementation at various scales.

3.4.1 Overview

Development creates rooftops, driveways, roads and parking

lots which increase the timing and volume of rainfall runoff (compared to pre-development conditions) and provide a source of pollutants that are flushed or leached by rainfall runoff or dry weather runoff into surface water systems. Since the inception of the Program, it has been recognized that the incorporation of BMPs into a development project in its planning stages offers the most effective opportunity to limit increases in pollutant loads and preserve natural hydrologic processes. Consequently, the Program links new development and significant redevelopment BMP design, construction and site operation to the earliest phases of new development project planning, encompassed by the jurisdictional General Plans, environmental review and development permit approval processes.

The New Development/Significant Redevelopment Program has evolved over successive MS4 Permit terms from a narrow focus on discharge water quality to a broader consideration of the hydrologic impacts of land use change. Routine structural and non-structural BMPs implemented during the first two permit terms aimed to minimize the introduction of pollutants into the drainage system. In the third MS4 Permit term, the Permittees continued to implement routine structural and non-structural BMPs, but they also worked with project proponents to improve site design. The current Fourth Term Permits emphasize use of site design BMPs and bring the concepts of LID and hydromodification control to the forefront.

The Model WQMP describes the process that Permittees employ for developing a Project WQMP for individual new development and significant redevelopment projects, which, minimizes the effects of urbanization on site hydrology, runoff flow rates or velocities and pollutant loads. Following approval of the final project WQMP and construction of the

project, the Project WQMP will also serve to maintain the terms, conditions and requirements with the project proponent and their successors over the entire life of the project. The effects of urbanization will be minimized through implementation of practicable and enforceable project-based controls or stormwater BMPs, or through a combination of project-based and regional BMPs.

3.4.2 New Development/Significant Redevelopment Program Implementation and Assessment

Model Water Quality Management Plan (WQMP)

A new Model WQMP and TGD were developed during an eighteen month stakeholder process. Implementation of the new Model WQMP and TGD commenced on August 17, 2011, in north Orange County and on December 20, 2013, in south Orange County. This Model WQMP identifies appropriate LID practices and BMPs and alternative compliance programs for new development and significant redevelopment projects. LID BMPs must be selected based on a hierarchy of control types and sized to capture the maximum feasible portion of the design capture volume using the highest priority control type (e.g., retention). The next lower priority control type (biotreatment) can only be used for any portion of the design capture volume that cannot be feasibly captured by retention BMPs.

In accordance with the Model WQMP, new development and significant redevelopment projects meeting threshold criteria, are required to develop and implement a Project WQMP that includes LID and hydromodification control BMPs, where necessary, at the earliest conceptual planning stages of a project for early review. Depending upon the project size and characteristics, these may include:

- BMP site design measures;
- Implementing LID BMPs on-site;
- Constructing or participating in sub-regional/regional LID systems;
- Implementing hydromodification control BMPs; and
- Using alternative programs or treatment control BMPs.

In addition, the Model WQMP includes more rigorous requirements regarding assessing and abating hydromodification impacts. The effects of hydromodification can be mitigated with the use of LID strategies, site design and hydrologic source controls.

In south Orange County an interim hydromodification performance standard was applied to development and redevelopment projects starting in December 2010. This performance standard has been superseded by the requirements of the Hydromodification Management Plan (HMP).

Project WQMPs are required for private new development and significant redevelopment projects within Permittees' jurisdictions, and equivalent public agency capital projects undertaken by the Permittees that are either:

- "Priority Projects" meeting one of the criteria identified in the Permit, regardless of project size.
- "Non-Priority Projects" that do not qualify as one of the Priority Project Categories but meet one of the following:
 - Require discretionary action that will include a precise plan of development, except for those

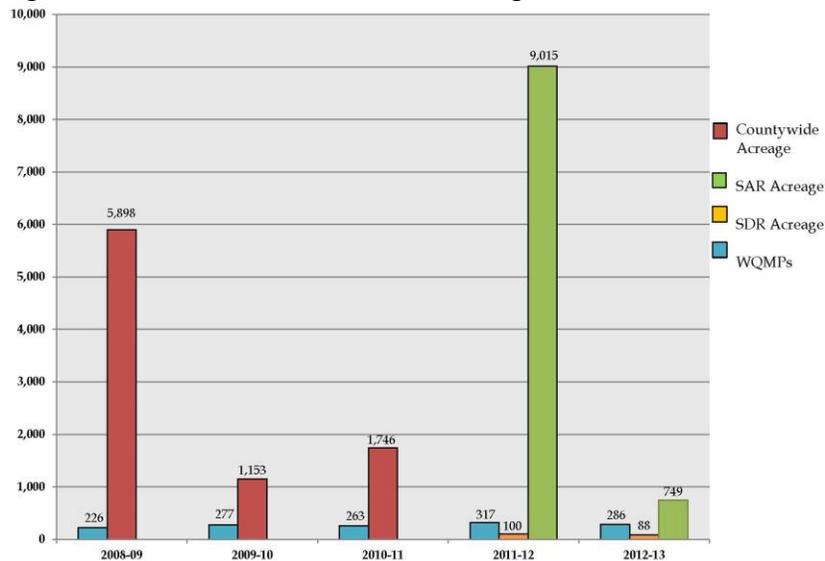
projects exempted by the Water Quality Ordinance (as applicable), or

- Require issuance of a non-residential plumbing permit.

BMP Implementation

Since 2002, a total of 4,152 Project WQMPs have been approved, covering 40,461 acres which represents 9.3% of the area within Orange County subject to subject to the regulatory provisions of the Third and Fourth Term MS4 Permits (681.4 square miles). During the current Fourth Term MS4 permit term 1,369 WQMPs for public and private projects were approved for a total of 18,749 acres of development (**Figure 3.4.2**).

Figure 3.4.2: Historical WQMPs and Acreage Covered



The Project WQMP for a Priority Project must include:

- Routine structural and non-structural Source Control BMPs;
- Site Design BMPs (as appropriate);
- Runoff retention BMPs, also referred to as LID BMPs – requirements may be met through either project specific (on-site) controls or, in cases of on-site infeasibility, regional or watershed management controls that provide equivalent or better treatment performance, subject to certain conditions described in the Model WQMP; and
- The mechanism(s) by which long-term operation and maintenance of all structural BMPs will be provided.

The Project WQMP for a Non-Priority Project must include:

- Routine structural and non-structural Source Control BMPs;
- Site Design BMPs (as appropriate); and
- The mechanism(s) by which long-term operation and maintenance of all structural BMPs will be provided.

Following approval of the Model WQMP in 2011, 9,764 acres of development in north Orange County have incorporated LID BMPs. Progress with implementation of the LID-based Model WQMP in south Orange County will be discussed in the FY2013-14 Annual Report.

Since each site with an approved Project WQMP may incorporate multiple BMPs, there is now in Orange County a growing inventory across the urban landscape of many thousands of BMPs. The emergence of Geographical Information System (GIS)-based software allows (1) strategically managing an inspection program to ensure the continued effectiveness of these BMPs and (2) evaluation of

the impact of constructing features in the urban landscape intended to be protective of water quality.

Training

To provide land developers, project proponents, and associated consultants and organizations with an overview of the new land development requirements, training for NPDES Program Managers, planners, plan checkers and the development community was provided in July and September 2011 for north Orange County and was repeated for south Orange County in October, 2013. The training provided an overview of the level of detail that must be included at each phase of the WQMP preparation process, site and watershed assessment methods, LID BMP selection and prioritization methods, LID BMP design standards and performance criteria, regional LID BMP options, watershed-based plans and LID alternative compliance options. All of the training modules have been posted to the OC Watersheds website (http://www.ocwatersheds.com/WQMP_FAQs.aspx) and YouTube.

General Plan Assessment and Development Standards Review

In October 2009, the Principal Permittee hosted a workshop for the Permittees to provide guidance on assessing their General Plans and development standards review to ensure the following LID principles are considered in their review, and considered for inclusion in some fashion as appropriate, in the General Plan and Local Coastal Plan (if applicable):

- Limit disturbance of natural water bodies and drainage systems; conserve natural areas; minimize soil compaction to landscaped areas; protect slopes and channels; and minimize impacts from stormwater and

urban runoff on the biological integrity of natural drainage systems and water bodies;

- Minimize changes in hydrology and pollutant loading; ensure that post-development runoff rates and velocities from a site have no significant adverse impact on downstream erosion and stream habitat;
- Maximize the percentage of permeable surfaces to allow more percolation of storm water into the ground; construct streets, sidewalks, or parking lot aisles to the minimum widths necessary, provided that public safety is not compromised;
- Preserve wetlands, riparian corridors, and buffer zones and establish reasonable limits on the clearing of vegetation from the project site;
- Encourage the use of water quality wetlands, biofiltration swales, watershed-scale retrofits, etc., where such measures are likely to be effective and technically and economically feasible;
- Provide for appropriate permanent measures to reduce storm water pollutant loads in storm water from the development site; and
- Establish development guidelines for areas particularly susceptible to erosion and sediment loss.

Enhancements in Methodologies

The County of Orange as Principal Permittee participates in a number of collaborative studies and initiatives on behalf of the Permittees that are aimed at the further development of

assessment techniques and methodologies to support more informed and consistent decision making across Southern California. Examples of current studies and initiatives affecting New Development/Significant Development include:

SMC – Phase 1 Hydromodification Study

The primary objective of this study was to find relationships between stream channel type and resistance that would allow prediction of channel response under changed conditions associated with increased impervious cover. Ultimately this effort will contribute to the establishment of stormwater management criteria to help minimize the impacts to stream channels from the conversion of undeveloped (or less developed) areas to residential, commercial, or other intensive land uses.

SMC – Low Impact Development Study

SMC developed a manual of practice for LID that provides:

- Details on how to use LID Principles and LID BMPs to reduce the impacts of land development or re-development on water resources at the project level;
- Guidance for municipalities, land use planners, land developers, consultants, design professionals who prepare stormwater engineering plans and specifications, and others in private industry and public service;
- A site planning and design reference that will facilitate the implementation of LID for projects in Southern California. It is designed to complement the

Stormwater BMP Manual(s) that have been developed and are maintained by CASQA;

- A tool that can be applied at the site level for the development of integrated water and stormwater management regulatory compliance and resource protection programs; and
- The SMC LID Manual is available online at the California LID Portal (californialid.org).

SMC – Barriers to Low Impact Development Study

The purpose of this study was to dig deeper into potential barriers to LID by investigating the complex web of codes, processes and perceptions surrounding LID implementation.

Hydromodification

Hydrograph modification, or “hydromodification,” refers to the changes in the magnitude and frequency of stream flows and its associated sediment load that can be the consequence of watershed urbanization due to increasing landscape imperviousness. In urban watersheds, hydromodification can become evident as channel erosion and sedimentation resulting in degradation of in-stream habitat. Another consequence of hydromodification can be channel realignment and modification which can similarly lead to degraded ecology.

Concern for the significance to stream ecology of the hydrologic impacts of urban runoff was the rationale for the inclusion of hydromodification control requirements in the Fourth Term Permits. These requirements also align with the Practical Vision’s intention of focusing the State’s regulatory

tools, in the San Diego region, on realizing the restorative goals of the Clean Water Act. The planning required of the Permittees for pollution prevention, pollution control and MS4 permit compliance, is thus evolving into a more holistic approach that integrates flood control, erosion control and water quality management.

In Orange County, BMP planning occurs on both a watershed scale and a site scale. However, the watershed in most cases is the appropriate scale for developing plans that consider both multiple stream system influences and effects and the setting of ecological objectives and restorative goals. In the absence of a holistic evaluation of the watershed, the benefit of unilaterally applying hydromodification control requirements to all development projects is not clear because it is harder to understand the relationship of a specific project to the surrounding landscape. It is also difficult to effectively evaluate the cumulative influences and effects that are involved¹.

The adverse environmental impacts that can arise from land development must, however, be understood for the lawful requirement of mitigation. Based on the takings clause of the U.S. and California constitutions and the Mitigation Fee Act, hydromodification control requirements applied to development projects must bear a reasonable relationship to the impacts of the project. Requiring hydrologic controls on projects draining to receiving waters not susceptible to hydromodification is contrary to these legal requirements. Such requirements may also be beyond the scope of a mandate intended to control the discharge of pollutants from a point source. The need for all hydromodification control

¹ Urban Runoff Quality Management, WEF Manual of Practice No.23/ASCE Manual and Report on Engineering Practice No. 87.

requirements to be informed by a holistic and rigorous watershed analysis is considered in greater detail in **Attachment 3.4.1.**

Integrated Water Resource Management and Regional BMPs

The use of “Regional BMPs,” in the Model WQMP is required to be a subordinate choice to on-site mitigation. This LID hierarchy is increasingly being viewed as obstructive, as California adapts to increasing uncertainty regarding the resilience of its water supply infrastructure by seeking to better retain stormwater in the landscape for local water supply augmentation. Regional BMPs are seen to be a key part of this adaptive effort (See Southern California Water Committee www.socalwater.org/).

Following two prior years of scant rainfall, calendar year 2013 closed as the driest year in recorded history for many areas of California. Early in 2014, on January 17, Gov. Edmund G. Brown Jr. declared a drought state of emergency and directed state officials to take all necessary actions in response. The policy framework for these actions is the California Water Action Plan (CWAP) (State of California, 2014).

One of the CWAP’s key action items is a shift toward Integrated Water Resource Management approaches (IWRM). IWRM has long been practiced in other areas of the world and is now being championed by USEPA and California water leaders as the preferred management approach for solving the challenges of increasingly stringent water quality regulations and the water supply demands of a growing population.

The America Water Resources Association defines IWRM as:

The coordinated planning, development, protection, and management of water, land, and related resources in a

manner that fosters sustainable economic activity, improves or sustains environmental quality, ensures public health and safety, and provides for the sustainability of communities and ecosystems.

IWRM is a management approach that requires collaboration among key water resources areas such as drinking water supply, wastewater treatment, flood management, and water quality protection to leverage resources and create multi-benefit projects. In the field of stormwater management, the term “multi-benefit projects” is often synonymous with the term “Regional BMPs.” Such BMPs are typically conceived as constructed basins, under the management of a special district, where basin design is optimized for local groundwater augmentation, flood control and runoff treatment and where the basin is receiving runoff from sub-watershed areas often in excess of 50 acres.

Since the use of “Regional BMPs,” in the Model WQMP is required to be a subordinate choice to on-site mitigation, the CWAP’s mandate for a policy shift toward IRWM in California has clear implications for future MS4 permitting. Indeed, in his observations on the future contribution of stormwater management to IRWM, the Executive Officer of the Santa Ana RWQCB observed (CASQA, 2013²) that while Regional BMP solutions potentially offered an opportunity to realize multiple benefits, consistent with IRWM, the “LID Hierarchy” of the Fourth Term Permits presents an impediment to constructing Regional BMPs.

These observations cause the recurring debate about the merits of centralized versus de-centralized approaches, or on-site versus regional controls, to creating a stormwater management infrastructure to be re-visited. While the Fourth

² CASQA Quarterly Meeting, November, 2013

Term Permits have required on-site BMPs to be constructed unless they can be determined to be infeasible, the Santa Ana Third Term Permit encouraged examination of regional approaches. The regional BMP emphasis was supported by technical guidance (see WEF/ASCE, 1998³) that contemplated stormwater quality being managed across the landscape in a drainage system retrofitted with basins and under the direct management of a special district. This guidance had concluded that constructing fewer regional controls would ultimately be both less expensive than a large number of on-site controls and more effective in the longer term since control outlets are larger and therefore easier to design, build, operate and maintain. Moreover, they could additionally capture the street runoff that would be missed by on-site controls and be large enough to offer opportunities for compatible uses such as recreation and ecological habitat. With the new imperative to have IWRM inform approaches to stormwater management, the permitting framework clearly needs to allow for on-site and off-site BMP “equivalency” to enable IRWM and water quality and restorative goals to be realized and optimized at the watershed level.

Mitigation for Restoration Projects

Rehabilitating highly modified streams, to improve ecological, recreational or water supply augmentation amenities, may require the use of impervious materials to the extent that Project WQMP criteria are met. Requiring mitigation for restoration projects in such instances may threaten project viability. Moreover, such projects would already be subject to regulation by the United States Army Corps of Engineers (USACOE) under CWA Section 404, by the State and Regional Boards under CWA Section 401, and by the Federal

³ Urban Runoff Quality Management, WEF Manual of Practice No.23/ASCE Manual and Report on Engineering Practice No. 87.

USFW and California DFG. Any environmental impacts of these projects will be mitigated as required by these agencies and therefore should be explicitly exempted from Project WQMP requirements.

Public Safety Projects

In specific instances, channel re-construction may need to be undertaken on an emergency basis when there is an imminent threat to public safety. Such projects may involve like-for-like replacement of hardened channels and there will be no time for the development, processing and plan check, and revisions of a Project WQMP for these projects. Emergency projects are provided exempt status in many other MS4 permits including the Santa Ana Region Permit (Order No. R8-2009-0030) and the Los Angeles County MS4 Permit (Order R4-2012-0175).

3.4.3 Recommendations:

1. **Implement an approach to hydromodification management that is informed by a watershed analysis and channel-specific protection and restoration goals.** The Permittees understand that, consistent with current published research, a “one-size-fits-all” approach for hydromodification management is not appropriate for highly modified urban stream systems. Pending a comprehensive watershed analysis, land development projects discharging runoff to engineered channels, should not be required to implement hydromodification management controls.
2. **Incorporate an IRWM element into the land planning/land development process.** The Permittees understand that an IRWM approach is needed to

optimize attainment of water quality protection, water conservation, flood control, and stream protection goals. The Permittees therefore intend to incorporate an IRWM element into their land planning and land development processes so that as development projects begin entitlement this approach and opportunities to achieve this approach are evaluated. This recommendation will require a modified LID Hierarchy that establishes the equivalency of “On-site BMP” and “Off-Site /Regional BMP” solutions.

3. **Create an exemption from Project WQMP requirements for stream and watershed restoration projects.**
4. **Create an exemption for emergency public safety projects where delay would compromise public safety, public health and/or the environment.**
5. **Develop an internet based regional geodatabase.** To effectively implement an IRWM and watershed management approach, access to information that describes all of the key hydrologic process and landscape characteristics will be critical. The Permittees are developing and starting to use an internet-based regional geodatabase to give developers and municipal staff access to the geotechnical and hydrologic information necessary for evaluating the application of the LID hierarchy to sites.
6. **Pilot the use of technology to better track Project WQMP inspections and follow up actions needed.** To fully utilize the WQMP Submittal Tool and Database WQMP inspections could be performed with tablets or other devices where GIS information and other

information can immediately be uploaded to the database. The Permittees propose piloting the use of tablets or other devices linked to the Database for Project WQMP inspections by a select number of cities.

7. **Enhance the data collected for WQMPs to have a better understanding of water quality benefits on an annual basis.** The Permittees desire to perform a better assessment of the New Development/Significant Redevelopment Program. In order to better understand the effectiveness of the program, the Permittees propose to collect new critical data elements, and enhance data quality by integrating information into the WQMP Submittal Tool and Database. New data would include volumes of water treated, land area treated, and other relevant information needed to evaluate TMDL compliance, to identify developed/redeveloped areas that meet LID and/or hydromodification requirements, and to track BMP maintenance as a measure of effectiveness.

Implementation Schedule - Land Development

Proposed New Development/Significant Redevelopment Program Actions	Recommendation ¹	Implementation Schedule ²				
		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
New Development/Significant Redevelopment Program						
Development of Program Guidance	C					
Develop an internet-based regional geodatabase.	E		X			
Water Quality Management Plans (WQMPs)						
Integrate the use of emerging information technologies to better track WQMP inspections and follow up actions needed.	E			X		
Enhance the data collected for WQMPs to have a better understanding of water quality benefits on an annual basis.	E			X		
BMP Implementation						
Implement Model WQMP	C					
Training						
Deliver Model WQMP & TGD Training Modules	C					
"Help Desk"						
Provide "Help Desk" service	C					
General Plan Assessment and Development Standards Review						
Incorporate an integrated water resources approach element into the land planning/land development process.	M			X		

Proposed New Development/Significant Redevelopment Program Actions	Recommendation ¹	Implementation Schedule ²				
		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Enhancements in Assessment Methodologies and Their Role in New Development/Significant Redevelopment						
Development of technical guidance	C					

1. C = Continuation; E = Enhancement; M=Modification (Requires adjustment to Policy/Permitting)

2. X = Recommendation will be completed during this fiscal year. Gray shaded cells indicate ongoing implementation

3.5 Construction

The Story: Construction

- The Construction Program maintained an inventory of up to 12,060 construction sites, prioritized these sites regarding their threat to water quality, and inspected them at the frequency specified by the permit. Non-compliant sites were educated and required to implement BMPs as required.
- BMP Guidance was updated to address the renewed Statewide General Construction Storm Water Permit, and Permittee construction inspection staff were trained accordingly.
- Three Qualified SWPPP Developer (QSD)/Qualified SWPPP Practitioner (QSP) training sessions were offered during the Permit term. Approximately 150 people attended this training.

3.5.1 Overview

The Permittees regulate construction activities and have responsibility for the construction and reconstruction of municipal facilities and infrastructure within their jurisdictions. Construction sites and activities are a significant potential source of sediment and other pollutants and have been a priority for the Program since the First Term MS4 Permits.

The Program requires effective BMP implementation by construction site owners, developers, contractors, and other responsible parties. All construction projects, regardless of size, must implement an effective combination of erosion and sediment controls and waste and materials management BMPs. To ensure that effective BMPs are implemented, each jurisdiction conducts inspections to verify the appropriateness and implementation of BMPs and takes enforcement action as necessary. Training is provided annually to support consistent countywide implementation.



3.5.2 Construction Program Implementation and Assessment

The Model Construction Program has been implemented since 2002-03. It requires the Permittees to:

- Inventory construction sites;
- Prioritize construction sites based upon water quality threat;
- Prepare BMP guidance;
- Conduct inspections of construction sites;
- Undertake enforcement; and
- Conduct training.

Site Inventories

Between 2008 and 2013, the Permittees reported annual construction site inventories ranging from 7,123 (2012-13) to 12,059 (2008-2009). Order R9-2009-002 does not designate construction sites as high, medium or low priority; rather, prioritization is based on site size and proximity to sediment-impaired receiving waters. However, for the ease of differentiation and reporting, sites will be categorized as

“high” “medium” and “low” priority based on the following factors:

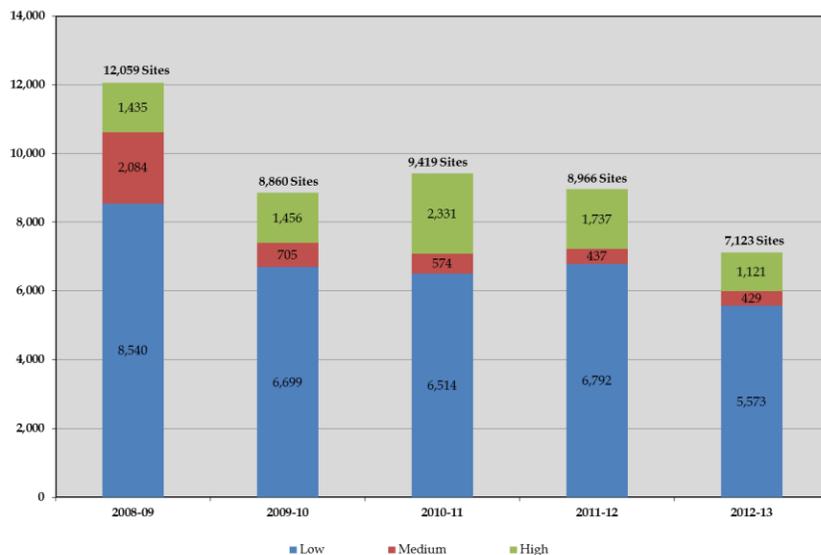
HIGH: Any site 30 acres or larger; any site 1 acre or larger and tributary to a CWA section 303(d) water body segment impaired for sediment or within or directly adjacent to, or discharging directly to, the ocean or a receiving water within an ESA; or other sites determined by the Copermittees or the Regional Board as a significant threat to water quality.

MEDIUM: Construction sites with one acre or more of soil disturbance not meeting the criteria specified for ‘high’ priority sites.

LOW: Construction sites that are less than one acre in size.

The numbers of construction sites and relative proportions of low, medium, and high priority sites for the past five years are shown in **Figure 3.5.1**.

Figure 3.5.1: Construction Site Inspections & Prioritizations, 2008-09 to 2012-13

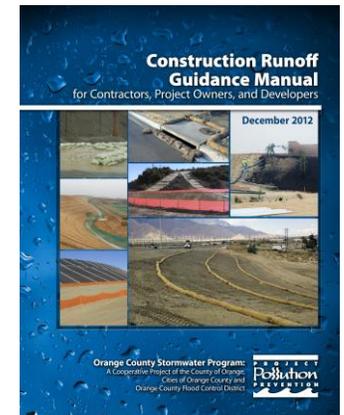


BMP Guidance

The Permittees have produced a *Construction Runoff Guidance Manual* and it is available at

<http://ocwatersheds.com/documents/bmp/constructionactivities>.

The manual was updated in late 2012 to ensure consistency with the renewed Construction General Permit (Order 2009-0009-DWQ) (CGP), to incorporate findings from an Erosion Control BMP Field Evaluation, and to provide guidance on dewatering activities and BMPs appropriate for small construction sites. The manual is the basis for the pre-wet season construction training held each September. CASQA updated their California Stormwater BMP Handbook for Construction in November 2009 as on online portal and the updated BMP Factsheets provide additional, up-to-date guidance for the Permittees.



Inspection and Enforcement

Inspectors implement their jurisdictional program, which is based on the Model Construction Program, by enforcing compliance with grading or building permits, sediment and erosion control plans, and the Water Quality Ordinance(s). Enforcement actions taken by inspectors include, but are not limited to, education, verbal warnings and administrative actions under the Water Quality Ordinance (notice of violation, administrative compliance order, etc.), and written actions under Building/Grading Ordinances (corrective action notice, stop work order, etc.).

As a result of the inspections, between 2008-2013 the Permittees reported issuing 2,297 educational letters, 1,454 notices of non-compliance, 186 administrative compliance orders, 19 cease and desist orders, and 9 misdemeanor/infractions for a total of 3,965 enforcement actions (**Figure 3.5.2**).

Figure 3.5.2: Enforcement Actions Taken, 2008-09 to 2012-13

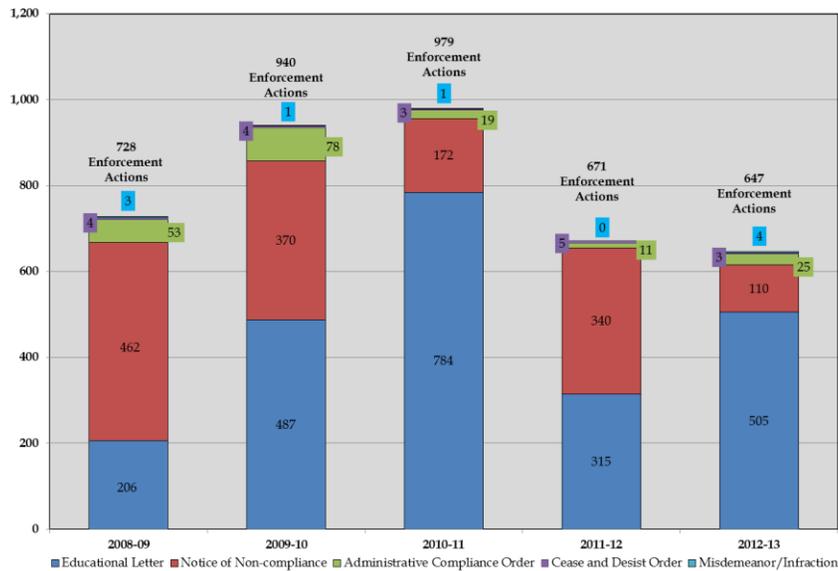
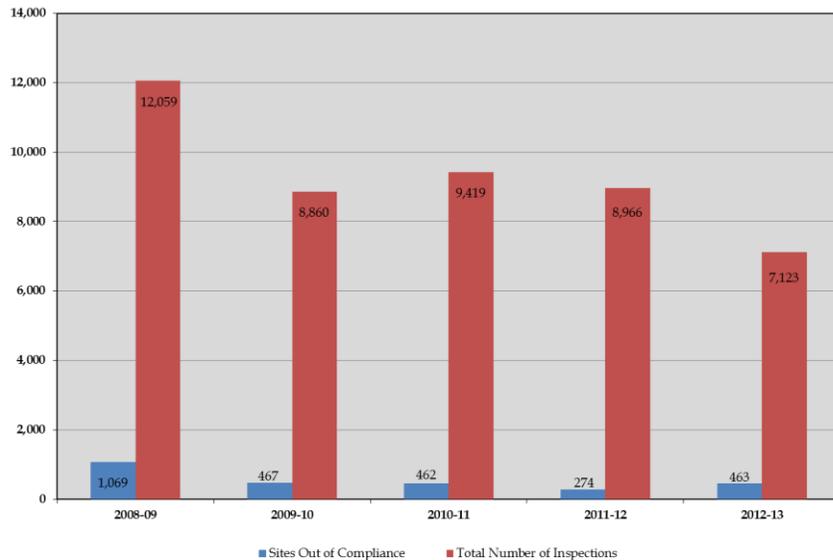


Figure 3.5.3: Construction Sites Out of Compliance, 2008-09 to 2012-13



The number and type of enforcement activities vary greatly from year to year; however, the percentage of construction sites out of

compliance is consistently under 10% (Figure 3.5.3). This is a consistently high (i.e. >90%) level of compliance from year to year within the regulated community, which may be attributable to the long term impact of inspection programs, new guidance published by CASQA, and the implementation of the new Construction General Permit requirements, including new requirements for a *Qualified Stormwater Pollution Prevention Plan (SWPPP) Developer* to prepare a construction site's SWPPP, and a *Qualified SWPPP Practitioner* to ensure that the SWPPP is being correctly implemented.

The Fourth Term MS4 Permit requires significant inspection resources for both high priority and medium priority construction sites. Based on Figure 3.5.2 and Figure 3.5.3, enforcement actions per capita and the proportion of construction sites out of compliance have decreased over the permit term. Therefore, it is appropriate to consider revising the inspection requirements and inspection frequency for the Fifth-Term MS4 Permit.

Training

Pre-wet season construction inspection training has been provided to inspectors each September during the permit term. A new module for Construction Inspectors, with a focus on interactive exercises for trainees, was developed and provided in September 2012. Qualified SWPPP Developer (QSD) and Qualified SWPPP Practitioner (QSP) training was provided three times in the permit term to NPDES Program staff and construction inspectors. The first QSD/QSP Training was provided on June 9, 13, and 14, 2011. The second QSD/QSP Training was provided on May 24, 29 and June 5, 2012. The third QSD/QSP Training was provided on April 2, 9 and 16, 2014. Approximately 50 staff attended each round of training.

3.5.3 Recommendations

The recommendations are:

1. **Reduce the frequency of inspection for “high” priority sites** from bi-weekly to twice during the wet season and reduce the frequency of inspection for “medium” priority sites from monthly to once during the wet season.
2. **Pilot a GIS and internet-based database to track construction sites.** In order to provide easier tracking of construction sites on a countywide basis, the Permittees will develop a GIS and internet-based database where information regarding each construction site can be entered. The Permittees would examine the benefits of such a database by piloting implementation with a select number of cities.
3. **Conduct pilot field-testing of personal electronic devices to document inspections onsite.** Use of tablets or other electronic devices during inspections will allow inspectors to immediately upload construction site information to the GIS based database. The Permittees would pilot the use of these technologies with a select number of cities.
4. **Conduct QSD/QSP Training.** The QSD/QSP Training developed by the State Board and CASQA provides a detailed understanding of the Construction General Permit. The Permittees propose providing this training to municipal staff every other year to ensure that inspectors and other municipal staff understand the CGP requirements that are to be implemented for construction projects in their jurisdiction. It is anticipated that with potential changes to the CGP being adopted in 2014 that municipal staff should be aware of these changes and any new or modified requirements for CGP compliance.

Implementation Schedule - Construction

Proposed Model Construction Program Actions	Recommendation ¹	Implementation Schedule ²				
		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Inventory Construction Sites						
Maintain inventory of construction sites	C					
Pilot GIS based database system to maintain inventory of construction sites	E		X			
Prioritize Construction Sites based upon Water Quality Threat						
Prioritize as high, medium, low threat to water quality	C					
Prepare BMP Guidance						
Implement BMPs identified in the OC Construction Runoff Guidance Manual	C					
Conduct Inspections of Construction Sites						
Inspectors to pilot use of tablets or other device during inspections to upload information to the GIS based database	N			X		
Perform inspections for high priority sites twice during the wet season	N					
Perform inspections for medium priority sites once during the wet season	N					
Perform inspections for low priority sites once during the wet season	C					
Enforcement						
Enforcing compliance with grading or building permits, sediment and erosion control plans, and the Water Quality Ordinance	C					

Proposed Model Construction Program Actions	Recommendation ¹	Implementation Schedule ²				
		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Training						
Conduct Training of construction inspectors annually prior to the wet season	C					
Conduct QSD/QSP Training	C	X		X		X

1. C = Continue; E = Enhance; N = New

2. X = Performance Standard will be completed during this fiscal year. Gray shaded cells indicate ongoing implementation

3.6 Existing Development

The Story: Industrial/Commercial

- The Industrial/Commercial Program inventoried 14,000 sites and conducted inspections of these sites at frequencies specified by the permit.
- The Program trained Authorized Inspectors and provided education and enforcement to address facilities lacking effective BMPs.
- A new Mobile Business Pilot Model Program was developed and implemented.
- Residential sources of pollutants were addressed through the Model Residential Program, which included development of new outreach materials and continued outreach to Common Interest Areas and Homeowner's Associations.

3.6.1 Overview

Stormwater discharges from commercial and industrial facilities can become contaminated when material management practices allow exposure of pollutant sources to stormwater and/or there is commingling of runoff with wastes. The Existing Development Model Program provides a programmatic framework to guide Permittees in the regulatory oversight of activities in commercial and industrial areas. Through inspections, outreach and requiring compliance with water quality ordinances, the Permittees are able to effect protection of the quality of urban and stormwater runoff from industrial and commercial facilities.

The Model Program also provides a framework, emphasizing education and outreach approaches, for addressing activities in residential and common interest areas that can threaten water quality.

3.6.2 Model Industrial/Commercial Program Implementation and Assessment

The Model Industrial/Commercial Program requires the Permittees to address the following:

- Identify and inventory commercial and industrial facilities;
- Establish model maintenance procedures;
- Develop and implement a program to address mobile businesses;
- Conduct inspections of food service establishments (FSEs);
- Conduct inspections and undertake enforcement
- Conduct training; and
- Conduct education and outreach.

Facility Inventory and Inspection

The Permittees maintain a database of industrial and commercial facilities that have a potential impact to water quality. This database documents all information related to the facility such as outreach, inspection, and any follow up actions required. Industrial and commercial facilities have been identified and inventoried per permit requirements for over ten years.

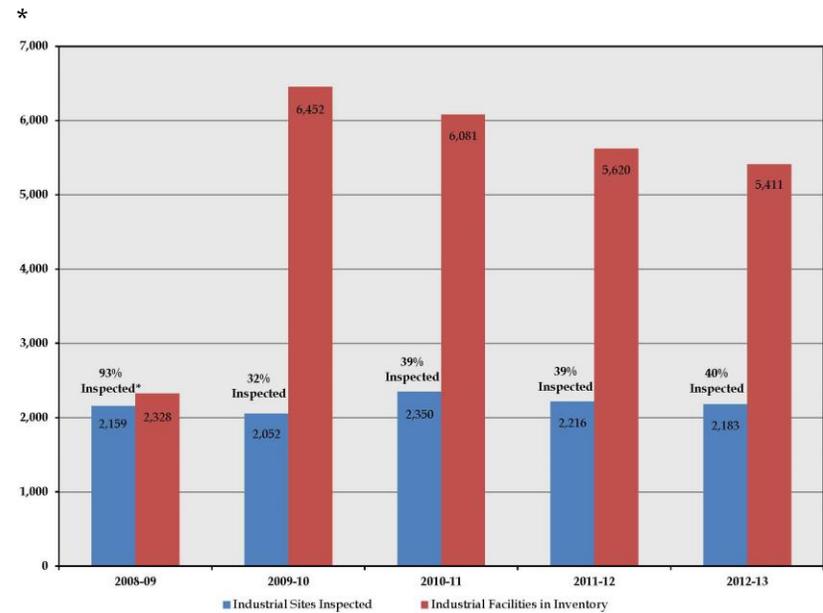
Following clarification of reporting practices in 2008, the total number of industrial facilities has remained relatively stable.

The significant drop in number of commercial facilities on the inventory between FY 2009-10 and FY 2010-11 is attributable to the removal of the food service establishments (FSEs) from the commercial inventory that year. The gradual decline in the number of both industrial and commercial facilities over the permit term is likely due to the economic downturn.

The Fourth-Term MS4 Permit specifies that a minimum of 20% of the total combined industrial and commercial facility inventories be inspected each year. Since permit adoption in 2009, the annual inspection average for the total combined industrial and commercial inventory has been between 40-46%. **Figure 3.6.1** and **Figure 3.6.2** show the total annual inventory and inspections of industrial and commercial facilities, respectively. This data excludes inspections at Food Service Establishments (FSEs), as these are inspected by the HCA and are tracked separately.

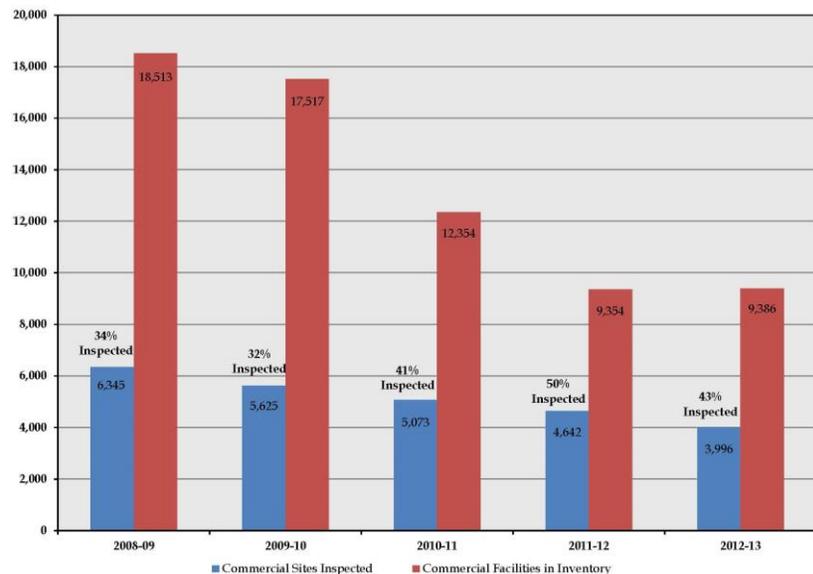
On April 1, 2014, the State Water Resources Control Board adopted a new Industrial General Permit which expands the list of facilities that are required to obtain coverage. The Orange County Stormwater Program will evaluate how this expansion and other changes to the statewide industrial program will impact the Permittees' Existing Development Model Program.

Figure 3.6.1: Industrial Facility Inventory and Inspections from 2008-09 to 2012-13



* Low number of industrial facilities in 2008-09 was due to a reporting issue that was subsequently clarified in 2009-10.

Figure 3.6.2: Commercial Facility Inventory and Inspections from 2008-09 to 2012-13

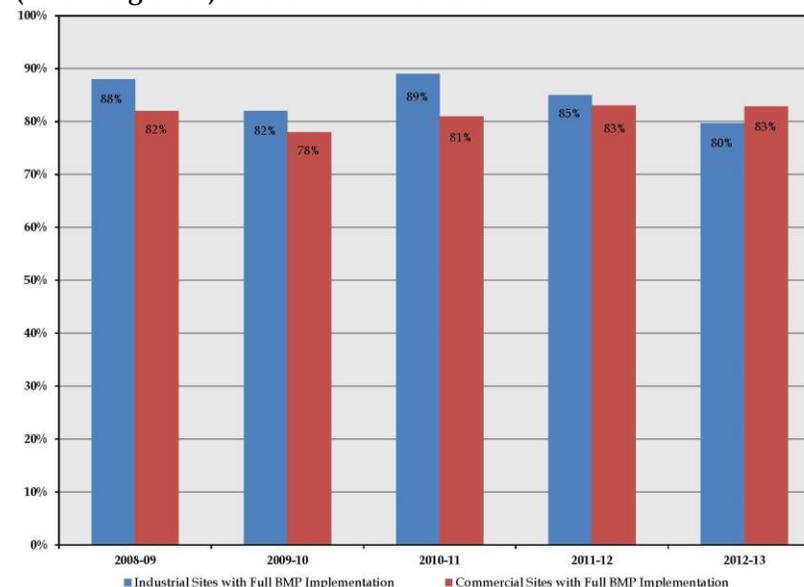


BMP Implementation

Twenty-four (24) model BMP fact sheets have been prepared (available at <http://www.ocwatershed.com/IndustrialCommercialBusinessActivities.aspx>) which include a description of specific minimum source control BMPs for common industrial and commercial activities that may discharge pollutants. The California Stormwater Quality Association (CASQA) is currently updating the Industrial BMP Handbook and converting it to a web portal. The Orange County Stormwater Program will be giving consideration to incorporating the updated CASQA BMP fact sheets into the program.

Permittees gauge implementation of the required BMPs through the inspection program. Facilities fall into one of three categories; they have fully implemented, partially implemented, or not implemented any of the required BMPs. As illustrated in **Figure 3.6.3**, the majority (>80%) of industrial and commercial facilities were fully implementing BMPs as required upon inspection.

Figure 3.6.3: Industrial and Commercial Site Compliance Rates (excluding FSEs) from 2008-09 to 2012-13

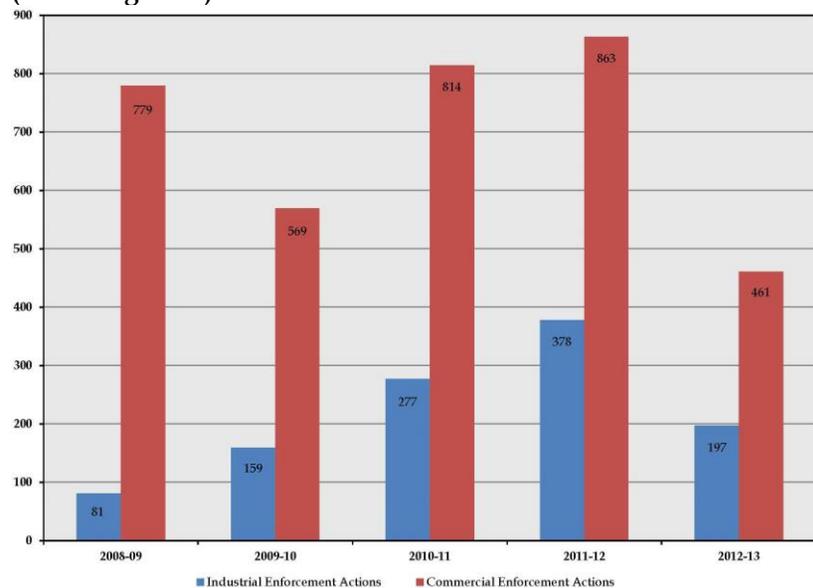


Enforcement Activities

Permittees are required to use a progressive enforcement approach and initiate enforcement actions where commercial and industrial facilities are found to be out of compliance. Enforcement for the industrial and commercial component of the Existing Development Program is the responsibility of

individual Permittees. Each Permittee has several different levels of enforcement to choose from for different types of situations. This includes – from least severe to most severe – issuance of an educational letter, a notice of non-compliance, an administrative compliance order, a cease and desist order, or a misdemeanor/infraction. Over the past five years, the Permittees conducted enforcement as necessary based on the results of the industrial and commercial inspections (Figure 3.6.4).

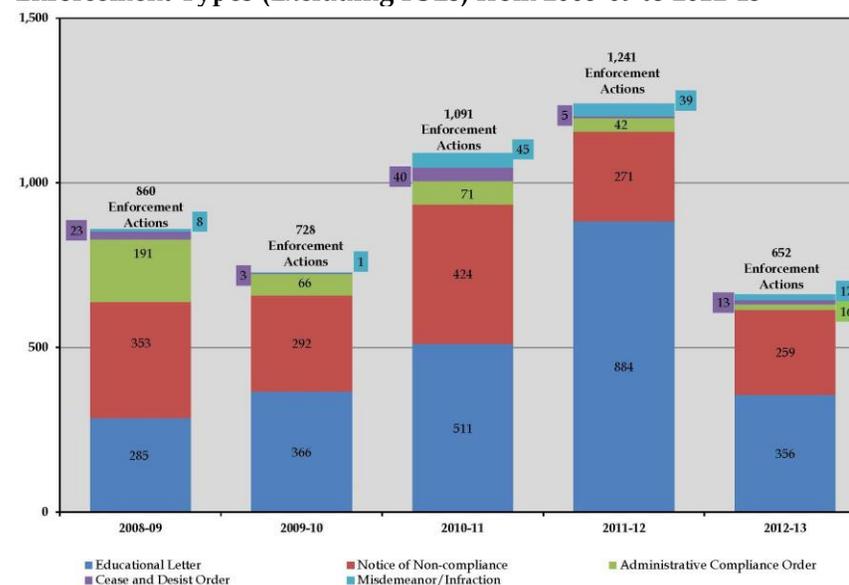
Figure 3.6.4: Industrial and Commercial Enforcement Actions (excluding FSEs) from 2008-09 to 2012-13



Where non-compliance is evident during inspections, inspection frequency and enforcement actions are increased until compliance is achieved. Increased follow-up and enforcement appear to be resulting in increased rates of compliance. Figure 3.6.5 illustrates the number and type of

enforcement actions taken at industrial and commercial facilities over the past five years. It appears that lower level enforcement actions such as educational letters and notices of non-compliance are typically successful in gaining compliance, although nearly every year, there are over 100 higher level enforcement actions taken against industrial and commercial facilities.

Figure 3.6.5: Industrial and Commercial Enforcement Actions by Enforcement Types (Excluding FSEs) from 2008-09 to 2012-13

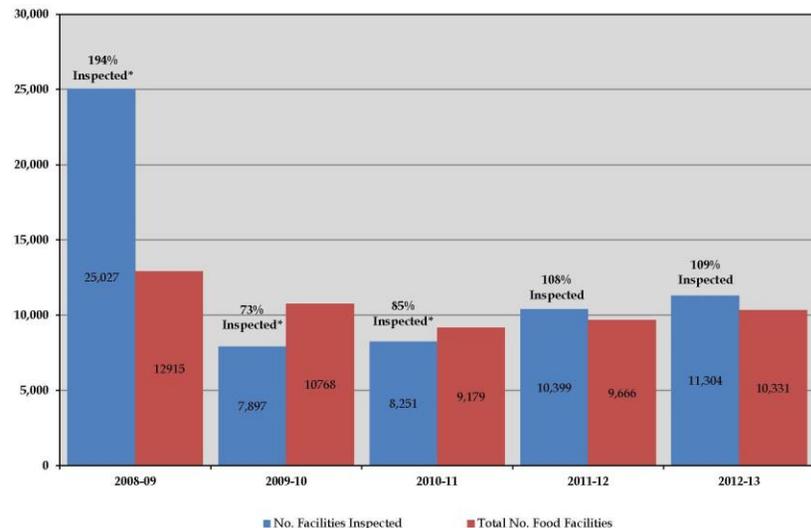


Food Facility Inspection Program

Orange County Health Care Agency (OCHCA) annually conducts up to three inspections of each food service establishment for compliance with the California Uniform Retail Food Facilities Law. The OCHCA inspectors identify NPDES issues during one of these three inspections and they

are forwarded to the respective Permittees for follow up. In **Figure 3.6.6**, a sharp decrease in the number of inspections per year is evident between FY 2008-09 and FY 2009-10, due to a clarification in reporting practices.

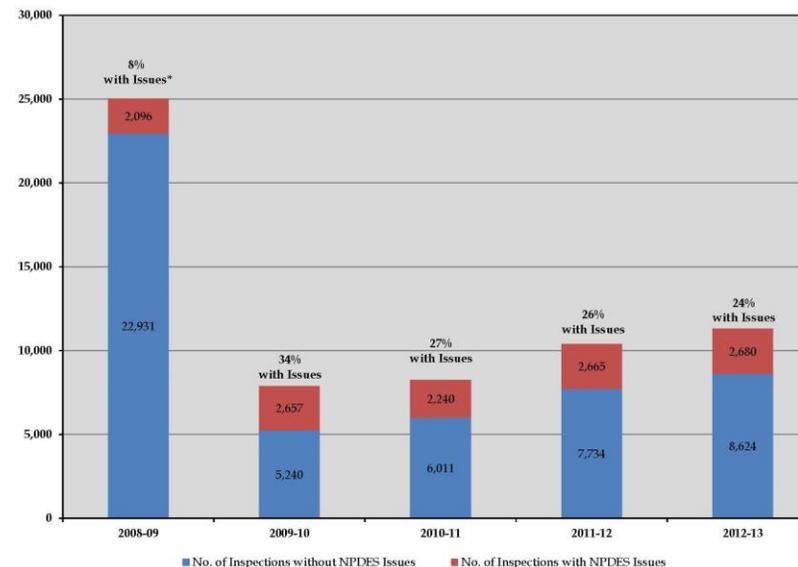
Figure 3.6.6: HCA Annual Inspections at Food Service Establishments from 2008-09 to 2012-13



* High number of inspections in 2008-09, and low numbers of inspections in 2009-10 and 2010-11 due to reporting issues that were subsequently clarified in 2009-10 and 2011-12, respectively.

The numbers of inspections resulting in the detection of NPDES issues at FSEs is illustrated in **Figure 3.6.7**. Where these issues were found, Permittees followed up with the necessary enforcement actions. It appears that the numbers of inspections detecting issues has been slowly declining since 2009, from 34% to 24%.

Figure 3.6.7: NPDES Issues Discovered During Food Service Establishment Inspections Performed by HCA from 2008-09 to 2012-13



* High number of inspections in 2008-09 due to reporting issues that was subsequently clarified in 2009-10.

Mobile Business Model Pilot Program

Due to their transitory and regional nature, mobile businesses are a challenging component of the Model Existing Development Program. The Mobile Business Model Pilot Program, which was developed in 2009-2010 and commenced in 2010-2011, is a countywide approach to inventorying and regulating mobile businesses. There are five key elements to the Model Program:

1. Develop an inventory of mobile businesses operating within the County;
2. Identify and require implementation of minimum BMPs for mobile businesses;

3. Provide outreach to the mobile businesses;
4. Perform inspections or provide a self-certification process for the businesses; and
5. Conduct enforcement as necessary to ensure compliance.

In 2011, a web-based Mobile Business Database was developed to serve as a countywide inventory and repository for the information for each business pertaining to inspections and/or self-certification, outreach, and enforcement actions. The database allows Permittees to update the inventory with mobile businesses found to operate within their jurisdiction, as well as enter and track enforcement actions in their jurisdiction and countywide. The database tracks over 1,500 mobile businesses and includes information related to the business type, outreach, and enforcement information.

In order to assist surface cleaners in selecting and implementing the appropriate types of BMPs, a Model Surface Cleaner BMP Fact Sheet was developed in 2011. This BMP Fact Sheet provides the minimum control measures required of the mobile businesses.

A mass-mailing notification was distributed in June 2012 to all mobile detailing businesses in the countywide inventory in conjunction with an outreach workshop held on June 27, 2012. The notification included a workshop flier and mobile detailing brochure.

The Permittees implemented appropriate enforcement actions where necessary to ensure that Mobile Businesses were implementing the required BMPs (**Figure 3.6.9**). The increase in enforcement actions in 2010-11 may be due to improved inventorying countywide after development of the Mobile

Business Database (**Figure 3.6.8**).

Figure 3.6.8: Enforcement Actions Issued to Mobile Businesses in Orange County from 2008-09 to 2012-13

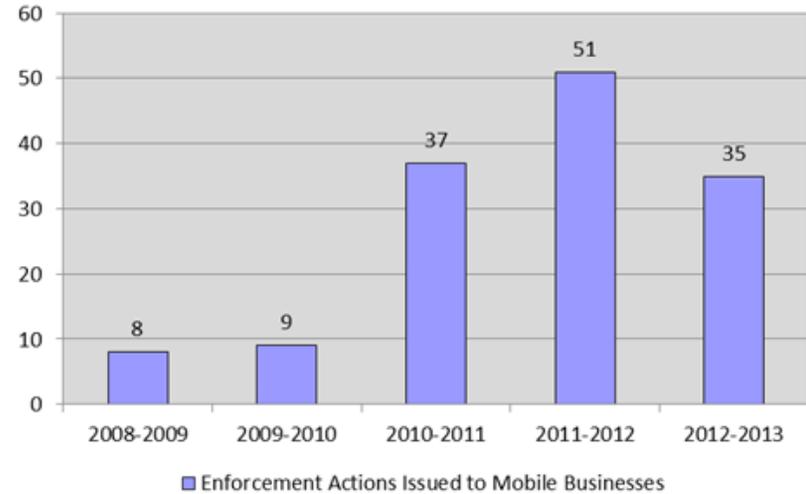
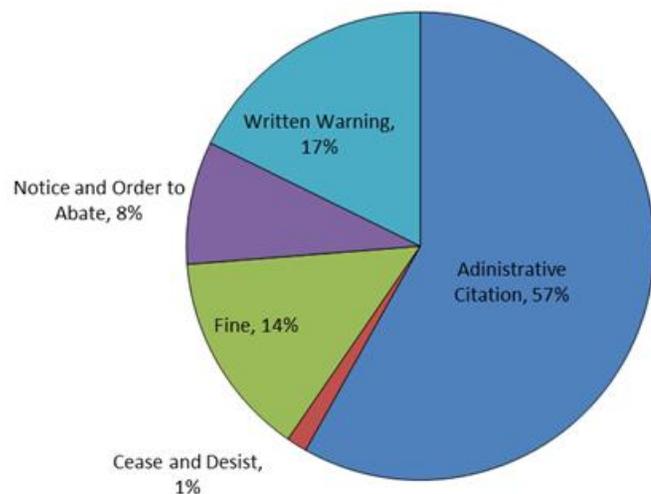


Figure 3.6.9: Types of Enforcement Actions Issued to Mobile Businesses from 2008-09 to 2012-13



Training

Over the permit term the County developed the *Training Program Framework Core Competencies Document*. The *Training Program Framework Core Competencies* document defines the core competencies (knowledge, level of experience, and skills) necessary to ensure the capabilities of individuals carrying out specialized municipal stormwater program compliance responsibilities. It is expected that an individual or group of individuals who has/have developed these competencies will be able to affect jurisdictional conformance with the DAMP/LIP and the compliance of their jurisdiction.

The Permittees developed and implemented the training program pursuant to Permit requirements and the DAMP. A

region-wide training session was held specific to industrial and commercial inspections on April 7, 2009. The NPDES Inspection Sub-Committee also provided training on various subjects relevant to the Existing Development and ID/IC programs. This sub-committee meets quarterly to provide training to inspectors and others on issues related to spill response, inspection and enforcement.

3.6.3 Model Residential Program Implementation and Assessment

Residential areas comprise a significant portion of the land area of each Permittee's jurisdiction. The Model Residential Program was developed to further reduce pollutants potentially released into the environment from residential activities, including efforts to reduce over-watering. It encourages use of pollution prevention practices as the most effective method to protect receiving water quality and comprises:

- Best Management Practice (BMP) Requirements
- Source identification and prioritization
- Facilitation of hazardous waste collection
- Program Implementation
- Enforcement

During the 2012-13 reporting period, the LIP/PEA Sub-committee updated the eight (8) model BMP fact sheets which include a description of specific pollution-prevention activities for residential areas. The BMP fact sheets are available at <http://ocwatersheds.com/documents/bmp/residentialactivities>. Each fact sheet contains the following sections: targeted pollutants, required activities, and recommended activities.

BMP factsheets have been prepared for the following activities:

- Automobile Repair & Maintenance
- Automobile Washing
- Automobile Parking
- Home & Garden Care Activities
- Disposal of Pet Waste
- Disposal of Green Waste
- Household Hazardous Wastes
- Water Conservation

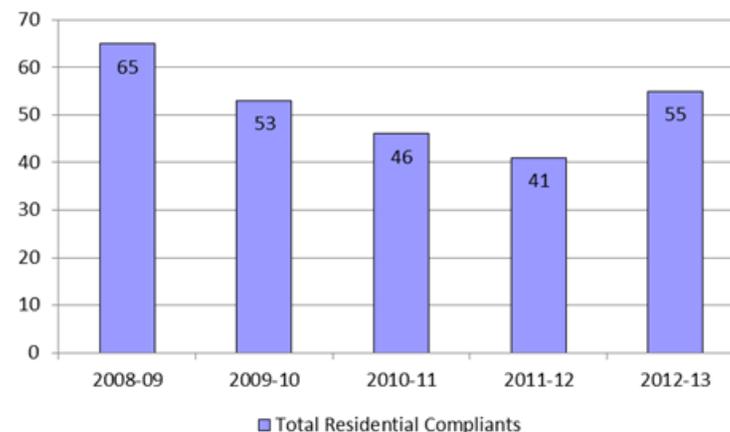
Four (4) Household Hazardous Waste Collection Centers, operated by the County of Orange Waste and Recycling Agency, are located at the following sites throughout the county:

- 1071 N. Blue Gum Street, Anaheim, CA 92806
- 17121 Nichols Street - Gate 6, Huntington Beach, CA 92647
- 6411 Oak Canyon, Irvine, CA 92618
- 32250 La Pata Avenue, San Juan Capistrano, CA 92675

The implementation of the residential program relies on education and outreach to notify and urge residents to observe the designated sets of BMPs for each of the high threat activities. Permittees encourage the implementation of the designated BMPs for each residence within its jurisdiction principally through the overall public education element of the Program. The Permittees have also developed a source identification procedure and prioritize residential areas based on proximity to Environmentally Sensitive Areas (ESAs). Over the last five years, the County (as manager of the

reporting system) has responded to, or forwarded to Permittees, a total of 260 residential complaints (Figure 3.6.11).

Figure 3.6.10: Residential Complaints, County of Orange, from 2008-09 to 2012-13



Enforcement in residential areas begins with outreach and education and most often compliance is achieved without formal enforcement remedies. However, where necessary, the Permittees have the legal authority to increase the level of enforcement to gain compliance. Where necessary, enforcement actions were taken to achieve compliance. Indeed, between 2008-09 and 2011-12, the County has relied on formal enforcement actions to gain compliance in residential areas in only seven cases. These included two citations, three criminal cases, and two notices of non-compliance. However, many of the residential cases tracked by the County were referred to other agencies for follow-up and enforcement. The analysis of residential enforcement data performed only includes those actions taken by the County.

3.6.4 Common Interest Areas (CIAs) and Homeowner's Associations (HOAs) Program Implementation and Assessment

Orange County is home to over 3,000 CIAs/HOAs and common interest developments account for 80% of all new housing in the County. Within Orange County, approximately 90% of incorporated residential areas lie within the purview of the maintenance associations that govern CIAs/HOAs. Permittees in the San Diego Region have implemented individual CIA/HOA programs since the Third-Term permits.

Nineteen (19) model BMP fact sheets were developed which include a description of specific pollution-prevention activities for CIAs/HOAs. The BMP Fact Sheets are available at <http://ocwatersheds.com/documents/bmp/commoninterestactivities>.

Enforcement of BMPs in common interest developments relies on the following mechanisms: public reporting hotline, analysis of dry weather/illicit discharge monitoring results, and municipal employee observations. During the permit term, the County responded to, or forwarded to Permittees, 37 complaints related to CIA/HOA issues. When necessary, enforcement may be accomplished in two ways: through enforcement of conditions and restrictions (CC&Rs) enacted by the associations or through the Permittees' enforcement processes.

3.6.5 Recommendations

1. Consider incorporating the updated CASQA BMP fact sheets into the Existing Development Model Program.

Implementation Schedule - Industrial, Commercial, Mobile Program

Industrial, Commercial, and Mobile Program Actions	Recommendation ¹	Implementation Schedule ²				
		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Source Identification and Facility Inventory						
Maintain inventory of required industrial sites	C					
Maintain inventory of required commercial facilities	C					
Maintain inventory of required residential sites	N					
Facility Inspection Activities						
Annually inspect 20% of the industrial and commercial inventory, with 100% of the industrial and commercial inventory inspected over the permit term.	C					
Best Management Practice (BMP) Implementation						
Update BMP Fact Sheets for existing development as necessary	C					
Provide outreach to all industrial commercial facilities during the Permit term	C					
Enforcement Activities						
Conduct follow-up inspections and enforcement as necessary to ensure compliance	C					
Track types of enforcement actions by facility type	E					
Food Facility Inspection Program						
Maintain and update inventory of FSEs	C					

Industrial, Commercial, and Mobile Program Actions	Recommendation ¹	Implementation Schedule ²				
		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Inspect FSEs according to prioritization	C					
Track follow-up and enforcement actions related to FSEs	E					
Mobile Business Model Pilot Program						
Maintain inventory of mobile businesses operating within the County focusing on automobile detailers, carpet cleaners, pet services	E					
Identify and require implementation of minimum BMPs for mobile businesses, focusing on automobile detailers, carpet cleaners, and pet services	E					
Provide outreach to the mobile businesses	C					
Perform inspections or provide a self-certification process for the businesses	C					
Conduct enforcement as necessary to ensure compliance	C					
Training						
Train inspections and field staff as necessary	C					

1. C = Continue; E = Enhance; N = New

2. X = Recommendation will be completed during this fiscal year. Gray shaded cells indicate ongoing implementation.

Implementation Schedule – Residential Program

Residential Program Actions	Recommendation ¹	Implementation Schedule ²				
		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Source Identification and Prioritization						
Update and maintain residential source inventories as necessary	C					
Best Management Practice (BMP) Requirements						
Update BMP Fact Sheets as necessary	C					
Program Implementation						
Respond to notifications of NPDES issues from the public, municipal staff, and other regulatory agencies	C					
Facilitate proper collection and management of used oil and household hazardous waste	C					
Track amounts of used oil and HHW collected	C					
Enforcement						
Enforce ordinances as appropriate	C					
Track enforcement actions	C					

1. C = Continue; E = Enhance; N = New

2. X = Performance Standard will be completed during this fiscal year. Gray shaded cells indicate ongoing implementation.

Implementation Schedule - CIA/HOA Program

CIA/HOA Program Actions	Recommendation ¹	Implementation Schedule ²				
		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Identification of CIA/HOA Areas and Activities of Concern						
Update inventory of CIA/HOAs as necessary	C					
Best Management Practices Implementation						
Update BMP Fact Sheets associated with activities of concern as necessary	C					
Program Implementation Strategy						
Develop guidance for inclusion in CCRs for CIA/HOAs	C					
Require new HOAs to include guidance in CCRs	E					
Perform outreach to CIA/HOAs	C					
Coordinate with UCCE and water districts to enhance approaches to IPM implementation and reducing irrigation runoff	C					
Enforcement						
Enforce ordinances as necessary to ensure BMPs are implemented as required	C					

1. C = Continue; E = Enhance; N = New

2. X = Performance Standard will be completed during this fiscal year. Gray shaded cells indicate ongoing implementation.

Implementation Schedule - CIA/HOA Program

Retrofitting Program Actions	Recommendation ¹	Implementation Schedule ²				
		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Evaluate Opportunities for Retrofit						
Evaluate opportunities for retrofitting existing development to address constituents identified as the highest priorities in the Water Quality Implementation Plan	E					

1. C = Continue; E = Enhance; N = New

2. X = Performance Standard will be completed during this fiscal year. Gray shaded cells indicate ongoing implementation.

3.7 Illegal Discharges/Illicit Connections

The Story: ID/IC

- The requirement to effectively prohibit non-stormwater discharges into the MS4 is one of two fundamental requirements of the Clean Water Act stormwater mandate.
- The Permittees continued to aggressively detect and eliminate Illicit Discharges and Illegal Connections (ID/IC) through discharge monitoring, source investigation, and enforcement.
- A spill reporting hotline (1-877-89-SPILL) provides a resource for public spill and water pollution reporting, and a smartphone reporting application was developed. All reports were responded to and resolved.
- The *Model Investigative Guidance for Orange County Illegal Discharges and Illicit Connections Program* was updated for the Non-stormwater Action Levels (NALs) based monitoring program by inclusion of a new *San Diego Region Dry Weather Numeric Action Level (NAL) Source Identification Guide*.
- Essential elements of the Countywide Area Spill Control Program were completed and implemented.
- The NALs monitoring program was fully implemented.

3.7.1 Overview

It is a specific requirement of the Federal Clean Water Act that non-stormwater discharges, arising from illegal discharges and illicit connections (ID/IC) to the municipal storm drain system, must be effectively prohibited. Since the first term MS4 permit, a programmatic framework for detecting and quickly responding to non-stormwater discharges has been a key integral element of the Program.

3.7.2 Illegal Discharges/Illicit Connections Program Implementation and Assessment

The Model ID/IC Program provides guidance for Permittees when identifying, responding to, and mitigating the effects of non-stormwater discharges. The Model Program requires the Permittees to address the following:

- Detect illegal discharges and illicit connections;
- Enable public reporting;
- Investigate illegal discharges and illicit connections;
- Undertake enforcement; and
- Conduct Training.

Detection of Illegal Discharges and Illicit Connections

The Permittees implemented the NALs monitoring program during the Fourth Term MS4 Permit in south Orange County. The NALs monitoring program is outlined in the Fourth Term MS4 Permit and includes numeric action levels derived from Basin Plan objectives that, when exceeded, trigger the need for a source investigation. The NALs monitoring program uses a suite of water quality analyses conducted in the field and through contract laboratories. Field data is entered into the County's CBI MS4 on-line database system to which

Permittees have been provided with login information and have immediate access to all field data once it is entered into the system.

As part of the NALs monitoring program, outfall sites are visited and sampled twice annually; once in the dry season and once in the wet seasons (preceded by an absence of rain for 72 hours). Over the past four years, the Permittees have conducted a total of 175 site visits at 25 sites.

Reporting

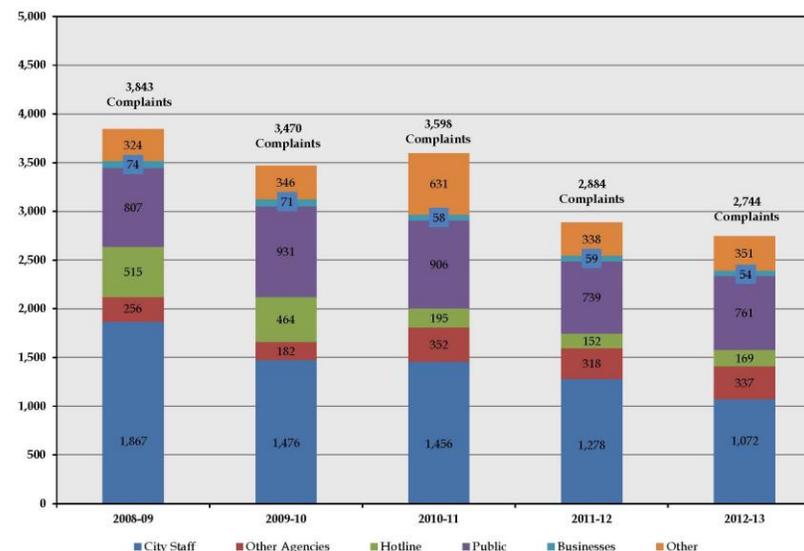
The Permittees continue to field complaints stemming from numerous sources, including the water pollution telephone hotlines. Telephone and web-based reporting systems (both countywide and in individual cities) for the general public have been established and are advertised in the Program's public education materials, Orange County "White Pages" telephone directories, and Permittee websites.

The Permittees' field inspectors are trained to detect illegal discharges as part of their daily activities and, indeed, the majority of illegal discharges continue to be detected by Permittee staff. In addition, the Permittees promote hotline numbers, principally 1-877-89-SPILL, to receive water pollution complaints and incident information from the public and use database software to document the reported incidents which assists with the tracking of water pollution complaints by source. The Permittees also developed a [smartphone application](#) to provide another tool for the general public to use when reporting water pollution issues



Over the past five years there has been a decrease in the total number of complaints received (**Figure 3.7.1**).

Figure 3.7.1: Source of Complaints from 2008-09 to 2012-13



Investigate Illegal Discharges and Illicit Connections

Each Permittee has designated Authorized Inspectors to investigate compliance with, detect violations of, and take actions pursuant to their Water Quality Ordinance.

Authorized Inspectors follow specific procedures documented in the *Model Investigative Guidance for Orange County Illegal Discharges and Illicit Connections Program (Investigative Guidance Manual)*. The *Investigative Guidance Manual* was updated by the Permittees during the permit term. The revision included adding resources and tools as appendices and updating key resources, including an attachment specific to South County Permittees, the *San Diego Region Dry Weather Numeric Action Level (NAL) Source Identification Guide*.

The Permittees maintain records of information from a complaint, notification, or response request. To ensure that the necessary information is collected, the Permittees use pre-established forms to collect information. After the initial entry of the information on the Pollution Notification/Investigation Request (PNIR) or related form, the information is generally entered into a database. The data from the Permittees' databases is analyzed to increase the Permittees' awareness regarding the most problematic waste categories and facility activity types.

Figure 3.7.2 and **Figure 3.7.3** display results from the County-maintained PNIR database covering the 2008-09 to 2011-12 reporting periods. **Figure 3.7.2** provides a breakdown of the waste category under which each ID/IC discharge investigation was classified. The frequency of incident appears to be equally distributed all waste categories. **Figure 3.7.3** displays a breakdown of the facility activity type under which each ID/IC discharge investigation was classified.

Similarly there is no facility type or single land use that is predominantly the subject of investigations.

The data used in the analysis includes information from the mobile business database which is a shared incident reporting database created specifically to ensure effective application of the Enforcement Consistency Guide to businesses operating from mobile premises across multiple jurisdictions. The experience with this database encourages consideration being given to creating a single countywide ID/IC database with the potential to streamline reporting and enable more detailed analyses to better identify priority activities and facility types of concern.

Figure 3.7.2: Waste Categories Encountered during ID/IC or Mobile Business Discharge Investigations

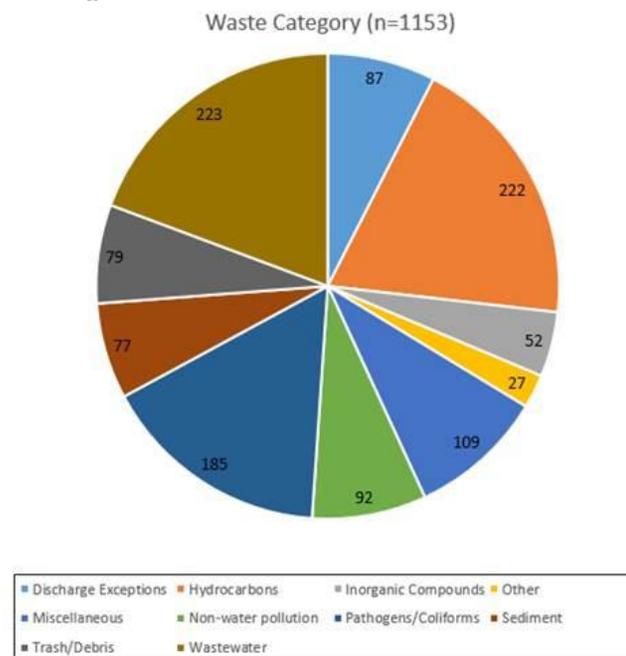
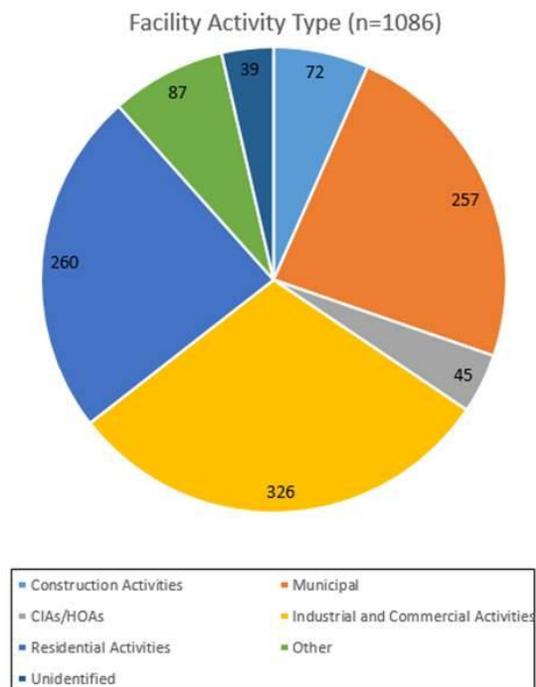


Figure 3.7.3: Facility Activity Types Encountered during ID/IC Discharge Investigations

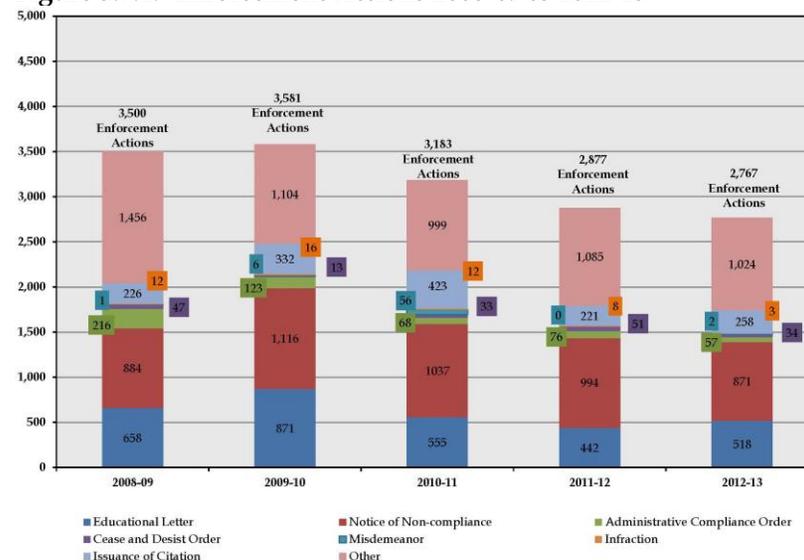


Enforcement

Enforcement actions are undertaken according to the adopted Water Quality Ordinances and accompanying Enforcement Consistency Guide. In instances of noncompliance, the Permittees adopted one of four types of remedies, including educational letters, administrative remedies, criminal remedies, or other civil or criminal remedies, as appropriate. **Figure 3.7.4** displays the number and type of enforcement actions undertaken during the past five reporting periods. The five year trend largely represents a decrease in the total

number of enforcement actions. Given the correlating decrease in the total number of complaints received over the same time period, the decrease in the total number of enforcement actions indicates a change in behavior which is causing a decrease in the total number of ID/IC incidents occurring.

Figure 3.7.4: Enforcement Actions 2008-09 to 2012-13



Training

During the permit term, the Permittees developed a training program, including curriculum content. The training program defined expertise and competency for each key area of jurisdictional stormwater program responsibility, including Authorized Inspectors. Illegal Discharges/Illicit Connections (ID/IC) Training Sessions for Authorized Inspectors and spill responders were conducted on May 18, 2010 (66 attendees) and April 16, 2013 (69 attendees). In addition, the NPDES

Inspection Sub-Committee also provided training on various subjects relevant to the ID/IC program. This sub-committee meets quarterly to provide training to Authorized Inspectors and others on issues related to spill response, inspection and enforcement. It also serves as a forum for the coordination and discussion of ongoing difficult or new enforcement, investigation, or enforcement issues and to profile cases or incidents.

Model Sewage Spill Response Procedures

Starting in 2000, the County and OCS&D began development and implementation of a coordinated sewage spill prevention and response demonstration project (i.e. the “Countywide Area Spill Control (CASC) Program”).

During the permit term, the CASC Program was activated three times in the San Diego Region: (1) March 23, 2010, to respond to a 1.4 million gallon sewage spill; (2) on June 25, 2010, to respond to a 2,400 gallon sewage spill; and, (3) on April 28, 2014, to respond to a 4,600 gallon biosolids spill. The March 23, 2010 incident was the largest CASC response to date, and the response was a major success – a berm was placed in Tijeras Creek to contain the spill and 2.5 million gallons were pumped from the containment and returned from the Santa Margarita Water District sewer system, minimizing both the beach closure area and the total number of beach closure days. For these reasons, the San Diego Regional Board reduced the *Potential Harm for Discharge Violations* score when assessing the Administrative Civil Liability (ACL) for this spill event.



CASC Response on March 23, 2010, Tijeras Creek

Actions Levels

In 2003, the Permittees began implementing the seasonal *Dry Weather Reconnaissance Program* on a countywide basis to monitor storm drain outfalls for the presence of illegal connections and illicit discharges (ID/IC). This Program’s hybrid reconnaissance monitoring design combines probabilistic and targeted sampling and the use of formal statistical tools (tolerance intervals and control charts). This design enables the program to systematically prioritize problematic sites, compare conditions to the regional urban background, and track trends over time.

- A *tolerance interval* bound is the upper or lower confidence-interval bound of a quartile of the background data distribution. Tolerance intervals are

derived from the probabilistic site data and are used to quantify the key aspects of the regional background.

- *Control charts* are used to establish an upper or lower bound on a data distribution, based on previous monitoring data. They are created for each site and provide a means of tracking data at individual sites and identifying when new data values deviate substantially (either upward or downward) from previous experience.
- Used together, tolerance intervals and control charts provide a consistent and quantitative means of identifying sites that exhibit clearly aberrant values.

In its Fourth Term Permit for south Orange County the San Diego Regional Board has modified the dry weather reconnaissance-based monitoring to include NALs), based on Basin Plan objectives. Comparison of the approaches shows that the NALs-based program triggers investigative responses at a much higher frequency for many constituents (e.g. enterococci and reactive orthophosphate as P; **Figure 3.7.6** and **Figure 3.7.7** respectively).

Based upon historical data (**Figure 3.7.6**), for example, the probability that a sample does not exceed the NAL for enterococci is approximately 3%. As a result, 32 out of 33 sampling events would be required to be investigated. In contrast, the probability that a sample does not exceed the enterococci tolerance interval is 90%, which ensures that investigative resources are applied to the most aberrant prioritized discharges.

Figure 3.7.5: Enterococci Exceedance Frequencies Associated with Dry Weather Reconnaissance Tolerance Intervals Compared with Exceedance Frequencies Associated with NALs.

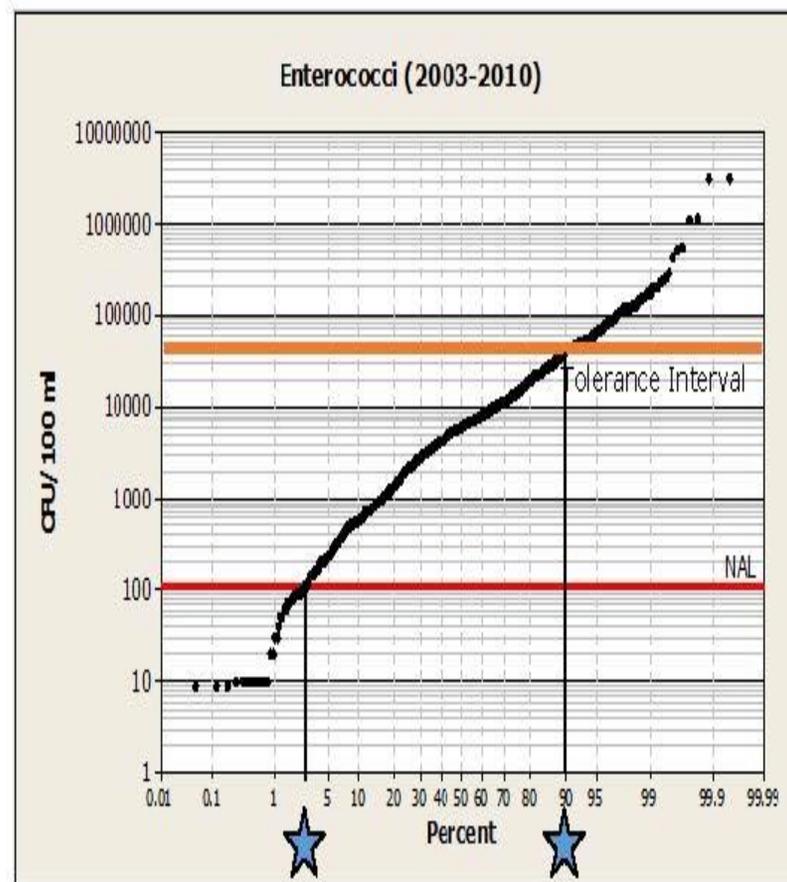
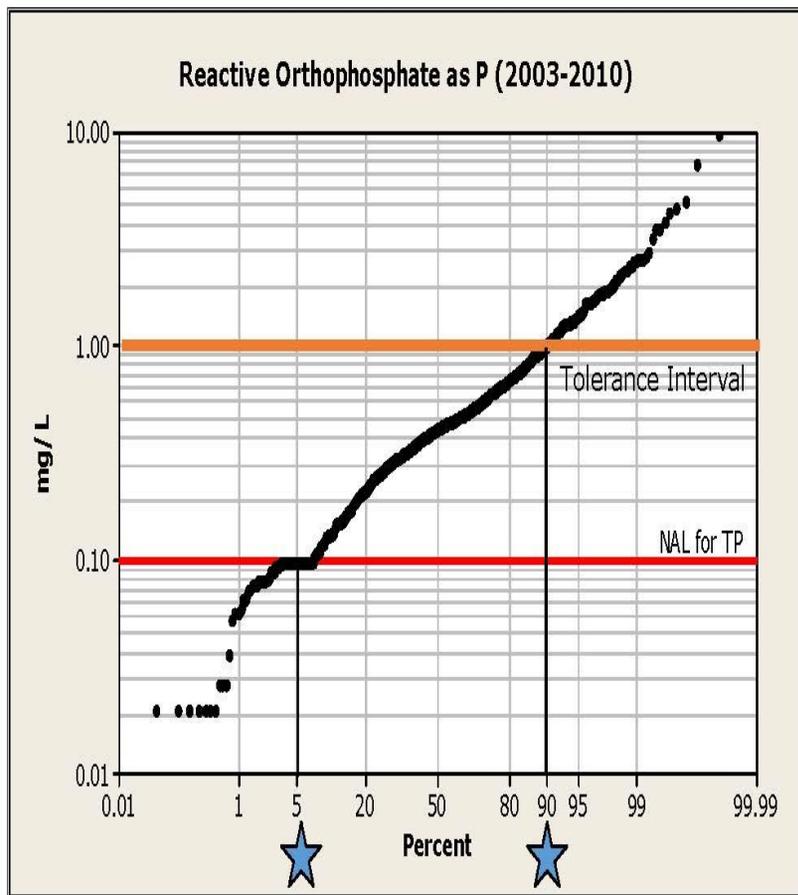


Figure 3.7.6: Reactive Orthophosphate as P Exceedance Frequencies Associated with Dry Weather Reconnaissance Tolerance Intervals Compared with Exceedance Frequencies Associated with NALs



The impact of the switch from “action levels” to “NALs” is demonstrated in **Table 3.7.1**. Under the Dry Weather Reconnaissance Program protocol the Permittees conducted 274 site visits; whereas for the NAL-based program the

Permittees conducted 45 site visits. Although the Permittees collected data and information for six times more stations as a part of the Dry Weather Reconnaissance Program, the NALs-based program identified more than six times the number of exceedances, thereby confounding the ability of the Permittees to prioritize investigative efforts.

The South Orange County Permittees have found strong positive linear relationships between phosphorus and metals associated with seepage and exfiltration of shallow groundwater from the Monterey and Capistrano marine sedimentary formations. Both formations are known to be enriched in trace metals and phosphorus and are prevalent across southern Orange County. This evidence suggests that many exceedances are due to non-ID/IC factors (i.e. local geology - Ni, Cd). These findings underscore the concern of the Permittees that the NALs preclude the Permittees from discriminating between instances of ID/IC and non-ID/IC conditions and is therefore inconsistent with a mandate that requires the effective prohibition through ordinance of non-stormwater discharges arising from ID/IC. See additional discussion of this issue in **Attachment 3.7.1**.

Table 3.7.1: Comparison of the 2011-12 NALs Data Collected in the San Diego Region with the Data from the Dry Weather Hybrid Reconnaissance Monitoring Program for the 2009-10 Reporting Period

Constituent	# of NAL Exceedances	% of NAL Exceedances	# of Reconnaissance Action Level Exceedances	% of Reconnaissance Action Level Exceedances
			2011-2012	2009-2010
pH	1	2	0	0
TDS	42	93	0	0
Dissolved Oxygen	2	4	0	0
Turbidity	3	7	3	1
Surfactants	3	7	14	5
Total Coliforms	24	53	0	0
Fecal Coliforms	19	42	0	0
Enterococcus	42	93	0	0
Unionized Ammonia	3	7	8	3
Total Nitrogen	41	91	0	0
Total Phosphate	38	84	11	4
Cadmium	13	28	0	0
Copper	1	2	0	0
Nickel	7	15	0	0
Zinc	1	2	0	0
Total # of Site Visits	45		274	

3.7.3 Recommendations

The major elements of the program (e.g. the facilitation of public reporting of complaints, and the designation and training of Authorized Inspectors) continue to be vital and successful pieces of the Program. However, the NALs Program has proven to be less effective than the Dry Weather Reconnaissance Program. The recommendation is:

1. **Reinstate an approach, such as the Dry Weather Reconnaissance Program, that allows investigative resources to be directed toward abating priority aberrant discharges.**
2. **Continue implementation of CASC.**
3. **Consider development of a standardized reporting database potentially accessible by all Permittees.**

Implementation Schedule - ID/IC

Proposed ID/IC Program Actions	Recommendation ¹	Implementation Schedule ²				
		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Detect Illegal Discharges and Illicit Connections						
Implement Dry Weather Reconnaissance Program monitoring approach to prioritize investigations on non-stormwater discharges arising from ID/IC.	N					
Facilitate Reporting						
Advertise telephone, web-based, and applications-based reporting systems	C					
Investigate Illegal Discharges and Illicit Connections						
Investigate compliance with, detect violations of, and take actions pursuant to each Permittee's respective Water Quality Ordinance and the <i>Investigative Guidance Manual</i>	C					
Maintain records of information from monitoring, a complaint, notification, or response request in an ID/IC database	C					
Evaluate using a standardized ID/IC record-keeping system and/or database amongst all Permittees	N		X			
Enforce upon Illegal Discharges and Illicit Connections						
Take enforcement actions according to each Permittee's respective Water Quality Ordinances and accompanying Enforcement Consistency Guide	C					

Proposed ID/IC Program Actions	Recommendation ¹	Implementation Schedule ²				
		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Track enforcement actions	C					
Conduct Training						
Develop additional training modules as needed	E	X				
Conduct training of Authorized Inspectors	C					
Model Sewage Spill Response Procedures						
Implement CASC Program countywide	C					

1. C = Continue; E = Enhance; N = New

2. X = Recommendation will be completed during this fiscal year. Gray shaded cells indicate ongoing implementation.

4.0 Controlling Pollutant Sources: Watershed Programs

The Story: Watershed Programs

- Extensive watershed mapping of hydromodification susceptibility, infiltration feasibility and regional BMP opportunity sites for the entire south Orange County area has been completed.
- Watershed Workplans for all six San Diego Region Watersheds were developed and implemented. These workplans describe the Watershed Permittees' collective watershed strategies to assess, prioritize and address water quality challenges within each watershed.
- Comprehensive Load Reduction Plans (CLRPs) were developed for Aliso Creek, San Juan Creek and San Clemente Coastal Streams Watersheds. These watershed CLRPs were developed to address bacteria pollutants and other watershed 303(d) listed constituents.
- Dana Point harbor was delisted for Indicator Bacteria and 17 shoreline stations were delisted for *Enterococcus*, Fecal Coliform and Total Coliform.
- Baby Beach TMDL dry weather load reductions have been achieved for total coliform and the 50% load reduction milestones for fecal coliform and *Enterococcus* have also been achieved. Wet weather data also supports the conclusion that TMDL load reductions have been achieved for total coliform and fecal coliform. Further reductions are needed for *Enterococcus*.

4.1 Overview

Watershed management is the term used for the approach to water quality planning that places an emphasis on the watershed (the area draining into a river system, ocean or other body of water through a single outlet) as the planning area and looks to multi-jurisdictional solutions to problems that cut across programs and jurisdictional boundaries.

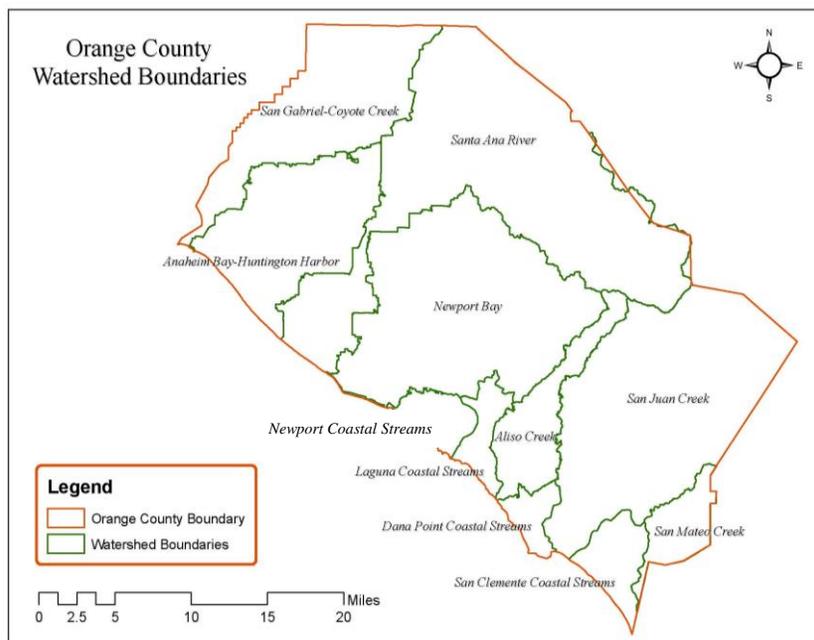
While the focus of watershed planning in south Orange County is on specific pollutants of concern associated with urban stormwater, particularly TMDLs, this management approach is also supportive of broader objectives such as watershed habitat restoration, consistent with the Practical Vision, and integrated water resource management.

There are six distinct watersheds within the San Diego Regional Board area which are identified in **Table 4.1** and shown in **Figure 4.1**

Table 4.1: San Diego Region Watersheds

Watershed Planning Area	Major Watercourses
Laguna Coastal Streams	Laguna Canyon Creek
Aliso Creek	Aliso Creek
Dana Point Coastal Streams	Salt Creek
San Juan Creek	San Juan Creek, Oso Creek, Trabuco Creek, Bell Canyon, Verdugo Canyon
San Clemente Coastal Streams	Prima Deshecha, Segunda Deshecha
San Mateo Creek	San Mateo Creek

Figure 4.1: Orange County Watershed Boundaries



4.2 Non-TMDL Watershed Accomplishments

During the Fourth Term Permit, non-TMDL watershed management efforts – supportive of integrated water resource management – have included mapping of the landscape characteristics that are significant for hydrologic processes, adoption of an Integrated Regional Watershed Management Plan for south Orange County, preparation of Watershed Workplans for each of the six San Diego Region Watersheds, and engaging the public regarding local watershed issues.

Watershed Mapping Tool

A key element of watershed planning is identification of opportunities for regional and subregional stormwater management facilities. These facilities can play a critical role in more quickly realizing water quality, hydromodification, water supply and/or habitat goals compared to approaches that are exclusively reliant upon on-site mitigation.

Initial extensive watershed mapping of hydromodification susceptibility, infiltration feasibility and regional BMP opportunity sites for the entire south Orange County area has been completed and is available through the County’s land records web-based portal, known as the Land Records 2.0 mapping tool: <http://landrecords.ocpublicworks.com/ocsl/>.

Integrated Regional Watershed Management Plan

Although it is not a permit requirement, the preparation of an Integrated Regional Watershed Management Plan (IRWMP) provides for a coordinated approach to resource management and capital improvement planning. This coordinated approach also leverages partnerships with regional stakeholders and existing programs and plans, such as TMDLs, and consolidated grants.

The State of California has been promoting integrated regional water management planning, as a means of achieving more sustainable water use. IRWMPs are a more efficient and effective way to manage water resources. It allows for regional prioritization of important watershed issues and for consensus to be reached on how to address those issues. Whereas watershed planning for stormwater management is focused on enhanced BMP implementation targeting specific

constituents of concern within a watershed, an IRWMP is an integrated plan for all water resources projects, including water supply, wastewater, flood management, stormwater and urban runoff, aquatic habitat, and recreation.

Governance for water quality programs is organized around three geographic sub-areas, or watershed management areas (WMAs)--North Orange County, Central Orange County, and South Orange County. Aliso Creek, San Juan Creek, Laguna Coastal Streams, Dana Point Coastal Streams, San Clemente Coastal Streams and San Mateo Creek (within Orange County) watersheds comprise the South Orange County WMA which falls wholly under the jurisdiction of the San Diego Regional Board.

The County of Orange, cities, and water and wastewater agencies of south Orange County formed the South Orange County Integrated Regional Water Management (IRWM) Group in 2004 and subsequently developed and adopted the South Orange County IRWMP in 2005.

In January 2007, the South Orange County IRWMP was one of seven statewide proposals recommended for funding. In July 2007, the South Orange County IRWM Group executed a Prop 50 IRWM Implementation Grant Agreement with the State Water Resources Control Board to receive grant funds in an amount of \$25,000,000 for the seven highest ranking projects included in the IRWMP. One of the completed projects for which the water management strategy was water quality was the City of Laguna Beach's Heisler Park Marine Habitat Protection Project. This project was designed to reduce runoff to the ecological reserve. The park improvements include: a controlled and efficient irrigation system; bluff-top landscape grading; surface drain and pathway improvements; storm

drain improvements; installation of three (3) urban runoff diversion automation systems in existing Continuous Deflection Separation (CDS) units; and coastal bluff stabilization.

An IRWMP update was initiated in 2012 to meet Prop 84 State guidelines and included a call for projects. 57 project forms were received. These projects were added to previous projects for a total of 139 projects now included in the IRWMP. Five of the top ten projects on the priority project list directly address water quality.

The updated plan was finalized in 2013 and adopted by the South Orange County WMA Executive Committee. The Final and Approved 2013 IRWMP is available at the following link: http://ocwatersheds.com/programs/ourws/wmaareas/wma_southoc/soc_wma_irwmp

Watershed Workplans

Pursuant to Directive G of Order No. R9-2009-0002, Watershed Workplans were developed for each of the six watersheds in south Orange County. These Workplans describe the Watershed Permittees' development and implementation of a collective watershed strategy to assess and prioritize the water quality challenges within the watershed's receiving waters, identify and model sources of the highest priority water quality challenges, develop a watershed-wide BMP implementation strategy to abate highest priority water quality challenges, and a monitoring strategy to evaluate BMP effectiveness and changing water quality prioritization in each watershed.

The 2012-13 reporting period marked the tenth year of implementation of Watershed Action Plans/Watershed Workplans. The Watershed Workplans build on the considerable work and studies that have been completed collaboratively over a multi-year period. These include the following initiatives:

- Development and implementation of the *Drainage Area Management Plan (DAMP)/Jurisdictional Runoff Management Plans (JRMPs)*.
- *2005 Draft Identification of Retrofitting Opportunities Study* – this study identifies potential retrofit sites adjacent to or near existing flood control infrastructure under public ownership.
- *South Orange County IRWMP* – integrated regional watershed planning fosters development of holistic solutions to problems; addresses problems at the source; and integrates projects and programs throughout the region that have logical overlaps.
- *Southern California Coastal Water Research Project (SCCWRP) epidemiology and microbial source tracking study* – this study examined several new techniques for measuring traditional fecal indicator bacteria, new species of bacteria, and viruses to determine whether they yield a better relationship to human health outcomes than the indicators presently used in California.
- *Hydromodification controls* – these controls seek ways to mitigate erosion impacts by establishing requirements for controlling runoff from new development and significant redevelopment. These plans typically include decentralized storm water management systems and protection of natural drainage features, such as wetlands and stream corridors. Runoff is

typically directed toward infiltration-based storm water BMPs, such as those included in the Watershed Workplans, that slow and treat runoff.

The Watershed Workplans consider the findings of the Receiving Waters and MS4 Discharge Monitoring Program in addition to other characterizations of receiving water quality. This data is used to inform management decisions in each of the watersheds, which includes guiding the type and location of BMPs to employ.

Water quality is assessed through a review of water quality standards and objectives, NPDES wet weather and non-stormwater monitoring data, indicator bacteria data for coastal waters collected from the Orange County Health Care Agency (OCHCA) and South Orange County Wastewater Authority (SOCWA), special studies conducted within the region, watershed management plans, and through informal data exchange and discussions with watershed residents, local conservation agents, and government officials.

Indicator bacteria exceedances (as determined by fecal indicator bacteria) at south county beaches and creeks, and the resulting potential for human health impacts, is currently the most significant concern for the region based upon MS4 permit and bacteria TMDL requirements. Consequently, indicator bacteria has been the primary focus of existing watershed water quality monitoring programs. As new data is collected through the Orange County Stormwater Program's regional monitoring efforts, future watershed specific TMDL monitoring and assessment efforts, and pollution source identification monitoring special studies, the characterization of receiving water quality will be expanded to include additional pollutants as priorities.

Changes in receiving water indicator bacteria levels concentrations have seen some positive improvements over the past few years. In general, the number of beach monitoring sites affected by the more stringent *Enterococcus* standard is showing a decreasing trend in the number of sites affected. These changes are attributed partially to 1) the cumulative effects of increasing attention on water conservation and 2) continued education of the public on the pollution prevention, but substantially to 3) implementation of structural BMPs at problematic sites.

Heal the Bay, a nonprofit environmental organization, reports the results of routine monitoring of beaches conducted by local health agencies and dischargers annually in their Beach Report Card. In the 2013 Beach Report Card, water quality in Orange County was reported as excellent with 93% A or B grades. Beach water quality during the winter dry weather was also very good with 86% A or B grades. Wet weather A and B grades (73%) were up four percent from last year and bested the five-year average by 17%.

Examples of special studies on pollutant source tracking for pollutants of concern in addition to and including indicator bacteria include:

Fecal Indicator Bacteria Special Study at Doheny Beach and Poche Beach

The San Juan Creek and San Clemente Coastal Streams Watershed Permittees have invested in source investigation studies and made long term capital investments in additional control measures to reduce runoff impacts on beach water quality at Doheny Beach and Poche Beach. The efforts undertaken during the Fourth Term Permit include:

- Completing the Prima Deschecha watershed study to identify sources and develop plans for additional BMPs to mitigate indicator bacteria levels at Poche Beach;
- Continuing operation of the Poche Beach ultraviolet treatment system to reduce indicator bacteria levels in watershed runoff;
- Conducting a pilot scale falconry project to discourage gulls from congregating at Poche Beach;
- Providing support for the scientific development of new microbial source tracking host-specific fecal source markers through contributions of in-kind services to the Source; and
- Providing support of scientific advancements to identify beaches affected by potential human sources through contributions of in-kind services to the Southern California Bight-13 Regional Monitoring Program Shoreline Microbiology Study.

The goal of the source investigations at Poche Beach and Doheny Beach, which are ongoing, are intended to develop a prioritization effort to identify and ultimately reduce the most important sources that represent a potential health risk for beach visitors.

Origin of Fecal Indicator Bacteria Impairments at Doheny State Beach

This study was designed to answer questions about the origin of bacteria impairments along Doheny State Beach from San Juan Creek. The study found that the native bird population accounts for the single largest percentage of fecal indicator bacteria variability and mass contribution in dry weather flows to the Pacific Ocean Shoreline at the beach.

Additionally, the main sources of fecal indicator bacteria in San Juan Creek appears to be concentrated at the pond at the mouth of San Juan Creek and not from the lower watershed.

Trace Metals

This is an ongoing study in the region, which includes monitoring for trace metals to better understand the nature of sources in runoff. In recent years, efforts lead by the County to characterize natural sources from ambient geology demonstrated that native soil attributes in specific areas are the primary contributor for many constituents of concern such as cadmium, nickel, chloride, sulfate, and selenium. Understanding the true source of naturally derived pollutants is important from not only a scientific basis but also from a management perspective.

Trash & Debris

This special study is ongoing and relates to trash monitoring in San Diego Region watersheds. The goals of the trash monitoring efforts are to help determine the extent of the issue and improve our understanding of managing trash in the environment using multiple efforts on both regional and local scales.

Oso Creek Dissolved Solids Study

This study was conducted to compile information on the impairments and assessed three aspects of water quality in Oso Creek, a subwatershed to San Juan Creek:

1. An evaluation of the current water quality condition of Oso Creek in comparison with three reference streams of similar geological characteristics;
2. Use of stable isotope measurements to assess whether current sulfate levels may be originating from sulfur based fertilizers; and,
3. A review of historic information to examine critical points in the development of the watershed over time that may have contributed to the impairments and may continue as potential barriers to corrective actions.

Three general and somewhat contrary water quality findings from this study are the key points of consideration for future efforts:

1. The dissolved solids are consistent with the geology and reference streams in terms of the concentrations,
2. The process of urbanization appears to have increased dissolved solid levels over the time period of the developed watershed history by increasing groundwater loadings, and
3. Successful efforts to decrease the domestic water runoff appear to have contributed to increases in dissolved solids concentration.

L01S03 Drainage Area Nitrogen and Phosphorus Source Investigation

Water quality data for the L01S03 drainage system in the San Juan Creek watershed has shown that the drainage area has elevated levels of nitrate-nitrogen and phosphorus. This study was conducted to investigate and identify the source of the elevated nutrients. The results of this drainage area source identification and investigation support that the source of

elevated nitrate-nitrogen and phosphorus source in the L01S03 drainage system originates from natural groundwater seepage in contact with the Capistrano Formation geology.

The watershed Permittees use the water quality monitoring data and findings from the special studies to develop BMP action plans. These action plans contribute to attaining receiving water quality objectives. Copies of the BMP action plans are included with each of the Watershed Workplans, which are available at the following links:

Aliso Creek:

<http://ocwatersheds.com/programs/ourws/alisocreek/reportsstudies>

Dana Point Coastal Streams:

<http://ocwatersheds.com/programs/ourws/dpcoastalstreams/reportsstudies>

Laguna Coastal Streams:

<http://ocwatersheds.com/programs/ourws/lagunacoastalstreams/reportsstudies>

San Clemente Coastal Streams:

<http://ocwatersheds.com/programs/ourws/coastalstreams/sanclementecoastalreportsstudies>

San Juan Creek:

<http://ocwatersheds.com/programs/ourws/sanjuancreek/sjreportsstudies>

San Mateo Creek:

<http://ocwatersheds.com/programs/ourws/sanmateocreek/reportsstudies>

Public Outreach and Participation

The governance structure for the WMAs, which was developed at the request of the Orange County Board of Supervisors, includes a variety of methods to engage the general public. The process provides balanced access and opportunity for participation in the IRWM process. It includes participating in stakeholder workshops, inclusion in the IRWM process, communication via email and information sharing via the County's website www.ocwatersheds.com.

Additionally, directive G of Order No. R9-2009-0002 includes a provision for public participation. The first drafts of the Watershed Workplans were posted on the www.ocwatersheds.com website in November 2010 for public review and comment prior to submittal to the San Diego Regional Water Quality Control Board. No comments specific to the plans were received. The south Orange County Permittees held the inaugural annual public stakeholder meeting the following year in December 2012 to identify issues of concern among residents in the watershed. Attendance for the meeting was low. Given the well-established stakeholder structure of the IRWM process, high level of public stakeholder involvement, and in the interest of a truly integrated approach to water resources, all of the south Orange County watershed permittees elected to integrate the annual public update of the Watershed Workplans into the IRWM stakeholder process. This approach also gives the south Orange County watershed Permittees the ability to reach the same stakeholders, as well as a broader audience, including water and sewer agencies and elected officials.

4.3 TMDL Watershed Accomplishments

Through the Fourth Term Permit term, the Permittees have made significant progress addressing the Beaches and Creeks TMDL and the Baby Beach TMDL. Accomplishments include:

Beaches and Creeks Bacteria TMDL

On February 10, 2010, the San Diego Regional Water Quality Control Board adopted indicator bacteria TMDLs for impaired beaches and creeks in the San Diego Region (Beaches and Creeks TMDLs). This TMDL includes over nine and a half miles of County beaches, the entire length of Aliso Creek and the lower mile of San Juan Creek.

As a first step to TMDL compliance, watershed Comprehensive Load Reduction Plans (CLRPs) were developed outlining the BMPs needed to meet TMDL Waste Load Allocations (WLAs) and special studies to identify sources of indicator bacteria and other listed pollutants in the watershed. In October 2012, Aliso and San Juan Creek Watershed Permittees submitted draft CLRPs to the San Diego Regional Water Quality Control Board for review. Subsequently, a draft CLRP for the San Clemente Coastal Streams Watershed was submitted in December 2012.

The CLRPs describe the approach taken by the Watershed Permittees in response to San Diego Regional Water Quality Control Board Resolution No. R9-2010-0001 (Amending the Water Quality Control Plan for the San Diego Basin [9] to Incorporate Revised Total Maximum Daily Loads for Indicator Bacteria, Project I - Beaches and Creeks in the San Diego Region [Including Tecolote Creek]). As described in the resolution, development of a watershed pollutant load

reduction plan is a required step in the bacteria TMDL. To fulfill this requirement watershed CLRPs were developed to address bacteria pollutants and other watershed 303(d) listed constituents. Key CLRP elements include: assessing watershed conditions and setting priorities including development of a Watershed Monitoring and Assessment Program; assessing BMP effectiveness and developing a CLRP Implementation Strategy; developing individual Watershed Permittee BMP Action Plans; and, preparing a schedule for loading reductions to be achieved.

The 2010 Clean Water Act Section 303(d) list identifies the following pollutants/stressors for segments in the Aliso Creek Watershed: indicator bacteria, selenium, total nitrogen, total phosphorus, toxicity, Benzo[b]fluoranthene, Dieldrin, and sediment toxicity. San Juan Creek is listed for: indicator bacteria, chloride, sulfates, total dissolved solids, total nitrogen, total phosphorus, toxicity, DDE, Diazinon, and selenium. San Clemente Coastal Streams are listed for: indicator bacteria, phosphorus, turbidity, toxicity, cadmium and nickel. With the exception of indicator bacteria where TMDLs have been developed, current monitoring provides limited data on these other constituents at a watershed scale. Additional monitoring and data analysis is needed to calculate pollutant loads, identify hotspots, better define human health risks, habitat impacts, and in the case of toxicity determine the specific pollutants causing impairment. As a result initial CLRP efforts focus on bacteria TMDLs and a series of additional studies to collect the data necessary to understand the extent of impairment for other watershed pollutants.

The BMP Action Plans contained in the CLRPs detail current and proposed structural and non-structural BMP efforts. Projected watershed bacterial load reductions were calculated

based upon these plans to determine overall progress within the watershed and an expected reduction schedule.

By using an adaptive management approach, it is anticipated that the continual refinement of watershed BMP Action Plans and data gathered through CLRP Monitoring and Assessment Program will result in reductions consistent with bacteria TMDL WLAs and an improved understanding of watershed water quality impairments and the measures needed to address them.

Examples of BMPs in the action plans include two new wetlands constructed during the Fourth Term Permit, the Glenwood Wetland in Aliso Viejo which will treat runoff from 230 acres of golf course, residential and HOA common area and public parks; and the Oso Parkway Southside Wetland in Laguna Hills which treats 30 acres. Wetlands have proven to have high bacteria removal efficiency during dry weather. For example, the Wood Canyon Emergent Wetland at J02P08 in Aliso Viejo has reduced the concentration of indicator bacteria significantly--over 95% or 1 to 2-logs. The level of fecal coliform bacteria dropped to an average of 58 CFU/100 mL, which is lower than REC-1 water quality objective of 200 CFU/100mL. Both the Glenwood Wetland and the Oso Parkway Southside Wetland is expected to achieve similar bacteria removal efficiency.

Another BMP effective at bacterial removal are debris gates. The cities of Laguna Hills, Laguna Niguel and Lake Forest have installed debris gates at a number of catch basins to prevent gross pollutants from entering the MS4. Based on previous projects and studies, the debris gates are anticipated to provide an 85% reduction in debris in basins at pre-wet-season cleanout, and 68% reduction in number of basins

containing any pollutant-laden debris that would contaminate influent water during dry weather. During wet weather an average of 85% decrease in debris quantity in catch basins yielding 85% decrease of first-flush pollutant constituents released to MS4 at start of each storm of rainy season has been observed.

The efforts to date to reduce bacteria impairments have proven successful. On October 11, 2011, USEPA issued its final decision regarding the water bodies and pollutants USEPA added to California's 2010 303(d) List, which also included State Water Board staff recommendations for additions, deletions or changes. The following list of segments were recommended for deletion in the 2010 Integrated report and were included in the final approved 2010 303(d) list: Dana Point harbor was delisted for Indicator Bacteria (Note: 0.03 mile was included on the 2010 303(d) list for *Enterococcus* and Total Coliform, and the listing for Total Coliform relates to the SHELL standard and not REC-1); 17 shoreline stations were delisted for *Enterococcus*, Fecal Coliform and Total Coliform; 2 shoreline stations were delisted for *Enterococcus* and Fecal Coliform; 2 shoreline stations were delisted for Fecal Coliform and Total Coliform; and 2 shoreline stations delisted for Fecal Coliform. Note that the 2006 303(d) list included whole segments that were later broken down to stations on the 2010 303(d) list. Several segments/stations were also changed from the all-encompassing Indicator Bacteria on the 2006 303(d) list to Total Coliform, Fecal Coliform, and/or *Enterococcus* on the 2010 303(d) list.

Baby Beach TMDL

In June 2008, the San Diego Regional Water Quality Control Board adopted indicator bacteria Total Maximum Daily Loads

(TMDLs) for Baby Beach in Dana Point Harbor. The TMDLs require 82.7-96.2% (dependent upon specific indicator bacteria) waste load reductions from the stormdrain system. Total Coliform, Fecal Coliform and *Enterococcus* wet weather reductions have to occur by December 31, 2019. Dry weather reductions for Total Coliform, Fecal Coliform and *Enterococcus* must occur by September 15, 2014.

Through implementation of BMPs to address several suspected bacteria sources, including measures such as manually removing bird feces from the beach, Baby Beach water quality has improved significantly. Data analysis for the 2012-13 reporting period indicates that dry weather TMDL load reductions have been achieved for total coliform and the 50% load reduction milestones for fecal coliform and *Enterococcus* have also been achieved. Wet weather data also supports the conclusion that TMDL load reductions have been achieved for total coliform and fecal coliform while further reductions are needed for *Enterococcus*. A recent microbial source tracking special study suggested that a portion of the remaining bacterial exceedances at Baby Beach may be of canine origin, prompting the County to increase enforcement of its policy banning dogs from the beach.

4.4 Recommendations

Aliso Creek Bacteria Investigations

There has been a dramatic reduction in bacteria concentrations in Aliso Creek since 2003 correlating with an increase in watershed Permittee BMP implementation and watershed wide water conservation efforts. This current Aliso Creek Monitoring Program was designed to track Creek bacteria concentrations over a ten year period. 2015 marks the tenth

year of implementation of this program, and the following recommendations are made:

- 1) Reduce current Permittee quarterly progress reporting to an annual basis. Observed watershed bacteria reductions have shifted efforts away from new BMP projects to ongoing BMP maintenance decreasing the benefit of quarterly reporting. This change is consistent with R9-2009-0002 which specifies only an annual assessment of water quality data and municipality programs implemented within high-priority storm drain locations. Permittees will continue to meet quarterly to discuss efforts to reduce bacteria in the Aliso Creek watershed.
- 2) Continue implementation of monitoring and reporting described in the Revised Aliso Creek Program through December 2015 with 2015 annual reporting to include a reevaluation of the program relative to watershed bacteria TMDLs, the watershed Comprehensive Load Reduction Plan (CLRP), and related NPDES programs. Implementation of the program through 2015 will allow for an evaluation of the data relative to the initial ten year program design and developing fifth term permit NPDES programs.

5.0 Plan Development

5.1 Overview

The Story: Plan Development

- The Permittees have been implementing a strategic management approach that includes model programs specified in the permit and the DAMP, and watershed programs focused on specific water bodies and pollutants.
- The Program employs an iterative, adaptive management approach that includes monitoring, evaluation, program revision, BMP implementation adjustment/enhancement, and continued monitoring.
- The Program conducts annual and permit term (i.e. ROWD) using the guidance from CASQA approach.
- The ROWD recommends an evolution to a more holistic watershed management approach to support integrated water resource management and the optimization of watershed ecosystem services.

The Permittees have developed a strategic approach to stormwater management that is a cyclical process of measurement, analysis and program improvement. This approach is applied at two distinct scales: (1) regionally by the Permittees implementing jurisdictional programs based on the model programs in the DAMP; and (2) in specific watersheds by the Permittees and others participating in watershed programs addressing specific waterbody-pollutant combinations and the restorative goals of the Clean Water Act.

Two basic categories of assessment measure have been used related to (1) the shorter term confirmation of BMP implementation (Implementation or Process Measures, also termed Programmatic Indicators) and (2) the longer term verification of environmental improvement (Validation or Results Measures, including indicators of environmental change). This categorization of measures is intended to reflect two basic assessment questions: (1) are program elements being implemented correctly and effectively? And (2) are environmental improvements being realized?

... Upon determination by either the permittees of the Regional Water Board that discharges are causing or contributing to an exceedance of an applicable Water Quality Standard, the permittees shall promptly notify and thereafter submit a report to the Regional Water Board that describes BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedances of Water Quality Standards. The report may be incorporated in the annual update to the Stormwater Management Plan unless the Regional Water Board directs an earlier submittal. WQO-99-05

The planning process has been given particular regulatory significance by the approach to MS4 permitting in California. Indeed, the approach was developed as a model for fulfilling the Receiving Water Limitations and Discharges Prohibitions of the Permits. These provisions are based on State Water Resources Control Board Water Quality order 99-05 which creates an iterative management approach as the basis for compliance.

5.2 Plan Development and Effectiveness Assessment

Strategic Management Approach

The Permittees' strategic approach to stormwater management is defined by a cyclical (iterative) process, or *Quality Loop*, of measurement, analysis, and improvement of the program (Figure 5.1). An analogue for this approach is the formal environmental management system for which ISO 14001 establishes standards. It

provides a structure that enables the Permittees to *think* about new ways of working, *measure* existing policies and procedures and/or just *implement* existing

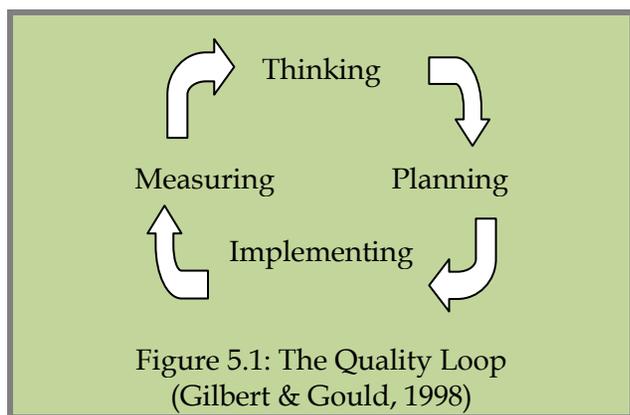


Figure 5.1: The Quality Loop
(Gilbert & Gould, 1998)

activities in different ways. The key is the continual search for improvement in the way that regulatory compliance is maintained and the surface water environment protected and enhanced through implementation of BMPs until protection of beneficial uses is achieved.

Due to the episodic and highly variable nature of stormwater, strict compliance with regulatory water quality standards is problematic, especially for wet weather runoff discharges. In recognition of the nature of wet weather discharges, WQO 99-05 requires application of an iterative management process as the basis of compliance with the MS4 permit Receiving Water Limitations provisions. The

Permits have required this process be conducted a minimum of once each year. This process is outlined in Figure 5.3.

Plan development occurs at two distinct scales: (1) activities conducted by the Permittees implementing BMPs in their DAMP/LIPs based on the model programs in the DAMP; and (2) activities conducted by the Permittees and others participating in watershed programs addressing specific waterbody-pollutant combinations.

Countywide/Jurisdictional BMPs are specified in the Permits, are applicable on a countywide basis and are proven and cost-effective. They include BMP requirements for municipal maintenance activities, public and business education and outreach, BMP requirements for land development and redevelopment, structural and non-structural BMP requirements for construction projects), BMPs for existing development and identification and elimination of illegal discharges/illicit connections.

For the watershed-based programs, the planning process has been focused principally on specific water quality problems in receiving waters, with impaired waters or TMDLs having a higher priority, and implementation of additional *Watershed BMPs* on an individual and/or collaborative basis. However, watershed-based planning has also led to a number restoration projects.

At both scales the approach uses information obtained from program effectiveness assessment, the countywide baseline water quality monitoring program, and from the additional water quality planning initiatives that have been or are currently being conducted in a number of the watersheds to determine those with beneficial use impairments potentially attributable to urban stormwater. New candidate BMPs can be prevention or removal oriented and can be considered either for updating *Countywide/Jurisdictional BMPs* or for incorporation as *Watershed BMPs*. New BMPs are generally identified from one or more of the following:

- A review of technical literature (such as the ASCE/EPA database);
- A review of existing control programs;
- Demonstration or research projects;
- Input from consulting firms and municipalities already involved in new BMP implementation; or
- Other sources.

New BMPs, chosen for broad implementation, are selected from candidate BMPs that have been field-tested and evaluated as to their pollutant removal efficiency and cost effectiveness.

Methodologies for assessing Program and BMP effectiveness include conventional monitoring (such as water quality monitoring) and non-conventional monitoring. Conventional monitoring can provide a more direct indication of actual BMP performance, but is very challenging for a number of reasons. Water quality monitoring is costly, particularly given the highly variable nature of stormwater runoff, and targeted on a limited number of BMPs. Furthermore, not all BMPs are readily evaluated through water quality monitoring. Therefore, an accurate, quantifiable assessment of the cumulative effectiveness of current BMPs is difficult for a variety of reasons, including:

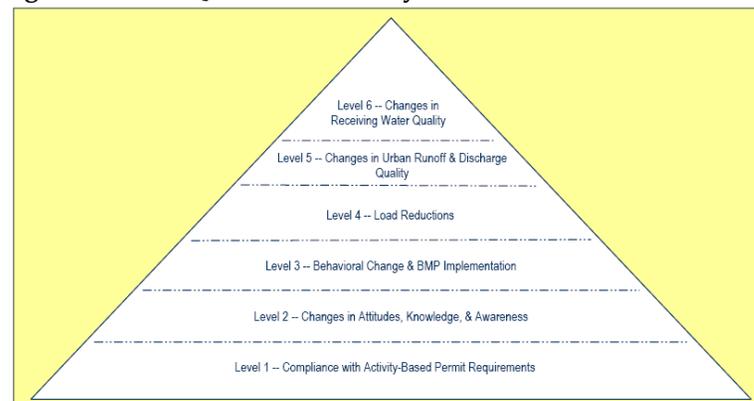
- A number of BMPs predate the Program which means that there is no “baseline” monitoring data representative of “pre-BMP” conditions;
- Since, to date, no watershed has been uniquely subject to a single BMP, the influence of an individual BMP upon the overall surface water quality cannot yet be readily determined;
- The temporal and spatial variability in water quality, particularly in wet weather, complicates any statistical correlation of the data with storm frequency, storm length and intensity, land use, or land management practices. This confounding factor in statistical analyses has been

exacerbated by storm seasons in recent years that have varied much in their intensity, duration and volume;

- Many of the BMPs are implemented to address the issues associated with a specific land use. However, since the land uses are extremely varied within the watersheds, it has not proven possible to characterize the effects of those specific BMPs; and
- Factors other than chemical water quality may be more directly responsible for impairment of beneficial uses, yet all these factors combine in their effects and are difficult to separate one from another.

A method for evaluating overall stormwater program effectiveness on both a programmatic and individual BMP level has been documented by the California Stormwater Quality Association (**Figure 5.1**). The approach presents a hierarchy of potential outcomes that can be evaluated ranging from programmatic permit compliance assessment to demonstrated changes in receiving water quality. Tiers 1-3 are assessment measures that support the shorter term confirmation of BMP implementation (Implementation or Process Measures, also termed Programmatic Indicators). Tiers 4-6 are assessment measures that reflect the longer term verification of environmental improvement (Validation or Results Measures, including indicators of environmental change).

Figure 5.1: CASQA Assessment Pyramid



In addition, a number of important initiatives are being supported by the Permittees aimed at the further development of assessment techniques and methodologies to support more informed and consistent decision making across Southern California. Notable amongst these initiatives is the Regional Bioassessment Monitoring Program of the Stormwater Monitoring Coalition.

5.3 Watershed Approach

Managing water quality on a watershed basis, rather than jurisdictional basis (see **Table 5.1** for comparison), is generally recognized as offering a more holistic and thereby more effective basis for ultimately achieving meaningful environmental outcomes. Consequently, the ROWD recommends a watershed-based approach as a fundamental structure for the future of the Program.

Watershed

..that area of land, a bounded hydrologic system, within which all living things are inextricably linked by their common water course and where, as humans settled, simple logic demanded that they become part of a community.

John Wesley Powell, Scientist-Geographer

The development of a Watershed Plan would generally include the following steps:

- Conduct a watershed assessment to identify the watershed issues and establish desired beneficial use and ecosystem service outcomes;
- Establish watershed-specific implementation strategies to address the highest priority issues and concerns; and
- Submit to the Regional Board Executive Officer for review and approval.

A Watershed Plan is consistent with federal regulations regarding the development of NPDES permit conditions, as well as the implementation of storm water management programs, at a watershed scale (40 CFR §§ 122.26(a)(3)(ii), 122.26(a)(3)(v), and 122.26(d)(2)(iv)). This approach is also consistent with USEPA's Watershed-Based NPDES Permitting Policy Statement¹ which explains that, "[t]he utility of this tool relies heavily on a detailed, integrated, and inclusive watershed planning process." USEPA identifies a number of important benefits of watershed permitting, including more environmentally effective results; the ability to emphasize measuring the effectiveness of targeted actions on improvements in water quality; reduced cost of improving the quality of the nation's waters; and more effective implementation of watershed plans, including TMDLs, among others.

The watershed approach requires development and implementation of a comprehensive, collaborative, and prioritized Watershed Plan. A Watershed Plan will allow for the more effective linking of existing stormwater program elements to create an implementation strategy tailored to the needs of the watershed(s). In Orange County, such an approach would also present an opportunity to bring greater cogency to ongoing sub-regional and watershed initiatives, address the current impetus for integrated water resource management, and provide a framework for identifying projects that align with the restorative goals of the Practical Vision.

5.4 Recommendations

The recommendations are:

1. **Continue to implement the Strategic Countywide/Jurisdictional Management approach.**

¹ Memorandum from G. Tracy Meehan, III, Assistant Administrator to Water Division Directors, Regions I-IX, titled "Watershed-Based National Pollutant Discharge Elimination System (NPDES) Permitting Policy Statement," USEPA, December 3, 2002.

2. **Develop a comprehensive Watershed Plan** to evaluate the watershed and to prioritize implementation efforts and associated resource allocation.
3. **Develop pilot program(s) for regional water quality** or groundwater recharge BMPs
4. **Develop model program(s) for water retention credit trading** to facilitate off-site BMP implementation where appropriate and to address existing developed areas.

Implementation Schedule - Plan Development

Proposed Plan Development Actions	Recommendations ¹	Implementation Schedule ²				
		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Strategic Management Approach						
Countywide/Jurisdictional Management approach	C					
Complete model program for a water quality/quantity trading	E		X			
Complete identification of regional runoff retention BMPs opportunity sites	E		X			
Complete model watershed management plan	N		X			

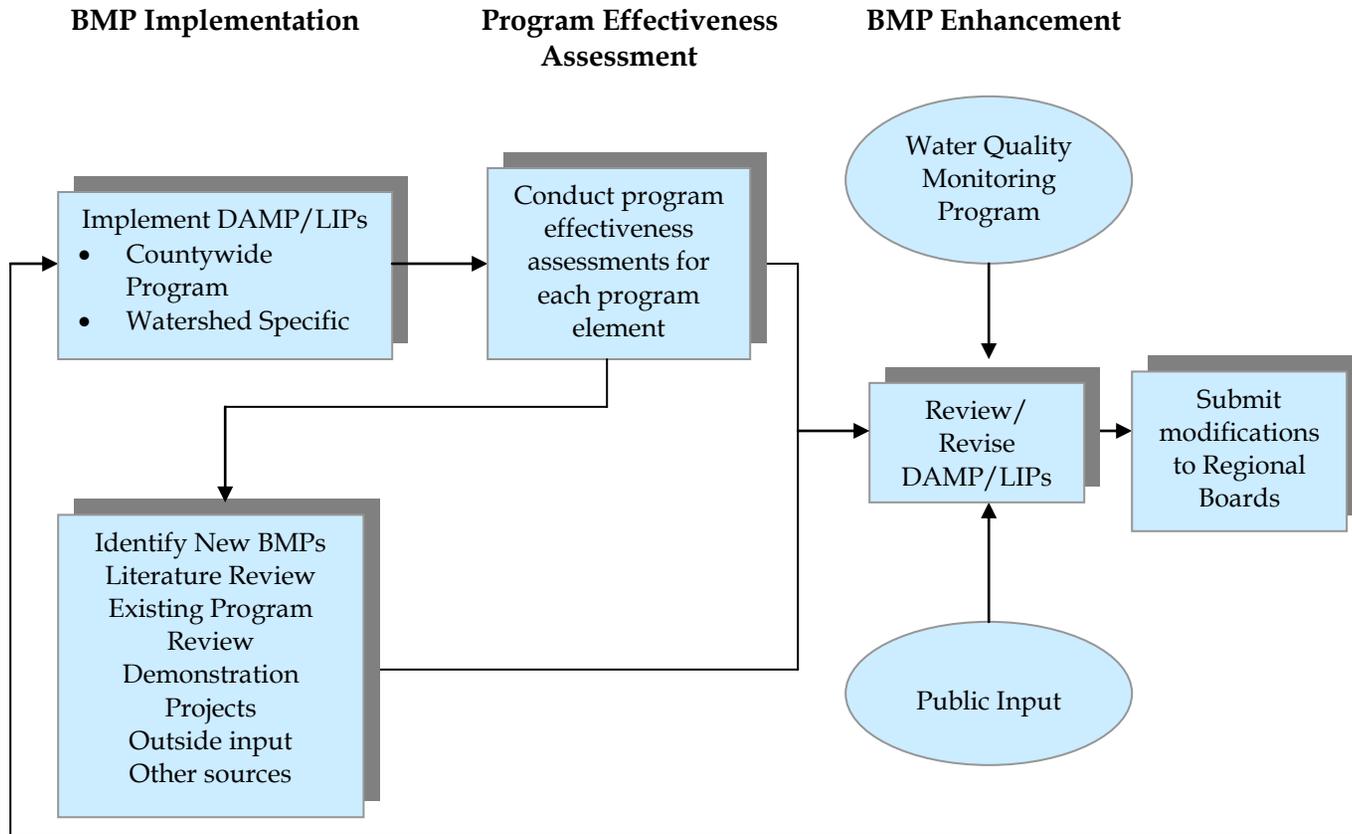
1. C = Continue; E = Enhance; N = New

2. X = Recommendations will be completed during this fiscal year. Gray shaded cells indicate ongoing implementation

Table 5.1 Comparison of Planning Processes		
	Local Implementation Plan	Watershed Plans
Area Covered by Plan	Defined by political (city/county) boundaries	Defined by hydrologic boundaries
Planning Process	<p>Focused on reducing discharges of pollutants in urban runoff and stormwater pollution on a uniform countywide basis. Directed by DAMP/LIP in conformance with NPDES permits requirements.</p>	<p>Focused on improving local receiving water quality where it is adversely impacted by urban runoff and stormwater pollution (or other stressors). Directed by NPDES permit requirements and 303(d) list/TMDLs. Should optimize all watershed attributes and functions (water supply, energy, habitat, economic development, housing, trans...)</p>
Framework	<p>Directed by Orange County Stormwater Program committee structure and Regional Board review. Public consultation principally through California Environmental Quality Act (CEQA) process/Regional Board review.</p>	<p>Directed by broad participation among municipal and public agency stakeholders. Characterized by public participation.</p>
Assessment	<p>Based on information from countywide municipal and regional cooperative investigations of stormwater and receiving water quality</p>	<p>Based on information from watershed-specific investigations and are undertaken on an annual basis, or timescale appropriate</p>

Table 5.1 Comparison of Planning Processes		
	and are undertaken on an annual and 5 year basis.	to the process, impact, or management strategy.
Planning	Broad based approach with emphasis on well established pollution prevention and source control measures.	Includes both pollutant specific approach, with emphasis on treatment controls and consideration of innovative regional solutions, and projects addressing restorative goals of the Clean Water Act.
Implementation	Individually by the Permittees.	Individually and collaboratively by Watershed Permittees and other agencies.
Monitoring	Considers pollutant load reduction.	Considers beneficial use attainment.

Figure 5.2: Strategic management flow diagram



6.0 Program Management and Financing

The Story: Program Management/Financing

- The Program continued to operate with the County of Orange as the Principal Permittee during the permit term.
- The Program operated under a four-tier committee structure with participation at all levels by Permittee staff and management.
- An Implementation Agreement establishes responsibilities and provides a funding mechanism for cooperative activities. Funding has been sufficient to complete common program activities.
- The Program benefitted strongly from cooperation and representation among several regional and statewide groups including the California Stormwater Quality Association and the Southern California Coastal Water Research Project.
- Coordination with Orange County Transportation Authority (OCTA) on development of a Structural BMP Prioritization and Analysis Tool (SBPAT) to support disbursement of Measure M2 funding for water quality projects. SBPAT is a GIS-based decision support tool that is being used to identify and prioritize potential structural BMP retrofit projects throughout Orange County. To date Tier 1 funding of \$8.6 million has been awarded to 85 projects and Tier 2 funding of \$12.7 million has been awarded to 8 projects.

6.1 Overview

The Program is a cooperative regulatory compliance initiative comprised of 36 separate municipal entities. It addresses Clean Water Act mandates and is focused on the management of urban and stormwater runoff for the protection and enhancement of Orange County's creeks, streams, rivers and coastal waters. The County of Orange is the Principal Permittee and the cities and the Orange County Flood Control District are Co-Permittees on the permits. Principal Permittee and Permittee responsibilities are specified in the permit. Permittee collaboration and cooperation is enabled by an Implementation Agreement. The designation of a Principal Permittee has provided for cost effective management of the overall stormwater program by combining resources to complete those activities which benefit all of the Permittees.

To enable the development and implementation of the Program a program management framework has been established. This management framework comprises a four tier committee structure (Permittees, City Managers' Water Quality Committee, Technical Advisory Committee (TAC)/Planning Advisory Committee (PAC) and Program Committees/Task Forces/Ad Hoc Groups).

6.2 Program Implementation and Assessment

Implementation Agreement

A formal agreement enabling Permittee cooperation is the NPDES Stormwater Permit Implementation Agreement (the "Implementation Agreement") which establishes the responsibilities of the Permittees with respect to compliance with the Permits. The Implementation Agreement also

establishes a funding mechanism for the shared costs of the Program, based on each municipality's area and resident population, and formally recognizes the role of the TAC.

The Implementation Agreement, originally entered into in December of 1990, was amended in October of 1993 to include two additional Permittees (the cities of Laguna Hills and Lake Forest) and formally established the TAC. The Implementation Agreement was amended again, effective June 25, 2002, to include three additional Permittees (the cities of Aliso Viejo, Laguna Woods and Rancho Santa Margarita) and to incorporate modifications to the management structure and cost-sharing formulas.

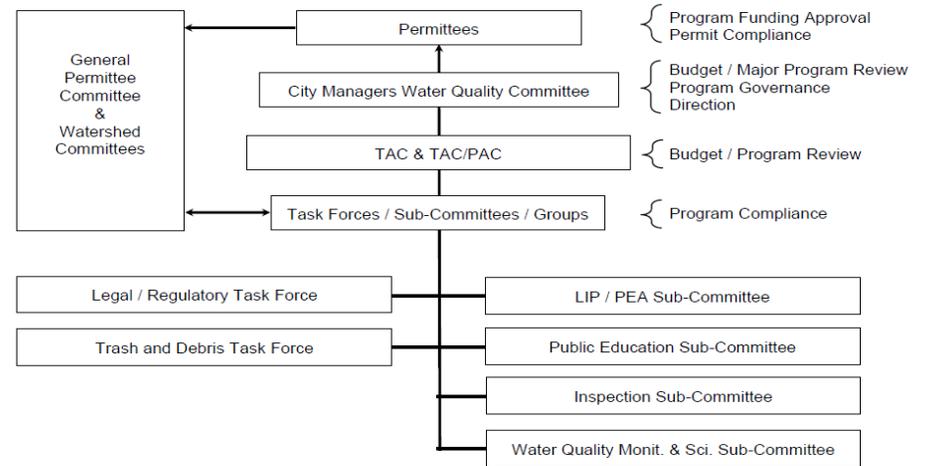
The structure of the Agreement has accommodated the expansion of the Program and the significant escalation of shared costs with the adoption and implementation of the Third- and Fourth-Term MS4 Permits. It has also served as a model for cost sharing collaboration related to the Newport Bay TMDL compliance effort (including the related Nitrogen Selenium Management Program), Aliso Creek TMDL, San Juan Creek TMDL, Coyote Creek TMDL and Regional Harbor Monitoring Program.

Management Framework

The USEPA defines a management framework as “a lasting process for partners working together. It’s a support structure making it easier to coordinate efforts – a structure made of agreed upon standard operating procedures, timelines and forums for communicating with each other” (USEPA, 2002). The four tier management framework was established in early 2002 to support the development and implementation of the Program.

The Permittee committees, subcommittees, task forces and ad-hoc working groups are shown in **Figure 6.1**.

Figure 6.1: Orange County Municipal NPDES Management Framework



City Manager’s Water Quality Committee

The City Manager’s Water Quality Committee meets annually and as otherwise needed and provides budget and overall program review and governance direction. The Committee is comprised of several City Managers and is supported by County staff.

City Engineer’s Technical Advisory Committee (TAC)/ Planning Advisory Committee (PAC)

The TAC acts in an advisory role to the Permittees and implements policy previously established by the Permittees. The TAC is comprised of one City Engineer, or selected

representative from each of the County Supervisorial Districts and a representative from the County of Orange. The TAC is expanded to the TAC/PAC when matters relating to land development are considered. It meets 4-6 times annually. Meetings of the TAC and the TAC/PAC are subject to the Brown Act.

General Permittee Committee

The General Permittee Committee is the principal forum for disseminating information for program coordinators. The Committee meets monthly (except November). The Committee periodically evaluates the need for creating standing sub-committees and ad hoc committees as needed in order to accomplish the objectives of the Orange County NPDES Stormwater Program.

Sub-Committees/Task Forces

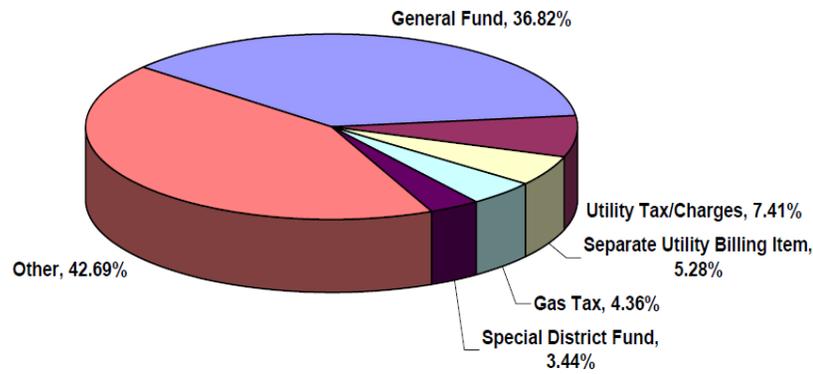
The task forces, sub-committees and ad-hoc working groups provide for the continued development of the Program in specialized areas. The management framework is reviewed annually to ensure it meets program needs. All of the task forces, sub-committees and ad-hoc working groups have brought forward initiatives to meet the requirements of the Fourth Term Permits and to address Program needs under a consensus building process. The frequency (i.e. number of meetings) of meetings is undergoing re-evaluation with respect to the upcoming Fifth Term MS4 Permit as programs attain maturity and require less oversight.

Program Funding

Over the last 10 years the countywide cost of compliance with the permits has almost doubled from approximately \$55m in FY2000-01 to \$95m in FY2011-12. These costs are anticipated to continue to increase as the Program shifts toward a greater emphasis on watershed management approaches to address burgeoning TMDL requirements.

In FY2011-12, the funding sources used by the Permittees to meet these costs included: General Fund, Utility Tax, Separate Utility, Gas Tax, and Special District Fund, Others (Sanitation Fee, Fleet Maintenance, Community Services District, Water Fund, Sewer & Storm Drain Fee, Grants, and Used Oil Recycling Grants) (See Figure 6.2). While increasingly more stringent regulatory obligations prompt consideration being given to creation of dedicated stormwater funding, there are significant obstacles to overcome.

Figure 6.2: FY2011-12 Funding Sources



In November 1996, California voters approved Proposition 218 which requires that any new or increased property-related fee be subject to voter approval. Proposition 218 has created a significant hurdle for municipalities seeking to levy charges for storm water management programs that, with successive permits are becoming increasingly complex. The Proposition did create an exemption to the voter approval requirement for water, sewer and trash collection fees, and some municipalities adopted the position that stormwater fees were akin to water or sewer fees, and thus exempt from the voter approval requirement. However, the 2002 court decision in *Howard Jarvis Taxpayers Association v. City of Salinas* established definitively that storm water or storm drainage fees are property-related fees subject to Proposition 218, and are not exempt from voter approval requirements. Based on this ruling, any new or increased stormwater fee must be approved by 66% of voters (Office of the Independent Budget Analyst Report, City of San Diego, 2009).

The uncertainty regarding future compliance costs is a concern to the Permittees. Consequently, a costs study, including a

review of funding options, will be completed in the next permit term.

6.3 Program Representation and Coordination with Other Agencies

Orange County Transportation Authority (OCTA)

The Principal Permittee co-chairs the OCTA’s Environmental Cleanup Allocation Committee which oversees the Environmental Cleanup Program (ECP). The ECP is intended to support improvements in overall water quality by providing funding for projects addressing transportation-generated pollution. The Committee has been meeting on a monthly basis since November 2007.

The Tier 1 Grant Program is designed to mitigate the more visible form of pollutants, such as litter and debris that collects on roadways and in storm drains prior to being deposited in waterways and the ocean. Tier 1 consists of funding for equipment purchases and upgrades to existing catch basins and related best management practices (BMPs) such as screens, filters, inserts and other streetscale low-flow diversion projects. A total of up to \$19.5 million is available for the Tier 1 program over a seven-year window from 2011-12 through 2017-18.

The first Tier 1 call for projects was issued in February 2011. In August 2011, the Board approved the funding of 34 projects to 23 cities and the County of Orange, totaling more than \$2.8 million. In August 2012, the Board approved a second round of funding with a total of \$2.8 million awarded to 33 projects from 24 cities and the County.

The Tier 2 Grant Program consists of funding regional, potentially multi-jurisdictional, capital-intensive projects. Examples include constructed wetlands, detention/infiltration basins and bioswales, which mitigate pollutants including litter and debris, but also heavy metals, organic chemicals, sediment and nutrients. The Tier 2 program is funded with bond financing revenues with up to \$38 million from the EAP allocated through fiscal year 2015-16. Beyond 2015-16, funding will be based on a pay-as-you-go basis.

To date Tier 1 funding of \$8.6 million has been awarded to 85 projects and Tier 2 funding of \$12.7 million has been awarded to 8 projects.

California Stormwater Quality Association

Since 1989, CASQA has assisted the State of California, USEPA, municipalities, special districts and businesses in developing and implementing effective water quality management programs in California. CASQA is a leader in helping California comply with the municipal and industrial NPDES stormwater mandates of the federal Clean Water Act. The Principal Permittee is active on the Board of Directors, Executive, Program Committee, Policy and Permitting Subcommittee and Public Information – Public Participation Subcommittee.

Stormwater Monitoring Coalition

The SMC was formed in 2001 and revised in 2008 by cooperative agreement of the Phase I municipal stormwater NPDES lead Permittees, Caltrans, the NPDES regulatory agencies in southern California, SCCWRP and USEPA Office of Research. The SMC seeks to improve the effectiveness of

existing programs, particularly monitoring, by promoting standardization and coordination, and reducing duplication of effort across individual programs.

Southern California Coastal Water Research Project

The SCCWRP is a joint powers agency research institute focusing on the coastal ecosystems of Southern California from watersheds to the ocean. It was formed in 1969 to enhance the scientific understanding of linkages among human activities, natural events, and the health of the Southern California coastal environment; to communicate this understanding to decision makers and other stakeholders; and to suggest strategies for protecting the coastal environment. Current SCCWRP studies of particular significance to the Program include Bight '13, investigations into toxicity, trash and debris and microbiology, and the effort to better coordinate environmental monitoring in the Newport Bay watershed.

The Principal Permittee participated as a Commissioner on SCCWRP's governing board and as the Program's representative on the Commission Technical Advisory Group (CTAG).

6.4 Recommendations

The recommendations are:

- 1. Retain the NPDES Stormwater Permit Implementation Agreement.**
- 2. Continue the program management framework, albeit with a reduction in meeting frequencies.**

3. **Complete study of future stormwater compliance costs and funding alternatives.**
4. **Continue collaborative regional studies.**

Implementation Schedule - Program Management and Financing

Proposed Program Management and Financing Actions	Recommendations ¹	Implementation Schedule ²				
		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Implementation Agreement						
Retain agreement	C					
Program Management Framework						
Retain management framework	C					
Program Costs and Funding						
Complete cost and funding options study	N			X		

1. C = Continue; E = Enhance; N = New

2. X = Recommendation will be completed during this fiscal year. Gray shaded cells indicate ongoing implementation

7.0 Recommendations for Fifth Term Permit

7.1 Overview

Established in 1990, the Program is a cooperative regulatory partnership of the Permittees who operate an interconnected municipal storm drain system which discharges stormwater and urban runoff and at the same time provides flood protection to the United States' sixth most populous county. In Orange County, the impact of urbanization on hydrologic systems and the adverse consequences of both changed hydrology and pollutant source creation are evident today in Orange County's principal drainage systems. However, at the same time, there are very significant water quality successes, such as coastal water quality along the entire length of the Orange County coastline and sources of bacteria contamination having been reduced through targeted actions that can unequivocally be attributed to the impact of the Program and the Permittees.

7.2 Future Program Development and Implementation

During the Fourth Term Permit period there has continued to be a significant allocation of resources the integration of LID and hydromodification control practices into local land development regulation. Going forward, this element of the Program will continue to be a major focus of activity as the Permittees look to create off-site and in-lieu fee options for alternative compliance pathways for land development and re-development. This focus also aligns with broader State Board integrated water resource management goals centered on better use of stormwater for local water supply augmentation, increasing interest in "green infrastructure" solutions and realization of the restorative goals of the Clean

Water Act.

Development of a watershed-based planning approach is viewed as the most important next step to take in the development of the Program. Such an approach offers the opportunity for more comprehensively identifying the meaningful environmental and recreational amenities that can be realized in each watershed and the management strategies that will most effectively ensure their realization. These plans will also provide an opportunity, through linkage and integration, for cogency to be brought to a number of related restoration projects and sub-regional water management efforts such as the Integrated Regional Water Management Plans.

With respect to specific water quality constituents of concern, there will be additional effort directed toward pollutant control and research into the environmental significance of pesticide related toxicity, bacteria, and nutrients.

Pesticides

Synthetic pyrethroids have been identified as a significant urban runoff water quality issue on a statewide basis. Directly as a consequence of the efforts of CASQA, the Department of Pesticide Regulation enacted regulations that became effective in July, 2012, specifically intended to limit where structural pest control businesses can apply pesticides in an effort to protect water quality in urban areas. The rules restrict the use of 17 pyrethroid insecticides applied by businesses and significantly limit the amount of pesticides that can be applied outdoors, especially to concrete and other hard surfaces more susceptible to runoff. The regulations also prohibit outdoor pest control applicators and maintenance gardeners from

spraying when it rains or to standing water due to rainfall or watering. An evaluation of the regulations by UC Davis suggested that they could affect an 80% reduction in pyrethroid concentrations in runoff. Nonetheless, the Program will continue to seek to make additional progress with IPM policy implementation and general public education and outreach.

Bacteria

There is significant progress to be reported in Orange County regarding trends in bacterial contamination. Indeed, long-term monitoring of bacterial indicators of contamination shows that exceedances of regulatory standards are low and have been dropping over time and that the annual percentage of Heal the Bay report card grades of A has been between 93% and 97% since 2005. This very significant progress with respect to shoreline water quality underscores the impetus for action that comes from broad societal recognition of a problem, an unequivocally favorable cost-benefit analysis and the ability to implement pragmatic cost effective solutions.

In inland surface waters the issue of systemic elevated concentrations of bacteria persists. However, intensive monitoring of the Aliso Creek watershed appears to show that reductions in dry weather flow have produced significant reductions in bacterial concentrations. This finding points to the value of efforts to curtail outdoor water usage. Consequently, collaboration with water districts on water conservation themed education and outreach will continue to be the focus of efforts to engage the general public and sustain the ongoing reductions in bacteria concentrations being observed in inland surface waters.

Nutrients

Eutrophication of estuaries and coastal waters has been linked to anthropogenic changes in watersheds and is of concern because of the potential for harmful algal blooms, hypoxia, and impacts on aquatic food webs. Across Orange County's watersheds nutrients continue to present a regulatory concern although the environmental significance of nutrients and the specific contribution of urban sources is less understood in these other areas. Nutrient thresholds are frequently exceeded in the County's streams and channels. However, there are many less frequent occurrences of impacts, such as macroalgal overgrowth, due to these exceedances. Moreover nutrient problems are not limited to the urban portion of the County; regional monitoring data show nutrient enrichment and impacts such as increased macroalgal cover and/or lower dissolved oxygen in streams and estuaries in undeveloped regions. Pending further research, the Program will continue to effect reductions in municipal fertilizer use through implementation of the Program's IPM policy and encourage water quality-sensitive landscape maintenance practices in the general population through education and outreach.

7.3 Proposed Management Program

Based upon the prior discussion and in response to the findings of the environmental quality monitoring program, the Program proposes the following management program for the period of the Fifth Term MS4 Permit:

State of the Environment: Bacteria

- Continue targeted data analyses of monitoring data to prioritize problem areas. Conduct additional source

tracking studies as needed, using new monitoring methods based on genetic markers to identify potential sources of these problems such as infiltration into the MS4 from sewage lines. This effort should build on results of the Bight '13 Microbiology Study (see **Section 2.3.6**);

- Continue identifying opportunities to reduce and prevent flows in dry weather, where monitoring and source tracking data suggest the presence of human fecal contamination (see **Section 2.3.6**);
- Conduct statistical power analysis and optimization studies to improve existing monitoring program designs to improve efficiency and take advantage of available information about patterns and trends of contamination (see **Section 2.3.6**);
- Shift resources from routine monitoring to targeted source tracking and adaptive response, using new tools such as genetic markers of human fecal contamination as these become available (see **Section 2.3.6**);
- Continue supporting regional and collaborative research into better monitoring and source tracking tools (see **Section 2.3.6**);
- Improve understanding of health risk related to high wet weather flows, for example, through the Bight '13 Microbiology Study; follow results of the pilot wet weather epidemiology study planned for San Diego and consider supporting the larger, follow-on study planned for 2014-15 (see **Section 2.3.6**); and

- Conduct pilot mass balance studies to determine their utility for improving the prioritization of management actions (see **Section 2.3.6**).

State of the Environment: Dissolved Solids

- Conduct a mass balance study, even if at a crude level, to determine the extent to which the MS4 contributes to dissolved solid levels in the creek (see **Section 2.4.2**);
- Prepare a summary report on historic and contemporary conditions of dissolved solids across south Orange County (see **Section 2.4.2**);
- Invest effort into understanding whether dissolved solids are important stressor on macroinvertebrate communities in the creeks to evaluate the environmental significance of elevated dissolved solid concentrations (see **Section 2.4.2**); and
- Continue evaluating changes in dissolved solids at key locations such as Oso Creek in concert with water conservation efforts to track changes in dissolved solids over time (see **Section 2.4.2**).

State of the Environment: Nutrients

- Conduct an assessment of sources and practices that input to the MS4 to assess the significance of each to downstream issues (see **Section 2.5.5**);
- Continue identifying opportunities to reduce and prevent flows in dry weather (see **Section 2.5.5**);

- Pilot a regional mass balance nutrient model, even if elementary, to help prioritize monitoring and management attention; the Newport Bay watershed and SCCWRP coastal ocean nutrient mass balance models provide useful examples (see Section 2.5.5); and
- Use available time series of data to streamline monitoring to improve its statistical and economic efficiency. Sampling effort could be reduced by identifying stations that essentially mimic each other and/or by reducing the spatial and/or temporal intensity of sampling. Monitoring could shift to a sentinel program with a lower frequency of monitoring intended to ensure conditions do not worsen (see Section 2.5.5).

State of the Environment: Toxicity

- Reassess management concerns and priorities about metals impacts in freshwater channels, bays and estuaries, and the nearshore coastal zone (see Section 2.6.5);
- To the extent that metals, particularly copper, remain a concern because of potential impacts in bays and harbors, recognize that inputs from antifouling paint, which are not an urban runoff issue, are likely a more important source than watershed input (see Section 2.6.5);
- Improve information on the use of pesticides in the County, particularly by the largest applicators (see Section 2.6.5);

- Work with other interested parties to fill the data gap related to retail sales of pesticides (see Section 2.6.5);
- Examine the C DPR database to develop a more thorough picture of trends in reported pesticide use (see Section 2.6.5);
- Use this information to expand and focus cooperative outreach efforts about proper pesticide application and the use of alternatives such as botanical oils that are effective, but nonlethal, insect deterrents (see Section 2.6.5);
- Use available data to streamline monitoring and improve its statistical and economic efficiency. Consider reducing the current focus on metals monitoring and targeting pesticide monitoring on less expensive representative constituents or surrogates. Consider reducing the frequency of sampling for sediment associated constituents to the Bight Program’s sampling frequency (see Section 2.6.5);
- Given the overall low level of observed toxicity, consider increasing the use of adaptive responses (e.g., TIEs and other types of causal assessment) in place of intensive routine monitoring (see Section 2.6.5);
- Continue taking advantage of opportunities to reduce dry weather runoff to channels (see Section 2.6.5); and
- Continue the productive relationship the University of California’s South Coast Research and Extension

Center and take advantage of opportunities for its Director to communicate the stormwater management perspective to C DPR (see Section 2.6.5).

Controlling Pollutant Sources: Watershed Programs – Aliso Creek

- Reduce current Permittee quarterly progress reporting to an annual basis. Observed watershed bacteria reductions have shifted efforts away from new BMP projects to ongoing BMP maintenance decreasing the benefit of quarterly reporting. (see Section 4.4); and
- Continue implementation of monitoring and reporting described in the Revised Aliso Creek Program through December 2015 with 2015 annual reporting to include a reevaluation of the program relative to watershed bacteria TMDLs, the watershed Comprehensive Load Reduction Plan (CLRP), and related NPDES programs. (see Section 4.4).

Municipal Infrastructure and Integrated Pest Management

Continue current model programs and:

- Enhance municipal training to address common issues encountered through municipal related complaints and to utilize innovative education formats to encourage effective discussion-based learning. The four most common issues that occur are: trash/debris, pathogen/bacteria, hydrocarbons and exempt discharges. Training will focus on in-classroom engagement of concepts learned prior to the training session and focus on reducing issues and pollutants of concern through specific actions (e.g. runoff reduction

to reduce bacteria loading) (see Section 3.2.3);

- Develop a municipal green infrastructure program that could include evaluation of opportunities for pilot green street projects of different land use/density configurations and development of a green street guidance manual (see Section 3.2.3);
- Examine public land retrofit opportunities for regional BMPs and propose a program to evaluate previously identified regional retrofit opportunities in jurisdictionally owned areas for use in TMDL compliance and LID and/or hydromodification management alternative compliance. This effort will involve the development of watershed models and evaluation of the previously identified potential BMP retrofit sites. Previous reviews (e.g. 2005 RBF retrofit study) will be integrated with current mapping (see Section 3.2.3);
- Develop and initiate the implementation of individualized IPM Guidelines for each Permittee with the goal of demonstrating significant and consistent reductions in fertilizer and pesticide applications based on the mission and goals outlined in jurisdictional IPM Policies (see Section 3.2.3);
- Conduct pilot soil and/or leaf tissue analysis to guide fertilizer use to ensure nitrogen is not applied at annual rates above those recommended by UCCE research. The Permittees would identify the most fertilizer-intensive area by type (e.g. sports fields) and select one site for analysis. The analysis would assist Permittees in fine-tuning nitrogen application based on

the needs of plants at the highest use areas (see Section 3.2.3)

- Improve methods for documenting usage of fertilizer and active ingredient of pesticide on an annual basis to allow for more reliable data on the acreage receiving fertilizer applications. In collaboration with the UCCE, a standardized reporting method would be developed, improving reporting accuracy on both the amount of nitrogen and pesticides applied by Permittees on an annual basis. The objective would be to minimize fertilizer applications where annual rates exceed those recommended by UC research (174 -261 lbs. N/acre) while more accurately capturing the acreage to which fertilizer is applied (see Section 3.2.3); and
- Expand training to include peer-reviewed online training courses offered by University of California IPM (UC IPM) and UCCE to ensure the IPM and water quality message reaches as many field staff as possible. Possible options include the UC IPM Urban Pesticide Runoff and Mitigation online training series developed by UC academics across the state to provide a more suitable method to reach field staff unable to attend in-person training. The online training consists of a series of courses directly addressing the impacts of pesticides on water quality as well as practices to mitigate these impacts (<http://www.ipm.ucdavis.edu/training/upr-mitigation.html>) (see Section 3.2.3).

Public Outreach

Continue current model program and:

- Emphasize outreach to school-age children to continue building upon existing partnerships and increasing knowledge of the Orange County community as a whole through increasing knowledge of youth (see Section 3.3.7);
- Incorporate current strategic approach of using public awareness survey results to prioritize outreach efforts based on behaviors of concern in tandem with water quality results to document small-scale behavior change over time (see Section 3.3.7);
- Coordinate with water supply agencies to incorporate water use efficiency and runoff reduction messaging to maximize program reach and ensure requested behavior changes align with water use efficiency techniques supported by other agencies. Coordinate to encourage behaviors and develop programs supportive of building a sustainable local water supply as identified in the Water Quality Implementation Plan; including building social norms around water use efficiency and elimination of irrigation runoff (see Section 3.3.7);
- Develop focused outreach campaigns based on water quality and survey results utilizing CBSM techniques to document changes in targeted behaviors. The Permittees will develop focused campaigns supportive of a singular message with the goal of reducing competing messaging that may lead to inaction. CBSM tactics will be utilized to target behaviors associated with water quality priorities identified in the Water Quality Implementation Plan (see Section 3.3.7);

- Encourage greater public participation in stormwater pollution prevention and elimination of non-stormwater discharges through the use of CBSM and increased availability to online resources. Action campaigns would encourage residents to take an identified action and to share efforts with others (see **Section 3.3.7**);
- Social media calendars will synchronize outreach efforts and encourage direct participation in and sharing of program messaging. Social media forms of earned media will complement action campaign elements by encouraging direct residential participation in programs. Activity on social media significantly increases with boosted posts and paid advertising; these unpaid and paid tools will support CBSM programs (see **Section 3.3.7**); and
- Review website for usability and revise structure as needed to meet goals of increasing public use of web content. The goal of the review will be to increase access to mapping tools, water quality data and BMPs to prevent water pollution (see **Section 3.3.7**).

New Development / Significant Redevelopment

- Implement an approach to hydromodification management that is informed by a watershed analysis and channel-specific protection and restoration goals. The Permittees understand that, consistent with current published research, a “one-size-fits-all” for hydromodification management is not appropriate for highly modified urban stream systems. Pending a watershed analysis, land development projects

discharging runoff to engineered channels, should not be required to implement hydromodification management controls (see **Section 3.4.3**);

- Incorporate an IRWM element into the land planning/land development process. The Permittees understand that an integrated water resources management approach is needed to optimize attainment of water quality protection, water conservation, flood control, and stream protection goals. The Permittees therefore intend to incorporate an integrated water resources management element into their land planning and land development processes so that as development projects begin entitlement this approach and opportunities to achieve this approach are evaluated. This recommendation will require a modified LID Hierarchy that establishes the equivalency of “On-site BMP” and “Off-Site /Regional BMP” solutions (see **Section 3.4.3**);
- Create an exemption from Project WQMP requirements for stream and watershed restoration projects (see **Section 3.4.3**);
- Create an exemption for emergency public safety projects where delay would compromise public safety, public health and/or the environment (see **Section 3.4.3**);
- Develop an internet based regional geodatabase. To effectively implement an IRWM and watershed management approach, access to information that describes all of the key hydrologic process and landscape characteristics will be critical. The

Permittees are developing and starting to use an internet-based regional geodatabase to give developers and municipal staff access to the geotechnical and hydrologic information necessary for evaluating the application of the LID hierarchy to sites (see **Section 3.4.3**);

- Develop an internet based Project WQMP Submittal Tool and Database potentially in collaboration with Riverside and San Bernardino. The Permittees spend a significant amount of time plan checking and tracking Project WQMPs and so the permittees propose development of an internet based Project WQMP review tool to streamline the submittal and review of WQMPs, allow for enhanced tracking of WQMPs and WQMP inspections, and help with effectiveness assessments and annual reporting (see **Section 3.4.3**);
- Pilot the use of technology to better track Project WQMP inspections and follow up actions needed. To fully utilize the WQMP Submittal Tool and Database WQMP inspections could be performed with tablets or other devices where GIS information and other information can immediately be uploaded to the database. The Permittees propose piloting the use of tablets or other devices linked to the Database for Project WQMP inspections by a select number of cities (see **Section 3.4.3**); and
- Enhance the data collected for WQMPs to have a better understanding of water quality benefits on an annual basis. The Permittees desire to perform a better assessment of the New Development/Significant Redevelopment Program. In order to better

understand the effectiveness of the program, the Permittees propose to collect new critical data elements, and enhance data quality by integrating information into the WQMP Submittal Tool and Database. New data would include volumes of water treated, land area treated, and other relevant information needed to evaluate TMDL compliance, to identify developed/redeveloped areas that meet LID and/or hydromodification requirements, and to track BMP maintenance as a measure of effectiveness (see **Section 3.4.3**).

Construction

Continue current model program and

- Reduce the frequency of inspection for “high” priority sites from bi-weekly to twice during the wet season and reduce the frequency of inspection for “medium” priority sites from monthly to once during the wet season (see **Section 3.5.3**);
- Pilot a GIS and internet-based database to track construction sites. In order to provide easier tracking of construction sites on a countywide basis, the Permittees will develop a GIS and internet-based database where information regarding each construction site can be entered. The Permittees would examine the benefits of such a database by piloting implementation with a select number of cities (see **Section 3.5.3**);
- Conduct pilot field-testing of personal electronic devices to document inspections onsite. Use of tablets

or other electronic devices during inspections will allow inspectors to immediately upload construction site information to the GIS based database. The Permittees would pilot the use of these technologies with a select number of cities (see **Section 3.5.3**); and

- Conduct QSD/QSP Training. The QSD/QSP Training developed by the State Board and CASQA provides a detailed understanding of the Construction General Permit. The Permittees propose providing this training to municipal staff every other year to ensure that inspectors and other municipal staff understand the CGP requirements that are to be implemented for construction projects in their jurisdiction. It is anticipated that with potential changes to the CGP being adopted in 2014 that municipal staff should be aware of these changes and any new or modified requirements for CGP compliance (see **Section 3.5.3**).

Existing Development

Continue current model program and

- Consider incorporating the updated CASQA BMP fact sheets into the Existing Development Model Program (see **Section 3.6.6**).

Illegal Discharges/Illicit Connections

- The major elements of the program (e.g. the facilitation of public reporting of complaints, and the designation and training of Authorized Inspectors) continue to be vital and successful pieces of the Program. However, the NALs Program has proven to be less effective than

the Dry Weather Reconnaissance Program. The recommendation is (see **Section 3.7.3**):

- Reinstate an approach, such as the Dry Weather Reconnaissance Program, that allows investigative resources to be directed toward abating priority aberrant discharges;
- Continue implementation of CASC; and
- Consider development of a standardized reporting database potentially accessible by all Permittees.

Plan Development

- Continue to implement the Strategic Countywide/Jurisdictional Management approach (see **Section 5.4**);
- Develop a comprehensive Watershed Plan to evaluate the watershed and to prioritize implementation efforts and associated resource allocation (see **Section 5.4**);
- Develop pilot program(s) for regional water quality or groundwater recharge BMPs (see **Section 5.4**); and
- Develop model program(s) for water retention credit trading to facilitate off-site BMP implementation where appropriate and to address existing developed areas (see **Section 5.4**).

Program Management and Financing

- Retain the NPDES Stormwater Permit Implementation Agreement (see **Section 6.4**);

- Continue the program management framework, albeit with a reduction in meeting frequencies (**see Section 6.4**);
- Complete study of future stormwater compliance costs and funding alternatives (**see Section 6.4**); and
- Continue collaborative regional studies (**see Section 6.4**).

Attachment 1.1:
Permittee
Contact List

**NPDES Permittee Contact List
San Diego Region**

	Aliso Viejo	Dana Point	Laguna Beach	Laguna Hills	Laguna Niguel	Laguna Woods	Lake Forest
Name	Moy Yahya	Lisa Zawaski	Tracy Ingebrigtsen	Ken Rosenfield	Nancy Palmer	Chris Macon	Devin Slaven
Title	Environmental Programs Manager	Senior Water Quality Engineer	Senior Water Quality Analyst	Director of Public Works	Senior Watershed Manager	Special Projects Manager	Water Quality Specialist
Address	12 Journey, Suite 100	33282 Golden Lantern	505 Forest Ave.	24035 El Toro Rd.	30111 Crown Valley Parkway	24264 El Toro Road	25550 Commercentre Dr. Ste.100
City,CA Zip	Aliso Viejo, CA 92656	Dana Point, CA 92629	Laguna Beach, CA 92651	Laguna Hills, CA 92653	Laguna Niguel, CA 92677	Laguna Woods, CA 92637	Lake Forest, CA 92630
Alternate Name	Shaun Pelletier	Brad Fowler	Mike Phillips	Humza Javed	JC Herrera	Moy Yahya	Angel Fierres
Title	Director of Public Works/City Engineer	Director of Public Works	Environmental Specialist	Associate Civil Engineer	Civil Engineer Tech/WQ Analyst	Code Enforcement & Water Quality Mgr	Assistant City Engineer
Address	12 Journey, Suite 100	33282 Golden Lantern	505 Forest Ave.	24035 El Toro Rd.	30111 Crown Valley Parkway	24264 El Toro Road	25550 Commercentre Dr. Ste 100
City,CA Zip	Aliso Viejo, CA 92656	Dana Point, CA 92629	Laguna Beach, CA 92651	Laguna Hills, CA 92653	Laguna Niguel, CA 92677	Laguna Woods, CA 92637	Lake Forest, CA 92630

	Mission Viejo	Rancho Santa Margarita	San Clemente	San Juan Capistrano	Countywide Program	County of Orange	OC Flood Control District	Regional Water Quality Control Board
Name	Joe Ames	Rae Beimer	Tom Bonigut	Ziad Mazboudi	Richard Boon	Chris Crompton	Greg Yi	James (Jimmy) Smith
Title	Assistant City Engineer	Stormwater Program Manager	Assistant City Engineer	Senior Civil Engineer/NPDES Coord.	Stormwater Program Manager	Manager, Environmental Resources	Project Manager	Assistant Executive Officer
Address	200 Civic Center Drive	22112 El Paseo	910 Calle Negocio, Suite 100	32400 Paseo Adelanto	2301 N. Glassell Street	2301 N. Glassell Street	300 N. Flower Street, Suite 716	9174 Sky Park Court, Ste. 100
City,CA Zip	Mission Viejo, California 92691	Rancho Santa Margarita, CA 92688	San Clemente, CA 92673	San Juan Capistrano, CA 92675	Orange, CA 92865	Orange, CA 92865	Santa Ana, CA 92703	San Diego, CA 92123-4340
Alternate Name	Richard Schlesinger	E. (Max) Maximous	Mary Vondrak	Keith Van Der Maaten	Chris Crompton	Tony Olmos	Vincent Gin	Tony Felix
Title	City Engineer	City Engineer	Management Analyst II	Utilities Director	Manager, Environmental Resources	Assistant Director of OC Engineering	Admin Manager II	Water Resource Control Engineer
Address	200 Civic Center Drive	22112 El Paseo	910 Calle Negocio, Suite 100	32400 Paseo Adelanto	2301 N. Glassell Street	300 N. Flower	300 N. Flower Street, Suite 315	9174 Sky Park Court, Ste. 100
City,CA Zip	Mission Viejo, CA 92691	Rancho Santa Margarita, CA 92688	San Clemente, CA 92673	San Juan Capistrano, CA 92675	Orange, CA 92865	Santa Ana, CA 92702-4048	Santa Ana, CA 92703	San Diego, CA 92123-4340

Attachment 3.4.1:
Recommendations
for Fifth term
Permit -
Hydromodification

Recommendations for Fifth term Permit: Hydromodification

The Fifth Term Permit should include an initial or time limited exemption for conveyance channels that are engineered and regularly maintained for the capacity to convey peak flows from the 10-year or greater storm for ultimate build out condition from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. The proposed exemption is necessary to provide adequate time to develop a prioritized approach informed by a holistic watershed analysis

Discussion

The Program has expended significant resources to map and characterize the County's drainage systems and create a geodatabase that includes significant information regarding channel attributes. The geodatabase identifies the susceptibility of channel and stream systems to hydromodification from increased flow rates and durations. These efforts have categorized three basic channel conditions;

1. Natural condition or minimally modified;
2. Large river channels that are highly engineered and modified; and
3. Channels with substantial modification for flood control, most of which are engineered and maintained.

The Program proposes to prioritize the hydromodification management approach to identify and fully protect near-natural condition channels. Engineered channels with substantial modification and flood control function will have a lower priority for hydromodification management. A holistic watershed analysis will evaluate and prioritize channel reaches or basins regarding their potential for rehabilitation or

potentially improving their ecological functions. An initial limited time exemption will provide the time to determine which modified channels have potential for rehabilitation to a more natural state, as well as channels with more constraints that reduces their potential for rehabilitation. Highly modified channels require further evaluation for several reasons:

- Engineered channels were installed for the purpose of flood control and protection of public safety and property. Alterations to these channels may conflict with their primary function in the built environment. Additionally, engineered flood control channels generally have limited options for modification as they must provide their mandated service of flood control within a right-of-way constrained by adjacent development. In virtually all cases, it is likely to be cost prohibitive to purchase additional right of way so that flood control channels could be modified to approximate a natural state.
- Studies¹ have shown that hydromodification is caused by storms up to the 10 year event. Engineered channels designed to convey the 10-year ultimate build out condition will therefore not experience hydromodification impacts. and if impacts or damage does occur, the Flood Control District is legally obligated to repair the channel and restore the design function.
- The pre-development stream channel pathways were dynamic and changed through time. These natural washes were modified to provide flood protection for developed areas, fundamentally changing the slope and composition of the bed material. This modification is evident in south Orange County as identified for both Prima Deshecha identified in **Figure**

1 and Segunda Deshecha identified in **Figure 2** below. In both cases the historic paths of these streams were straightened, and development in the area was built as close to the modified channel right-of-way as possible. There are few opportunities to change the condition of these streams as most changes would require additional right-of-way acquired through condemning existing development.

The adverse hydrologic impacts to stream systems that can arise from land development must, be understood as a basis for the lawful requirement of mitigation. Based on the takings clause of the U.S. and California constitutions and the Mitigation Fee Act, hydromodification control requirements applied to development projects must bear a reasonable relationship to the impacts of the project. Requiring hydrologic controls on projects draining to receiving waters not susceptible to hydromodification is contrary to these legal requirements. An initial exemption for engineered channels is consistent with this mitigation concept of relationship and nexus to impacts.

In addition to legal concerns regarding the overly broad application of hydromodification management controls, significant fiscal constraints confront restorative goals. The Prima Deshecha and Segunda Deshecha watersheds (**Figures 1 & 2**), for example, demonstrate the quite profound changes to these channel systems that have attended development of the landscape. Moreover, it is evident in **Figures 1** and **2** that a re-configuration of these channels toward more natural channel alignments will require more land. Because of the costs identified in **Table 1** it will be fiscally infeasible to restore in many instances. The watershed analysis is needed to identify modified channels that genuinely present opportunities for

restoration or rehabilitation in south Orange County and which will benefit from hydromodification management.

Table 1 Average Property Costs in Orange County

Property Type	Cost (per square foot)	Cost (per acre)
Retail	\$355.52	\$15,486,451.20
Office	\$249.47	\$10,866,913.20
Industrial	\$179.39	\$7,814,228.40

Source: Loopnet.com

A final consideration is another aspect of state law. The Orange County Flood Control District has been delegated authority by the Legislature to construct channels and infrastructure for flood control purposes. These engineered channels are intended for the protection of public safety and property and are mandated by the Orange County Flood Control Act of 1927. Engineered channels serve the public health and safety through flood control protection. A significant portion of Orange County lies in a flood plain and the public needs the benefits of these flood control channels for protection of public safety and property.

Based on the above information a time limited (i.e. pending completion of a watershed analysis) exemption for engineered channels is warranted and should be provided in the Fifth Term Permit for all engineered channels in South Orange County. Provided below are **Figures 3-14** that identify the engineered channels and associated drainage areas in South Orange County, including specific jurisdictions, that would be exempt for discharges to an engineered channel conveyance system with the capacity to convey the 10-year ultimate condition that extends from the point of discharge to water

storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

The approach to hydromodification management should be to protect the highest quality streams from future impacts of increased volume and velocity of runoff that will cause hydromodification impacts. A secondary goal of hydromodification management can be restoration or rehabilitation of stream channels where it is feasible, however the watershed analysis needs to be completed first, to identify which streams restoration or rehabilitation is practical.

Figure 1: Prima Deshecha Watershed - 1947 vs. 2012 Alignment



Figure 2: Segunda Deshecha Watershed - 1947 vs. 2012 Alignment

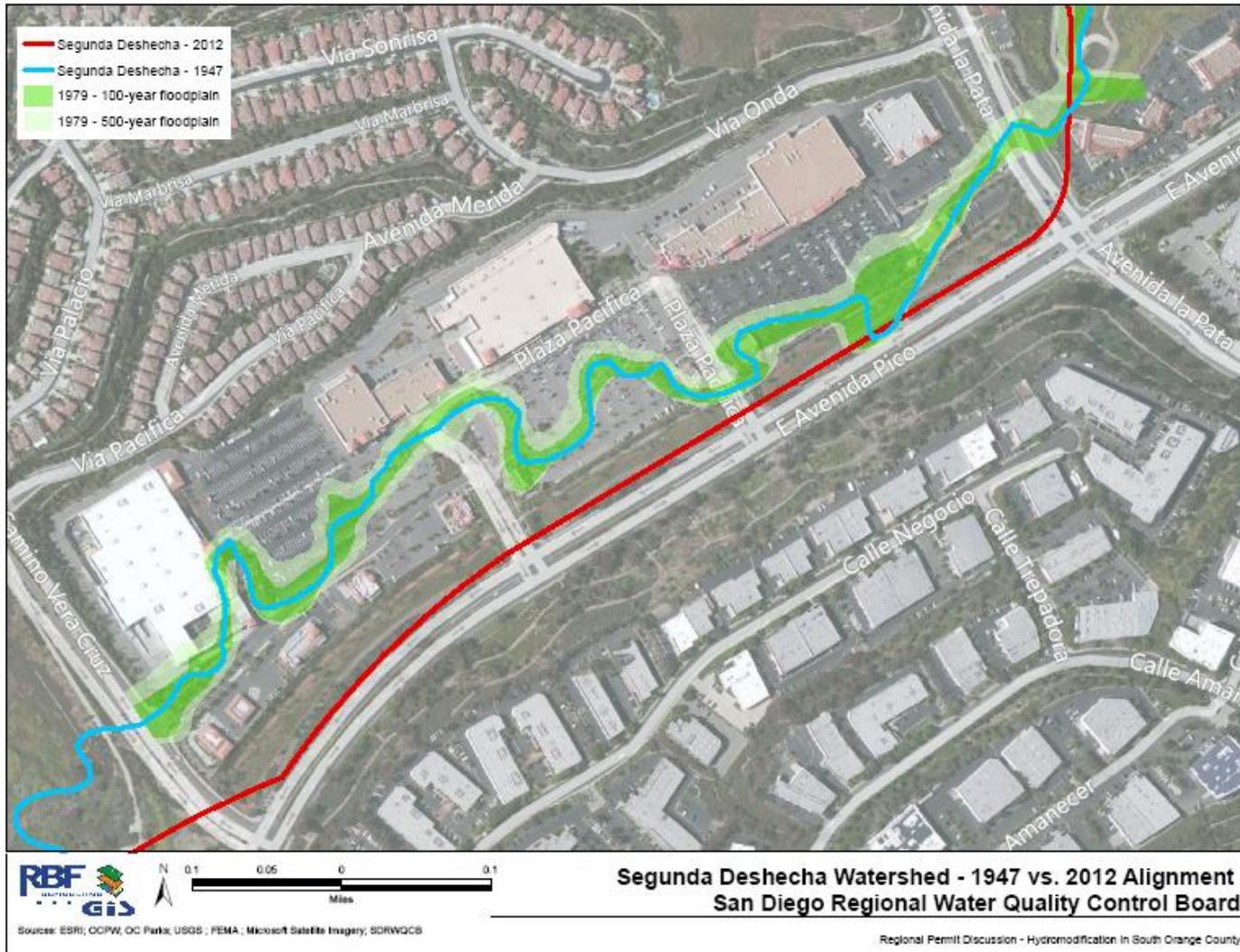


Figure 3: South Orange County Engineered Channels Exemption Areas

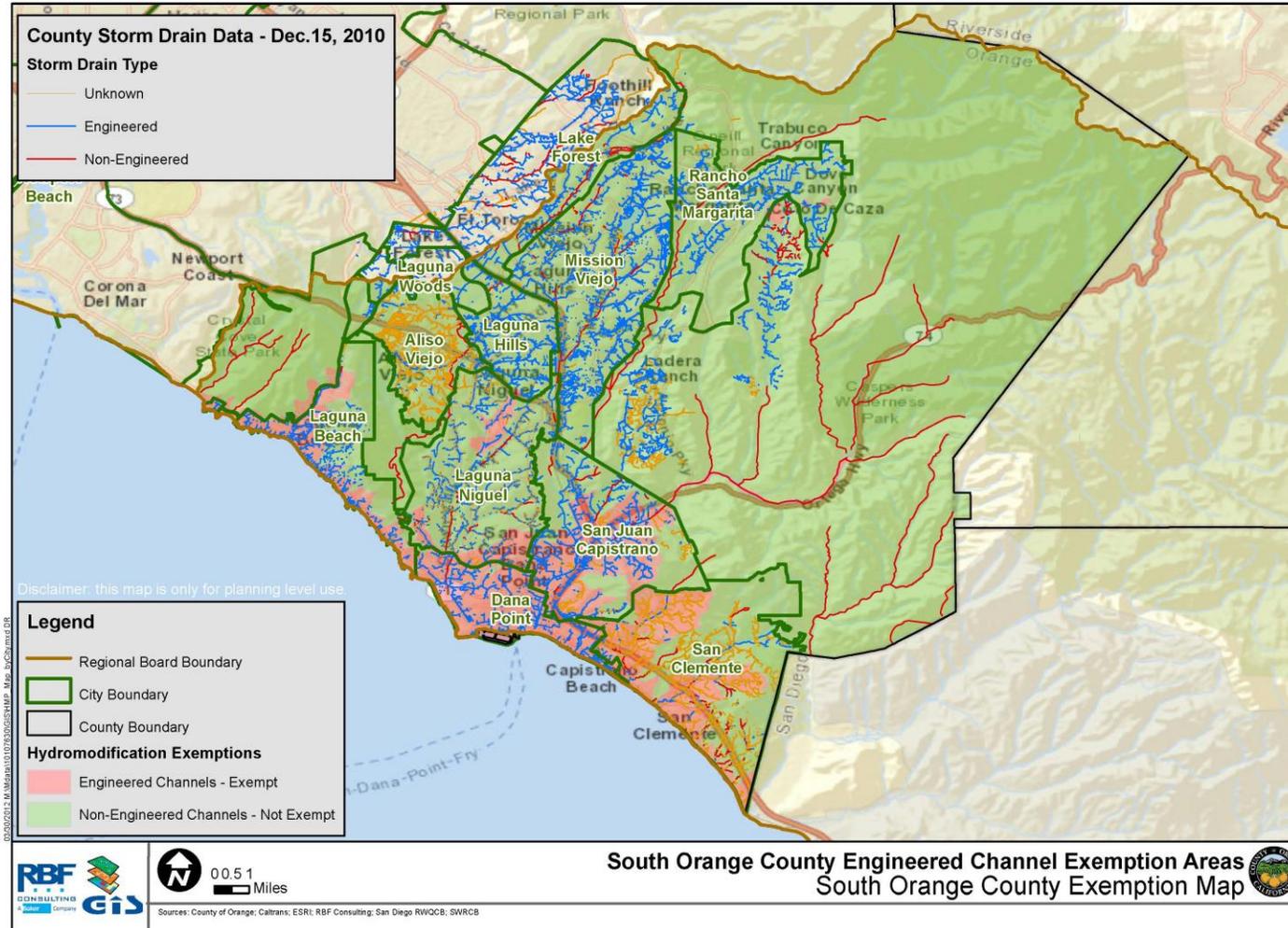


Figure 4: Lake Forest - South Orange County Engineered Channels Exemption Areas

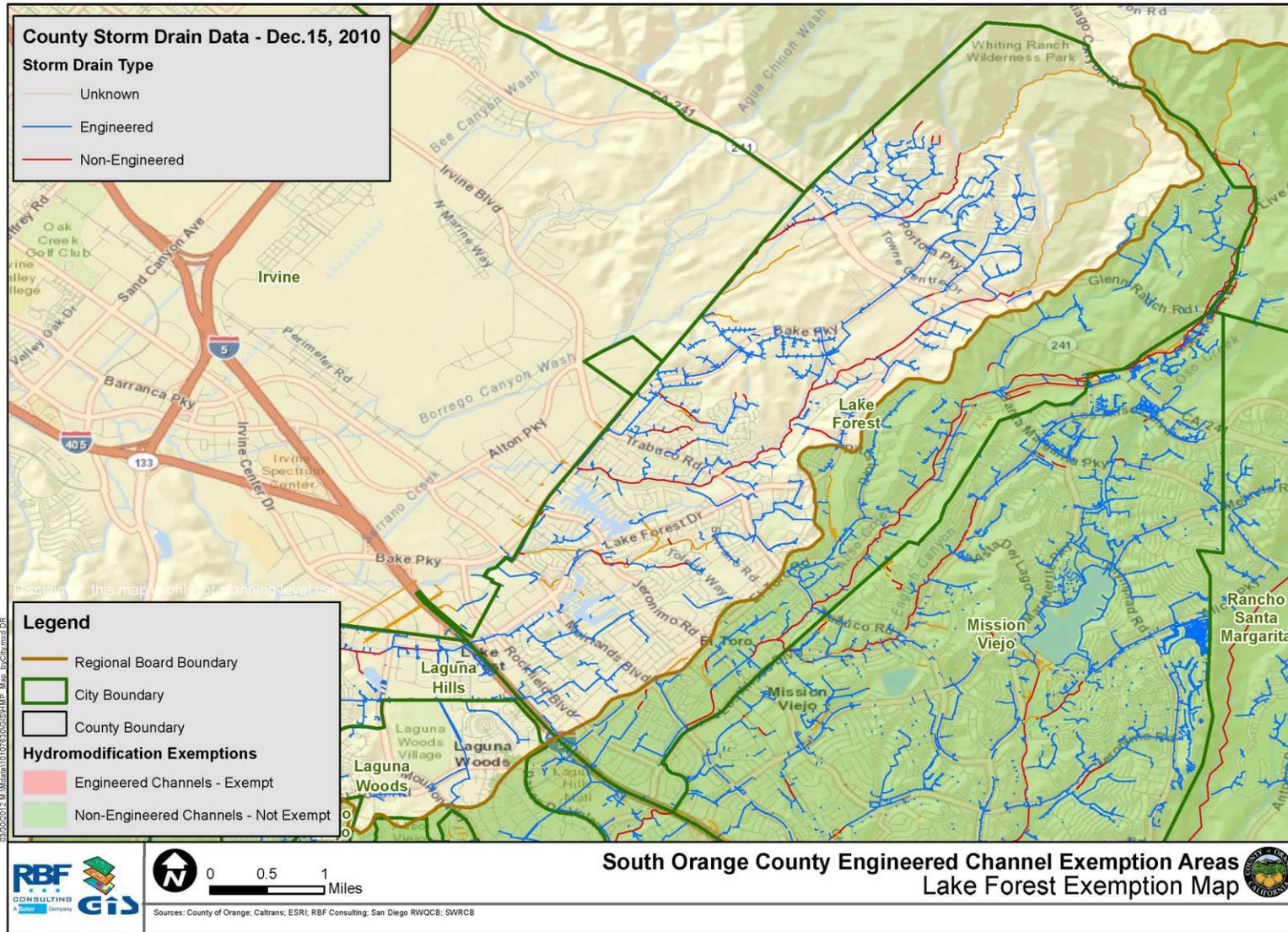


Figure 5: Laguna Woods - South Orange County Engineered Channels Exemption Areas

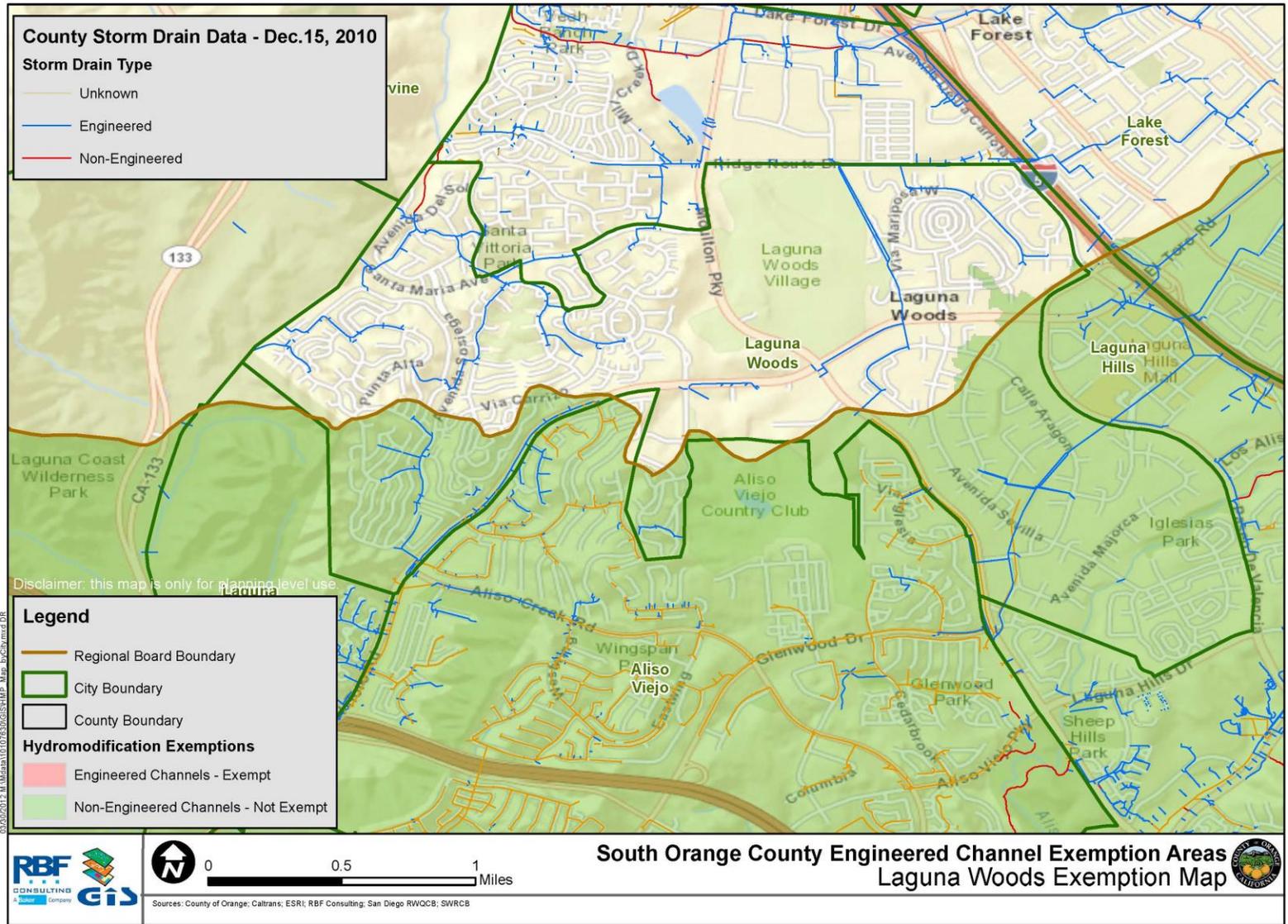


Figure 6: Rancho Santa Margarita - South Orange County Engineered Channels Exemption Areas

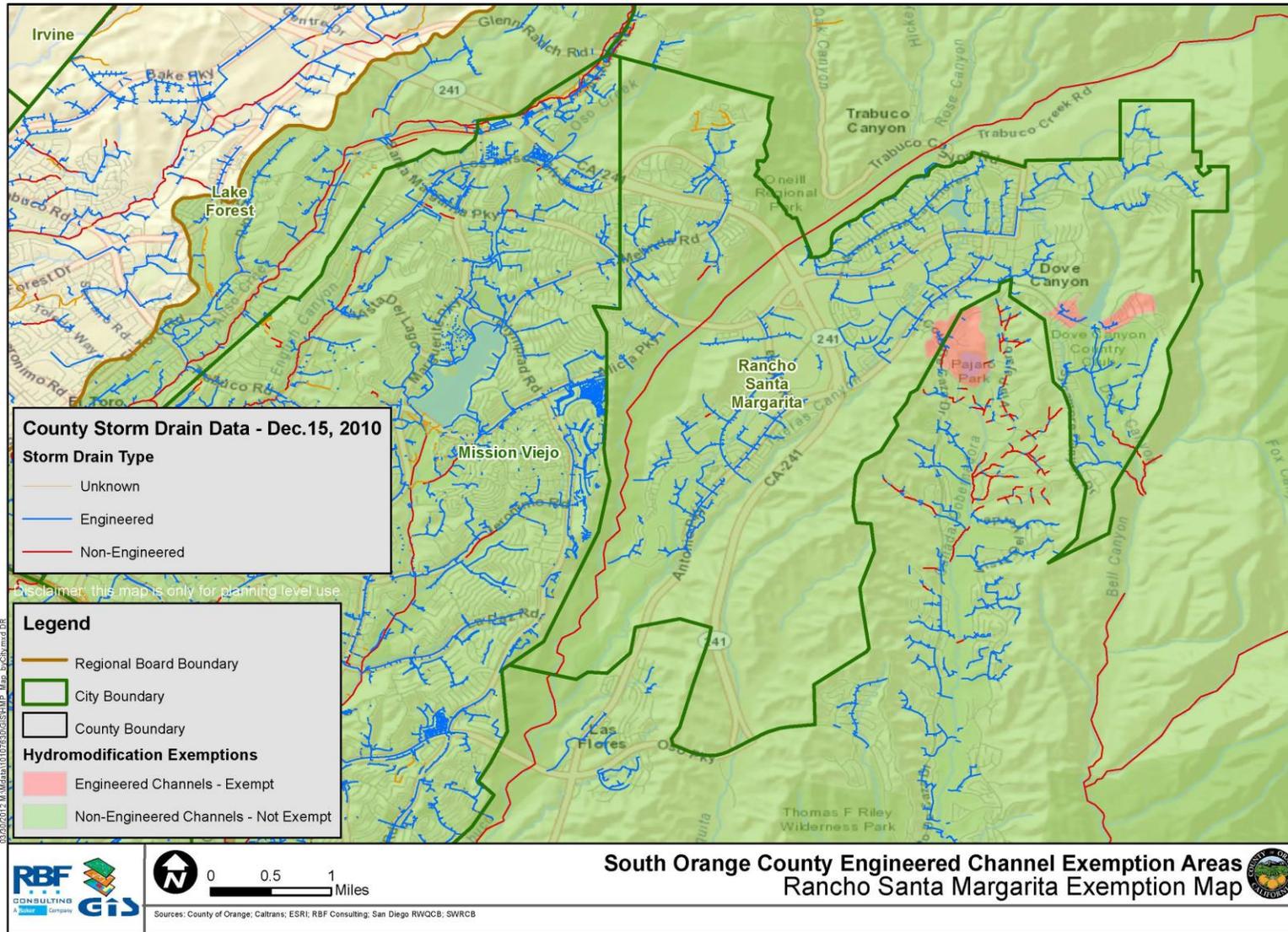


Figure 7: Mission Viejo - South Orange County Engineered Channels Exemption Areas

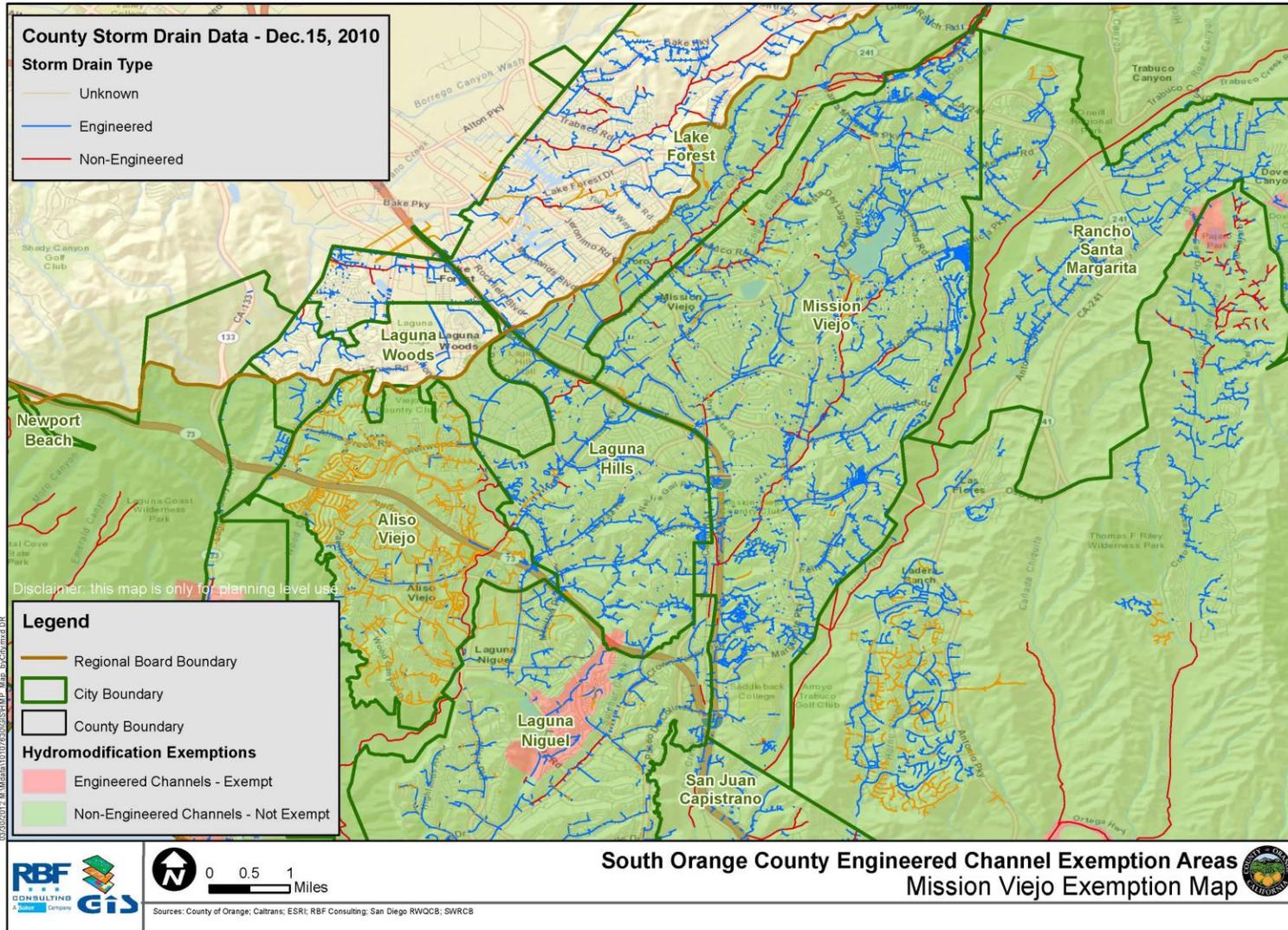


Figure 8: Laguna Hills - South Orange County Engineered Channels Exemption Areas

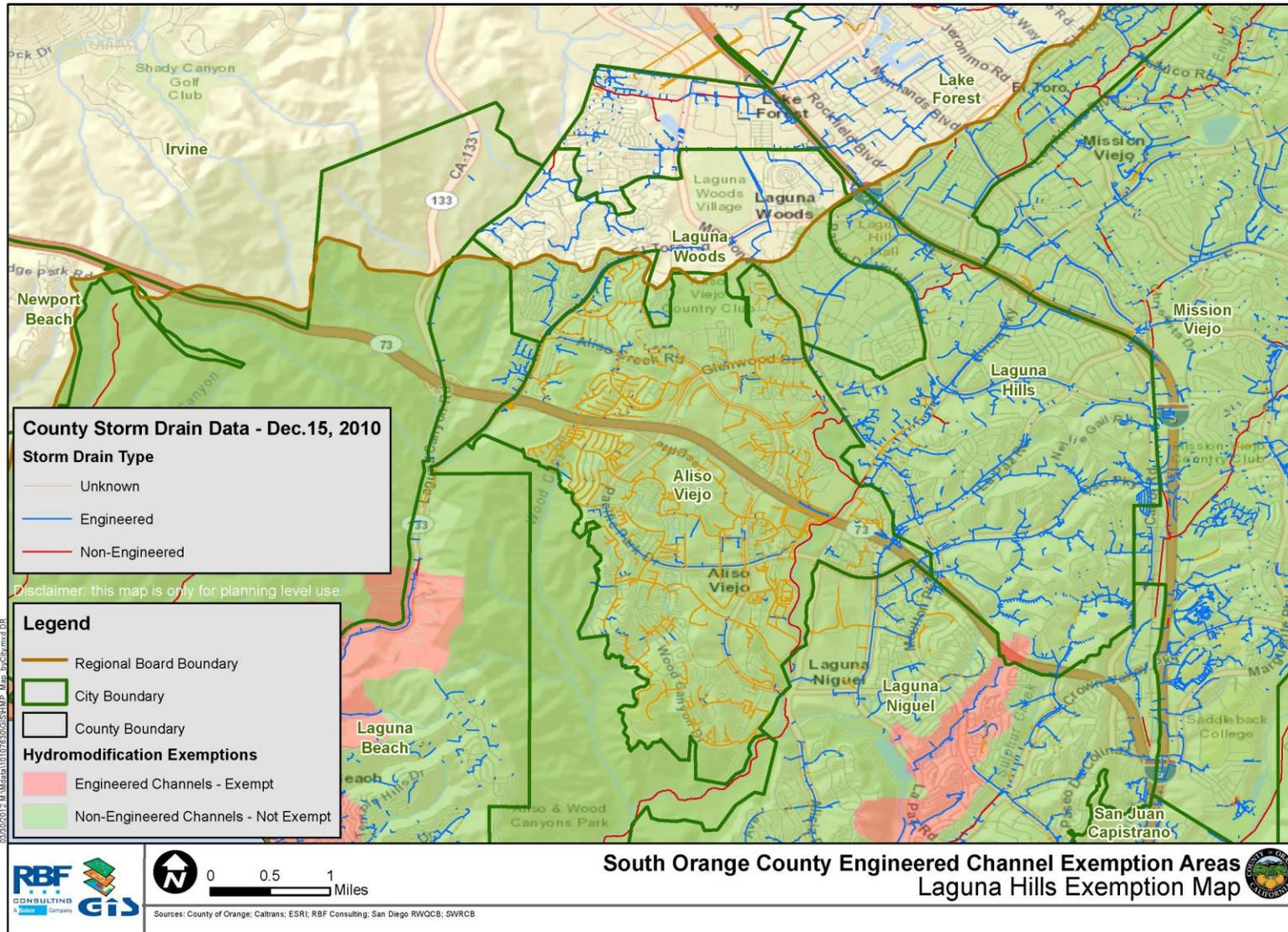


Figure 9: Aliso Viejo - South Orange County Engineered Channels Exemption Areas

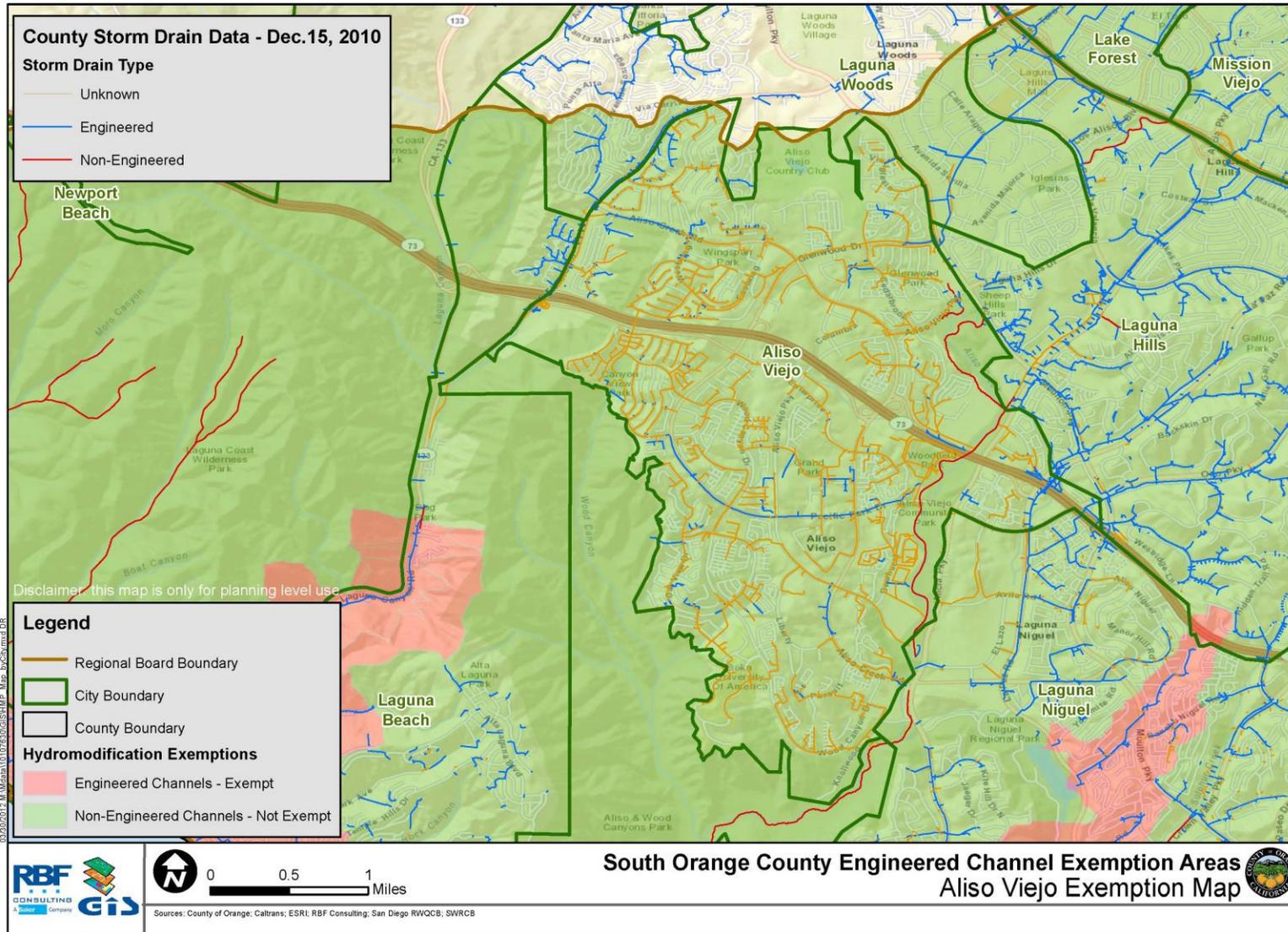


Figure 10: Laguna Beach - South Orange County Engineered Channels Exemption Areas

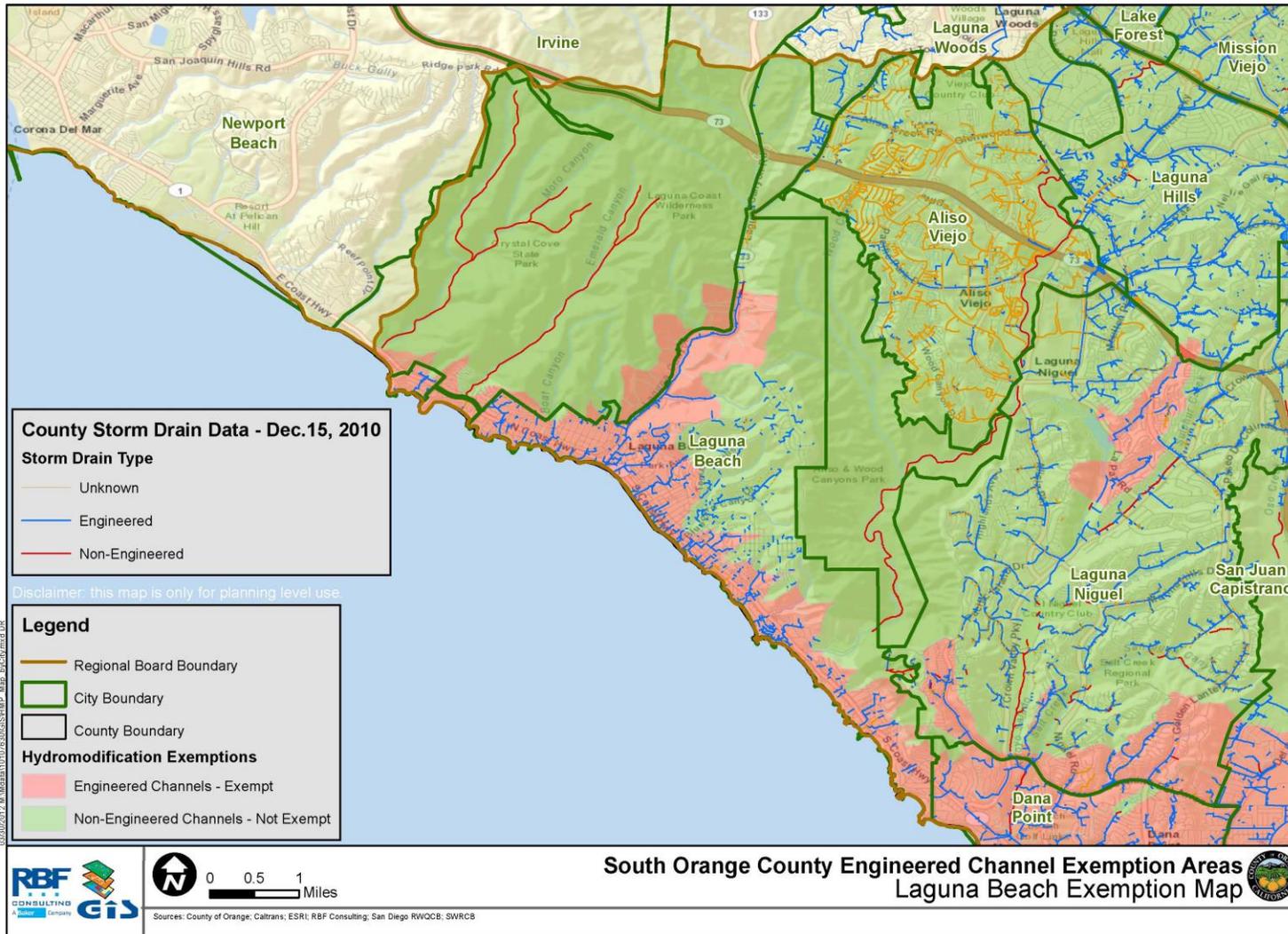


Figure 11: Ladera Ranch & Unincorporated County - South Orange County Engineered Channels Exemption Areas

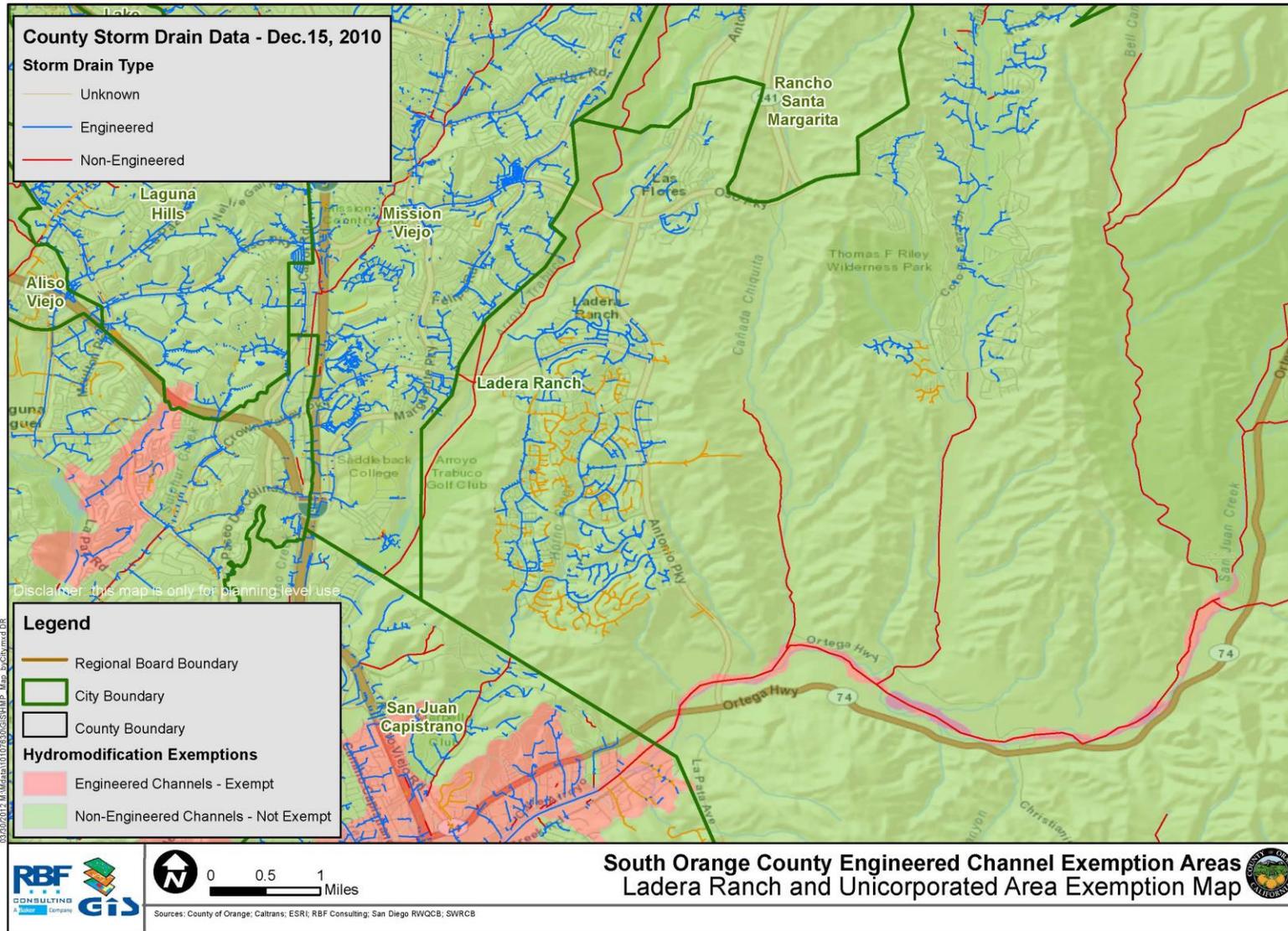


Figure 12: Laguna Niguel - South Orange County Engineered Channels Exemption Areas

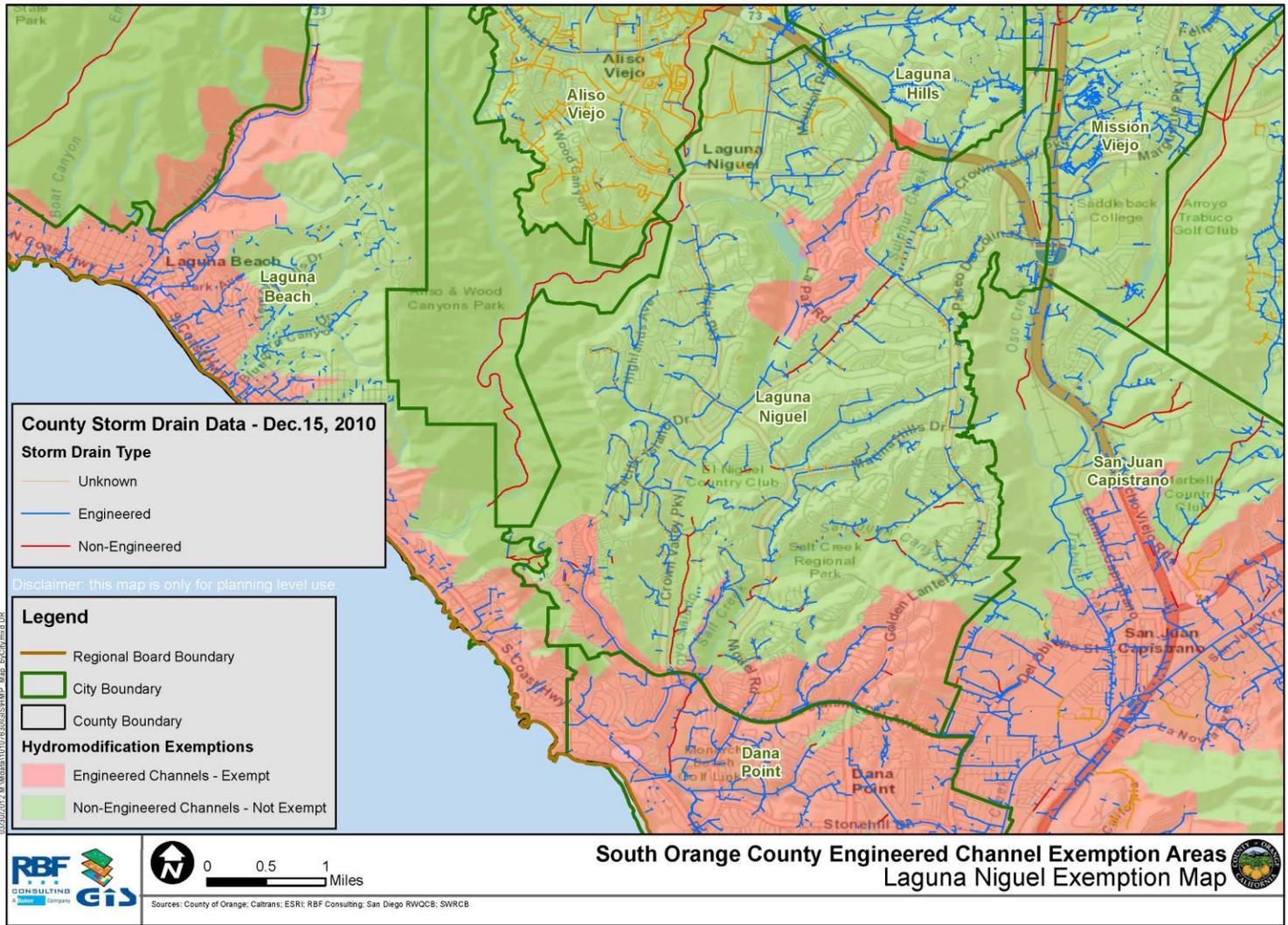


Figure 13: San Juan Capistrano - South Orange County Engineered Channels Exemption Areas

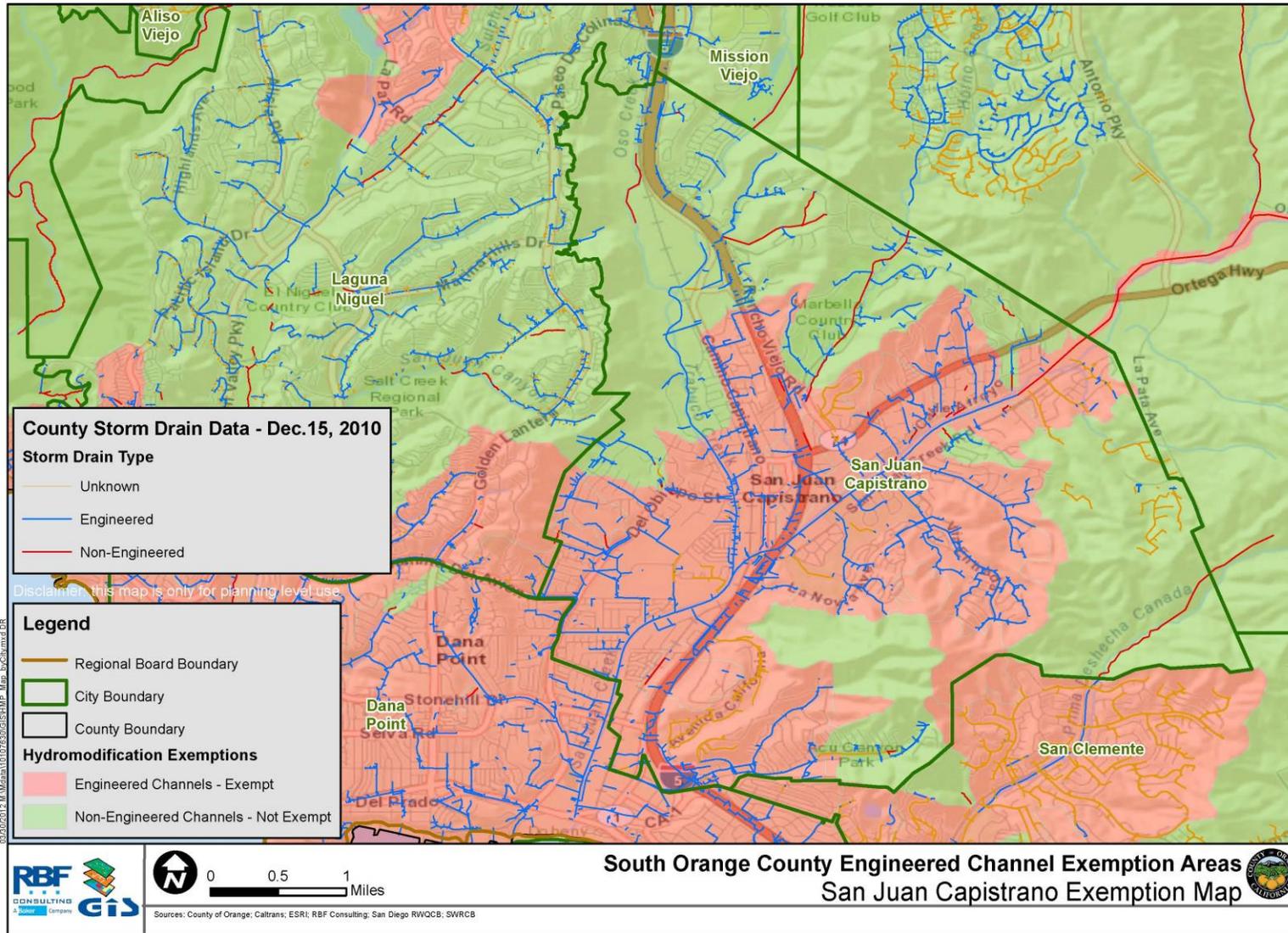


Figure 14: Dana Point - South Orange County Engineered Channels Exemption Areas

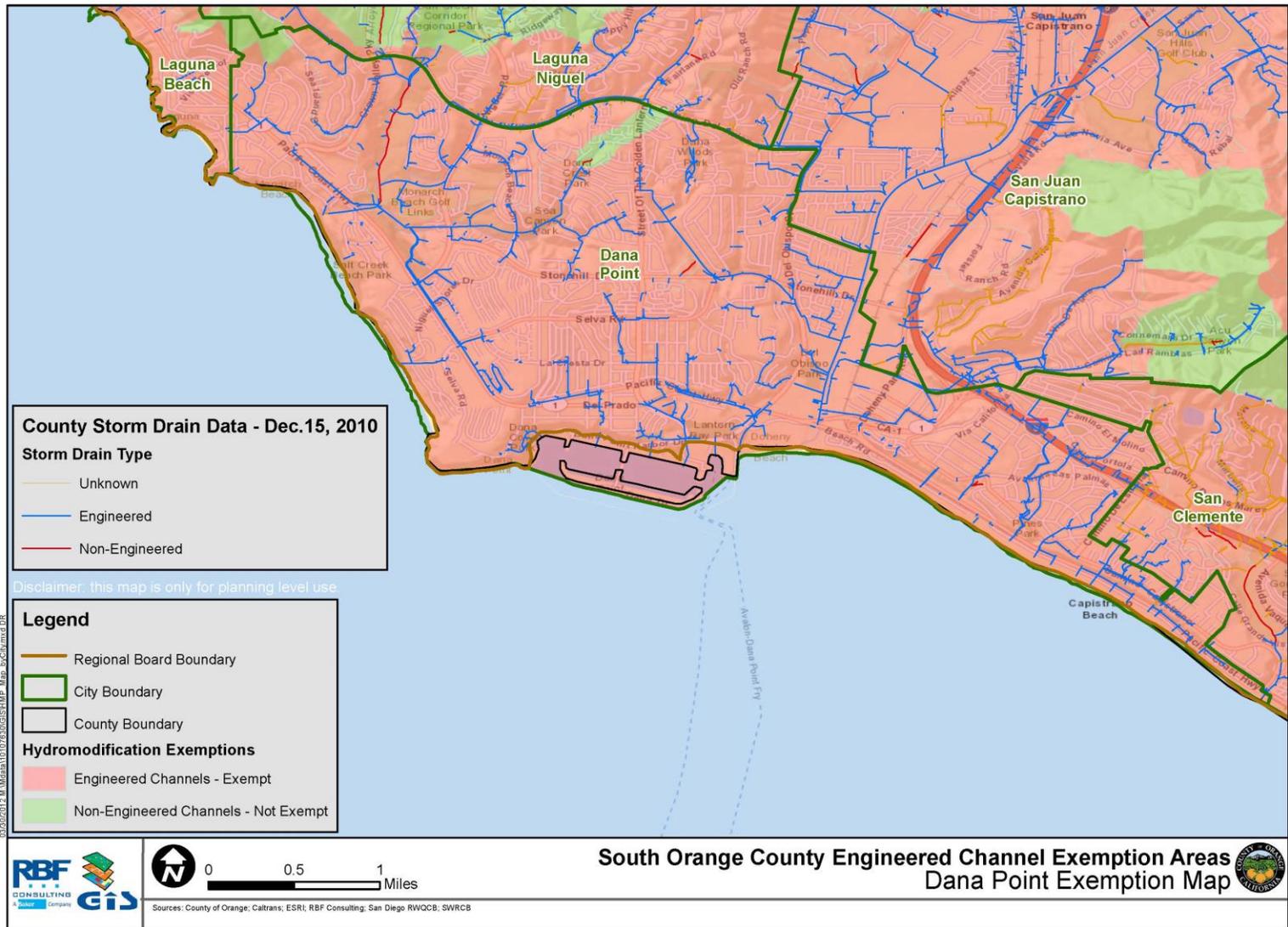
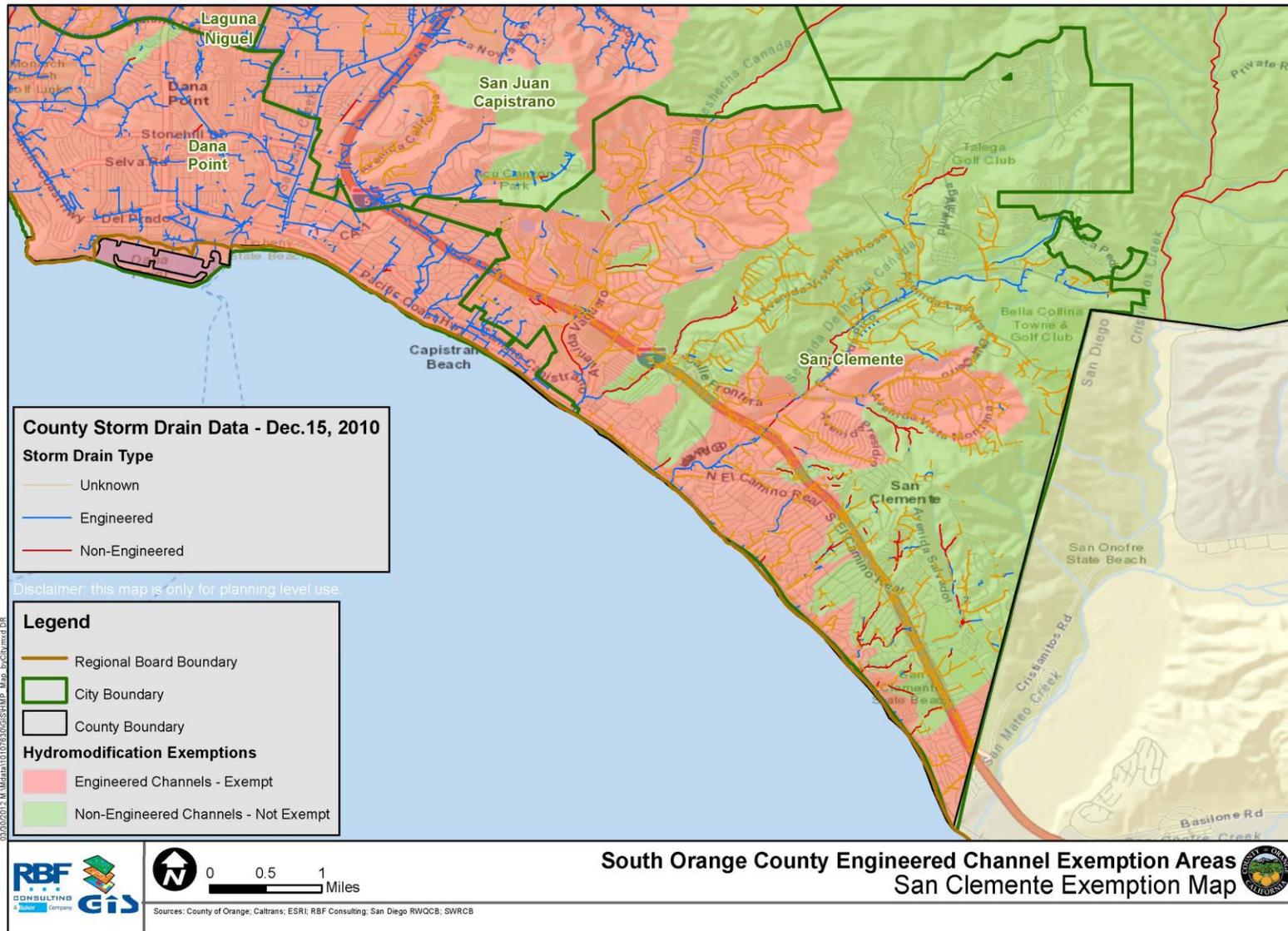


Figure 15: San Clemente - South Orange County Engineered Channels Exemption Areas



Attachment 3.7.1:
Dry Weather Monitoring
Rationale and
Recommendations

The Fifth Term Permit must recognize that all discharges of pollutants from the MS4 are subject to the MEP standard.

Clean Water Act Sections 402(p)(3)(B)(ii) and (iii) require the Copermittees implement controls to effectively prohibit non-stormwater discharges into the MS4 and that such controls reduce pollutants to the maximum extent practicable (MEP). While federal law regulates “non-stormwater discharges” into the MS4, Section 402(p)(3)(B)(iii) expressly states that the “discharge of pollutants” shall be reduced to MEP. In drafting this section of the CWA, Congress expressly intended all discharges from MS4s to be subject to MEP as it used the term “pollutant” and did not differentiate between stormwater and non-stormwater, as the current Permit attempts to do. Therefore, the duty of the Copermittees to reduce the discharge of pollutants from the MS4 to MEP applies to both stormwater and non-stormwater pollutants. Furthermore, the focus of the CWA and federal regulations is on a management program that includes a comprehensive planning process to reduce the discharge of pollutants to MEP.¹ One of the elements of the management program is the illicit discharge prevention program.² The control and limitation of illicit discharges into the MS4 is intended to achieve the overall MEP standard for discharges from the MS4. This is confirmed by the preamble to EPA regulations that discuss the required elements of the management program.

According to EPA:

[Copermittees are required] to develop management programs for four types of pollutant sources which

¹ 40 CFR 122.26(d)(2)(iv).

² 40 CFR 122.26(d)(2)(iv)(B)(1).

discharge to large and medium municipal storm sewer systems. Discharges from large and medium municipal storm sewer systems are usually expected to be composed primarily of: (1) Runoff from commercial and residential areas; (2) storm water runoff from industrial areas; (3) runoff from construction sites; and **(4) non-storm water discharges**. Part 2 of the permit application has been designed to allow [Copermittees] the opportunity to propose **MEP control measures for each of these components of the discharge**. 55 Fed Reg at 48052 (emphasis added).

See also 55 Fed Reg at 48045 (stating “Part 2 of the proposed permit application [which includes the illicit discharge prevention requirement] is designed to . . . provide municipalities with the opportunity of proposing a comprehensive program of structural and non-structural control measures that will **control the discharge of pollutants, to the maximum extent practicable, from municipal storm sewers.**”) (Emphasis added).

EPA’s position is consistent with existing State Water Resources Control Board policy which states that discharges into the MS4 are to be controlled through an iterative, BMP based approach.³ The State Board held:

An NPDES permit is properly issued for “discharge of a pollutant” to waters of the United States. (Clean Water Act § 402(a).) The Clean Water Act defines “discharge of a pollutant” as an “addition” of a pollutant to waters of the United States from a point

³ Specifically in State Board in Order No. WQ-2001-15, *In the Matter of the Petitions of Building Industry Assoc. of San Diego County and Western States Petroleum Assoc.* (2001).

source. (Clean Water Act section 502(12). Section 402(p)(3)(B) authorizes the issuance of permits for discharges “from municipal storm sewers.”

We find that the permit language is overly broad because it applies the MEP standard not only to discharges “from” MS4s, but also to discharges “into” MS4s. . . [T]he specific language in this prohibition too broadly restricts all discharges “into” an MS4, and does not allow flexibility to use regional solutions, where they could be applied in a manner that fully protects receiving waters. It is important to emphasize that dischargers into MS4s continue to be required to implement a full range of BMPs, including source control. In particular, dischargers subject to industrial and construction permits must comply with all conditions in those permits prior to discharging storm water into MS4s.⁴

The State Board's decision in the Building Industry Association (BIA) matter makes clear that the CWA does not include a blanket prohibition on discharges of non-stormwater into the MS4. Fifth Term Permit
Fifth Term Permit
It is also technically infeasible in some cases to differentiate between non-stormwater or stormwater pollutants discharged from the MS4. Thus, just as the discharge of non-stormwater into the MS4 is subject to the effective prohibition standard, the discharge of pollutants in non-stormwater from the MS4 is subject to the MEP standard. Fifth Term Permit

⁴ Id., at 9-10.

The Fifth Term Permit must not seek to include language that creates an overly broad use of the term “prohibit.”

The Fifth Term Permit should require the Permittees to “effectively prohibit non-stormwater discharges” but may exempt certain discharges that are not significant sources of pollutants from the prohibition. Section 402(p) does not require a full prohibition but rather an effective prohibition. The operative word is “effective”, which recognizes the constraints of owning and operating a stormwater drainage system, which includes hundreds of miles of open channel. In addition, discharges that are not significant sources of pollutants are exempted from the prohibition. In a practical sense, the use of word “effective” also provides flexibility to assess the impacts of relatively benign discharges such as air condition condensate, individual car washing, and non-emergency fire-fighting flows or non-anthropogenic sources before instituting a prohibition.

The Fifth Term Permit should enable the Permittees to develop program specific action levels that meets the objectives of the IDDE program.

Future NALs for the IDDE program should not be based on water quality objectives at the ‘end of pipe’ . Instead, these values should be based on ‘upset’ values that reflect an abnormality for typical urban runoff. The State’s own Blue Ribbon Panel, which was convened specifically to examine the feasibility of incorporating numeric effluent limits in stormwater permits, ultimately concluded that numeric limits were generally infeasible across all three stormwater activities,

with few exceptions⁵. However, the Panel did agree that “upset values” or “action levels” could be established to assist Copermittees in identifying “bad actor” catchments which are clearly above the normal observed variability.

The rationale for this is provided in additional detail below.

Dry Weather Reconnaissance Program Approach

As a part of the IDDE program, the Copermittees had developed and implemented an innovative Dry Weather Reconnaissance Program, based upon statistically derived benchmarks to identify illegal discharges and illicit connections during the typically dry summer months of May through September using a suite of water quality analyses conducted in the field at designated random and targeted drains. A brief summary of that program is provided below.

- The Dry Weather Reconnaissance Program collected significant amounts of data and utilized a hybrid monitoring design that combined probabilistic sampling, targeted sampling, and formal statistical tools (tolerance intervals and control charts). This design enabled the program to systematically prioritize problematic sites, compare conditions to regional urban background, and track trends over time.
 - A *tolerance interval* bound is the upper or lower confidence-interval bound of a quantile of the background data distribution. Tolerance

⁵ *The Feasibility of Numeric Effluent Limits Applicable to Discharges of Stormwater Associated with Municipal, Industrial and Construction Activities, June 19, 2006*

intervals are derived from the probabilistic site data and are used to quantify the key aspects of the regional background.

- *Control charts* are used to establish an upper or lower bound on a data distribution, based on previous monitoring data. They are created for each site and provide a means of tracking data at individual sites and identifying when new data values deviate substantially from previous experience. The tolerance intervals are supplemented with control charts that track specific historical data, providing a second till to detect results that are out of the ordinary for the specific site.
- Used together, tolerance intervals and control charts provide a consistent and quantitative means of identifying sites that exhibit excursions in pollutant values.
- Tolerance intervals and control charts provide the means to discern between typical site conditions and illicit discharges.

The 2010-11 reporting period marked the ninth season of dry weather monitoring in the San Diego Region. Monitoring in the San Diego Region under the Dry Weather Reconnaissance Program was replaced in August 2011 with the NALs Monitoring Program (pursuant to Order No. R9-2009-0002). In order to demonstrate the effectiveness of the Dry Weather Reconnaissance Program, a comparison of this program and the NALs-based program is provided below.

Comparison of the Dry Weather Reconnaissance Program Approach and the NALs-based Approach

First, a comparison of the probability of an exceedance using the tolerance interval-based approach compared to the NAL-based approach shows that the NALs-based approach requires increased resources since investigations are triggered at a much higher frequency for many constituents (e.g., enterococci and reactive orthophosphate as P - **Figures 1 and 2** below, respectively).

- The Dry Weather Reconnaissance Program is designed to detect “abnormal” results that are indicative of illicit discharges, typically short term, transient, non-stormwater discharges. The Permittees perform many more site visits but initiate fewer investigations, as they are able to discern between discharges that are most likely to be illicit and those that are not. These focused investigations are based on statistically valid data assessments, historical data for the site, and are most likely to be associated with illicit discharges.
- In contrast, the NAL-based program is designed to compare urban runoff from an outfall to a water quality objective that has been established for a receiving water. As demonstrated in the ROWD, chemistry results trigger exceedances of the NALs the majority of the time, which does not allow the Permittees to differentiate between typical site conditions and illicit discharges.
- For example, based on historical data, the probability that a sample does not exceed the NAL for enterococci or orthophosphate is ~ 3-5%. As a result, roughly 31 out of 33 sampling events would be required to be investigated for one or both constituents.
- In contrast, the probability that a sample does not exceed the enterococci or orthophosphate tolerance

interval is 90%, which results in only 1 out of 10 sampling events requiring an investigation.

- Thus, the tolerance intervals allow for a true prioritization of the investigations whereas the NALs result in almost all events requiring investigations.

Figure 1: Enterococci Exceedance Frequencies Associated with Dry Weather Reconnaissance Tolerance Intervals Compared with Exceedance Frequencies Associated with NALs.

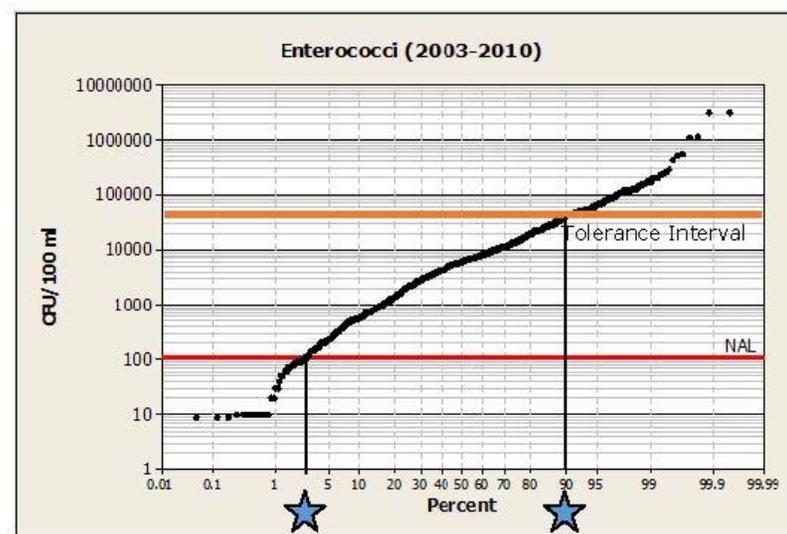
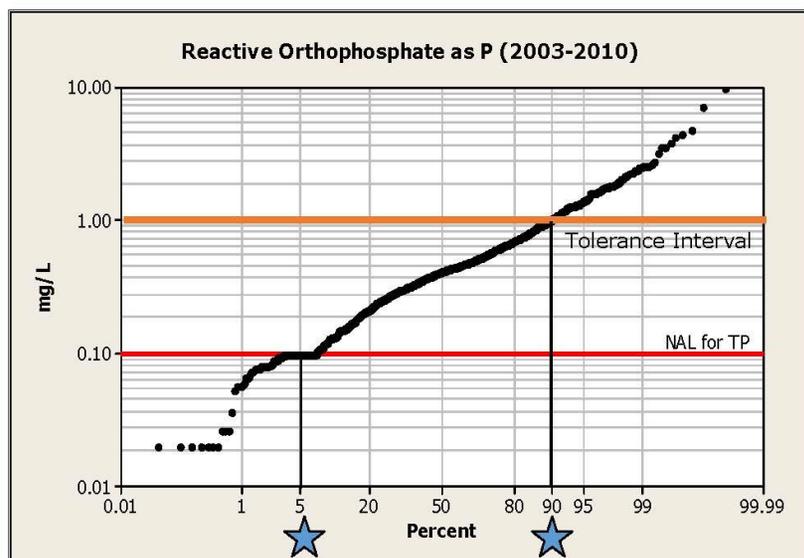


Figure 2: Reactive Orthophosphate as P Exceedance Frequencies Associated with Dry Weather Reconnaissance Tolerance Intervals Compared with Exceedance Frequencies Associated with NALs.



Second, efforts lead by the County to characterize natural sources from ambient geology have demonstrated that natural sources in specific areas are the primary contributor for many constituents of concern such as cadmium, nickel, total dissolved solids, chloride, and sulfate.

Monitoring and special studies show that many of the creeks in south Orange County have elevated levels of several constituents that do not appear to be related to the urban landscape. These constituents correlate poorly with urban attributes such as residential, industrial, and commercial land uses.

The Orange County Stormwater Program has monitored water quality for several years and found that naturally derived pollutants in surface waters can often exceed water quality criteria both in undeveloped catchments as well as in developed watersheds. In recent years, efforts led by the Program to characterize natural sources related to ambient geology have demonstrated that natural sources in specific areas are the primary contributor for many constituents of concern. The concentration ranges measured from the natural sources are shown in the table below.

Constituent	Concentration Range	Water Quality Criterion
Arsenic	<1 - 53 ppb	36 ppb ²
Cadmium	<1 - 200 ppb	7.3 ppb ²
Copper	1.2 - 23 ppb	18 ppb ²
Nickel	6.4 - 1300 ppb	169 ppb ²
Selenium	<1 - 220 ppb	5.0 ppb ²
Zinc	<1 - 1800 ppb	379 ppb ²
Chloride	470 - 2400 ppm	250 ppb ¹
Sulfate	1200 - 11000 ppm	250 ppb ¹
Total Dissolved Solids	3700 - 22000 ppm	500 ppb ¹
Total Nitrogen as N	<0.1 - 38 ppm	1.0 ppb ¹

Notes:

- 1) Basin Plan Water Quality Objective
- 2) California Toxics Rule, Criterion Continuous Concentration at hardness of 400 mg/L

Additionally, the Program is currently collaborating with the University of Southern California (USC) to develop a modeling approach that could “fingerprint” water sources based on their patterns of constituent concentrations. Such a

fingerprint, or chemical signature, for groundwater provides information about its source(s) and potential conveyance mechanism for constituents of concern. Physiographic conditions under which rain falls in Sierra Nevada or Colorado River watersheds are very different from those in Orange County's low elevation coastal watersheds. As a result, these differences impart unique isotopic fractionation on the water - a signature that acts as a fingerprint for various sources.

The Program's efforts, in collaboration with USC, recently have focused on sampling these new water quality tests for fingerprinting sources that provides a better approach for assessing natural contributions from anthropogenic, or human based activities. This work focused on collecting samples from natural streams, groundwater springs, domestic water sources, and urban channels to compare and contrast differences between the various water body types. Together with the information on constituent levels from ambient geology and source fingerprinting, this approach will provide a much better understanding about natural and anthropogenic sources of both water and contaminants to streams in south Orange County.

This effort is providing a more robust approach to interpret measured pollutant concentrations against in the context of natural background levels as well as to determine relative loading contributions from natural and anthropogenic inputs. This work is still underway, but will provide important information and assist in understanding the origin of non-stormwater discharges within the stormdrain system. Until this work is completed, the Program will be unable to discriminate between instances of illicit discharges and conditions that are essentially artifacts of a constructed storm

drain system and/or the local geology. The Program has found strong positive linear relationships between levels of metals associated with runoff and groundwater seepage from the Monterey and Capistrano marine sedimentary formations. Both formations are known to be enriched in trace metals and are common across southern Orange County. This evidence suggest that many exceedances of water quality criteria are due to non-illicit discharge factors (i.e., local geology).

Third, after the implementation of the NAL-based program for over a year, some clear differences between the previously established Dry Weather Reconnaissance Program and the NAL-based program have been evident (see **Table 1** below). Comparison of the 2011-2012 NALs data collected in the San Diego Region with the data from the Dry Weather Reconnaissance Monitoring program for the 2009-2010 reporting period shows how the ability to prioritize the IDDE investigations has been diminished.

Table 1: Comparison of 2011-2012 NALs Data Collected in the San Diego Region with the Data from the Dry Weather Reconnaissance Monitoring Program for the 2009-2010 Reporting Period

Constituent	NAL Exceedances 2011-2012		DW Pgm Action Level Exceedances 2009-2010	
	Number	%	Number	%
pH	1	2	0	0
TDS	42	93	0	0
Dissolved Oxygen	2	4	0	0
Turbidity	3	7	3	1
Surfactants	3	7	14	5
Total Coliform	24	53	0	0
Fecal Coliform	19	42	0	0
Enterococcus	42	93	0	0
Unionized Ammonia	3	7	8	3
Total N / Nitrate	41	91	0	0
Total P / Ortho PO4	38	84	11	4
Cadmium	13	28	0	0

Constituent	NAL Exceedances 2011-2012		DW Pgm Action Level Exceedances 2009-2010	
	Number	%	Number	%
Copper	1	2	0	0
Nickel	7	15	0	0
Zinc	1	2	0	0
Total # of Site Visits	45		274	

For the Dry Weather Reconnaissance Program, the Permittees conducted 274 site visits, whereas for the NAL-based program, the Permittees conducted 45 site visits.

- Although the Permittees collected data and information for six times more stations as a part of the Dry Weather Reconnaissance Program, the NALs-based program identified more than six times the number of exceedances.
 - Dry Weather Reconnaissance Program – 274 site visits/36 exceedances (13%)
 - NALs-based Program – 45 site visits/240 exceedances (5x the number of visits)
- The Dry Weather Reconnaissance Program provides better spatial and temporal coverage than a NAL-based program. The number of sites visited during implementation of the current program was six times greater than the number of sites visited during implementation of the NAL-based program.

- The Dry Weather Reconnaissance program identified exceedances for four (4) constituents: turbidity, surfactants, unionized ammonia, and total phosphate
- The NALs-based program identified exceedances for all fifteen (15) constituents, with the top three associated with TDS, enterococcus, and total nitrogen
- For the NALs-based program, there was no ability to prioritize discharges for follow up investigation since many of the constituents exceeded the NALs 20-40% of the time.

The conclusions from the implementation of the Orange County NAL-based program to date are:

- The NAL program replaced an previously existing and effective program (the Dry Weather Reconnaissance program);
- The Dry Weather Reconnaissance Program resulted in focused source investigations for key constituents indicative of illicit discharges;
- The NAL program has required increased resources and has resulted in everything being a priority (thus, nothing is a priority). In addition, the NAL-based triggers have, in many cases been the result of constituents attributable to natural sources within the watersheds;
- There have been many exceedances that have been due to non-IDDE factors such as local geology (especially for nickel and cadmium);
- It has been very difficult to determine the endpoints, the sources, of the various non-stormwater discharges since the discharges are so co-mingled; and

- There is a strong need for a regionally-based prioritization so that there is not a mis-direction of limited resources.

Recommendations

The Regional Water Board staff review the results of the Orange County program to date and consider the revisions as proposed in order to assist with the prioritization of resources and water quality issues. If the Copermittees are required to continue to use the NAL-based program, they will lose the ability to prioritize the water quality issues and discriminate between true instances of IDDE and ambient urban conditions in a storm drain systems draining landscapes underlain by marine sedimentary formations containing phosphorous and a number of metals. The Copermittees fundamentally recommend that they be able to reinstate the Dry Weather Reconnaissance Program.

ATTACHMENT

30

January 11, 2013

By E-Mail and Delivery

Wayne Chiu, P.E.
California Regional Water Quality Control Board, San Diego region
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

Subject: Comment – Tentative Order No. R9-2013-0001, Regional MS4 Permit, Place ID: 786088Wchiu.

Dear Mr. Chiu:

The County of Orange, as Principal Permittee of the Orange County Stormwater Program (Program), appreciates the opportunity to provide comments on *Tentative Order No. R9-2013-0001, NPDES No. CAS0109266, National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region (Tentative Order)* issued on October 31, 2012. The south Orange County Permittees (Permittees) were involved in the development of these comments and the Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, Mission Viejo, Rancho Santa Margarita, San Clemente, and San Juan Capistrano have directed that they be recognized as concurring entities on this letter. We have also coordinated our review with permittees in Riverside and San Diego Counties, who have identified many of the same issues with the Tentative Order. We support their comments except where noted otherwise in the attachments to this letter.

The Permittees have been actively engaged in discussions of the prior Administrative Draft of Tentative Order No. R9-2012-0011 (and subsequently on Tentative Order R9-2013-0001). Since April 9, 2012 the Permittees have participated with Board staff in two Orange County-specific meetings, an initial public workshop (April 25), four “focused meetings” (June 27, July 11, July 25 and August 22), a hydromodification workshop (August 30), and a final public workshop (September 5). We also conveyed in writing our concerns regarding the scheduling and appropriateness of this effort (see prior correspondence dated May 10, 2012, May 17, 2012 and July 3, 2012) and submitted extensive comments on the Administrative Draft on September 14, 2012 (all of which are incorporated by reference).

We recognize the significant efforts of Regional Board staff to engage the Permittees and key stakeholders in the development of a regional permit in a collaborative manner. We also recognize that Tentative Order No. R9-2013-0001 reflects a number of changes directly in

response to Permittee comments. The Tentative Order, however, still contains many issues of significant concern and does not, in our view, achieve at this time what Board staff laid out as its intended purpose and approach during the workshop process. Our extensive comments on the Tentative Order are organized and submitted as follows:

- A summary of our overarching concerns with the Tentative Order are included below in this letter
- Attachment A presents detailed comments on the entire permit
- Attachment B presents a redline/ strikeout version of recommended changes to the Tentative Order.

The County is aware that Regional Board staff has held a number of meetings and discussions with San Diego Permittees since the release of the Tentative Order R9-2013-0001 on changes they are proposing. The Orange County Permittees would similarly request the opportunity to meet with you and other Regional Board staff to review in detail the changes requested in this comment submittal.

Overarching Issues of Concern with the Tentative Order

I. Failure to Consider Orange County Permittee Programs and Accomplishments

The Orange County Stormwater Program has been regulated under municipal NPDES stormwater permits since the first permit was issued in 1990. Subsequent permits were issued in 1996, 2002, and 2009. Since the inception of the Program the County of Orange and the other 12 Permittees have developed a comprehensive Drainage Area Management Plan (DAMP) that serves as the principal policy and guidance document for the entire Program, Local Implementation Plans (LIPs) that are developed by each Permittee to identify how the program is implemented on a city/jurisdiction basis, and through a series of watershed workplans for each watershed in the San Diego Region. These workplans detail the Permittee efforts to prevent and control pollutants on a watershed level.

The Orange County Stormwater Program is one of the few programs to date to have actively defined a series of performance metrics (headline measures) and use an assessment framework to define the relationships between compliance actions and, ultimately, positive changes in water quality. This assessment process is important because, in the end, the goal of the Program is to reduce urban pollutants and assist in attaining water quality standards.

Looking at the achievements that the Program has had since 1990, several major themes emerge:

- The Orange County Stormwater Program is proactive and a leader within the State
- The Permittees are engaged in the Program and provide valuable input into the process
- The Program uses several separate, but highly inter-related water quality planning processes to address urban sources of pollutants

- The Program recognizes the benefits of watershed-based planning and regional controls and has an increased emphasis to support this as foundational to the success of the Stormwater Program
- The Permittees adaptively manage the Program - the iterative process is actively employed and necessary modifications are proposed, reviewed and incorporated into the Program. Collaborative research is a key tool to understand and characterize sources of pollutants
- The existing framework and implementation of the Program meets or exceeds the permit requirements
- The Program receives significant funding and resources to ensure that it is successful
- Improvements in water quality have been realized including delistings from the 303(d) list

Specific successes include:

- With the 2010 303(d) List, Dana Point Harbor was delisted for indicator bacteria and several shoreline segments were delisted for *Enterococcus*, Fecal Coliform and/or Total Coliform
- In 2012, water quality in Orange County was excellent with 89% A grades and 94% B or better grades as reported by Heal the Bay in their annual beach water quality report card. Wet weather grades were fair (69% A or B grades) but bested the five-year average by 15%. Furthermore, for almost ten months (June 21, 2011 to April 6, 2012) Orange County did not have any beach closures, which is unprecedented. This is the longest stretch of time the county has gone without a single beach closure.
- The Permittees' public education program has changed public awareness as shown by surveys and is clearly promoting behaviors in our residents that are protective of water quality. In 2006 this effort - Project Pollution Prevention - was formally recognized for its excellence on a statewide basis by CASQA. In 2012, the American Public Works Association recognized our Project Pollution Prevention Public Education website as a "model practice." Results from the 2012 Public Awareness Survey of Orange County Residents indicate increased overall knowledge of stormwater issues and willingness to participate in stormwater pollution preventative behaviors in some key areas.
- With respect to land development, in 2012 the OC Engineering Council awarded the County with an Engineering Project Achievement Award for the Technical Guidance Document, which is the companion document to the Model Water Quality Improvement Plan.

There is concern that these achievements and the significant local engagement in the Program are not considered and approaches developed by the Permittees are sometimes overridden by the Tentative Order without support. For example, provisions dealing with land development, Low Impact Development (LID) and hydromodification control are significantly ratcheted up while award-winning permit programs are only just being implemented and/or pending approval and the programmatic successes as demonstrated with the annual effectiveness assessments are not recognized.

II. Lack of Authority to Include the Orange County Permittees in a Regional Permit

The Regional Board lacks the authority to include Orange County Permittees in a Regional Permit because there is no system-wide, jurisdiction-wide, watershed or other basis to do so. Orange County's MS4 does not interconnect with Riverside and San Diego Counties. There is no shared jurisdiction or other regional stormwater management authority that is applying for one permit. Orange County does not drain into a shared watershed, and the County is not adjacent to either county due to large federal lands that isolate Orange County from Riverside and San Diego. In addition, the quantity and nature of pollutants are different between the three counties. Therefore, the Regional Board cannot under federal and state regulations impose a Regional Permit without the Permittees expressly consenting to the Board's jurisdiction, as was done in the San Francisco Bay Area Regional Permit.

When preparing for the next iteration of each permit, the Permittees spend a significant amount of time and energy developing a Report of Waste Discharge (ROWD). The ROWD discusses the Permittee's compliance activities and includes a description of accomplishments, an assessment of program effectiveness using the California Stormwater Quality Program Effectiveness Assessment (CASQA) guidance in conjunction with the iterative process, the necessary programmatic changes that are evident as a result of the assessment, and, finally, a proposed new management program in the form of a draft updated DAMP. In the case of the current Tentative Order, new requirements are being proposed and will be adopted for south Orange County in the absence of a ROWD, since the Permittees are still covered by an existing permit and have not been required to submit one. As noted in previous correspondence, inclusion of south Orange County in a regional permit and in the absence of a ROWD is inappropriate.

III. Consistency in MS4 Permitting

In 2009, your staff committed in the last permit renewal to look at consistency with the State's other MS4 permits, notably those being promulgated by the Santa Ana Regional Board. This commitment represented recognition of the Little Hoover Commission's conclusions on the lack of consistency in MS4 permits as a critical area of concern and USEPA's interest in seeing greater permitting consistency. Nonetheless, while Regional Board staff has stated that the Tentative Order is meant to be a modest incremental update of the current south Orange County permit, it nevertheless escalates the regulatory requirements in many key areas, creates greater variance with the north Orange County permit, and appears to represent a singular rather than statewide vision of the future of MS4 permitting. The Fact Sheet (Attachment F) points to two similarities between the current Santa Ana Regional Board MS4 permit and the Tentative Order, but fails to identify the numerous other areas of inconsistency.

To the extent that the Tentative Order may ease the regulatory burden for your staff, there will be a commensurate increase in the burden for the County other Permittees that are dealing with multiple Regional Board jurisdictions if permitting in California continues to be defined by divergent rather than convergent approaches. We have therefore proposed many changes to the Tentative Order supportive of a more cogent alignment of our countywide Program. This consistency is important to the credibility of our respective efforts to manage urban runoff and is vital to sustaining the obvious cost effectiveness of a coordinated countywide program in

Orange County with promising synergies in other regions at a time of widespread economic distress for many communities.

It should also be noted that the Tentative Order provides no consideration at all for the five Permittees whose jurisdictional area is regulated under separate permits from the Santa Ana and San Diego Regional Boards. Fundamentally different requirements between our two permits, particularly within the same city, damage the credibility of the regulatory framework and confound the ability of local government to cost effectively address key environmental mandates.

IV. Prohibitions and Limitations

The Prohibitions and Limitations language in MS4 permits statewide was recently the subject of a State Water Resources Control Board workshop on November 20, 2012. The County provided testimony at this workshop expressing concern that the new iteration of permit language could expose the Permittees to State and federal enforcement actions, as well as to third party actions under the federal Clean Water Act's citizen suit provisions. This was the case with the recent Ninth Circuit Court of Appeals decision in the case of *Los Angeles County Flood Control District v. Natural Resources Defense Council*, No. 11-460, slip op. (Jan. 8, 2013). The proposed Prohibitions and Limitations provisions in the Tentative Order, as written, could be construed as standalone provisions that could expose the Permittees to Clean Water Act liabilities for discharges that cause or contribute to an exceedance of a water quality standard. Receiving water limitations must provide a compliance mechanism for exceedances of effluent limitations, water quality standards or TMDLs if the Permittees are diligently following an iterative process and implementing BMPs to the MEP standard

The Tentative Order should then reaffirm the iterative process in that compliance is to be achieved over time using improved BMPs. The iterative process is a fundamental aspect of MS4 programs, as envisioned by State Water Board Order 99-05 and later reconfirmed in Order WQ 2001 15 (BIA Order), and is the mechanism by which MS4 Permittees should demonstrate compliance. The County supports this approach and believes that the Regional Board has discretion on the receiving water limitations language beyond what is required to be included per Water Board Order 99-05.

The Permittees envision Water Quality Improvement Plans (WQIPs) as the foundation for an iterative BMP-based compliance approach for the discharge prohibitions and limitations and have provided detailed comments and recommended redline permit language in Attachment A.

V. New Requirements for Land Development

The evolution of MS4 permitting has largely been defined by a focus on land development. In 2009, MS4 programs on a statewide basis started to transition requirements for land development from "treat and release" runoff management to onsite retention with a new emphasis on LID, and hydromodification. Currently, while there is recognition of an emerging paradigm that the future management of urban landscapes should be based upon the principal

of seeking to restore of natural hydrologic processes, there is absolutely no clear consensus on how and where this approach should be effected.

The comments and proposed redline permit language in Attachments A and B are intended to shift the land development program toward an approach based upon nationally accepted LID principles, recognize the uncertainties and need for greater flexibility in hydromodification requirements, and offer a mitigative approach to urban land development that will produce meaningful environmental outcomes. Our revisions would recognize biofiltration as an equal LID BMP; ensure that the significantly more challenging requirements related to hydromodification are not imposed for discharges to channels that are engineered, concrete lined, significantly hardened, and/or are regularly maintained as part of a regional flood control program; and incorporate USEPA green street guidance to provide greater flexibility for land-constrained street, road, and highway projects consistent with other adopted MS4 permits in the State.

Additionally, the County has continued concern that the provisions dealing with land development, LID and hydromodification controls are significantly ratcheted up in the Tentative Order while existing Fourth Term Permit programs are only just being implemented and/or pending approval. The fact sheet and findings provide no foundation for the changes being proposed.

VI. TMDL Incorporation

The Regional Board has adopted two Basin Plan Amendments to establish Total Maximum Daily Loads (TMDLs) where the Permittees are assigned wasteload allocations: (1) Indicator Bacteria in Baby Beach in Dana Point Harbor and (2) Indicator Bacteria, Project I - Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek).

There are several fundamental and substantive discrepancies between the adopted TMDL Basin Plan Amendments and the provisions of the Tentative Order. These inconsistencies negate the Basin Plan Amendment process that occurred to establish the TMDLs and clearly contradict the Board's intent for how the TMDLs would be incorporated into the MS4 Permit. The Tentative Order should be revised to ensure that the TMDLs are properly incorporated as mass-based WLAs and not as concentration-based limits and that BMP-based compliance is established for the TMDL provisions. The Tentative Order should also provide an explicit re-opener provision to ensure that any revision to the TMDL is included in the adopted Order.

VII. Complimentary Watershed and Jurisdictional Planning

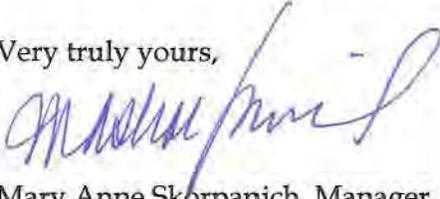
The WQIP approach represents a significant advance in the development and implementation of stormwater programs. The WQIP framework allows for the identification and development of a program built around the highest priority water quality conditions within a specific watershed. The WQIP also allows for the integration of all program elements and focuses the efforts on the highest priorities for each watershed through the customization of actions and strategies. If positioned correctly, the WQIP can be a significant advance in making the

Tentative Order and corresponding compliance programs truly strategic, adaptive, and synergistic.

The County believes the Tentative Order provisions, especially Provision E, JRMP, deviate from the strategic and adaptive approach to the anachronistic "one-size fits all" approach. For example, the Existing Development provisions dictate that specific BMPs that must be implemented, regardless of the high priority water quality concerns within a watershed. These provisions become "additive" instead of "prioritized" and are not supportive of the overarching WQIP. The Tentative Order should be modified so that the WQIPs and related Jurisdictional Runoff Management Plans can be streamlined and focus on the highest priorities within each watershed.

Thank you for your attention to our comments. Please contact the undersigned directly if you have any questions. For technical questions, please contact Chris Crompton at (714) 955-0630 or Richard Boon at (714) 955-0670.

Very truly yours,



Mary Anne Skorpanich, Manager
OC Watersheds



Ryan M. F. Baron
Senior Deputy County Counsel
Office of County Counsel

Attachments: A - Detailed Comments
B - Redline Version of the Tentative Order

Cc: (Electronic copies only)

David Gibson, San Diego Regional Board
Tony Felix, San Diego Regional Board
South Orange County Permittees
Orange County Technical Advisory Committee
Tony Olmos, Orange County Public Works
Todd Snyder, County of San Diego
Jason Uhley, Riverside County Flood Control and Water Conservation District
Andrew Kleis, City of San Diego

ATTACHMENT A

ORANGE COUNTY DETAILED COMMENTS ON CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN DIEGO REGION TENTATIVE ORDER No. R9-2013-0001 NPDES NO. CAS0109266

This document, Attachment A, contains the detailed legal and technical comments of the County of Orange and the Orange County Flood Control District (collectively, the “**County**”) on Tentative Order No. R9-2013-0001 dated October 31, 2012 (“**Tentative Order**”). These comments are divided into three sections (*General*, *Findings*, and *Permit Provisions*) and address issues relating to specific parts of the Tentative Order. At times, the issues and concerns raised will pertain to more than one section of the Tentative Order. In addition to the recommended language changes identified below, Attachment B (the recommended changes to the Tentative Order) also includes some minor edits in order to provide additional clarification where necessary.

The County of Orange, as the Principal Permittee, and the cities of Aliso Viejo, Dana Point, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, Mission Viejo, Rancho Santa Margarita, San Clemente, and San Juan Capistrano collectively refer to themselves as “San Diego Region Permittees” or “Permittees.” The Tentative Order refers to the County and incorporated cities of South Orange County as the “Copermittees.” As such, the comments below use the term “Copermittees” to be consistent with the terminology of the Tentative Order.

GENERAL

1. Permitting Consistency Is Critical Since Several Copermittees Are Regulated Under Multiple Regional Boards

Although the County of Orange is very supportive of the overall approach that the San Diego Regional Water Quality Control Board (Regional Board) is proposing with the development of the Water Quality Improvement Plans (WQIPs) to guide the Copermittees’ jurisdictional runoff management programs (JRMPs) towards the high priority water quality conditions within a watershed to achieve improvements, it is critical that consistency be maintained between Regional Boards, where feasible.

The Orange County stormwater program operates a unified countywide program of 36 Permittees, with five (5) Copermittees split between two (2) Regional Boards. Consequently, a number of our comments are aimed at creating greater uniformity and implementability between the two permits that we operate under. Fundamentally different requirements between our two permits, particularly within the same city, damage the credibility of the regulatory framework and confound the ability of local government to cost effectively address key environmental mandates. To this end, the County of Orange (County) has provided some recommended language changes within this document and Attachment B in order to try to preserve that consistency.

2. Many of the New or Modified Requirements within the Tentative Order Do Not Have Adequate Findings of Fact and/or Technical Justification

In many instances the Findings and/or Fact Sheet provide little or no justification of the need for the new requirement. Although Finding 35 states that the Fact Sheet “contains background information, regulatory and legal citations, references and additional explanatory information and data in support of the requirements of this Order”, many of the new or modified requirements within the Tentative Order do not have adequate findings of fact and/or technical justification. In addition, they do not identify the “program deficiency” that warrants the modification. The comments provided herein identify many of the areas where new or modified provisions of the Tentative Order lack factual or technical support in the Findings and/or Fact Sheet. Examples of this include, but are not limited to, the following:

- Basis for including Orange County in the regional municipal stormwater permit;
- Basis for the 10 year timeline to achieve the final numeric goals identified within the Water Quality Improvement Plans (WQIPs);
- Basis for requiring uncontaminated pumped ground water, foundation drains, water from crawl space pumps, and footing drains to obtain coverage under the San Diego Region groundwater extraction permits;
- Basis for including single family residential projects as a category requiring coverage as a Priority Development Project;
- Basis for including U.S. Green Building Council (USGCB) Leadership in Energy and Environmental Design (LEED) as exemption criteria for single family residential projects and for alternative compliance for hydromodification management;
- Basis for requiring conventional BMPs onsite in addition to alternative compliance;
- Basis for hydromodification requirements not considering existing Hydromodification Management Plans and being a one size fits all approach;
- Basis for biofiltration BMPs required to be sized at 1.5 times the design capture volume;
- Basis for biofiltration BMPs not being an effective LID and treatment measure per the requirement to size them at 1.5 times the design capture volume and also require conventional BMPs when they are used.
- Basis for offsite regional BMPs required to be sized at 1.1 times the design capture volume;
- Basis for verification of coverage under all related permits for construction sites;
- Basis for evaluation and retrofit/rehabilitation of stream channel systems;
- Basis for including residential driveways as a category requiring coverage as a Priority Development Project;
- Basis for not incorporating the Total Maximum Daily Load (TMDL) waste load allocations (WLAs) into the Tentative Order; and
- Basis for establishing Water Quality Based Effluent Limits (WQBELs) expressed as numeric effluent limitations, in lieu of WQBELs expressed as BMPs, for the TMDL provisions.

3. The Numbering in the Tentative Order Should Explicitly Identify the Major Sections to Help Guide the Reader

The County is recommending that the Regional Board explicitly identify the numbering system within the Tentative Order subsections in order to assist and orient the reader. For example, within the Provisions (Section II of the Tentative Order):

- The sub-sections within Provision A should be listed as:
 - *A.1 Discharge Prohibitions* instead of *1. Discharge Prohibitions*
 - *A.2 Receiving Water Limitations* instead of *2. Receiving Water Limitations*
- The sub-sections within Provision B should be listed as:
 - *B.1 Watershed Management Areas* instead of *1. Watershed Management Areas*
 - *B.2 Priority Water Quality Conditions* instead of *2. Priority Water Quality Conditions*

Given the styles and formatting currently used within the Tentative Order, these edits were not made within Attachment B.

FINDINGS

4. Finding 2 (Page 1 of 120) – A Regional Permit Cannot Be Issued to Orange County Because There Is No System-wide, Jurisdiction-wide, Watershed or Other Basis to Do So

The Tentative Order is intended to cover Copermitttees in three large metropolitan counties – Orange, Riverside and San Diego. In May 2012, Orange and Riverside Counties (“**Counties**”) sent letters to Staff Counsel for the Regional Board requesting the legal authority to issue a regional permit to the three counties.¹ The Counties contended that, in accordance with federal regulations, there was no system-wide, jurisdiction-wide or watershed basis to issue a regional permit. The Counties also asserted that the lack of a Report of Waste Discharge (ROWD) process for either county prior to the initial adoption of the Tentative Order prevented the issuance of a regional permit on the grounds that there was a conflict with both federal and state law. On September 7, 2012, Staff Counsel responded to the Counties stating that there was a jurisdiction-wide and watershed basis to impose a regional permit on the Counties, and cited legal authority and examples in the Bay Area and an Alaskan borough where regional permits had been issued.²

For the following reasons, the County continues to believe that the Regional Board lacks authority to issue a regional permit to Orange County:

1. Orange County’s MS4 system does not interconnect with Riverside and San Diego Counties,
2. There is no jurisdictional basis to issue a regional permit to Orange County,

¹ Letter from Ryan M. F. Baron, Office of County Counsel, County of Orange, to Catherine Hagan, Office of Chief Counsel, State Water Resources Control Board, San Diego Region (May 10, 2012); Letter from David H. K. Huff, Office of County Counsel, County of Riverside, to Catherine Hagan, Office of Chief Counsel, State Water Resources Control Board, San Diego Region (May 21, 2012).

² Letter from Jessica Jahr, California Regional Water Quality Control Board, San Diego Region, to Ryan M. F. Baron, Office of County Counsel, County of Orange, and David H. K. Huff, Office of County Counsel, County of Riverside (Sept. 7, 2012).

3. Orange County's MS4 does not drain into a shared watershed, and
4. Orange County's MS4 is not adjacent to Riverside or San Diego's MS4, and the quantity and nature of pollutants differ between the three counties.

Therefore, the Regional Board cannot under federal and state regulations impose a Regional Permit without the Permittees expressly consenting to the Board's jurisdiction.

A. There Is No System-wide, Jurisdiction-Wide, Watershed or Other Basis by Which to Legally Impose a Regional Permit on Orange County

Finding 2 in the Tentative Order states that the legal and regulatory authority for implementing a regional MS4 permit stems from Section 402(p)(3)(B) and 40 CFR 122.26(a)(1)(v). The Tentative Order also cites EPA's Final Rule regarding stormwater discharge permit application procedures that there is flexibility to establish system-wide or region-wide permits.³ During Focused Meeting Workshops conducted on June 27, 2012 and July 11, 2012, Regional Board staff stated that the reason for a regional permit was to consolidate all three permits into one to lessen the amount of permit writing time for three separate permits and reduce internal costs for writing and issuing permits. The justification at Finding 2 is largely the same although it adds that the "regional nature of this Order will ensure consistency of regulation within watersheds and is expected to result in overall costs savings for the Copermitees and San Diego Water Board."⁴

First, although Orange County geographical boundaries abut San Diego and Riverside Counties, Orange County's MS4 does not interconnect with the counties regulated under the regional permit (see map in **Appendix A-1**). There is substantial undeveloped area between the developed jurisdictions of Orange County and Riverside Counties. The Santa Ana Mountains and the Cleveland National Forest separate Orange and Riverside Counties encompassing tens of thousands of acres of total land separating the two counties. Camp Pendleton military base separates Orange and San Diego Counties totaling over 122,000 acres with no adjacent cities or interconnected MS4s. Clean Water Act (CWA) regulations expressly state that a permit can be issued on a system-wide basis covering all discharges from MS4s within a large or medium municipal storm sewer system. One of the primary considerations in defining a "large or medium municipal separate storm sewer system" is one that has physical interconnections with other municipal separate storm sewers.⁵ In this case, there are no physical interconnections.

Secondly, there is no jurisdiction-wide basis to issue a regional permit. 40 CFR 122.26(a)(3)(ii) states that one system-wide permit can cover all discharges from MS4s within a large or medium municipal storm sewer system located within the same jurisdiction. Orange, Riverside and San Diego Counties are separate counties with distinct political and geographical boundaries that do not drain into a common watershed and do not share physical interconnections. The three counties are not within the same political jurisdiction. While Region 9 can be considered one jurisdiction for Regional Water Board purposes, federal regulations state that there has to be one stormwater management regional authority in which to issue a permit, and the Regional Board is not such an authority.⁶ Regardless, such a permit can only be issued to a multi-jurisdictional entity upon a permit application and upon there being an

³ 55 Fed. Reg. 47990, 48039-48042.

⁴ Part I.2.

⁵ 40 CFR 122.26(b)(4) (defining large systems); 40 CFR 122.26(b)(7) (defining medium systems)

⁶ 40 CFR § 122.26(a)(3)(iii)(C).

interconnected MS4 or adjacent MS4. There is no tri-county stormwater management authority, there is no system-wide interconnection and Orange County is not adjacent to San Diego and Riverside Counties due to the large federal lands that separate the County.

Third, Orange County does not drain into a shared watershed with Riverside and San Diego Counties. The Orange County Copermittees drain into various watersheds that drain into the Pacific Ocean. The Riverside County Copermittees drain into the Santa Margarita watershed. San Diego County drains into various watersheds. Orange County's MS4 does not drain into or share one common watershed with either county, and therefore cannot be regulated on this basis.

There is no other basis by which to regulate Orange County in the same permit with Riverside and San Diego Counties. Although it is true that Orange County political boundaries abut the two counties, there are hundreds of thousands of acres of federal land that separate Orange County, and thus, the County's MS4 does not interconnect with and is not adjacent to its neighbors like Orange County is with Los Angeles County. Based on differing permit requirements for the three counties, such as TMDLs, and data filed in annual reports and past ROWDs, the quantity and nature of pollutants are different between the three counties, and do not serve as a basis or determination by which to lump all three counties into a one-size fits all permit (e.g., hydromodification). In addition, federal regulations look to interconnection and similarities between jurisdictions as the basis by which to issue one permit.⁷ Federal regulations do not authorize and the EPA Final Rule does not contemplate regional permit issuance based on overall reduced cost savings, and overall cost savings have not been demonstrated in the Tentative Order.⁸ And although it may be convenient to ensure consistency of regulation, EPA Final Rule contemplates such consistency within a watershed and not throughout a geographical area the size of the three counties. In fact, the EPA Final Rule does indeed use the term "regional" throughout its analysis in the Response to Comments. A careful examination of the term "regional," however, shows that EPA was analyzing whether individual permits should be issued to individual cities, a county and its incorporated cities, a set of Copermittees with interconnected sewer systems and other infrastructure, one state entity or a regional stormwater management authority. The largest area by which one permit could be issued under the Final Rule was essentially to a state entity or one county and its incorporated cities. There is no factual or technical basis in the Tentative Order that meets this criteria or establishes other bases to regulate Orange County under one unified permit. There is also no statistical basis by which to issue a regional permit as Orange County is comprised of over three million people and is the sixth largest county by population in the U.S. In fact, the U.S. Bureau of Census designates Orange County in a different Metropolitan Statistical Area than San Diego County, and is designated in a Combined Statistical Area with Los Angeles, Ventura and San Bernardino Counties.

Lastly, the letter from Staff Counsel cites examples in the Bay Area and in Alaska where regional permits have been issued. In the Bay Area, various cities and counties under that permit interconnect in some fashion and drain into the San Francisco Bay. The Bay Area is also represented by a joint powers organization or regional watershed management program comprised of 8 municipal stormwater programs that voluntarily agreed to end their existing permits early and enroll in a regional permit. In the case of the Alaska example, a "regional" permit was issued to the Fairbanks North Star Borough, City of Fairbanks, City of the North

⁷ 33 USC 1342(p)(3)(B)(i); 40 CFR 122.26(a)(1)(v).

⁸ 55 Fed. Reg. 47990-01.

Pole, the Alaska Department of Transportation and the University of Alaska Fairbanks. Further examination of that permit and the stormwater program maps demonstrate, though, that the region regulated is a borough, the Alaskan equivalent of a county. All of the regulated Copermittees are physically interconnected through its storm drain system and roadways, and most drain into one watershed. In short, neither the Bay Area nor the Fairbanks Borough permits provide sufficient examples of a regional permit comparable to the one being issued to Orange County.

B. There Is No Technical Basis to Regulate Orange County Due to the Lack of a Report of Waste Discharge Application.

The ROWD is a federally required application that is the technical basis to draft a new permit for a permittee. The information contained in the ROWD is used to determine prospective provisions of the new permit, including but not limited to monitoring, program strengths and other tools that are assessed in the new permit. In other words, the ROWD is the technical basis or substantial evidence for determining what will be required in the new permit. In the case of the Tentative Order, permit conditions that will apply to Orange County upon the expiration of its current permit in December 2014 or upon early enrollment are not based on any ROWD filed by the County. Thus, there is no technical basis or substantial evidence to regulate Orange County under a regional permit, and therefore, the regional permit terms and conditions are arbitrary and capricious. The initial draft of the Tentative Order did not contain a ROWD requirement for Orange County. The Order was subsequently revised to include a ROWD requirement to determine whether modification to the Order upon enrollment by Orange County is necessary, but the Tentative Order will still be adopted by the Regional Board with terms and conditions that apply to Orange County that are not based on any federally required application or report. Orange County's current Fourth Term permit has been in existence for only two years with programs that have just started, or like hydromodification, have not yet started or are in interim phases. Therefore, the current programs do not provide any meaningful benchmark by which to draft new regional permit terms that apply to the County. And, in addition, the ROWD requirement that is now in the Tentative Order is essentially an after the fact application.

In short, the Tentative Order is drafted and will be initially adopted by the Regional Board with provisions that will generally regulate Orange County Copermittees, along with specific numeric and other requirements that will only apply to Orange County that are not based on an application process or other documented technical basis. There is no substantial evidence or CWA basis by which to impose certain regulations on the County. Thus, the lack of a ROWD requirement prior to initial adoption of a regional permit is in conflict with the CWA, Porter Cologne and the California Administrative Procedure Act.

The County recommends the following language changes:

1. Findings

2. Legal and Regulatory Authority

This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations (Code of Federal Regulations [CFR] Title 40, Part 122 [40 CFR 122]) adopted by the United States Environmental Protection Agency (USEPA), and chapter 5.5, division 7 of the California Water Code (CWC) (commencing with section 13370). This Order serves as an NPDES permit for discharges from MS4s to surface waters. This Order also serves as waste discharge requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the CWC (commencing with section 13260).

~~The San Diego Water Board has the legal authority to issue a regional MS4 permit pursuant to its authority under CWA section 402(p)(3)(B) and 40 CFR 122.26(a)(1)(v). The USEPA also made it clear that the permitting authority, in this case the San Diego Water Board, has the flexibility to establish system- or region-wide permits (55 Federal Register [FR] 47990, 48039-48042). The regional nature of this Order will ensure consistency of regulation within watersheds and is expected to result in overall cost savings for the Copermitees and San Diego Water Board.~~

The federal regulations make it clear that the Copermitees need only comply with permit conditions relating to discharges from the MS4s for which they are operators (40 CFR 122.26(a)(3)(vi)). This Order does not require the Copermitees to manage storm water outside of their jurisdictional boundaries, but rather to work collectively to improve storm water management within watersheds.

I. Findings

26. Report of Waste Discharge Process

.....~~The San Diego Water Board understands that each municipality is unique although the Counties share watersheds and geographical boundaries. The Order will continue to use the Report of Waste Discharge process prior to initially making Orange County or Riverside County Copermitees subject to the requirements of this Order.~~

5. Finding 8 (Page 3 of 120) – It Should Not Be Presumed That Discharges From MS4s Always Contain Waste or Pollutants

Discharges may contain waste or pollutants, but it should not be presumed that they necessarily always contain waste or pollutants.

Under current law, the State Board's issuance of the Small MS4 Permit is a quasi-judicial decision.⁹ As a quasi-judicial decision, the State Board's action must be supported by legally adequate findings, and those findings must be supported by evidence in the record.¹⁰

Pursuant to the Supreme Court's decision in *Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, findings are intended to "facilitate orderly analysis and **minimize the likelihood that the agency will randomly leap from evidence to conclusions.**"¹¹ Here, there is no cited evidence that stormwater itself is a pollutant or that in every instance it contains pollutants or waste as those terms are defined by the CWA and Porter Cologne respectively. Absent evidence demonstrating that this is the case, in all cases, the Regional Board cannot make this finding.

Moreover, as a matter of law, the Regional Board lacks the authority to regulate pure stormwater as a pollutant. The CWA and its implementing regulations define the term "pollutant" to mean:

dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials

⁹ *City of Rancho Cucamonga v. Regional Water Quality Control Board* (2006) 135 Cal.App.4th 1377, 1385.

¹⁰ *Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506.

¹¹ *Id.*, at 514 [emphasis added].

(except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water¹².

Federal regulations further define the term “stormwater” to mean: “storm water runoff, snow melt runoff, and surface runoff and drainage.”¹³ Notably, the definition of the term “Pollutant” does not include “Stormwater.” Moreover, the text of the CWA requires the discharges of *pollutants* to be reduced to the Maximum Extent Practicable (MEP).¹⁴ There is no prohibition on or comparable authority to regulate the discharge of pure *stormwater*.

This rationale was recently adopted by the Eastern District of Virginia, when it held that the EPA has no authority under the Clean Water Act to regulate non-pollutants.¹⁵ Specifically, the Court stated:

Pollutant is statutorily defined. (33 U.S.C. § 1362(6).) The Court sees no ambiguity in the wording of this statute. EPA is charged with establishing TMDLs for the appropriate pollutants; that does not give them the authority to regulate nonpollutants. The parties agree that sediment is a pollutant under 33 U.S.C. § 1362(6), and stormwater is not. Then how does EPA claim jurisdiction over setting TMDLs for stormwater.¹⁶

Likewise, Porter Cologne defines the term “Waste” to mean:

sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal.¹⁷

While the definition is certainly different and potentially broader than the definition of *Pollutant* under the CWA, the definition of waste does not include stormwater or any other discharge that is not created by human activity. As a matter of law, the Regional Board is therefore without authority to regulate all discharges of stormwater as pollutants or waste.

¹² 33 U.S.C. § 1362(6); 40 C.F.R. § 122.2.

¹³ 40 C.F.R. § 122.26(b)(13).

¹⁴ 33 U.S.C. § 1342(p).

¹⁵ Virginia Dept. of Transportation v. EPA, No. 1:12-CV-775, slip op. (E.D. Va. Jan. 3, 2013).

¹⁶ Id., at 5.

¹⁷ Cal Water Code § 13050(d).

The County recommends the following language changes:

I. Findings

8. Point Source Discharges of Pollutants

Discharges from the MS4s may contain waste, as defined in the CWC, and pollutants that adversely affect the quality of the waters of the state. A discharge from an MS4 is a “discharge of pollutants from a point source” into waters of the U.S. as defined in the CWA. Storm water and non-storm water discharges from the MS4s may contain pollutants that cause or threaten to cause a violation of surface water quality standards, as outlined in the Basin Plan.....

16. Best Management Practices. Waste and pollutants which are deposited and accumulate in MS4 drainage structures may will be discharged from these structures to waters of the U.S. unless they are removed.....

17. BMP Implementation.Retrofitting areas of existing development with storm water pollutant control and hydromodification management BMPs is may, in many cases be necessary to address storm water discharges from existing development that may cause or contribute to a condition of pollution or a violation of water quality standards.

6. Finding 11 (Page 4 of 120) – Natural Waters Cannot Legally Be Classified as Part of the MS4, and Cannot Be Classified as Both a MS4 and Receiving Water

The Tentative Order states that development often makes use of natural drainage patterns and features as conveyances for runoff. Finding 11 goes on to state that rivers, streams and creeks in developed areas are part of the Copermittees’ MS4 whether the river, stream or creek is natural, anthropogenic or partially modified. It further states that these natural water bodies are both an MS4 and a receiving water.

Finding 11 is expressly contradicted by federal regulations and a recent opinion by the U.S. Supreme Court. Natural creeks cannot legally be classified as part of the MS4, and the MS4 and a water of the U.S. cannot be comingled. The flow of water from an improved portion of a navigable waterway into an unimproved portion of the same waterway does not qualify as a “discharge of a pollutant” under the CWA.¹⁸

In addition, the definition of a *municipal separate storm sewer* means “a conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains:

- i. Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) ... including special districts under state law such as a sewer district sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the Clean Water Act that discharges into waters of the United States;

¹⁸ *L.A. County Flood Control District v. NRDC*, slip op. (Jan. 8, 2013); *South. Fla. Water Management Dist. V. Miccosukee Tribe*, 541 U.S. 95, 109-112 (holding that the transfer of a polluted water between two parts of the same waterbody does not cause a discharge of pollutants under the CWA).

- ii. Designed or used for collecting or conveying stormwater;
- iii. Which is not a combined sewer; and
- iv. Which is not part of a publicly owned treatment works (POTW) as defined at 40 CFR 122.2."¹⁹

This definition only includes man-made channels and systems and does not encompass natural water bodies simply because an outfall discharges to a receiving water. Any water quality improvement to a natural river, stream or creek does not mean it is a MS4, but an improved water of the U.S. Moreover, U.S. EPA itself, in the Preamble to its proposed MS4 regulations²⁰ expressly determined that “streams, wetlands and other water bodies that are waters of the United States are not storm sewers for the purposes of this rule” and that “stream channelization, and stream bed stabilization, which occur in waters of the United States” were not subject to NPDES permits under Section 402 of the CWA²¹.

Lastly, municipalities do not own, control or operate natural rivers, streams and creeks. Such water bodies are often administrated by the State of California in the public trust for the right of the people to use such waters for certain purposes or are privately owned.²² The Legislature, acting within the confines of the common law public trust doctrine, is the ultimate administrator of the trust and may often be the final arbiter of permissible uses of trust lands. Moreover, a municipality obviously cannot “operate” a natural creek or stream.

The County recommends the following language changes:

I. Findings

11. Runoff Discharges to Receiving Waters

...Historic and current development makes use of natural drainage patterns and features as conveyances for runoff. ~~Rivers, streams and creeks in developed areas used in this manner are part of the Copermittees' MS4s regardless of whether they are natural, anthropogenic, or partially modified features. In these cases, the rivers, streams and creeks in the developed areas of the Copermittees' jurisdictions are both an MS4 and receiving water. Numerous receiving water bodies and water body segments have been designated as impaired by the San Diego Water Board pursuant to CWA section 303(d).~~

7. Finding 12 (Page 4 of 120) – Copermittees Do Not Accept Free and Open Access to MS4s, and Are Not Responsible for All Discharges not Prohibited

The Tentative Order states that MS4s willingly provide free and open access and convey discharges to waters of the U.S., and that MS4 operators then accept all responsibility for such discharges not prohibited or otherwise controlled. This is simply not the case and is legally unsupportable. An MS4 is designed to accept stormwater for flood control purposes and prevent damage to life and property. Although it is true that the Copermittees have an obligation to effectively prohibit non-stormwater discharges, namely illicit connections and unlawful dumping, it is also true that the discharger into the MS4 is ultimately responsible for a condition of pollution or violation of a water quality standard. And, in accordance with California

¹⁹ 40 CFR 122.26(b)(8).

²⁰ 53 Fed. Reg. 49416 (Dec. 7, 1988)

²¹ 53 Fed. Reg. at 49442.

²² *Marks v. Whitney* (1971) 6 Cal. 3d 251, 259, 260.

state law, MS4s downstream of upstream flows must accept those flows and cannot attempt to block or divert such flows.²³ Finding 12 attempts to shift all legal responsibility to the MS4s, which is unsupported by federal and State law.

The County recommends the following language changes:

I. Findings

12. Pollutants in Runoff

.... As operators of the MS4s, the Copermittees cannot passively receive and discharge pollutants from third parties. ~~By providing free and open access to an MS4 that conveys discharges to waters of the U.S., the operator essentially accepts responsibility for discharges into the MS4 that it does not prohibit or otherwise control.~~ These discharges may cause or contribute to a condition of pollution or a violation of water quality standards.

8. Finding 15 (Page 5 of 120) – The Tentative Order Must Recognize that the Discharge of All Pollutants From the MS4 is Subject to the MEP Standard

Section 402(p)(3)(B)(ii) requires the Copermittees to effectively prohibit non-stormwater discharges into the MS4, namely pollutants generated from illicit connections and unlawful dumping.

The Tentative Order at Finding 15, however, states that non-stormwater discharges are not subject to the MEP standard. This finding is not supported by federal law. While federal law regulates “non-stormwater discharges” into the MS4, Section 402(p)(3)(B)(iii) expressly states that the “discharge of pollutants” shall be reduced to MEP. In drafting this section of the CWA, Congress expressly intended all discharges from MS4s to be subject to MEP as it used the term “pollutant” and did not differentiate between stormwater and nonstormwater, as the Tentative Order attempts to do. Therefore, the duty of the Copermittees to reduce the discharge of pollutants from the MS4 to MEP applies to both stormwater and nonstormwater pollutants.

Furthermore, the focus of the CWA and federal regulations is on a management program that includes a comprehensive planning process to reduce the discharge of pollutants to MEP.²⁴ One of the elements of the management program is the illicit discharge prevention program.²⁵ The control and limitation of illicit discharges into the MS4 is intended to achieve the overall MEP standard for discharges from the MS4. This is confirmed by the preamble to EPA regulations that discuss the required elements of the management program. According to EPA:

[Copermittees are required] to develop [management programs for four types of pollutant sources which discharge to large and medium municipal storm sewer systems. Discharges from large and medium municipal storm sewer systems are usually expected to be composed primarily of: (1) Runoff from commercial and residential areas; (2) storm water runoff from industrial areas; (3) runoff from construction sites; and **(4) non-storm water discharges**. Part 2 of the permit application has been designed to allow [Copermittees] the opportunity to propose **MEP control measures for each of these components of the discharge**. 55 Fed Reg at 48052 (emphasis added). See also 55 Fed Reg at 48045 (stating “Part 2 of the proposed permit application [which includes the illicit discharge prevention requirement] is designed to . . . provide municipalities with

²³ *Keyes v. Romley* (1966) 64 Cal.2d 396; *Locklin v. City of Lafayette*, (1994) 7 Cal. 4th 327.

²⁴ 40 CFR 122.26(d)(2)(iv).

²⁵ 40 CFR 122.26(d)(2)(iv)(B)(1).

the opportunity of proposing a comprehensive program of structural and non-structural control measures that will **control the discharge of pollutants, to the maximum extent practicable, from municipal storm sewers.**) (Emphasis added).

EPA's position is consistent with existing State Water Resources Control Board policy which states that discharges into the MS4 are to be controlled through an iterative, BMP based approach that is *less stringent* than the MEP standard.²⁶ The State Board held:

An NPDES permit is properly issued for “discharge of a pollutant” to waters of the United States. (Clean Water Act § 402(a).) The Clean Water Act defines “discharge of a pollutant” as an “addition” of a pollutant to waters of the United States from a point source. (Clean Water Act section 502(12).) Section 402(p)(3)(B) authorizes the issuance of permits for discharges “from municipal storm sewers.”

We find that the permit language is overly broad because it applies the MEP standard not only to discharges “from” MS4s, but also to discharges “into” MS4s. . . [T]he specific language in this prohibition too broadly restricts all discharges “into” an MS4, and does not allow flexibility to use regional solutions, where they could be applied in a manner that fully protects receiving waters. It is important to emphasize that dischargers into MS4s continue to be required to implement a full range of BMPs, including source control. In particular, dischargers subject to industrial and construction permits must comply with all conditions in those permits prior to discharging storm water into MS4s.²⁷

The State Board's decision in the Building Industry Association (BIA) matter makes clear that the CWA does not include a blanket prohibition on discharges of non-stormwater into the MS4. To the extent the Tentative Order would hold the dischargers liable in the event that any discharge into the MS4 occurs, the Tentative Order exceeds the requirements of the CWA and violates existing State Board policy.

It is also technically infeasible in some cases to differentiate between non-stormwater or stormwater pollutants discharged from the MS4. Thus, just as the discharge of non-stormwater into the MS4 is subject to the effective prohibition standard, the discharge of pollutants in non-stormwater from the MS4 is subject to the MEP standard. There are several instances where the specific provisions in the Tentative Order need to be modified in order to reflect this approach.

The County recommends the following language changes:

I. Findings

3. CWA NPDES Permit Conditions

....This Order prescribes conditions to assure compliance with the CWA requirements for owners and operators of MS4s to effectively prohibit non-storm water discharges ~~in to~~ into the MS4s, and require controls to reduce the discharge of pollutants in storm water from the MS4s to the MEP.

²⁶ Specifically in State Board in Order No. WQ-2001-15, *In the Matter of the Petitions of Building Industry Assoc. of San Diego County and Western States Petroleum Assoc.* (2001).

²⁷ *Id.*, at 9-10.

I. Findings

15. Non-Storm Water and Storm Water Discharges

The discharge of pollutants from the MS4 is subject to the MEP standard notwithstanding whether the pollutants are transported by stormwater or non-stormwater. Non-storm water discharges from the MS4s are not considered storm water discharges and therefore are not subject to the MEP standard of CWA section 402(p)(3)(B)(iii), which is explicitly for “Municipal ... Stormwater Discharges (emphasis added)” from the MS4s. Pursuant to CWA 402(p)(3)(B)(ii), non-storm water discharges into the MS4s, namely identified illicit discharges and pollutants from unlawful dumping, must be effectively prohibited.

II. Provisions

A. Prohibitions and Limitations

The purpose of this provision is to describe the conditions under which storm water from and non-storm water discharges into ~~and from~~ the MS4s are effectively prohibited or limited.

E. Jurisdictional Runoff Management Programs [Intro]

The purpose of this provision is for each Copermittee to implement a program to control non-stormwater the discharges contribution of pollutants into and the stormwater discharges from the MS4 within its jurisdiction and to focus and prioritize those implementation actions based on the highest water quality priorities identified within the associated Water Quality Improvement Plan.....

E. Jurisdictional Runoff Management Programs

1. Legal Authority Establishment and Enforcement

a.(1) Effectively prohibit and eliminate all illicit discharges and illicit connections into its MS4;
a.(2) Control the contribution of pollutants in discharges of runoff associated with industrial and construction activity into its MS4 and control the quality of runoff from industrial and construction sites

E. Jurisdictional Runoff Management Programs

2. Illicit Discharge Detection and Elimination

a. Non-stormwater Discharges

(3) Discharges of non-storm water into the MS4 from the following categories must be controlled by the requirements given below through statute, ordinance, permit, contract, order, or similar means, where there is evidence that those discharges are a source of pollutants to waters of the state. Discharges of non-storm water into the MS4 from the following categories not controlled by the.....

E. Jurisdictional Runoff Management Programs

2. Illicit Discharge Detection and Elimination

b. Prevent and Detect Illicit Discharges and Connections

(3) Each Copermittee must promote, publicize, and facilitate public reporting of the presence of illicit discharges or water quality impacts associated with discharges into or from the MS4, including the following methods for public reporting

E. Jurisdictional Runoff Management Programs

2. Illicit Discharge Detection and Elimination

e. Investigate and Eliminate Illicit Discharges and Connections

(1) Each Copermittee must prioritize and determine when follow-up investigations will be performed in response to visual observations and/or water quality monitoring data collected during an investigation of a detected non-storm water or illicit discharge into or from the MS4

E. Jurisdictional Runoff Management Programs

2. Illicit Discharge Detection and Elimination

e. Investigate and Eliminate Illicit Discharges and Connections

(2)(c) Each Copermittee must investigate and seek to identify the source(s) of ~~discharges of non-stormwater where flows are~~ illicit discharges or illicit connections observed into and from the MS4 during the...

E. Jurisdictional Runoff Management Programs

2. Illicit Discharge Detection and Elimination

e. Investigate and Eliminate Illicit Discharges and Connections

(3)(e) If the Copermittee is unable to identify and document the source of a recurring ~~non-stormwater discharge~~ illicit discharges or connections into or from the MS4, then the....

E. Jurisdictional Runoff Management Programs

5. Existing Development Management

c. Existing Development Inspections

(1)(ii) The frequency of inspections must be appropriate to confirm that BMPs are being implemented to reduce the discharge of pollutants in storm water from the MS4 to the MEP and effectively prohibit non-storm water discharges into the MS4;

9. Finding 28 (Page 9 of 120) – The Requirements in the Tentative Order Are More Stringent Than Federal Law, Requiring An Economic Analysis. In Addition, the Current Economic Analysis Is Insufficient

Finding 28 states that pollutant restrictions are not more stringent than federal law, yet an economic analysis is still conducted pursuant to CWC 13241. Despite the finding that the Tentative Order does not exceed federal law requirements, there are a number of requirements that are more stringent.

However, when you evaluate the economic analysis presented in the Fact Sheet[1] the Regional Water Board staff did not, in fact, fully consider the 13241 factors when they make the finding that the “requirements in this Order are reasonably necessary to protect beneficial uses.” There has not been a full consideration of the section 13241 factors, which would include an analysis of the economic impacts that would result from compliance with the existing stormwater permit compared to the costs of complying with the proposed stormwater permit (thereby the costs of complying with the new requirements). Instead, the Order’s analysis begins by stating, and without any quantification, that it would more expensive to not fully implement programs. Section 13241 is not satisfied by this inverse analysis.

Additionally, the Tentative Order states that Copermittees have a significant amount of flexibility to choose how to implement BMPs and that “least expensive measures” can be chosen.²⁸ This

²⁸ F-17.

statement, however, conflicts with the Order's definition of MEP at C-6 which expressly acknowledges Chief Counsel's 1993 MEP memo that only the Regional and State Boards determine whether BMPs meet MEP, and that selection of the least expensive BMPs will likely not result in meeting the MEP standard.

The Fact Sheet also fails to cite any recent cost benefit numbers but relies on inapplicable cost data such as a 1999 EPA study on household costs.

The analysis of costs contained in the Fact Sheet is deficient in two additional ways. First, the approach to compliance costs is fundamentally deficient because it tells the public nothing at all about the relationship between the cost of any particular control and the pollution control benefits to be achieved by implementing that control. Under this "generalized" approach, extremely costly requirements that bear little or even no relationship (or even a negative relationship) to the pollution control benefits to be achieved could be "justified" as long as the "overall" program costs are within what the Regional Board deems to be an acceptable range. This is not a proper way to determine whether a control reduces the discharge of pollutants from the MS4 to the MEP. A more individualized assessment of cost is required. Otherwise, dischargers may be required to implement very costly controls that have no relationship to pollution control benefits, a result inconsistent with MEP.

This analytical flaw in the Fact Sheet is compounded by the approach taken to assess the benefits of the Tentative Order. Here again, the assessment approach misses the mark because it tells the public nothing about the pollution control benefits to be achieved by implementation of the controls in the Tentative Order. All the Fact Sheet says, in essence, is that people like clean water and in theory may be willing to pay for it, that urban storm water may contribute to beach closures and that such beach closures have an economic impact. This analysis sheds no light on the relationship between a BMP's costs and the pollution control benefits to be achieved by implementing that BMP.

Second, the Fact Sheet contains faulty assumptions and relies upon outdated or inapplicable data. The California State University, Sacramento (CSUS) Cost Survey assessed program costs for Phase I cities. Nothing in the Fact Sheet links any of the actual conditions of the Phase I permits of the Phase I cities studied by CSUS with any of the requirements of the Tentative Order. Therefore, the study tells the public nothing about the costs to implement the Tentative Order. The data included in the Fact Sheet is also from seven years to more than a decade old. In short, the Fact Sheet uses old data from Phase I programs that have no linkage to any conditions of the Tentative Order. The full costs of implementing the entire program required by the Tentative Order in 2013 dollars must be assessed.

Lastly, stormwater agencies cannot readily establish or raise fees to help pay for the BMPs necessary to comply with either the California Toxics Rule (CTR) criteria or proposed Site Specific Objectives (SSOs) due to the requirements of Proposition 218, Proposition 26 and the Mitigation Fee Act. For instance, Proposition 218 requires that property-related fees be put to a vote, so cities cannot assess fees without the consent of a majority (two-thirds) of the property owners. Therefore, the costs associated with the implementation and maintenance of the BMPs are more likely to be covered through the stormwater agency General Funds.

The County recommends the following language changes:

I. Findings

28. Economic Considerations

As noted in the following finding, the San Diego Water Board finds that the requirements in this permit are not more stringent than the minimum federal requirements. Therefore, a CWC section 13241 analysis is not required for permit requirements that implement the effective prohibition on the discharge of non-storm water into the MS4 or for controls to reduce the discharge of pollutants in storm water to the MEP, or other provisions that the San Diego Water Board has determined appropriate to control such pollutants, as those requirements are mandated by federal law. ~~Notwithstanding the above, the San Diego Water Board has developed an economic analysis of the requirements in this Order. The economic analysis is provided in the Fact Sheet.~~

10. Finding 29 (Page 9 of 120) – The Regional Board has no Legal Ability to Determine Whether a Particular Mandate is Unfunded

The Tentative Order finds that none of the requirements therein constitute an unfunded local mandate. This finding, however, should be stricken as the Regional Board has no legal ability to determine whether a particular mandate is unfunded. The Commission on State Mandates is the only State agency that has the jurisdiction and ability to make that determination.

The Fact Sheet’s discussion of unfunded state mandates is not consistent with applicable legal authority or the Tentative Order, as discussed below.

Article XIII B, Section 6(a) of the California Constitution (“Section 6”) provides that whenever “any state agency mandates a new program or higher level of service on any local government, the state shall provide a subvention of funds to reimburse that local government for the costs of the program or increased level of service” Section 6 applies to storm water permits issued by the State Board and the Regional Boards.²⁹ Thus, Section 6 applies to the Tentative Order.

Section 6 was added to the California Constitution by voter approval in 1979, as part of a larger effort that had as its goal both limiting state and local spending and restricting the ability of local entities to raise revenue. Section 6 must be viewed as a “safety valve” designed to protect local governments from being placed in the untenable position of being required by the state, on the one hand, to implement certain state mandated programs while also, on the other hand, being prohibited from raising the money needed to pay for those state mandated programs.³⁰ Recognizing that such a situation was neither a fair nor a wise approach to governing, the voters enacted Section 6 to prevent state government from shifting financial responsibility for carrying out governmental functions to local agencies without the state paying for them.

²⁹ *County of Los Angeles v. Commission on State Mandates* (2007) 150 Cal.App.4th 898, 920.

³⁰ *Department of Finance v. Commission on State Mandates* (2003) 30 Cal.4th 727, 735; *County of San Diego v. State of California* (1997) 15 Cal.4th 68, 81.

To implement Section 6, the Legislature created the Commission on State Mandates (“Commission”). The Commission has sole and exclusive jurisdiction to determine whether a state law or order of a state agency is an unfunded state mandate.³¹ In accordance with Section 6, Government Code section 17500 et seq., and case law, the Commission on State Mandates has determined that an unfunded state mandate exists when: (a) the state imposes a new program or higher level of service that is; (b) mandated by state law, not federal law; and (c) when the local government lacks adequate fee authority to pay for the new program or higher level of service.

Whether and how individual storm water permit conditions constitute unfunded state mandates is currently the subject of pending litigation. In 2009 and 2010, the Commission on State Mandates determined that parts of the Los Angeles Phase I Permit and major components of the San Diego Phase I Permit constituted unfunded state mandates. The State challenged these two decisions in court, and, in the San Diego matter, the court confirmed that only the Commission on State Mandates could make the ultimate determination of whether a permit condition constituted an unfunded state mandate. Specifically, the court in the San Diego case held that the “Commission has exclusive authority to determine whether the Regional Board has imposed a state mandate.” The court in the San Diego case further concluded that the Commission on State Mandates should reconsider its decision to assess whether each of the individual permit conditions were required to achieve the MEP standard. Specifically, the court held that “the Commission must determine whether any of the permit conditions exceed the ‘maximum extent practicable’ standard.” (Emphasis added.) Therefore, contrary to the discussion in the Fact Sheet, each permit condition (control) must be assessed to determine whether it is consistent with MEP.

The San Diego Copermittees have appealed the trial court’s decision that the Commission on State Mandates revisit its decision. Regardless of the outcome of that appeal, however, the Commission on State Mandates is the entity that must determine whether a condition in the Tentative Order constitutes an unfunded state mandate.

I. Findings

29. Unfunded Mandates

~~*This Order does not constitute an unfunded local government mandate subject to subvention under Article XIII B, Section (6) of the California Constitution for several reasons, including, but not limited to, the following:*~~

- ~~*a. This Order implements federally mandated requirements under CWA section 402 (33 USC section 1342(p)(3)(B)).*~~
- ~~*b. The local agency Copermittees’ obligations under this Order are similar to, and in many respects less stringent than, the obligations of non-governmental and new dischargers who are issued NPDES permits for storm water and non-storm water discharges.*~~
- ~~*c. The local agency Copermittees have the authority to levy service charges, fees, or assessments sufficient to pay for compliance with this Order.*~~
- ~~*d. The Copermittees have requested permit coverage in lieu of compliance with the complete prohibition against the discharge of pollutants contained in CWA section*~~

³¹ Government Code §§ 17551 and 17552; *Kinlaw v. State of California* (1991) 54 Cal.3d 326, 331-334.

~~301(a) (33 USC section 1311(a)) and in lieu of numeric restrictions on their MS4 discharges (i.e. effluent limitations).~~

- e. ~~The local agencies' responsibility for preventing discharges of waste that can create conditions of pollution or nuisance from conveyances that are within their ownership or control under State law predates the enactment of Article XIII B, Section (6) of the California Constitution.~~
- f. ~~The provisions of this Order to implement TMDLs are federal mandates. The CWA requires TMDLs to be developed for water bodies that do not meet federal water quality standards (33 USC section 1313(d)). Once the USEPA or a state develops a TMDL, federal law requires that permits must contain water quality based effluent limitations consistent with the assumptions and requirements of any applicable wasteload allocation (40 CFR 122.44(d)(1)(vii)(B)).~~

~~See the Fact Sheet for further discussion of unfunded mandates.~~

PERMIT PROVISIONS

General

11. The Tentative Order Includes Language That Provides An Overly Broad Interpretation Of The Stormwater Regulations By Requiring MS4s To “Enhance” and/or “Restore” Beneficial Uses Or Habitat

The Tentative Order recognizes that the overarching objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters” and that, in order to carry out this objective, the CWA utilizes a number permitting programs and regulatory tools to regulate the discharge of pollutants and other materials to Waters of the United States (Waters of the U.S.).

However, CWA Section 402(p), that section which governs that permitting for municipal and industrial stormwater discharges, is only one regulatory tool within the CWA. Moreover, it requires the MS4s to focus on the quality and impact of their non-stormwater and stormwater discharges, not on the active enhancement and/or restoration of beneficial uses or habitat.

While the Fact Sheet recognizes that the development and implementation of a WQIP will identify the highest priority water quality conditions and that “addressing these threats and/or adverse impacts should restore the physical, chemical, and biological integrity of receiving waters, and result in the restoration and protection of the beneficial uses of the receiving waters in the Watershed Management Area”,³² the Tentative Order should not explicitly require the enhancement or restoration of beneficial uses as the CWA only requires that the Copermitees protect beneficial uses and prevent nuisance.³³

³² Fact Sheet, Page F-45

³³ 40 CFR 131.12()(1); CWC 13263(a) and 13050.

This is important from a prioritization and resource allocation perspective because while the Copermittees must control the discharge of pollutants in order to, ultimately, protect the beneficial uses of the receiving waters, they are not required to actively “enhance” or “restore” the beneficial uses and habitat of the receiving waters. It must be recognized that the actions and resources necessary to “protect” the beneficial uses may, in fact, be different than those that would be required to “enhance” or “restore” the beneficial uses of a particular receiving water.

The County recommends the following language changes:

B. Water Quality Improvement Plans

The purpose of this provision is to develop Water Quality Improvement Plans that guide the Copermittees’ jurisdictional runoff management programs towards achieving the outcome of improved water quality in MS4 discharges and receiving waters. The goal of the Water Quality Improvement Plans is to address the impacts of MS4 discharges so that such discharges do not impair protect, preserve, enhance, and restore the water quality and designated beneficial uses of waters of the state.....

B. Water Quality Improvement Plans

2. Priority Water Quality Conditions

e. Numeric Goals and Schedules

(1) Final numeric goals must be based on measureable criteria or indicators, to be achieved in the receiving waters and/or MS4 discharges for the highest priority water quality conditions which will be capable of demonstrating the ~~achievement of the restoration and/or~~ protection of water quality standards in receiving waters;

B. Water Quality Improvement Plans

3. Water Quality Improvement Strategies and Schedules

The Copermittees must develop specific water quality improvement strategies to address the highest priority water quality conditions identified within a Watershed Management Area. The water quality improvement strategies must address the highest priority water quality conditions by preventing or eliminating non-storm water discharges to and from the MS4, reducing pollutants in storm water discharges from the MS4 to the MEP, and ~~restoring and/or~~ protecting the water quality standards of receiving waters.

D. Monitoring and Assessment Program Requirements

4. Assessment Requirements

a. Receiving Waters Assessment

(2)(b) Identify the most critical beneficial uses that must be protected ~~or restored~~ to ensure overall health of the receiving water;

(2)(c) Determine whether or not those critical beneficial uses are being protected ~~and where those beneficial used must be restored~~;

D. Monitoring and Assessment Program Requirements

4. Assessment Requirements

d. Integrated Assessment of Water Quality Improvement Plan

(1)(d) Identify beneficial uses of the receiving waters that are protected ~~or must be restored~~ in accordance with Provision D.4.a;

(1)(e) Evaluate the progress toward achieving the interim and final numeric goals for ~~restoring impacted~~ protecting beneficial uses in the receiving waters.

(2)(b) Identify the non-storm water and storm water pollutant load reductions, or other improvements to receiving water or water quality conditions, that are necessary to attain the interim and final numeric goals for ~~restoring impacted~~ protecting beneficial uses in the receiving waters;

(2)(d) Evaluate the progress of the water quality improvement strategies toward achieving the interim and final numeric goals for ~~restoring impacted~~ protecting beneficial uses in the receiving waters.

E. Jurisdictional Runoff Management Program

5. Existing Development Management

e. Strategies to Address the Highest Priority Water Quality Conditions

(3)(b) Candidates for stream, channel, and/or habitat rehabilitation projects may be utilized to address storm water runoff flows and durations from areas of existing development that cause or contribute to hydromodification in receiving waters, rehabilitate channelized or hydromodified streams, restore wetland and riparian habitat, restore watershed functions, and/or ~~restore~~ protect beneficial uses of receiving waters;

E. Jurisdictional Runoff Management Program

7. Public Education and Participation

b. Public Participation

(3) Opportunities for members of the public to participate in programs and/or activities that can result in the prevention or elimination of non-storm water discharges to the MS4, reduction of pollutants in storm water discharges from the MS4, and/or ~~restoration and~~ protection of the quality of receiving waters.

F. Reporting

3. Progress Reporting

c. Regional Monitoring and Assessment Report

(1)(a) The beneficial uses of the receiving waters within the San Diego Region that are protected ~~or must be restored~~;

(1)(b) The progress toward protecting the ~~restoring~~ impacted beneficial uses in the receiving waters within the San Diego Region; and

12. The Tentative Order Includes Language That Provides An Overly Broad Use Of The Term “Prohibit”

Although some changes were made in the Tentative Order language, the Tentative Order should be reviewed for the correct use of the terminology “effectively prohibit” since it appears that there are a couple of cases where this language was not modified.

The term “prohibit” is broader than the CWA requirements, and should be changed to “effectively prohibit.” CWA section 402(p) (3) (B) (ii) reads as follows:

(B) Municipal Discharge – Permits for discharges from municipal storm sewers –
(ii) shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewer; (Emphasis added)

The Tentative Order shall “effectively prohibit non-stormwater discharges” but may exempt certain discharges that are not significant sources of pollutants from the prohibition. The section does not require a full prohibition but rather an effective prohibition. The operative word is “effective”, which recognizes the constraints of owning and operating a stormwater drainage system, which includes hundreds of miles of open channel. The finding/provision should note that non-stormwater discharges are effectively prohibited.³⁴

In addition, discharges that are not significant sources of pollutants are exempted from the prohibition. In a practical sense, the use of word “effective” also provides flexibility to assess the impacts of relatively benign discharges such as air condition condensate, individual car washing, and non-emergency fire-fighting flows or non-anthropogenic sources before instituting a prohibition.

The County recommends the following language changes:

Finding 12. Pollutants in Runoff

....By providing free and open access to an MS4 that conveys discharges to waters of the U.S., the operator essentially accepts responsibility for discharges into the MS4 that it does not effectively prohibit or otherwise control.....

A. Prohibitions and Limitations

The purpose of this provision is to describe the conditions under which storm water from and non-storm water discharges into ~~and from~~ the MS4s are effectively prohibited or limited. The goal of the prohibitions and limitations.....

D. Monitoring and Assessment Program Requirements

4. Assessment Requirements

b. MS4 Outfall Discharges Assessments

(1)(a) Each Copermittee must assess and report the progress of its illicit discharge detection and elimination program, required to be implemented pursuant to Provision E.2, toward ~~reducing and~~ effectively prohibiting non-storm water and illicit discharges into the MS4 within its jurisdiction as follows:

E. Jurisdictional Runoff Management Programs

1. Legal authority Establishment and Enforcement

(1) Effectively ~~P~~rohibit and eliminate all illicit discharges and illicit connections into its MS4

COVER PAGE – PERMIT ENROLLMENT

13. Cover Page (Page 1 of 120) – The Tentative Order Should Recognize That The Enrollment Of The Orange County and/or Riverside County Copermittees Must Necessitate Changes To The Order Based On The Report Of Waste Discharge Submittals

The Tentative Order does not account for Orange County’s current Fourth Term permit as there is no process for a ROWD prior to initial adoption of the permit by the Regional Board, and thus

³⁴ Per 402(p)(3)(B)(ii)

there is no technical basis by which to adopt many of the permit terms that apply to Orange County. Instead, the Tentative Order states that the Orange County Copermittees will submit a ROWD and will become subject to the waste discharge requirements set forth within the Tentative Order:

- 1) After the expiration of their current Permits (Order No. R9-2009-0002 and Order No. R9-2010-0016, respectively); or
- 2) At a date earlier than the expiration of their current Permits subject to the conditions described in Provision F.6 of the Tentative Order.

Although the cover page of the Tentative Order states “After the San Diego Water Board receives and considers the Orange County Copermittees’ Report of Waste Discharge and makes any necessary changes to the Order...”, Provision F.6 and Provision H, do not similarly recognize that changes to the Order must be made prior to the enrollment of the Orange County and/or Riverside County Copermittees.

In addition, the Findings and Fact Sheet would need to consider the thorough program analysis that the Copermittees conduct as a part of their preparation of the ROWD and the deficiencies and program modifications that Copermittees themselves identify as necessary for the program.

The County recommends the following language changes:

F. Reporting

6. Application for Early Coverage

a. The Orange County Copermittees, collectively, or Riverside County Copermittees, collectively, may apply for early coverage under this Order by submitting a Report of Waste Discharge Form 200, with a written request for early coverage under this Order and identification of the necessary changes to this Order, if any, that the Copermittees are recommending based on the ROWD submittal.

b. The San Diego Water Board will review the application for early coverage and will make any necessary changes to this Order. A notification of coverage under this Order will be issued to the Copermittees in the respective county by the San Diego Water Board upon completion of the early coverage application requirements and consideration of any necessary changes to this Order. The effective coverage.....

c. The timelines specified within this Order will be initiated based on the effective coverage date (as specified within the notification of coverage).

H. Modification of Programs

5. The San Diego Water Board will review any applications received for early coverage under this Order (Provision F.6) as well as any general applications received for coverage under this Order and will consider any necessary changes to this Order based on the newly-obtained information and/or reports received as a part of the application process. Within the applications for coverage under this Order, the Copermittees shall identify the changes that are proposed to this Order.

PROVISION A – PROHIBITIONS AND LIMITATIONS

14. Provision A (Entire Provision; Begins Page 13 of 120) – A Clear Linkage Between The Compliance Provisions And Prohibitions, Receiving Water Limitations, And Effluent Limitations Must Be Established

The proposed Prohibitions and Limitations provisions may be construed as standalone provisions that could expose the Copermitees to state and federal enforcement actions, as well as to third party actions under the federal Clean Water Act's citizen suit provisions. Consistent with the recent 9th Circuit Court of Appeal decision, each provision of the permit could be read separately, so if Provision A.2.a states that "the MS4 must not cause or contribute to the violation of a water quality standard" then that is the stand-alone provision, and the accompanying language found in A.4 (Compliance with Discharge Prohibitions) regarding compliance may be considered irrelevant. As such, a clear linkage between the compliance provisions and the prohibitions, receiving water limitations, and effluent limitations must be established. This was the subject of a State Water Resources Control Board workshop on November 20, 2012; however the State Board did not make any determinations or provide further direction after a day of testimony.

In addition, compliance with Provisions A.1, A.2 and A.3 should be linked to Provision A.4, Provision B, and Attachment E so that it is clear that the compliance mechanism for A.4 is the WQIP (Provision B) and/or the TMDL (Attachment E), as applicable.

The County recommends the following language changes:

A. Prohibitions and Limitations (Introduction)

[at the end of the introductory paragraph insert this sentence]

The process for determining compliance with the Discharge Prohibitions (A.1), Receiving Water Limitations (A.2), and Effluent Limitations (A.3, including effluent limitations derived from the TMDL requirements – Attachment E) is defined in Provision A.4.

1. Discharge Prohibitions

a. Except as provided for in Provisions A.1.e or A.4, ~~D~~discharges from MS4s in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance in receiving waters of the state are prohibited.

2. Receiving Water Limitations

a. Discharges from MS4s must not cause or contribute to the violation of water quality standards in any receiving waters, including but not limited to all applicable provisions contained in the list below to the extent that they remain in effect and are operative, unless such discharges are being addressed by the Copermitee(s) through the processes set forth in this Order (Provision A.4 and Attachment E). Where a TMDL has been developed and its terms have been incorporated into this Order (in a manner that is consistent with the waste load allocations set forth in the TMDL), a Permittee shall also be considered in compliance with such TMDL-related requirements provided in this Order, if it is timely and in good faith implementing the MEP-compliant control measures otherwise established by this Order.

15. Provision A (Entire Provision; Begins Page 13 of 120) – The Discharge Prohibitions Must Establish A Linkage With The Approved Compliance Schedules For TMDLs That Have Been Incorporated Into The Basin Plan

The Discharge Prohibitions do not establish a sufficient linkage with approved compliance schedules for TMDLs that have been incorporated into the Basin Plan. TMDLs adopted within the region include a schedule to provide MS4 Copermittees the time necessary to develop and implement a plan to achieve water quality standards in impaired waters. The compliance schedules for adopted TMDLs have been incorporated into Attachment E and language is recommended in the Receiving Water Limitations provisions (A.2.c.) and the Effluent Limitations provisions (A.3.b.) pointing to the TMDL compliance schedules.

The Receiving Water Limitations language in the Tentative Order conflicts with TMDL compliance schedules. Language should be included to clarify that in instances where a TMDL is in effect, the Copermittees shall achieve compliance with these provisions as outlined in Attachment E (Specific provisions for TMDLs). Without this change, the Receiving Water Limitations language puts Copermittees in immediate and ongoing non-compliance with the permit, as opposed to incorporating TMDL implementation schedules.

In addition, the footnote to A.2.a.(4)(b) requires Copermittees to not cause or contribute to the more stringent of a water quality objective or a CTR criterion. Instances may exist where it has been determined that one or the other is more appropriate given site specific conditions or analysis (i.e., a TMDL has been established).

The County recommends the following language changes:

1. Discharge Prohibitions

e. For discharges associated with water body pollutant combinations addressed in a TMDL in Attachment E of this Order, the affected Copermittees shall achieve compliance as outlined in Attachment E.

2. Receiving Water Limitations

a. Discharges from MS4s must not cause or contribute to the violation of water quality standards in any receiving waters, including but not limited to all applicable provisions contained in the list below to the extent that they remain in effect and are operative, unless such discharges are being addressed by the Copermittee(s) through the processes set forth in this Order (Provision A.4 and Attachment E). Where a TMDL has been developed and its terms have been incorporated into this Order (in a manner that is consistent with the waste load allocations set forth in the TMDL), a Permittee shall also be considered in compliance with such TMDL-related requirements provided in this Order, if it is timely and in good faith implementing the MEP-compliant control measures otherwise established by this Order.

2. Receiving Water Limitations

c. For receiving water limitations associated with water body pollutant combination addressed in a TMDL in Attachment E of this Order, the affected Copermittees shall achieve compliance as outlined in Attachment E.

Footnote #4 to Provision A.2.a.(4)(b)

¹ *If a water quality objective and a CTR criterion are in effect for the same priority pollutant, the more stringent of the two applies, unless a previous regulatory action (i.e., TMDL) has specified otherwise.*

16. Provision A (Entire Provision; Begins Page 13 of 120) – The Receiving Water Limitations Language Is Discretionary And Should Be Revised To Provide A Clear Compliance Mechanism

The Copermittees envision WQIPs as the foundation for a BMP-based compliance approach for the Discharge Prohibitions and Receiving Water Limitations language. However, the language in the Provision A.4 describes the WQIPs as a document trail rather than a compliance mechanism. In essence, the language suggests that Copermittees shall expend significant resources to develop and implement WQIPs, but taking the actions in the WQIPs has no effect on the Regional Board's compliance determination.

The Receiving Water Limitations language should be revised to expressly state that if exceedances of a water quality objective, water quality standard or any effluent limitation persist, or a discharge prohibition stated as an effluent limitation is not complied with, notwithstanding implementation of control measures, BMPs or compliance with the other water quality control program requirements of the Order, the Copermittee shall take actions to further reduce its discharges of such pollutants over time by complying with the iterative process, and that diligent implementation of the iterative process (i.e., WQIP) constitutes compliance to MEP.

The iterative process is a fundamental aspect of MS4 programs, as envisioned by State Water Board Order 99-05 and later reconfirmed in Order WQ 2001-15 (BIA Order), and is the mechanism by which MS4 Copermittees should demonstrate compliance. The WQIPs now provide a mechanism to provide the detail and quantitative analyses used to identify pollutant sources and implement BMPs to address those sources.

Language in Provision A.4 should be consistent with the California Stormwater Quality Association (CASQA) proposed receiving water limitation language (see **Attachment B**).

(See the recommended language changes in Provision A.4 of the Attachment B, Tentative Order redline)

PROVISION B – WATER QUALITY IMPROVEMENT PLANS

17. Provision B (Entire Provision; Begins Page 17 of 120) – The Water Quality Improvement Plans Should Be The Foundation For A BMP-Based Compliance Approach ³⁵

The County strongly supports the Watershed approach as described in the Tentative Order and Fact Sheet, with modifications as discussed below and in Provision E. A watershed-based approach is ideal for the implementation of stormwater programs in the San Diego Region as it allows for the integration of all program elements, focuses efforts on the highest priorities for each watershed through the customization of actions and strategies, and allows for streamlined reporting. This approach also supports the implementation of TMDLs, which are developed and implemented at the watershed scale.

Although the language for the WQIP recognizes the need for the consideration of provisions A.1, A.2, and A.3 as a part of the assessments and identification of water quality priorities, consistent with the intent described in the Fact Sheet, the language within the Tentative Order should explicitly identify that compliance with those provisions is achieved through the development and implementation of the WQIPs and or TMDLs (Attachment E).

In particular, the Fact Sheet states³⁶:

Provision B includes requirements for the Copermittees to develop and implement Water Quality Improvement Plans to ultimately comply with the prohibitions and limitations under Provision A. The Water Quality Improvement Plans will provide the Copermittees a comprehensive program that can achieve the requirements of the CWA.

³⁵ Orange County notes that in the recently adopted LA MS4 permit a Reasonable Assurance Analysis (RAA) is required in order for a Copermittee to receive approval of a Watershed Management Program (essentially the same concept as the WQIP) and then utilize the Watershed Management Program as a method of compliance with Receiving Water Limitation provision requirements. Orange County believes that the WQIP process described in the Tentative Order, subject to the County's comments herein, is robust and does not necessitate the addition of a RAA. The WQIPs will provide enforceable, objective, and measurable requirements for the Copermittees, without having to implement an RAA.

To the extent that future proceedings on the Tentative Order contemplate a RAA requirement, Orange County strongly disagrees with such an approach. RAA would impose unnecessary and costly modeling requirements on the Copermittees. Orange County is not covered by TMDLs to the extent that Los Angeles and other counties are, where such models have already been developed and where such modeling efforts have previously been conducted for many pollutant-waterbody combinations. RAA is essentially a "TMDL-lite" process that would shift regulatory obligations from the Regional Board to the Copermittees. Although the Copermittees may choose to work with the Regional Board, as deemed appropriate and necessary in the future, to develop TMDLs collaboratively, the Copermittees object to the obligation to fully assume the Regional Board's regulatory responsibilities. Federal law is clear as to how a TMDL should be established, and RAA would "backdoor" the TMDL process into the WQIP approach without the Regional Board going through the necessary steps to formulate a TMDL. This would be a violation of federal law. There is also no federal or state authority by which a RAA could be required by the Regional Board. Even assuming such authority, a RAA is unnecessary and goes beyond MEP.

³⁶ Fact Sheet, Page F-42

Implementation of the Water Quality Improvement Plans will also improve the quality of the receiving waters in the San Diego Region.....

The Water Quality Improvement Plan also incorporates a program to monitor and assess the progress of the Copermittees' jurisdictional runoff management programs toward improving the quality of discharges from the MS4s, as well as tracking improvements to the quality of receiving waters. **A process to adapt and improve the effectiveness of the Water Quality Improvement Plans has also been incorporated into the requirements of Provision B to be consistent with the “iterative approach” required to achieve compliance with discharge prohibitions of Provisions A.1.a and A.1.c and receiving water limitations of Provision A.2.a, pursuant to the requirements of Provision A.4.**

[Emphasis added]

In other words, the Water Quality Improvement Plan framework, as outlined within the Tentative Order, is established as the compliance mechanism for Provision A.4. In fact, this would complement the existing language in Provision A.4, which states (as modified below):

Each Copermittee must achieve compliance with Provisions A.1, A.2, and A.3 of this Order through timely implementation of control measures and other actions as specified in Provisions B and E of this Order, including any modifications. The Water Quality Improvement Plans required under Provision B must be designed and adapted to ultimately achieve compliance with Provisions A.1, A.2, and A.3.

In addition, the WQIP should identify the high priority water quality issues and conditions and provide direction for the development and implementation of the JRMPs. The goals for the WQIPs should be clearly identified and directly linked to the JURMPs (and the corresponding flexibility provided within the development of the JURMPs) (See also Provision E).

Lastly, although Regional Water Board staff have indicated that the WQIPs, once developed and approved, will functionally replace the CLRPs and BLRPs, the Tentative Order does not formally recognize this. The County recommends that a footnote be added to clarify that this is the case.

The County recommends the following language changes:

B. Water Quality Improvement Plans¹

The purpose of this provision is to develop Water Quality Improvement Plans that guide the Copermittees' jurisdictional runoff management programs towards achieving the outcome of improved water quality in MS4 discharges and receiving waters. The goal of the Water Quality Improvement Plans is to address the impacts of MS4 discharges so that such discharges do not impair protect, preserve, enhance, and restore the water quality and designated beneficial uses of waters of the state. Therefore, implementation of the WQIPs also provides the basis for complying with Provisions II.A.1, II.A.2, and II.A.3, as described in Provision II.A.4. This goal will be accomplished through an adaptive planning and management process that identifies the highest priority water quality conditions within a watershed and implements strategies through the jurisdictional runoff management programs to achieve improvements in the quality of discharges from the MS4s and receiving waters. As such, the requirements outlined in Provision

E may be modified for consistency with the WQIP priorities for the applicable Watershed Management Area, if appropriate justification is provided.

¹ – Once developed and approved, the Water Quality Improvement Plan and corresponding Jurisdictional Runoff Management Plan will functionally replace the Load Reduction Plans.

18. Provision B (Entire Provision; Begins Page 17 of 120) – The WQIP Numeric Goals Are Used To Support The WQIP Implementation And Measure Progress, They Are Not Enforceable Compliance Standards

Similar to the footnotes in Provisions C.1.a and C.2.a, Provision B.2.e should explicitly state that the action levels, interim goals and final goals are not enforceable limitations.

The County recommends the following language changes:

B. Water Quality Improvement Plans

2. Priority Water Quality Conditions

e. Numeric Goals

The Copermittees must develop and incorporate action levels, interim and final numeric goals and schedules into the Water Quality Improvement Plan. Numeric goals must be used to support Water Quality Improvement Plan implementation and measure progress towards addressing the highest priority water quality conditions identified under B.2.c. Actions levels and numeric goals, themselves, are not enforceable compliance standards, effluent limitations, or receiving water limitations. When establishing numeric goals.....

19. Provision B.2 (Page 19 of 120) – The Schedule For The Achievement Of The Final WQIP Numeric Goals Should Be Based On The Results Of The Assessment Conducted As A Part Of The Development Of The WQIP Priority Water Quality Conditions

Provision B.2.e.(3)(e) states that the “final dates for achieving the final numeric goals must not initially extend more than 10 years beyond the effective date of this Order, unless a longer period of time is authorized by the San Diego Water Board Executive Officer or the schedule includes an applicable TMDL....”

In addition, the Fact Sheet notes that this provision is consistent with 40 CFR 122.47(a)(1), which states:

(1) Time for compliance. Any schedules of compliance under this section shall require compliance as soon as possible, but not later than the applicable statutory deadline under the CWA.

The Fact Sheet provision citing 122.47 is inapplicable, however, and this provision should be deleted, as there are no federal or state statutory deadlines for achieving WQIP final numeric goals. Provision B.2.e(3)(e) expressly states that the Copermittees must develop and incorporate schedules for numeric goals into the WQIP, and compliance schedules for such goals are determined by the Copermittees with certain approvals by the Regional Board or the Executive Officer.

Furthermore, the requirement that the final dates for achieving the final numeric targets must not extend more than 10 years unless authorized by the Executive Officer is one of the most disconcerting requirements in the Tentative Order for several reasons:

- There is no factual or technical basis or other evidence for why a 10 year time period is the timeframe for all of the listed numeric goal, and therefore 10 year is arbitrary;
- Although the assessments that will be conducted pursuant to Provision E.2 will be thorough, they will not take the place of the type(s) of assessments that should be conducted when developing a TMDL and establishing waste load allocations and the timeframes necessary for achieving the allocations;
- Many TMDLs that are developed have longer timeframes than 10 years. There are many implementation schedules that extend out 15 or 20 years depending upon the constituent, sources, and potential compliance options available to the responsible parties.

Instead of a 'one size fits all' timeline of 10 years, the final date for achieving the final goals should be determined by the Copermittees during the development of the WQIP, which undergoes a thorough public review process. It should also be recognized that this date may need to be modified based on additional data and information that is received during the implementation of the WQIP.

Based on conversations with Regional Board staff, it is understood that goals can take a number of forms and the "10 year" requirement is not intended as a requirement to attain all Basin Plan water quality standards within 10 years. However, to ensure this requirement does not cause confusion and is not mis-interpreted by third parties, language should be added to clarify this.

The County recommends the following language changes:

B. Water Quality Improvement Plans

2. Priority Water Quality Conditions

e. Numeric Goals

~~(3)(e) Final dates for achieving the final numeric goals must not initially extend more than 10 years beyond the effective date of this Order, unless a longer period of time is authorized by the San Diego Water Board Executive Officer or the schedule includes an applicable TMDL in Attachment E to this Order.~~

(4) The schedules for achieving the interim and final goals will be evaluated with each annual report [F.3.b.(1)(d)] and/or as a part of the ROWD development [B.5.a] to determine if they should be modified.

PROVISION C – ACTION LEVELS

20. Provision C (Entire Provision; Begins Page 28 of 120) – The Tentative Order Should Clarify The Use Of The Action Levels Within The WQIP And IDDE Program and the Copermittees Should Develop The NALs/SALs Based On The Priorities Of The WQIP and/or the IDDE Program

Although the modifications in this provision have improved from the Administrative Draft, there are a number of outstanding issues related to the proposed language that need to be addressed in order for the Action Levels to be effective and assist with the overall management and assessment of the Stormwater Program. These issues include:

- The differentiation for the Non-stormwater Action Levels (NALs) between the WQIP and Illicit Discharge Detection and Elimination (IDDE) program element; and
- The Copermittees should be allowed to develop or use previously established NALs/Stormwater Action Levels (SALs) instead of the values identified within this provision.

These outstanding issues are discussed in additional detail below.

A. The Tentative Order Needs to Differentiate and Provide a Clear Linkage Between Provisions B and C and Provisions E.2 and C.

Provision C.1 indicates that the NALs will be incorporated into the WQIPs and used to:

- a) Support the development and prioritization of water quality improvement strategies for addressing non-stormwater discharges to and from the MS4s;
- b) Assess the effectiveness of the water quality improvement strategies toward addressing MS4 non-storm water discharges; and
- c) Support the detection and elimination of non-stormwater and illicit discharges to and from the MS4.

Similarly, Provision C.2 indicates that the SALs will be incorporated into the WQIPs and used to:

- a) Support the development and prioritization of water quality improvement strategies for reducing pollutants in stormwater discharges from the MS4s;
- b) Assess the effectiveness of the water quality improvement strategies toward reducing pollutants in stormwater discharges....

Although the NALs and SALs have these stated objectives, the Tentative Order must provide a clearer linkage and differentiate between

- Provision B (WQIPs) and Provision C (Action Levels) and
- Provision E.2 (Illicit Discharge Detection and Elimination Program [IDDE]) and Provision C.

Examples of what clarification is necessary include the following:

- Provision B does not include any mention of the NALs or SALs even though they are supposed to be incorporated into the WQIPs.
- It should be recognized that the WQIP should guide the customization of the NALs/SALs to meet the highest water quality priorities in a given watershed and that NALs/SALs will be used to assist Copermittees in reaching the goals specified in the WQIP.
- The NALs and SALs developed and incorporated into the WQIP should address the high priority water quality conditions identified. (see comment below)

B. The Copermittees Need to Have the Flexibility to Develop or Use Previously Established Action Levels

Although the Tentative Order states that the Copermittees are to develop and incorporate numeric non-stormwater and numeric stormwater action levels into the Water Quality Improvement Plans (C.1 and C.2, respectively), the Tentative Order then contradicts this approach and mandates that the Copermittees include all of the numeric actions levels as

identified in tables C-1, C-2, C-3, C-4 and C-5.

The mandated action levels are problematic for the following reasons:

- 1) The NALs for the WQIPs will likely include different constituents and/or values than those values that would be used for the IDDE program.
- 2) The NALs and SALs will likely include different constituents and/or values between WQIPs depending upon the identified high priority water quality conditions.
- 3) The NALs set for the IDDE program should not be based on water quality objectives at the 'end of pipe'. Instead, these values should be based on upset values.
- 4) In Provision B.2.d the Copermittees are required to develop and use interim and final numeric targets/goals to measure progress towards the protection/enhancement of the receiving waters and beneficial uses. The choice of the target/goals of the watershed may be biological, chemical, or physical based and may include multiple criteria and/or indicators. If the mandated values have to be used as action levels within the WQIP, they may not correspond to the highest priority water quality conditions or the metrics that are being used to measure progress. Thus, the chemically based NALs/SALs may direct resources away from the watershed priorities.

As a part of the IDDE program, the County had developed and implemented an innovative Dry Weather Reconnaissance Program, based upon statistically derived benchmarks to identify illegal discharges and illicit connections during the typically dry summer months of May through September using a suite of water quality analyses conducted in the field at designated random and targeted drains. The 2010-11 reporting period marked the ninth season of dry weather monitoring in the San Diego Region. Monitoring in the San Diego Region under the Dry Weather Reconnaissance Program was replaced in August 2011 with the NALs Monitoring Program (pursuant to Order No. R9-2009-0002).

After the implementation of the NAL-based program for a year, some clear differences between the previously established Dry Weather Reconnaissance Program and the NAL-based program have been evident (see the table below).

- Of the 236 site visits conducted in the Dry Weather Reconnaissance Program, there were 77 exceedances that required follow up actions;
- For the Dry Weather Reconnaissance Program, this represented 32% of the discharges samples being prioritized for follow up actions and/or investigations;
- Of the 68 site visits conducted in the NAL program, there were 167 exceedances that required follow up actions (almost 2 x the number of site visits); and
- For the NAL program, there was limited ability to prioritize discharges for follow up since some of the constituents exceeded the NALs 33-91% of the time.

Comparison of NAL Program and Previous Dry Weather Reconnaissance Program

Constituent	NAL Exceedances 2011 - 12		DW Reconn Pgm Action Level* Exceedances May-Sep 2010	
	Number	%	Number	%
pH	1	1.5	12	5.1
MBAS	1	1.5	2	0.8
Turbidity	5	11	3	1.3
Dissolved Oxygen	1	1.5	2	0.8
Fecal Coliform	19	42	0	0
Enterococcus	41	91	1	0.4
Total P / Ortho PO4	37	82	6	2.5
Total N / Nitrate	41	91	22	9.3
Nickel	6	13	18	7.6
Cadmium	15	33	11	4.7
Total # of Site Visits	68		236	

The conclusions from the implementation of the Orange County NAL-based program to date are:

- The NAL program replaced an previously existing and effective program;
- The NAL program has required increased resources and has resulted in everything being a priority;
- There have been many exceedances that have been due to non-IDDE factors such as local geology (especially for nickel and cadmium);
- It has been very difficult to determine the endpoints, the sources, of the various non-stormwater discharges since the discharges are so co-mingled; and
- There is a strong need for a regionally-based prioritization so that there is not a mis-direction of limited resources

The Regional Water Board would be well served to review the results of the Orange County NAL-based program to date and consider the revisions as proposed in order to assist with the prioritization of resources and water quality issues. The Tentative Order should establish the purpose(s) of the action levels and then allow the Copermittees to develop the numeric action levels. The mandated NALs and SALs should only be considered “default” values if the Copermittees do not develop their own NALs/SALs or use previously established values. Previously developed action levels should serve as interim action levels until the WQIPs are completed.

The County recommends the following language changes:

B. Water Quality Improvement Plans

2. Priority Water Quality Conditions

e. Numeric Goals and Schedules

The Copermittees must develop and incorporate action levels, interim and final numeric goals³⁷ and schedules into the Water Quality Improvement Plan. Numeric goals must be used to support Water Quality Improvement Plan implementation and measure progress towards addressing the highest priority water quality conditions identified under Provision B.2.c. Action levels and numeric goals, themselves, are not enforceable compliance standards, effluent limitations, or receiving water limitations. When establishing numeric goals and corresponding schedules, the Copermittees must consider the following:

C. Action Levels

The purpose of this provision is for the Copermittees to incorporate numeric non-stormwater action levels (NALs) and stormwater action levels (SALs) in the Water Quality Improvement Plans (WQIP) and numeric non-stormwater action levels (NALs) in the Illicit Discharge Detection and Elimination (IDDE) Program.

- For the purposes of the WQIPs, ~~Water Quality Improvement Plan~~ the goal of the action levels is to guide the implementation efforts and measure progress towards the protection of the high priority water quality conditions and designated beneficial uses of waters of the state from adverse impacts caused or contributed to by MS4 discharges. This goal will be accomplished through monitoring and assessing the quality of the MS4 discharges during the implementation of the Water Quality Improvement Plans.*
- For the purposes of the IDDE program, the goal of the action levels is to assist in the effective prohibition of non-stormwater discharges into the MS4.*

Action levels will be developed and incorporated into the WQIP (Provision B) and the IDDE Program (Provision E). Depending upon the goals/objectives for the use of the action levels and the priority receiving water conditions, the constituents and values at which they are set may differ between watersheds. Copermittees may develop Watershed Management Area specific numeric action levels for non-stormwater and stormwater MS4 discharges using an approach approved by the Regional Board or use the default non-stormwater and stormwater action levels prescribed in C.1 and C.2 below.

The Copermittees will submit the action levels as a part of the WQIP and JURMP submittals. The action levels currently established will serve as the interim action levels until revised action levels are completed and approved. Exceedances of the action levels are not subject to enforcement or non-compliance actions under this Order.

³⁷ Interim and final numeric goals may take a variety of forms such as TMDL established WQBELs, action levels, pollutant concentration, load reductions, number of impaired water bodies delisted from the List of Water Quality Impaired Segments, Index of Biotic Integrity (IBI) scores, or other appropriate metrics. Interim and final numeric goals are not necessarily limited to one criterion or indicator, but may include multiple criteria and/or indicators. Except for TMDL established WQBELs, interim and final numeric goals and corresponding schedules may be revised through the adaptive management process under Provision B.5.

1. Default Non-Storm Water Action Levels³⁸

~~The Copermittees must develop and incorporate numeric non-storm water action levels (NALs) into the Water Quality Improvement Plan to: 1) support the development and prioritization of water quality improvement strategies for addressing non-storm water discharges to and from the MS4s, 2) assess the effectiveness of the water quality improvement strategies toward addressing MS4 non-storm water discharges, required pursuant to Provision D.4.b.(1), and 3) support the detection and elimination of non-storm water and illicit discharges to and from the MS4, required pursuant to Provision E.2.~~ ³⁹The following non-stormwater action levels (NALs) must be incorporated in the WQIPs and IDDE program if the Copermittees have not developed their own NALs for the identified high priority constituents using an approach approved by the Regional Board EO.

~~C.1.c For the NALs incorporated into the Water Quality Improvement Plan, the Copermittees may develop and incorporate secondary NALs specific to the Watershed Management Area at levels greater than the NALs required by Provisions C.1.a and C.1.b which can be utilized to further refine the prioritization and assessment of water quality improvement strategies for addressing non-storm water discharges to and from the MS4s, as well as the detection and elimination of non-storm water and illicit discharges to and from the MS4. The secondary NALs may be developed using an approach acceptable to the San Diego Water Board.~~

2. Default Storm Water Action Levels⁴⁰

~~The Copermittees must develop and incorporate numeric storm water action levels (SALs) in the Water Quality Improvement Plans to: 1) support the development and prioritization of water quality improvement strategies for reducing pollutants in storm water discharges from the MS4s, and 2) assess the effectiveness of the water quality improvement strategies toward reducing pollutants in storm water discharges, required pursuant to Provision D.4.b.(2)~~⁴¹.

The following stormwater action levels (SALs) must be incorporated in the WQIPs if the Copermittees have not developed their own SALs for the identified high priority constituents using an approach approved by the Regional Board EO.

~~C.2.c For the SALs incorporated into the Water Quality Improvement Plan, the Copermittees may develop and incorporate secondary SALs specific to the Watershed Management Area at levels greater than the SALs required by Provisions C.2.a and C.2.b which can be utilized to further refine the prioritization and assessment of water quality improvement strategies for reducing pollutants in storm water discharges from the MS4s. The secondary SALs may be developed based on the approaches recommended by the State Water Board's Storm Water Panel⁴² or using an approach acceptable to the San Diego Water Board.~~

³⁸ NALs are not considered by the San Diego Water Board to be enforceable limitations.

⁴⁰ SALs are not considered by the Regional Water Board to be enforceable limitations.

⁴¹ The Copermittees may utilize SALs or other benchmarks currently established by the Copermittees as interim SALs until the WQIPs are accepted by the San Diego Water Board Executive Officer.

PROVISION D – MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS

21. Provision D (Entire Provision; Begins Page 33 of 120) – The Prescribed Receiving Water Program Does Not Incorporate A Question Driven Approach Nor Does The Tentative Order Recognize That The Phase I Municipal NPDES Copermittees Are Not The Sole Dischargers To Receiving Water

Provision D.1.f provides for alternative watershed monitoring requirements that may be fulfilled in addition to or in lieu of the receiving water monitoring program detailed in Provision D.1.b to D.1.d

The Tentative Order contains a modified approach to receiving waters monitoring that has not been implemented in previous Tentative Orders. While this approach provides a welcomed opportunity for the Copermittees to shift their resources towards assessing MS4 contributions, the conceptual basis of the receiving waters programs needs additional consideration. The prescribed receiving water program does not appear to be a question driven approach nor does the Tentative Order recognize that the Phase I municipal NPDES Copermittees are not the sole dischargers to receiving waters and that the contributions from many other regulated and unregulated entities contribute to the overall receiving water conditions.

The Tentative Order should establish an integrated and collaborative receiving water program that is consistent with watershed management area priorities in lieu of individual and uncoordinated efforts. The Regional Board should:

1. Establish a water-body oriented monitoring and assessment workgroup for each Watershed Management Area as outlined in the staff report titled “A Framework for Monitoring and Assessment in the San Diego Region” that establishes a question-driven monitoring program;
2. Establish language that provides an opportunity for all regulated discharges to create pooled resources so that monitoring efforts are singularly focused on receiving waters during both dry and wet weather conditions; and
3. Establish language that provides for an alternate compliance option for the Monitoring and Reporting program in lieu of the prescribed receiving waters monitoring program as previously adopted in R9-2009-0002 that lead to the development of the Orange County Regional Shoreline Monitoring Program.

The County recommends the following changes

D. Monitoring and Assessment Program Requirements

1. Receiving Water Monitoring Requirements

f. Alternate Watershed Monitoring Requirements

The San Diego Water Board may direct the Copermittees to participate in an effort to develop alternative watershed monitoring with other regulated entities, other interested parties, and the San Diego Water Board to refine, coordinate, and implement regional monitoring and assessment programs to determine the status and trends of water quality conditions in 1) coastal waters, 2) enclosed bays, harbors, estuaries, and lagoons, and 3) streams.

In lieu of the Receiving Water Monitoring Program requirements specified in 1.a to 1.d, the Copermittees may participate in the development and implementation of monitoring for the

collaborative receiving waters monitoring program. It is expected that a regional monitoring will allow for a more effective and efficient receiving waters monitoring program. The regional monitoring plan must be submitted to the Executive Officer for review and approval. Documentation of participation and monitoring shall be included in the annual report.

22. Provision D (Entire Provision; Begins Page 33 of 120) – The Prescribed MS4 Outfall Discharge Monitoring Needs Additional Refinement In Order To Support The Development Of Effective Water Quality Improvement Plans

A. Transitional Wet Weather MS4 Outfall Discharge Monitoring Program

In order to fulfill the jurisdictional and land use requirements for the monitoring and assessment provisions of the Tentative Order, the coordination of the wet weather MS4 program should be scheduled to start at a later date. The rescheduling of the commencement of wet weather MS4 monitoring will provide adequate time to complete the required geo-location and land use analysis of the major MS4 drainage areas.

The County recommends the following changes

2. MS4 Outfall Discharge Monitoring

a. Transitional MS4 Outfall Discharge Monitoring

(3) Transitional Wet Weather MS4 Outfall Discharge Monitoring

(b) Transitional Wet Weather MS4 Outfall Discharge Monitoring Frequency

Each wet weather MS4 outfall discharge monitoring station selected pursuant to Provision D.2.a.(3)(a) must be monitored twice during the wet season (October 1 – April 30). One wet weather monitoring event must be conducted during the first wet weather event of the wet season, and one wet weather monitoring event at least a month after the first wet weather event of the wet season.

Transitional wet weather MS4 outfall discharge monitoring may begin in year 2 of the transitional period once the MS4 outfall discharge monitoring stations have been inventoried and evaluated pursuant to Provision D.2.a.(1)

B. Transitional MS4 Outfall Discharge Analytical Monitoring

The Copermittees need the flexibility to retain consistent monitoring methods between permit cycles in order to maintain the long term trend baselines.

The County recommends the following changes

2. MS4 Outfall Discharge Monitoring

a. Transitional MS4 Outfall Discharge Monitoring

(3) Transitional Wet Weather MS4 Outfall Discharge Monitoring

(e) Transitional Wet Weather MS4 Outfall Discharge Analytical Monitoring

(iv) For all other constituents, composite samples must be collected for a duration adequate to be representative of changes in pollutant concentrations and runoff flows using one of the following techniques:

- [a] Time-weighted composites collected over the length of the storm event or the first 24 hour period, whichever is shorter, composed of 24 discrete hourly samples, which may be collected through the use of automated equipment, or
- [b] Flow-weighted composites collected over the length of the storm event or a typical 24 hour period, whichever is shorter, which may be collected through the use of automated equipment, or
- [c] If automated compositing is not feasible, a composite sample may be collected using a minimum of 4 grab samples, collected during the first 24 hours of the storm water discharge, or for the entire storm water discharge if the storm event is less than 24 hours;

Additionally in Provision D:

2. MS4 Outfall Discharge Monitoring

c. Wet Weather MS4 Outfall Discharge Monitoring

(5) Wet Weather MS4 Outfall Discharge Analytical Monitoring

(d) composite sample requirements

- (i) Time-weighted composites collected over the length of the storm event or the first 24 hour period, whichever is shorter, composed of discrete samples, which may be collected through the use of automated equipment ~~Time-weighted composites composed of 24 discrete hourly samples, which may be collected through the use of automated equipment, or,~~
- (ii) Flow-weighted composites collected over the length of the storm event or a typical 24 hour period, whichever is shorter, which may be collected through the use of automated equipment, or
- (iii) If automated compositing is not feasible, a composite sample may be collected using a minimum of 4 grab samples, collected during the first 24 hours of the storm water discharge, or for the entire storm water discharge if the storm event is less than 24 hours.

23. Provision D (Entire Provision; Begins Page 33 of 120) – The Copermittees Need To Have The Flexibility To Develop Or Use Analytical Monitoring Requirements In The Water Quality Improvement Plans Based On Assessments Of Current Sources That May Contribute To The Section 303(d) Water Body Impairments

The Regional Board should recognize the inherent difficulties associated with monitoring 303(d) constituents such as the legacy pesticides or the monitoring of aquatic toxicity. Many existing developments were never subjected to the application of legacy pesticides such as DDT and, as such, these constituents are highly unlikely to be found in modern communities. The Regional Board should also recognize that laboratory toxicity tests provide a cumulative perspective of pollutant effects that may or may not be sampled as part of a monitoring program.

The Copermittees should be relieved of analytical monitoring requirements if supporting information can be provided to document the current pollutant concentrations or may provide historic information to support the absence of usage of these constituents in the MS4 drainage area. Additionally, the Copermittees should be allowed to develop an alternate approach for monitoring that allows the Copermittees to evaluate and identify the cause of toxicity currently affecting receiving waters and to iteratively adapt the monitoring program to address these chemical stressors in their MS4 outfall discharges through the WQIPs.

The County recommends the following changes

2. MS4 Outfall Discharge Monitoring

a. Transitional MS4 Outfall Discharge Monitoring

(3) Transitional Wet Weather MS4 Outfall Discharge Monitoring

(e) Transitional Wet Weather MS4 Outfall Discharge Analytical Monitoring

(iv) The samples must be analyzed for the following constituents:

[a] Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List with the exception of toxicity¹

[b] Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermittees are listed responsible parties under the TMDLs in [Attachment E](#) to this Order, and

[c] Constituents listed in [Table D-7](#).

[e] The Copermittee may be relieved of analytical monitoring requirements [a] to [c] if supporting information can be provided or has historical data that can demonstrate or provide justification that the analysis of the constituent is not necessary.

Footnote to [a]

¹Copermittees may provide an alternate approach to evaluate and identify the cause of toxicity currently affecting receiving waters and to iteratively adapt the monitoring program to address these chemical stressors in their MS4 outfall discharges in the monitoring plan which is subject to Regional Board approval.

Additionally in Provision D

2. MS4 Outfall Discharge Monitoring

b. Dry Weather MS4 Outfall Discharge Monitoring

(2) Non-Storm Water Persistent Flow MS4 Outfall Discharge Monitoring

(e) Non-Storm Water Persistent Flow MS4 Outfall Discharge Analytical Monitoring

(iii) Collect grab or composite samples to be analyzed for the following constituents:

[a] Constituents contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan,

[b] Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List with the exception of toxicity¹,

[c] Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermittees are listed responsible parties under the TMDLs in [Attachment E](#) to this Order,

[d] Applicable NAL constituents, and

[e] Constituents listed in [Table D-8](#), unless the Copermittee has historical data that can demonstrate or provide justification that the analysis of the constituent is not necessary.

[f] The Copermittee may be relieved of analytical monitoring requirements if supporting information can be provided or has historical data that can demonstrate or provide justification that the analysis of the constituent is not necessary.

Footnote to [b]

¹Copermittees may provide an alternate approach to evaluate and identify the cause of toxicity currently affecting receiving waters and to iteratively adapt the monitoring program to address these chemical stressors in their MS4 outfall discharges in the monitoring plan which is subject to Regional Board approval.

Additionally in Provision D

2. MS4 Outfall Discharge Monitoring

c. Wet Weather MS4 Outfall Discharge Monitoring

(5) Wet Weather MS4 Outfall Discharge Analytical Monitoring

(f) Analysis for the following constituents is required:

- (i) Constituents contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan,
- (ii) Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List, with the exception of toxicity¹,
- (iii) Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermittees are listed responsible parties under the TMDLs in [Attachment E](#) to this Order, and
- (iv) Applicable SAL constituents.
- (v) The Copermittee may be relieved of analytical monitoring requirements if supporting information can be provided or has historical data that can demonstrate or provide justification that the analysis of the constituent is not necessary.

Footnote to [ii]

¹Copermittees may provide an alternate approach to evaluate and identify the cause of toxicity currently affecting receiving waters and to iteratively adapt the monitoring program to address these chemical stressors in their MS4 outfall discharges in the monitoring plan which is subject to Regional Board approval

Additionally in Provision D

Footnotes Table D-3.

- 1. Nitrite and nitrate may be combined and reported as nitrite+nitrate.
- 2. E. Coli may be substituted for Total Fecal Coliform at inland receiving water monitoring stations.

Footnotes Table D-7.

- 1. Nitrite and nitrate may be combined and reported as nitrite+nitrate.
- 2. E. Coli may be substituted for Total Fecal Coliform for discharges to inland surface waters.

Footnotes Table D-8.

- 1. Nitrite and nitrate may be combined and reported as nitrite+nitrate.
- 2. E. Coli may be substituted for Total Fecal Coliform for discharges to inland surface waters

PROVISION E – JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS

24. Provision E (Entire Provision; Begins Page 64 of 120) – The JRMP Provisions Must Be Modified So As Not To Negate The Very Intent And Purpose Of The Watershed Approach And The Focus On The Highest Priorities Within Each Watershed Management Area

The Tentative Order states that the purpose of the WQIPs is to guide the Copermittees' jurisdictional runoff management programs towards achieving improved water quality by identifying the highest priority water quality conditions within a watershed and implementing strategies through the jurisdictional runoff management programs (Provision B).

Provision E goes on to state that the jurisdictional runoff management programs will be implemented in accordance with the strategies identified in the WQIPs. In addition, the Fact Sheet states:

“Where the Water Quality Improvement Plan is the ‘*comprehensive planning process*’ on a Watershed Management Area scale, requiring ‘*intergovernmental coordination*’, the jurisdictional runoff management program document is the ‘*comprehensive planning process*’ on a jurisdictional scale that should be coordinated with the other Copermittees in the Watershed Management Area to achieve the goals of the Water Quality Improvement Plan.”⁴³

The Fact Sheet also supports this when it states:

“Based on the economic considerations below, the San Diego Water Board has provided the Copermittees a significant amount of flexibility to choose how to implement the requirements of the Order. This Order also allows the Copermittees to customize their plans, programs, and monitoring requirements. In the end, it is up to the Copermittees to determine the effective BMPs and measures necessary to comply with this Order. The Copermittees can choose to implement the least expensive measures that are effective in meeting the requirements of this Order.”⁴⁴

Although the Fact Sheet states that “Implementation of the components of each Copermittee’s jurisdictional runoff management program must be consistent with the water quality improvement strategies identified within the Water Quality Improvement Plan,”⁴⁵ the Tentative Order then requires the Copermittees to incorporate all of the requirements identified within Provision E regardless of the high priority water quality conditions that have been identified within the WQIP. If the Copermittees are required to implement all of the requirements in Provision E instead of prioritizing and implementing those requirements that directly address the highest priority water quality conditions and support the watershed strategies, then the program becomes additive instead of prioritized and focused. The net result is that the approach in Provision E negates the prioritized and strategic approach outlined in Provision B.

The Tentative Order should provide a clear linkage between Provision B and Provision E and state that the WQIP should guide the customization of the JRMP to meet the highest water quality priorities and strategies in a given watershed.

⁴³ Fact Sheet, Page F-71

⁴⁴ Fact Sheet, Page F-17

⁴⁵ Fact Sheet, Page F-71

(See also the corresponding comments under Provision E.2, E.3, E.4, E.5, and E.7)
The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs [Intro]

The purpose of this provision is for each Copermittee to implement a program to control non-stormwater the discharges contribution of pollutants into and the stormwater discharges from the MS4 within its jurisdiction and to focus and prioritize those implementation actions based on the highest water quality priorities identified within the associated Water Quality Improvement Plan. The goal of the jurisdictional runoff management programs is to implement strategies and actions that effectively prohibit non-storm water discharges into the MS4 and reduce the discharge of pollutants in storm water to the MEP. This goal will be accomplished through implementing the jurisdictional runoff management programs in accordance with the water quality priorities and strategies identified in the Water Quality Improvement Plans.

Each Copermittee must update its jurisdictional runoff management program document, in accordance with Provision F.2.a, to incorporate ~~all the~~ requirements of Provision E consistent with the highest water quality priorities as identified in the corresponding Water Quality Improvement Plan. Until the Copermittee has updated its jurisdictional runoff management program document with the requirements of Provision E, the Copermittee must continue implementing its current jurisdictional runoff management program.

Similarly, the County recommends the following language changes be incorporated into each of the program elements within Provision E as identified below:

The requirements of the jurisdictional runoff management programs as outlined below may be modified and prioritized as appropriate for consistency with the highest water quality priorities as identified in the corresponding Water Quality improvement Plan.

LEGAL AUTHORITY

25. Provision E.1 (Page 64 of 120) – The Copermittees Are Only Responsible For Administering and Enforcing the Codes and Ordinances Applicable To Their Jurisdictions

Provision E.1.a(2) requires the Copermittees to establish the legal authority to control the contribution of pollutants in discharges of runoff associated with industrial and construction activity within their jurisdictions. Since the Copermittees can only administer and enforce their local codes and ordinances, it is unnecessary and confusing to include the language regarding the Statewide Industrial and Construction General Permits. The sites subject to the Statewide Permits (which are administered and enforced by the State and Regional Boards) are already inspected by state staff and are included within the Copermittee inventories, inspection, and enforcement programs.

In addition, language that acknowledges that the local codes and ordinances will include the legal authorities identified within the Tentative Order to the extent permitted by the Constitution should be included.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

1. Legal Authority Establishment and Enforcement

a.(2) – *Control the contribution of pollutants in discharges of runoff associated with industrial and construction activity into its MS4 and control the quality of runoff from industrial and construction sites¹ including industrial and construction sites which have coverage under the statewide General Permit for Discharges of Storm Water Associated with Industrial Activities (Industrial General Permit) or General Permit for Discharges of Storm Water Associated with Construction Activities (Construction General Permit), as well as to those sites which do not*

¹ - The Copermittees will only be responsible for administering and enforcing the codes and ordinances applicable to their jurisdictions (i.e.; a municipality is not responsible for administering and/or enforcing a permit issued by the State of California).

E. Jurisdictional Runoff Management Programs

1. Legal Authority Establishment and Enforcement

a.(10) *Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with its statutes, ordinances, permits, contracts, orders, or similar means and with the requirements of this Order, including the effective prohibition of illicit discharges and connections to its MS4. The Copermittee's ordinance must include adequate legal authority, to the extent permitted by California and Federal Law and subject to the limitations on municipal action under the constitutions of California and the United States. The Copermittee must also have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from industrial facilities, including construction sites, discharging into its MS4.*

26. Provision E (Entire Provision; Begins Page 64 of 120) – The Requirement For Third Party BMP Effectiveness Documentation Is Duplicative

The Tentative Order includes a provision that requires the Copermittees to demonstrate that they have the legal authority to require documentation on the effectiveness of BMPs. The County has concerns about this provision for the following reasons:

As it is currently written, this provision broadly applies to any aspect of the stormwater program where BMPs have been implemented – the result is that this provision sets up a process for the establishment of multiple third party monitoring programs and expenditure of a significant amount of funds to monitor the effectiveness of BMPs. If the desire is to document the effectiveness of certain types of BMPs, it would be much more effective and scientifically sound to establish special studies by entities qualified to conduct such sampling instead of requiring potentially hundreds of third parties to conduct a monitoring program for every BMP that is implemented.

This provision is redundant with other requirements in the Tentative Order in that it ignores the fact that the New Development/Significant Redevelopment section of the Drainage Area Management Plan (DAMP) (Section 7.0) establishes a process for the selection, design, and long-term maintenance of permanent BMPs for new development and significant redevelopment projects and requires developers to select BMPs that have been demonstrated as effective for their project category. By going through a thorough process, the Copermittees have determined what BMPs would be effective for a particular project – thus eliminating the need to establish a monitoring program for every BMP implemented.

This provision ignores the fact that the Copermittees have already established legal authority for their development standards so that project proponents have to incorporate and implement the required BMPs.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

1. Legal Authority Establishment and Enforcement

a. ~~(8) Require documentation on the effectiveness of BMPs implemented to prevent or reduce the discharge of pollutants in storm water from its MS4 to the MEP;~~

ILLICIT DISCHARGE DETECTION AND ELIMINATION

27. Provision E.2 (Page 65 of 120) – The Illicit Discharge Detection And Elimination Program Provisions Must Be Modified So As Not To Negate The Very Intent And Purpose Of The Watershed Approach And The Focus On The Highest Priorities Within Each Watershed Management Area

(See the corresponding comments under Provision E – Jurisdictional Runoff Management Programs)

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

2. Illicit Discharge Detection and Elimination [Intro]

...~~The illicit discharge detection and elimination program must be implemented in accordance with the strategies identified in the Water Quality Improvement Plan and include, at a minimum, the following requirements. The requirements of the jurisdictional runoff management programs as outlined below may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality improvement Plan(s).~~

Move Provision 2e, “Strategies to Address the Highest Priority Water Quality Conditions” to just after the Introduction to the section. This should become the new Provision 2.a.

E. Jurisdictional Runoff Management Programs

2. Illicit Discharge Detection and Elimination

a. Each Copermittee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented as part of the illicit discharge detection and elimination program to address ~~non-stormwater~~ and illicit discharges and connections that the Copermittee has identified as potential sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:

(1) Provide specific details about how the strategies and/or activities will be implemented (e.g. designate ~~additional~~ BMPs, focus education, and/or increase/decrease frequency of inspections in specific areas); and

(2) The strategies and/or activities must be consistent with the requirements of Provisions E.2.a-d and the strategies identified in the Water Quality Improvement Plan.

28. Provision E.2 (Page 65 of 120) – The Copermitttees Should Be Allowed The Flexibility To Prioritize Their IDDE Program To Focus On Those Non-Stormwater Discharges That Are Likely To Be A Source Of Pollutants

Provision E.2.a identifies several categories of discharges that are to be considered “non-stormwater discharges.” The categories that are considered to be non-stormwater discharges (do not need to be addressed as an illicit discharge) generally include the following:

- E.2.a.(1) - Those discharges which have coverage under a separate NPDES Permit;
- E.2.a.(2) - Those discharges which have coverage under a separate NPDES Permit
- E.2.a.(3) - Those discharges which are recognized within the federal regulations as acceptable unless they are identified as a source of pollutants to the receiving waters;
- E.2.a.(4) - Those discharges that are addressed by a set of requirements/BMPs; and
- E.2.a.(5) - Firefighting related discharges that are addressed by a set of requirements/BMPs.

In comparison, the Code of Federal Regulations [40CFR122.26(d)(2)(iv)(B)(1)] states that, as a part of an illicit discharge program, that the Copermitttees shall incorporate a series of items including the following:

A description of a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal separate storm sewer system; this program description shall address all types of illicit discharges, however the following category of non-storm water discharges or flows shall be addressed where such discharges are identified by the municipality as sources of pollutants to waters of the United States: [Emphasis added and items re-ordered based on Tentative Order (TO) structure]

- landscape irrigation, [not included in TO]
- irrigation water, [not included in TO]
- lawn watering, [not included in TO]
- street wash water [not included in TO]
- *uncontaminated pumped ground water, [E.2.a.(1)]*
- *foundation drains, [E.2.a.(3)]; [E.2.a.(1)]*
- *water from crawl space pumps, [E.2.a.(1)]*
- *footing drains, [E.2.a.(3)]; [E.2.a.(1)]*
- water line flushing, [E.2.a.(2)]
- diverted stream flows, [E.2.a.(3)]
- rising ground waters, [E.2.a.(3)]
- springs, [E.2.a.(3)]
- uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)) to separate storm sewers, [E.2.a.(3)]
- flows from riparian habitats and wetlands, [E.2.a.(3)]
- discharges from potable water sources, [E.2.a.(3)]
- air conditioning condensation, [E.2.a.(4)]
- individual residential car washing, [E.2.a.(4)]
- dechlorinated swimming pool discharges, and [E.2.a.(4)]

(program descriptions shall address discharges or flows from fire fighting [E.2.a.(5)] only where such discharges or flows are identified as significant sources of pollutants to waters of the United States);

Although the discharges listed within the Federal Regulations are generally considered to be “conditionally exempt” from the illicit discharge program (unless they are found to be sources of pollutants), the Regional Water Board has determined that the following categories of non-stormwater discharges

- uncontaminated pumped ground water, [E.2.a.(1)]
- foundation drains, [E.2.a.(3)]; [E.2.a.(1)]
- water from crawl space pumps, [E.2.a.(1)]
- footing drains, [E.2.a.(3)]; [E.2.a.(1)]

will be considered to be illicit discharges unless the discharge has coverage under the following two NPDES Permits:

1) NPDES Permit No. CAG919001 (Order No. R9-2007-0034)

General Waste Discharge Requirements for Discharges from Temporary Groundwater Extraction and Similar Waste Discharges to San Diego Bay, Tributaries Thereto Under Tidal Influence, and Storm Drains or Other Conveyance Systems and Tributary Thereto

- Groundwater Extraction defined as (I.A): Existing and proposed discharges of groundwater extraction waste to San Diego Bay from construction groundwater extraction, foundation groundwater extraction, and groundwater extraction related to groundwater remediation cleanup projects (collectively groundwater extraction):
 1. Result from similar operations (all involve extraction and discharge of groundwater);
 2. Are the same type of wastes (all are groundwater containing or potentially containing petroleum hydrocarbons, solvents, or other pollutants);
 3. Require similar effluent limitations for the protection of the beneficial uses of San Diego Bay;
 4. Require similar monitoring; and
 5. Are more appropriately regulated under a WDR rather than individual permits.
- Eligibility Criteria (I.C): This WDR is intended to cover temporary discharges of groundwater extraction wastes to San Diego Bay, and its tributaries under tidal influence, from groundwater extraction due to construction and other groundwater extraction activities.

2) NPDES Permit No. CAG919002 (Order No. R9-2008-002)

General Waste Discharge Requirements for Discharges from Groundwater Extraction and Similar Discharges to Surface Waters Within the San Diego Region Except for San Diego Bay

- Groundwater Extraction defined as (I.A): Existing and proposed discharges of groundwater extraction waste to surface waters within the San Diego Region from construction groundwater extraction, foundation groundwater extraction, and groundwater extraction related to groundwater remediation cleanup projects (collectively groundwater extraction):
 1. Result from similar operations (all involve extraction and discharge of groundwater);
 2. Are the same type of wastes (all are groundwater containing or potentially containing petroleum hydrocarbons, solvents, or other pollutants);

3. Require similar effluent limitations for the protection of the beneficial uses of San Diego Bay;
 4. Require similar monitoring; and
 5. Are more appropriately regulated under a general permit rather than individual permits.
- Eligibility Criteria (I.C): This WDR is intended to cover all discharges of groundwater extraction wastes to surface waters within the San Diego Region Except San Diego Bay from groundwater extraction due to construction and other groundwater extraction activities, regardless of volume.

However, the County would submit that it is unnecessary to move these discharges (uncontaminated pumped groundwater, foundation drains, water from crawl space pumps, and footing drains) from the E.2.a.(3) category to the E.2.a.(1) category and require them to obtain coverage under one of these two permits for the following reasons:

- There is no technical basis or demonstrated water quality concern that justifies the need for these discharges to obtain coverage under these permits;
- The two permits are clearly defined for groundwater extraction activities where there is groundwater containing or potentially containing petroleum hydrocarbons, solvents, or other pollutants (in fact, one of the categories of discharges required to obtain coverage is 'uncontaminated pumped groundwater');
- One of the permits is clearly defined for temporary discharges, not permanent discharges; and
- The categories of discharges are non-stormwater discharges that are generally not expected to be a source of pollutants to receiving waters.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

2. Illicit Discharge Detection and Elimination

a. Each Copermitee must address ~~all~~ non-storm water discharges as illicit discharges, where the likelihood exists that they are a source of pollutants to the waters of the state, unless ~~the~~ a non-storm water discharge is either identified as a discharge authorized by a separate NPDES permit, or identified as a category of non-storm water discharges or flows that must be addressed pursuant to the following requirements:

Delete Provision 2.a.(1)

Add the following categories from Provision 2.a.(1) to the list of allowable non-stormwater discharges listed in Provision 2.a.(3):

- *Uncontaminated pumped ground water*
 - *Discharges from foundation drains*
 - *Water from crawl space pumps*
 - *Water from footing drains*
-

E. Jurisdictional Runoff Management Programs

2. Illicit Discharge Detection and Elimination

a.(4) Discharges of non-storm water into the MS4 from the following categories must be controlled by the requirements given below through statute, ordinance, permit, contract, order, or similar means, where there is evidence that those discharges are a source of pollutants to waters of the state. Discharges of non-storm water into the MS4 from the following categories not controlled by the requirements given below through statute, ordinance, permit, contract, order, or similar means must be addressed by the Copermittee as illicit discharges.

29. Provision E.2.a (Page 65 of 120) – The Fire Fighting BMP Provisions Should Reflect The Language Included In The Current Orange County Permit

Provision E.2.a includes a requirement for the Copermittees to establish BMPs for both emergency and non-emergency firefighting activities. While the Copermittees already have established guidelines for non-emergency firefighting activities, it is unclear why the approach and language in the Tentative Order regarding the emergency firefighting activities has been modified from Order R9-2009-0002. In fact, the language in the Tentative Order is actually inconsistent with the Phase I Final Rule (55 FR 48037), which stated

“In the case of fire fighting it is not the intention of these rules to prohibit in any circumstances the protection of life and public and private property through the use of water or other fire retardants that flow into separate storm sewers.” [Emphasis added]

Thus, as stated above, there should not be a circumstance in which the Copermittees or San Diego Water Board would identify emergency firefighting discharges as illicit discharges or a significant source of pollutants to receiving waters. The language previously adopted by the San Diego Regional Board in Order R9-2009-0002 regarding emergency firefighting discharges is recommended.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

2. Illicit Discharge Detection and Elimination

a. Non-Storm Water Discharges

(5) Firefighting discharges to the MS4 must continue to be addressed by the Copermittees as illicit discharges only if the Copermittee or the San Diego Water Board identifies the discharge as a significant source of pollutants to receiving waters. Firefighting discharges to the MS4 ~~not identified as a significant source of pollutants to receiving waters, must be addressed, at a minimum,~~ as follows:

(a) Non-emergency firefighting discharges

- (i) Building fire suppression system maintenance discharges (e.g. sprinkler line flushing) to the MS4 must be addressed as illicit discharges.*
- (ii) Non-emergency firefighting discharges (i.e., discharges from controlled or practice blazes, firefighting training, and maintenance activities not associated with building fire suppression systems) must be addressed by a program, to be developed and implemented by the Copermittee, in conjunction with the local Fire Authority/District, to reduce or eliminate pollutants in such discharges from entering the MS4.*

(b) Emergency firefighting discharges (i.e., flows necessary for the protection of life or property) do not require BMPs and need not be prohibited.

Each Copermittee should develop and encourage implementation of BMPs to reduce or eliminate pollutants in emergency firefighting discharges to the MS4s and receiving waters within its jurisdiction. During emergency situations, priority of efforts should be directed toward life, property, and the environment (in descending order). BMPs should not interfere with immediate emergency response operations or impact public health and safety.

30. Provision E (Entire Provision; Begins Page 64 of 120) – The Tentative Order Should Not Require the Reduction Or Elimination Of All Non-Stormwater Discharges As A Part Of The IDDE Program

Provision E.2.a and E.2.a.(7) require the Copermittees to, as a part of their IDDE program, to address all non-stormwater discharges as illicit discharges, and thus Copermittees must “reduce or eliminate non-stormwater discharges” whether or not the discharges have been identified as illicit discharges.

The rationale within the Fact Sheet states that “Provision E.2.a.(7) is consistent with the requirements of the CWA section 402(p)(3)(B)(ii) and 40CFR 122.26(d)(1)(v)(B).” That, in fact, is not the case. Clean Water Act Section 402(p)(3)(B)(ii) states that the MS4 stormwater permits “shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers” (emphasis added). Federal regulations include two provisions designed to begin implementation of the “effective prohibition.”⁴⁶ The first provision requires Copermittees to perform a screening analysis, intended to provide sufficient information to develop priorities for a program to detect and remove illicit discharges⁴⁷. The second provision requires Copermittees to develop a recommended site-specific management plan to detect and remove illicit discharges (or ensure they are covered by an NPDES permit) and to control improper disposal to MS4s.⁴⁸ Therefore, Provision E.2.a and E.2.a(7) misapply federal regulations in that Copermittees are required to identify the non-stormwater discharge as an illicit discharge prior to having an obligation to effectively prohibit it. There is not a presumption to reduce or eliminate it otherwise.

The Code of Federal Regulations 122.26(d)(1)(v)(B) states “A description of the existing program to identify illicit connections to the municipal storm sewer system. The description should include inspection procedures and methods for detecting and preventing illicit discharges, and describe areas where this program has been implemented.”

The provision and rationale within the Fact Sheet blur the lines between the need of the Copermittees to “effectively” prohibit non-stormwater discharges and detect and eliminate illicit discharges.

- The requirement is “effectively prohibit” non-stormwater discharges, not “reduce or eliminate” non-stormwater discharges (this is already addressed in Provision A).
- Although the Copermittees are required to have a program to prevent illicit discharges to the MS4, non-stormwater discharges should only be addressed as illicit discharges

⁴⁶ 55 Fed. Reg. 47989, 48037 (Nov. 16, 1990).

⁴⁷ 40 CFR 122.26(d)(1)(iv)(D).

⁴⁸ 40 CFR 122.26(d)(1)(iv)(D) and 122.26(d)(2)(B).

where such discharges are identified as sources of pollutants that may cause or contribute to an exceedance of a water quality objective.

- The IDDE program is established to detect and eliminate “illicit discharges”, not non-stormwater discharges in general.

In order to clarify the requirements the following modifications to Provision E.2, which expressly address the Illicit Discharge Detection and Elimination Program are requested.

The County recommends the following language changes:

A. Prohibitions and Limitations

1. Discharge Prohibitions

b. Non-storm water discharges into MS4s are to be effectively prohibited, unless such discharges are either authorized by a separate NPDES permit, or the discharge is a category of non-storm water discharges ~~or flows~~ that must be addressed pursuant to Provisions E.2.a.(1)-(5) of this Order.

E. Jurisdictional Runoff Management Programs

2. Illicit Discharge Detection and Elimination

b. Non-Stormwater Discharges

Each Copermittee must address ~~all~~ non-storm water discharges as illicit discharges, where the likelihood exists that they are a source of pollutants to the waters of the state, unless ~~the a non-stormwater-discharge~~ is either identified as a discharge authorized by a separate NPDES permit, or identified as a category of non-storm water discharges ~~or flows~~ that must be addressed pursuant to the following requirements:

E. Jurisdictional Runoff Management Programs

2. Illicit Discharge Detection and Elimination

a. Non-Storm Water Discharges

~~(7) Each Copermittee must, where feasible, reduce or eliminate non-storm water discharges listed under Provisions E.2.a.(1)-(4) into its MS4 whether or not the non-storm water discharge has been identified as an illicit discharge, unless a non-storm water discharge is identified as a discharge authorized by a separate NPDES permit.~~

E. Jurisdictional Runoff Management Programs

2. Illicit Discharge Detection and Elimination

c. Field Screening

Each Copermittee must conduct field screening (i.e. visual observations, field testing, and/or analytical testing) of MS4 outfalls and other portions of its MS4 within its jurisdiction to detect non-stormwater and illicit discharges and connections to the MS4 in accordance with the dry weather MS4 outfall discharge monitoring requirements in Provisions D.2.a.(2) and D.2.b.(1).

E. Jurisdictional Runoff Management Programs

2. Illicit Discharge Detection and Elimination

d. Investigate and Eliminate Illicit Discharges and Connections

[Various – see the suggested changes in the redline of the Tentative Order]

DEVELOPMENT PLANNING

The Tentative Order's land development requirements are some of the most onerous requirements in the Tentative Order, and in many cases lack the necessary technical and legal foundation for adoption. Many of the land development requirements, particularly hydromodification controls, pose federal constitutional issues as well as conflict with the CWA, the State Administrative Procedure Act, California Environmental Quality Act (CEQA), the Mitigation Fee Act and federal court decisions such as the recent U.S. District Court case, *Virginia Dept. of Transportation v. EPA*⁴⁹ (holding that EPA has no authority to regulate non-pollutants).

The following discussion examines the overarching legal concerns with the land development requirements, and is followed by specific technical analyses for individual requirements.

A. Land Development Requirements Expose the Copermittees to Significant Litigation Risk And Will Be Largely Unenforceable

Many of the land development requirements, such as hydromodification, pose constitutional issues either exposing municipalities to litigation and/or will result in municipalities being unable and unwilling to implement such requirements. Specifically, but not limited to, Orange County is most concerned with the provisions: 1) requiring Copermittees to compel development projects that have no impact on hydromodification to implement on-site or alternative compliance hydromodification mitigation measures, 2) using pre-development (naturally occurring) runoff reference condition as applied to sites that are, in fact, developed, and 3) stream, channel, and habitat restoration.

Orange County is concerned that implementing these types of requirements would subject the Copermittees to liability under the takings clauses of the U.S. and California Constitutions and the Mitigation Fee Act because of the questionable nexus between a project's impacts on hydromodification and the hydromodification management measures in the Tentative Order. When imposing a condition on a development permit, a local government is required under federal and state constitutions to establish that the condition bears a reasonable relationship to the impacts of the project. This rule applies evenly to legislatively enacted requirements and impact fees or exactions.⁵⁰ Moreover, fees imposed on a discretionary ad-hoc basis are subject to heightened scrutiny under a two-part test. First, local governments must show that there is a substantial relationship between the burden created by the impact of development and any fee or exaction⁵¹. Second, a project's impacts must bear a rough proportionality to any development fee or exaction.⁵² Under California law, the *Nollan/Dolan* heightened scrutiny test also applies to in-lieu fees.⁵³

The Legislature has memorialized these requirements in the Mitigation Fee Act, which establishes procedures that local governments must follow to impose impact fees.⁵⁴ Irrespective of whether the hydromodification management requirements are implemented by

⁴⁹ *Virginia Dept. of Transportation v. EPA*, No. 1:12-CV-775, slip op. (E.D. Va. Jan. 3, 2013).

⁵⁰ *Building Ass'n Industry v. City of Patterson*, 171 Cal. App. 4th 886, 898 (2009).

⁵¹ *Nollan v. Calif. Coastal Comm'n*, 483 U.S. 825, 837 (1987).

⁵² *Dolan v. City of Tigard*, 512 U.S. 374, 391 (1994).

⁵³ *Ehrlich v. City of Culver City*, 12 Cal. 4th 854, 876 (1996).

⁵⁴ Gov't Code secs. 66000-66025.

legislative act or on an ad-hoc basis, the Copermitees attempt to enforce them as proposed in the Tentative Order will likely result in claims alleging unconstitutional takings of private property and violations of the Mitigation Fee Act. This is because a developer could argue that limiting hydromodification impacts of already developed property to its naturally occurring state, or requiring hydromodification mitigation measures for impacts not imposed by the project, would not have a legally sufficient nexus to the impact of the development project.

Additionally, CEQA does not allow a local government discretionary approval to require over-mitigation of a project. The CEQA Guidelines provide that “a lead agency for a project has the authority to require feasible changes in any or all activities involved in the project in order to substantially lessen or avoid significant effects on the environment, consistent with applicable constitutional requirements such as the ‘nexus’ and ‘rough proportionality’ standards established by case law.”⁵⁵ Thus, Copermitees would most assuredly be exposed to CEQA challenges, which are the most prevalent lawsuits against projects.

In all likelihood, municipalities will not risk constitutional challenges and the high litigation costs of such challenges, but will instead exempt projects from certain requirements or limit their applicability based on documented technical and legal reasons. Such actions then would only be addressed through a Regional Board audit years after a project has been approved and developed. Therefore, predevelopment runoff reference conditions and stream, channel and habitat restoration requirements should be eliminated in their entirety.

B. Stream, Channel and Habitat Restoration Cannot Be Required Due to Conflicts with Federal and State Laws

The Tentative Order requires stream, channel and habitat restoration and/or retrofitting depending on certain land development projects. The prior analysis above discussed the litigation risk to which municipalities will be exposed. The following discussion focuses on the direct conflicts with federal and state laws that also prohibit such requirements.

The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.⁵⁶ In carrying out this objective, Section 402(p) requires municipalities to reduce the discharge of pollutants from the MS4 to the MEP standard. The Tentative Order, however, goes well beyond the Congressional intent of the CWA to only address pollutants by requiring both Copermitees and the property owners to restore and/or retrofit streams, channels and habitat, with no technical evidence as to how this will reduce the discharge of pollutants to MEP or under what legal authority these requirements can be imposed.

Not only do such requirements go beyond MEP, but go beyond the scope of the CWA's focus on pollutant reduction. First, there is no evidence in the Order for how restoration requirements reduce pollutants from leaving the MS4. Second, in a recent decision in the Eastern District of Virginia, a federal court has held that the EPA has no authority under the Clean Water Act to regulate non-pollutants.⁵⁷ Restoration as described in the Tentative Order does not regulate pollutants directly, but requires costly over-mitigation by project proponents to do more than address pollutants by restoring streams, channels and habitat to a subjective, predevelopment

⁵⁵ Cal. Code Regs. Tit. 14, sec. 15041 (citing *Nollan/Dolan*).

⁵⁶ CWA 101(a).

⁵⁷ *Virginia Dept. of Transportation v. EPA*, No. 1:12-CV-775, slip op. (E.D. Va. Jan. 3, 2013).

standard. Essentially, the Tentative Order uses restoration as a surrogate for pollutants, and tries to unlawfully regulate the flow of water and not pollutants themselves.

Under state law, the Orange County Flood Control District has been delegated authority by the Legislature to construct lengthy networks of channels and infrastructure for flood control purposes. Under this authority, the Flood Control District has exclusive authority to control the flow of water in these channels. Although the State and Regional Boards may have some ability to impose conditions that impact volumetric flows (which is now called into question by the 4th District court case), this authority does not extend to NPDES permits.⁵⁸ Returning channels to natural conditions impinges on municipal flood control authority as removing concrete and performing other restoration efforts would alter the flow of water in those channels.

Engineered channels serve the public health and safety through flood control protection. A significant portion of Orange County lies in a flood plain whereby property owners are required to carry flood insurance. Concrete channels are used to better control the flow of water and minimize flooding and reduce insurance premiums. State courts have long recognized that residents living near flood control improvements have a right to rely on the current standards of a particular channel to protect against flooding.⁵⁹ Restoring a stream or channel to a natural state would not ensure against flooding as engineering is used to ensure that stormwater is controlled to certain patterns. Many developments are built up to flood control channels, and thus, restoration would expose residents to threats of flood, potential property damage and loss of life and expose municipalities to claims of inverse condemnation and other torts based on relied upon flood control protections by the public. Restoration in some cases would also require use of eminent domain authority, which the State cannot require municipalities to exercise.

31. Provision E.3 (Page 73 of 120) – The Development Planning Provisions Must Be Modified So As Not To Negate The Very Intent And Purpose Of The Watershed Approach And The Focus On The Highest Priorities Within Each Watershed Management Area

(See the corresponding comments under Provision E – Jurisdictional Runoff Management Programs)

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

3. Development Planning [Intro]

Each Copermittee must use their land use and planning authorities to implement a development planning program in accordance with the strategies identified in the Water Quality Improvement Plan ~~and include, at a minimum, the following requirements. The requirements of the~~ jurisdictional runoff management programs as outlined below may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality improvement Plan(s).

⁵⁸ *S.D. Warren Co. v. Me. Bd. of Env'tl. Prot.*, 547 U.S. 370 (2006); *PUD No.1 v. Washington Dep't of Ecology*, 511 U.S. 700 (1994).

⁵⁹ *Arreola v. County of Monterey*, 99 Cal.App.4th 722 (2002).

Move Provision 3g, “Strategies to Address the Highest Priority Water Quality Conditions” to just after the Introduction to the section and before Provision 3.a.

- (1) *Provide specific details about how the strategies and/or activities will be implemented (e.g. designate ~~additional~~ BMPs, focus education, increase frequency of verifications and/or inspections, alternative compliance options);*

32. Provision E.3 (Page 73 of 120) – Clarifying Language For Applying The PDP Requirements For A New Development Project Feature Is Confusing And Should Be Removed

In E.3.b.(1)(a) the Regional Board staff attempts to provide clarifying language which we believe actually makes for more confusion. The purpose of this provision is to state that Priority Development Projects are defined in E.3.b(2). In E.3.b(2) further clarification is provided regarding what is parts of a project are subject to the new development standards. The language provided in E.3.b(1)(a) starting with “where a new Requirement” does not add clarification and instead may be construed to be in conflict with E.3.b(2).

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

3. Development Planning

b. Priority Development Projects

(1) Definition of Priority Development Project

(a) All new development projects that fall under the Priority Development Project categories listed under Provision E.3.b.(2). ~~Where a new development project feature, such as a parking lot, falls into a Priority Development Project category, the entire project footprint is subject to Priority Development Project requirements; and~~

33. Provision E.3 (Page 73 of 120) – Portions Of Redevelopment Projects That Already Have Water Quality Treatment BMPs Should Not Be Subject To The New PDP Requirements

Some redevelopment projects already have portions of the project that were subject to previous permit PDP requirements. These portions of redevelopment that were subject to prior PDP requirements should not be subject to the new PDP requirements as these projects already have water quality treatment. Such an approach is consistent with the Los Angeles and Ventura MS4 permits.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

3. Development Planning

b. Priority Development Projects

(1) Definition of Priority Development Project

(b) Those redevelopment projects that create, add, or replace at least 5,000 square feet of impervious surfaces on an already developed site, or the redevelopment project is a Priority Development Project category listed under Provision E.3.b.(2). Where redevelopment results in an increase of less than fifty percent of the impervious surfaces of a previously existing development, and the existing development was not subject to Priority Development Project

requirements, the performance requirements of Provisions E.3.c.(1) and E.3.c.(2) apply only to the addition or replacement, and not to the entire development.

Where redevelopment results in an increase of more than fifty percent of the impervious surfaces of a previously existing development, and was not subject to previous Priority Project Development requirements, the performance requirements of Provisions E.3.c.(1) and E.3.c.(2) apply to the entire development.

34. Provision E.3.b.2 (Page 76 of 120) – Residential Driveways Should Not Be Subject To The PDP Requirements

Section E.3.b.2.g triggers PDP requirements for development and redevelopment of streets, roads, highways, freeways, and residential driveways over 5,000 square feet. This requirement was present in the prior permit; however, the residential driveways requirement was added under the Tentative Order and will require additional Copermittee effort for treatment control and structural Low Impact Development (LID) BMP inventory, inspections, and maintenance verification and may have potential enforcement issues. The Regional Board has not provided sound technical basis for this provision as there is no evidence provided in the fact sheet that the cumulative impact of residential driveways would be significant and that residential driveways are a significant source of pollutants. Additionally vehicles should be defined as internal combustion vehicles since internal combustion vehicles are the source of pollutants this section is developed for.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

3. Development Planning

b. Priority Development Projects

(2) Priority Development Project Categories

(g) Streets, roads, highways, and freeways, ~~and residential driveways~~. This category is defined as any paved impervious surface that is 5,000 square feet or more used for the transportation of automobiles, trucks, motorcycles, and other internal combustion vehicles.

35. Provision E.3 (Page 73 of 120) – All Municipal Roadway Projects Should Only Be Subject To The USEPA Guidance Regarding Managing Wet Weather With Green Infrastructure: Green Streets

The Ventura County NPDES MS4 Permit, the Santa Ana Region permits for Orange County, San Bernardino County, and Riverside County, and the Greater Los Angeles MS4 Permit provide that streets, roads, and highways follow US EPA guidance regarding *Managing Wet Weather with Green Infrastructure: Green Streets to the maximum extent practicable*. This document is recognized nationwide as the standard for incorporation of LID techniques into roadway projects, which is why it was it is specified in the permits identified above. In April of 2007 the US EPA, National Association of Clean Water Agencies; Natural Resources Defense Council; the Low Impact Development Center; and the Association of State and Interstate Water Pollution Control Administrators signed the Green Infrastructure Statement of Intent. This statement of intent recognized the benefits of green infrastructure and laid the ground work for the development of the USEPA Green Infrastructure Action Strategy. One of the areas of study was the municipal roadways and the result of the study is the US EPA Green Streets Municipal Handbook. The Handbook provides guidance on green street design, different types of LID BMPs that are appropriate for municipal roadways, and implementation hurdles. The Handbook

was specifically developed for incorporating LID techniques into roadway projects as roadways are very different from traditional land development projects. Roadways are different than other development projects as there are significant constraints to implementation of BMPs that need to be considered such as limited right-of-way, utilities, geotechnical and structural concerns, street trees, parking, and fire truck access among others. The US EPA guidance considers these constraints where the PDP requirements do not. Even in new roadways implementing hydromodification requirements can disturb a significant area of land which has its own environmental impacts including changing the natural hydrology which is antithetical to the LID approach.

In addition, retrofitting of existing alleys is infeasible. In accordance with the Streets & Highways Code, State Controller Gas Tax Expenditure Guidelines and several California Attorney General opinions, alleys are not considered “city streets” or “county highways,” and are not certified to the State Controller for gas tax purposes as they do not serve as thoroughfares for the general public. Therefore, section 2150 of the Streets & Highways Code and other State laws prohibit municipalities from expending Road Funds on alleyway rehabilitation, and retrofitting of an alleyway would be an unlawful expenditure. In the case of private development where there is a clear nexus to alleyway improvement, a landowner adjacent to an alley could only be conditioned to retrofit that portion of alleyway in front of the property and could not be conditioned to retrofit an entire alleyway.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

3. Development Planning

b. Priority Development Projects

(3) Priority Development Project Exemptions

(b) Any impervious surface that is 5,000 square feet or more used for the transportation of automobiles, trucks, motorcycles, and other vehicles that follows the USEPA guidance regarding Managing Wet Weather with Green Infrastructure: Green Streets¹ to the MEP.

¹:<http://water.epa.gov/infrastructure/greeninfrastructure/index.cfm>

~~*Retrofitting of existing paved alleys, streets or roads that meet the following criteria:*~~

~~*(i) Must be two lanes or less; AND*~~

~~*(ii) Must be a retrofitting project implemented as part of an alternative compliance project option under Provision E.3.c.(3)(b)(v) to achieve the performance requirements of Provisions E.3.c.(1) and/or E.3.c.(2) for a Priority Development Project; AND*~~

~~*(iii) Designed and constructed in accordance with the USEPA Green Streets guidance.23*~~

36. Provision E.3 (Page 73 of 120) – Exemptions From The Development Planning Requirements Should Be Provided For Certain Types Of Projects

An exemption for PDPs should be provided for driveways and parking lots constructed with permeable surfaces. This exemption is provided to sidewalks, bicycle lanes and trails and should also be provided to driveways and parking lots. The fact sheet identifies that “The exemptions have been provided as an incentive for the Copermitees to encourage and promote the implementation of LID design concepts and green infrastructure and building principles.” Permeable surfaces qualify as an LID design concept, which should be recognized in the Tentative Order provisions for driveways and parking lots. The use of permeable surfaces

should be encouraged, which will be accomplished by providing an exemption for driveways and parking lots constructed with permeable surfaces.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

3. Development Planning

b. Priority Development Projects

(3) Priority Development Project Exemptions

(a) ~~New paved Sidewalks, bicycle lanes, driveways, parking lots, or trails that meet the following criteria:~~

(i) ~~Designed and constructed to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas; OR~~

(ii) ~~Designed and constructed to be hydraulically disconnected from paved streets or roads; OR~~

(iii) ~~Designed and constructed with permeable pavements or surfaces in accordance with USEPA Green Streets guidance.~~

An exemption should also be provided to single family residential projects as single family residential projects should not be subject to PDP requirements as the PDP requirements would put an undue burden on single family residences where it has not been shown that they are significant source of pollutants. There is no technical justification or proof that single family residences are a significant source of pollutants identified in the fact sheet and thus should be provided an exemption. Furthermore the inclusion of the U.S. Green Building Council (USGCB) Leadership in Energy and Environmental Design (LEED) for Homes green building certification program in the Tentative Order is not appropriate as this program encompasses other environmental considerations besides surface water management which are outside the scope of a stormwater permit and outside the authority of the Regional Board. Since the Regional Board has not met the burden of proof that single family residential projects are a significant source of pollutants the exemption should be provided to all single family residential projects and not just in meeting the LEED certification which is inappropriate for the Regional Board to specify.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

3. Development Planning

b. Priority Development Projects

(3) Priority Development Project Exemptions

(c) Single-family residential projects that are not part of a larger development or proposed subdivision.

~~New single family residences that meet the following criteria:~~

~~(i) Must not be constructed as part of a larger development or proposed subdivision; AND~~

~~(ii) Designed and constructed to be certified under the U.S. Green Building Council (USGCB) Leadership in Energy and Environmental Design (LEED) for Homes green building certification program, receiving at least four (4) Surface Water Management credits under the Sustainable Sites category; OR~~

~~(iii) Designed and constructed with structural BMPs that will achieve the performance requirements of Provisions E.3.c.(1) and E.3.c.(2) onsite.~~

~~(d) Redevelopment of existing single family residences that meet the following criteria:~~

~~(i) Designed and constructed to be certified under the USGCB LEED for Homes green building certification program, receiving at least four (4) Surface Water Management credits under the Sustainable Sites category; 25 OR~~

~~(ii) Designed and constructed with structural BMPs that will achieve the performance requirements of Provisions E.3.c.(1) and E.3.c.(2) onsite.~~

An exemption should be added for the protection of persons and property, particularly as it applies to BMPs not being implemented in waters of the U.S. or state. This language is consistent with Cal. Water Code §13269(c)(1-2). Flood control projects are intended for the protection of public safety and property and are mandated by the Orange County Flood Control Act of 1927. Requiring flood control projects to implement BMPs which are intended for traditional types of development projects is inappropriate and in most cases infeasible. Furthermore requiring flood control projects to implement BMPs may cause flood control projects to be infeasible which in many cases will increase the risk of flooding. If flooding does occur in these areas it would increase the risk of pollutants discharging into receiving waters from the flooded areas. Stream restoration projects are also projects that should not be subject to the PDP requirements as they are projects intended to restore beneficial uses of receiving waters.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs
3. Development Planning
b. Priority Development Projects
(3) Priority Development Project Exemptions
(d) Flood control and stream restoration projects.

An exemption for emergency public safety projects where a delay due to a Standard Stormwater Mitigation Plan (SSMP) would compromise public safety, public health and/or the environment is needed in the permit. Copermittees need an exemption where if public health or safety or environmental protection is threatened the project can proceed without a SSMP. Emergency projects are provided exempt status in many other MS4 permits including the recently adopted LA MS4 permit.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs
3. Development Planning
b. Priority Development Projects
(3) Priority Development Project Exemptions
(e) Emergency public safety projects in any of the Priority Development Categories may be excluded if the delay caused due to the requirement for a SSMP compromises public safety, public health and/or environmental protection

37. Provision E.3.c (Page 78 of 120) – Flexibility Should Be Provided To The Structural BMP Performance Standards If Watershed-Specific Performance Standards Are Developed In The Water Quality Improvement Plans

Based on the watershed approach it is conceivable that the Water Quality Improvement Plans may identify that an alternate performance standard than the provisions in E.3.c. may be appropriate for certain watersheds. To fully realize the watershed approach the Copermitees should be given the opportunity to develop alternative BMP performance standards consistent with the goals and objectives developed in the Water Quality Improvement Plans.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

3. Development Planning

c. Priority Development Project Structural BMP Performance Requirements

In addition to the BMP requirements listed for all development projects under Provision E.3.a, Priority Development Projects must also implement structural BMPs that conform to performance requirements below. If watershed-specific performance requirements are developed as part of a Water Quality Improvement Plan; these requirements would take precedence over the general performance requirements below. The watershed-specific requirement must provide at least equal protection as the general performance requirements below.

38. Provision E.3 (Page 73 of 120) – Terminology Is Inconsistent Especially With The Use Of Low Impact Development BMPs And Should Be Modified

In Provision E.3.c. the Tentative Order specifies the requirements for structural BMPs. Furthermore in Provision E.3.c.(1) the concepts of onsite structural BMPs and LID BMPs are introduced. The County recommends that the Tentative Order be modified to provide more consistency in terminology. The County views LID as a strategy of BMPs that is used to mimic predevelopment water balance. (see Provision E.3.a(3)). Furthermore there is no single definition for LID BMPs that has gained widespread recognition. Although Attachment C includes a definition for LID BMPs, this definition is not widely accepted. LID is rather a concept (the attachment C definition does adequately capture this concept) made up of various non-structural and structural BMPs. While the onsite BMP requirements should be defined (e.g. retention of the 85% storm) the Tentative Order could be greatly simplified by avoiding multiple terms and uses. The County has provided suggested edits throughout the Development Planning provision to provide better consistency.

39. Provision E.3.c (Page 78 of 120) – The Retention Performance Standard Needs Clarification

Clarification is needed regarding both Section E.3.c.(1)(a)(i) and (ii). In Section E.3.c.(1)(a)(i) the section states “The volume of storm water produced...” where it should state “The volume of storm water runoff produced”. The Fact Sheet identifies that this design standard is consistent with the Fourth Term Permits for Orange County and Riverside County however in both of these permits the standard is identified “the volume of runoff produced from a from a 24-hour 85th percentile storm event”. The word “runoff” needs to be added to the Tentative Order. In Section E.3.c.(1)(a)(ii) the newly added language that provides an alternative method for calculating the design capture volume does not specify a storm threshold or range of storms for the alternative

method for calculating the design capture volume. Clarification is needed to identify the threshold to be used and the County believes that the average annual volume of stormwater runoff is appropriate. Additionally flexibility should be provided as far as the technique to calculate this volume so that other methods besides continuous simulation should be accepted.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

3. Development Planning

c. Priority Development Project Structural BMP Performance Requirements

(1) Storm Water Pollutant Control BMP Requirements

(a) Each Priority Development Project must be required to implement LID BMPs that are designed to retain (i.e. intercept, store, infiltrate, evaporate, and evapotranspire) onsite the pollutants contained in the design capture volume. The design capture volume is equivalent to:
(i) The volume of storm water runoff produced from a 24-hour 85th percentile storm event; OR
(ii) The average annual volume of storm water runoff that would be retained onsite if the site was fully undeveloped and naturally vegetated, as determined using continuous simulation modeling or other techniques based on site-specific soil conditions and typical native vegetative cover.

40. Provision E.3.c (Page 78 of 120) – If Projects Use Alternative Compliance Conventional BMPs Should Not Be Also Required Onsite

Section E.3.c.(1)(c) requires that if projects use alternative compliance that conventional BMPs must also be implemented onsite. Although the Fact Sheet identifies that the intent of this provision is to reduce the pollutants onsite to the MEP there is not adequate technical justification for effectively requiring additional mitigation. This provision requires additional mitigation for projects and in effect requires double mitigation which goes well beyond the MEP standard that is referenced in the Fact Sheet. Providing mitigation offsite for the PDP requirements offsite in itself is adequate to meet the MEP standard.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

3. Development Planning

c. Priority Development Project Structural BMP Performance Requirements

(1) On-site Storm Water Pollutant Control Structural BMP Requirements

(c) If a Priority Development project is allowed to utilize alternative compliance pursuant to Provisions E.3.c.(1)(b), ~~flow-thru conventional treatment control BMPs must be implemented to treat the portion of the design capture volume that is not retained onsite. Additionally, project applicants must mitigate for the portion of the pollutant load in the design capture volume that is not retained onsite through one or more alternative compliance options under Provision E.3.c.(3).~~ If alternative compliance involves the use of conventional treatment control BMPs, those BMPs must be sized and designed to:

41. Provision E (Entire Provision; Begins Page 64 of 120) – The Hydromodification Management Requirements Should Be Based On A Watershed Management Approach, Be Consistent With The WQIPs, And Consider The Current Copermitttee HMPs

Hydromodification management should be based on the conditions of receiving waters and on the impacts and potential impacts from development projects. The basis to make hydromodification management decisions needs to be an understanding of the watershed and receiving waters within a watershed. This understanding of a watershed is achieved through watershed analysis and analysis of the susceptibility of the receiving waters to hydromodification impacts. This approach of watershed analysis is identified in the Southern California Coastal Water Research Project (SCCWRP) Technical Report 667 – Hydromodification Assessment and Management in California (**Appendix A-2**). The SCCWRP report identifies that watershed analysis is the first step and most critical step in the development of watershed hydromodification management. The SCCWRP report, the authors of the SCCWRP report at the Hydromodification Management Meeting in August of 2012, and even State Water Resource Control Board (SWRCB) staff at the recent California Stormwater Quality Association (CASQA) General Meeting in San Francisco on January 10, 2012 identified that hydromodification management is not a one size fits all approach and needs to consider watershed analysis. The Tentative Order hydromodification requirements are however a one size fits all approach as the requirements do not allow consideration of watershed analysis or receiving water information.

The County believes the best way to implement the vision of the SCCWRP Report for development of effective hydromodification management is to develop clear hydromodification management objectives that are watershed specific and developed through a stakeholder process, which is consistent with the approach in the SCCWRP report. The intent of the WQIPs is to improve water quality in the WMAs based on the highest priorities for water quality in the watershed, however unless more is known about the watersheds and their receiving waters including their susceptibility to hydromodification then the appropriate standards and performance criteria cannot be identified to reach the goal of improving water quality. The WQIPs can build on the current Hydromodification Management Plans (HMPs) that have been developed and can use additional watershed and receiving water information to develop appropriate watershed specific hydromodification standards and where they should apply in a specific watershed. Instead of hydromodification requirements that do not consider specific watershed analysis and conditions of receiving waters and that were developed unilaterally by Regional Board staff the County suggests that watershed specific requirements be developed as part of the WQIPs as part of a watershed stakeholder process.

Matching pre-development (naturally occurring) flow rates and duration is identified as the performance standard for hydromodification management. Although it is not stated anywhere in the Tentative Order, it is assumed that the purpose of such a standard is to address the overall objective of the CWA (§101) - to restore the chemical, physical, and biological integrity of the Nation's waters in the Tentative Order's jurisdiction. However, the CWA does not imply or state that its objective is to restore waters to pre-Columbian (pre-development) conditions. Rather the objective must be taken in context of § 402(p) and reflect the stormwater compliance standard to reduce pollutants to the maximum extent practicable. When read in total the hydromodification standard should reflect the developed urban environment. To do otherwise would negate the engineering efforts done to date to protect life and property from floods and create an impractical solution for municipalities. Furthermore the current hydromodification standard as provided for in numerous municipal permits in California is to match post development with "pre-project" conditions. It is unclear to us how the San Diego Regional Board staff has redefined the MEP standard for hydromodification.

Hydromodification effects may also be caused from other sources that are not in the Copermittees' jurisdiction. Initial implementation of the pre-development (naturally occurring) hydromodification performance standard has identified that BMPs to comply with the standard are of significant size even for smaller projects. Implementing the hydromodification requirements can disturb a significant area of land which has its own environmental impacts including changing the natural hydrology which is antithetical to the LID concept. This can also cause a decrease in open space which may be of issue with the Orange County General Plan which requires certain thresholds of open space for developments. For the smaller redevelopment projects and infill projects it may just not be feasible, either physically or due to cost, to build these projects which will represent a lost opportunity to improve water quality through the implementation of the LID requirements.

Furthermore identifying "naturally occurring" conditions for redevelopment sites is difficult and entirely subjective, as in most cases there are no historical records of the natural condition of the site, and begs a technical question as to how far back does one go historically in determining the proper predevelopment timeframe. In cases where natural conditions of a site are not known the best approach is to use an undeveloped natural site in proximity to the re-development site as a reference site. The vegetative cover, soil type, and slope will most affect the hydrology of a site and so approximating these conditions for a re-development site using a natural reference site where these parameters can be measured is a way to approximate the natural conditions of a redevelopment site, however, locating a natural reference site in proximity to a redevelopment site is difficult, as the entire sub-watershed or watershed may be developed. Additionally the conditions of the natural reference site maybe totally different than the "naturally occurring" conditions of the re-development site as vegetative cover, soil type, and slope may have been very different and without historical records there is no way of knowing the actual ""naturally occurring" conditions of a re-development site. The subjectivity of the pre-development approach not only puts municipalities in a position to violate the U.S. and California Constitutions on unlawful takings, but it also conflicts with the Mitigation Fee Act, CEQA and the State Administrative Procedure Act in that the Tentative Order does not contain an adequate record justifying the reasonableness of this standard.

The County is therefore suggesting an approach to hydromodification management that is not a one size fits all approach, is consistent with the watershed approach and the intent of the WQIPs, considers the current Copermittee HMPs, and provides an opportunity to develop watershed specific requirements as part of a watershed stakeholder process that have the best chance of improving water quality.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

3. Development Planning

c. Priority Development Project Structural BMP Performance Requirements

(2) On-site Hydromodification Management Structural BMP Requirements

Each Copermittee must require each Priority Development Project to implement onsite structural BMPs to manage hydromodification to ensure that may be caused by storm water runoff discharged from a project does not cause adverse hydromodification impacts in the downstream receiving waters. as follows:

The Copermittees in each Watershed Management Area may establish, as part of the WQIP, watershed specific requirements that will apply to priority development projects based on the susceptibility of the receiving waters to hydromodification impacts and historic receiving water changes from development. If watershed specific requirements are developed they will supersede requirements in the HMP. The watershed specific requirements must include the following:

(a) ~~Post-project runoff flow rates and durations must not exceed pre-development (naturally occurring) the performance standard for runoff flow rates and durations to be determined as part of the development of the WQIPs for each Watershed Management Area by more than 10 percent (for the range of flows that result in increased potential for erosion, or degraded instream habitat conditions downstream of Priority Development Projects).~~

(i) ~~In evaluating the range of flows that results in increased potential for erosion of natural (non-hardened) channels, the lower boundary must correspond with the critical channel flow that produces the critical shear stress that initiates channel bed movement or that erodes the toe of channel banks.~~

~~(ii) For artificially hardened channels, analysis to identify the lower boundary must use characteristics of a natural stream segment similar to that found in the watershed. The lower boundary must correspond with the critical channel flow that produces the critical shear stress that initiates channel bed movement or erodes the toe of the channel banks.~~

~~(iii)(ii) The Copermittees may use monitoring results collected pursuant to Provision D.1.a.(2) to re-define the range of flows resulting in increased potential for erosion, or degraded instream habitat conditions, as warranted by the data.~~

(b) ~~Post-project runoff flow rates and durations must compensate for the loss of sediment supply due to the development project, should loss of sediment supply occur as a result of the development project.~~

(c) ~~A Priority Development Project may be allowed to utilize alternative compliance under Provision E.3.c.(3) to comply with the performance requirements of Provisions E.3.c.(2)(a)-(b).~~

(d) ~~Exemptions~~

~~Each Copermittee has the discretion to exempt a Priority Development Project from the hydromodification management BMP performance requirements of Provisions E.3.c.(2)(a)-(b) where the project:~~

~~(i) Discharges storm water runoff into existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean;~~

~~(ii) Discharges storm water runoff into conveyance channels that are engineered for the capacity to convey the 10-year ultimate build out condition flow and are regularly maintained to ensure flow capacity all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.~~

(iii) Discharges to large rivers where large rivers are defined as reaches for which the contributing drainage area exceeds 100 square miles and with a 100-year design flow in excess of 20,000 cfs.

(iv) Discharges from infill redevelopment projects that meet criteria to be established in updates to the Copermittees' HMPs.

(v) Flood control and stream restoration projects.

(ii)(vi) Is a redevelopment Priority Development Project that meets the alternative compliance requirements of Provision E.3.c.(3)(b)(ii); or

(iii)(vii) Discharges storm water runoff into other areas identified by the San Diego Water Board as exempt from the requirements of Provisions E.3.c.(2)(a)-(b).

If the Copermittees in a Watershed Management Area select not to develop watershed specific requirements, development projects will be subject to the current Copermittee HMPs inclusive of the exemptions identified in Section E.3.c.(d)(2) that will integrated into updated Copermittee HMPs.

42. Provision E.3.c (Page 78 of 120) – Exemptions For Hydromodification Management Should Include Discharges To Certain Types Of Receiving Waters And Certain Types Of Projects

PDPs that discharge to conveyance channels that are engineered for the capacity to convey the 10-year ultimate build out condition flow and are regularly maintained to ensure flow capacity should be exempt from the hydromodification management requirements. This exemption is similar to the hardened conveyance system exemption, provided in the San Diego HMP and identified in Section D.1.g.(3) of the current San Diego MS4 Permit. Hydromodification requirements are not appropriate for discharges to channels that are designed to accept increased flows from upstream development, as the potential for erosion is non-existent. Studies⁶⁰ have shown that hydromodification is caused by the smaller storms up to the 10 year event. Based on these studies those engineered channels designed to convey the 10-year ultimate build out condition will therefore not experience hydromodification impacts. These channels were installed for the purpose of flood control and protection of public safety and property as historically flooding occurred where there is now development. The Permittees in Orange, Riverside and San Diego Counties hosted a workshop on hydromodification management on August 30, 2012. A panel of experts was convened to answer key questions regarding hydromodification to provide the Regional Board Permit team, Copermittee storm water program managers, non-governmental environmental organizations, and the development/business community with a greater understanding of the practice of hydromodification management in the urban watershed. One of the panel expert,s Chris Bowles, PhD, PE, whose qualifications include:

Chris Bowles, PhD, PE is a registered civil engineer (CA P.E. C76898) specializing in hydraulics, hydrology, geomorphology, water resources, water quality and environmental

⁶⁰ See Leopold, L.B., M.G. Wolman, J.P. Miller. 1964. Fluvial Processes in Geomorphology. San Francisco, W.H. Freeman and Company. 522 pp. and MacRae, C.R. 1993. An Alternate Design Approach for the Control of Instream Erosion Potential in Urbanizing Watersheds. Sixth International Conference on Urban Storm Drainage, Niagara Falls, Ontario.

restoration. He has over seventeen years of project management experience on a wide variety of large multi-disciplinary, multi-stakeholder projects such as floodplain restoration, sediment studies, watershed hydrology, water quality, river and wetland restoration in California, Nevada, Washington, Oregon, and Florida, and oversees, including projects in the UK and Central America. Thirteen of these years have been spent in practice in the US. His technical expertise spans the range of hydraulic and hydrologic modeling (HEC software and a wide variety of 1D, 2D and 3D hydraulic models), geomorphology, GIS and field data collection (topographic and bathymetric surveying, water quality monitoring, flow gauging and sediment transport measurements). Prior to specializing in environmental hydrology, Dr. Bowles worked initially as a land surveyor and latterly as a site construction supervisor. Dr. Bowles has a doctorate in computational fluid dynamics in the application of fluvial hydraulics and has constructed numerous 1-, 2-, and 3-dimensional hydrodynamic models over his 17 years of experience in environmental engineering.

stated that having to build a storage facility on site to retain stormwater when the site drains into a resilient channel is a “huge waste of money.” Dr. Bowles stated that different approaches are needed for different situations (a copy of the video is available at the following link and is incorporated by reference: http://granicus.sandiego.gov/MediaPlayer.php?publish_id=1427 Dr. Bowles statement is at 4:06:24).⁶¹

Flood control channels cannot be removed as they serve the important and mandated service of flood control. It is also cost prohibitive to think that development can be removed from the floodplain so that these flood control channels could be removed and returned to a natural state. Since removal of these channels is infeasible restoration of these channels to a natural state is also infeasible. In many cases the historic path of the channel went right through where existing development is now and therefore there is no hope of restoration of the channel to its natural state. Since there is no potential for restoration to a natural state and because these channels are designed to be flood control channels they should be allowed to convey the storm events they are designed for. Since there is no potential for removal of these channels there is no environmental benefit to requiring onsite mitigation of hydromodification when these channels are designed and engineered to accept these flows. Although this comment here applies to the hydromodification requirement the County would like to point out that LID concepts will be implemented consistent with the Tentative Order requirements and will have a mitigating effect on hydromodification impacts. Thus between the fact that implementing hydromodification controls on discharges to engineered channel will have no effect on the channel and that LID concepts will be implemented to address the smaller storms there is justification for creating an exemption for discharges to engineered channels.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

3. Development Planning

c. Priority Development Project Structural BMP Performance Requirements

(2) Hydromodification Management BMP Requirements

(d) Exemptions

⁶¹ Video Presentation of August 30, 2012 Hydromodification Management Workshop:
http://granicus.sandiego.gov/MediaPlayer.php?publish_id=1427

(ii) Discharges storm water runoff into conveyance channels that are engineered for the capacity to convey the 10-year ultimate build out condition flow and are regularly maintained to ensure flow capacity all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean;

Based on this proposed exemption the County recommends deleting section E.3.c.(2)(a)(ii):

E. Jurisdictional Runoff Management Programs

3. Development Planning

c. Priority Development Project Structural BMP Performance Requirements

(2) Hydromodification Management BMP Requirements

(a)

~~*(ii) For artificially hardened channels, analysis to identify the lower boundary must use characteristics of a natural stream segment similar to that found in the watershed. The lower boundary must correspond with the critical channel flow that produces the critical shear stress that initiates channel bed movement or erodes the toe of the channel banks.*~~

The San Diego and South Orange County HMPs identified that cumulative watershed impacts are minimal in stream reaches of large depositional rivers. Analysis in the San Diego HMP demonstrated that the effects of cumulative watershed impacts are minimal in those reaches which the drainage area exceeds 100 square miles and with a 100-year design flow in excess of 20,000 cubic feet per second (cfs). An exemption for those reaches that meet these criteria should be included in the exemption provisions of the Tentative Order.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

3. Development Planning

c. Priority Development Project Structural BMP Performance Requirements

(2) Hydromodification Management BMP Requirements

(d) Exemptions

(iii) Discharges to large rivers where large rivers are defined as reaches for which the contributing drainage area exceeds 100 square miles and with a 100-year design flow in excess of 20,000 cfs.

Infill redevelopment projects offer an opportunity for improvement in water quality. Due to the usual tight constraints and limited footprint of infill development projects implementing onsite hydromodification controls is often infeasible. In many cases projects will not be able to meet the hydromodification criteria and so will choose “greenfield” developments where meeting hydromodification criteria are more feasible. To encourage infill development over “urban sprawl” and “greenfield” development, a hydromodification exemption should be provided for infill development projects. This will also provide the benefit of improving water quality as the water quality/LID requirements will still be required to be met. Over time, infill redevelopment projects will address the significant issue of improving water quality from existing development. Without this exemption redevelopment for infill projects will likely not occur as implementing onsite hydromodification will just be too expensive for these types of projects and so the benefits meeting the water quality/LID requirements will not be realized at these sites. Criteria for what projects qualify for the infill development exemption shall be developed by each of the Copermitees as part of updates to their HMPs.

An exemption for infill redevelopment projects comports with a current EPA study that demonstrates the significant environmental benefits that can be attained from infill. *Residential Construction Trends in America's Metropolitan Regions: 2012 Edition*.⁶² The lack of an exemption and rigid infill requirements would then be contrary to EPA's support for such projects.

Additionally, the lack of an infill exemption conflicts with State housing element law,⁶³ guidelines set forth by the California Department of Housing and Community Development and achievement with Regional Housing Needs Assessment (RHNA) numbers issued by the Southern California Area of Governments (SCAG), which require municipalities to quantify and meet their low income housing needs. Infill development is the only means by which affordable housing projects are built. Affordable units cannot be offered at market rates and are heavily subsidized. The lack of an exemption will make it increasingly difficult to construct affordable units due to increased costs, and will likely inhibit municipalities from meeting their RHNA obligations for low income housing. This will have the further effect of making local zoning actions inconsistent with municipal general plans, which may subject municipalities to lawsuits preventing the issuance of building permits.⁶⁴

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

3. Development Planning

c. Priority Development Project Structural BMP Performance Requirements

(2) Hydromodification Management BMP Requirements

(d) Exemptions

(iv) Discharges from infill redevelopment projects that meet criteria to be established in updates to the Copermittees' HMPs.

Flood control projects are intended for the protection of public safety and property and are mandated by the Orange County Flood Control Act of 1927. Requiring flood control projects to implement hydromodification controls intended for traditional types of development projects is inappropriate and in most cases infeasible. Furthermore requiring flood control projects to implement hydromodification controls may cause flood control projects to be infeasible which may increase the risk of flooding. If flooding does occur in these areas it would increase the risk of hydromodification impacts to receiving waters from the flooded areas. In-stream restoration projects are designed to restore beneficial use of streams and channels. These projects also serve as a potential option for restoring impacts from hydromodification. It is counterproductive to require mitigation of a stream restoration project.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

3. Development Planning

c. Priority Development Project Structural BMP Performance Requirements

⁶² EPA Study Available at: http://www.epa.gov/smartgrowth/construction_trends.htm

⁶³ Gov't Code §§ 65580 et seq.

⁶⁴ *Urban Habitat Program v. City of Pleasonton*, No. RG06—293831, Alameda Sup. Ct. (March 12, 2010) (unpublished trial court decision ordering city to cease issuing building permits due to non-compliance with housing element law); see generally *Garat v. City of Riverside*, 2 Cal. App. 4th 259, 286 (1991); *Citizens of Goleta Valley v Board of Supervisors*, 52 Cal. 3d 553, 570 (1990).

- (2) *Hydromodification Management BMP Requirements*
- (d) *Exemptions*
- (v) *Flood control and stream restoration projects.*

43. Provision E.3.c (Page 78 of 120) – Biofiltration BMPs Should Be Sized For The Design Capture Volume And If Used For Alternative Compliance Conventional BMPs Should Not Also Be Required

Section E.3.c.(3)(b)(i)[c] requires that if biofiltration is used as an alternative compliance method the biofiltration BMP is required to be sized to 1.5 times the design capture volume, which is an increase from the existing Orange County permit. The Fact Sheet provides no technical justification for the 1.5 factor.

Studies based on work conducted within Orange County by Geosyntec Consultants provide contrary information to the unsupported subjective inclusion of a 1.5 factor. The following documents are submitted for the record [**Appendix A-3 & Appendix A-4**].

Storage and Reuse Systems for Stormwater Management – Preliminary Cost and Performance Estimates for Residential Use in Irvine, CA, Eric Strecker (2009 presentation to Santa Ana Regional Board). Assessed the costs and modeled the performance of harvest and use retention BMPs and compared average annual total suspended solids (TSS) load removed and annual TSS concentrations with BMPs. In both scenarios presented, biofiltration provided superior TSS results to harvest and use.

The Water Report Issue #65: Stormwater Retention on Site, An Analysis of Feasibility and Desirability,⁶⁵ The paper identified significant limitations with all retention BMPs and states that “There needs to be a more technical vetting of “retain on site” and stormwater harvest and use before these approaches are made mandatory.” The authors also caution that a “one size fits all” approach requiring retention may not be desirable and “in many cases would lead to undesirable results.”

Based on the above information, the requirement to oversize biofiltration BMPs should be deleted from the Tentative Order. Biofiltration should be considered equivalent to other retention BMPs and should remain a full part of the LID toolbox without penalization.

Section E.3.c.(3)(b)(i)[d] requires that PDPs that use biofiltration as an alternative compliance option must also implement conventional BMPs. This provision requires additional mitigation for projects and in effect requires double mitigation when it is not needed. Biofiltration BMPs are more effective than conventional BMPs and requiring both does not make any technical sense and this goes well beyond the MEP standard. Furthermore the Fact Sheet provides no technical justification for requiring conventional treatment in addition to biofiltration and this is not the standard in the current Orange County and Riverside permits nor any other permits in California.

The County recommends the following language changes:

- E. Jurisdictional Runoff Management Programs*
- 3. Development Planning*

⁶⁵ Strecker and Poresky (2009) (reproduced with permission of The Water Report).

c. Priority Development Project Structural BMP Performance Requirements

(3) Alternative Compliance to Onsite Structural BMP Performance Requirements

(b) Alternative Compliance Project Options

(i) Onsite LID Biofiltration Treatment Control BMPs

~~*[c] Biofilter at least 1.5 times the design capture volume that is not reliably retained onsite; OR [dc] Biofilter up to the design capture volume that is not reliably retained onsite, AND 1) treat the remaining portion of the design capture volume not retained onsite with conventional treatment control BMPs in accordance with Provision E.3.c.(1)(c), and 2) if necessary, mitigate for the portion of the pollutant load in the design capture volume not retained onsite through one or more alternative compliance project, in-lieu fee and/or water quality credit system options below.*~~

44. Provision E.3.c (Page 78 of 120) – USGBC LEED Certification Is Not An Appropriate Standard In A Stormwater Permit

Provision E.3.c.(3)(b)(ii) allows redevelopment projects to comply with the hydromodification management requirements by achieving LEED Certification. As previously noted inclusion of the USGCB LEED for Homes green building certification program in the Tentative Order is not appropriate as this program encompasses other environmental considerations besides surface water management which are outside the scope of a stormwater permit and outside the authority of the Regional Board.

The County recommends that provision E.3.c.(3)(B)(ii) be deleted from the Tentative Order.

E. Jurisdictional Runoff Management Programs

3. Development Planning

c. Priority Development Project Structural BMP Performance Requirements

(3) Alternative Compliance to Onsite Structural BMP Performance Requirements

(b) Alternative Compliance Project Options

~~*(ii) LEED Certified Redevelopment Projects*~~

~~*The Copermitttee may allow redevelopment Priority Development Projects to comply with the hydromodification management BMP performance requirements of Provision E.3.c.(2) where the project is designed and constructed to be certified under the USGCB LEED for New Construction and Major Renovations green building certification program. The Priority Development Project must receive at least one (1) Site Design credit and two (2) Stormwater Design credits under the Sustainable Sites category. In addition, the existing and future configuration of the receiving water must not be unnaturally altered or adversely impacted by storm water flow rates and durations discharged from the site.*~~

45. Provision E.3.c (Page 78 of 120) – Offsite Regional BMPs Should Be Sized For The Design Capture Volume

Provision E.3.c.(3)(b)(iv)[a] requires that if an offsite regional BMP is used as an alternative compliance method the offsite regional BMP is required to be sized to 1.1 times the design capture volume, which is an increase from the existing Orange County permit. The Fact Sheet provides no technical justification for the 1.1 factor and so the 1.1 factor should be removed and offsite regional BMPs should only be sized for the design capture volume.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

3. Development Planning

c. Priority Development Project Structural BMP Performance Requirements

(3) Alternative Compliance to Onsite Structural BMP Performance Requirements

(b) Alternative Compliance Project Options

(iv) Offsite Regional BMPs

[a] The Copermittee may allow Priority Development Projects to utilize offsite regional BMPs to comply with the storm water pollutant control BMP performance requirements of Provision E.3.c.(1) if the offsite regional BMPs have the capacity to receive and retain ~~at least 1.1 times~~ the design capture volume that is not reliably retained onsite.

46. Provision E.3.c (Page 78 of 120) – Alternative Compliance In-Lieu Fee Option Is Inconsistent With State Law

Provision E.3.c.(3)(c)(i) requires the in-lieu fee to be transferred to the Copermittee or an escrow account prior to PDP construction. Development fees however, are collected at the time of building permit issuance, and permits can be issued throughout phases of the development whereby the entire in-lieu fee is not necessarily collected upfront when construction first begins. Furthermore, for large master planned developments, fees are negotiated through a development agreement to be collected based on certain development milestones. Therefore collecting and holding fees prior to construction is not common development practice and there should be flexibility in collecting fees given the timing and phasing of development and the market.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

3. Development Planning

c. Priority Development Project Structural BMP Performance Requirements

(3) Alternative Compliance to Onsite Structural BMP Performance Requirements

(c) Alternative Compliance In-Lieu Fee Option

(i) The in-lieu fee should must be collected and held in accordance with the Mitigation Fee Act and all other applicable development fee laws. transferred to the Copermittee (for public projects) or an escrow account (for private projects) prior to the date construction of the Priority Development Project is initiated.

Provision E.3.c.(3)(c)(ii)[d] requires the in-lieu fee to include the cost to operate and maintain the alternative compliance projects. Development fees however are generally limited to capital costs (design and construction) that go to the useful life of the project of 5 years or more. There are sometimes limitations in State Law on the use of development fees for operations and

maintenance. Operations and maintenance can probably be negotiated with a developer, but a requirement to include operations and maintenance as part of the fee has potential legal issues. *The County recommends the following language be deleted:*

E. Jurisdictional Runoff Management Programs

3. Development Planning

c. Priority Development Project Structural BMP Performance Requirements

(3) Alternative Compliance to Onsite Structural BMP Performance Requirements

(c) Alternative Compliance In-Lieu Fee Option

~~*(ii)[d] The in-lieu fee must also include the cost to operate and maintain the offsite alternative compliance projects.*~~

47. Provision E.3.c (Page 78 of 120) – The Copermittees Should be Allowed the Flexibility Provided Under EPA Policy to Develop a Trading and Water Quality Credit System

The Copermittees appreciate the flexibility of the Tentative Order to implement a water quality credit system as an alternative compliance schedule. Trading systems create cost-effective, market-based mechanisms for pollutant reduction, and have been successful in other water quality and air quality contexts. The Copermittees do note that any water quality trading system should be implemented in accordance with EPA's 2003 Final Water Quality Trading Policy, which allows for flexibility in generating and trading credits and offsets. The Tentative Order appears to limit a trading system to no net impacts caused by projects meeting the onsite structural BMP performance requirements of Provisions E.3.c(1) and E.3.c(2).

The Copermittees request that this language be stricken and that Copermittees be allowed the flexibility provided under the EPA 2003 Policy. Trading systems differ from program to program and are highly robust and complex credit mechanisms. Therefore, no net impact limitations should be addressed on a case-by-case basis subject to Executive Office approval, and should not immediately be limited by permit language, as certain projects may offer other significant environmental benefits.

The County recommends the following language be deleted:

E. Jurisdictional Runoff Management Programs

3. Development Planning

c. Priority Development Project Structural BMP Performance Requirements

(3) Alternative Compliance to Onsite Structural BMP Performance Requirements

(d) Alternative Compliance Water Quality Credit System Option

~~*The Copermittee may develop and implement an alternative compliance water quality credit system option, individually or with other Copermittees and/or entities. provided that such a credit system clearly exhibits that it will not allow discharges from Priority Development Projects to cause or contribute to a net impact over and above the impact caused by projects meeting the onsite structural BMP performance requirements of Provisions [E.3.c.\(1\)](#) and [E.3.c.\(2\)](#). Any credit system that a Copermittee chooses to implement must be submitted to the San Diego Water Board Executive Officer for review and acceptance as part of the Water Quality Improvement Plan.*~~

CONSTRUCTION MANAGEMENT

48. Provision E.4 (Page 90 of 120) – The Construction Management Program Provisions Must Be Modified So As Not To Negate The Very Intent And Purpose Of The Watershed Approach And The Focus On The Highest Priorities Within Each Watershed Management Area

(See the corresponding comments under Provision E – Jurisdictional Runoff Management Programs)

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

4. Construction Management [Intro]

Each Copermittee must implement a construction management program in accordance with the strategies identified in the Water Quality Improvement Plan ~~and include, at a minimum, the following requirements.~~ The requirements of the jurisdictional runoff management programs as outlined below may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality improvement Plan(s).

Move Provision 4f, “Strategies to Address the Highest Priority Water Quality Conditions” to just after the Introduction to the section and before Provision 4.a.

E. Jurisdictional Runoff Management Programs

4. Construction Management

- (1) Provide specific details about how the strategies and/or activities will be implemented (e.g. designate ~~additional~~ BMPs, focus education, and/or increase/decrease frequency of inspections for specific types of sites and/or activities); and*

49. Provision E.4 (Page 90 of 120) – Verification Of Permit Coverage By The Copermittees Should Be For The CGP Only

Per Section 4.a.(4) Copermittees are required to verify that the project applicant has obtained coverage under applicable permits. The fact sheet identifies that “The requirements under Provision E.4. are consistent with the 4th Term Permits for San Diego, Orange, and Riverside Counties”, however the requirement of the current Orange County permit is to verify coverage under the Construction General Permit only and so there is not consistency with the 4th Term permits. It is only appropriate to require the Copermittees to verify coverage under the CGP as tracking down the other applicable permits does not assist in ensuring construction management is being implemented correctly. Furthermore, the USACE requires all other permits to be in place prior to issuing the 404 permit. It is not possible to have the 404 permit prior to issuing a grading or building permit.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

4. Construction Management

a. Project Approval Process

~~(4) "Verify that the project applicant has obtained coverage under applicable permits, including, but not limited to the Construction General Permit., Clean Water Act Section 401 Water Quality Certification and Section 404 Permit, and California Department of Fish and Game Streambed Alteration Agreement.~~

50. Provision E.4 (Page 90 of 120) – Maintaining An Inventory Of Construction Sites Should Be Done On A Quarterly Basis

The current language requires monthly update of construction sites. Quarterly update of the inventory is more appropriate to track construction sites as this is a significant burden on the Copermittees. Some information for the construction site inventory will be based on inspections and as inspections for some sites will not be completed monthly it is more appropriate to maintain the inventory on a quarterly basis. These sites are tracked through SMARTS already and, therefore, more frequent tracking is not necessary.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

4. Construction Management

b. Construction Site Inventory and Tracking

(1) Each Copermittee must maintain and update at least quarterly ~~monthly~~, a watershed-based inventory of all construction projects issued a local permit that allows ground disturbance or soil disturbing activities that can potentially generate pollutants in storm water runoff. The use of an automated database system, such as GIS, is highly recommended. The inventory must include:

51. Provision E.4 (Page 90 of 120) – Identifying The Weather Conditions During An Inspection Is More Appropriate Than Quantifying The Amount Of Rainfall Since The Last Inspection

The current language requires the inspector to quantify the approximate amount of rainfall since the previous inspection. Quantifying the amount of rainfall since the last inspection provides no benefit in the documentation of an inspection. Documentation of the weather conditions at the time of the inspection however does provide some context as to the state of BMPs during the inspections.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

4. Construction Management

e. Construction Site Inspections

(c) ~~Approximate amount of rainfall since last~~ Weather condition during inspection;

EXISTING DEVELOPMENT

52. Provision E.5 (Page 95 of 120) –The Existing Development Program Provisions Must Be Modified So As Not To Negate The Very Intent And Purpose Of The Watershed Approach And The Focus On The Highest Priorities Within Each Watershed Management Area

(See the corresponding comments under Provision E – Jurisdictional Runoff Management Programs)

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

5. Existing Development Management [Intro]

Each Copermittee must implement an existing development management program in accordance with the strategies identified in the Water Quality Improvement Plan ~~and include, at a minimum, the following requirements. The requirements of the jurisdictional runoff management programs as outlined below may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality improvement Plan(s).~~

Move Provision 5e, “Strategies to Address the Highest Priority Water Quality Conditions” to just after the Introduction to the section and before Provision 5.a.

(a) Provide specific details about how the strategies and/or activities will be implemented (e.g. designate ~~additional~~ BMPs, focus education, and/or increase/decrease frequency of inspections for specific types of facilities, areas and/or activities);

E. Jurisdictional Runoff Management Programs

5. Existing Development Management

a. Existing Development Inventory and Tracking

Each Copermittee must maintain, and update at least annually, a watershed-based inventory of the existing development within its jurisdiction that may discharge a high priority pollutant load to and from the MS4.....The inventory must, at a minimum, evaluate and include the following if identified as a source of a high priority pollutant ~~include~~:

(1)(c)(vi) Flood management projects and flood control devices and structures;

(1)(c)(xii) Other municipal facilities that the Copermittee determines may contribute a significant high priority pollutant load to the MS4; and

(2)(g) Identification of the high priority pollutants ~~generated and~~ potentially generated by the facility or area;

(2)(j) ~~Whether the facility or area contributes or potentially contributes to the highest priority water quality conditions identified in the Water Quality Improvement Plan.~~

E. Jurisdictional Runoff Management Programs

5. Existing Development Management

b. Existing Development BMP Implementation and Maintenance

Each Copermittee must designate a ~~minimum~~ set of BMPs required for all inventoried existing development, including special event venues. The designated ~~minimum~~ BMPs must be specific

to the identified high priority facility or area types and high priority pollutant generating activities, as appropriate.

53. Provision E.5 (Page 95 of 120) – The Tentative Order Should Recognize That Some Channel Rehabilitation Projects May Occur Downstream Of A Copermittee’s Jurisdiction

Some minor changes to the Tentative Order language are needed to recognize that channel rehabilitation projects for a Copermittee may occur just downstream of the Copermittee’s jurisdiction.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

5. Existing Development Management

e. Strategies to Address the Highest Priority Water Quality Conditions

(3) Stream, Channel and/or Habitat Rehabilitation in Areas of Existing Development

Each Copermittee must describe in its jurisdictional runoff management program document, a program to rehabilitate streams, channels, and/or habitats in areas of existing development within its jurisdiction or just downstream of its jurisdiction to address the highest priority water quality conditions in the Watershed Management Area. The program must be implemented as follows:

54. Provision E.5 (Page 95 of 120) – Remove The Requirement To Evaluate Retrofit Of Stream Channels From The Tentative Order

Requiring Municipalities to take full responsibility for evaluation of stream channels for restoration goes beyond the intent and scope of Section 402 (p) of the Clean Water Act. The fact sheet identifies that “areas of existing development are responsible for poor water quality, degraded habitats, and hydromodified channels”, however existing development may not be the only cause and it is not the responsibility of the Copermittees to restore receiving waters but rather reduce the discharge of pollutants in stormwater and non-stormwater to the Maximum Extent Practicable. Restoration and rehabilitation of stream channels is not the responsibility of the Copermittees. Additionally in many instances the channels are flood control facilities which are designed to protect public safety and developments from flooding. In many instances stream restoration or rehabilitation may not be feasible.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

5. Existing Development Management

e. Strategies to Address the Highest Priority Water Quality Conditions

(3) Stream, Channel and/or Habitat Rehabilitation in Areas of Existing Development

~~*(a) Each Copermittee must identify streams, channels, and/or habitats in areas of existing development as candidates for rehabilitation, focusing on areas where stream, channel, and/or habitat rehabilitation projects will address the highest priority water quality conditions identified in the Water Quality Improvement Plan;*~~

ENFORCEMENT RESPONSE PLANS

55. Provision E.6 (Page 104 of 120) – The Copermittees Should Be Allowed To Utilize Existing Guidelines And Procedures For Enforcement

Provision E.6 requires each Copermittee to develop and implement an Enforcement Response Plan as a part of its jurisdictional runoff management plan. The Fact Sheet notes that the Enforcement Response Plans will serve as a reference to determine if consistent enforcement actions are being implemented in order to achieve timely and effective compliance. Although the County understands the need for this document, the Tentative Order should be modified to allow the Copermittees to continue to utilize and implement established, equivalent guidelines and procedures for enforcement.

As a part of the development and implementation of a robust Illegal Discharge/Illicit Connection (ID/IC) Program, the Orange County Copermittees have developed an *Investigative Guidance Document* and *Enforcement Consistency Guide*. The response procedures generally include record keeping, notifications and response requests, response activities, investigations, clean-up activities, reporting, education, and enforcement/progressive enforcement. As provided for in the *Enforcement Consistency Guide*, when selecting enforcement options, the County's Authorized Inspectors ensure that violations of a similar nature receive a consistent enforcement remedy. More severe enforcement options may be utilized depending on variables such as history of non-compliance or failure to take good faith actions to eliminate continuing violations or to meet a previously imposed compliance schedule.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

6. Enforcement Response Plans [Intro]

Each Copermittee must develop and implement an Enforcement Response Plan as part of its jurisdictional runoff management program document. The Enforcement Response Plan must describe the applicable approaches and options to enforce its legal authority established pursuant to Provision E.1, as necessary, to achieve compliance with the requirements of this Order. Copermittees may continue to utilize and implement established, equivalent guidelines and procedures for enforcement. The Enforcement Response Plan must include the following:

56. Provision E.6 (Page 104 of 120) – The Term And Definition For “Escalated Enforcement” Should Be Redefined

Although Provision E.6.d requires each Copermittee to include “Escalated Enforcement” in the required Enforcement Response Plan, the definition of what is intended by “Escalated Enforcement” is different within the Tentative Order than the Fact Sheet and may not be enforceable.

The Tentative Order defines “Escalated Enforcement” as “any enforcement scenario where a violation or other non-compliance is determined to cause or contribute to the highest water quality conditions identified in the Water Quality Improvement Plan”. This definition seems to indicate that a Copermittee may enforce differently in a particular situation if it involves a high priority pollutant of concern. Not only does the County take exception to the notion that they would enforce differently solely based on the constituent involved, the legality of such an enforcement action is questionable. In fact, when selecting enforcement options, the Co-

Copermittees must ensure that violations of a similar nature are subjected to similar-types of enforcement remedies in order to avoid any claim of selective enforcement of the Ordinance.

However, the Fact Sheet seems to indicate that “Escalated Enforcement” would instead require the Copermittees to “take progressively stricter response to enforce its legal authority and achieve compliance....”. The County supports this approach, especially since this is consistent with other ID/IC programs in California and the established guidance that has been developed and implemented by the Copermittees. In fact, the established guidance recognizes that a more severe enforcement option may be selected when a violator has either a history of noncompliance or has failed to take good faith actions to eliminate continuing violations or to meet a previously imposed compliance schedule.

The Tentative Order should be modified as indicated below so that it reflects a standard progressive response approach.

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

6. Enforcement Response Plans

d. ~~Escalated~~ Progressive Enforcement

(1)The Enforcement Response Plan must include a definition of “~~escalated~~ progressive enforcement”. ~~Escalated Progressive~~ enforcement must include a series of enforcement actions that match the severity of the violations and include distinct, progressive steps. any enforcement scenario where a violation or other non-compliance is determined to cause or contribute to the highest priority water quality conditions identified in the Water Quality Improvement Plan. ~~Escalated Progressive~~ enforcement may be defined differently for development planning, construction sites, commercial facilities or areas, industrial facilities, municipal facilities, and/or residential areas.

(2)Where the Copermittee determines progressive ~~escalated~~ enforcement is not required, a rationale must be recorded in the applicable electronic database or tabular system used to track violations.

(3)Progressive ~~Escalated~~ enforcement actions must continue to increase in severity, as necessary, to compel compliance as soon as possible.

Add a definition for “Progressive Enforcement” in Attachment C

PUBLIC EDUCATION

57. Provision E.7 (Page 106 of 120) – The Public Education Program Provisions Must Be Modified So As Not To Negate The Very Intent And Purpose Of The Watershed Approach And The Focus On The Highest Priorities Within Each Watershed Management Area

(See the corresponding comments under Provision E – Jurisdictional Runoff Management Programs)

The County recommends the following language changes:

E. Jurisdictional Runoff Management Programs

7. Public Education and Participation [Intro]

Each Copermittee must implement, individually or with other Copermittees, a public education and participation program in accordance with the strategies identified in the Water Quality Improvement Plan to promote and encourage the development... ~~and include, at a minimum, the following requirements.~~ The requirements of the jurisdictional runoff management programs as outlined below may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality improvement Plan(s).

Move Provision 7c, “Strategies to Address the Highest Priority Water Quality Conditions” to just after the Introduction to the section and before Provision 7.a.

B. Public Education

The public education program component implemented within the Copermittee’s jurisdiction must may include, ~~at a minimum,~~ the following:

(1) Educational activities, public information activities, and other appropriate outreach activities intended to reduce pollutants associated with the ~~application of pesticides, herbicides and fertilizer and other pollutants of concern in storm water discharges to and from its MS4 to the MEP, as determined and prioritized by the Copermittee(s) by jurisdiction and/or watershed to address the highest priority water quality conditions identified in the Water Quality Improvement Plan;~~

PROVISION F – REPORTING

58. Provision F (Entire Provision; Begins Page 109 of 120) – The Process For The Development And Updates Of The Various Plans Needs To Be Aligned And Allow For The Time Necessary To Complete The Work

Provision F includes the requirements for the documents and reports that the Copermittees must prepare and provide to the Regional Water Board. This provision incorporates significantly expanded requirements for public participation and involvement in the development and implementation of the WQIPs and JRMPs.

However, the timeframe outlined in this section links each step of the development of the WQIP and JRMP to the commencement of coverage under the Order instead of to the development step that precedes it. The three steps outlined for the development of the WQIP need to be sequential so that the Copermittees have adequate time to complete each step and build the program based on previous comments received. In addition, the timeframe needs to explicitly incorporate adequate time for the Copermittees to review and respond to the comments received on the current action before moving on to the next step of development. For example, it is unclear how the Copermittees would establish their water quality improvement strategies (step 2 of development) at the same time as the establishment of the priority water quality conditions and numeric goals (step 1 of development), however the timelines are concurrent in the Tentative Order.

It should also be noted that this approach appears to establish a heavy workload for the public, Copermittees, and Regional Board. We would submit that a more streamlined approach for the development of the WQIPs should be considered which would provide the Copermittees with the necessary time to develop the final WQIP without extending the overall timeframe. For example, instead of requiring a formal public notice and solicitation of comments by the Regional Board for all three (3) steps of each WQIP, perhaps the Copermittees can work with the local stakeholders to solicit comments for the first two steps of the development of the WQIP

and only require formal public noticing for the final approval of the WQIP. Although this is one approach to streamline the development of the WQIP and recommended by the County, an alternative approach would be to modify the timelines as indicated below.

In addition, it should be noted that the preparation of a regional WQIP may trigger local requirements under CEQA. This should be recognized in setting the timeline as noted within the table below.

A comparison of the current and recommended approach is provided in the table below.

Steps and Timelines	Existing Approach in Tentative Order	Total Time from Effective Date of Order	Recommended Approach (w/ edits provided in Tentative Order)	Total Time from Effective Date of Order
Establish Priority Water Quality Conditions and Numeric Goals	Within 6 months of commencement of coverage	6 months	Within 6 months of commencement of coverage	6 months
Request Public Comments	60 days from posting	8 months	30 days from posting	7 months
Revise Priority Water Quality Conditions and Numeric Goals	Not specified	? months	30 days from receiving comments	8 months
Establish Water Quality Improvement Strategies and Schedules	Within 9 months of commencement of coverage	9 months	Within 3 months of finalizing Priority Water Quality Conditions and Numeric Goals	11 months
Request Public Comments	60 days from posting	11 months	30 days with stakeholders	12 months
Revise Water Quality Improvement Strategies and Schedules	Not specified	? months	30 days from receiving comments	13 months
Develop WQIP	Within 18 months of commencement of coverage	18 months	Within 18 months of commencement of coverage	18 months (this allows 5 months for the development of the document)
Request Public Comments	30 days from posting	19 months	30 days from posting	19 months

If no hearing, Regional Board notify Copermittees that the WQIP is accepted	Within 6 months of the public request for comments	25 months	Within 6 months of the public request for comments	25 months
Finalize WQIP	Not specified	? months	60 days from receiving comments (this assumes that it is concurrent with the Regional Board notification above)	? months
<i>Review for CEQA Requirements</i>	<i>It should be noted that the preparation of a regional WQIP may trigger local requirements under CEQA. This should be recognized in setting the timeline. This would likely take 30-60 days.</i>			
Posting on Regional Clearinghouse	Within 30 days of acceptance by Regional Board	26 months	Within 30 days of acceptance by Regional Board	26 months

The County recommends the following language changes

F. Reporting

1. Water Quality Improvement Plans

a. Water Quality Improvement Plan Development

(1)(c) Within 6 months after the commencement of coverage under this Order, the Copermittees must develop and submit the Water Quality Improvement Plan requirements of Provision B.2 to the San Diego Water Board. The San Diego Water Board will issue a public notice and solicit public comments on the Water Quality Improvement Plan for a minimum of ~~60~~30 days.

(1)(d) Within 30 days of receiving the public comments, the Copermittees must revise the priority water quality conditions and numeric goals based on comments received and/or recommendations or direction from the San Diego Water Board Executive Officer.

F. Reporting

1. Water Quality Improvement Plans

a. Water Quality Improvement Plan Development

*(2)(b) Within 3 months after the development of the priority water quality conditions and numeric goals, ~~9 months after the commencement of coverage under this Order,~~ the Copermittees must develop and submit the Water Quality Improvement Plan requirements of Provision **B.3** to the San Diego Water Board. The San Diego Water Board will issue a public notice and solicit public comments on the Water Quality Improvement Plan for a minimum of ~~60~~30 days.*

(2)(c) Within 30 days of receiving the public comments, the Copermittees must revise the water quality improvement strategies and schedules based on comments received and/or recommendations or direction from the San Diego Water Board Executive Officer.

F. Reporting

1. Water Quality Improvement Plans

b. Water Quality Improvement Plan Submittal

(2) Based on the comments received, the San Diego Water Board will determine whether to hold a public hearing or to limit public input to submittal of written comments. If no hearing is held the San Diego Water Board will notify the Copermittees within 6 months that the Water Quality Improvement Plan has been accepted as complete following its review and determination that the Water Quality Improvement Plan meets the requirements of this Order.

(3) Within 60 days of receiving comments, the Copermittees must revise the Water Quality Improvement Plan based on comments received and/or recommendations or direction from the San Diego Water Board Executive Officer.

(4)The Water Quality Improvement Plan must be made available on the Regional Clearinghouse required pursuant to Provision [F.4](#) within 30 days of the finalization of the Water Quality Improvement Plan and acceptance by the San Diego Water Board.

F. Reporting

2. Updates

a. Jurisdictional Runoff Management Program Document Updates

(2) Each Copermittee must update its jurisdictional runoff management program document to incorporate the requirements of Provision E no later than 6-18 months after the completion of the corresponding Water Quality Improvement Plan and acceptance of the Water Quality Improvement Plan by the San Diego Water Board commencement of coverage under this Order.

(3) Each Copermittee must submit updates to its jurisdictional runoff management program, with a rationale for the modifications, either in the Annual Report required pursuant to Provision F.3.b, and/or as part of the Report of Waste Discharge required pursuant to Provision F.5.b. The requested updates are considered accepted by the San Diego Water Board if no response is provided to the Copermittee after 3 months of submitting the request.

(5) Updated jurisdictional runoff management program documents must be made available on the Regional Clearinghouse required pursuant to Provision F.4 within 30 days of submitting the annual report completing the updates.

F. Reporting

2. Updates

d. BMP Design Manual Updates

(2) Subsequent updates must be consistent with the requirements of Provisions E.3.a-d and must be submitted as part of the Annual Reports required pursuant to Provision F.3.b, and/or as part of the Report of Waste Discharge required pursuant to Provision F.5.b. The requested updates are considered accepted by the San Diego Water Board if no response is provided to the Copermittee after 3 months of submitting the request.

59. Provision F.3 (Page 112 of 120) – The JRMP Annual Report Form Is Not Linked To The Watershed Priorities And Does Not Result In Meaningful Reporting

The Tentative Order states that the purpose of the reporting is to determine and document compliance with the Order and to communicate the implementation status of each jurisdictional runoff management program. This goal is met, in part, through the submittal of the Annual Reports (F.3.b), which includes a requirement for each Copermittee to submit a Jurisdictional Runoff Management Program (JRMP) Annual Report Form (Attachment D). The requirement for the Copermittees to submit Attachment D is problematic for the following reasons:

1. The Form is a significant departure from the current jurisdictional reporting and effectiveness assessment required pursuant to Order R9-2009-002 and will only focus on the *implementation* of the permit provisions instead of the *impact, effectiveness* and potential *modifications* necessary for the program.
2. The jurisdictional reporting should complement the WQIP reporting and be focused on the implementation, impact, and effectiveness assessment of the jurisdictional actions and activities that are being implemented to support the goals, objectives, and high priority water quality issues of the WQIP.
3. The ability of the Copermittees to be able to, on a jurisdictional basis, determine if there are modifications and/or improvements needed to maximize the JRMP and, ultimately, the WQIP effectiveness will be severely limited.

4. The reporting required pursuant to the Form is not linked to the priorities within the WQIP and, is therefore, additive and will require the Copermittees to develop the related data collection and reporting infrastructure without a commensurate benefit for the management of the programs.
5. The Form seems to restrict the reporting capabilities of the Copermittees and requires the compilation of cumbersome and uninformative numbers such as “number of existing developments in residential inventory” and “number of priority development projects in review”.
6. Although the Fact Sheet identifies Attachment D as an “example”, this is not clearly stated within the provisions. If the Copermittees can develop their own JRMP reporting form that would be aligned with the WQIP priorities and strategies, then this should be clarified within the Tentative Order.

As a result, it is unclear how this new reporting requirement will improve upon existing reporting processes and/or provide information that would inform management decisions at the jurisdictional or watershed scale. Allowing the Copermittees to develop their own jurisdictional reporting to support the overarching WQIP will still be consistent with the reporting requirements identified in 40CFR 122.42(c). The County is recommending that the jurisdictional reporting be aligned with the WQIP reporting and either delete Attachment D or make it optional.

The County recommends the following language changes:

F. Reporting

3. Progress Reporting

b. Annual Reports [add the following provision]

(1)(e) For each Water Quality Improvement Plan, the progress of implementing the corresponding Jurisdictional Urban Runoff Management Programs. Each Copermittee should report on the items listed below. The individual JRMP annual reports may be included as attachments to the corresponding WQIP annual report. The JRMP annual report should include, but not be limited to, the following:

- (i) The water quality improvement strategies that were implemented and/or no longer implemented by each of the Copermittees during the reporting period and previous reporting periods, and are planned to be implemented during the next reporting period,*
- (ii) Proposed modifications to the water quality improvement strategies, with public input received and rationale for the proposed modifications,*
- (iii) Previously proposed modifications or updates incorporated into each Copermittee’s jurisdictional runoff management program document and implemented by the Copermittees in the Watershed Management Area, and*
- (iv) Proposed modifications or updates to each Copermittee’s jurisdictional runoff management program document;*

(f) A completed Jurisdictional Runoff Management Program Annual Report Form (Attachment D or accepted revision) for each Copermittee in the Watershed Management Area, certified by a

Principal Executive Officer, Ranking Elected Official, or Duly Authorized Representative.

F. Reporting

3. Progress Reporting

b. Annual Reports

~~(2) Each Copermittee must complete and submit a Jurisdictional Runoff Management Program Annual Report Form (Attachment D or accepted revision) no later than October 31 of each year until the first Annual Report is required to be submitted. Until the Copermittees have updated their jurisdictional runoff management programs consistent with Provision F.2.a, the Copermittees must continue to utilize the current jurisdictional runoff management program annual reporting format. Each Copermittee must submit the information on the Jurisdictional Runoff Management Program Annual Report Form specific to the area within its jurisdiction in each Watershed Management Area.~~

F. Reporting

3. Progress Reporting

c. Regional Monitoring and Assessment Report

[This provision should be moved to section F.5.c since it is a part of the ROWD assessment]

Delete Attachment D or make it an “example” of what the Copermittees can prepare for each Watershed Management Area.

60. Provision F.3 (Page 112 of 120) – The Annual Reporting Section Should Be Modified To Distinguish Between The Reporting That Is Conducted During The Transitional Period And The Reporting That Is Conducted Afterward

The language in Provision F.3.b should be clarified to provide additional direction to the Copermittees regarding the transitional period annual reporting and the post-transitional annual reporting requirements.

The County recommends the following language changes:

F. Reporting

3. Progress Reporting

b. Annual Reports

(1) Transitional Period JRMP Reports: Each Copermittee must complete and submit a Jurisdictional Runoff Management Program Annual Report no later than October 31 of each year prior to the implementation of updated JRMP programs pursuant to F.2.a. Each Copermittee must submit the information on the Jurisdictional Runoff Management Program specific to the area within its jurisdiction in each Watershed Management Area.

(2) Transitional Period Monitoring Report: The transitional period monitoring conducted pursuant to D.1.a and D.2.a. shall be reported in a single report that covers the entire reporting period from the initiation of the transitional period monitoring (as described in D.1.a and D.2.a.), through September 30th following approval of the Water Quality Improvement Plan. The Transitional Period Monitoring Report shall include the assessments required per D.4.a.(1)(a), D.4.b.(1)(a) and D.4.b.(2)(a); and be submitted by January 31st following completion of the above mentioned transitional period.

(3) Post-Transitional Annual Reports – Following the initial transitional period after enrollment into this Order, the Copermittees for each Watershed Management Area must submit a combined Annual Report for each reporting period no later than January 31 of the following year. The annual reporting period consists of two periods: 1) July 1 to June 30 of the following year for the jurisdictional runoff management programs, 2) October 1 to September 30 of the following year for the monitoring and assessment programs. The first Annual Report must be prepared for the reporting period beginning July 1 after commencement of coverage under this Order, and upon San Diego Water Board determination that the Water Quality Improvement Plan meets the requirements of this Order to June 30 in the following year for the jurisdictional runoff management programs, and September 30 in the following year for the monitoring and assessment programs. Annual Reports must be made available on the Regional Clearinghouse required pursuant to Provision F.4. Each Annual Report must include the following:

61. Provision F.4 (Page 115 of 120) –The Copermittees Should Be Able To Define The Geographic Coverage Of And Utilize Established Web-Based Mechanisms As Their Regional Clearinghouse

The Tentative Order requires the Copermittees to develop, update, and maintain an internet-based Regional Clearinghouse, however it does not define what geographic area is covered by a Regional Clearinghouse or if the Copermittees can utilize their existing web-based systems and/or linkages that have been developed over the last four permit terms. The Copermittees should be able to define what geographic area is covered by the Regional Clearinghouse, which could include, but not be limited to, watershed management areas, County jurisdictions and/or the San Diego Regional Water Quality Control Board jurisdiction. In addition, the Copermittees should be able to utilize existing, established mechanisms and linkages, in whole or in part, as their Regional Clearinghouse so that they do not, necessarily, need to expend resources in developing new infrastructure.

The County recommends the following language changes:

F. Reporting

4. Regional Clearinghouse

The Copermittees must develop, update, and maintain an internet-based Regional Clearinghouse that is made available to the public no later than 18 months after the effective date of this Order. The Copermittees may elect to develop and maintain the clearinghouse(s) provided by other Copermittees or agencies.

Add a definition for “Regional Clearinghouse” in Attachment C

ATTACHMENT C
Acronyms, Abbreviations, and Definitions

62. Attachment C (Entire Attachment; Begins Page C-1) – Attachment C Should Clarify The Meaning Or Intent Of Specific Terms Used Within The Order

In addition to the acronyms and abbreviations, Attachment C also includes definitions that may provide an explanation or description of the meaning or intent of specific terms or phrases that are used within the Order. The County recommends the addition and/or modification of the following definitions in order to assist in describing the meaning or intent of these terms and to avoid unnecessary confusion.

The County recommends the following language changes:

This term did not have a definition.

Channel Rehabilitation and Improvement – *Remedial measures or activities for the purpose of improving the environmental health of streams, channels, or river systems. Techniques may vary from in-stream restoration techniques to off-line stormwater management practices installed in the system corridor or upland areas. Rehabilitation techniques may include, but are not limited to the following: riparian zone restoration, constructed wetlands, bank stabilization, channel modifications, and daylighting of drainage systems. Effectiveness may be measured in various manners, including: assessments of habitat, reduced streambank erosion, and/or restoration of water and sediment transport balance.*

This definition should remain consistent with the Federal regulations.

Copermittee – *A permittee to a NPDES permit that is only responsible for permit conditions relating to the discharge for which it is operator [40 CFR 122.26(b)(1)]. For the purposes of this Order, a Copermittee may include the following jurisdictions: ~~a~~An incorporated city within the County of Orange, County of Riverside, or County of San Diego in the San Diego Region, the County of Orange, the County of Riverside, the County of San Diego, the Orange County Flood Control District, the Riverside County Water Conservation and Flood Control District, the San Diego Regional Airport Authority, or the San Diego Unified Port District.*

This definition should provide additional clarification.

Illicit Connection – *Any man-made conveyance or drainage system through which the discharge of any pollutant to the stormwater drainage system occurs or may occur. ~~Any connection to the MS4 that conveys an illicit discharge.~~*

This definition should remain consistent with the Federal regulations.

Illicit Discharge - *Any discharge to a ~~the~~ municipal separate storm sewer MS4 that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities [40 CFR 122.26(b)(2)].*

This definition should provide additional clarification for the purposes of low impact development.

Infiltration – *Water other than wastewater that enters a sewer system (including sewer service connections and foundation drains) from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow [40 CFR 35.2005(20)]. In the context of low impact development, infiltration may also be defined as the percolation of water into the ground. Infiltration is often expressed as a rate (inches per hour), which is determined through an infiltration test.*

This term did not have a definition.

Progressive Enforcement – *A series of enforcement actions that increase in severity commensurate with the violation. Such enforcement actions may include verbal and written notices of violation, fines, stop work orders, administrative penalties, criminal penalties, etc.*

This definition should provide additional clarification.

Redevelopment - *The creation, addition, and or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition to or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Redevelopment does not include trenching and resurfacing associated with utility work; parking lots, resurfacing existing roadways; cutting and reconfiguring of surface parking lots; new sidewalk construction, pedestrian ramps, or bike lane on existing roads; and routine replacement of damaged pavement, such as pothole repair.*

This term did not have a definition.

Regional Clearinghouse – *A central location for the collection, classification, and distribution of information including, but not limited to, plans, reports, manuals, data, contact information, and/or links to such documents and information. The clearinghouse(s) may be organized by the following regions: Watershed Management Areas, County jurisdictions, and/or the San Diego Regional Water Quality Control Board jurisdiction.*

This definition should remain consistent with the Federal regulations.

Storm Water – *Per 40 CFR 122.26(b)(13), means storm water runoff, snowmelt runoff and surface runoff and drainage. Surface runoff and drainage pertains to runoff and drainage resulting from precipitation events.*

This definition should remain consistent with the State regulations

Waters of the State - *Any ~~water~~, surface water or groundwater underground, including saline waters, within the boundaries of the ~~s~~State [CWC section 13050 (e)]. The definition of the Waters of the State is broader than that for the Waters of the United States in that all water in the State is considered to be a Waters of the State ~~regardless of circumstances or condition.~~*

This term should clarify that a wet weather period should be preceded by a minimum dry weather period, unless defined differently in another regulatory mechanism.

Wet Weather – *Weather is considered wet if there is a storm event of 0.1 inches and greater and the following preceded by 72 hours of dry weather, unless otherwise defined by another regulatory mechanism, such as a TMDL.*

ATTACHMENT D
Jurisdictional Runoff Management Program Annual Report Form

63. Attachment D (Entire Attachment; Begins Page D-1) – The JRMP Annual Report Form Is Not Linked To The Watershed Priorities And Does Not Result In Meaningful Reporting

(See Comments on Provision F.3.b)

ATTACHMENT E
Specific Provisions for Total Maximum Daily Loads

64. Attachment E (Entire Attachment; Begins Page E-1) – Permit Provisions Must Be Consistent With The Corresponding Basin Plan Amendments (BPAs)

The Regional Board has adopted two Basin Plan Amendments (BPAs) to establish Total Maximum Daily Loads (TMDLs) where the Copermittees are identified as Responsible Parties and assigned wasteload allocations (WLAs): (1) Indicator Bacteria in Baby Beach in Dana Point Harbor⁶⁶ and (2) Indicator Bacteria, Project I - Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)⁶⁷ (Beaches and Creeks Bacteria TMDL).

However, there are several fundamental and substantive discrepancies between the adopted TMDL BPAs and the provisions of the Tentative Order. These inconsistencies negate the Basin Planning process that occurred to establish the TMDLs and clearly contradict the Board's intent for how the TMDLs would be incorporated into the MS4 Permit. As the TMDLs have been incorporated into the Basin Plan, the TMDLs constitute the "program of implementation needed for achieving water quality objectives"⁶⁸ and the provisions in the MS4 Permit must therefore be consistent with the Basin Plan.

For example:

- Both the Baby Beach and Beaches and Creeks TMDLs clearly establish mass-based wasteload allocations. These wasteload allocations are entirely absent from the Tentative Order (see additional comments below for further discussion). Instead, the Tentative Order establishes water quality based effluent limits (WQBELs) based upon an effluent concentration (set equal to the numeric targets).
- For the Beaches and Creeks TMDL, the Tentative Order is not consistent with the compliance schedule approach provided for the comprehensive load reduction plans (CLRPs) established in the BPA. The CLRPs that will be submitted by Copermittees will propose interim compliance dates, as allowed by the BPA, to meet the 50% reduction milestone for dry and wet weather. The CLRPs submitted by Copermittees may not all propose the same interim compliance dates and the Tentative Order should

⁶⁶ Resolution R9-2008-0027

⁶⁷ Resolution R9-2010-0001

⁶⁸ Water Code section 13050(j)

acknowledge the flexibility allowed by the TMDL⁶⁹. In fact, this scheduling flexibility was a primary “incentive” for Copermittees to develop CLRPs instead of Bacteria Load Reduction Plans (BLRPs).

- For the Baby Beach TMDL, the BPA includes two paths for the implementation of the TMDL – one where the beach has been delisted from the 303(d) list and one where the beach remains impaired⁷⁰. Where a beach has been delisted, the BPA requires that Responsible Copermittees monitor and continue implementation of existing implementation actions “to ensure REC-1 water quality objectives are maintained” (i.e., the beach is not placed back on the 303(d) list). Only if the beach is placed back on the 303(d), the NPDES permit is to be revised to include “requirements consistent with these TMDLs.” As Baby Beach is not on the most recent 303(d) list for REC-1 bacteria objectives, the requirements for Responsible Copermittees must be limited to monitoring and implementation of existing implementation actions. The Tentative Order does not recognize the approach for delisted beaches or recognize that Baby Beach is delisted.
- For the Beaches and Creeks TMDL, the BPA clearly establishes that no additional actions are required for beaches that are delisted⁷¹. This language is not included in the Tentative Order.
- Monitoring requirements in the Tentative Order must be consistent with the requirements of the BPAs. Both the Baby Beach TMDL and the Beaches and Creeks TMDL provide certain flexibility in monitoring, via the BLRPs and CLRPs, respectively, and this flexibility is not captured in the Tentative Order.
- Both the Baby Beach TMDL and the Beaches and Creeks TMDL clearly acknowledges that exceedances in the receiving water may not be from the MS4 and contains specific compliance language to address such a situation. This language is not provided in the Tentative Order.

These examples are not exhaustive of the inconsistencies between the BPAs and the Tentative Order (additional inconsistencies are identified and modified language is proposed in **Attachment B**).

During the workshops on the Tentative Order, Regional Board members raised the question of feasibility of attaining the TMDLs. The Basin Plan Amendments included many considerations and requirements that cumulatively result in a more feasible program of implementation. If many of the requirements of the BPAs are modified or not included in the MS4 permit, such as the mass-based WLAs, flexible monitoring programs, no further action for delisted beaches, and reconsideration of the TMDLs through reopeners, the Tentative Order establishes requirements that are not only inconsistent with the BPAs, but that make attainment of the TMDLs infeasible.

*The County recommends that the Regional Board modify the requirements in Attachment E to establish provisions that are consistent with the adopted Basin Plan Amendments. Specific modifications to address these inconsistencies are provided in **Attachment B**. Certain key inconsistencies are noted in the subsequent comments below. Additional inconsistencies are also captured in the modifications detailed in **Attachment B**.*

⁶⁹ Page 68 of Attachment A of the Basin Plan Amendment

⁷⁰ See BPA pg. A-12

⁷¹ See the Basin Plan Amendment, pgs. A2, A12, A66

65. Attachment E (Entire Attachment; Begins Page E-1) – The Tentative Order’s Numeric WQBELs Violate the Requirements of Law Because They are Infeasible

The Tentative Order’s numeric WQBELs are not feasible. The 2010 EPA Memorandum on TMDLs⁷² recommends “where feasible, the NPDES permitting authority exercise its discretion to include numeric effluent limitations as necessary to meet water quality standards.”⁷³ This position is based on 40 CFR §122.44(k), which authorizes the use of BMPs “when numeric limitations are infeasible.” In 1991, the State Board concluded that “numeric effluent limitations are infeasible as a means of reducing pollutants in municipal storm water discharges, at least at this time.”⁷⁴

Although this determination was made over twenty years ago, the State Board’s position on this issue has not changed since then, as evidenced by its adoption of the Caltrans MS4 permit in September of 2012. Citing the fact sheet for the Caltrans MS4 permit, the State Board affirmed that “it is not feasible at this time to set enforceable numeric effluent criteria for municipal BMPs and in particular urban discharges.”⁷⁵

The Caltrans MS4 permit’s fact sheet also supports the use of BMP-based WQBELs as a means of meeting TMDLs and other quality standards. The Caltrans MS4 permit is also subject to TMDLs adopted by the Regional Board and USEPA. If this aspect of the Tentative Order is not corrected, Orange County MS4 Copermittees will be compelled to comply strictly with numeric WQBELs and receiving water limitations while Caltrans need only implement WQBEL BMPs to achieve compliance with the same TMDLs. This inconsistency lacks any justification.

66. Attachment E (Entire Attachment; Begins Page E-1) – The Tentative Order’s WQBELs Were Improperly Formulated

The Tentative Order fails to provide adequate justification for incorporating numeric water quality based effluent limitations in the Tentative Order for each of the incorporated TMDLs to which they apply. A WQBEL is an enforceable translation in an MS4 permit for attaining compliance with a TMDL WLA, which serves to protect beneficial uses of a receiving water⁷⁶. The Tentative Order fails to establish that an adequate requisite Reasonable Potential Analysis (“RPA”) has been conducted.

The Tentative Order fails to establish if discharges from any individual permittee’s MS4 have the reasonable potential to cause or contribute to an excursion above any “State water quality standard including State narrative criteria for water quality.” Page 2 of the 2010 EPA Memo states:

⁷² U.S. Environmental Protection Agency, Memorandum, *Revisions to the November 22, 2002 Memorandum “Establishing Total Maximum Daily Load (TMDL) Waste d Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs,”* (Nov. 12, 2010) (2010 EPA Memo).

⁷³ EPA Memo, p. 2 (emphasis added).

⁷⁴ State Water Resources Control Board Water Quality Order 91-03, page 49.

⁷⁵ Fact Sheet for NPDES Permit and Waste Discharges Requirements for State of California Department of Transportation, NPDES Permit No. CAS000003, Order No. 2012-0011-DWQ, September 7, 2012, page 9.

⁷⁶ 40 C.F.R. § 130.2.

“Where the NPDES authority determines that MS4 discharges *have the reasonable potential to cause or contribute to a water quality excursion*, EPA recommends that, where feasible, the NPDES permitting authority exercise its discretion to include numeric effluent limitations as necessary to meet water quality standards.”

There are two generally accepted approaches to conducting an RPA. According to USEPA guidance, “A permit writer can conduct a reasonable potential analysis using effluent and receiving water data and modeling techniques, as described above, or using a non-quantitative approach.”⁷⁷

Neither the administrative record nor the Tentative Order’s fact sheet contains any evidence of that an RPA has been performed in accordance with the two foregoing approaches. Regarding the first approach, such an analysis would in any case have been impossible to perform given that no outfall (effluent) monitoring has been required for any prior Orange County MS4 permit. No modeling appears to have been conducted either.

Beyond this, federal regulations not only require that an RPA be performed to determine if an excursion above a water quality standard occurred, but also that the storm water discharge must be measured against an “allowable” ambient concentration⁷⁸.

A WQBEL is a means of attaining a TMDL WLA, a translation of a WLA into prescribed actions or limits which has in the past been typically expressed as a BMP. Before a WQBEL can be developed, however, a need for it must be established. As the Writers’ Manual points out:

The permit writer should always provide justification for the decision to require WQBELs in the permit fact sheet or statement of basis and must do so where required by federal and state regulations. *A thorough rationale is particularly important when the decision to include WQBELs is not based on an analysis of effluent data for the pollutant of concern.* NPDES Permit Writers’ Manual, September 2010, page 6-23 (emphasis added).

No such rationale is provided in the Fact Sheet, which in the absence of effluent data derived from outfall monitoring, would have been absolutely necessary to justify the need for a numeric WQBEL.

Finally, the 2010 EPA Memo is clear that reliance on numerics should be coupled with the “disaggregation” of different storm water sources within permits. The Tentative Order fails to adequately disaggregate storm water sources within applicable TMDLs regarding numeric WQBELs and for receiving water limitations, further making the imposition of numeric standards inappropriate.

67. Attachment E (Entire Attachment; Begins Page E-1) – WQBELs Are Incorrect For Both Baby Beach Bacteria TMDL And Beaches And Creeks TMDLs As They Are Inconsistent With The WLAs

Federal regulations require that NPDES permits contain effluent limits consistent with the assumptions and requirements of all available WLAs⁷⁹. As currently established in the

⁷⁷ NPDES Permit Writers’ Manual, September 2010, page 6-23.

⁷⁸ 40 C.F.R. §122.44(d)(iii).

⁷⁹ 40 CFR 122.44(d)(1)(vii)(B)

Tentative Order, the WQBELs are not consistent with the WLAs and are therefore not consistent with federal regulations.

The Tentative Order establishes WQBELs based upon the numeric targets (set equal to water quality objectives), not the mass-based WLAs established by the TMDL. To justify this approach, the Fact Sheet states (emphasis added):

*“Because **numeric targets** for TMDLs typically include a component that will be protective of water quality standards, a TMDL will likely include one or more numeric receiving water limitations and/or effluent limitations as part of the assumptions or requirements of the TMDL. **Any numeric receiving water limitations and/or effluent limitations developed as part of the assumptions or requirements of a TMDL must be incorporated and included as part of a WQBELs for the MS4s.**” Pg. F-38.*

However, federal regulations require that the WLAs, not the numeric targets, are incorporated into the Tentative Order. Further, federal regulations do not require that any receiving water limitation or effluent limitation developed as part of the TMDL must be incorporated. Rather, federal regulations require that the WQBELs are consistent with the assumptions and requirements of the WLAs.

40 CFR 122.44(d)(1)(vii)(B) states (emphasis added).

*When developing water quality based effluent limits under this paragraph the permitting authority shall ensure that: (B) Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, **are consistent with the assumptions and requirements of any available wasteload allocation** for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7.*

While in most cases the numeric targets are a component of the allocations, there are numerous additional assumptions and requirements of the WLAs that are also a component of the WLAs. Wasteload allocations take into account various considerations, including the multiple sources of a pollutant, flow rates, critical conditions, and margin of safety. By only incorporating the numeric target component of the WLAs, the Tentative Order fails to include all of the other assumptions and requirements of the WLAs, which is required by federal regulations. Only incorporating the numeric targets negates the entire TMDL analysis and Basin Planning process. Otherwise, TMDLs would be as simple as assigning numeric effluent limitations to MS4 discharges equal to the numeric objectives in the Basin Plan, which is essentially what this Tentative Order is proposing to do, and which is explicitly contrary to the TMDLs that have been established in the Basin Plan.

In fact, simply defining the WQBELs as the numeric targets of the TMDL is contrary to the purpose of the Basin Plan itself, which not only requires the establishment of water quality objectives, but also the program of implementation needed to achieve the water quality objectives⁸⁰. A TMDL, once incorporated into the Basin Plan, is exactly that – a program of implementation needed for achieving water quality objectives.

Per the Beaches and Creeks Bacteria TMDL BPA:

⁸⁰ See Water Code section 13050(j) and as stated in the Beaches and Creeks Bacteria TMDL (Resolution, Pg.2): “A “Water Quality Control Plan” or “Basin Plan” consists of a designation or establishment for the waters within a specified area of all of the following: (1) Beneficial uses to be protected, (2) Water quality objectives and (3) A program of implementation needed for achieving water quality objectives.”

“TMDLs must be established at levels necessary to attain and maintain the applicable narrative and numerical water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge between effluent limitations and water quality.” – Resolution, Pg. 2

Per the Baby Beach Bacteria TMDL BPA:

“The loading capacities are defined as the maximum amount of fecal coliform, total coliform and Enterococcus that the waterbody can receive and still attain water quality objectives necessary for the protection of designated beneficial uses. Each TMDL must accommodate all known sources of a pollutant, whether from natural background, nonpoint sources, or point sources, and must include a margin of safety (MOS) to preclude pollutant loading from exceeding the actual assimilative capacities of the waterbodies. The TMDL calculations also account for seasonal variations and critical conditions and were developed in a manner consistent with guidelines published by USEPA.” – Resolution, Pg. 4

In both the Baby Beach Bacteria TMDL and the Beaches and Creeks Bacteria TMDL, the WLAs clearly take into consideration factors other than the numeric targets, such as flow rates as the WLAs are expressed as mass-based limits. If it was the Regional Board’s intent to establish a concentration-based TMDL, then the WLAs would be expressed as a concentration. However, by establishing mass-based WLAs, the TMDL purposefully and explicitly establishes WLAs that incorporate many other factors than just the concentrations of the numeric targets. Therefore, establishing WQBELs that fail to incorporate the mass-based WLAs fails to be consistent with all of the assumptions and requirements of the WLAs as well as failing to be consistent with the intent of the Basin Plan itself.

Baby Beach Bacteria TMDL

In addition to the universal issues identified above, there are additional concerns with the WQBELs specific to the Baby Beach Bacteria TMDL.

Of particular concern are the WQBELs established for wet weather for total coliform (TC) and fecal coliform (FC). The BPA establishes WLAs for those indicators based upon existing conditions as the loading capacity was determined to be greater than the current discharges and clearly states that no further reductions are necessary. The BPA states (pg. A-23):

“According to Tables 7-26 and 7-27, no wet weather wasteload reductions are required for total and fecal coliform indicator bacteria. This means that according to the wet weather models for Baby Beach, REC-1 water quality objectives for total and fecal coliform indicator bacteria are not expected to be exceeded due to discharges from the MS4s. The only wet weather wasteload reductions required for MS4s discharging into the receiving waters along the shoreline at Baby Beach is for Enterococcus indicator bacteria.”

These existing conditions WLAs were based upon a *load assessment, not a concentration assessment* (e.g., the numeric targets). The final compliance date for these WLAs was set equal to the effective date of the TMDL, given that the WLAs were set to existing conditions and no further reductions were required. Therefore, not only are the WLAs in the Tentative Order not incorporated properly as mass-based WQBELs, but the Copermittees are not provided any time to attain these new and inappropriately established concentration-based WQBELs as the effective date, and therefore final compliance date, was 2009.

Beaches and Creeks Bacteria TMDL

In addition to the universal issues identified above, there are additional concerns with the WQBELs specific to the Beaches and Creeks Bacteria TMDL.

Attachment E specifies WQBELs for dry weather flows as both receiving water and effluent limitations, in terms of zero allowable exceedances of the single sample maximum and the 30-day geometric mean. However, the dry weather component of the TMDL only considered the 30-day geometric mean and did not consider the single sample maximum within its calculation. Incorporating single sample effluent limitations into the Tentative Order goes beyond the TMDL requirements.

In addition, if the TMDL had included single sample limits, there would have been a corresponding allowable exceedance frequency, just as for wet weather. The 22% allowable exceedance rate for wet weather was based on a reference beach within the Los Angeles Region, and although not used in the technical approach for the San Diego Beaches and Creeks TMDL, the reference beach also exhibits exceedances during dry weather, which is incorporated into beach TMDLs in the Los Angeles region.

*The County recommends that the Tentative Order is modified to be consistent with the assumptions and requirements of the WLAs by incorporating the WLAs into the Permit. See **Attachment B** for the specific requested modifications.*

68. Attachment E (Entire Attachment; Begins Page E-1) – WQBELs Should Only Be Defined as Effluent Limitations

There is a significant legal distinction between the Receiving Water Limitations established in Provision A (Discharge Prohibitions) and the Receiving Water Limitations established as part of the WQBELs in Attachment E (TMDL provisions). As currently (inappropriately) defined, WQBELs include receiving water limitations based on the numeric targets (set equal to WQOs) and not based upon the WLAs.

Ensuring that MS4 discharges do not cause or contribute to exceedance of WQOs is already and more appropriately addressed via Provision A.2. When an exceedance occurs under Provision A (Discharge Prohibitions), there is the potential for enforcement action and the Regional Board has discretion with enforcement (e.g., issuing a Notice of Violation). However, where an exceedance occurs for a WQBEL, the Copermittees may be subject to Mandatory Minimum Penalties (MMPs) where the Regional Board does not have discretion.

As established in comments above, the WQBELs have been inappropriately defined to be based upon concentrations, not the mass-based WLAs. And ensuring that discharges do not cause or contribute to exceedances of WQOs is already addressed via Provision A.2. Therefore, the inclusion of concentration-based receiving water limitations in the definition of the WQBELs is inconsistent with the assumptions and requirements of the WLAs and unnecessarily exposes Copermittees to MMPs without any requisite change to the protection of water quality. Throughout the Beaches and Creeks Bacteria TMDL, the BPA consistently refers to attaining the numeric targets (e.g., the water quality objectives) via receiving water limitations. Therefore, establishing the mass-based WLAs as the WQBELs and the numeric targets as receiving water limitations, is consistent with federal regulations for the incorporation of WLAs and the BPA for establishing the receiving water limitations.

The WQBELs should be defined only as the mass-based effluent limitations, consistent with the WLAs in the BPAs. While the Copermittees prefer that the receiving water limitations are simply addressed with a cross-reference back to Provision A.2, if the Regional Board prefers to keep the receiving water limitations as part of the TMDL provisions, they must be distinct from and excluded from the definition of the WQBELs.

*The County recommends that the Tentative Order is modified to be consistent with the assumptions and requirements of the WLAs by incorporating the WLAs into the Tentative Order and defining the WQBELs as equal to the WLAs. Receiving water limitations should be excluded from the definition of WQBELs as they are not part of the WLAs. See **Attachment B** for the specific requested modifications.*

69. Attachment E (Entire Attachment; Begins Page E-1) – Compliance Determination For Final WQBELs Should Be Based On The Implementation Of BMPs And Not Numeric Effluent Limitations

For interim water quality-based effluent limitations and receiving water limitations, A BMP-based path to compliance is provided via the implementation of an approved Water Quality Improvement Plan⁸¹. The Copermittees greatly appreciate and support this approach as it acknowledges the inherent challenges unique to stormwater management and provides appropriate flexibility to implement the necessary BMPs. However, the same approach is not applied to the final WQBELs.

A. Regional Board has Discretion to Establish BMP-Based Compliance

State and federal law do not require the use of numeric effluent limitations for MS4 Copermittees, but rather encourage flexible implementation of best management practices through an iterative process. Specifically, the choice to include either management practices or numeric limitations in MS4 permits is within the regulatory agency's discretion.

Over the last decade, EPA has issued a succession of policy memoranda and guidance documents regarding the incorporation of TMDLs into stormwater permits, including:

- 1) *Guidance for Developing TMDLs in California* (EPA Region 9). January 7, 2000
- 2) *Establishing Total Maximum Daily Load (TMDL) WLAs for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs* (Wayland and Hanlon). November 22, 2002
- 3) *TMDLs to Stormwater Permit Handbook* (Draft) (EPA). November 2008
- 4) *Revision to the November 22, 2002 Memorandum "Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs"* (Hanlon and Keehner). November 12, 2010
- 5) *Untitled Letter* (Kevin Weiss). March 17, 2011

In each of these EPA documents, EPA allows for discretion on the part of the permitting authority in the use of numeric effluent limitations for stormwater or BMP-based effluent limitations. This flexibility is a key aspect of both Wayland and Hanlon (2002), and Hanlon and Keehner (2010).

⁸¹ Attachment E.5.e.(1)(f)); Attachment E.6.e.(1)(f)

Further, it is important to note that the EPA documents did not identify any differences in how interim and final WQBELs may be addressed by effluent limitations. In particular, the guidance did not limit BMP-based effluent limitation approaches to interim WQBELs.

EPA guidance does emphasize that NPDES provisions implementing TMDLs be enforceable, objective, and measurable. The Hanlon and Keehner memorandum notes that while numeric effluent limitations provide this type of accountability, effluent limitations expressed as BMPs can include objective and measurable elements. Such measurable elements might include as noted on page 3 of Hanlon and Keehner (2010), “*schedule for BMP installation or level of BMP performance*” or “*numeric benchmarks for BMPs and associated monitoring protocols or specific protocols for estimating BMP effectiveness.*”

The Tentative Order provides for enforceable, objective, and measurable provisions via the Water Quality Improvement Programs (WQIPs). Establishing an additional compliance path for the final WQBELs would therefore be consistent with the approach already provided in the Tentative Order for interim WQBELs as well as guidance issued by EPA over the last decade in numerous policy memoranda and guidance documents.

B. Compliance Mechanism Matters

The Regional Board has the opportunity to exercise discretion in drafting and approving the compliance language in the Order; however, if the Regional Board continues to opt for numeric effluent limitations for final WQBELs, the Regional Board will no longer have discretion for enforcement decisions during implementation of the Order as Copermittees may be subject to Mandatory Minimum Penalties (MMPs). Such a limit on discretion matters both to Copermittees and the Regional Board.

Take for example a watershed where a group of Copermittees implement a suite of BMPs designed to achieve the final WQBELs. The Copermittees work closely with Regional Board staff and non-governmental organizations in developing and implementing the plan. Implementation of the BMPs achieves a 90% reduction in bacteria loads and results in the delisting of the waterbody from the State’s 303(d) list, yet the reductions do not attain the WQBELs. Another Permittee does little to nothing to address the TMDL and achieves no reductions in bacteria loads, the waterbody continues to be listed as impaired on the State’s 303(d) list, and the WQBELs are not attained.

If numeric effluent limitations continue as the compliance mechanism for final WQBELs, both Copermittees (the group that achieved the 90% reduction and the Copermittee that did little to nothing) would equally be out of compliance with the Order and equally subject to MMPs. If a BMP-based compliance option is provided for final WQBELs, the Regional Board would have the ability to exercise discretion. The Regional Board could continue to work with the group or Copermittees that are successfully implementing actions and evaluate appropriate additional actions. For the Copermittee that did little to nothing, the Regional Board would still be able to take appropriate enforcement action.

BMP-Based Compliance is not a request to decrease accountability or the efforts of the Copermittees or the commitment to water quality, it is a request for the Regional Board to utilize its discretion to establish Permit provisions that will support and reward actions taken by Copermittees that are achieving the intended purposes of the TMDLs.

C. Consistent with Regional Board Approach to Enforcement

A BMP-based compliance mechanism for final WQBELs is consistent with the Regional Board’s stated approach to enforcement (as noted in the BPA establishing the Indicator Bacteria TMDL for Baby Beach):

“Regional Board typically implements enforcement through an escalating series of actions to:

(1) assist cooperative dischargers in achieving compliance; (2) compel compliance for repeat violations and recalcitrant violators; and (3) provide a disincentive for noncompliance.” Baby Beach Bacteria TMDL BPA, pg. A-20

The Regional Board can structure the final WQBEL compliance options to achieve this escalating approach to enforcement. A BMP-based compliance option can be provided via the implementation of the WQIPs where discrete milestones and actions are identified. For Copermittees that do not implement the WQIPs, this compliance mechanism would no longer be an option and Copermittees would be compelled to comply via the other mechanisms (essentially, no discharge or numeric effluent limitations). Such an approach achieves all three of the escalating compliance approaches identified by the Regional Board in the Baby Beach Bacteria TMDL, while numeric effluent limitations remove the Regional Board’s discretion and will require that the Board treat cooperative dischargers and recalcitrant violators equally.

D. Consistent with Basin Plan Amendments

Establishing a BMP-based compliance path is also consistent with the Basin Plan Amendments for both TMDLs.

Beaches and Creeks TMDL (pg. A-41):

“The San Diego Water Board will revise and re-issue the WDRs and NPDES requirements for Phase I MS4s to incorporate the following:

WQBELs consistent with the requirements and assumptions of the Municipal MS4 WLAs. WQBELs may be expressed as numeric effluent limitations, when feasible, and/or as a BMP program of expanded or better-tailored BMPs.”

Baby Beach Bacteria TMDL (emphasis added):

*BPA, pg. A-14: WQBELs consistent with the requirements and assumptions of the bacteria WLAs described in Tables [Insert table numbers] and a schedule of compliance applicable to the MS4 discharges into the impaired shoreline segments described in Tables [Insert table numbers]. **At a minimum, WQBELs shall include a BMP program to attain the WLAs.***

BPA, pg. A-15: If the WQBELs consist of BMP programs, then the reporting requirements shall consist of annual progress reports on BMP planning, implementation, and effectiveness in attaining the WQOs in impaired shoreline segments, and annual water quality monitoring reports.

BPA, pg. A-19: The BLRPs are the municipal dischargers’ opportunity to propose methods for assessing compliance with WQBELs that implement TMDLs.

Additionally, the compliance schedule⁸² anticipates revisions to the TMDL after the final compliance date, potentially through the Natural Sources Exclusion Approach (NSEA). It is inconsistent with the assumptions and requirements of the BPA to require strict compliance via numeric effluent limitations at Year 10 when the TMDL explicitly anticipates revisions occurring after that final date. The intent from the BPA is to have 10 years of implementation, evaluate progress, and assess if additional regulatory options (such as the NSEA) are necessary and/or

⁸² BPA, pg. A-24

warranted. This approach can only be accomplished if BMP-based compliance is provided as an option for the final WQBELs.

E. BMP-Based Compliance is Not a “Safe Harbor”

The concept of “safe harbor” implies that Copermittees are not being held accountable, the requirements are not enforceable, and Copermittees will not be obligated to implement actions to address the TMDLs. However, BMP-based compliance can be structured to provide strict accountability and enforceability and require concrete and specific actions to be implemented. In fact, EPA guidance does emphasize that NPDES provisions implementing TMDLs be enforceable, objective, and measurable. The Hanlon and Keehner memorandum notes that effluent limitations expressed as BMPs can include objective and measurable elements. Such measurable elements might include as noted on page 3 of Hanlon and Keehner (2010), “*schedule for BMP installation or level of BMP performance*” or “*numeric benchmarks for BMPs and associated monitoring protocols or specific protocols for estimating BMP effectiveness.*”

Additionally, the concept of “safe harbor” was raised during the hearing for the recently adopted Los Angeles Region MS4 Permit. The Regional Board as well as Executive Officer of the Regional Board directly addressed the question if BMP-based compliance, via the implementation of a Watershed Management Program (equivalent to the WQIPs), constituted a “safe harbor.” Both the Board and Executive Officer clearly stated that BMP-based compliance was not a “safe harbor” for the Copermittees and the Watershed Management Programs provided objective and measureable elements whereby Copermittees would be required to implement actions and would have clear accountability.

F. Numeric Effluent Limitations are Not Feasible

Finally, in Hanlon and Keehner (2010) (EPA’s policy memorandum regarding incorporation of TMDLs into stormwater Permits), states “EPA recommends that, where feasible, the NPDES permitting authority **exercise its discretion** to include numeric effluent limitations as necessary to meet water quality standards.” (emphasis added). This statement highlights the basic principle that the Regional Board has discretion in how the WLAs are incorporated into the MS4 Permit. Further, the concept of feasibility relates to *achieving* the numeric effluent limitations, not to *calculating* a numeric effluent limitation. As all TMDLs have numeric WLAs, it would be “feasible” for most all TMDLs, from the very first TMDL ever established, to utilize numeric effluent limitations if simply calculating a WQBEL was the intended definition. As Wayland and Hanlon (2002) (EPA’s policy memorandum regarding incorporation of TMDLs into stormwater Permits) noted EPA “expects that most WQBELs for NPDES-regulated municipal and small construction storm water discharges will be in the form of BMPs, and that numeric limits will be used only in rare instances.” Therefore, in EPA’s policy memoranda, the concept of feasibility is not related to the ability to simply calculate the WQBELs. The concept of “feasibility” really relates to whether or not *achieving* a numeric effluent limitations are feasible for the stormwater permit.

The State Water Resources Control Board convened a Blue Ribbon Panel in 2006 to investigate this very question – are numeric effluent limitations feasible for stormwater permits? This panel of national experts ultimately concluded that numeric limits were generally infeasible across all three stormwater activities (municipal, industrial, and construction), with a few exceptions.⁸³

⁸³ *The Feasibility of Numeric Effluent Limits Applicable to Discharges of Stormwater Associated with Municipal, Industrial and Construction Activities, June 19, 2006.*

Therefore, without providing the BMP-based compliance option for Copermitees, the Tentative Order directly contradicts the State Water Resources Control Board's finding regarding the feasibility of achieving numeric effluent limitations for municipal stormwater discharges.

The County recommends that the Regional Board exercise its discretion and establish a BMP-based compliance path for final WQBELs by adding the following provisions as Attachment E.5.e(2)(f) and as Attachment E.6.e.(2)(e):

“The Responsible Copermitees have submitted and are fully implementing a Water Quality Improvement Plan, accepted by the San Diego Water Board, which provides reasonable assurance that the final compliance requirements will be achieved by the final compliance dates. A Responsible Copermitee that does not implement its WQIP in accordance with the milestones and compliance schedules shall demonstrate compliance with the final WQBELs pursuant to Attachment E.5.e(2)(a - e)/Attachment E.6.e(2)(a-d).”

70. Attachment E (Entire Attachment; Begins Page E-1) – An Explicit Re-Opener Provision Is Necessary

In both the Baby Beach TMDL and the Beaches and Creeks TMDL, the BPAs have included an implementation schedule that defines a point at which the TMDL will be reconsidered to incorporate new information and potentially modify targets, allocations and/or implementation requirements. The intent of the approach is clear in both BPAs:

- **Beaches and Creeks TMDL:** There is an entire section of the Basin Plan Amendment that details modifications to the TMDL through a future Basin Plan Amendment. The BPA specifically notes (BPA pg. A49):

“As the implementation of these TMDLs progress, the San Diego Water Board recognizes that revisions to the Basin Plan may be necessary in the future.”

- **Baby Beach TMDL:** The intent to reassess this TMDL is built directly into several sections of the implementation plan as well as the compliance schedule (emphasis added):
 - *“The San Diego Water Board recognizes that there are potential problems associated with using indicator bacteria WQOs to indicate the presence of human pathogens in receiving waters free of sewage discharges. The indicator bacteria WQOs were developed, in part, based on epidemiological studies in waters with sewage inputs. The risk of contracting a water-borne illness from contact with urban runoff devoid of sewage, or human-source bacteria is not known. Some pathogens, such as giardia and cryptosporidium can be contracted from animal hosts. Likewise, domestic animals can pass on human pathogens through their feces. **These and other uncertainties need to be addressed through special studies and, as a result, revisions to the TMDLs may be appropriate.**” – BPA, pg. A-22*
 - *“Ultimately, the San Diego Water Board supports the idea of measuring pathogens (the agents causing impairment of beneficial uses) or an acceptable alternative indicator, rather than indicator bacteria (surrogates for pathogens). However, as stated previously, indicator bacteria have been used to measure water quality historically because measurement of pathogens is both difficult and costly. The San Diego Water Board is supportive of any efforts by the scientific community to perform epidemiological studies and/or investigate the feasibility of measuring pathogens directly. **The San Diego Water Board further supports***

subsequent modification of WQOs as a result of such studies. Ultimately, TMDLs will be recalculated if WQOs are modified due to results from future studies.”- BPA, pg. A-23

- o Excerpt from Baby Beach Bacteria TMDL Compliance Schedule. Revisions to the TMDL are anticipated to occur in Year 10+ (after the final compliance date).

Table 1. Excerpt from Baby Beach Bacteria TMDL Compliance Schedule (BPA, pg. A-24). Revisions to the TMDL are anticipated to occur in Year 10+ (after the final compliance date).

Year (after OAL approval)	Required Wasteload Reduction	TMDL Compliance Action
10	100 percent <i>Enterococcus</i> reduction	<ul style="list-style-type: none"> • Water Quality Monitoring • Implement BMPs • Submit request for removal from 303(d) List • (if not requested and removed earlier)
10+	Same as above	<ul style="list-style-type: none"> • Water Quality Monitoring • Implement BMPs • Submit request for TMDL revisions based on Natural Sources Exclusion Approach if supported by data (if not requested and recalculated earlier) • Submit request for removal from 303(d) List (if not requested and removed earlier)

While the County is not advocating for technical revisions to the TMDL as part of the Tentative Order issuance (such revisions would appropriately occur through the Basin Plan Amendment process with any subsequent revisions incorporated into the Permit), there is a well documented level of uncertainty in the BPAs with the existing TMDLs where revisions to the targets, allocations, and implementation plans and schedules may be warranted. Such uncertainty should be incorporated into the provisions via an explicit re-opener in Provision H (Modifications of Programs) of the Tentative Order.

The explicit re-opener provision for the Tentative Order would serve two purposes:

- Provide a trigger to reconsider the compliance mechanism (BMP-based compliance in lieu of numeric effluent limits) prior to any compliance dates; and
- Ensure that the WQBELs are reconsidered, consistent with the intent of the TMDLs to revisit and revise as necessary the targets, allocations, and implementation actions prior to final compliance being required. This aspect is especially critical as the Beaches and Creeks re-opener would occur during this permit term (request must be made by Permittees by 2016) and the Baby Beach TMDL has final WQBELs compliance dates within the permit term (2014 and 2019).

While the County recognizes that the Regional Board has the authority to re-open the Permit at any time, the explicit re-opener captures the Regional Board’s intent to revisit and revise as necessary the TMDL provisions, consistent with the assumption and requirements of the BPAs. Based upon the first year data summary for the on-going San Diego Regional Stream

Reference Study⁸⁴, such revisions may likely be warranted. The first year data show that during dry weather, the reference systems demonstrated a 34.1% exceedance rate of the single sample maximum and a 71% exceedance rate of the 30 day geometric mean for enterococci. The TMDL currently allows for a 0% exceedance rate during dry weather. During storm events, the reference systems had a 71% - 100% exceedance rate of the single sample maximum for enterococci. The TMDL currently only allows for a 22% exceedance rate during storm events. Providing the explicit reopener in the Permit will ensure that such compelling information, such as the results of the Reference Study, are considered prior to subjecting Copermittees to enforcement actions, such as Mandatory Minimum Penalties.

The explicit re-opener is consistent with the Regional Board's stated approach to enforcement, an escalating enforcement approach that contemplates "cooperative dischargers" as well as "recalcitrant violators." Lastly, such an approach was built into the recently adopted Los Angeles MS4 Permit⁸⁵.

The County recommends that an explicit Permit re-opener is provided, to capture the Regional Board's intent to revisit and revise as necessary the TMDL provisions prior to final compliance dates. The following additional language is requested as Provision H.6 and H.7:

- H.6. Modifications of the Order shall be initiated to incorporate provisions as a result of future amendments to the Basin Plan, such as a new or revised water quality objectives or the adoption or reconsideration of a TMDL, including the program of implementation. As soon as practicable, but no later than 6 months of the effective date of a revised TMDL where the revisions warrant a change to the provisions of this Order, the Regional Water Board shall modify this Order consistent with the assumptions and requirements of the revised WLA(s), including the program of implementation.*
- H.7. Modification to the Order shall be considered 18 months prior to the compliance date for final WQBELs where the compliance mechanism is based upon numeric effluent limitations. The intent of the reconsideration is to include provisions or modifications to WQBELs in Attachment E of this Order prior to the final compliance deadlines, if practicable, that would allow an action-based, BMP compliance demonstration approach with regard to final WQBELs.*

71. Attachment E (Entire Attachment; Begins Page E-1) – Compliance Mechanism Is Necessary Prior To Approval Of The Water Quality Improvement Plans

The Tentative Order currently provides for BMP-based compliance with interim WQBELs via the implementation of the WQIPs (Attachment E.5.e.(1)(f)); Attachment E.6.e.(1)(f)). However, as the BMP-based compliance mechanism is contingent upon implementation of an approved WQIP, the Copermittees are not provided with a BMP-based compliance mechanism during the development of the WQIPs. Without any modifications to the Tentative Order, the Copermittees would be subject to numeric effluent limitations for during WQIP development, then provided BMP-based compliance for interim WQBELs during WQIP implementation. Prior to the approval of the WQIPs, Copermittees should be provided a similar BMP-based compliance

⁸⁴Southern California Coastal Water Research Project (SCCWRP). San Diego Regional Stream Reference Study, Monitoring Progress Report #3 and Year 1 Data Summary, October 2011 through November 2012. January 3, 2013.

⁸⁵ R4-2012-0175

mechanism while resources are devoted to plan development and the continuation with the implementation of the existing programs.

Recognizing that the shift to a watershed approach is an important and necessary shift in the management of stormwater, in the recently adopted Los Angeles MS4 Permit⁸⁶, such compliance was provided during the plan development phase.

The County recommends that the TO provide BMP-based compliance as a compliance option during the development of the WQIPs, the Copermittees request that the following provisions are added

- *Interim WQBELs Compliance (Attachment E.5.e(1) and Attachment E.6.e(1)):*

Upon the effective date of this Order, a Copermittee's full compliance with all of the following requirements shall constitute a Copermittee's compliance with provisions pertaining to interim WQBELs with compliance deadlines occurring prior to approval of a WQIP.

- (1) Meets all interim and final deadlines for development of a WQIP,*
 - (3) Targets implementation of watershed control measures in its existing storm water management program, including watershed control measures to eliminate non-storm water discharges of pollutants through the MS4 to receiving waters, to address known contributions of pollutants from MS4 discharges that cause or contribute to the impairment(s) addressed by the TMDL(s), and*
 - (4) Receives final approval of its WQIP from the Regional Board.*
- *If the Regional Board makes modifications to provide for a BMP-based compliance path for final WQBELs, the same revisions are requested to be added to Attachment E.5.e(2) and Attachment E.6.e(2).*

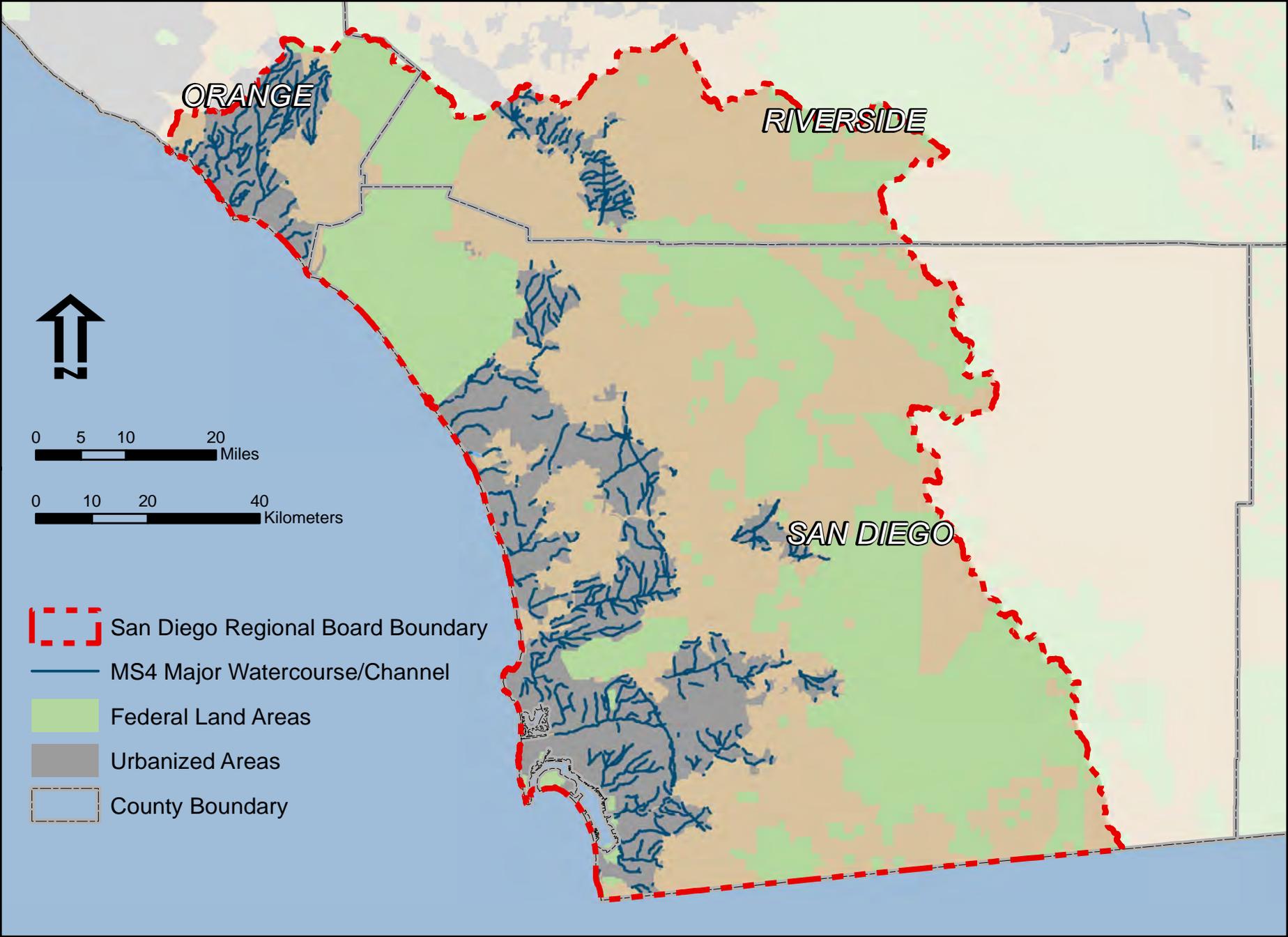
⁸⁶ R4-2012-0175

ATTACHMENT A

**ORANGE COUNTY LEGAL & TECHNICAL COMMENTS ON
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
TENTATIVE ORDER No. R9-2013-0001
NPDES NO. CAS0109266**

Appendix A-1

Regional Map



ORANGE

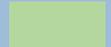
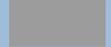
RIVERSIDE

SAN DIEGO



0 5 10 20 Miles

0 10 20 40 Kilometers

-  San Diego Regional Board Boundary
-  MS4 Major Watercourse/Channel
-  Federal Land Areas
-  Urbanized Areas
-  County Boundary

ATTACHMENT A

**ORANGE COUNTY LEGAL & TECHNICAL COMMENTS ON
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
TENTATIVE ORDER No. R9-2013-0001
NPDES NO. CAS0109266**

Appendix A-2

SCCWRP Report

HYDROMODIFICATION ASSESSMENT AND MANAGEMENT IN CALIFORNIA

*Eric D. Stein
Felicia Federico
Derek B. Booth
Brian P. Bledsoe
Chris Bowles
Zan Rubin
G. Mathias Kondolf
Ashmita Sengupta*



UCLA Institute of the Environment and Sustainability
UCLA La Kretz Center for California Conservation Science



Southern California Coastal Water Research Project

Technical Report 667 - April 2012

Hydromodification Assessment and Management in California

Commissioned and Sponsored by California State Water Resources Control Board Stormwater Program

Eric D. Stein	<i>Southern California Coastal Water Research Project</i>
Felicia Federico	<i>University of California, Los Angeles - La Kretz Center for California Conservation Science</i>
Derek B. Booth	<i>University of California, Santa Barbara</i>
Brian P. Bledsoe	<i>Colorado State University, Fort Collins</i>
Chris Bowles	<i>CBEC, Inc., Eco-engineering</i>
Zan Rubin	<i>University of California, Berkeley</i>
G. Mathias Kondolf	<i>University of California, Berkeley</i>
Ashmita Sengupta	<i>Southern California Coastal Water Research Project</i>

April 2012

Technical Report 667

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EXECUTIVE SUMMARY

Most jurisdictions in California are now required to address the effects of *hydromodification* through either a municipal stormwater permit or the statewide construction general permit. Hydromodification is generally defined as changes in channel form associated with alterations in flow and sediment due to past or proposed future land-use alteration. Hydromodification management has emerged as a prominent issue because degradation of the physical structure of a channel is often indicative of and associated with broader impacts to many beneficial uses, including water supply, water quality, habitat, and public safety. Conversely, reducing hydromodification and its effects has the potential to protect and restore those same beneficial uses. Although hydromodification has the potential to affect all water body types, this document focuses on assessing and managing effects to streams because they are the most prevalent, widely studied, and arguably most responsive type of receiving water.

Hydromodification by definition results from alteration of watershed processes; therefore, correcting the root causes of hydromodification ought to be most effective if based on integrated watershed-scale solutions. To date, such a watershed approach has not been adopted in California; most hydromodification management plans simply consist of site-based runoff control with narrow, local objectives and little coordination between projects within a watershed. Furthermore, each municipality is required to develop its own approach to meeting hydromodification management requirements rather than drawing from standard or recommended approaches that facilitate regional or watershed-scale integration. Long-term reversal of hydromodification effects, however, will require movement away from reliance on such site-based approaches to more integrated watershed-based strategies.

This document has two goals, and hence two audiences. The first goal is to describe the elements of effective hydromodification assessment, management and monitoring. The audience for this goal is primarily the State and Regional Water Boards, since meeting this goal will require integration of watershed and site-scale activities that are likely beyond the responsibility or control of any individual municipality. Success will require fundamental changes in the regulatory and management approach to hydromodification that will likely advance only iteratively and potentially require one or more NPDES permit cycles to fully implement. The second goal of this document is to provide near-term technical assistance for implementing current and pending hydromodification management requirements. This goal can be achieved by municipalities within the construct of existing programs and therefore the primary audience for this aspect of the document is local jurisdictions. Achieving this goal will facilitate greater consistency and effectiveness between hydromodification management strategies, giving them a stronger basis in current scientific understanding.

Watershed analysis should be the foundation of all hydromodification management plans (Figure ES-1). This analysis should begin with a documentation of watershed characteristics and processes, and past, current, and expected future land uses. The analysis should lead to identification of existing opportunities and constraints that can be used to help prioritize areas of greater concern, areas of restoration potential, infrastructure constraints, and pathways for potential cumulative effects. The combination of watershed and site-based analyses should be used to establish clear objectives to guide management actions. These objectives should articulate desired and reasonable physical and biological

conditions for various reaches or portions of the watershed and should prioritize areas for protection, restoration, or management. Strategies to achieve these objectives should be customized based on consideration of current and expected future channel and watershed conditions. A one-size-fits-all approach should be avoided. Even where site-based control measures, such as flow-control basins, are judged appropriate, their location and design standards should be determined in the context of the watershed analysis.

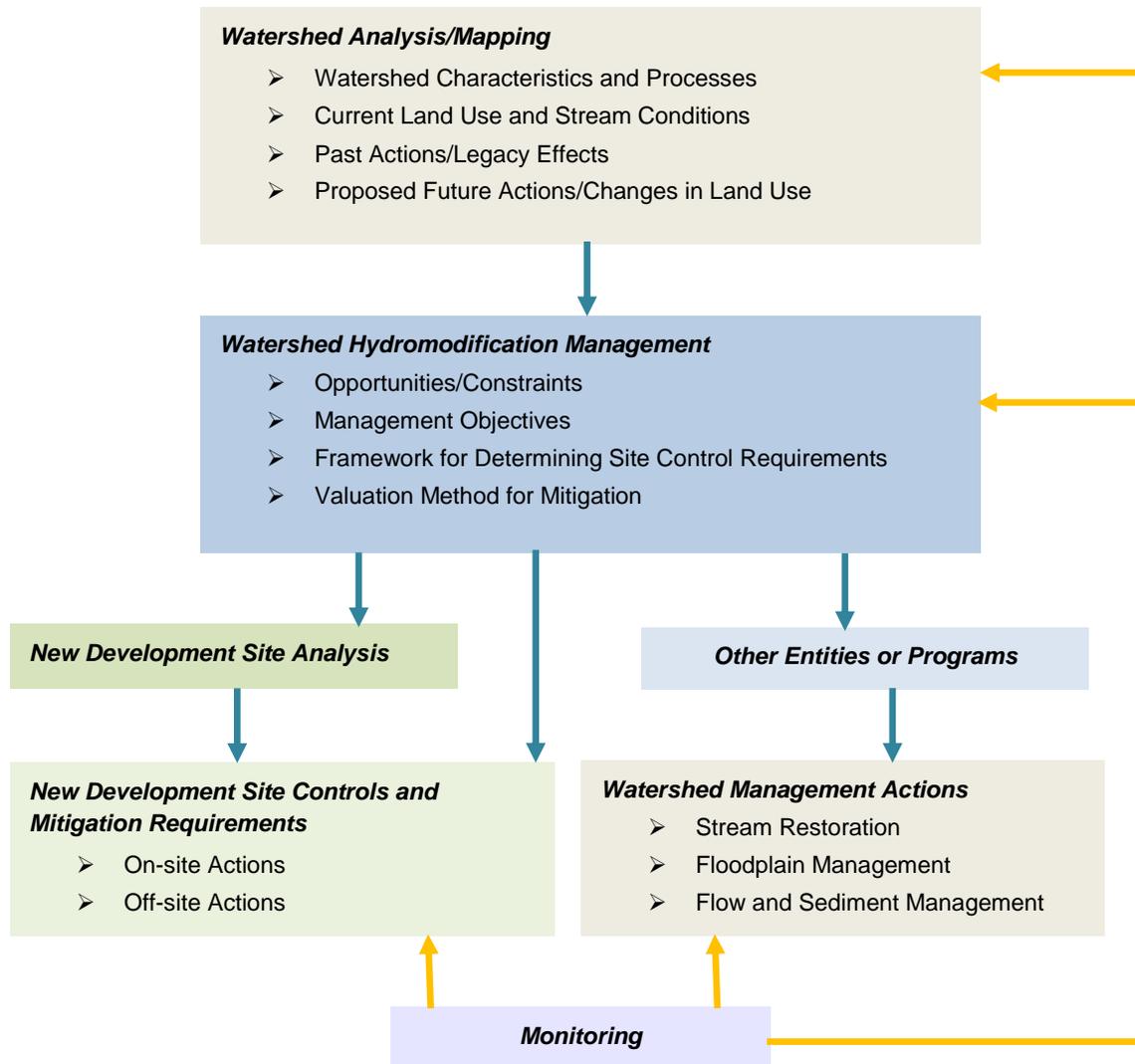


Figure ES-1. Framework for Integrated Hydromodification Management.

An effective management program will likely include combinations of on-site measures (e.g., low-impact development techniques, flow-control basins), in-stream measures (e.g., stream habitat restoration), floodplain and riparian zone actions, and off-site measures. Off-site measures may include compensatory mitigation measures at upstream locations that are designed to help restore and manage flow and sediment yield in the watershed.

Project-specific analysis and design requirements should vary depending on location, discharge point, and size. The range of efforts may include:

- Application of scalable, standardized designs for flow control based on site-specific soil type and drainage design. The assumptions used to develop these scalable designs should be conservative, to account for loss of sediment and uncertainties in the analysis and our understanding of stream impacts.
- Use of an erosion potential metric, based on long-term flow duration analysis and in-stream hydraulic calculations. Guidelines should specify stream reaches where in-stream controls would and would not be allowed to augment on-site flow control.
- Implementation of more detailed hydraulic modeling for projects of significant size or that discharge to reaches of special concern to understand the interaction of sediment supply and flow changes.
- Analysis of the water-balance for projects discharging into streams with sensitive habitat. This may include establishment of requirements for matching metrics such as number of days with flow based on the needs of species present.

Achieving these goals will require that hydromodification management strategies operate across programs beyond those typically regulated by NPDES/MS4 requirements. Successful strategies will need to be developed, coordinated, and implemented through land-use planning, habitat management and restoration, and regulatory programs. Regulatory coordination should include programs administered by the Water Boards, such as non-point source runoff control, Section 401 Water Quality Certifications and Waste Discharge Requirement programs, and traditional stormwater management programs. It should also include other agency programs, such as the Department of Fish and Game Streambed Alteration Program and the Corps of Engineers Section 404 Wetland Regulatory Program. Thus, all levels of the regulatory framework—federal, state, and local—will need to participate in developing and implementing such a program. The integrated watershed-based approach will likely take one or more permit cycles (i.e., at least ten years) to fully implement.

Short- and long-term recommendations for management are summarized in Table ES-1 below.

Table ES-1. Recommendations for implementing watershed-based hydromodification management.

Time Frame	Programmatic: State and Regional Water Boards	Local: City and County Jurisdictions
Short-term (<10 years)	<ul style="list-style-type: none"> • Establish consistent standards for HMPs • Promote use of watershed approaches in HMPs to move away from reliance on project-based management actions • Develop a valuation method to determine appropriate off-site mitigation • Transition to a broader set of monitoring endpoints including flow, geomorphology, and biology 	<ul style="list-style-type: none"> • Implement watershed analysis of opportunities and constraints related to hydromodification • Implement a broader set of tools to improve on-site management actions • Develop institutional capacity to oversee and review modeling and assessment tools • Develop capacity for information/data management and dissemination
Long-term (1+ decades)	<ul style="list-style-type: none"> • Develop watershed-based regulatory programs and policies for hydromodification management • Integrate hydromodification management needs into other regulatory programs (e.g. TMDL, 401/WDR) 	<ul style="list-style-type: none"> • Develop institution capacity to implement watershed-based hydromodification programs • Incorporate hydromodification and other water quality management into the land use planning process

To successfully accomplish these various recommendations for implementation, both agencies and private-sector practitioners will need to make use of a range of analytical tools. Such tools generally fall into three categories: descriptive tools, mechanistic models, and empirical/statistical models. Models may be used deterministically and/or in a probabilistic manner. These different types of tools can be selected or combined, depending on the specific objective, such as characterizing stream condition, predicting response, establishing criteria / requirements, or evaluating the effectiveness of management actions. Selection of tools should also consider the type of output, intensity of resource requirements (i.e., data, time, cost), and the extent to which uncertainty is explicitly addressed. It is important to note that deterministic modeling without accompanying probabilistic analysis may mask the uncertainties inherent in predicting hydromodification effects. Short-term and long-term recommendations for the application and improvement of tools to support the management framework are shown in Table ES-2.

Although there is sufficient scientific and engineering understanding of hydromodification causes and effects to begin implementing more effective management approaches now, improvements should be informed and adapted based on subsequent monitoring data. To be useful, monitoring programs should be designed to answer questions and test hypotheses that are implicit in the choice of management actions, such that practices that prove effective can be emphasized in the future (and those that prove ineffective can be abandoned). The focus of monitoring efforts, however, needs to be tailored to the time frame of the questions being addressed and the implementing agency (Table ES-3), reflecting the dual goals and audiences of this document.

Table ES-2. Recommendations for the application and improvement of tools in support of the proposed management framework.

Time Frame	Programmatic: State and Regional Water Boards	Local: City and County Jurisdictions
Short-term (<10 years)	<ul style="list-style-type: none"> • Develop quality control and standardization for continuous simulation modeling • Perform additional testing and demonstration of probabilistic modeling for geomorphic response • Pursue development of biologically- and physically-based compliance endpoints 	<ul style="list-style-type: none"> • Work cooperatively with adjacent jurisdictions to implement hydromodification risk mapping at the watershed scale • Implement continuous simulation modeling for project impact analysis
Long-term (1+ decades)	<ul style="list-style-type: none"> • Improve tools for sediment analysis and develop tools for sediment mitigation design • Develop tools for biological response prediction • Improve tools for geomorphic response prediction 	<ul style="list-style-type: none"> • Expand use of probabilistic and statistical modeling for geomorphic response • Apply biological tools for predicting and evaluating waterbody condition

Table ES-3. Recommendations for hydromodification monitoring.

Time Frame	Programmatic: State and Regional Water Boards	Local: City and County Jurisdictions
Short-term (<10 years)	<ul style="list-style-type: none"> • Define the watershed context for local monitoring (at coarse scale) • Evaluate whether permit requirements are making positive improvements 	<ul style="list-style-type: none"> • Evaluate whether specific projects/regulations are meeting objectives • Identify the highest priority action(s) to take
Long-term (1+ decades)	<ul style="list-style-type: none"> • Define watershed context and setting benchmarks for local-scale monitoring (i.e., greater precision, if/as needed) • Demonstrate how permit requirements can improve receiving-water "health," state-wide (and change those requirements, as needed) 	<ul style="list-style-type: none"> • Evaluate and demonstrate whether actions (on-site, instream, and watershed scale) are improving receiving-water conditions • Assess program cost-effectiveness • Identify any critical areas for resource protection

Identifying and, ultimately, achieving the desired conditions in receiving waters requires multiple lines of evidence to characterize condition in an integrative fashion. At their most comprehensive, the chosen metrics should include measures of flow, geomorphic condition, chemistry, and biotic integrity. Biological criteria are key to integrative assessment: in general, biological criteria are more closely related to the designated uses of waterbodies than are physical or chemical measurements. This understanding is reflected in the State’s proposed bio-objectives policy, which includes explicit links to hydromodification management.

In summary, transitioning from the current site-based to a more effective watershed-based approach to hydromodification management that addresses both legacy and future impacts will require cooperation between the State and Regional Water Boards and local jurisdictions. Both technical and regulatory/program approaches will need to be updated or revised altogether over the next several permit cycles to realize this long-term goal. Substantial resources will be necessary to realize these goals; therefore, opportunities for joint funding and leveraging of resource should be vigorously pursued from the onset. This cooperative approach should replace the current fragmented efforts among regions and jurisdictions.

1. OVERVIEW AND INTENDED USES OF THE DOCUMENT

1.1 Overall Objectives and Intended Audience

Regulation and management of hydromodification is in its infancy in California. As with any new endeavor, initial attempts to meet this need is unproven, inconsistent, and relatively narrow in focus. To improve on existing efforts, the State Water Resources Control Board (SWRCB) has engaged a team of experts to provide technical support to both regulators and permittees for development of Hydromodification Management Plans (HMPs) and their associated permit requirements. This resulting document has two goals and hence two audiences.

The first goal of this document is to provide broad perspectives on what would constitute effective hydromodification assessment, management and monitoring, based on our current best scientific understanding of the topic. The audience for this goal is primarily the State and Regional Water Boards, since meeting this goal will require integration of watershed and site-scale activities that are likely beyond the control or responsibility of any individual municipality. Success will require fundamental changes in the regulatory and management approach to hydromodification that will likely be possible only iteratively and potentially requiring one or more NPDES permit cycles to fully implement. The State and Regional Water Boards will need to provide leadership in implementing these changes, but they will also need to work cooperatively with permittees so that planning, management and monitoring programs can be adapted to operate in a more integrated manner over the broader spatial scales and longer time frames that are necessary to achieve genuine success. Furthermore, hydromodification management plans will need to address preexisting conditions from previous (i.e., legacy) land uses. Clearly, addressing such past effects will require approaches beyond regulation of new development.

This document provides broad perspectives on what would constitute effective hydromodification assessment, management and monitoring, based on our current best scientific understanding of the topic. The document also provides near-term technical assistance for implementing current and pending hydromodification management requirements.

The second goal of this document is to provide near-term technical assistance for implementing current and pending hydromodification management requirements. This goal can be achieved by municipalities within the construct of existing programs, and therefore the primary audience for this aspect of the document is MS4 permittees. Achieving this goal will facilitate greater consistency and effectiveness between HMPs, giving them a stronger basis in current scientific understanding, and will also serve as initial steps toward realizing the broader goal stated above.

1.2 Rationale and Justification

The process of urbanization has the potential to affect stream courses by altering watershed hydrology and geomorphic processes. Development and redevelopment can increase impervious surfaces on formerly undeveloped landscapes and reduce the capacity of remaining pervious surfaces to capture and infiltrate rainfall. The most immediate result is that as a watershed develops, a larger percentage of

rainfall becomes surface runoff during any given storm. In addition, runoff reaches the stream channel much more efficiently, so that the peak discharge rates for floods are higher for an equivalent rainfall than they were prior to development. This process has been termed hydromodification. In some instances, direct channel alteration such as construction of dams and channel armoring has also been termed “hydromodification.” Such direct alterations are not the focus of this document. Rather, this document focuses on the geomorphic and biological changes associated with changes in land use in the contributing watershed, which in turn alter patterns and rates of runoff and sediment yield. These changes can result in adverse impacts to channel form, stream habitat, surface water quality, and water supply that can alter habitat and threaten infrastructure, homes, and businesses.

The State and Regional Water Boards have recognized the need to manage and control the effects of hydromodification in order to protect beneficial uses in streams and other receiving water bodies. This recognition has led to the inclusion of requirements for development of “hydromodification management plans” (HMPs) in many Phase 1 and some Phase 2 Municipal Stormwater (MS4) permits. Most HMPs require the permitted municipalities to develop programs and policies to assess the potential effects of hydromodification associated with new development and redevelopment, to require the inclusion of management measures to control the impacts of hydromodification, and to develop monitoring programs to assess the effectiveness of HMP implementation at controlling and/or mitigating the impacts of hydromodification.

Development of HMPs is challenging for several reasons. First, there are few accepted approaches for assessing the impacts of hydromodification. Traditional modeling tools are generally untested and may be difficult to apply or inappropriate for use in some California watersheds and streams. Responses of streams to hydromodification are difficult to assess, given inherent climatic variability and the highly stochastic nature of rainfall and the resulting response of streams to runoff events. There are few local examples or case studies from which to draw experiences or conclusions.

As a result of these challenges, individual HMPs to date have utilized a variety of approaches with little coordination or consistency between them. Little information is available on the relative efficacy of any of these approaches. Furthermore, where approaches and tools developed for HMPs in one region of the State (or even from a different region of the country altogether) have been used in subsequent HMPs elsewhere, there has been little or no consideration of the effect of regional climatological or physiological differences on the transferability of analytical techniques and tools.

1.3 Need for an Expanded Approach

Current site-based hydromodification management approaches are limited in their ability to address the underlying processes that are responsible for most deleterious impacts of hydromodification. Hydromodification effects, by definition, are watershed-dependent processes that are influenced by water and sediment discharge, movement, and storage patterns that may be occurring up- or downstream of a specific project site. Ideally, then, the first step of any hydromodification management plan (HMP) should be a watershed analysis; management of processes at the site or project scale should be done only in the context of such a watershed analysis. Understanding larger-scale processes

facilitates prioritization of activities in areas of greatest need and allows for management measures to be located where they have the largest potential benefit, even if that is not on or adjacent to the project site where the current impact is occurring. It also allows for expansion of site based management beyond simple flow control and/or channel stabilization toward strategies that consider flow, sediment, and biological conditions as an integrated set of desired endpoints.

Because watershed boundaries are often not the same as geopolitical boundaries of cities or counties, incorporation of watershed analysis will require leadership from the State and Regional Water Boards. Changes to the current regulatory structure may be necessary to accommodate inter-jurisdictional cooperation and regional information sharing. Similarly, program implementation by both large and small municipalities must include mechanisms that allow site-specific decisions to be informed by watershed-scale analysis.

This document is intended to help address some of these challenges and needs by providing technical recommendations, both to state and regional program developers and to local implementing agencies, for assessment, modeling, development of management strategies, and monitoring. This document can support current HMP development and, at the same time, serve as a first step toward achieving the longer term goals of more integrated, watershed-based hydromodification management.

Adopting this broader approach means that managing the effects of hydromodification cannot be the purview of the stormwater (MS4) program alone. Effective management of hydromodification will require coordinated approaches across programs at the watershed scale that address all aspects of runoff, sediment generation and storage, instream habitat, and floodplain management. Various SWRCB programs have the opportunity and ability to contribute to the goals of comprehensive hydromodification management, including the non-point source control program, water quality certifications, waste discharge requirements, basin planning, SWAMP, and the emerging State Wetland Policy and Freshwater Bio-objectives program. Each of these programs can take advantage of the tools and approaches outlined in this paper to contribute to coordinated management of hydromodification in order to protect beneficial uses and meet basin plan objectives. Furthermore, successful control and mitigation of hydromodification effects will support other programs by improving water quality, enhancing groundwater recharge, and protecting habitat. Therefore, hydromodification management can be a unifying element of many programs and support integrated regional watershed planning.

It is important to note that hydromodification has the potential to affect all water body types; therefore, HMPs should address potential effects to all streams and receiving waters. Because streams are most directly affected by hydromodification, they have been the focus of current regulatory requirements and, therefore, most HMPs. Consequently, this document emphasizes tools and approaches applicable

Current site-based approaches are limited in their ability to address the underlying processes that are responsible for hydromodification impacts.

Effective management of hydromodification will require coordinated approaches across programs at the watershed scale that address all aspects of runoff, sediment generation and storage, instream habitat, and floodplain management.

to fluvial systems, which are broadly defined to include wadeable streams, large rivers, headwater streams, intermittent and ephemeral drainages, and alluvial fans (although new specific tools may be necessary for assessment and management of alluvial fans). We recognize, however, that hydromodification can also affect nearshore and coastal environments, including bays, harbors, and estuaries, by altering estuary channel structure, water quality, sand delivery, siltation, and salinity. These effects have been less extensively studied or documented and have received substantially less attention in current hydromodification requirements. Future efforts should more directly address hydromodification effects to all receiving waters, but the information is not presently available to provide equally comprehensive guidance here.

1.4 Scope and Organization

This document is not intended to be prescriptive or to serve as a “cookbook” for development of hydromodification management strategies. Rather, it is a resource to evaluate the utility of existing tools and approaches, and it proposes a framework for integrating multiple approaches for more comprehensive assessment and management. This framework should be used to aid in the development of HMPs that are appropriate for specific regions and settings and take advantage of the best available science. It can also be used to improve consistency in assessment and monitoring approaches so that information collected across regions and programs can be compiled and leveraged to provide more comprehensive assessments of the effectiveness of management actions. Ultimately, such consistency should improve the effectiveness of all programs.

The authors, a team of technical experts, developed the content for this document in consultation with agency staff and regulated entities. The document begins with a brief general discussion of the effects of hydromodification and stream response mechanisms, providing the best available science to support subsequent recommendations. The main body of the document focuses on presenting a proposed new management paradigm where site-based management is nested within an overall watershed assessment that accounts for past, current, and proposed future land use. The body of the document also includes a discussion of existing tools and how they can be used more effectively and appropriately to evaluate potential impacts and guide decisions on selection and design of management practices. The third major section of the document focuses on monitoring that includes evaluation of hydrologic, geomorphic, and biologic conditions with an overriding goal of adaptive management. The document concludes with several technical appendices that offer specific guidance on the appropriate application of tools and models within the existing HMP approaches, and a bibliography of resources.

2. HYDROMODIFICATION SCIENCE

2.1 Introduction

Land-use changes can alter a wide variety of watershed processes, including site water balance, surface and near-surface runoff, groundwater recharge, and sediment delivery and transport. Although alteration to these watershed processes (referred to collectively as hydromodification) can affect many elements of a landscape, the focus of this document is on impacts to stream systems. Furthermore, while this paper will often refer to urbanization, it is recognized that other types of land-use changes (grazing, agricultural, forestry, etc.) can have similar impacts. This section reviews relevant hydrologic processes and summarizes the impact of urbanization on hydrologic, biologic, and geomorphic systems, and it describes our current understanding of the physical mechanisms underlying these impacts. This provides a foundation for establishing assessment tools and predictive models, as well as for developing management and monitoring programs.

Although not addressed by this report, urbanization also has a range of effects on water quality (*Heaney and Huber 1984, Brabec et al. 2002*) by increasing pollutant loads (*Owe et al. 1982*), increasing nutrient loads (*Wanielista and Yousef 1993, Hubertz and Cahoon 1999*), and diluting dissolved minerals through increased runoff and decreased infiltration and soil contact (*Loucaides et al. 2007*). As a result of both its physical and chemical effects, urbanization also affects the integrity of biota (*Heaney and Huber 1984*) including fishes (*Klein 1979, Weaver and Garman 1994, Wang et al. 2000*) and invertebrates (*Sonneman et al. 2001, Wang and Kanehl 2003*). These impacts are acknowledged and evaluated in the discussion of monitoring Section 4, but the details of their interactions and effects are not otherwise addressed here.

Land-use changes can alter a wide variety of watershed processes, including site water balance, surface and near-surface runoff, groundwater recharge, and sediment delivery and transport. Alteration to these watershed processes are referred to collectively as hydromodification.

2.2 Hydrology Overview

To understand the effects of urbanization, the basic processes of the hydrologic system must be highlighted. A watershed's drainage system consists of all the features of the landscape that water flows over or through (*Booth 1991*). These features include vegetation, soil, underlying bedrock, and stream channels. Urban elements such as roofs, gutters, storm sewers, culverts, pipes, impervious surfaces such as parking lots and roads, and cleared and compacted surfaces fundamentally change the rate and character of hydrologic processes. Generally, the hydrologic changes associated with development and urbanization increases the speed and efficiency with which water enters and moves through the drainage system. In undeveloped watersheds, only a portion of the precipitation that falls ever enters the stream channel. Instead, precipitation may be: 1) evaporated off the ground surface or intercepted by vegetation and evaporated; 2) transpired from the soil; or 3) infiltrated deeply into regional aquifers. For the portion of precipitation that ultimately enters the stream, the rate and processes of delivery vary between watersheds, with important implications for how urbanization will affect runoff.

Flow can be classified as stormflow (or “quickflow”) if it enters the stream channel within a day or two of rainfall (*Dunne and Leopold 1978*). Quickflow occurs through 1) infiltration excess (also called “Horton”) overland flow, wherever rainfall intensity exceeds the infiltration capacity of the soil and water flows over the ground surface; 2) saturation excess overland flow, where overland flow occurs following filling of all pore space in surface soils; 3) shallow subsurface flow, where water flows relatively quickly through permeable shallow soils (but still more slowly than either Horton or saturation overland flow); and 4) precipitation directly into stream channels. Conversely, water that infiltrates more deeply is classified as delayed flow, because it travels slowly as deep groundwater and emerges into a stream slowly over time.

As a storm progresses, runoff patterns and rates can change, even within the same catchment. For example, surficial soils may become saturated during the course of a storm (or a storm season) as the water table rises, and this can induce a shift in runoff from shallow (or even deep) subsurface flow to the quickflow process of saturation excess overland flow (*Booth 1991*). Even under scenarios in which rainfall intensity exceeds infiltration capacity, Horton overland flow will not be connected to stream channels until surface depressions are filled.

2.3 Impacts of Urbanization

The archetypal model of development involves clearing vegetation; grading, removing, and compacting soils; building roads and stormwater sewers; constructing buildings; and re-landscaping. The specific ways in which these activities alter runoff processes are discussed below. Development may also directly alter stream, such as through channel straightening, levee construction, and flood control reservoirs; however, discussion of the impacts of these alterations is beyond the scope of this document.

2.3.1 Decreased Interception

When rainfall occurs in a watershed, some of the precipitation will be intercepted by vegetation and leaf litter and prevented from entering the stream channel network (Figure 2-1). The percentage of precipitation that can be intercepted varies according to cover type and the character of rainfall (rainfall intensity, storm duration, storm frequency, evaporation conditions) (*Dunne and Leopold 1978*). The effectiveness of interception decreases as a storm progresses because once the surface area of a tree is completely wetted, water will drip off leaves and run down the vegetation as stem flow. Typically, 10-35% of precipitation is intercepted by trees and 5-20% by crops, though these amounts vary widely (*Dunne and Leopold 1978, Xiao and McPherson 2002, Reid and Lewis 2009, Miralles et al. 2010*). In urban environments where vegetative cover is greatly reduced, landscape-scale interception may be lower by an order of magnitude (*Xiao and McPherson 2002*). Precipitation that is not intercepted enters the drainage system. Thus, the mere reduction in interception in urban areas may produce the hydrologic equivalent of a storm that is 10-30% larger.



Figure 2-1. Vegetation reduces runoff by intercepting a portion of the total rainfall and preventing water from entering the drainage system. (Illustration by Jennifer Natali).

The influence of urbanization on climate is complex and varied. For example, urbanization has been shown to increase temperature (*Kalnay and Cai 2003*), increase or decrease wind speeds (*Oke 1978, Balling and Brazel 1987, Grimmond 2007*), increase pan-evaporation rates (*Balling and Brazel 1987*), and increase shading of the ground surface (*Kalnay and Cai 2003*). In most studies of urban hydrology, the dynamics of evapotranspiration (ET) are typically, explicitly or implicitly, ignored (*Grimmond and Oke 1999*). This exclusion exists because of the widespread assumption that urban ET is negligible compared to rural areas with higher proportions of vegetation-covered soils (*Chandler 1976, Oke 1979*). In cases such as urban deforestation in the temperate Eastern United States, it is appropriate to assume a net loss of ET due to urbanization (*Bosch and Hewlett 1982, Sun et al. 2005, Roy et al. 2009*). However, spatial variability and the site-specific dynamics of climate, vegetation, and land-use should be considered carefully in arid and semi-arid regions where vegetation is limited prior to development. In drier climates (including much of southern California), primary productivity (and ET) may be substantially increased through the irrigation of urban landscaping (*Buyantuyev and Wu 2008*).

2.3.2 Decreased Infiltration

Infiltration in urban areas is decreased due to several factors: impermeable surfaces such as roads, parking lots, and roofs prevent infiltration by blocking water from reaching soils; heavy-equipment construction operations cause soil compaction and degrade soil structures; construction projects may remove surface soils and expose subsurface soils with poorer infiltration capacity; vegetation-clearing and bare-earth construction increase erosion and loss of topsoil (*Pitt et al. 2008*). The effect of impervious surfaces is intuitive, visible, and dramatic (*Booth and Jackson 1997*), but not all impervious areas affect runoff processes equally. For example, if an impervious surface is built over clayey soils with poor infiltration, the overall runoff rates will be less affected than if built over sandy soils with high natural infiltration rates. While the loss of pervious area has received substantial attention within scientific and policy communities, until recent years considerably less attention has been paid to the effects of compaction and the reductions in infiltration capacity of soils (*Pitt et al. 2008*). Commonly, an area of green is assumed to be permeable, but playing fields and even ornamental lawns may have very

low infiltration capacities (*Pitt et al.* 2008). A study of urban runoff in Washington found that impervious areas generated only 20% more runoff than what appeared to be green, pervious areas of lawns (*Wigmosta et al.* 1994). Factors such as excavation and lawn-establishment methods appear to be more significant for infiltration than any other factor including grain size of the original sediments (*Hamilton and Waddington* 1999). Tillage may increase infiltration slightly, while compost or peat soil amendments can increase infiltration by 29 to 50 percent (*Kolsti et al.* 1995).

2.3.3 Increased Connectivity and Efficiency of the Drainage System

Rainfall in urban areas moves quickly as overland flow into storm sewers and the stream channel network (Figure 2-2). The delivery of precipitation into urban stream channels is extremely efficient, transforming essentially all precipitation into stormflow and creating nearly instantaneous runoff. Under natural conditions, in contrast, most runoff to streams is via groundwater paths that typically flow at least one or two orders of magnitude slower than surface water. Thus converting subsurface flow into surface stormflow has dramatic consequences. Furthermore, artificial surfaces such as roofs, pavement, and storm sewers are 1) straight, which shortens the travel distance required for delivery into the channel network; and 2) smooth, which decreases friction and allows flow to travel more quickly than in natural channels (*Hollis* 1975). Storm sewer systems increase the density of “channels,” which further shortens runoff travel distances (Figure 2-3). In particular, upland regions that may not have had any surface channels prior to urbanization are frequently fitted with storm sewers, which dramatically increase delivery efficiency into the channel network (*Roy et al.* 2009). In sum, urbanization transforms watershed processes and flow paths that were once slow, circuitous, and disconnected into engineered and non-engineered systems that are highly efficient, direct, and connected.

In contrast to the slow measured runoff to natural streams by surface and subsurface pathways, the delivery of precipitation into urban stream channels is extremely efficient, transforming essentially all precipitation into stormflow and creating nearly instantaneous runoff.

2.3.4 Decreased Infiltration into Stream Beds

Concreting of bed and banks, channel narrowing, and channel straightening limit infiltration from a stream into the ground. Concrete channel margins create infiltration barriers, while channel narrowing and straightening limit the surface area accessible for infiltration and also create a less complex channel. Channel complexity such as pools, riffles, steps, and debris dams create hydraulics that slow flow velocities and also divert water into the subsurface (*Lautz et al.* 2005). In arid and semi-arid watersheds where streams may flow only occasionally, infiltration through bed, banks, and floodplain areas may significantly lower peak flows and may sustain aquifers vital to regional water supplies and natural habitats (*Kresan* 1988, *Dahan et al.* 2008). Increasing recognition is being paid in the scientific literature to the infiltration services provided by natural channels and floodplains (*Macheleidt et al.* 2006, *Schubert* 2006).

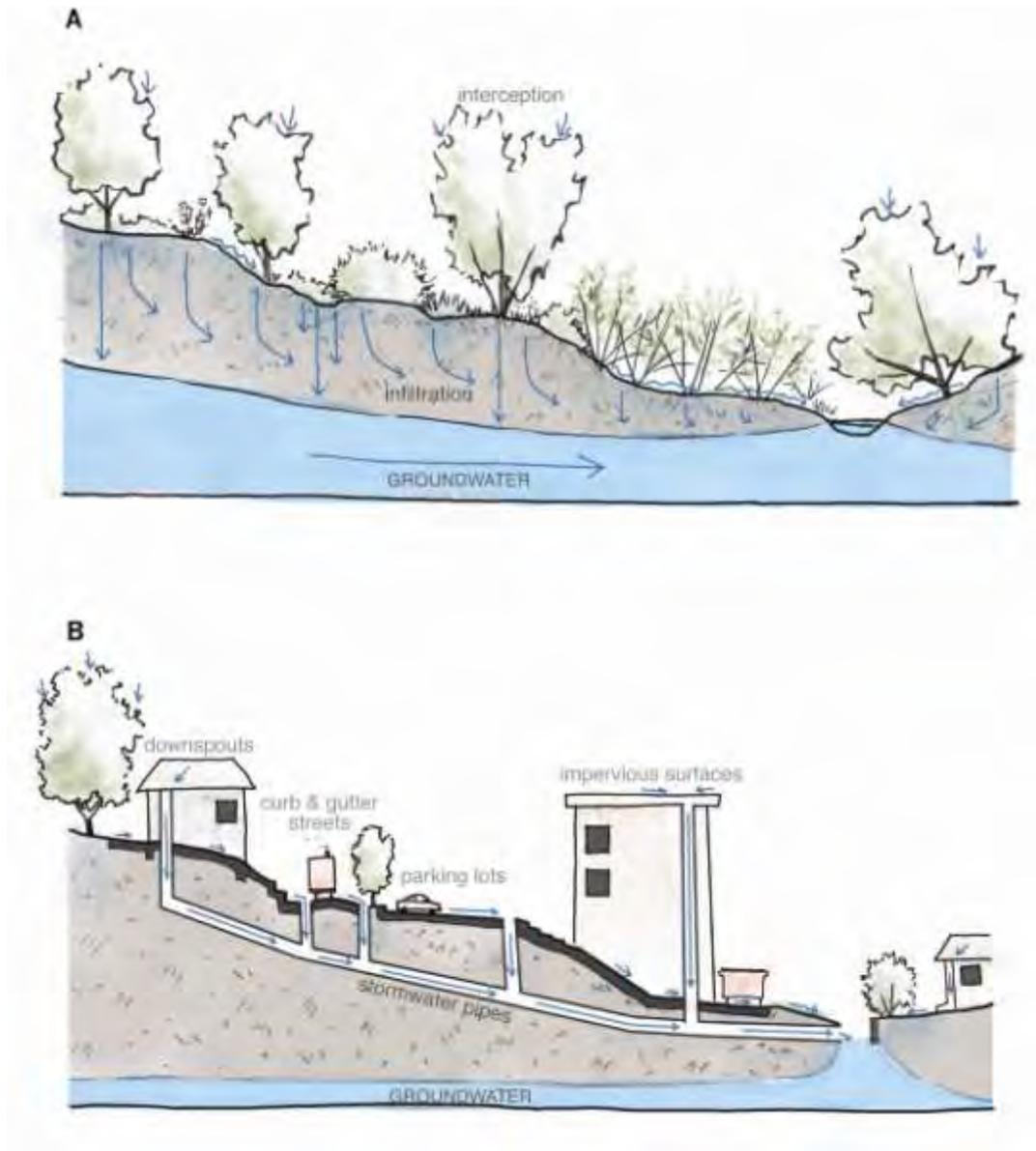


Figure 2-2. Stormwater flowpaths are shortened and quickened through paving, building, soil compaction, and sewer infrastructure. The rapid concentration of streamflow increases storm peaks. Rapid runoff and reduced infiltration prevent groundwater recharge. (Illustration by Jennifer Natali).

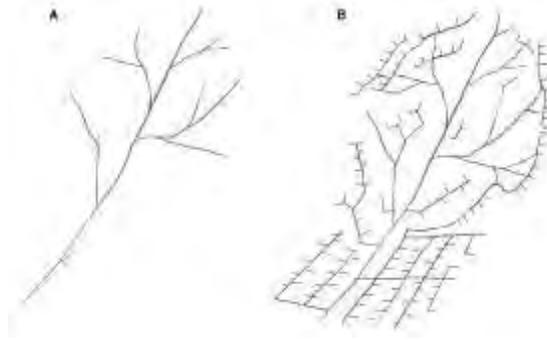


Figure 2-3. Increased surface runoff causes an extension of the channel network. This occurs through increased channel erosion or through constructed networks (to manage increased surface flow). The expanded channel network delivers runoff to downstream reaches much more efficiently. (Illustration by Jennifer Natali).

2.4 Changes in Instream Flow

The instream flow changes resulting from urbanization depend upon site-specific watershed and development characteristics, but typically they include modification of the timing, frequency, magnitude, and duration of both stormflows and baseflow. Urbanization has been shown to increase the magnitude of stormflows, increase the frequency of flood events, decrease the lag time to peak flow, and quicken the flow recession (Figure 2-4; Hollis 1975, Konrad and Booth 2005, Walsh et al. 2005). Because the effects of urbanization manifest differently for different components of the hydrograph, the hydrologic alterations of moderate storms, large storms, and baseflow are discussed individually below.

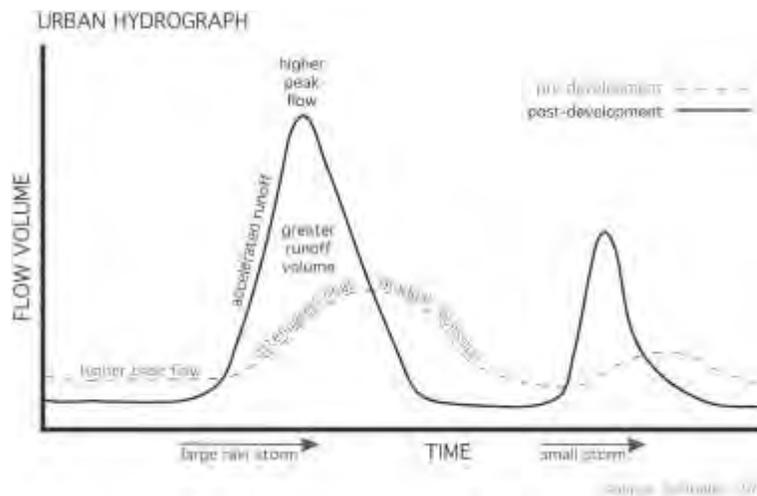


Figure 2-4. Increased runoff efficiency causes higher magnitude peak flows, shorter duration runoff events, decreased baseflow, and dramatic increases in small storms that may have generated little or no runoff under pre-development conditions. (Illustration by Jennifer Natali).

2.4.1 Moderate Stormflow

Urbanization of a watershed can drastically increase the frequency and magnitude of small and moderate flow events (Hawley and Bledsoe 2011). The magnitude of flow amplification increases generally in proportion to the amount of impervious area (*Leopold 1968, Hollis 1975*). For example, flows with a return period of one year or longer were shown to be unaffected by paving 5% of the watershed, yet the magnitude of a one-year flow could be more than ten times higher when 20% of a watershed is paved (*Hollis 1975*). In undeveloped watersheds, small storms may not generate any overland flow or streamflow increase at all, because interception, infiltration, soil absorption, and evapotranspiration contain all the precipitation.

The change to a flashier regime with larger magnitude streamflow generated from small and moderate storms has two primary consequences. First, the stream power and sediment-transport capacity of the stream increase significantly, potentially creating channel erosion and/or stressing instream biota. Second, the season of stormflow is likely to be extended. In undeveloped watersheds, early or late-season storms typically do not generate significant runoff because soils are dry, can effectively absorb most precipitation, and therefore do not generate overland flow or streamflow. Antecedent moisture conditions are less important in urban watersheds where overland flow is generated regardless, and streamflow is generated by even a small storm in a dry watershed. Through magnifying small and moderate storms, urbanization may increase the duration of sediment-transporting and habitat-disturbing flows by factors of 10 or more (*Booth 1991, Booth and Jackson 1997*).

Urbanization of a watershed can drastically increase the frequency, duration, and magnitude of small and moderate flow events by factors of 10 or more.

2.4.2 Large, Infrequent Storms

In large storms with return intervals of 10 or more years, the influence of urbanization is less pronounced though still present. Whereas a 1-year stormflow may be increased by ten times by paving 20% of the watershed, historical data from humid-region watersheds suggest that the peak magnitude of a 100-year flood would not even be doubled (*Hollis 1975*). The diminishing influence of urbanization on floods of higher recurrence intervals is understood by recognizing that the hydrologic processes of large storms resemble the processes of urban runoff. Essentially, a 100-yr flood is an event that is long in duration, severe in intensity, and likely occurs when soils are already wet. Even in an undeveloped watershed, a storm of this magnitude can typically generate (saturation) overland flow and transport water efficiently into the channel network in a manner more generally comparable to an urban setting.

2.4.3 Baseflow

Urbanization does not affect instream baseflows consistently. Many studies have documented baseflow reductions and/or lowered groundwater levels that have been attributed to decreased infiltration (*Simmons and Reynolds 1982, Ferguson and Suckling 1990*) and groundwater extraction (*Postel 2000*). In extreme cases, baseflow in urban watersheds can disappear completely during drought years, dry

seasons, or even between storm events during the wet season. The effect of reducing infiltration may be counteracted in urban and suburban landscapes, however, through irrigation of lawns, parks, golf courses, and other water inputs such as septic systems, leaky pipes, and sewage treatment outflow which typically import water from outside the watershed and contribute to both streamflow and groundwater recharge (Konrad and Booth 2005, Walsh et al. 2005, Roy et al. 2009). Indeed, imported water volumes in very dense cities may be an order of magnitude greater than precipitation. Lerner (2002) judged that leakage in water importation and delivery infrastructure typically ranges from 20-50%, and in general this leakage will increase groundwater recharge in urban areas. Similarly, other studies have found municipal irrigation capable of raising groundwater levels and causing surface flooding (Rushton and Al-Othman 1994) and changing ephemeral streams into perennial streams (Rubin and Hecht 2006, Roy et al. 2009). In summary, the magnitude and direction baseflow and groundwater recharge alteration depends on climate, land use, water use, and the infrastructure system of the watershed. There are no simple “rules.”

2.5 Changes in Sediment Yield

The role of watershed sediment yield in the behavior of watersheds was first characterized systematically by Wolman (1967) in a three-part conceptual framework of how rivers respond to urban development, in which 1) pre-development quasi-equilibrium conditions are followed by 2) a period of active construction involving grading, vegetation removal, and bare earth exposed to erosion; and 3) the establishment of an urban landscape consisting of pavement, houses, gutters and sewers etc. The construction period is marked by an increase in sediment (typically 2-10 times pre-development rates) produced from bare surfaces and the disturbances associated with construction (Chin 2006). The sediment produced during construction is often deposited within stream channels, initiating aggradation and/or channel widening. Following the construction period, sediment production decreases (Figure 2-5) and runoff increases, resulting in increased transport capacity and the potential for severe channel erosion that can result in channel enlargement of commonly 2-3 (and as much as 15) times the original channel cross-section (Chin 2006). Changes in post-construction sediment production rates are not well studied, though case studies have found sediment yields in post-construction watersheds to be somewhat higher than rural, undeveloped basins.

The combination of increased runoff and decreased sediment production can result in channel enlargement of commonly 2-3 (and as much as 15) times the original channel cross-section.

Post-construction sediment loads are typically derived from channel enlargement as a result of increased peak flows and the legacy of construction-phase disturbance (Trimble 1997, Nelson and Booth 2002). The rate of decline in post-construction sediment yields is therefore predominantly controlled by the degree of channel instability caused by the construction phase and the effect of increased peak flows. If the channel margins are armored, densely vegetated, or otherwise erosion resistant, sediment yields may decline quickly following urbanization. If channel instability ensues, elevated sediment yields may persist for decades or more.

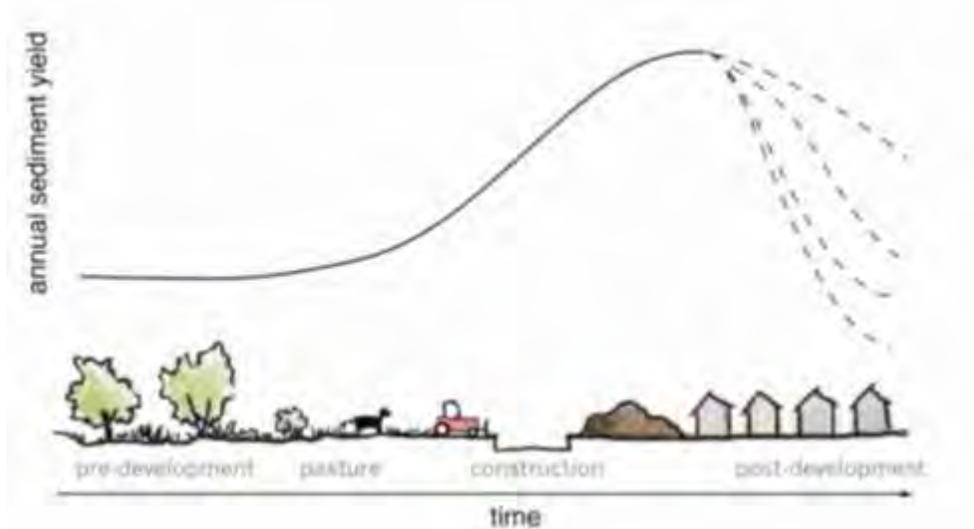


Figure 2-5. Increased sediment yields occur during the land-clearing and construction phases of development. Post-construction sediment yields decrease, though the rate of decrease varies considerably depending on the degree of channel instability caused by the construction phase and by increased runoff. (Illustration by Jennifer Natali).

2.6 Impacts on Channel Form and Stability

Channel form and stability reflect both hydrologic and geomorphic processes. Changes to runoff characteristics and sediment supply can affect all aspects of stream morphology, including planform, cross-sectional geometry, longitudinal profile, bed topography (e.g., pools, riffles), and bed sediment size and mobility. While many factors influence the type and degree of impacts (discussed below), a suite of commonly observed morphological changes due to hydromodification include channel enlargement (incision and widening), decreased bank stability, increased local sediment yield from eroding reaches, overall simplification of stream habitat features such as pools and riffles, changes in bed substrate conditions, loss of connectivity between channel and floodplain (*Segura and Booth 2010*), and changes in sediment delivery to coastal waters (*Jacobson et al. 2001*). Impacts may also propagate upstream as headcuts resulting from reductions in base level due to excess erosion. Likewise, tributaries entering downstream of a developed area may also experience the upstream propagation of headcuts due to base level reductions of the mainstem.

In addition to *Jacobson et al. (2001)*, two well-researched literature reviews of morphological impacts (as well impacts to riparian habitat and biota) can be found in: “Impacts of Impervious Cover on Aquatic Systems” by The Center for Watershed Protection (2003) and “Physical Effects of Wet Weather Flows on Aquatic Habitats: Present Knowledge and Research Needs” published by Water Environment Research Foundation (*Roesner and Bledsoe 2003*). Note that these two studies differ significantly in how they

synthesize and interpret the reviewed literature, and the CWP publication acknowledges that it does not necessarily apply to streams in the arid west.

2.6.1 Physical Principles Underlying Channel Impacts

A convenient conceptual framework for the physical impacts of hydromodification on stream morphology is “Lane’s Balance” (Lane 1955; Figure 2-6). This framework encapsulates a fundamental (albeit qualitative) relationship between the hydrologic and geomorphic processes that balance water flow and sediment in a channel. It expresses the condition of sediment transport capacity, as controlled by water discharge and slope, in broad balance with the supplied load and size of bed sediment for a channel in equilibrium. An increase in streamflow or a decrease in sediment supply (for example) will typically initiate a corresponding decrease in slope and/or increase in grain size in order to reestablish equilibrium. That decrease in slope is expressed by channel incision or degradation. In contrast, an increase in sediment supply or decrease in streamflow will typically result in aggradation and a corresponding increase in slope.

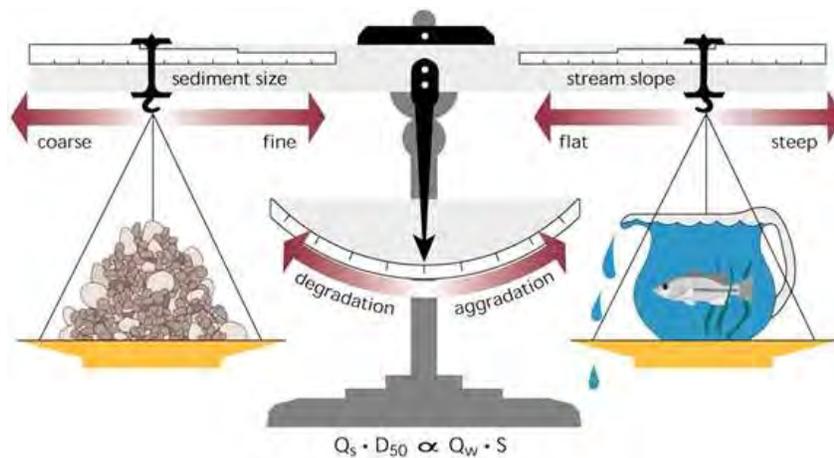


Figure 2-6. Lane’s Balance, showing the interrelationship between sediment discharge (Q_s), median bed sediment size (D_{50}), water discharge (Q_w), and channel slope (S).

Slope and grain size are not the only modes of adjustment, as stream channels have many more degrees of freedom in responding to changes in streamflow and sediment supply. For example, Schumm (1969) extended Lane’s Balance to include width, depth, sinuosity, and meander wavelength. More quantitatively (and more complexly), adjustments to channel form resulting from hydromodification are controlled by interactions among flow-generated shear stresses (described by hydraulic equations for open channel flow, as a function of channel geometry, roughness, and longitudinal slope), inflowing sediment load, and the shear strength of the bed and bank sediments (a function of their size distribution and cohesiveness).

2.6.2 Natural Variability in Stream Systems

Understanding natural variability in streams is critical to predicting and assessing anthropogenic impacts. A stream may be considered “stable” or “at equilibrium” when its overall planform, cross-section and profile are maintained with no net degradation or aggradation within a range of variance, over extended timeframes (*Mackin 1948, Schumm 1977, Leopold and Bull 1979, Biedenharn et al. 1997*). Such systems can often withstand short-term disturbances without significant change. Even without discrete disturbances, natural streams may be in a state of dynamic equilibrium (*Schumm 1977*), where the channel exhibits stability over the long term even while actively migrating laterally such that erosion of outer banks is accompanied by sediment deposition and bar building on inner banks. Streams may also be fluctuating between aggradation/ degradation/ stability, all within a limited range of conditions. A large-scale event, like a flood or landslide, can cause dramatic changes in channel form, but the channel will often re-established its pre-event planform, geometry and slope over time.

In contrast, a persistent alteration like hydromodification can cause the rate of change to increase. As a result, the channel may begin an evolutionary (or catastrophic) change in morphology, leading to enlargement and instability. A geomorphic threshold is the condition at which there is an abrupt and significant channel adjustment or failure because the channel has evolved to a critical situation. It is the condition at which the proverbial straw breaks the camel’s back. Channels that are near a geomorphic threshold can exhibit significant adjustments in response to a relatively small degree of hydromodification. For example, a channel with banks that are near the height and angle for geotechnical failure may widen abruptly due to slight incision.

2.6.3 The Role of Sediment Transport and Flow Frequency in Channel Morphology

Extensive research has been devoted to establishing specific relationships between flow frequency and characteristics of channel morphology. The concept of “effective discharge” was introduced by Wolman and Miller (1960), using a magnitude-frequency analysis to assess the effectiveness of flow events to transport sediment. They concluded that, for the rivers in their analysis, relatively frequent events (occurring on average about 1 times/year) are most effective over the long term in transporting sediment. This concept has formed the basis for a large body of literature (and occasional controversy) over the subsequent five decades relating to the relationships between these flow frequencies and principal channel dimensions (e.g., bankfull stage, width-to-depth ratio), and the application of these relationships to stream design and restoration, as well as prediction and control of hydromodification impacts. Much of the controversy has related to the use of a single event (“dominant discharge” or “bankfull flow”) as the basis for such applications, with the implicit assumption that control for that single discharge will result in commensurate channel changes regardless of the distribution of flow frequencies and flow durations over a wider range of discharges.

More recently, the concept of a *range* of moderately frequent, “geomorphically significant” flows that transport the majority of the sediment over the long term (King County 1990, *Bledsoe 2002, Roesner and Bledsoe 2003*) was proposed to replace the focus on a single event. The geomorphically significant flow range is considered to be the most influential in determining channel form, as this collective group

of flows typically does the most “work” on the channel boundary over engineering time scales. Controlling changes to the frequency of flows within this range is therefore critical to reducing impacts to stream morphology, and is the scientific basis for the “flow-duration” control criteria discussed in the following sections. A flow-duration criterion aims to match the pre-development volumes, durations, and frequencies of this critical range of sediment transporting flows over a period of many decades. Even this concept, however, relies on the implicit assumption that infrequent large events, no matter how dramatic their effects, typically occur “too infrequently” to reset channel morphology and habitat over the timescales of concern in meeting regulatory requirements. These events are typically managed through traditional flood control practices as opposed to hydromodification management.

A flow-duration management approach aims to match the pre-development volumes, durations, and frequencies of this critical range of sediment transporting flows over a period of many decades.

2.6.4 Applicability to California Streams

The traditional concepts of dynamic equilibrium in streams and geomorphically significant flows, discussed above, derive largely from studies on perennial streams in humid areas. An important question is: to what extent do these concepts apply to managing hydromodification impacts to streams within arid and semi-arid areas (such as large portions of California, and particularly the southern and eastern regions)? In such climate regions, precipitation is highly variable, with low annual totals and episodic, large events. Many streams are ephemeral or intermittent and located in a setting of extremely high sediment production associated with erosive geology resulting from high rates of tectonic uplift, sparse vegetative cover and frequent fires (*Graf 1988, Stillwater Sciences 2007*). These streams are often characterized by multi-thread sand-bed channels that are inherently unstable and readily respond to changes in flow conditions. In the ephemeral streams described by Bull (1997), for example, the natural behavior is one of alternating periods and locations of aggradation and degradation, varying both temporally and spatially. In such “episodic” streams, the vast majority of sediment may be moved by extreme, highly infrequent events. The importance of understanding the role of episodic events has been emphasized for semi-arid and arid fluvial systems (e.g., *Wolman and Gerson 1978, Brunsden and Thornes 1979, Yu and Wolman 1987*). The latter authors reviewed concepts of frequency and magnitude in geomorphology research and noted that episodic behavior hinges on frequency of episodic events relative to the time required to return to an “equilibrium” channel form. Episodic behavior is more prevalent where the average long-term disturbance is low but the year-to-year variability is high, a characteristic of arid and semi-arid climates.

Although the morphology of arid and semi-arid streams may be more strongly influenced by extreme events under natural conditions, hydromodification has nevertheless been shown to cause rapid and significant physical changes in such California streams (*Trimble 1997, Coleman et al. 2005, Hawley and Bledsoe 2011*). Such dramatic responses to the effects of urbanization on relatively frequent flows, often over periods of a decade or less, have profound implications for aquatic life and physical habitat. Despite the flashy streamflow regimes, high sediment supplies, and steep gradients of many streams in the region, the responses of California streams are controlled by the same physical processes as those in

other regions that have been studied more extensively. As such, the key controls of stream response can be identified and managed to mitigate the chronic effects of hydromodification between infrequent extreme events. However, it is always advisable to ensure that the application of tools and approaches for prediction and assessment should be based on reference data and empirical models (where applicable) drawn from stream types that are similar in both hydrologic and geomorphic characteristics.

2.6.5 Factors Determining Extent of Impacts

The extent and nature of impacts to stream morphology and habitat from a given change in runoff and sediment supply vary widely, depending on the channel geometry, longitudinal slope, channel material type(s) and size(s), and the type and density of channel vegetation (*Center for Watershed Protection 2003, Roesner and Bledsoe 2003*). For example, increased flows within a deep, narrow channel may result in significantly higher shear stresses at the bed; this same increase in a wide, shallow channel may become predominantly overbank flow, with less effect on bed shear stress. Where all other factors are equal, fewer impacts would be expected where flows have access to broad overbank areas (i.e., floodplains) during relatively common floods (*Segura and Booth 2010*), channel materials are more resistant, and stabilizing riparian vegetation is present. Conversely, where erosion and bank instability result in the loss of vegetation reinforcement, a positive feedback response may cause erosion to be accelerated. Furthermore, the relative erosive resistance of bed and bank materials will influence the extent of lateral versus vertical channel adjustments (*Simon and Rinaldi 2006, Simon et al. 2007*). For example, if bank resistance is lower than bed resistance, then the channel will tend to widen rather than deepen.

The extent of impacts will also depend on the stream's physiographic context and spatial and temporal patterns of urban development within the watershed (*Konrad and Booth 2005*). Large-scale studies of hydrologic responses to urbanization (*Chin 2006, Poff et al. 2006*) also highlighted the regional variation in these responses and reinforced the need to understand local watershed and channel characteristics when managing hydromodification impacts. The presence of road crossings and other infrastructure can provide local grade control and create sediment bottlenecks which often translate to exacerbated erosion in the immediately downstream areas.

The extent and nature of impacts to stream morphology and habitat from a given change in runoff and sediment supply vary widely, depending on the channel geometry, longitudinal slope, channel material type(s) and size(s), and the type and density of channel vegetation, and the spatial and temporal patterns of urban development

An additional consideration relates to the pre-development balance between sediment and streamflow, which is dependent on precipitation patterns, the location of a stream reach within the watershed, the associated sediment behavior of that reach (i.e., production, transport or deposition zone), and local rates of sediment production.

While many of these factors may be quantified for a given time and location, stream systems are enormously complex both spatially and temporally. The existence of physical thresholds and feedback systems can cause an incremental change to result in a disproportionately large response (*Schumm 1977, 1991*). Furthermore, there may be significant temporal lags between the point in time at which

land use is altered and when channel impacts are observed (Trimble 1995, 1997). In recognition of these effects and the associated uncertainty, predictive models and management tools may present results in terms of probabilities or within the context of a risk-based approach, as discussed further in this document. Such effects also have substantial implications for the design of assessment and monitoring programs.

There may be significant temporal lags between the point in time at which land use is altered and when channel impacts are observed.

2.6.6 Impacts on Other Types of Receiving Waters

Although outside the scope of this document, hydromodification impacts to other water body types are recognizable and should be the subject of additional research and future consideration.

Wetlands, Estuaries, and Coastal Ecosystems. Urbanization can alter water quality, quantity and sediment delivery to wetlands and sensitive coastal ecosystems. Urbanization has led to loss or degradation of wetlands and estuaries as a result of 1) draining and conversion to agriculture (Dahl, 1997); 2) upstream alterations to flow and sediment regimes that can change the magnitude, frequency, timing, duration, and rate of change of estuarine salinity, turbidity, freshwater flooding, freshwater baseflow, and groundwater recharge dynamics (Azous and Horner 2001); and 3) contaminated runoff from urban areas (Paul and Meyer 2001, J Brown et al. 2010). Urbanization may also lead to coastal erosion in circumstances where reservoir sediment trapping or post-development decreases in sediment yield reduce the sediment supply to the coast (Pasternack et al. 2001, Syvitski et al. 2005).

Alluvial Fans. Alluvial fans are dynamic landforms that are under increased development pressure in recent decades, particularly in the expanding cities of the American West. Upstream urbanization, and the resultant flashier flow regime, shortens the time available for infiltration and groundwater recharge in alluvial fans. Furthermore, development on fans themselves results in channel straightening and/or construction of concrete flood conveyance channels that also reduce or eliminate infiltration. The reduction in infiltration amplifies the flood risk further downstream. Additionally, alluvial fans may be more vulnerable than other landscapes to channel instability resulting from hydromodification, because they lack intrinsic geologic controls on channel gradient, and commonly have little vegetation or bank cohesion to provide stability in the purely alluvial deposits (Chin 2006).

2.6.7 Influence of Scale

The ability to detect impacts from land-use changes depends upon the spatial and temporal scale at which they are measured. Issues of hydrograph timing and the relative size of the storm system with respect to the watershed area may confound relationships at larger spatial scales. Furthermore, a number of fluvial geomorphic features that are commonly used as metrics of geomorphic condition are scale-dependent. For example, width-depth ratio, tendency toward braiding, and channel depth relative to stable bank height all commonly increase downstream. Other factors, such as the influence of vegetation, depend on protrusion relative to width and rooting depth relative to bank height. The

temporal scale over which channel changes occur will be influenced by precipitation variability, in addition to the many physical factors already discussed.

These scale considerations, as well as previous discussion of factors influencing stream response, are important when determining the choice of both management tools and monitoring approaches. It is generally much easier to predict the direction of response than the magnitude. Accurate, detailed predictions of response are difficult to make, and they are generally only possible when applied to specific locations, using extensive data input, to answer very specific questions; even then they are subject to uncertainty. Policies or assessment methods aimed to address a range of streams and geographic conditions are better suited to probabilistic approaches that explicitly acknowledge uncertainty, as described further in subsequent sections.

2.7 Impacts on Fluvial Riparian Vegetation

Stream channel form and stability is closely linked with the ecology of instream and floodplain habitats (Figure 2-7). Spatial and temporal distributions of plant communities are tied to moisture availability and seasonality. The ability of vegetation to stabilize soils, trap sediments, and reduce flow velocities (*Sandercock et al. 2007*) can create positive feedback that promotes further vegetation establishment and enhancement of these stabilizing features. This can result in a strong influence on channel geometric features, specifically channel narrowing (*Anderson et al. 2004*). The change in frequency of overbank flows resulting from channel incision will also affect riparian processes, including nutrient transfer and seed dispersal. For example, it is believed that *Tamarix* dominance over native species along Western US rivers would be less extensive if not for anthropogenic alteration of streamflow regimes (most recently supported by Merritt and Poff (2010)).

Impacts to stream biota may occur through the alteration of habitat structure and habitat dynamics caused by hydrologic and geomorphic changes, as well as directly from hydrologic alteration.

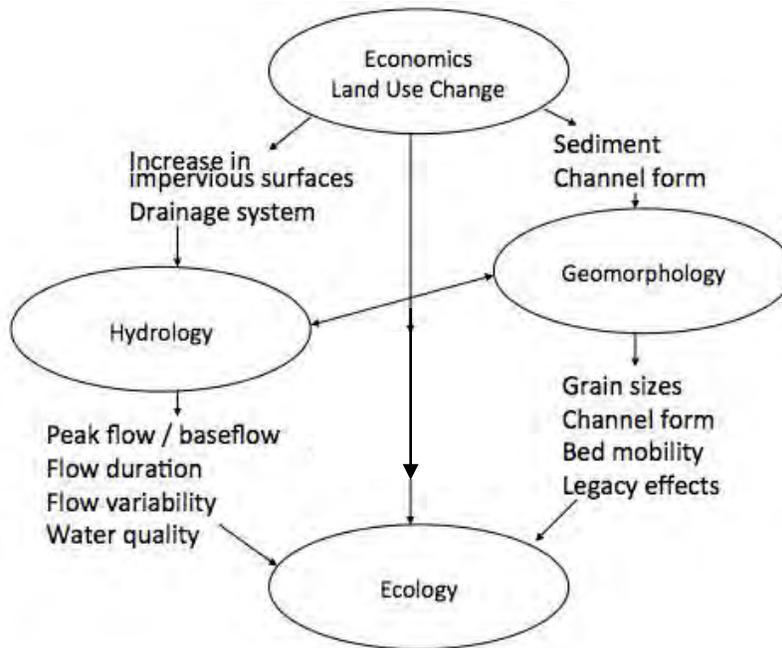


Figure 2-7. Land use changes, hydrology, geomorphology and ecology are closely and complexly interrelated. (Adapted from Palmer *et al.* 2004).

Vegetation changes not only are a result of morphological impacts but also can result directly from changes in streamflow. These findings continue to be supported by recent studies; for example, increases or decreases in baseflow or changes to the seasonal availability of water can determine the extent and type of riparian vegetation capable of thriving in that environment (*White and Greer 2006*). Vegetation changes can have cascading effects on indigenous fauna that require native plants for food or nesting (*Riley et al. 2005*). Channel incision can also result in phreatic draining of adjacent wetland and floodplain habitats and result in loss of key riparian species (*Scott et al. 2000*).

2.8 Impacts on In-Stream Biota

As shown in Figure 2-7, impacts to stream biota may occur through the alteration of habitat structure and habitat dynamics caused by hydrologic and geomorphic changes, as well as directly from hydrologic alteration. (The term biota is used here to refer to a range of non-plant species including algae, macroinvertebrates, amphibians, fishes, etc.) Because of these relationships, the condition of in-stream biota is considered to reflect the effects of all other impacts and has been recommended as an integrative measure of stream health (discussed further in Section 5).

Studies continue to build on Poff *et al.* (1997), who highlighted the importance of the “natural flow regime” and its variability as critical to ecosystem function and native biodiversity. Streamflow pattern or “regime” interacts with the geomorphic context to control the physical and biological response of streams to hydromodification. The basic characteristics of streamflow regimes are typically described in five ways: magnitude, frequency, duration, timing, and rate of change. There is a large body of science

linking one or more of these five elements of flow regimes to geomorphic processes, physical habitat, and ecological structure and function. A few examples of linkages with physical habitat are provided in Table 2-1; these linkages describe the mechanisms by which flow changes can impact stream ecology through morphological alterations.

Table 2-1. Examples of Relationships between Flow Regime Attributes and Physical Habitat Characteristics (adapted from Roesner and Bledsoe 2002).

Flow Attribute	Example Relationships with Physical Habitat
Magnitude	<ul style="list-style-type: none"> • Determines extent to which erosion/removal thresholds for substrate, banks, vegetation, and structural habitat features are exceeded • Determines whether floodplain inundation/exchange occurs • Habitat refugia may become ineffective during extreme events
Frequency	<ul style="list-style-type: none"> • Flashiness can affect potential for recovery of quasi-equilibrium channel forms between events, bank stability, and streambank/riparian vegetation assemblages • Frequency of substrate disturbance can act as a major determinant of fish reproductive success and benthic macroinvertebrate abundance and composition
Duration	<ul style="list-style-type: none"> • Determines the impact of a threshold exceeding event, e.g., scour depths • Urbanization frequently increases the duration of geomorphically effective flows which also affect bank vegetation establishment and maintenance • Extended durations of high suspended sediment concentrations can act as chronic and acute stressors on fish communities
Timing	<ul style="list-style-type: none"> • The temporal sequence of flow events affects channel form and stability as geomorphic systems may be “primed” for abrupt changes. • Stream biota may use flow timing as a life-cycle cue • Predictability of flow can affect utilization of habitat refugia
Rate of Change	<ul style="list-style-type: none"> • Affects bank drainage regimes (bank stability) and sedimentation processes, e.g., re-suspended fine sediment concentrations during storm hydrographs, embeddedness, armoring • Rapid drawdown can result in stranding of instream biota • Rise and fall rates control riparian water table dynamics and seedling recruitment

The mechanisms of such impacts are also well detailed by Center for Watershed Protection (2003); for example, increased flows are related to a reduction in habitat diversity and simplification of habitat features such as pools; this in turn reduces the availability of deep-water cover and feeding areas.

Many studies support the conclusion that stream biota are also directly impacted by altered flow regimes, independent of channel instability and erosion. Konrad and Booth (2005) identified four hydrologic changes resulting from urban development that are potentially significant to stream ecosystems: increased frequency of high flows, redistribution of water from baseflow to stormflows,

increased daily variation in streamflow, and reduction in low flow. They caution that ecological benefits of improving physical habitat and water quality may be tempered by persistent effects of altered streamflow and sediment discharge, and that hydrologic effects of urban development must be addressed for restoration of urban streams. Walsh *et al.* (2007) concluded that low-impact watershed drainage design was more important than riparian revegetation with respect to indicators of macroinvertebrate health. Bioengineered bank stabilization can also have positive effects on habitat and macroinvertebrates, but it cannot completely mitigate impacts of urbanization with respect to stream biotic integrity (Sudduth and Meyer 2006). Walters and Post (2011) and Brooks *et al.* (2011) found impacts to benthic macroinvertebrates due to upstream water abstractions, including reductions in total biomass of insects and reductions in abundance respectively.

2.9 Conclusions

Alterations in streamflow and sediment transport as a result of land use change can have severe impacts on streams. Common responses include changes in water balance, surface and near-surface runoff timing and magnitude, groundwater recharge, sediment delivery and transport, channel enlargement, widespread incision, and habitat degradation. The extent and consequences of these impacts depend on stream type, watershed context, and local controls on channel adjustment; as such, stream responses to hydromodification are complex and difficult to predict with any precision. Due to the direct impacts of streamflow modification on vegetation and biota, channel morphology cannot be the sole measure of hydromodification impacts. Thus, mitigation efforts that are narrowly focused on channel stability may be insufficient for sustaining key ecological attributes. Likewise, reach-scale stabilization of streams will not necessarily result in the return of comparable habitat quality and complexity (Henshaw and Booth 2000, Roesner and Bledsoe 2003). Hydromodification management should be considered in the context of an overall watershed-scale strategy that targets maintenance and restoration of critical processes in critical locations in the watershed. Furthermore, it is imperative that monitoring and adaptive management be focused on achieving desired objectives for aquatic life and overall stream “health” in addition to simply measures of geomorphic response.

3. FRAMEWORK FOR HYDROMODIFICATION MANAGEMENT

3.1 Introduction and Overview

The current approach to managing hydromodification impacts on a project-by-project basis is not sufficient to protect beneficial uses of streams. This section outlines a comprehensive, alternative framework that begins with watershed analysis and uses the results to guide the site-based management decisions that are the current focus of most hydromodification management strategies. It also recommends the implementation of a compensatory mitigation program in support of hydromodification management objectives identified in the watershed analysis. Figure 3-1 summarizes this approach and illustrates how current site-based management relates to the larger framework.

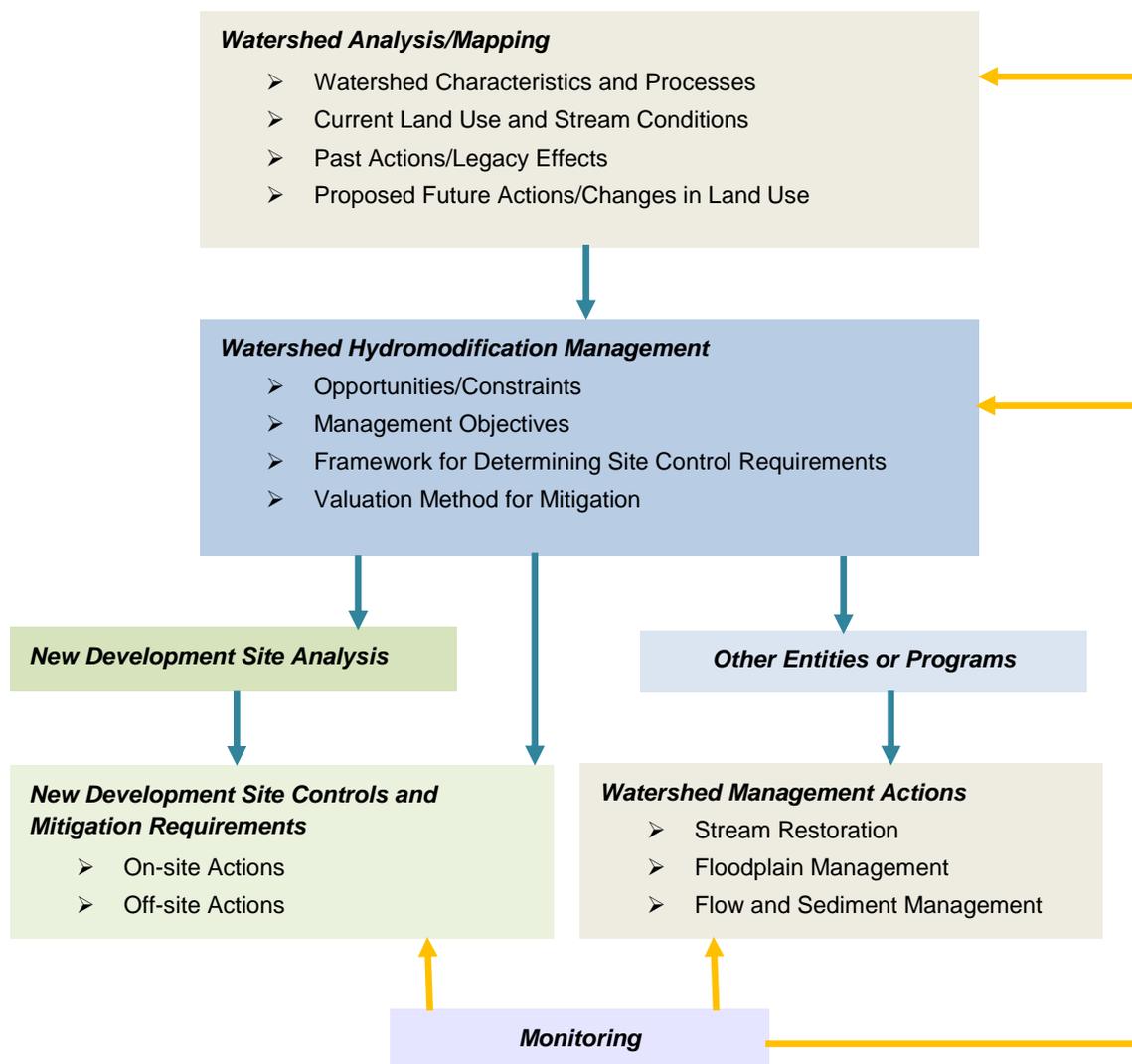


Figure 3-1. Framework for Integrated Hydromodification Management.

This section discusses the details of the integrated framework proposed in Figure 3-1. Key features of this comprehensive approach to hydromodification management are:

- Hydromodification management needs to occur primarily at the watershed scale. The foundation of any hydromodification management approach should be an analysis of existing and proposed future land use and stream conditions that identifies the relative risks, opportunities, and constraints of various portions of the watershed. Site-based control measures should be determined in the context of this analysis.
- Clear objectives should be established to guide management actions. These objectives should articulate desired and reasonable physical and biological conditions for various reaches or portions of the watershed. Management strategies should be customized based on consideration of current and expected future channel and watershed conditions. A one-size-fits-all approach should be avoided.
- An effective management program will likely include combinations of on-site measures (e.g., low-impact development techniques), in-stream measures (e.g., stream habitat restoration), and off-site measures. Off-site measures may include compensatory mitigation measures at upstream locations that are designed to help restore and manage flow and sediment yield in the watershed.
- Management measures should be informed and adapted based on monitoring data. Similarly, monitoring programs should be designed to answer questions and test hypotheses that are implicit in the choice of management measures, such that measures that prove effective can be emphasized in the future (and those that prove ineffective can be abandoned).
- Hydromodification potentially affects all downstream receiving waters; therefore, there generally should be no areas exempted from hydromodification management plans. However, the variety of types and conditions of receiving waters should result in a range of requirements. This also means that objectives, and the management strategies employed to reach them, will need to acknowledge pre-existing impacts associated with historical land uses.

A watershed-based approach to hydromodification management will allow integration of objectives with related programs such as water quality management, groundwater management, and habitat management and restoration through mechanisms such as Integrated Regional Water Resources Management Plans.

Implementation of this approach will likely require changes in the current administration of hydromodification management plans statewide, both in the development and promulgation of regulations by the State and Regional Water Boards and in the administration and execution of those regulations by local jurisdictions (Table 3-1). In the short term, municipalities will need to broaden the approaches to on-site management measures and expand monitoring and adaptive management programs based on the tools described in this document. In the long term, regulatory agencies will need to develop watershed-based programs that allow for implementation of management measures in the locations and manner that will have the greatest impact on controlling hydromodification effects. A

watershed-based approach will also allow the integration of hydromodification management objectives with related programs such as water quality management, groundwater management, and habitat management and restoration through mechanisms such as Integrated Regional Water Resources Management Plans.

Table 3-1. Recommendations for implementation of watershed-based hydromodification management, organized by the scale of implementation and the time frame in which useful results should be anticipated.

Time Frame	Programmatic: State and Regional Water Boards	Local: City and County Jurisdictions
Short-term (<10 years)	<ul style="list-style-type: none"> • Define the watershed context for local monitoring (at coarse scale) • Evaluate whether permit requirements are making positive improvements 	<ul style="list-style-type: none"> • Evaluate whether specific projects/regulations are meeting objectives • Identify the highest priority action(s) to take
Long-term (1+ decades)	<ul style="list-style-type: none"> • Define watershed context and setting benchmarks for local-scale monitoring (i.e., greater precision, if/as needed) • Demonstrate how permit requirements can improve receiving-water “health,” state-wide (and change those requirements, as needed) 	<ul style="list-style-type: none"> • Evaluate and demonstrate whether actions (on-site, instream, and watershed scale) are improving receiving-water conditions • Assess program cost-effectiveness • Identify any critical areas for resource protection

3.2 Background on Existing Strategies and Why They are Insufficient

Current hydromodification approaches and strategies, such as flow and sediment-control basins, have been long-recognized as insufficient to fully address hydromodification impacts (e.g., Booth and Jackson 1997, Maxted and Horner 1999). Present understanding of the causes and effects of urbanization suggest that such approaches must be expanded to include integrated flow and sediment management at the watershed scale, along with stream corridor/floodplain restoration (NRC 2009).

Flow management has its origins in flood-control basins intended to reduce peak discharge through stormwater detention (Dunne and Leopold 1978). A key shortcoming of these approaches for hydromodification management is that they do not address (and may exacerbate) cumulative erosive forces on the receiving channel because they trap sediment and release sediment-starved water to downstream areas. Simple detention can increase the frequency and duration with which channels are exposed to erosive effects (McCuen and Moglen 1988, Bledsoe *et al.* 2007), resulting in an increase in the downstream impacts of hydromodification.

Since the late 1980’s in parts of the US, hydromodification management plans began to explore “flow-duration” control standards as a way to address this shortcoming. These standards require that the post-project discharge rates *and durations* may not deviate above the pre-project discharge rates and

durations by more than a specific (and typically quite small) percent, across a broad range of discharges at and above the presumed threshold of instream erosion and sediment transport, as averaged over a multi-year period of measured (or simulated) record. This approach is a dramatic improvement over earlier methods, although it does not adequately address the issues of sediment deficit associated with urbanization (Chin 2006). In addition, current flow-duration standards do not fully account for the effects of flow alteration on in-stream habitat and biological functions (e.g., they do not address the seasonality of peak flows, rates of hydrograph rise and recession, low-flow magnitude and duration) and therefore may not be protective of all beneficial uses of downstream waterbodies.

Current strategies are also insufficient with respect to how municipal stormwater permits apply hydromodification standards. Currently, development triggers are established to determine if a project is subject to the standards. These triggers are generally specified by either project land use type in conjunction with size, or by project size alone (e.g., 20 units or more of single family residential housing, or 10,000 square feet or more of new impervious area). The exemption of many small projects from hydromodification controls can result in cumulative impacts to downstream waterbodies (see Booth and Jackson, 1997, for an example from western Washington of the cumulative effects of a small-project exemption); a move to include LID requirements that apply to all projects, regardless of size, is a positive development to begin to address this issue.

There is usually also an exemption for projects discharging to hardened channels or waterbodies; however these exemptions may not be supportive of future stream restoration possibilities, and do not address the impacts of hydromodification on lentic and coastal waterbodies (as yet not fully understood). A further limitation of the current permit structure is that there is no consideration of project characteristics such as position within the watershed, sensitivity of the receiving stream reach, or level of coarse sediment production on the proposed project site. Finally, current programs rely solely on regulating new development and re-development to prevent hydromodification impacts without addressing pre-existing conditions which may limit the effectiveness of future management actions.

Shortcoming of current hydromodification standards that may limit their effectiveness include the exemption of many small projects, which can result in cumulative impacts to downstream waterbodies, and the reliance solely on regulating new development and re-development without addressing pre-existing conditions which may limit the effectiveness of future management actions.

When flow-control measures of whatever regulatory standard have failed to protect streams from erosion, hydromodification “management” typically consists of bank or channel armoring, drop structures, and other hard engineering approaches. Although these methods may reduce local hydromodification impacts, it is typically at the expense of other in-stream or riparian functions or beneficial uses. For example, channel armoring can reduce habitat and water conservation functions and services by direct habitat removal, increased bed scour, and decreased connectivity between the channel and its floodplain. In addition to loss of biological and physical stream function, many armoring solutions degrade or fail over time because they address only the localized channel instability rather than the overarching processes that led to the instability (Kondolf and Piegay 2004). For example, drop structures constructed to stabilize a specific channel reach will tend to shift downstream the

consequences of an insufficient sediment load—the reach immediately upstream of the drop structure is “protected,” but that immediately downstream is degraded even more severely. In extreme cases, the structure itself can be undermined by downstream erosion and headcutting that is exacerbated by the sudden shift in velocity and associated eddy effects (i.e., hydraulic jump) that often occurs downstream of grade stabilization (Chin 2006). Bank armoring can also fail due to being undermined by erosion at the toe of slope, which can lead to scour (Figure 3-2). In both cases, structural failures often lead to a sequence of incremental increases in the size and extent of the structural solution in an attempt to continually repair increasing channel degradation. In extreme cases, catastrophic failure of bank or grade stabilization can lead to sudden and dramatic changes in channel form, which can be associated with devastating loss of habitat, infrastructure, and property.



Figure 3-2. Undermining of grade control and erosion of banks downstream of structures intended to stabilize a particular stream reach. Left photo is looking upstream at drop structure; right photo is looking downstream from the drop structure.

3.3 Development of Comprehensive Hydromodification Management Approaches

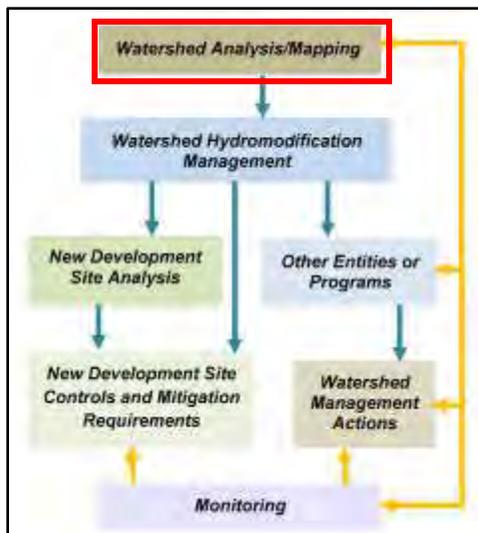
The goal of hydromodification management should be to protect and restore overall receiving water conditions, by maintaining or reestablishing the watershed processes that support those conditions, in the face of urbanization. Achieving these goals will require that hydromodification management strategies operate across programs beyond those typically regulated by NPDES/MS4 requirements. Successful strategies will need to be developed, coordinated, and implemented through land-use planning, non-point source runoff control, and Section 401 Water Quality Certifications and Waste Discharge Requirement programs in addition to traditional stormwater management programs. Thus, all levels of the regulatory framework—federal, state, and local—will need to participate in developing such a program, with program development occurring mainly through regulatory and resource protection agencies and program implementation occurring mainly through local jurisdictions.

As shown in Figure 3-1, watershed-scale **hydromodification management should include all of the following key elements:**

- Watershed-wide assessment of the condition of key watershed processes, to understand the natural functioning of the watershed and what has been (or is at risk of being) altered by urbanization.
- Watershed-wide assessment of hydromodification risk, to categorize areas based on the likelihood of hydromodification impacts and to identify opportunities for restoration or protection of key reaches or sub-basins.
- Appropriate management objectives for various stream reaches and/or portions of the watershed.
- Process for selecting management actions and mitigation measures for project sites and stream reaches.
- Monitoring program that is consistent with the goals of the HMP so that information generated can be used to improve the HMP over time.

The goal of hydromodification management should be to protect and restore overall receiving water conditions, by maintaining or reestablishing the watershed processes that support those conditions, in the face of urbanization.

3.4 Watershed Mapping and Analysis – Identification of Opportunities and Constraints



Watershed analysis should be the foundation of all hydromodification management plans. Analysis should identify the nature and distribution of key watershed processes, existing opportunities and constraints in order to help prioritize areas of greater vs. lesser concern, areas.

“Watershed analysis” has several steps, of which the first is **mapping**. Mapping may occur at the watershed or regional (i.e., multiple watersheds) scale. **Mapping should include data layers to facilitate the following analyses.** Most of these data layers are freely available as online. Further information on analysis tools is provided in the next section. These maps should be designed for iterative updates over time as new information becomes available:

- Dominant watershed processes – analysis of topography (10-m digital elevation model), hydrology, climate patterns, soil type (NRCS soil classifications) and surficial geology can be used to identify the location and type of dominant watershed processes, such as **sediment source areas and areas where infiltration is important or where overland flow likely dominates.** This can provide a template for the eventual design of management measures that correspond most

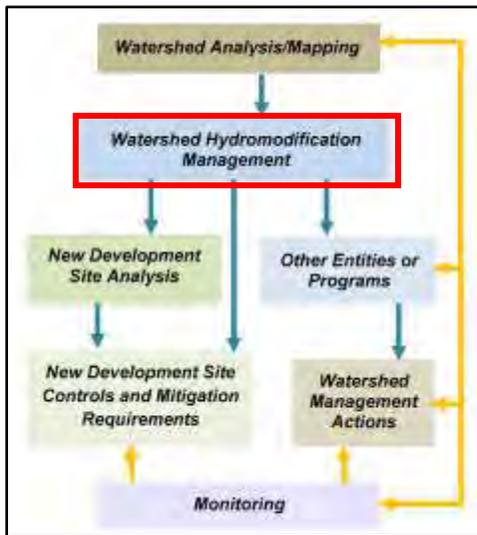
closely to the pre-development conditions, which support processes that promote long-term channel health. The Central Coast Hydromodification Control Program (the “Joint Effort”; see Booth *et al.* 2011) provides an example of this type of analysis.

- Existing stream conditions – At a minimum the National Hydrography Database (NHD) can provide maps of streams and lakes in the watershed. Additional information on stream condition should be included to the extent that it is available. This could include **major bed material composition, channel planform, grade control locations and condition, and approximate channel evolution stage.** These maps can also be used to conduct general stream power evaluations.
- Current (Past) and anticipated future land use - Current land use and land cover plus proposed changes due to general or specific plans. Historical information on past land use practices or stream conditions should be included if it is readily available. Classified land cover (NLCD 2006) is available from the Multi-Resolution Land Characteristics Consortium (MRLC).
- Potential coarse and fine sediment yield areas – methods such as the **Geomorphic Land Use (GLU) approach** (Booth *et al.* 2010) can be used that to estimate potential sediment yield areas based on geology, slope and land cover.
- Existing flood control infrastructure and channel structures – maps should **include major channels, constrictions, grade control, etc.** that affect water and sediment movement through the watershed. Any available information on water quality, flood control or hydromodification management basins should also be included.
- Habitat – both upland and in-stream and **riparian habitat should be mapped** to help determine areas of focus for both resource protection and restoration. This may be based on readily available maps such as the **National Wetlands Inventory and National Land Cover Database**, aerial photo interpretation, or detailed local mapping.
- Areas of Particular Management Concern – these may include **sensitive biological resources,** critical infrastructure, 303(d) listed waterbodies, priority restoration areas or other locations or portions of the watershed that have particular management needs.
- Economic and social opportunities and constraints – comprehensive watershed management includes consideration of opportunities for improving community amenities associated with streams, economic redevelopment zones, etc. Details on this are beyond the scope of this paper, but emphasize the need to include planning agencies in the development of hydromodification management plans.

Substantial resources will be necessary to implement a watershed analysis approach; therefore, opportunities for joint funding and leveraging of resources should be vigorously pursued.

Watershed analysis will be challenging especially for smaller municipalities with limited resources or where their jurisdiction only encompasses a portion of the watershed. Substantial resources will be necessary to implement this approach; therefore, opportunities for joint funding and leveraging of resource should be vigorously pursued. A cooperative approach should replace the current fragmented efforts among regions and jurisdictions. Furthermore, the State **and Regional Water Boards should support completion of these maps and common technical tools as the foundation for future hydromodification management actions.**

3.5 Defining Management Objectives



Results of the watershed analysis should be used to **determine the most appropriate management actions for specific portions of the watershed.** Management strategies should be tailored to meet the objectives, desired future conditions, and constraints of the specific channel reach being addressed.

Decisions should be based on considerations of areas suitable for specific ecosystem services, opportunities, and constraints as described above. Management objectives may be aimed at reducing effects of proposed future land use or mitigating for the effects of past land use, and they may apply to stream reaches or upland areas. Potential management objectives for specific stream reaches may include: **protect, restore, or**

manage as a new channel form.

The specific manifestation of each of these strategies will differ by location, based on constraints of the stream, watershed plan objectives, etc. Decisions about appropriate objectives will need to consider current and future opportunities and constraints in upland, floodplain, and in-stream portions of the watershed. General definitions are provided below as a starting point for case-specific refinement.

Management strategies should be tailored to meet the objectives, desired future conditions, and constraints of the specific channel reach being addressed. Objectives for specific stream reaches may include:

- **Protect**
- **Restore**
- **Manage as a new channel form**

3.5.1 Protect

This approach consists of protecting the functions and services of **relatively unimpacted streams** in their current form through conservation and anti-degradation programs. This strategy should not **be used if streams are degraded, or nearing thresholds of planform adjustment or changes in vegetation community.** This strategy may apply following natural disturbances such as floods depending on the condition of the stream reach and the ability for natural rehabilitation to occur (due to how intact

watershed processes are). The goal of this strategy is not to create an artificial preserve (such as a created stream running through an urban park) but rather a naturally function river system. **Fully channelized systems are not considered in this framework.** Examples of specific actions include:

- Preserving intact channel systems through easements, restrictions, covenants, etc. This should be considered in the watershed context to ensure adequate connectivity with upstream and downstream reaches of similar condition, and to ensure that the watershed processes responsible for creating and maintaining instream conditions will persist.
- Providing appropriate space for channel processes to occur (e.g., floodplain connectivity).
- Establishing transitional riparian and upland buffer zones that are protected from encroachment by infrastructure or development.

3.5.2 Restore

There are many definitions of “restoration”. For the purposes of this document, restoration is considered **re-establishing the natural processes and characteristics of a stream.** The process involves converting an unstable, altered, or degraded stream corridor, including adjacent riparian zone (buffers), uplands, and flood-prone areas, to a natural condition. In most cases, restoration plans should be based on a consideration of watershed processes and their ability to support a desired stream type. The watershed analysis discussed above should be used to determine how and where watershed process should be protected or restored in order to best support stream and stream-corridor restoration. This process should be based on a reference condition/reach for the valley type and **includes restoring the appropriate geomorphic dimension (cross-section), pattern (sinuosity), and profile (channel slopes), as well as reestablishing the biological and chemical integrity, including physical processes such as transport of the water and sediment produced by the stream’s watershed in order to achieve dynamic equilibrium.** Design of restoration structural elements must be based on existing and anticipated upstream land uses, and reflect the modified hydrology resulting from these uses. Restoration should apply to streams that are already on a degradation trajectory where there is a **reasonable expectation that a more stable equilibrium condition that reflects previously existing conditions can be recreated and maintained via some intervention.** Creating a stream system that differs from “natural conditions” is not considered restoration. All elements of the “protection” strategy should also be included once the restoration actions are complete. Examples of specific actions include:

- Floodplain and in-stream measures that restore natural channel form consistent with current and/or anticipated hydrology and sediment yield. Examples include recontouring, biotechnical slope stabilization, soft-grade control features (e.g., woody debris).
- Revegetation of stream banks and beds, including removal of invasive species.
- Preserving intact channel systems through easements, restrictions, covenants, etc. This should be considered in the watershed context to ensure adequate connectivity with upstream and downstream reaches of similar pristine condition.

- Providing appropriate space for channel processes to occur (e.g. channel migration at allowable levels, floodplain connectivity, and development of self-sustaining riparian vegetation).
- Establishing transitional riparian and upland buffer zones that are protected from encroachment by infrastructure or development.

3.5.3 *Manage as New Channel Form*

Once a stream channel devolves far enough down the channel evolution sequence, it is extremely difficult to recover and restore without substantial investment of resources. If critical thresholds in key structural elements, such as planform or bank height, are surpassed, streams should be allowed to continue progressing toward a new stable equilibrium condition that is consistent with the current setting and watershed forcing functions, if such progress does not pose a danger to property and infrastructure. Substantial alteration of flow or sediment discharge, slope or floodplain width may make it improbable that a stream can be restored to its previous condition. In such circumstances, it may be preferable to determine appropriate channel form given expected future conditions and “recreate” a new channel to match the appropriate equilibrium state under future conditions. For example, a multi-thread braided system may not be the appropriate planform based on new runoff and sediment pattern; instead, a single-thread channel or step-pool structure may be a more appropriate target. Examples of specific actions include:

- In-channel recontouring or reconstruction of channel form.
- Floodplain recontouring or reconstruction that improves connectivity with the channel.
- In extreme circumstances based on channel condition, position in the watershed, etc. this may involve hardening portions of the channel and focusing “mitigation” measures at off-site measures at a different part of the watershed. Off-site mitigation can be informed by “hydromodification risk mapping”.
- Re-establishing longitudinal connectivity for sediment transport and ecological linkages.
- Preserving intact channel systems through easements, restrictions, covenants, etc. This should be considered in the watershed context to ensure adequate connectivity with upstream and downstream reaches of similar pristine condition.
- Providing appropriate space for channel processes to occur (e.g. floodplain connectivity).
- Establishing transitional riparian and upland buffer zones that are protected from encroachment by infrastructure or development.

Several authors have previously noted that in urban systems, natural channel state often can no longer be sustained under changed hydrological conditions. Thus, different management goals are probably appropriate for watersheds at varying stages of development (Booth, 2005) and at varying degrees of adjustment (Chin and Gregory 2005). In this context, identifying which channels are suitable for

protection, restoration, or alternative channel form can be used to guide restoration and management efforts (Booth *et al.* 2004).

Upland objectives should be established to support management objectives for stream reaches. These objectives will have direct implications and will influence site-specific control requirements (discussed below). Potential management objectives for upland areas may include:

- *Conserve open space for infiltration*: Infiltration reduces the magnitude and duration of runoff to the stream channel and allows flow to re-enter the stream through diffuse overland flow, shallow subsurface flow, or groundwater recharge. This in turn reduces the work (energy) on the channel bed and banks and helps promote stability.
- *Conserve open space for stream buffers*: Buffers allow many of the same infiltration processes discussed above to occur. In addition, they provide space for channel migration and overbank flow, both of which function to reduce energy and allow the channel to better withstand potentially erosive forces associated with high flow events.
- *Conserve open space for coarse sediment production*: Coarse sediment functions to naturally armor the stream bed and reduce the erosive forces associated with high flows. Absence of coarse sediment often results in erosion of in-channel substrate during high flows. In addition, coarse sediment contributes to formation of in-channel habitats necessary to support native flora and fauna.
- *Encourage development on poorly-infiltrating soils*: The difference between pre and post development runoff patterns is less when development occurs on soils that have low infiltration rates and functioned somewhat like paved surfaces. Focusing development on these areas reduces changes in hydrology associated with transition to developed land uses.
- *Encourage urban infill*: Urban infill reduces the effect on watershed processes by concentrating development on previously impacted areas. This reduces disruption of hydrology and sediment process compared to developing on open space or other natural areas.

3.6 Selecting Appropriate Management Objectives

The combination of expected force acting on the stream channel (in terms of higher flow and less sediment) and estimated resistance (in the form of channel and floodplain condition) can be used to inform selection of an appropriate management objective for a specific stream reach, as shown in Figure 3-3. This figure represents a conceptual approach to selecting appropriate management objectives, in which modifications to runoff and sediment are compared against stream reach conditions. By weighing these factors within the context of watershed opportunities, constraints and resources, management objectives and specific actions can be determined. More complete decision support systems or guidance will need to be developed for individual

Selection of appropriate management objectives should consider changes to runoff and sediment, and existing stream reach conditions, within the context of watershed opportunities, constraints and resources.

hydromodification management plans that account for other considerations such as upstream and downstream conditions, cost, infrastructure constraints, availability of floodplain area for restoration, presence of downstream sensitive resources, etc. All decisions should be made in the context of the watershed position of a project site relative to existing opportunities and constraints as discussed above.

A number of tools are available to be used in conjunction with watershed mapping to inform this prioritization process. For example, GLU mapping (Booth *et al.* 2010) and hydromodification risk mapping can be used to assign high, medium or low ratings to watershed resistance (i.e., susceptibility to change). Similarly, field based tools such as the hydromodification screening tool (Bledsoe *et al.* 2010) or European tools such as Fluvial Audit or River Habitat Survey can be used to assign a rating of high, medium or low at the reach scale. In addition to geomorphic assessments, habitat assessments such as the California Rapid Assessment Method (CRAM; Collins *et al.* 2008) or biological evaluations via an index of biotic integrity (IBI; e.g., Ode *et al.* 2005) should be used as measures of biological condition to provide a more complete stream assessment. The next section provides an overview of hydromodification assessment and prediction tools, as well as further details on specific tools to support the selection of management objectives.

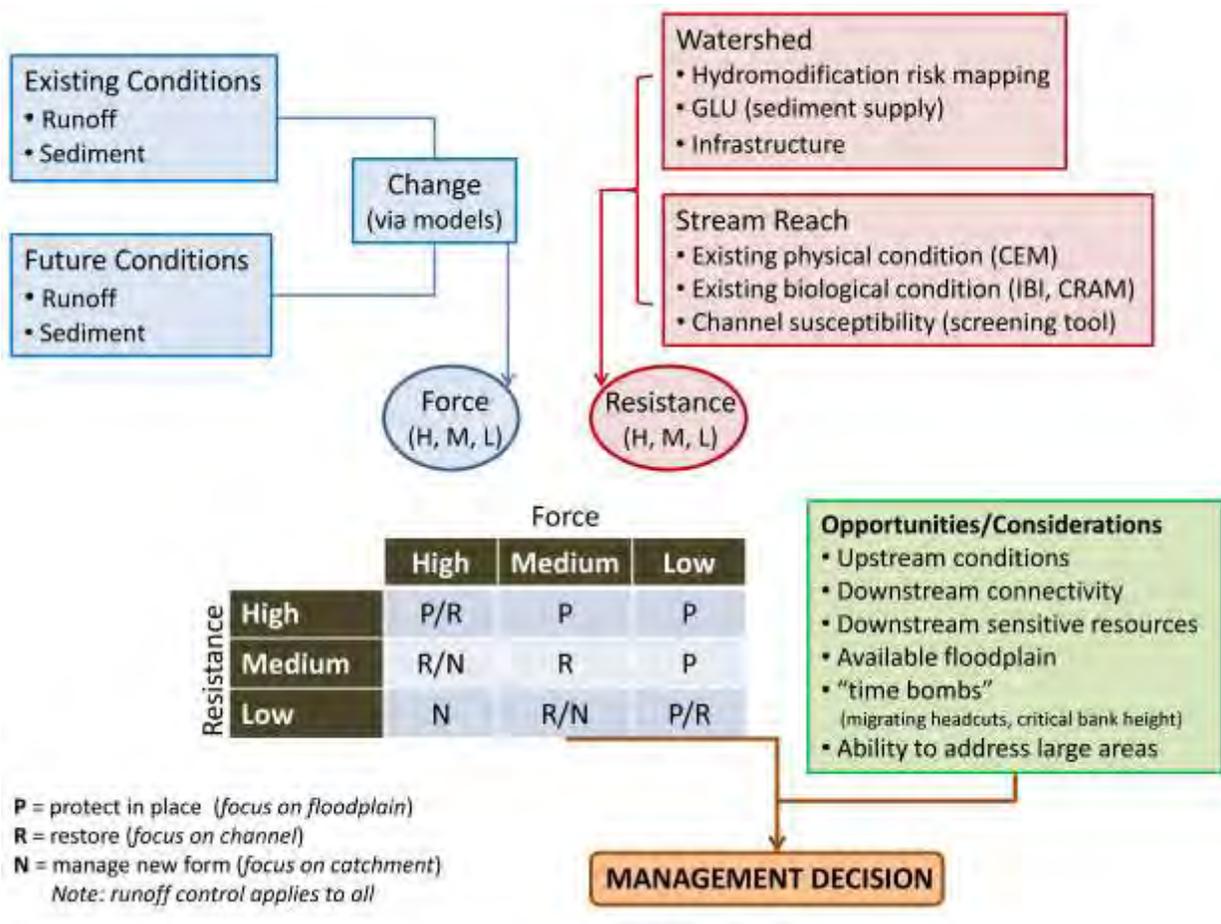
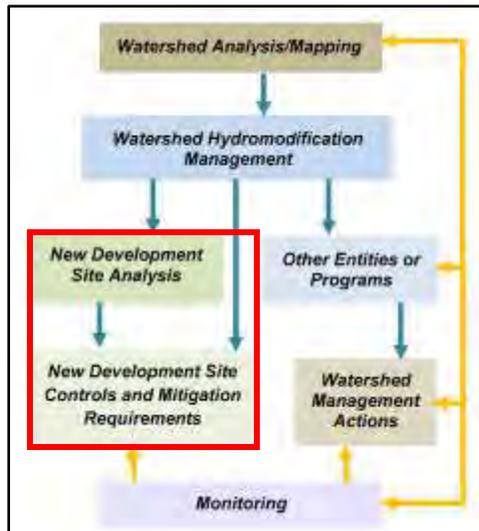


Figure 3-3: Example of a hydromodification management decision-making process.

3.7 Framework for Determining Site-Specific Control Requirements



Once the watershed analysis is complete and opportunities, constraints and management objectives have been identified for both upland areas and stream reaches, a framework should be developed for site-specific project analyses and control requirements. The level of detail required for the analysis of proposed projects should be based on a combination of factors including project size, location within the watershed, and point of discharge to receiving waterbody.

The HMP should specify how these factors will be evaluated within the context of the identified management objectives to determine analysis requirements. The HMP should also

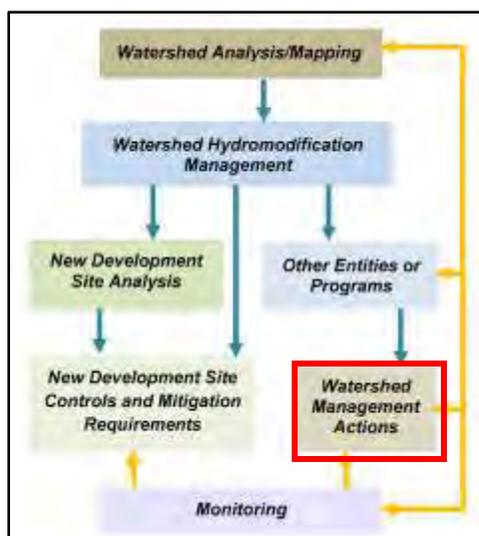
ideally contain scalable BMP designs (based on conservative assumptions and consistent with prevailing watershed conditions) that can be applied by small projects where appropriate to avoid overly burdensome requirements for site-specific analysis. The framework should include the following components:

- A set of standard on-site management measures/BMPs that should apply to all projects; no projects should be exempted from these measures as they will have broader water quality benefits beyond helping to control the effects of hydromodification. These management actions consist of reducing the effects of urbanization on catchment runoff and sediment yield. On-site management measures should attempt to reduce excess runoff, maintain coarse sediment yield (if possible) and provide for appropriate discharge to receiving streams to support in-stream biological resources. In some cases, common features or facilities may be able to accommodate these objectives. In other cases, separate features or facilities will be necessary to deal with distinct objectives. On-site measures should generally be applied in all cases as allowed by site-specific geotechnical constraints, with specific management practices informed by the watershed processes most important at particular locations in the watershed, as well as by the nature of downstream receiving waters:
 - Low impact development (LID) practices.
 - Disconnecting impervious cover through infiltration, interception, and diversion.
 - Coarse sediment bypass through avoidance of sediment yield areas or measures that allow coarse sediment to be discharged to the receiving stream.
 - Flow-duration control basins to reduce runoff below a threshold value.

- Specification of the level of analysis detail and design requirements for the project, depending on project location, discharge point, and project size. Levels of analysis and design requirements may include:
 - Application of scalable, standardized designs for flow control based on site-specific soil type and drainage design. The assumptions used to develop these scalable designs should be conservative, to account for loss of sediment and uncertainties in the analysis and our understanding of stream impacts.
 - Use of an erosion potential metric, based on long-term flow duration analysis and in-stream hydraulic calculations. Guidelines should specify stream reaches where in-stream controls would and would not be allowed to augment on-site flow control.
 - Implementation of more detailed hydraulic modeling for projects of significant size or that discharge to reaches of special concern to understand the interaction of sediment supply and flow changes.
 - Analysis of the water-balance for projects discharging into streams with sensitive habitat. This may include establishment of requirements for matching metrics such as number of days with flow based on the needs of species present.
- Guidelines for prioritization of on-site or regional flow and sediment control facilities. Watershed analysis will help identify opportunities for regional flow or sediment control facilities, which may help to mitigate for existing hydromodification impacts.

Appendix A provides detailed guidance on the appropriate application of tools to meet site control requirements.

3.8 Off-site Compensatory Mitigation Measures



In some cases, on-site control of water and sediment will not be sufficient to offset the effects of hydromodification on receiving waters. In these cases, off-site compensatory mitigation measures will be necessary (similar to the concepts used in the Section 401/404 permitting programs). Off-site measures could be implemented by project proponents or through the use of regional mitigation banks or in-lieu fee programs.

Off-site mitigation may be necessary for several reasons:

- Off-site measures may be more effective at addressing effects or at achieving desired management goals.

This may be particularly true for sites near the bottom of a watershed where upstream measures may be preferred

- Off-site measures may be necessary to supply compensation for residual project impacts where on-site measures are limited by site constraints or solutions are beyond the scope of what can be accomplished on an individual site.
- Off-site measures may be necessary where accomplishing specified management objectives is not practical using on-site measures alone. Off-site measures may be desired to remedy legacy effects of prior land use or to achieve desired beneficial uses.

Performance monitoring and adaptive management must be a part of compensatory mitigation given its inherent uncertainty.

The location and type of mitigation should be determined in the context of the watershed analysis and should account for the size and nature of the impact, location in the watershed, pre-existing conditions in the watershed, and uncertainty associated with the success of the proposed mitigation actions. In some cases these measures may be near the project site (e.g., restoring a stream reach downstream of the project site), but in other cases the off-site mitigation may be in the form of in-lieu fee or “mitigation bank” type contributions to a project located in a different portion of the watershed (e.g. upstream grade control, protection of sediment source areas). Such off-site mitigation relatively far from the site will only be possible if conducted in the context of an overall watershed plan, as discussed above. Off-site measures may include:

- Stream corridor restoration
- Purchase, restoration and protection of floodplain/floodway habitat
- Purchase and/or protection of critical sediment source or transport areas
- Regional basins or other retention facilities
- Upstream or downstream natural/bio-engineered grade control
- Retrofit or repair of currently undersized structures (e.g. culverts, bridge crossings)
- Removal or hydrologically disconnecting impervious surfaces

A valuation method will be necessary for assigning appropriate mitigation requirements in light of the anticipated impacts of hydromodification on receiving streams. The valuation method should be developed by the State Water Board.

To support the management approaches discussed above, HMPs should provide general guidance for application of models and other tools based on the questions being asked and the desired outcomes of

In cases where on-site control of water and sediment will not be sufficient to offset the effects of hydromodification on receiving waters, off-site compensatory mitigation measures will be necessary. Implementation of this approach will require that the State Water Board develop a valuation method to help determine appropriate off-site mitigation requirements in light of the anticipated impacts of hydromodification on receiving streams.

the HMP. Models can also be used to help communicate levels of uncertainty in particular management actions and to guide restoration / in-channel management actions. Modeling and other tools are discussed in detail in Section 4 and Appendices A and B.

Finally, management endpoints should articulate the desired physical and biological conditions for various reaches or portions of the watershed. To the extent possible, these desired conditions should be expressed in numeric, quantifiable terms to avoid ambiguity. Additionally, since regulatory strategies will invariably rely on quantifiable measures to determine whether stormwater management actions achieve these desired conditions, identifying appropriate numeric objectives will support determinations of regulatory compliance. As desired physical and biological watershed conditions are expressed in quantifiable terms to the extent possible, a similar need would apply to site control requirements. Control measures should be linked to, a) a desired condition (or goal), b) the parameter(s) that best define that condition, and c) quantifiable measures that serve to evaluate performance of the control measure. Direct measures (e.g., volume of runoff to be retained) as well as indirect or surrogate measures (IBI scores) are appropriate if they are quantifiable.

Management endpoints should articulate the desired physical and biological conditions for various reaches or portions of the watershed. To the extent possible, these desired conditions should be expressed in numeric, quantifiable terms to avoid ambiguity.

4. OVERVIEW OF ASSESSMENT AND PREDICTION TOOLS

4.1 Introduction

The previous section discussed a number of potential actions for managing hydromodification impacts. These ranged from high-level watershed-scale characterization to the site-specific design of a proposed development. This section provides an overview of the current and emerging assessment and prediction tools available to inform these management actions. An organizing framework helps explain the appropriate application of these tools, as well as their strengths and weaknesses. Specific tools that support the selection of management objectives are also discussed. Examples of “suites” of tools that are commonly used together to predict stream responses and formulate management prescriptions for channels of varying susceptibility are presented in Appendix B. Appendix A provides detailed guidance on the appropriate application of tools to meet site control requirements.

Municipalities are the primary audience for this section, as they select and incorporate these tools into their HMPs. However, the State and Regional Water Boards should be aware of the overall capabilities, appropriate uses, and gaps in our current toolbox. The development of new and improved tools should ideally be coordinated at the State level for optimum cost effectiveness and widest applicability. The table below identifies the key actions necessary at both the programmatic and local level to address the considerations discussed above, within the context of the goals of the framework described in Section 3.

Table 4-1. Recommendations for the application and improvement of tools in support of the proposed management framework.

Time Frame	Programmatic: State and Regional Water Boards	Local: City and County Jurisdictions
Short-term (<10 years)	<ul style="list-style-type: none"> • Develop quality control and standardization for continuous simulation modeling • Perform additional testing and demonstration of probabilistic modeling for geomorphic response • Pursue development of biologically- and physically-based compliance endpoints 	<ul style="list-style-type: none"> • Work cooperatively with adjacent jurisdictions to implement hydromodification risk mapping at the watershed scale • Implement continuous simulation modeling for project impact analysis
Long-term (1+ decades)	<ul style="list-style-type: none"> • Improve tools for sediment analysis and develop tools for sediment mitigation design • Develop tools for biological response prediction • Improve tools for geomorphic response prediction 	<ul style="list-style-type: none"> • Expand use of probabilistic and statistical modeling for geomorphic response • Apply biological tools for predicting and evaluating waterbody condition

4.2 Background

In the context of hydromodification, tools and models are typically used to help answer one or more of the following questions involving an assessment of natural and human influences at various spatial and temporal scales:

- How does the stream work in its watershed context?
- Where is the stream going? For example, have past human actions induced channel changes? What are the effects on sediment transport and channel form? What is the magnitude of current and potential channel incision following land use conversion?
- How will the stream likely respond to alterations in runoff and sediment supply?
- How can we manage hydromodification and simultaneously improve the state of the stream?

Previous sections have underscored the variability and complexity of relationships among land use, the hydrologic cycle, and the physical and ecological conditions of stream systems. It follows that the process of assessing stream condition and predicting future conditions is highly challenging and subject to uncertainty. Therefore it is important to understand the inherent strengths and limitations of the available tools, especially with respect to prediction uncertainty and how it is expressed for various tools. Considerable judgment is needed to choose the appropriate model for the question at hand. In addition to prediction uncertainty, considerations in choosing the right model for a particular application include appropriate spatial and temporal detail, cost of calibration and testing, meaningful outputs, and simplicity in application and understanding (NRC 2001; Reckhow 1999a,b).

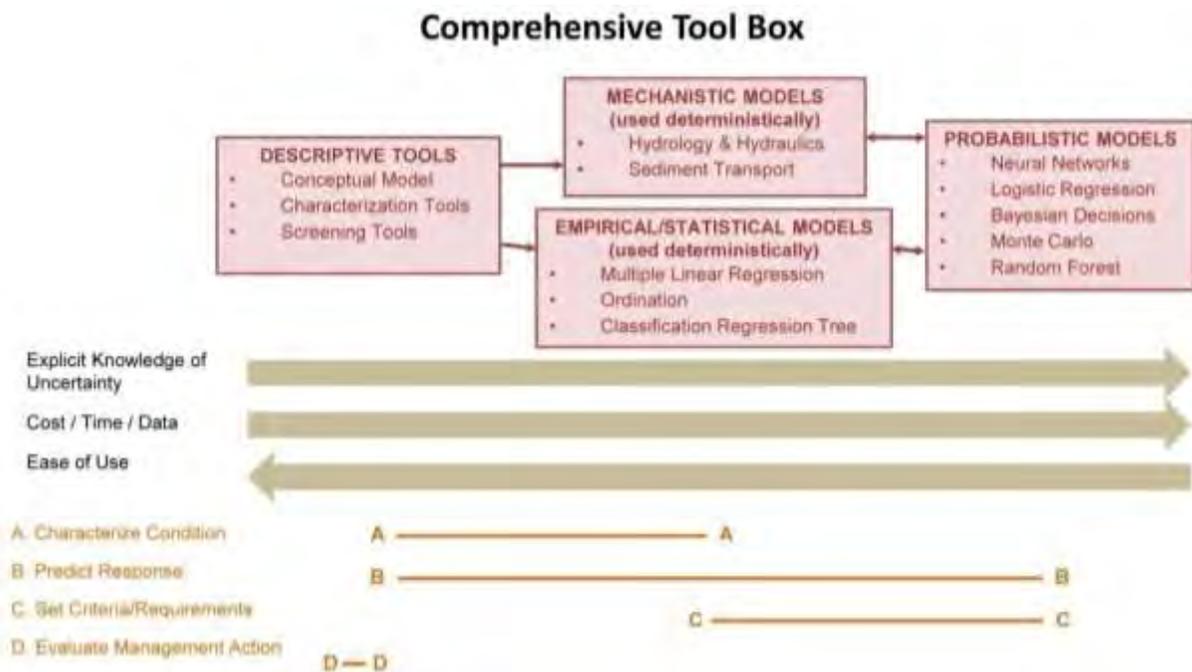


Figure 4-1. Organizing Framework for understanding hydromodification assessment and management tools.

4.3 Organizing Framework

Figure 4-1 presents an organizing framework by which to understand the available tools that may be applied in support of hydromodification management and policy development. Tools fall into three major categories: descriptive tools, mechanistic and empirical/statistical models that are used deterministically, and probabilistic models/predictive assessments with explicitly quantified uncertainty. The organizing framework relates these categories to the types of question the tools are designed to answer, specifically: characterization of stream condition, prediction of response, establishment of criteria/requirements, or evaluation of management actions. The framework also characterizes the tools according to the following features: intensity of resource requirements (i.e., data, time, cost), and the extent to which uncertainty is explicitly addressed. Subsequent sections of this section discuss each of the three major categories in turn, highlighting examples of specific tools within each category.

Given the uncertainty associated with predicting hydromodification impacts, probabilistic models should be incorporated into analysis and design, particularly where resource values or potential consequences of impacts are high.

Tools required to support the management framework presented in Section 3 include watershed characterization and analysis tools and project analysis and design tools. The level of resolution that is required will depend on the point in the planning process. At early stages, descriptive tools will be sufficient, but more precise tools will be required toward the design phase. Currently, most projects rely solely on deterministic models. However, given the uncertainty associated with predicting hydromodification impacts, probabilistic models should be incorporated into analysis and design, particularly where resource values or potential consequences of impacts are high.

4.3.1 Descriptive Tools

Descriptive tools include conceptual models, screening tools, and characterization tools. These tools are used to answer the question: *What is the existing condition of a stream or watershed?* Although descriptive tools are not explicitly predictive, they can be used to assess levels of susceptibility to future stressors by correlation with relationships seen elsewhere. The application of some type of descriptive tool, such as a characterization tool, is almost always necessary before applying a deterministic model. In particular, descriptive tools can aid in understanding the key processes and boundary conditions that may need to be represented in more detailed models.

Conceptual Models. A conceptual model, in the context of river systems, is a written description or a simplified visual representation of the system being examined, such as the relationship between physical or ecological entities, or processes, and the stressors to which they may be exposed. Conceptual models have been used to describe processes in a wide range of physical and ecological fields of study, including stream-channel geomorphology (Bledsoe *et al.* 2008). For example, Channel Evolution Models (CEMs) are conceptual models which describe a series of morphological configurations of a channel, either as a longitudinal progression from the upper to the lower watershed, or as a series at a fixed location over time subsequent to a disturbance. The incised channel CEM developed by

Schumm *et al.* (1984) is one of the most widely known conceptual models within fluvial geomorphology. This CEM documents a sequence of five stages of adjustment and ultimate return to quasi-equilibrium that has been observed and validated in many regions and stream types (ASCE 1998, Simon and Rinaldi 2000). The Schumm *et al.* (1984) CEM has been modified for streams characteristic of southern California, including transitions from single-thread to multi-thread and braided evolutionary endpoints (Hawley *et al.*, in press).

Conceptual models also include planform classifications of braided, meandering and straight, and other general geomorphic classifications, which categorize streams by metrics such as slope, sinuosity, width-to-depth ratio, and bed material size. The qualitative response model described by Lane's diagram (1955), and discussed earlier in this report, is also a conceptual model.

Characterization Tools. Examples of characterization tools include baseline geomorphic assessments, river habitat surveys, and fluvial audits. A fluvial audit uses contemporary field survey, historical map and documentary information and scientific literature resources to gain a comprehensive understanding of the river system and its watershed. Fluvial audits, along with watershed baseline surveys are a standardized basis for monitoring change in fluvial systems. These types of comprehensive assessments are comprised of numerous, more detailed field methodologies, such as morphologic surveys, discharge measurements, and estimates of boundary material critical shear strength through measurements of resistance (for cohesive sediments) or size. Baseline assessments may also draw on empirical relationships such as sediment supply estimation models.

Screening Tools. Screening tools can be used to predict the relative severity of morphologic and physical-habitat changes that may occur due to hydromodification, as a critical first step toward tailoring appropriate management strategies and mitigation measures to different geomorphic settings. However, assessing site-specific stream susceptibility to hydromodification is challenging for several reasons, including the existence of geomorphic thresholds and non-linear responses, spatial and temporal variability in channel boundary materials, time lags, historical legacies, and the large number of interrelated variables that can simultaneously respond to hydromodification (Schumm 1991, Trimble 1995, Richards and Lane 1997).

Screening tools can be used to predict the relative severity of morphologic and physical-habitat changes due to hydromodification, as a critical first step toward tailoring appropriate management strategies and mitigation measures to different geomorphic settings.

Despite the foregoing difficulties, the need for practical tools in stream management have prompted many efforts to develop qualitative or semi-quantitative methods for understanding the potential response trajectories of channels based on their current state. For example, predictors of channel planform can be used to identify pattern thresholds and the potential for planform shifts (e.g., van den Berg 1995, Bledsoe and Watson 2001, Kleinhans and van den Berg 2010).

In addition, regional CEMs (discussed above) can partially address the needs of the hydromodification management community by providing a valuable framework for interpreting past and present response trajectories, identifying the relative severity of potential response sequences, applying appropriate

models in estimating future channel changes, and developing strategies for mitigating the impacts of processes likely to dominate channel response in the future (Simon 1995).

More recent screening-level tools for assessing channel instability and response potential, especially in the context of managing bridge crossings and other infrastructure, have borrowed elements of the CEM approach and combined various descriptors of channel boundary conditions and resisting vs. erosive forces. For example, Simon and Downs (1995) and Johnson *et al.* (1999) developed rapid assessment techniques for alluvial channels based on diverse combinations of metrics describing bed material, CEM stage, existing bank erosion, vegetative resistance, and other controls on channel response. Although based on a strong conceptual foundation of the underlying mechanisms controlling channel form, these specific examples are either overly qualitative with respect to the key processes, or developed with goals and intended applications (e.g., evaluating potential impacts to existing infrastructure such as bridges or culverts) that differ from what is needed by current hydromodification management programs.

SCCWRP has recently proposed a general framework for developing screening-level tools that help assess channel susceptibility to hydromodification, and a new region-specific tool for rapid, field-based assessments in urbanizing watersheds of southern California (Booth *et al.* 2010, Bledsoe *et al.* 2010). The criteria used to assign susceptibility ratings are designed to be repeatable, transparent, and transferable to a wide variety of geomorphic contexts and stream types. The assessment tool is structured as a decision tree with a transparent, process-based flow of logic that yields four categorical susceptibility ratings through a combination of relatively simple but quantitative input parameters derived from both field and GIS data. The screening rating informs the level of data collection, modeling, and ultimate mitigation efforts that can be expected for a particular stream-segment type and geomorphic setting. The screening tool incorporates various measures of stream bed and bank erodibility, probabilistic thresholds of channel instability and bank failure based on regional field data, integration of rapid field assessments with desktop analyses, and separate ratings for channel susceptibility in vertical and lateral dimensions.

An example of a specific analysis component that predicts changes in post-development sediment delivery, and that can be applied within this screening tool framework, is a GIS-based catchment analyses of "Geomorphic Landscape Units" (GLUs). A GLU analysis integrates readily available data on geology, hillslope, and land cover to generate categories of relative sediment production under a watershed's current configuration of land use. Those areas subject to future development are identified, and corresponding sediment-production levels are determined by substituting developed land cover for the original categories and reassessing the relative sediment production. The resultant maps can be used to aid in planning decisions by indicating areas where changes in land use will likely have the largest (or smallest) effect on sediment yield to receiving channels.

Effective screening tools for assessing the susceptibility of streams to hydromodification necessarily rely on both field and office-based elements to examine local characteristics within their broader watershed context. Proactive mapping of flow energy measures (e.g., specific stream power) throughout drainage networks has the potential to complement field-based assessments in identifying hotspots for channel

instability and sediment discontinuities as streamflows change with land use. Such analyses may partially guide subsequent field reconnaissance; however, this approach also has limitations in that some geomorphic settings are inherently difficult to map using widely available digital elevation data. In particular, maps of stream power in narrow entrenched valleys and low gradient valleys (ca. <1%) with sinuous channels should be carefully field-truthed and used with a level of caution commensurate with the accuracy of the input data.

Moreover, spatial variability in channel boundary materials and form cannot be accurately mapped at present using remotely sensed data. Thus, boundary materials and channel width are typically assumed in watershed-scale mapping efforts, thereby introducing potential inaccuracies. Coupling desktop analysis with a field-based assessment when using such an approach can help resolve variation in site-specific features such as the erodibility of bed and bank materials, channel width, entrenchment, grade control features, and proximity to geomorphic thresholds.

4.3.2 Mechanistic and Empirical/Statistical Models with Deterministic Outputs

Mechanistic/deterministic models are simplified mathematical representations of a system based on physical laws and relationships (*link to next*). Empirical/statistical models use observed input and output data to develop relationships among independent and dependent variables. Statistical analyses determine the extent to which variation in output can be explained by input variables. Both types of models are typically used to generate a single output or answer for a given set of inputs. These tools can be used to help answer such questions as: *What are the expected responses in the stream and watershed given some future conditions? What criteria should be set to prevent future hydromodification impacts?* However, hydromodification modeling embodies substantial uncertainties in terms of both the forcing processes and the stream response. Deterministic representations of processes and responses can therefore mask uncertainties and be misleadingly precise, unless prediction uncertainty is explicitly characterized as described later in this section.

Although valuable, deterministic representations (such as those derived from continuous simulation modeling) of processes and responses can mask uncertainties and be misleadingly precise unless prediction uncertainty is explicitly characterized.

Hydrologic Models are used to simulate watershed hydrologic processes, including runoff and infiltration, using precipitation and other climate variables as inputs. Some models, such as the commonly-used HEC-HMS, can be run for either single-event simulations or in a continuous-simulation mode which tracks soil moisture over months or years. Other hydrologic models that are commonly used for event-based and continuous simulation modeling include HSPF and SWMM. It is widely accepted that continuous simulation modeling, rather than event-based modeling, is required to assess long term changes in geomorphically-significant flow events (Booth and Jackson 1997; Roesner *et al.* 2001).

Several HSPF-based continuous simulation models have been developed specifically for use in hydromodification planning. These include the Western Washington Hydrology Model (WWHM) and

the Bay Area Hydrology Model (BAHM). Hydromodification Management Plans (HMPs) in Contra Costa County, San Diego County and Sacramento County have developed sizing calculators for BMPs based on modeling done using HSPF models. To illustrate the point about uncertainty in mechanistic models, HSPF contains approximately 80 parameters, only about 8 of which are commonly adjusted as part of the calibration process.

Hydraulic Models are used to simulate water-surface profiles, shear stresses, stream power values and other hydraulic characteristics generated by stream flow, using a geometric representation of channel segments. The industry standard hydraulic model is the HEC River Analysis System (HEC-RAS).

Coupled Hydrologic and Hydraulic Models represent a valuable tool in hydromodification management. Because the streamflow regime interacts with its geomorphic context to control physical habitat dynamics and biotic organization, it is often necessary to translate discharge characteristics into hydraulic variables that provide a more accurate physical description of the controls on channel erosion potential, habitat disturbance, and biological response. For example, a sustained discharge of 100 cfs could potentially result in significant incision in a small sand bed channel but have no appreciable effect on the form of a larger channel with a cobble bed. By converting a discharge value into a hydraulic variable (common choices are shear stress, or stream power per unit area of channel relative to bed sediment size), a “common currency” for managing erosion and associated effects can be established and applied across many streams in a region. Such a common currency can improve predictive accuracy across a range of stream types. As opposed to focusing on the shear stress or stream power characteristics of a single discharge, it is usually necessary to integrate the effects of hydromodification on such hydraulic variables over long simulated periods of time (on the order of decades) to fully assess the potential for stream channel changes. By using channel morphology to estimate hydraulic variables across a range of discharges, models like HEC-RAS provides a means of translating hydrologic outputs from continuous simulations in HEC-HMS, SWMM, or HSPF into distributions of shear stress and stream power across the full spectrum of flows.

Sediment Transport Models such as HEC-6T, the sediment transport module in HEC-RAS, CONCEPTS, MIKE 11 and FLUVIAL12, use sediment transport and supply relationships to simulate potential changes in channel morphology (mobile boundary) resulting from imbalances in sediment continuity. This means that hydraulic characteristics are calculated as channel form and cross-section evolve through erosion and deposition over time. Such models have high mechanistic detail but are often difficult to apply effectively. Although it is not a mobile boundary model, the SIAM (Sediment Impact Analysis Method) module in HEC-RAS represents an intermediate complexity model designed to predict sediment imbalances at the stream network scale and to describe likely zones of aggradation and degradation.

Statistical Models use descriptive tools and empirical data to develop relationships that quantify the risk of specific stream behaviors. For example, Hawley (2009) developed a statistical model to explain variance in channel enlargement based on measures of erosive energy and channel features such grade control and median bed sediment size. Such models often include independent variables based on input from the mechanistic models described above; however, a key difference is that statistical models do not explicitly represent actual physical processes in their mathematical structure. Instead, these models

simply express the observed correlations between dependent and independent variables. Like mechanistic models, the output from these models is commonly treated as precise results in management decisions, despite the fact that predictions from most statistical models could be readily (and more accurately) expressed in terms of confidence intervals with a range of uncertainty.

Probabilistic/Risk-based Models integrate many of the tools discussed above, using modeled changes in hydrology as input to hydraulic models, which in turn provide input to various types of statistical models to predict response. However, the predictions are not represented as deterministic outputs, instead, the range of (un)certainty in the likelihood of the predicted response is explicitly quantified. Although not commonly used for hydromodification management at this time, there are well established models based on these principals currently in use in other scientific disciplines. An example of a probabilistic approach that has been used for hydromodification management is a logistic regression analysis that was used to produce a threshold “erosion potential metric” that can be used to quantify the risk of a degraded channel state. More details on this approach are provided in Appendix B.

Risk-based modeling in urbanizing streams provides a more scientifically defensible alternative to standardization of stormwater controls across stream types, and can inform management decisions about acceptable levels of risk.

Risk-based modeling in urbanizing streams provides a more scientifically defensible alternative to standardization of stormwater controls across stream types. A probabilistic representation of possible outcomes also improves understanding of the uncertainty that is inherent in model predictions, and can inform management decisions about acceptable levels of risk.

Predictive Tools for Habitat Quality and Stream Biota. The tools discussed above focus on physical stream impacts; however, as discussed in the preceding chapter, it is recognized that maintenance of stream “stability” does not necessarily conserve habitat quality and biological potential. In general, the knowledge base for biota/habitat associations is not generally adequate to allow for prediction of how whole communities will change in response to environmental alterations associated with urbanization. Making such predictions deterministically requires a thorough knowledge of species-specific environmental responses, as well as an adequate (accurate) characterization of habitat structure and habitat dynamics (both of which are modified by urbanization). However, recent studies have demonstrated that the effects of hydrologic alterations induced by urbanization on selected stream biota can be quantitatively described without a full mechanistic understanding, using stressor-response type relationships and empirical correlations from field-measured conditions (Konrad and Booth 2005, Konrad *et al.* 2008, DeGasperi *et al.* 2009).

In moving beyond a narrow focus on linkages between flow alteration and channel instability, scientific understanding of hydrologic controls on stream ecosystems has recently led to new approaches for assessing the ecological implications of hydromodification. The essential steps in developing quantitative “flow-ecology relationships” have been recently described in the Ecological Limits of Hydrologic Alteration (ELOHA) process (Poff *et al.* 2010), a synthesis of a number of existing hydrologic techniques and environmental flow methods. ELOHA provides a regional framework for elucidating the

key hydrologic influences on biota of interest, and translating that understanding into relationships between hydromodification and biological endpoints that can be used in management decision making. This requires a foundation of hydrologic data provided by modeling and/or monitoring, and sufficient biological data across regional gradients of hydromodification. Although hydrologic–ecological response relationships may be confounded to some extent by factors such as chemical and thermal stressors, there are numerous case studies from the US and abroad in which stakeholders and decision-makers reached consensus in defining regional flow standards for conservation of stream biota and ecological restoration (Poff *et al.* 2010; <http://conserveonline.org/workspaces/eloha>).

4.3.3 Strengths, Limitations and Uncertainties

The Organizing Framework shown in Figure 4-1 shows the applicability of the three major categories of tools in support of various management actions. This section addresses a range of issues relating to strengths, limitations and uncertainty of the tools discussed above. Detailed analysis of individual models is beyond the scope of this document, but EPA/600/R-05/149 (2005) contains an extensive comparison of functions and features across a wide range of hydrologic and hydraulic models.

Explicit consideration, quantification, and gradual reduction of model uncertainty will be necessary to advance hydromodification management.

The uncertainty inherent to hydromodification modeling underscores the need for carefully designed monitoring and adaptive management programs.

General Considerations. The well-known statistician George Box famously said that “all models are wrong, some are useful.” The usefulness of a model for a particular application depends on many factors including prediction accuracy, spatial and temporal detail, cost of calibration and testing, meaningful outputs, and simplicity in application and understanding. There is no cookbook for selecting models with an optimal balance of these characteristics. Models of stream response to land-use change will always be imperfect representations of reality with associated uncertainty in their predictions. In addition to the prediction errors of standard hydrologic models, common limitations and sources of uncertainties include insufficient spatial and/or temporal resolution, and poorly known parameters and boundary conditions. Ultimately, the focus of scientific study in support of decision making should be on the decisions (or objectives) associated with the resource and not on the model or basic science. Each model has limitations in terms of its utility in addressing decisions and objectives of primary concern to stakeholders. Prediction error, not perception of mechanistic correctness, should be the most important criterion reflecting the usefulness of a model (NRC 2001; Reckhow 1999a,b). The predictive models discussed above may be thought of as predictive scientific assessments; that is, a flexible, changeable mix of small mechanistic models, statistical analyses, and expert scientific judgment.

Region-Specific Considerations. Because all models are vulnerable to improper specification and omission of significant processes, caution must be exercised in transferring existing models to new

regional conditions. For example, mobile boundary hydraulic models are mechanistically detailed but not generally well-suited to many southern California streams given the prevalence of near-supercritical flow, braiding and split flow (Dust 2009). In addition, bed armoring and channel widening resulting from both fluvial erosion and mass wasting processes are key influences on channel response in semi-arid environments. These processes are not well-represented and constrained in current mobile boundary models. Accordingly, the appropriateness of existing models for addressing a particular hydromodification management question should be empirically tested and supported with regionally appropriate data from diverse stream settings.

Managing Uncertainty. To date, hydromodification management has generally relied on oversimplified models or deterministic outputs from numerical models that consume considerable resources but yield highly uncertain predictions that can be difficult to apply in management decisions. Numerical models are nevertheless an important part of the hydromodification toolbox, especially in characterizing rainfall-response over decades of land-use change. It is challenging to rigorously quantify the prediction accuracy of these mechanistic numerical models; however, their utility can be enhanced by addressing prediction uncertainties in number of ways (Cui *et al.* 2011). Candidate models can be subjected to sensitivity analysis to understand their relative efficacy for assessment and prediction of hydromodification effects. Moreover, it should also be demonstrated that selected models can reasonably reproduce background conditions before they are applied in predicting the future. Modeling results that are used in relative comparisons of outcomes are generally much more reliable than predictions of absolute magnitudes of response.

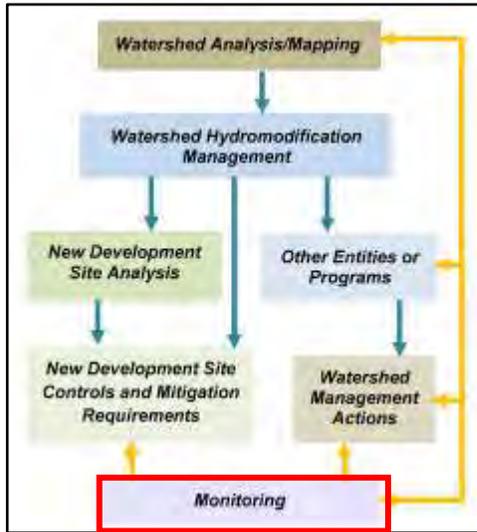
Hydromodification modeling embodies substantial uncertainties in terms of both the forcing processes and stream response. Deterministic representations of processes and responses can mask uncertainties and can be misleading unless prediction uncertainty is explicitly quantified. Errors may be transferred and compounded through coupled hydrologic, geomorphic, and biologic models. Accordingly, explicit consideration, quantification, and gradual reduction of model uncertainty will be necessary to advance hydromodification management. This points to two basic needs. First, there is a need to develop more robust probabilistic modeling approaches that can be systematically updated and refined as knowledge increases over time. Such approaches must be amenable to categorical inputs and outputs, as well as combining data from a mix of sources including mechanistic hydrology models, statistical models based on field surveys of stream characteristics, and expert judgment. Second, the uncertainty inherent to hydromodification modeling underscores the need for carefully designed monitoring and adaptive management programs, as discussed in Section 5.

A risk-based framework can provide a more rational and transparent basis for prediction and decision-making by explicitly recognizing uncertainty in both the reasoning about stream response and the quality of information used to drive the models. Prediction uncertainty can be quantified for any of the types of models described above; however, some types are more amenable to uncertainty analysis than others. For example, performing a Monte Carlo analysis of a coupled hydrologic-hydraulic model is a very demanding task. A simple sensitivity analysis of high, medium, and low values of plausible model parameters is much more tractable and still provides an improved understanding of the potential range of system responses. Such information can be subsequently integrated with other model outputs and

expert judgment into a probabilistic framework. For example, Bayesian probability network approaches can accommodate a mix of inputs from mechanistic and statistical models, and expert judgment to quantify the probability of categorical states of stream response. Such networks also provide an explicit quantification of uncertainty, and lend themselves to continual updating and refinement as information and knowledge increase over time. As such, they have many attractive features for hydromodification management, and are increasingly used in environmental modeling in support of water quality (Reckhow 1999a,b) and stream restoration decision-making (Stewart-Koster *et al.* 2010).

Sediment Supply. As described above, a reduction in sediment supply to a stream may result in instability and impacts, even if pre- and post-land use change flows are perfectly matched. Thus, there is a need to develop management approaches to protect stream channels when sediment supply is reduced, and to refine and simplify tools to support these approaches. This continues to prove challenging because, the effects of urban development on sediment supply in different geologic settings are not well understood and poorly represented in current models. As a starting point, models used to analyze development proposals that reduce sediment supply could be applied with more protective assumptions with respect to parameters and boundary conditions (inflowing sediment loads). Effects of altered sediment supply on stream response could be addressed in a probabilistic framework by adjusting conditional probabilities of stream states to reflect the influence of reductions in important sediment sources due to land use change.

5. MONITORING



“Monitoring” can cover a tremendous range of activities in the context of stormwater management in general, and of hydromodification in particular. For example, the NPDES Phase 2 general permit for California (SWRCB, 2003 (www.swrcb.ca.gov/water_issues/.../stormwater/.../final_ms4_permit.p...), National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000004, p. 11) notes that the objectives of a monitoring program may include:

- Assessing compliance with the General Permit.
- Measuring and improving the effectiveness of stormwater management plans.
- Assessing the chemical, physical, and biological

impacts on receiving waters resulting from urban runoff.

- Characterizing storm water discharges.
- Identifying sources of pollutants.
- Assessing the overall health and evaluating long-term trends in receiving water quality.

These objectives span multiple goals, ranging from verifying of compliance, evaluating effectiveness, characterizing existing conditions, and tracking changes over time. Each would likely require different monitoring methods, duration of measurement, and uses of the resulting data (Table 5-1). This variability emphasizes what we consider the key starting point of any monitoring program: to answer the questions, “What is the purpose of monitoring? How will the data be used?” Even secondary considerations can exert great influence over every aspect of the design of a monitoring program: “How quickly do you need to have an answer?” And, perhaps most influential of all, “What are the resources available to provide that answer?”

Table 5-1. The recommended purpose(s) of monitoring associated with hydromodification control plans, organized by the scale of implementation and the time frame in which useful results should be anticipated.

Time Frame	Programmatic: State and Regional Water Boards	Local: City and County Jurisdictions
Short-term (<10 years)	<ul style="list-style-type: none"> • Define the watershed context for local monitoring (at coarse scale) • Evaluate whether permit requirements are making positive improvements 	<ul style="list-style-type: none"> • Evaluate whether specific projects/regulations are meeting objectives • Identify the highest priority action(s) to take
Long-term (1+ decades)	<ul style="list-style-type: none"> • Define watershed context and setting benchmarks for local-scale monitoring (i.e., greater precision, if/as needed) • Demonstrate how permit requirements can improve receiving-water “health,” state-wide (and change those requirements, as needed) 	<ul style="list-style-type: none"> • Evaluate and demonstrate whether actions (on-site, instream, and watershed scale) are improving receiving-water conditions • Assess program cost-effectiveness • Identify any critical areas for resource protection

5.1 The Purpose of Monitoring

In the context of hydromodification assessment and management, we propose three interrelated purposes for monitoring that will guide the discussion and recommendations in this section:

- **Characterizing the conditions** of receiving waters downstream of urban development (including any trends in those conditions over time).
- **Evaluating the effectiveness** of hydromodification controls at protecting or improving the conditions of downstream receiving waters (and modify them, as needed).
- **Setting priorities** on the wide variety of hydromodification control practices, as promulgated by the State and Regional Boards and as implemented by local jurisdictions.

These needs give rise to several interrelated types of monitoring, all common to many watershed and stormwater monitoring programs. They are typically executed at different spatial and temporal scales, and if well-designed and executed they can collectively help guide management actions. We define them here, using terms and definitions that are common to the monitoring literature:

- **Performance monitoring**, by which is normally meant the evaluation of a particular stormwater facility relative to its intended (or designed) performance, but independent of whether that intended design is actually beneficial for downstream receiving waters.
- **Effectiveness monitoring**, by which we mean the assessment of how well specific management actions or suites of actions reduce or eliminate the direct impacts of stormwater on receiving waters. This type of monitoring can answer a question common to stormwater management: does a particular facility actually achieve its intended goal (e.g., flow releases from a stormwater facility protect the stream channel downstream from erosion)? More broadly, monitoring can evaluate the “effectiveness” of a suite of measures or an overall program designed to produce

beneficial outcomes (or avoid negative ones) in downstream receiving waters. In this context, the precise boundaries division between effectiveness monitoring and other types are blurry and unnecessarily artificial.

- **Trends monitoring**, by which we mean an integrative assessment of whether our “endpoint” indicators (physical, chemical, or biological) are showing any consistent, statistically significant change over time. Such monitoring rarely “proves” the direct impacts of a specific stressor on a receiving water, but it is critical to setting and evaluating progress towards integrative assessment endpoints at a regional scale. If well-designed, trend monitoring commonly provides useful information at smaller spatial scales as well, particularly in evaluating response to recent management actions or recovery from a prior disturbance.
- **Characterization monitoring**, by which is commonly meant the identification and (or) the quantification of various parameters in stormwater or a receiving-water body. Characterizing the condition of an outflow discharge or a water body at a particular time and place is always an outcome of the other kinds of monitoring; when it is called out as a goal in-and-of itself, however, it can be useful to prioritize actions—but only if there is a preexisting standard for what constitutes a “good” or “acceptable” condition (also termed “status monitoring”), and a program to implement (or at least to set the priority for implementing) actions to improve the condition of waterbodies found to be “not good” or “unacceptable.”

Without a context for evaluation, characterization monitoring is prone to generate large quantities of rarely used data. We strongly encourage that the purpose of any “characterization” monitoring be clearly articulated in hypothesis testing, priority setting, or systematic trend evaluation. As noted by NRC (2009, p. 508) with respect to this type of monitoring, “...monitoring under all three (NPDES municipal, industrial, and construction) stormwater permits is according to minimum requirements not founded in any particular objective or question. It therefore produces data that cannot be applied to any question that may be of importance to guide management programs, and it is entirely unrelated to the effects being produced in the receiving waters.” We seek to proactively avoid this problem.

Monitoring should occur at two scales:

- **Regional or state-wide scale- this will require a time frame of one to several decades**
- **Local scale – this is required to evaluate the performance and effectiveness of specific management measures.**

In this sub-section, we focus our discussion on two interrelated scales at which these various types of monitoring should be applied as outlined in Table 5-1 at the beginning of this section. The first, which here and elsewhere in this document is termed “programmatic,” has a regional or state-wide spatial scale; many of its key actions will require a time frame of one to several decades. Monitoring data from this scale should inform the broadly construed “health” of receiving waters to assess whether the range of hydromodification strategies being implemented is maintaining desired conditions across the (state-wide) range of physiography, climate, land-use change, and regulatory approaches of the regional boards. They should be used to identify particularly promising (or particularly ineffective) combinations of control strategies and landscape conditions. Finally, they should provide regionally tailored benchmarks for what constitutes “healthy

watersheds” and “healthy receiving waters” so regulators and permittees alike know what still needs to be done, where it should be done, and how urgently it needs to happen.

The second scale of monitoring data we term “local.” It comprises the generation of monitoring data to evaluate the performance and effectiveness of specific management measures (be they structural or nonstructural) at reducing the negative consequences of hydromodification on downstream receiving waters. Useful information at this scale will normally be generated in the time frame of an NPDES permit cycle (i.e., ~5 years) and should provide direct guidance on whether the evaluated management strategies are working, need refinement, or should be abandoned altogether. They should also provide guidance on the degree to which management efforts should be prioritized where regulatory flexibility exists, given the conditions (and, perhaps, the potential responsiveness) of downstream receiving waters. Over longer time frames, monitoring at this scale can also provide public demonstration of the value of regulatory and programmatic efforts, and it can also help identify the most cost-effective mix of publically funded projects and regulatory protection to achieve (or maintain) receiving-water health.

5.2 Programmatic Monitoring at the Regional Scale

5.2.1 Defining Watershed Context

Although not “monitoring” in the strictest sense of this word, establishing a watershed context for the measurement and evaluation of receiving waters is a hallmark of virtually all recommended monitoring strategies (e.g., Beechie *et al.* 2010, Brierley *et al.* 2010). Monitoring programs should be consistent with the watershed perspective that forms the basis for the management framework discussed in Section 3. In California (as in most other states), this can only be executed at a supra-jurisdictional scale, because most watersheds cross one or more city and/or county boundaries. This presents the long-term challenge that many jurisdictions do not have authority over parts of the landscape that can affect the quality of rivers and streams that pass through their boundaries; more immediately, however, it makes an inclusive watershed assessment almost impossible to execute at a local level.

5.2.2 Determining the Effectiveness of Permit Requirements

A second, more challenging contextual need at the regional scale is the definition of thresholds or endpoints against which to compare the results of monitoring or modeling. Both of these “assessment tools” can guide the application of hydromodification control strategies, evaluate their real or likely success, and predict the consequences of hydromodification on downstream receiving waters. However, they provide little insight into the question, “how good is good enough?” Answering this question requires a definition of “assessment endpoints” (borrowing the term from NRC 1994), which in turn requires objective, quantifiable criteria for evaluating progress or outright success.

Most existing HMPs require the permitted municipalities to develop programs and policies to assess the potential effects of hydromodification associated with new development and redevelopment, to include management measures to control the effects of hydromodification, and to implement a monitoring program that assesses the effectiveness of HMP implementation at controlling and/or mitigating the

effects of hydromodification. Yet the appropriate objectives of such management measures, or a basis to evaluate success or failure of the HMP through monitoring data, are rarely provided in consort. Setting these endpoints is beyond the capacity of any but the largest municipalities—and even for those, neither the field of watershed science nor the arena of public policy is so clear that an unequivocally “correct” answer is likely to emerge without much additional work. Any such finding would also lack state-wide applicability; California is far too physically and ecologically diverse for an assessment endpoint developed in one part of the state to transfer everywhere without careful consideration.

For these reasons, we consider this aspect of monitoring at the regional scale to be a long-term, state-wide effort. This reflects the challenge of conducting meaningful characterization (or “status”) monitoring: it requires a benchmark against which the measured condition can be compared, and to which an absolute rating (“good,” “bad,” etc.) can be assigned.

In contrast, “trends” monitoring requires no such benchmark, only equivalent measurements undertaken at multiple times coupled with an understanding of what direction of change is desirable. For this reason, evaluating whether permit requirements are making positive improvements is a reasonable (and probably critical) short-term effort, one that can be conducted locally (see below). It should also be integrated and compiled at a regional level, however, the better to inform the continued development of hydromodification requirements.

5.3 Monitoring at the Local Scale

The needs of a monitoring program for local jurisdictions should complement those being satisfied at a regional scale. Showing net improvement is critical to maintaining support for regulatory actions and capital expenditures, but any monitoring program must reflect the typical constraints of showing rapid results while acknowledging constraints on staff resources and expertise (Scholz and Booth 2001). No less urgent is the need to identify what to do “next”—not necessarily establishing a multi-year capital improvement plan, but at least identifying key problems with one or two associated actions that would likely result in significant improvements in receiving-water conditions. Watershed characterization, as discussed above and applied to a specific jurisdiction, can provide useful guidance for such identification; even without it, local knowledge is commonly sufficient in-and-of itself. Targeted monitoring can normally confirm (or refute) such inferences in short order, which is why we place this monitoring application in the “short-term” category.

However, a monitoring program can also provide longer term guidance to local jurisdictions. When supported by the regional context of receiving-water conditions, local monitoring data can demonstrate trends over time that can lend support to (or indicate necessary changes to) hydromodification control plans. In combination with economic data, they can show long-term cost-effectiveness. Finally, site-specific monitoring data, when analyzed in the context of an appropriate scale of watershed characterization, can guide the stratification of less developed and undeveloped watershed areas into those where more assertive protection (or restoration) will be most worthwhile. None of these outcomes depend solely on collecting monitoring data, which is why none of them are presumed to be credible “short-term” applications of monitoring data. However, they have found expression in other

parts of the country having long-term monitoring efforts, and they should provide similar benefits to California as well.

5.4 Developing a Monitoring Plan

“Monitoring” the effects of a management action, whether it is a new regulation, a change in operational procedures, or a constructed project, is commonly included by design or required by regulation. The collection of monitoring data may be seen as a worthwhile activity in its own right, but this discussion uses a more restrictive, implementation-based definition: any “monitoring” needs to demonstrate a direct connection to management actions, such that the results of monitoring are translated into on-the-ground management actions (or changes in management actions). This focus on the *use* of monitoring data requires clear linkages between a management action, the uncertainties associated with that action, the ways in which the effects of that action are expressed (and can be measured) in the world, and the management changes that should be implemented if monitoring results provide unanticipated (or equivocal) resolution to those uncertainties. This is the basis for establishing an “adaptive management” approach to hydromodification monitoring, discussed in more detail in Appendix C. Here, we discuss the design of a monitoring program and outline the variety of measurements that can be made, under the assumption that the intended use(s) of the monitoring data have already been established.

“Stormwater management would benefit most substantially from a well-balanced monitoring program that encompasses chemical, biological, and physical parameters from outfalls to receiving waters” (NRC 2009, p. 257). In pursuit of a comprehensive monitoring program we might also add regular documentation of weather and climate conditions and land-cover changes. As a practical matter, however, monitoring at a site scale is almost never coordinated with other equivalent efforts at other locations, nor placed in a broader spatial context being developed as part of a regional effort. For monitoring data to have greatest value, however, such coordination and context-setting is needed.

Stormwater management would benefit most substantially from a well-balanced monitoring program that encompasses chemical, biological, and physical parameters... (NRC, 2009)

5.4.1 Design of a Monitoring Plan

As noted at the beginning of this section, the overarching question that must be asked and answered at the beginning of any monitoring design effort is “What is its purpose?” The considerations enumerated below cannot be addressed without an explicit answer to this question, because the outcome of those considerations will depend on how the data are to be used. For certain common application of monitoring data we suggest guidance that will be widely appropriate, but there are no recommendations in this section (or any other monitoring guidance document) that apply universally.

Multiple authors have condensed their guidance for designing a monitoring plan into a short list of steps that should precede the first instance of field data collection (e.g., Shaver *et al.* 2007). Although all

differ in details and intended audience, they share significant commonalities that can be distilled as follows:

- Articulate the purpose of the monitoring (the “management question”).
- Identify key constraints, in particular the geographic range and scale over which the monitoring can occur, financial/staff resources available, and the time frame in which results must be generated.
- Evaluate existing information, model outputs, and/or regulatory requirements to identify promising metrics and specific sites appropriate to the management question.
- Identify the specifics of the monitoring plan: what parameter(s), where, for how often and for how long. This may include multiple iterations, wherein the guidance of Step 3 must align with the constraints of Step 2.

Most such guidance is written with site-specific, “local” monitoring in mind—the existing literature provides less direction for monitoring that is herein recommended to occur at a regional scale over the next one or more decades. However, the basic principles are the same at all scales: a coherent, explicit purpose needs to be articulated, resource constraints need to be acknowledged, and a credible strategy needs to be developed with its specifics fleshed out. Below we discuss some of the primary considerations in this last step, because they are common across a wide range of monitoring purposes, programmatic constraints, and indicator types.

5.4.2 Constraints (Step 2 of the Monitoring Plan)

Scale. Ideally, a monitoring program should encompass multiple, nested scales of monitoring that are determined by the question(s) being addressed. For hydromodification applications, the broadest scale of monitoring is that of the integrated effect of stormwater impacts and stormwater management on receiving waters. *Trends monitoring* (and characterization monitoring, if regionally appropriate ranges of quality have been determined) addresses these questions, and it also allows stormwater and resource managers to measure the broad benefits obtained from management investments. Site-specific conditions normally cannot be traced back to specific generators of pollution (NRC 2009), and so monitoring at the broadest scales (i.e., many tens of square miles and larger) should not attempt to do so. Instead, identifying overall conditions and trends requires a broad spatial scale over long time frames (i.e., multiple years), the essence of trends monitoring. This level of effort is recommended as a regional responsibility, because the area(s) of interest will normally far exceed the geographic limits of any single jurisdiction.

Ideally, a monitoring program should be designed to detect trends, assess effectiveness and allow for source identification.

If trends monitoring (or long-standing prior knowledge) indicates that there are impacts on beneficial uses, a second (and more site-specific) scale is invoked, that of *effectiveness monitoring*: which of our many stormwater-management actions are achieving the greatest reduction in downstream impacts

(and which are not)? On the whole, such stormwater control measures, both structural and nonstructural, vary by land use—the measures suitable for a residential neighborhood will likely be impractical or ineffective (or both) in an industrial setting. We therefore anticipate that most effectiveness monitoring will be stratified by land use and conducted by individual jurisdictions (see, for example, such an approach in the [Nationwide Stormwater Quality Database](#), which contains water-quality data from more than 8600 events and 100 municipalities throughout the country).

The finest scale of monitoring is that of *source identification*, a form of characterization monitoring: what specific locations and which parts of the landscape generate stormwater of sufficiently deleterious quantity and (or) quality to cause impacts to beneficial uses, be they direct or indirect effects? This question is widely posed in stormwater management programs, and a number of existing monitoring programs seek to provide answers. The science of stormwater already suggests where the greatest attention is probably warranted (NRC 2009), namely a particular focus on areas of well-connected (or “effective”) impervious area, high vehicular traffic, and exposure to toxic chemicals. We therefore suggest these categories should define areas of highest priority for this type of targeted investigation, allowing even a resource-constrained jurisdiction to conduct a useful, well-focused monitoring effort with good efficiencies.

Siting. Site selection is most commonly guided by the location of the management action being evaluated while dictated by more mundane considerations of property ownership and access logistics. In general, sites need to meet a few following basic criteria.

- **Appropriate scale:** the upstream area should be dominated by, or at least significantly affected by, the management action of interest.
- **Responsiveness:** at the chosen location, the parameters being measured should be amenable to change in response to the management action (e.g., monitoring for geomorphic change in a concrete channel is ill-advised).
- **Representativeness:** the results at the chosen location should be credibly extrapolated to “similar” sites, and those sites in aggregate should constitute a widespread (or otherwise important) subset of the landscape as a whole.
- **Access:** the site should be easily reached by the appropriate personnel and equipment, and with a cost of doing so consistent with the frequency of measurements being made. Any equipment left unattended needs to be secure (or well-hidden).

There are institutional considerations in site selection as well. Multiple programs implement monitoring or impose monitoring requirements, and coordination can provide mutual benefits and efficiencies to all. In particular, monitoring driven by management actions at a particular location (i.e., a local scale) will always benefit from information from one or more regional-scale reference sites that can characterize natural or background variability. Local studies will rarely have resources to execute such an effort themselves, again emphasizing the importance of a nested (and coordinated) hierarchy of monitoring programs.

Time and Variability. Evaluating the effectiveness of management actions requires a preliminary judgment of the time frame over which effects can be recognized. For water-quality parameters, storm-specific grab samples or continuous flow-weighted sampling has been most common; for changes in geomorphic form or in the population attributes of benthic macroinvertebrates, one-time annual sampling that presumes to integrate the effects of the past year are typical. Flow metrics are normally extracted from “continuous” (i.e., 5-, 15-, or 60-minute) measurements of discharge. However, every measurement has some degree of variability, a consequence of “natural” variability, measurement errors, and induced change (i.e., the effects of the management action we are trying to perceive). Separating these components is a matter of statistical analysis (see next section) based on repeated measurements, either in time or in space (or both).

We note that many practices common to past monitoring efforts, particularly the use of individual grab samples to characterize stormwater quality, have yielded results with little to no subsequent value: “...to use stormwater data for decision making in a scientifically defensible fashion, grab sampling should be abandoned as a credible stormwater sampling approach for virtually all applications” (NRC 2009, p. 330).

The duration of a monitoring program is commonly determined by the desire for “timely” answers, although normally the ability to generate statistically significant results is a function of the system being evaluated and the indicators being measured. This often creates a conflict between the intended “mission” of the monitoring program and its ability to produce defensible results, a conflict that can only be avoided by a design that identifies meaningful variables to measure, conducts sufficiently frequent measurements to dampen random variability, and must persist for long enough to allow a management “signal” to emerge from the data. This is the essence of the iteration noted above in Step 4 of monitoring-plan design above.

The monitoring program design must persist long enough to allow management “signal” to emerge from the data. Consequently, long-term records (i.e., one to several decades) will be needed to detect all but the most dramatic of trends in biological indicators.

In one of relatively few quantitative studies of variability in biological indicators, Mazor *et al.* (2009) found that year-to-year variability for the same site sampled in the same season showed a variability (i.e., $\pm 1\sigma$) was typically about 10 points for a benthic IBI. With average scores for their 5 sites ranging from 28–51 (on a 100-point scale), this reflects a coefficient of variation of about 25%. Individual metrics were even more variable. This emphasizes that long-term records (i.e., one to several decades) will be needed to detect all but the most dramatic of trends in biological indicators.

The duration of monitoring also needs to capture the events that are most important to the anticipated responses of the measured system. For evaluating the effects of hydromodification, frequent storms (i.e., those that are normally expected to occur one to several times per year) are commonly judged important and their effects would normally be captured by a monitoring effort of even just one or a few years’ duration. Particularly in more semi-arid regions of the state, however, significant channel-altering events may occur only after many decades of relative quiescence and stability, and noticeable (or documentable) response of streams to hydromodification may only occur under certain circumstances or following specific combination of events. Therefore, the lack of channel response on an annual basis

may not necessarily indicate that management actions are effective. Thus a long-term, ongoing monitoring effort is necessary to capture the responses to infrequent, stochastic events, but determining the likely duration of such a program requires some knowledge (or assumptions) of the critical drivers of those responses. It therefore requires a well-posed set of management questions underlying the monitoring effort as well.

For management questions concerning the effectiveness of hydromodification controls, monitoring will almost always benefit from long-term flow monitoring at multiple sites, especially those in the mid to upper watershed (and key tributaries, depending on the scale of the effort). Local rainfall measurements are nearly as essential, since flow data without rainfall data resolved at a similar spatial and temporal scale are useless at best, misleading at worst. Baseline (pre-project) monitoring normally is also invaluable. However, each of these elements will normally require some combination of a multi-scale, long-term, coordinated monitoring program with an investment of at least several years' duration in anticipation of (and follow-up after) a specific management action at a specific location. Despite the value for evaluating the effects of hydromodification (and hydromodification control efforts), such monitoring almost never occurs to this degree. To the extent this remains a practical constraint on implementation, the range of management questions needs to be commensurately narrowed as well.

Statistical Considerations. The statistical design of a monitoring program is beyond the scope of this section, because the range of possible requirements and approaches is tremendously broad. Several general principals are worth articulating, however, because they apply almost universally (and are commonly ignored):

- Although trends can be “suggested” by monitoring data, only statistically rigorous results can be offered as “proof.” Thus, ignoring this dimension of monitoring program design severely limits future applicability of the results.
- Most natural parameters display high variability when measured outside a laboratory, and thus the magnitude of change caused by a management action also needs to be great before it can be recognized. There is a trade-off between the relative magnitude of change and the number of samples required to recognize it (i.e., large relative changes require fewer samples), but many monitoring efforts pay little attention to this basic fact. Where sampling can only occur during specified storm conditions or once during the same season each year, the duration of a monitoring campaign sufficient to detect even large changes in naturally variable parameters is likely to be a decade or longer. For many management applications, this is tantamount to generating no useful information at all (but is significantly more costly).
- The level of effort needed can be estimated *a priori* to help guide final monitoring design, but only if the degree of variability and the magnitude of change to be perceived are known or estimated ahead of time. One such example is given below, where the diagonal lines are labeled with the number of independent samples needed to achieve a typical level of statistical power for various combinations of permissible error from the “true” value (x axis), and the intrinsic variability in values across the population being measured (y axis) in Figure 5-1 below.

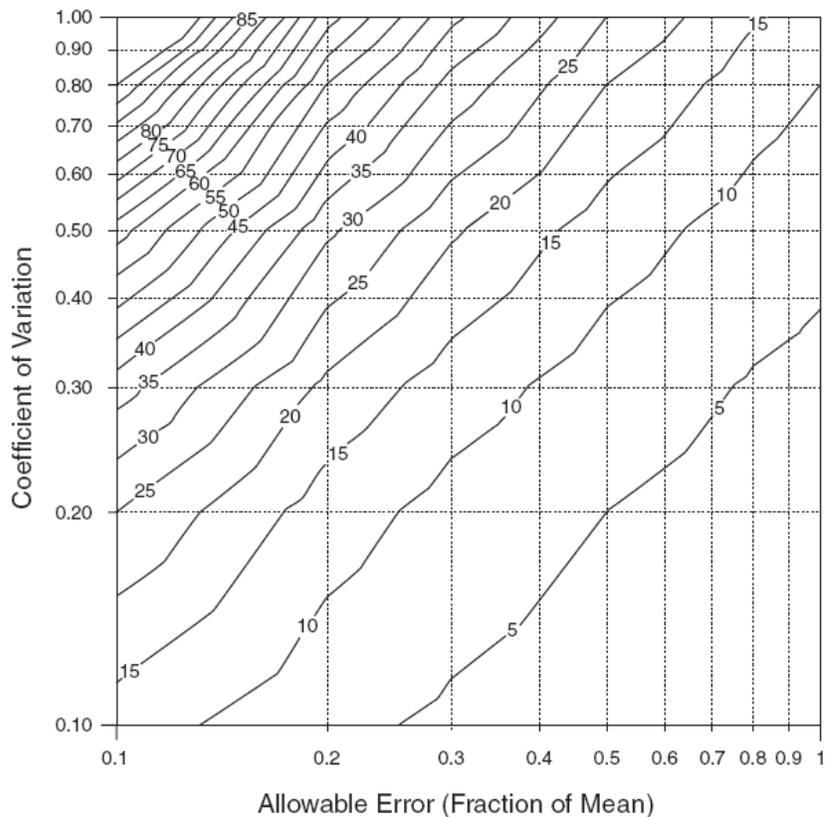


Figure 5-1. Sample requirements for confidence of 95% ($\alpha = 0.05$) and power of 80% ($\beta = 0.20$). Figure from Pitt and Parmer 1995.

5.4.3 What to Monitor (Step 3 of the Monitoring Plan)

The choice of “what to monitor” follows from the choice of assessment endpoints, which in turn depends on the choice of management goals: for example, if “stable stream channels” is the intended outcome of an HMP, then measurement of the physical form of a channel over time would be appropriate. If diagnosing the cause of observed changes is also desired, then some evaluation of potential causal agents (e.g., hydrology, sediment input, or direct disturbance) would also be needed. Because management goals are now commonly (and appropriately) cast more broadly, however, they can embrace less clearly defined endpoints such as “watershed health” or “biological integrity.” Many such endpoints fail the test of quantifiable objectivity.

However, these goals invoke a broad scope of concern, embracing not only physical stream conditions but also a range of chemical, hydrologic, and biological attributes. They encompass a broader catalog of receiving waters that may need to be evaluated. Finally, they emphasize the importance of looking more broadly to identify the cause of observed changes—both spatially, to conditions throughout a watershed that may have influence downstream; and temporally, to recognize ongoing adjustments to past disturbance (i.e., legacy effects) and to future environmental changes (e.g., climate change) that commonly lie well beyond the ability of local watershed managers to address. The imprecision of these

goals should not obscure the importance of broadening the scope of stormwater and hydromodification assessments to include not only the traditionally emphasized characterization of selected water-quality constituents and channel stability, but also more integrative measures.

These considerations suggest two broad categories of assessments, which largely but not entirely align with the two scales of implementation (i.e., “programmatic” and “local”) defined in Table 4–1:

- Integrative: defining an overall level of “health” of the watershed, as expressed in the condition(s) of its receiving waters. Current scientific consensus suggests that biological indicators are best suited to this scale of evaluation (Karr and Chu 1999), insofar as they integrate the consequences of multiple stressors on aquatic systems and because many management goals (and regulatory requirements) are cast in biological terms. To be meaningful, however, any such indicators need to be suitably chosen and stratified for their particular geo-hydro-climatological region (e.g., “ecoregions”; Omernick and Bailey 1997).
- Targeted: demonstrating the achievement of an established regulatory standard or a designated threshold (typically, a measured or modeled pre-development condition) by a particular parameter, commonly one or more chemical constituents or a specific hydrologic metric of flow. This can be evaluated at the outfall of a single stormwater facility, at the discharge point for a site, or in the receiving water itself. Many of these thresholds are important in their own right—to protect human health, to preserve riparian property from erosion, to avoid flooding of previously non-inundated lands. However, they should be recognized as providing only one-dimensional views of a much broader system. Thus, targeted monitoring can supplement but should not replace more integrative measures.

Integrative assessment endpoints require multiple lines of evidence to characterize receiving-water conditions. At their most comprehensive, they should include measures of flow, geomorphic condition, chemistry, and biotic integrity (Griffith *et al.* 2005, Johnson and Hering 2009). However, biological criteria are generally key to integrative assessment: “In general, biological criteria are more closely related to the designated uses of waterbodies than are physical or chemical measurements” (NRC 2001, p. 8). In most applications, such assessments are compared to one or more reference sites where conditions have been independently judged as “excellent,” or where human disturbance is minimal and so best-quality conditions are assumed.

Integrative assessment endpoints require multiple lines of evidence to characterize receiving-water conditions. At their most comprehensive, they should include measures of flow, geomorphic condition, chemistry, and biotic integrity.

The task of identifying and quantifying reference conditions in California streams is presently being carried out by the Reference Condition Management Program (RCMP) of the State Water Board’s Surface Water Ambient Monitoring Program (SWAMP; see [2009 Recommendations](#)). About 600 sites have been recognized by this program as “reference” based on having minimal human disturbance, and they have been geographically stratified into the 12 Level III ecoregions mapped for the state of California (by [USEPA 2000](#)). The metrics chosen to characterize their biologic conditions should provide an appropriate list for the evaluation of impaired (or potentially impaired) streams.

An equivalent set of reference sites and conditions for other receiving-water types does not presently exist. California also presently lacks a systematic basis for defining relative categories of “poor,” “fair,” “good,” or “excellent” based on numeric values of biological indicators, such as exists in parts of the Pacific Northwest. Several regions, however, now have multimetric biological indicators with defined reference conditions (see below).

Elsewhere, however, there is as yet no context for setting assessment endpoints for biological indicators in California receiving waters. Such an effort is in progress, at least for streams, and its eventual completion to support the management application of more local monitoring results is a key recommendation of this report. Biological assessment endpoints will need to be established region by region on an as-needed basis; in the interim, locally collected data can be very useful for trend monitoring of receiving water but not for defining existing levels of “health.”

5.4.3.1 An Example from Washington State

The Puget Sound region of western Washington State provides an instructive example for identifying indicators and establishing desired assessment endpoints. Multiple agencies over the last two decades have sought to measure the overall ecological health of the region and to define targets for recovery. Following the most recent three-year process, the lead agency for the current effort released its set of 20 “dashboard indicators” designed both to express scientific understanding of conditions needed for ecological health and to communicate that understanding in a public-accessible manner (http://www.psp.wa.gov/pm_dashboard.php; accessed September 5, 2011). They cover physical, chemical, and biological indicators: all expressed in terms of relative improvement or quantified conditions to be reached by the year 2020.

This level of target-setting is possible only after extensive study and public discussion; it falls far beyond the scope of the present document. It is instructive for the state of California, however, in several regards as it looks to the future:

- The physiographic scope of the indicators and their target values is well-constrained to a particular geographic region with broadly similar geologic, hydrologic, and climatological attributes. Multiple parallel efforts would almost certainly be needed for a more diverse region (such as the entire state).
- Each indicator has a strong scientific basis for inclusion and at least some scientific basis for specific targets. Their communication value with the public was also an explicit criterion for inclusion.
- The most numerous indicators are biological, and they address multiple levels of the trophic chain from top predators to plants (a planktonic metric, however, was rejected as requiring too much additional scientific study and offering little communication value to the general public).
- Although emphasizing biology, the indicators are broadly distributed amongst biological, chemical, and physical metrics; most are broadly integrative in nature (e.g., reference to “bug populations” (the Puget Sound B-IBI) and a “freshwater quality index”).

- The set of physical indicators is most parsimonious for instream conditions, and excluding marine nearshore and estuary conditions is restricted to a single hydrologic metric (chosen for its presumed influence on fish). This stands in stark contrast to most existing hydromodification monitoring plans, which emphasize measures of channel geomorphology and a wider range of hydrologic metrics. Such indicators may provide useful performance measures, but they should not be mistaken for more integrative measures of ecosystem or watershed “health.”
- Although each indicator has a specified, numeric goal to be reached by 2020, there are no articulated changes to the current management plan if any of those goals are not reached (or if interim measures suggest that they will not be reached). This is a recognized shortcoming of the present plan but there is no mechanism yet in place to address it. As such, it does not currently meet the test for “adaptive management” (see Appendix C).

In California, such a list of integrative assessment indicators (let alone quantified endpoints for those indicators) cannot presently be defined, except in a few specific localities where data collection and analysis have been ongoing for many years. Thus, we recognize the value of such targets but must guide the present development of monitoring in recognition of their near-complete absence. Rectifying this shortcoming is the central recommendation for long-term program development; in the interim, short-term monitoring at both the regional and local levels need to acknowledge the absence of an integrative context in which to interpret their results.

In California, a list of integrative assessment indicators (let alone quantified endpoints for those indicators) cannot presently be defined, except in a few specific localities. Rectifying this shortcoming is the central recommendation for long-term program development.

Regulatory standards are established on the assumption that “clean water” will result in “healthy streams,” but the elements of a watershed are far too complexly interrelated to permit such a simplistic perspective. Although the inverse (“polluted water results in unhealthy streams”) is almost always true, the challenge for inferring causality from typical monitoring data is that *many* such stressors can all yield the same, degraded outcome. For this reason, targeted monitoring can provide useful diagnostic information and demonstrate regulatory compliance, but it cannot provide sufficient information to address integrative assessment endpoints.

5.4.3.2 Indicators from Existing Programs

We now turn to some of the most common indicators used in monitoring programs today, recognizing that their suitability in any given application depends on the questions being asked, the characteristics of the natural system being measured, and the practical constraints imposed on the monitoring program.

Hydrologic Indicators. Historically, the effects of urbanization on flow were characterized exclusively in terms of peak flow increases (e.g., Leopold 1968, Hollis 1975). Study since those early works has emphasized the degree to which other attributes of a stream hydrograph are changed by watershed imperviousness, and the importance of assessing the *duration* of moderate flows that are capable of transporting channel sediments and the frequency with which those geomorphically active flows occur

(Section 2). Thus, monitoring relevant to a particular hydromodification management application will likely include a variety of flow metrics (e.g., Konrad and Booth 2005, Degasperi *et al.* 2009).

In moving beyond a narrow focus on linkages between watershed urbanization, flow alteration, and in-stream effects, scientific understanding of hydrologic controls on stream ecosystems has recently led to new approaches for assessing the ecological implications of hydromodification. For example, the ecological limits of hydrologic alteration (ELOHA) framework is a synthesis of a number of existing hydrologic techniques and environmental flow methods that allows water-resource managers and stakeholders to develop socially acceptable goals and standards for streamflow management (Poff *et al.* 2010). The central focus of the ELOHA framework is the development empirically testable relationships between hydrologic alteration and ecological responses for different types of streams. This requires a foundation of hydrologic data provided by gaging and/or monitoring, and sufficient biological data across regional gradients of hydromodification. Although hydrologic–ecological response relationships may be confounded to some extent by factors such as chemical and thermal stressors, there are numerous case studies from the US and abroad in which stakeholders and decision-makers have reached consensus in defining regional flow standards for conservation and ecological restoration of streams and rivers (Poff *et al.* 2010).

Hydrologic monitoring provides essential information needed for establishing flow–geomorphology–ecology relationships, validating conceptual models, and assessing effectiveness of management actions in developing watersheds. Implementing regional flow standards should proceed in an adaptive management context, where collection of monitoring data or targeted field sampling data allows for testing of flow alteration–geomorphic–ecological response relationships. This allows for a fine-tuning of flow management targets based on improved understanding of the actual mechanisms; however, such monitoring can be expensive and it may take many years to adequately characterize the full spectrum of streamflows. Thus, hydrologic monitoring programs should be carefully planned and executed so that they are cost-effective and address the key uncertainties. In this paper we primarily focus on indicators that do not require additional, extensive data collection.

Hydrologic indicators provide essential information needed for establishing flow–geomorphology–ecology relationships, validating conceptual models, and assessing effectiveness of management actions in developing watersheds.

Geomorphic indicators have been long-recognized as simple, easy-to-measure, and relatively responsive indicators of changes to the flow regime or sediment supply of a river or stream.

Biological indicators provide an integrative view of river condition, or river health.

Hydrologic monitoring is feasible in the context of a short-term program only if the purpose is to evaluate the engineering performance of a particular facility. For most applications, however, at least two (and commonly many more) years are necessary to measure a range of variable conditions sufficient to capture significant geomorphic and/or biological effects. Measurement of precipitation, generally a less cost-intensive effort than flow monitoring, must occur in consort for the data to be useful. In an effort to minimize the cost of continuous long-term flow modeling, a hydrologic model may be calibrated on one or two years of actual data and then used *in lieu* of further data to predict flow conditions. Whether the level of imprecision so introduced is appropriate will depend on the

management questions being asked, but in general such an approach is normally judged more appropriate for comparative results (e.g., did a specified flow magnitude increase in frequency or duration?) than for absolute results (what is the magnitude of the 2-year discharge?).

Geomorphic Indicators. Geomorphic indicators have been long-recognized as simple, easy-to-measure, and relatively responsive indicators of changes to the flow regime or sediment supply of a river or stream (e.g., Leopold 1968). They require little specialized equipment, many commonly can be measured “in the dry” (or close to it), they typically change little from week-to-week (and so are often measured only once per year), and the morphologic features of interest provide the physical template on which a wide range of biological conditions are expressed.

Scholtz and Booth (2000) recognized five geomorphological “channel features” commonly measured as part of monitoring programs:

- Channel geometry (cross sections, longitudinal profile).
- Channel erosion and bank stability.
- Large woody debris.
- Channel-bed sediment.
- In-stream physical habitat (pools, riffles, etc.).

To this list, others have also added:

- Floodplain connectivity.
- Channel planform (meandering, braiding, rates of channel shifting).

Each metric has well-defined methods for field (or, in some cases, airphoto) measurements that need not be repeated here. However, despite broad agreement on *how* to measure each parameter, there is substantially less agreement on the meaning of particular measurements, or indeed under what circumstances (if any) such measurements should be made at all. Most contentious are the various protocols for assessing instream physical habitat (#5 above)—seemingly the most “relevant” for a host of biological applications and for evaluating restoration success. However, a variety of studies have documented a high level of uncertainty imposed by observer bias:

“Habitat-unit classification was not designed to quantify or monitor aquatic habitat. At the level necessary for use as a stream habitat monitoring tool, the method is not precise, suffers from poor repeatability, cannot be precisely described or accurately transferred among investigators, can be insensitive to important human land-use activities, is affected by stream characteristics that vary naturally and frequently, and is not based on direct, quantitative measurements of the physical characteristics of interest. Relying on habitat-unit classification as a basis for time-trend monitoring is time-consuming, expensive, and ill-advised.” (Poole *et al.* 1997, p. 894)

Other geomorphic metrics, in contrast, can provide a robust, albeit coarse, characterization of the channel boundaries. Some changes, particularly if consistently expressed by multiple adjacent cross-

sections, can provide clear documentation of systematic channel changes over time that can be credibly associated with upstream changes (e.g., increased discharge from urbanization leading to channel enlargement). Other changes, however, may have a more indirect or uncertain association with upstream conditions (e.g., grain-size changes) because of the potential for rapid, ill-described changes over time without a corresponding human “cause.” This emphasizes the importance of having a well-crafted purpose for the monitoring program into which the utility of any chosen parameter can be clearly described.

Biological Indicators. Biological indicators have been long-applied in society’s evaluation of stream conditions, but historically that application has been rather informal. Observation of major fish kills, for example, is the application of a “biological indicator,” but it provides little diagnostic or discriminatory information except in those streams where conditions are so poor that even casual awareness is inescapable. As a more refined assessment tool, however, their application to freshwater streams is only a few decades old. As such, the science is still under construction and some basic principles are still debated.

The rationale behind using biological indicators, however, is relatively undisputed. Karr (1999) has provided a useful summary of that rationale, of which the key elements are:

- Biological monitoring and biological endpoints provide the most integrative view of river condition, or river health.
- Biological monitoring is essential to identify *biological* responses (emphasis added) to human actions.
- Communicating results of biological monitoring to citizens and political leaders is critical if biological monitoring is to influence environmental policies.

Some of the earliest references to biological monitoring are associated with the development of RIVPACS, the River Invertebrate Prediction and Classification System, developed by the Centre for Ecology and Hydrology in the United Kingdom and now applied in a number of countries worldwide to predict instream biological conditions from a suite of watershed and channel variables. Since that beginning, other approaches have been advanced and practiced (e.g., the US Environmental Protection Agency’s [Rapid Bioassessment Protocols](#)) that provide alternative, but likely near-equivalent results (e.g., Herbst and Silldorf 2004).

In this section we compare several biological indicators recently applied in various regions of California. This not intended as a comprehensive comparison of all available approaches potentially applicable to California; rather, it simply provides a few examples that illustrate the differences, and the similarities, of the various approaches. As the comparisons demonstrate, there is no “right” approach—but all share commonalities that are likely to be valuable elements of any biological monitoring program. We focus exclusively on benthic macroinvertebrates (BMI), because these have seen the longest and most widespread application (both in California and worldwide) given their species diversity and their relative geographic immobility. However, a variety of other biological metrics (particularly fish and periphyton) have relevance to biological monitoring and strong advocates in the scientific community. Their

omission here is not a judgment on their value, merely a reflection of the broader applicability and richer scientific development of BMI-based indicators.

Multimetric indices are presently completed for four areas of the state (Eastern Sierra, North Coast, Central Valley, and Southern Coast). They are not standardized or calibrated state-wide (nor should they necessarily be), and they do not provide statewide coverage. In addition, the City of Santa Barbara (Ecology Consultants 2010) has sponsored development of its own BMI index (geographically embedded within the Southern Coast region), with both commonalities and differences between it and the others.

Eastern Sierra Nevada. Herbst and Silldorf (2009) developed an IBI based on streams from the upper Owens River north to the Truckee River. Their purpose was both to provide a region-specific IBI for future use and to evaluate the results of such an approach with others that also make use of BMIs to assess stream conditions. They evaluated the performance of 12-, 10-, and 8-metric indices, recommending the 10-metric index as providing the best overall performance included in the 12-metric index were these 10 and also predator richness and EPT% abundance:

- % tolerant percent richness (% of taxa with TV= 7,8,9,10).
- Richness (total number of taxa).
- Chironomidae Percent Richness (% of taxa that are midges).
- Ephemeroptera (E) Richness (number of mayfly taxa).
- Plecoptera (P) Richness (number of stonefly taxa).
- Trichoptera (T) Richness (number of caddisfly taxa).
- Dominance 3 (proportion of 3 most common taxa)
- Biotic Index (modified Hilsenhoff, composite tolerance).
- Acari richness (number of water mite taxa).
- Percent shredders (% of total number that are shredders).

A statistical analysis suggests that as many as 10 distinct classes can be discriminated using this IBI, although their recommended application uses only five categories of quality.

North Coast. Rehn *et al.* (2005) developed an IBI based on coastal-draining streams from Marin County north to the Oregon border. They evaluated 77 individual metrics, testing them for responsiveness to human disturbance and redundancy, and ultimately settled on eight:

- EPT richness.
- Coleoptera richness.
- Diptera Richness.
- Percent intolerant individuals.

- Percent non-gastropod scraper individuals.
- Percent predator individuals.
- Percent shredder taxa.
- Percent non-insect taxa.

Their statistical analysis indicated that five categories of quality could be discriminated; response was driven most strongly by watershed land cover (natural vs. unnatural) and percent of substrate that was sand-sized or finer. They also suggested a set of thresholds for rejecting potential “reference” sites (Rehn *et al.* 2005; Table 5-2), which was also used in the Southern Coast study (Ode *et al.* 2005; see below):

Table 5-2. Thresholds for rejecting potential "reference" sites.

Stressor	Threshold
Percentage of unnatural land use at the local scale	> 5%
Percentage of urban land use at the local scale	> 3%
Percentage of total agriculture at the local scale	> 5%
Road density at the local scale	> 1.5 km/km ²
Population density (2000 census) at the local scale	> 25 ind./ km ²
Percentage of unnatural land use at the watershed scale	> 5%
Percentage of urban land use at the watershed scale	> 3%
Percentage of total agriculture at the watershed scale	> 5 %
Road density at the watershed scale	> 2.0 km/km ²
Population density (2000 census) at the watershed scale	> 50 ind./ km ²

Central Valley. Rehn *et al.* (2008) also developed an IBI for Central Valley streams, evaluating 80 candidate metrics to yield a final list of five:

- Collector richness.
- Predator richness.
- Percent EPT taxa.
- Percent clinger taxa.
- Shannon diversity (a composite measure of taxonomic richness and evenness of abundance).

They found that reach-scale physical habitat variables were more critical in their data set than water chemistry or land use. They also presented their findings with greater caution than with other regions of the state, noting the difficulty of identifying truly “unimpaired” reference conditions and the geographic concentration of much of their source data.

Southern Coast. Ode *et al.* (2005) developed a BMI index of biological integrity based on 61 potential metrics from reference sites drawn from relatively undisturbed coastal-draining watersheds from Monterey Bay south to the Mexican border. They included seven final metrics:

- Percent tolerant taxa.
- Percent collector-gatherer + collector-filterer individuals.
- Predator richness.
- Percent intolerant individuals.
- EPT richness.
- Percent noninsect taxa.
- Coleoptera richness.

They note that the last two on the list are not common in other multimetric B-IBIs but were statistically appropriate for their data set. They judge that this “SoCal B-IBI” can discriminate 5 categories of condition, using 5 categories evenly divided along a 100-point scale. Particularly strong correlations amongst all seven metrics were displayed in comparison to road density and percent “watershed unnatural.”

A portion of the Southern Coast region has also been the subject of independent IBI development over the past decade (Ecology Consultants 2010, 2011). The region of study spans the Santa Barbara coastal streams from the Ventura County line west about 45 miles to Gaviota Creek. Their work led to the development of an IBI using the following 7 metrics:

- # of insect families
- # of EPT families
- % EPT minus Baetidae
- % PT
- Tolerance value average
- % sensitive BMIs
- % predators + shredders

In the course of this work, tolerance values were adjusted for certain taxa based on local observations of presence/absence relative to the level of watershed disturbance. With these changes, they found strong statistical basis for discriminating five categories of biological quality. They also found that considering both watershed-level land use patterns and localized physical habitat conditions were necessary to achieve the best prediction of biological integrity.

Summary. A compilation of the various metrics (Table 5-3) demonstrates only broad commonalities between the various regional IBI's presently available for specific parts of California, suggesting that additional work needs to be done before comprehensive recommendations for biological monitoring can be made. At present, perhaps half(?) of the state's area is covered by existing multimetric indices as noted above, and for these areas they provide the best (indeed, the only) guidance for meaningful collection and interpretation of biological data. Elsewhere, however, only a few general points can be made:

- Biological monitoring in un-assessed regions of the state cannot be used to identify absolute conditions of biological health (i.e., "status" monitoring). However, they will likely be useful for "trends" monitoring, where only the change relative to a prior state is being sought.
- Despite the variability in metric choices amongst the various regions (Table 5-2), some broad commonalities are apparent. In particular, several types of metrics are likely to provide useful indicators of change in a known direction (i.e., an increase or decrease in the metric can be confidently assigned to a change in quality in a known direction):
 - One or more measures of tolerance or intolerance
 - One or more measures of predator prevalence
 - One or more measures of EPT taxa or taxa richness

This list does not purport to describe a true multimetric B-IBI, nor to provide a basis to evaluate instream biological health on an absolute scale (i.e., from "poor" to "excellent"). In the absence of any region-specific guidance, however, changes in one or more of these metrics are each likely to provide some initial, useful indication of temporal trends in biological health until such time as the types of studies referenced above can be conducted.

Table 5-3. Compilation of metrics used in the five regional B-IBI's described in the text.

METRIC	Eastern Sierra	North coast	Central Valley	Southern coast	Santa Barbara
Percent intolerant individuals		X		X	X
% tolerant (% of taxa with TV= 7,8,9,10)	X			X	
Tolerance value average					X
# of insect families					X
Percent non-insect taxa		X		X	
Percent shredders (% of total number that are shredders)	X	X			
Percent predator individuals		X			
% predators + shredders					X
Predator richness			X	X	
Collector richness			X		
Percent non-gastropod scraper individuals		X			
Percent clinger taxa			X		
Percent collector-gatherer + collector-filterer individuals				X	
EPT richness		X		X	X
Percent EPT taxa			X		
% EPT minus Baetidae					X
% PT					X
Ephemeroptera (E) Richness (number of mayfly taxa)	X				
Plecoptera (P) Richness (number of stonefly taxa)	X				
Trichoptera (T) Richness (number of caddisfly taxa)	X				
Coleoptera richness		X		X	
Diptera Richness		X			
Chironomidae Percent Richness (% of taxa that are midges)	X				
Richness (total number of taxa)	X				
Dominance 3 (proportion of 3 most common taxa)	X				
Biotic Index (modified Hilsenhoff, composite tolerance)	X				
Acari richness (number of water mite taxa)	X				
Shannon diversity index			X		

5.5 Recommendations

Based on this review of monitoring theory, current applications, and current needs, the following steps are recommended to advance a state-wide program of monitoring to support the management of hydromodification control plans.

5.5.1 Programmatic Monitoring

Over the next several years, the following actions should be implemented at the state and/or regional level:

- Executing broad-scale, GIS-based watershed characterization;
- Identifying a set of representative indicator watersheds, and a basic suite of regular measurements that are suitable for establishing trends in physical, chemical, and biological indicators;
- Identifying (and multi-metric monitoring within) a relatively small set of watersheds that have implemented recent hydromodification control plans to initiate the long-term evaluation of downstream trends.

Over the course of the next several NPDES permit cycles (i.e., one or more decades), the following actions should also be undertaken as a regional responsibility:

- Setting regionally appropriate endpoints for biological health of receiving waters;
- Identifying particularly promising (or particularly ineffective) combinations of control strategies across a range of different landscape conditions;
- Providing supplemental data collection at reference sites to support trends monitoring by local jurisdictions;
- Compiling local results to guide development and refinement of regionally appropriate hydromodification control strategies.

5.5.2 Local Monitoring

Over the next several years, the following actions should be implemented by local jurisdictions at a local scale:

- Implementing a program of source identification at one or more high-risk locations (e.g., high vehicular traffic, high imperviousness, toxic chemical storage/transport);
- Demonstrating the hydrologic performance of one or more representative hydromodification control facilities;
- Monitoring trends at one or more representative receiving waters, ideally at a regionally identified site (see the second bullet under “Programmatic monitoring,” above);

- Conducting a synoptic evaluation of waterbodies, stratified by watershed type (see the first bullet under “Programmatic monitoring,” above), to identify highest priority systems for protection or rehabilitation, if not already known.

Over the course of the next several NPDES permit cycles, the following long-term actions should also be undertaken as a local responsibility:

- Monitoring representative conditions to evaluate whether management actions are improving overall receiving-water health;
- Evaluating cost-effectiveness of implemented hydromodification control measures;
- Identifying critical areas for resource protection by virtue of existing high-quality conditions.

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APPENDIX A: GUIDANCE FOR APPROPRIATE APPLICATION OF HYDROLOGIC AND HYDRAULIC ANALYSES

Information contained in this document is intended solely for guidance purposes only. It is not intended to be an instruction manual and use of any of the guidance provided herein is at the risk of the user. No other person or entity shall be entitled to rely on the services, opinions, recommendations, plans or specifications provided in the document.

1. INTRODUCTION AND PURPOSE

The purpose of this Appendix is to provide technical guidance on hydrologic and hydraulic analyses, including the use of Continuous Simulation (Hydrologic) Modeling (CSM), in support of hydromodification assessment and mitigation. CSM is the industry standard developed since the early 2000s for use in the assessment and mitigation of hydromodification. The fundamental difference between CSM and peak flow hydrologic modeling, is that CSM considers the full range of flow events over a long period of record, typically 30 years or more, to develop flow duration curves, whereas peak flow hydrologic modeling generally considers synthetically (usually calibrated to measured data) produced event-based hydrographs (2-, 10-, 50-, 100- and 200-year return frequency events). CSM allows flow duration curves and other derived hydraulic metrics to be compared between existing and proposed conditions in order to assess hydromodification impact potential and to develop mitigation strategies. The guidance provided in this appendix is the product of the experience gained in the application of hydromodification management strategies to multiple urban development projects. This appendix is not intended to be an instruction manual but to provide guidance to engineers, planners and regulatory staff on specific modeling elements involved with HMPs.

MODELING METHODOLOGY REVIEW

Modeling Approaches

A common approach to mitigating hydromodification impacts from development projects is to construct best management practices (BMPs) which capture, infiltrate and retain runoff, where possible. In such cases, the water is detained and released over a period of time at rates which more closely mimic pre-project hydrology. Methods commonly used to size hydromodification BMPs include hydrograph matching (matching pre and post-project flow regimes), volume control and flow duration control. Hydrograph matching is most traditionally used to design flood detention facilities for a specific storm recurrence interval, such as the 100-year storm, whereby the outflow hydrograph for a project area matches the pre-project hydrograph for a design storm. Volume control matches pre- and post-project runoff volume for a project site; however, the frequency and duration of the flows are not controlled. This can result in higher erosive forces during storms. Flow duration control matches both the duration and magnitude of a range of storm events for pre- and post-project runoff. The complete hydrologic record is taken into account, and runoff magnitudes and volumes are matched as closely as possible.

It is generally accepted that flow duration control matching is the most appropriate method to be used in the design of hydromodification BMPs. The flow duration control approach has been used in at least half a dozen HMPs in California, all of which used a CSM to match flow durations. However, differences exist in how the continuous simulation modeling is used between programs.

OVERVIEW OF APPENDIX

This appendix covers the following specific topics, addressed in the order in which they would arise as part of a hydromodification analysis for a major development project:

Section 2 addresses calculation of a flow control range, including identification of an acceptable low flow value, based upon critical flow for incipient motion of the channel material. .

Section 3 addresses the development of evaluation criteria to assess the effectiveness of a proposed mitigation design, including a discussion of flow duration matching and the erosion potential metric.

Section 4 addresses CSM, including precipitation data requirements, hydrologic time steps, model calibration and validation, and other modeling considerations and tips.

2. METHOD FOR SELECTION OF A FLOW CONTROL RANGE

INTRODUCTION TO FLOW CONTROL

Most hydromodification plans (HMPs) in California have adopted a flow control approach, which establishes a range of flow magnitudes discharging from the proposed site that must be controlled. The magnitude of the flow range is commonly expressed in terms of a percentage of the return period flow to which it is equivalent; for example: from 10% of the Q₂ to 100% of the Q₁₀. Flow magnitudes within the prescribed range must not occur more frequently under the proposed condition than they do in the existing (or pre-project) condition. Another way of expressing this is that the long term (decadal) cumulative duration of these flows must not be longer in the post-project condition compared to the pre-project condition. Generally, a small exceedance tolerance is allowed. For example, the following is a typical criterion that has been used in HMPs:

For flow rates ranging from 10% of the pre-project 2-year recurrence interval event (XQ₂) to the pre-project 10-year runoff event (Q₁₀), the post-project discharge rates and durations shall not deviate above the pre-project rates and durations by more than 10% over and more than 10% of the length of the flow duration curve. The specific lower flow threshold should be influenced by results from the channel susceptibility assessment.

The rationale behind setting an upper limit is the understanding that when less frequent, high intensity/volume precipitation events occur, the watershed reaches a saturation level and responds in a similar manner for undeveloped and developed conditions. Furthermore, while these less frequent, high magnitude events do induce significant geomorphic change, they occur so infrequently that over a long time period, they comprise only a small portion of the work done on a channel. For example GeoSyntec (2007) used a hydro-geomorphic model to assess cumulative sediment transport on Laguna Creek (near Sacramento) and determined that 95% of the total erosion and sediment transport in the creek is accomplished by flow rates less than Q₁₀.

The purpose of determining a low flow range is one of practical design consideration when meeting a requirement for flow duration matching. The requirement to match flow durations between a pre- and post-project condition requires that runoff be detained and infiltrated within a BMP (e.g. open basin or underground vault). If flow matching is required to be achieved for all flows down to zero, the BMP

volume will be significantly larger (and therefore more costly) than if there were some low flow below which runoff could be discharged at durations longer than in the pre-project condition. A key assumption underlying the concept of a low-flow discharge is that the increase in discharge durations below this rate will not increase channel erosion because the flows are too small to initiate movement of channel materials to any significant extent. Another critical assumption in the flow duration matching approach is that a single discharge value is valid across the range of grain sizes and geometries in the streams to which that low flow value applies.

For a specific set of hydraulic conditions (e.g., cross sectional shape, channel slope, bed and bank roughness), the flow rate can be calculated where the critical shear strength value is reached. Thus with an estimate of the critical shear strength of the materials composing a channel's bed or banks, and the hydraulic conditions occurring at the same location, the critical flow rate can be determined at which transport (or erosion) begins. This critical flow rate (Q_c) can then be compared to the magnitude of a flood peak which occurs every two years (Q_2) to establish the estimate of percent Q_2 to be used as the lower flow threshold.

Thus in order to calculate the lower flow threshold as expressed by a percentage of Q_2 , three values must be determined for each analysis location (described in further detail below):

- The critical shear strength (τ_c) of bed and bank materials;
- The critical flow rate (Q_c) at which this critical shear strength is reached and exceeded;
- The magnitude of a flood peak which occurs every two years (Q_2).

In contrast, when using an erosion potential (E_p) metric (rather than flow duration matching) for BMP sizing, the E_p analysis incorporates channel geometry to estimate shear stresses generated at various flow rates, and then compares these to estimated critical shear stresses (i.e., shear stress required to initiate transport) for the grain size distribution within the stream. However, for either flow duration matching or for erosion potential analysis, the first step is to determine the critical shear stress for incipient motion of channel materials.

DETERMINATION OF CRITICAL SHEAR STRESS

The composition and condition of the bed and banks of a stream channel are the best indicators of how a channel will react (i.e., its susceptibility) to hydrologic changes resulting from development projects (i.e., hydromodification). Channels composed of materials more resistant to erosion are less susceptible to excessive erosion due to hydromodification than channels composed of less resistant materials. Channel material type can vary widely between, as well as within, watersheds. Figure 2-1 **Error! Reference source not found.**a. and b. illustrate stream incision through (a) relatively loosely consolidated, non-cohesive sand and gravels, and (b) relatively cohesive silty-clays. The resistance of bed and bank materials is quantified by their critical shear strengths, (τ_c) that is, the value where entrainment or transport begins.



Typical stream erosion in a southern California stream (granular, non-cohesive)
 (Photo courtesy of Eric Stein, SCCWRP)



Typical stream erosion in a northern California stream (generally cohesive silty clays)
 (Photo cbec, inc.)

Notes:		<i>Guidance on the Use of Continuous Simulation Hydrologic Modeling</i> Examples of Stream Erosion in Southern and Northern California		
		Project: 11-1001	Created By: CBB	Figure 2-1

Figure 2-1. a. Example of a loosely consolidated, non-cohesive sand and gravel stream bed. b. Example of a relatively cohesive silty-clay stream bed.

Several methods are available for the estimation of critical shear stress, including laboratory studies (e.g., flume studies) and field measurements, with different methods utilized for cohesive materials and non-cohesive materials.

Estimating Critical Shear Stress for Non-Cohesive Materials

The most common method for determining the critical shear stress of a non-cohesive material is through the application of the Shields relationship. This relationship is applicable to the calculation of critical shear stress for a uniform size mixture of sediment with a known particle size and specific gravity. Since it was originally proposed by Shields in 1936, the relationship has been tested and further investigated by several other researchers, resulting in a variety of modifications, primarily through variation of the Shields parameter. The original value of the Shields parameter proposed by Shields was 0.06, however, values from 0.03-0.06 have been suggested, with 0.045 acknowledged as a good approximation. Recent research has demonstrated that a value of 0.03 may be more appropriate for estimating incipient motion in streams with gravel beds (Neill 1968, Parker et al. 2008, Wilcock et al. 2009), where D50 estimates are based upon data collected via pebble count. The decision of what value of Shields parameter is used can have a large influence on the resulting τ_c estimate. For example, if a value of 0.06 is used, it results in twice as large of an estimate of τ_c than if a value of 0.03 is used.

While the Shields relationship was developed for a mixture of uniform sized sediment, it can be applied to a mixture of sediment with varying sizes as long as the distribution is uni-modal and does not have a high standard deviation of grain sizes (Wilcock 1993). In contrast, for sediment mixtures which are bimodal (e.g., if there is a large amount of sand in addition to gravel), a different approach (e.g., Wilcock and Crowe 2003) is recommended. For a more in depth discussion of sediment transport and incipient motion, the reader is referred to Wilcock et al. (2009).

In order to apply the Shields relationship to determine τ_c , the median grain size (d_{50}) present on the channel surface must be determined. River channels are often armored; meaning that coarser material is present on the surface than is present underneath the armor layer. However to access and transport the finer material beneath, the surface layer must first be mobilized. The median grain size is determined by analysis of a particle size distribution.

A particle size distribution can take the form of: 1) a cumulative *frequency* distribution which is determined by way of a pebble count or photographic analysis, or 2) a cumulative *weight* distribution. For a cumulative frequency distribution a subset of particles present on the surface are measured, and the frequency of particles within different size class bins is used. **Error! Reference source not found.** shows a sample particle size distribution graph developed from a pebble count. For a cumulative weight distribution, a bulk sample of the surface material is collected, and then sorted using a set of sieves with different screen sizes. The amount of material retained by each sieve is weighed and then used to plot the cumulative weight distribution. Both approaches have advantages and disadvantages.

A pebble count is a relatively straightforward field technique that is easily applied in streams which are wadable. **Error! Reference source not found.** shows photographs of pebble counts being conducted in the field. They can be performed relatively quickly, which means more samples can be collected to better characterize the conditions present in a reach. However, there are a variety of ways a pebble count can be conducted, and there is tremendous opportunity to introduce bias to the measurement. Furthermore, while studies often cite Wolman (1954) as the method employed in data collection, strict adherence to this protocol is not always achieved. Rather than the method suggested by Wolman (1954), a refined, more regimented approach has been suggested by Bundte and Abt (2001a), and is recommended. In addition, it should be noted that pebble counts generally do a poor job of characterizing sand and smaller sized material. In addition to pebble counts, software can be used to process a digital image of an area of the bed. The software samples a subset of particles present in the image, and using assumptions regarding the amount of given particle that is visible, is able to provide a cumulative frequency distribution.

Collecting a bulk sample for sieve analysis is another method frequently employed to determine values for typical characteristic indices of a particle size distribution. In this method a sample is collected from the channel surface, and then the sample is segregated into various size classes with sieves. One advantage of this approach is that it utilizes all the data available from the sampled area (as opposed to a pebble count which uses a subset of the entire population, e.g., ~100 particles as opposed to thousands), however the sampled area is typically smaller than the area sampled within one pebble count. One disadvantage is the size of sample that is necessary. Because the resulting particle size distribution is based upon weight, the largest particles present can have a very large influence on the resulting particle size distribution. Research has suggested that the weight of the entire sample must exceed 100x the weight of the largest particle present to escape this possible bias. This means large (volume and weight) samples are often required. Some sieving can occur on site through the use of shaker sieves, but typically some portion of the sample is also taken back to the lab for further analysis. Thus, bulk samples typically require more effort and equipment to establish a particle size distribution, however they provide a much more accurate estimate, especially when a large fraction of the sample is sand sized (2mm) and smaller.

For a more in depth discussion of sampling methods to determine particle size distributions in wadable streams, the reader is referred to Bunte and Abt (2001).

Estimating Critical Shear Stress for Cohesive Materials

The methods described above are not appropriate for cohesive materials, which due to chemical cohesion between particles exhibit larger τ_c values than would be estimated by consideration of particle size/weight in isolation (i.e., cohesive properties not considered). One method that allows for the determination of τ_c *in situ* is the application of a jet test (ASTM 2007). The jet-testing apparatus and analytical methods were developed by researchers at the USDA Agricultural Research Station (Hanson and Cook 1999; Hanson et al. 2002; Hanson and Cook 2004; ASTM 2007). The method uses a submerged impinging jet of water directed perpendicularly at the material surface, in order to erode the material. As erosion occurs, a scour hole is created. The depth of this hole is measured periodically as time

progresses through the test. As the scour hole increases in depth, the strength of the jet is reduced because it is travelling longer distance through water from the jet orifice to the soil surface. Eventually, the energy of the jet is dissipated enough that it no longer has energy in excess of the material's shear strength and erosion stops. **Error! Reference source not found.** shows a photograph of a jet testing rig deployed in a stream bank.

In addition to jet testing, *in situ* testing of shear strength can be obtained through the application of a field vane shear test (ASTM 2008). This method provides τ_c values based upon the assumption that the bed or bank will fail via large blocks (composed of thousands of particles), as opposed to erosion occurring particle by particle. As such, the values measured by a shear vane are often several orders of magnitude larger than those obtained via testing with the jet-device.

Estimating Critical Shear Stress Through the Use of Literature Values

An alternative to the measurement/calculation of τ_c is the use of values found in the literature. Indeed, several HMPs have been developed through assumption of material resistance properties found in the literature based upon literature based upon a textural description of the material. An often-cited reference is Fischenich (2001), which provides a summary (compiled from the relevant literature) for critical shear strength values for various values for various materials. An extract from this reference is provided in

Figure 2-5.

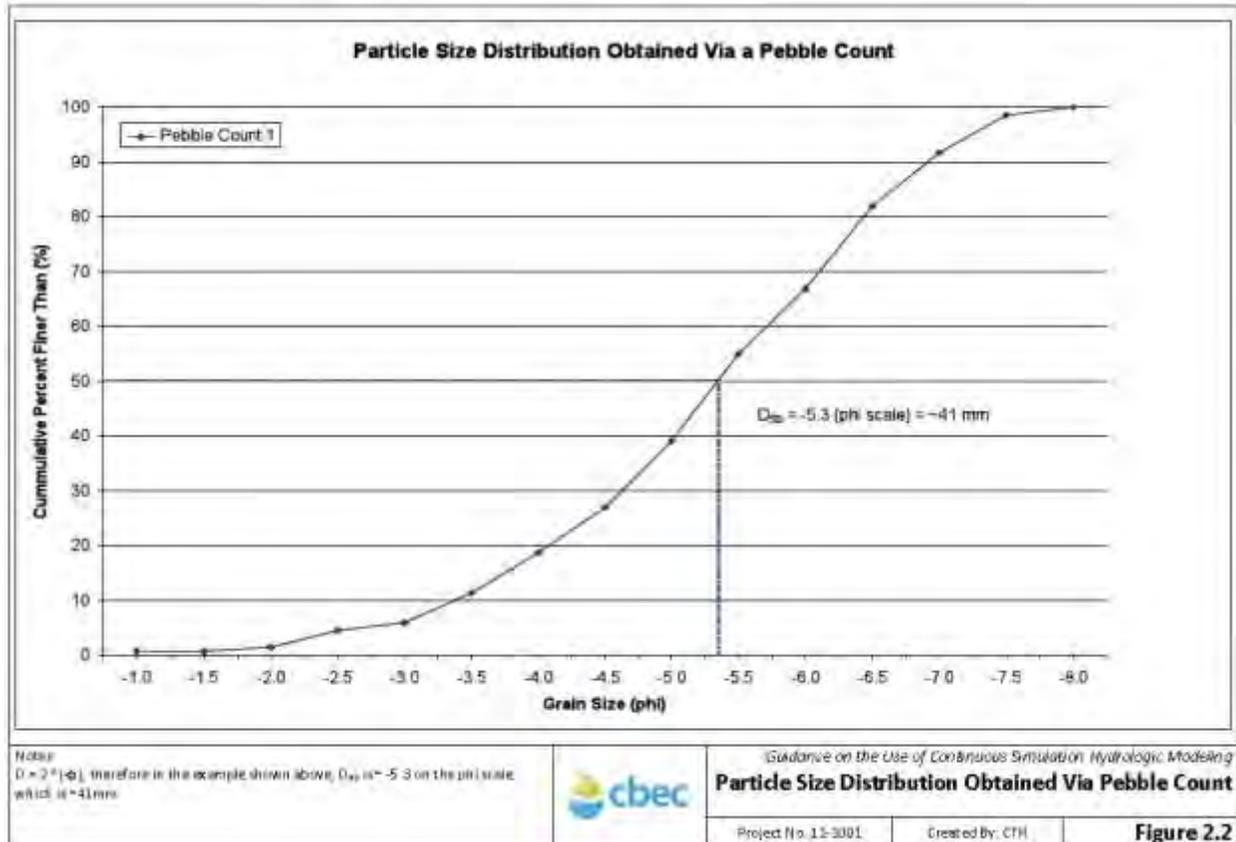


Figure 2-2. Particle Size Distribution Graph Developed from a Pebble Count

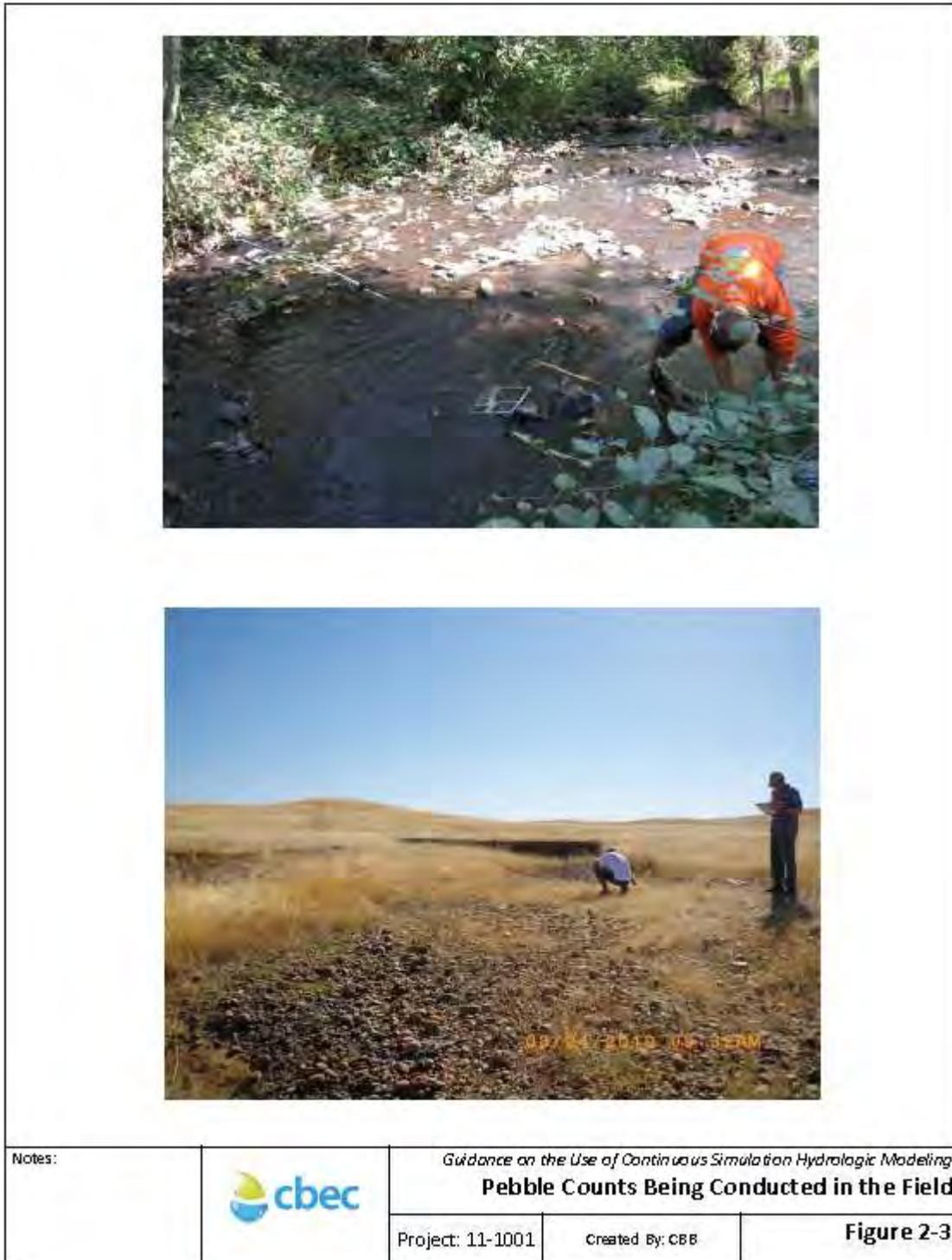


Figure 2-3. Pebble Counts Being Conducted in the Field



Typical installation of jet testing equipment in stream bank



Hole created in cohesive bank material by jet impinging on surface

Notes:		<i>Guidance on the Use of Continuous Simulation Hydrologic Modeling</i> Jet Testing Equipment Deployed in a Stream Bank		
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Figure 2-4. Jet Testing Equipment Deployed in a Stream

Table 2. Permissible Shear and Velocity for Selected Lining Materials¹

Boundary Category	Boundary Type	Permissible Shear Stress (lb/sq ft)	Permissible Velocity (ft/sec)	Crations)	
<u>Soils</u>	Fine colloidal sand	0.02 - 0.03	1.5	A	
	Sandy loam (noncolloidal)	0.03 - 0.04	1.75	A	
	Alluvial silt (noncolloidal)	0.045 - 0.05	2	A	
	Silty loam (noncolloidal)	0.045 - 0.05	1.75 - 2.25	A	
	Firm loam	0.075	2.5	A	
	Fine gravels	0.075	2.5	A	
	Stiff clay	0.25	3 - 4.5	A, F	
	Alluvial silt (colloidal)	0.25	3.75	A	
	Graded loam to cobbles	0.38	3.75	A	
	Graded silts to cobbles	0.43	4	A	
	Shales and hardpan	0.67	6	A	
	<u>Gravel/Cobble</u>	1-in.	0.33	2.5 - 5	A
		2-in.	0.67	3 - 5	A
		6-in.	2.0	4 - 7.5	A
12-in.		4.0	5.5 - 12	A	
<u>Vegetation</u>	Class A turf	3.7	6 - 8	E, N	
	Class B turf	2.1	4 - 7	E, N	
	Class C turf	1.0	3.5	E, N	
	Long native grasses	1.2 - 1.7	4 - 6	G, H, L, N	
	Short native and bunch grass	0.7 - 0.95	3 - 4	G, H, L, N	
	Reed plantings	0.1 - 0.6	N/A	E, N	
	Hardwood tree plantings	0.41 - 2.5	N/A	E, N	
	<u>Temporary Degradable RECPs</u>	Jute net	0.45	1 - 2.5	E, H, M
		Straw with net	1.5 - 1.85	1 - 3	E, H, M
		Coconut fiber with net	2.25	3 - 4	E, M
Fiberglass roving		2.00	2.5 - 7	E, H, M	
<u>Non-Degradable RECPs</u>	Unvegetated	3.00	5 - 7	E, G, M	
	Partially established	4.0 - 6.0	7.5 - 15	E, G, M	
	Fully vegetated	8.00	8 - 21	F, L, M	
<u>Slope</u>	6 - in. d_{50}	2.5	5 - 10	H	
	8 - in. d_{50}	3.8	7 - 11	H	
	12 - in. d_{50}	5.1	10 - 13	H	
	18 - in. d_{50}	7.6	12 - 16	H	
	24 - in. d_{50}	10.1	14 - 18	E	
	<u>Soil Bioengineering</u>	Wattles	0.2 - 1.0	3	C, I, J, N
Reed fascine		0.6 - 1.25	5	E	
Coir roll		3 - 5	8	E, M, N	
Vegetated coir mat		4 - 8	9.5	E, M, N	
Live brush mattress (initial)		0.4 - 4.1	4	B, E, I	
Live brush mattresses (grown)		3.00 - 9.2	12	B, C, E, I, N	
Brush layering (initial/grown)		0.4 - 6.25	12	E, I, N	
Live fascine		1.25 - 3.10	6 - 8	C, E, I, J	
Live willow stakes		2.10 - 3.10	3 - 10	E, N, D	
<u>Hard Surfacing</u>		Gabions	10	14 - 19	D
	Concrete	12.5	>18	H	

¹ Ranges of values generally reflect multiple sources of data or different testing conditions.

- | | | |
|--|---|-----------------------------|
| A. Chang, FLTL (1900). | F. Julien, P.Y. (1995). | K. Sprague, C.J. (1999). |
| B. Florinatti, (1962). | G. Kouwen, N. Li, R. M., and Simons, D.B. (1980). | L. Temple, D.M. (1980). |
| C. Gerstgraser, C. (1966). | H. Norman, J. N. (1975). | M. TxDOT (1988). |
| D. Goff, K. (1999). | I. Schiechl, H. M. and R. Stem, (1996). | N. Data from Author (2001). |
| E. Gray, D.H., and Sotir, R.B. (1996). | J. Schalkitsch, A. (1997). | O. USACE (1997). |

ERDC TN-EMRRP SR-29

Fischenich, C. 2001. Stability thresholds for stream restoration materials. EMRRP Technical Notes Collection (ERDCTN-EMRRP-SR-29). U.S. Army Engineer Research and Development Center, Vicksburg, MS.

Notes:		<i>Guidance on the Use of Continuous Simulation Hydrologic Modeling</i>		
		Permissible Shear Strength and Velocity for Selected Lining Materials		
		Project No:11-1001	Created By: CBB	Figure 2-5

Figure 2-5. Permissible Shear and Velocity for Selected Lining Materials

DETERMINATION OF CRITICAL FLOW (Q_c)

For a specific set of hydraulic conditions at a location (i.e., cross sectional shape, channel slope, bed and bank roughness), the flow rate at which critical shear values are reached can be calculated. These calculations can be made with a programmed spreadsheet analysis, or with a hydraulic model (e.g., HEC-RAS, Brunner 2010). Because of their ease of use and the ease at which multiple flow rates can be assessed (in order to determine when τ_c is reached), hydraulic models are typically employed for this part of the analysis. Average boundary shear stress is calculated with the following equation:

$$\tau = \rho g R s$$

where ρ represents the density of water, g represents the gravitational constant, R represents the hydraulic radius (defined as the wetted area divided by the wetted perimeter), and s represents the slope. For wide channels the value of the hydraulic radius is approximately equal to the average depth of the cross section. The hydraulic model calculates the value for R for a given discharge based on the channel dimensions.

Typically one-dimensional approximations are used for this analysis, which means that the value of Q_c determined is that where the cross sectional average of τ_c is reached, not the highest value which is occurring at the deepest point of the cross section. This is typically considered reasonable because the grain size is determined for the bed of the cross section, not just the shallow or deep area.

Analyses can be conducted at a station, or in other words just looking at one cross section in isolation using normal depth calculations, or within a larger hydraulic model constructed for the entire reach (i.e., multiple distributed cross sections upstream and downstream of the location of interest). The advantage of looking at the cross section of interest within the context of the entire reach is that conditions downstream (e.g. a constriction which causes a backwater condition) may affect the flow depth (or hydraulic radius), yielding different results than would be obtained if the cross-section was analyzed in isolation.

It is important that the determination of τ_c (via pebble count or other means) and the hydraulic calculations to determine Q_c , occur at the same location. Typically the analysis is undertaken at a riffle because these are the high points of a long profile and are what are controlling incision in the system. Bed material characterization in a pool is much more difficult (because of the depth of water), in addition the resulting calculated shear values are typically much higher, because of the added depth.

If HEC-RAS is used (which is typical), the way the bank markers are set can have a dramatic influence on the calculated shear results. The bank markers are used to delineate differences in roughness across the channel and flood plain (typically higher values are used on the lateral margins to include the influence of vegetation roughness in the resulting depth calculations). The shear values calculated by HEC-RAS are segregated by these bank markers, and thus may include values for each of the floodplains as well as the channel. If bank markers are set too wide, and the shear stress calculation may include a portion of the floodplain too, and subsequently the conditions in the actual channel will be greatly underestimated. Remember that the model is essentially using the average depth for the entire cross section (as limited by the bank markers), so including floodplain with shallow depths greatly influences the average depth and thus the resulting calculated shear value.

DETERMINATION OF Q_2

The determination of a value of Q_2 is the third and final piece of the equation used to determine what percent of Q_2 the lower threshold should be. As with the other two pieces, several options are available, and again the decision on what method is used can have a profound influence upon the final results. Q_2 can be determined through the results of a calibrated and validated hydrologic model (e.g., HEC-HMS, HSPF, SWMM, etc.) which uses precipitation, sub basin area, soil conditions, etc. to calculate a runoff hydrograph. This type of model can be used in one of two ways, to simulate a single precipitation event or to simulate a long term (e.g., 50 year) precipitation record. The first approach produces a single runoff hydrograph resulting from a “design” storm, from which the peak magnitude can be determined. As such the results are largely controlled by the precipitation hyetograph, so a good understanding of how that was developed is important. This method has been used considerably less than the approach detailed below. The advantage of this method is that, if any existing model has already been developed (e.g., SacCalc; DFCE 2001), it will be cheaper and easier for an agency to review. However, it can yield different values for Q_2 , due to differing assumptions employed in the modeling.

The second method uses a long-term precipitation record for simulation which results in a flow record containing a large number of runoff events of varying magnitudes (i.e., which are subsequently analyzed to determine the magnitude of the 2 year recurrence interval event). This method is more typical for HMP assessments, but again methodical decisions can have a large influence on the results. The rigor of the model calibration and validation has a strong influence. If the model is not representing through simulation what is actually occurring, then the simulation results are questionable.

Assuming the model has been calibrated and satisfactorily validated or verified, the manner in which the simulated runoff record is analyzed is important. The first basic distinction is whether an annual maximum series (AMS) or a partial duration series (PDS) is used. In an AMS analysis, just the single largest flood peak of any given year is used in the analysis, and the second and third largest events of the year are ignored. This is the method typically utilized when analyzing the flood frequency of large, less frequently occurring flood events. In the second approach, PDS, multiple flood events are considered in any given year. This is important when the second or third largest flood events in one year are greater than the annual maximum of another year. Because more large events are included, the resulting estimate of the given return period event (e.g., Q_2) is larger. For example, Langbein (1960) showed that a 1.45 year event determined with PDS is the same magnitude as a 2 year event with an AMS, and a 2 year event determined with PDS is a 2.54 year event with an AMS. Thus the value of Q_2 determined by PDS is larger than the value of Q_2 determined by AMS. While significant differences are apparent for smaller magnitude, more frequently occurring events (e.g., Q_2), for return periods greater than 10 years, there is almost no difference between the results obtained from the AMS and PDS.

When compiling a PDS for a recurrence interval analysis, the manner in which events are identified as independent can also have an effect upon the results. One typical method is to include all flood peaks above a certain base magnitude. This base value is often selected as equal to the lowest annual maximum flood of record, however can also be chosen such that the PDS only contains as many peaks as

there are years of record. Some analysts have established a base value (e.g., 0.002 cfs/acre), and then added a duration below this base value as well (i.e., flow must be below 0.002 cfs/acre for at least 24 hours for events to be considered independent). One additional method is to identify individual events by extracting the highest peak (not just the maximum value) within a moving time window (e.g., 3 days), and therefore determine independence through time, rather than the discharge rate receding to a non-storm condition. With all of these options available, and no prescribed standard, the use of a PDS can have different Q_2 results even if an identical flow time series is used.

SUMMARY

The determination of the lower flow threshold, defined as a percentage of Q_2 , is heavily influenced by three primary inputs: τ_c , Q_c , and Q_2 . The determination of each of these values is sensitive to a variety of factors determined by the particular methodology. To demonstrate the sensitivity of the lower flow threshold to methodological decisions, a few examples are provided below.

- If 0.06 is used rather than 0.03 for Shields parameter in Shields relationship, τ_c increases, subsequently Q_c increases and ultimately the lower limit increases
- If bank markers are set too wide (including the floodplain and not just the channel) in the hydraulic analysis, a larger value for Q_c is calculated (because of a reduction of the hydraulic radius due to the inclusion of extensive shallow floodplain areas), resulting in an increase of the lower limit.
- If an annual maximum series is used in place of a partial duration series, the calculated Q_2 will be less than that obtained by a PDS analysis, and the ratio of Q_c to Q_2 will be higher if the AMS is used.

3. DEVELOPMENT OF EVALUATION CRITERIA

FLOW DURATION CONTROL AND PEAK FLOW CURVE MATCHING

Flow Duration Control (FDC) and Peak Flow Curve (PFC) matching criteria in their current form for many counties in CA are similar in form to the curve matching criteria from WA (WADOE, 2001). The curve matching criteria typically include a goodness of fit or variance due to the difficulty in achieving a precise match across the range of flows. The criteria are typically applied at the subwatershed scale based on continuous simulation flow results for pre- and post-project conditions to size individual BMP or LID features. In this instance, flow matching at the subwatershed scale assumes that there are no routing or timing effects in the treated runoff when it rejoins the receiving waterbody; however, this may not be true in all cases. For example, if treated runoff is delayed and rejoins the upstream runoff such that there is an increase in flow rates and durations or an increase in the peak flows in the receiving waterbody, then there is the potential to impair the receiving waterbody. To address this potential concern, the FDC and PFC criteria could be applied to the routed flows in the receiving waterbody as a

check.

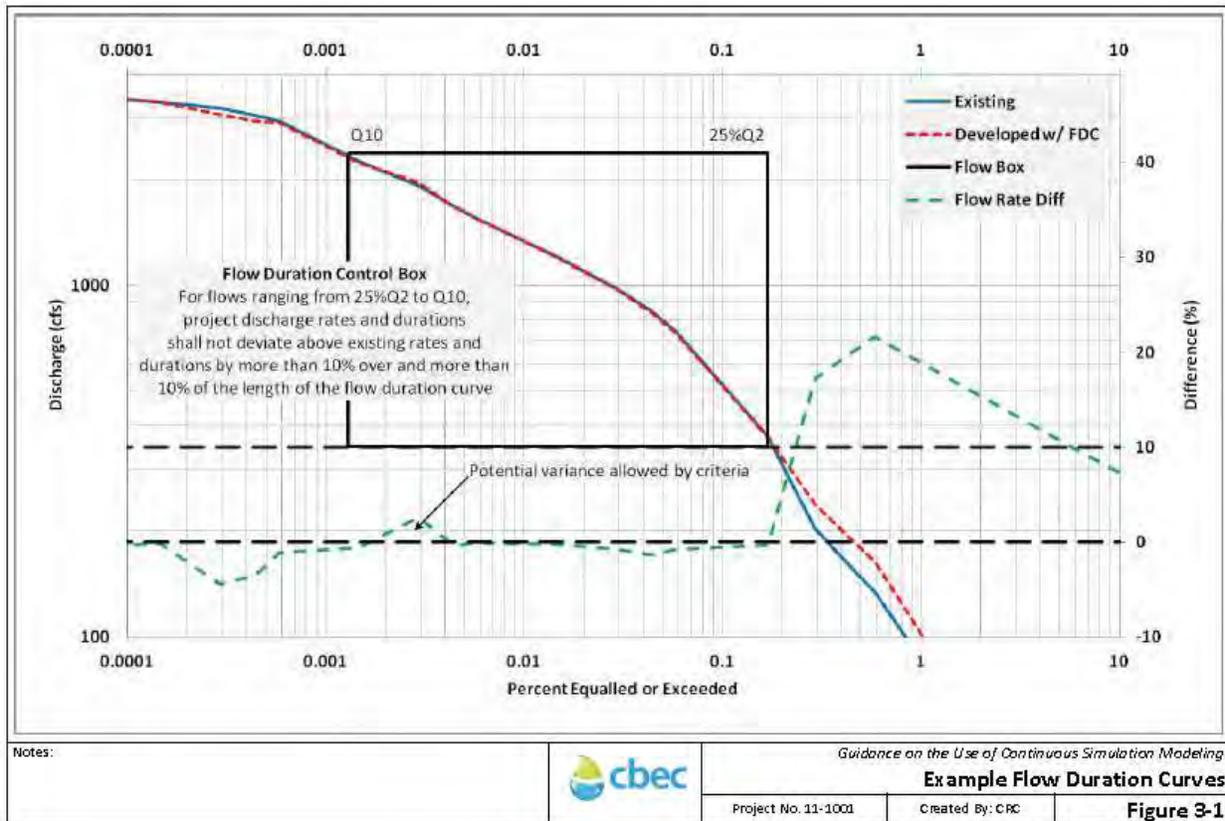


Figure 3-1 shows an example of FDC matching on the routed flows within a receiving waterbody with an example of the variance allowed by the criteria. However, it is cautioned that the FDC variance (e.g., “...by more than 10 percent over and more than 10 percent of the length...”) may need to be reduced to something less than 10 percent (perhaps based on a ratio of watershed areas) to account for cumulative effects if there remain the potential for continued development in the watershed.

EROSION POTENTIAL

Erosion Potential (EP) is an index to indicate the impact of increased flows on stream stability and is based on bed mobility and an integration of work (as a function of velocity and excess shear stress in the channel only) over time, expressed as a ratio of post-project work divided by pre-project work in the receiving waterbody. Total work is based on integrating effective stream power as:

$$W = \sum_{i=1}^n (\tau_i - \tau_c)^e \cdot V_i \cdot \Delta t_i$$

where W is the total work done (ft-lbf/ft²), τ is the average channel shear stress, τ_c is the critical shear stress to initiate erosion, e is an exponent varying from 1 to 2.5 to account for the exponential rise in stream power with flow, V is the velocity (ft/sec), and Δt is the numerical time step (sec). The EP index is then calculated as the ratio of W_{dev} / W_{ex} where W_{ex} and W_{dev} is the total work for existing and developed conditions, respectively. EP can be calculated at any location in the waterbody based on

continuous simulation time series of flow, velocity, and excess shear stress in the channel as derived from hydraulic model outputs.

EP criteria are not widely integrated into HMPs. Notably Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) included EP criteria in their HMP, but in so much as it was used to inform their overall management objective (i.e., post-project runoff shall not exceed estimated pre-project rates and/or durations) and the development of their FDC / PFC criteria. In the SCVURPPP (2005) final HMP, an EP ratio ≤ 1.0 was recommended as the instream target value to be maintained for stream segments downstream of the point of discharge for HMP management. From a risk management perspective, the chance of a stream becoming unstable at an EP of 1.0 is 9%, meaning that 1 in 11 streams could become unstable even with controls (SCVURPPP, 2005). As such, instream EP must be evaluated considering the effects of the cumulative changes that have or may take place in the watershed.

Even though EP criteria are not widely promoted in county HMPs, that does not preclude analyses based on EP from being used, especially when instream measures permit more robust geomorphic analyses (e.g., SCVURPPP final HMP; SSQP draft HMP). While EP analyses are more time and data intensive, there is the potential outcome to discharge runoff at higher rates and durations than FDC / PFC criteria would allow, thus resulting in possibly smaller onsite measures. The time and data intensiveness of EP analyses stem from the need to evaluate the hydraulic and geomorphic conditions of the receiving waterbody to be protected at multiple locations based on continuous simulation hydraulic model outputs and geomorphic data. Potential hydraulic model considerations when performing EP calculations are addressed below.

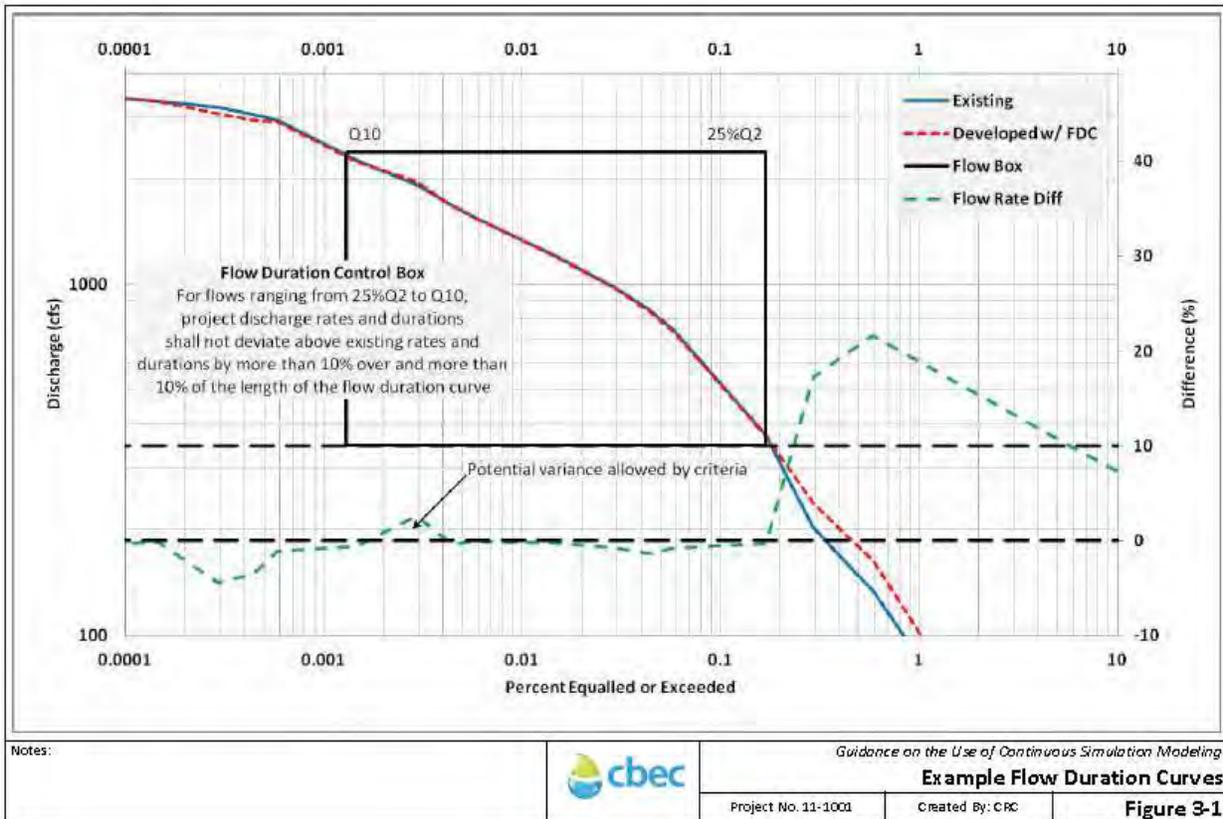


Figure 3-1. Example Flow Duration Curves

4. DATA REQUIREMENTS FOR CSM AND HYDRAULIC ANALYSIS

Hydrologic models capable of performing long-term continuous simulation to support HMPs include, but are not limited to, HSPF, HEC-HMS soil moisture accounting (SMA) method, and other hydrology models, such as the Bay Area Hydrology Model (BAHM). The first two are public domain software models and the third is a proprietary software model customized for specific counties that uses HSPF as its computational engine. A fourth modeling tool based on continuous simulation results, and also using HSPF as its computational engine, are the suite of BMP sizing calculators specifically designed for HMP management for select counties. These have been developed for Contra Costa and San Diego County and Sacramento County (in draft form). All four suites of models use site conditions (i.e., topography, soils, vegetation, and land use) and long-term precipitation data to calculate the various components of the hydrologic cycle (i.e., infiltration, surface runoff, soil moisture, evapotranspiration, percolation, interflow, and groundwater). Specific details about each model and model comparisons (e.g., TetraTech, 2011) are not discussed here, but can be reviewed in available literature.

Following model selection, hydrologic models are created for existing and project conditions based on various considerations, some of which are discussed in subsequent sections. For project conditions, county specific HMP measures need to be specified to manage project runoff to meet the evaluation criteria identified above. The BMP sizing calculators and BAHM-type hydrology models do have optimization routines to size BMP and LID measures. Automatic sizing allows for efficient and quick sizing of such features based on county specific, model specific (e.g., the sizing calculator for San Diego and Contra Costa County is based on pre-defined sizing factors such that site specific continuous simulations do not need to be performed, and is limited to drainage management units of less than 100 acres), and user-defined (e.g., the BAHM-type hydrology models require site specific continuous simulation with a wide selection of measure configurations) assumptions and limitations. As standalone models, HSPF and HEC-HMS offer flexibility as it relates to model configuration, model inputs, and user-defined parameters. However, these models do not have optimization routines to size various BMP and LID measures, thus requiring manual iteration to achieve a satisfactory solution.

PRECIPITATION DATA

Long-term precipitation data in the range of 30 to 50 years is typically needed to generate a sufficiently long flow record from which FDC and PFC analyses and/or subsequent hydraulic analyses can be performed. The precipitation data observation interval should ideally be no coarser than hourly, and if available, can be sub-hourly (e.g., 15 minutes) to coincide with a finer continuous simulation time step.

The precipitation data should ideally be located near the project site, and if needed, scaled to the project site based on a ratio of mean annual precipitation as derived from county specific mapping or regional sources (e.g., PRISM [<http://www.prism.oregonstate.edu/>]) and reviewed to ensure that it captures key IDF characteristics from county specific mapping or regional sources (e.g., NOAA Atlas 14 [<http://www.nws.noaa.gov/oh/hdsc/index.html>]). A variety of precipitation data sources exist, and include, but are not limited to:

- ALERT system for individual counties (e.g., Sacramento [<http://www.sacflood.org/>])
- Western Region Climate Center (WRCC [<http://www.wrcc.dri.edu/>])
- NOAA National Climatic Data Center (NCDC [<http://www.ncdc.noaa.gov/>])
- California Irrigation Management Information System (CIMIS [<http://www.cimis.water.ca.gov/>])

HYDROLOGIC SIMULATION TIME STEP

The continuous simulation time step and output reporting interval for the four models identified above has traditionally been hourly. However, an hourly time step is often significantly larger than the time of concentration for developed subwatersheds relative to existing subwatersheds, especially those commonly configured developed subwatersheds that are limited to less than 100 acres. The sizing calculator and BAHM-type calculator and BAHM-type models are hardwired at hourly, but the public domain software still affords the user to go to a finer time step. As such, a sub-hourly time step and output reporting interval is preferred in order to adequately resolve and sample flow from developed subwatershed elements where time of concentration are typically less than one hour. As shown by

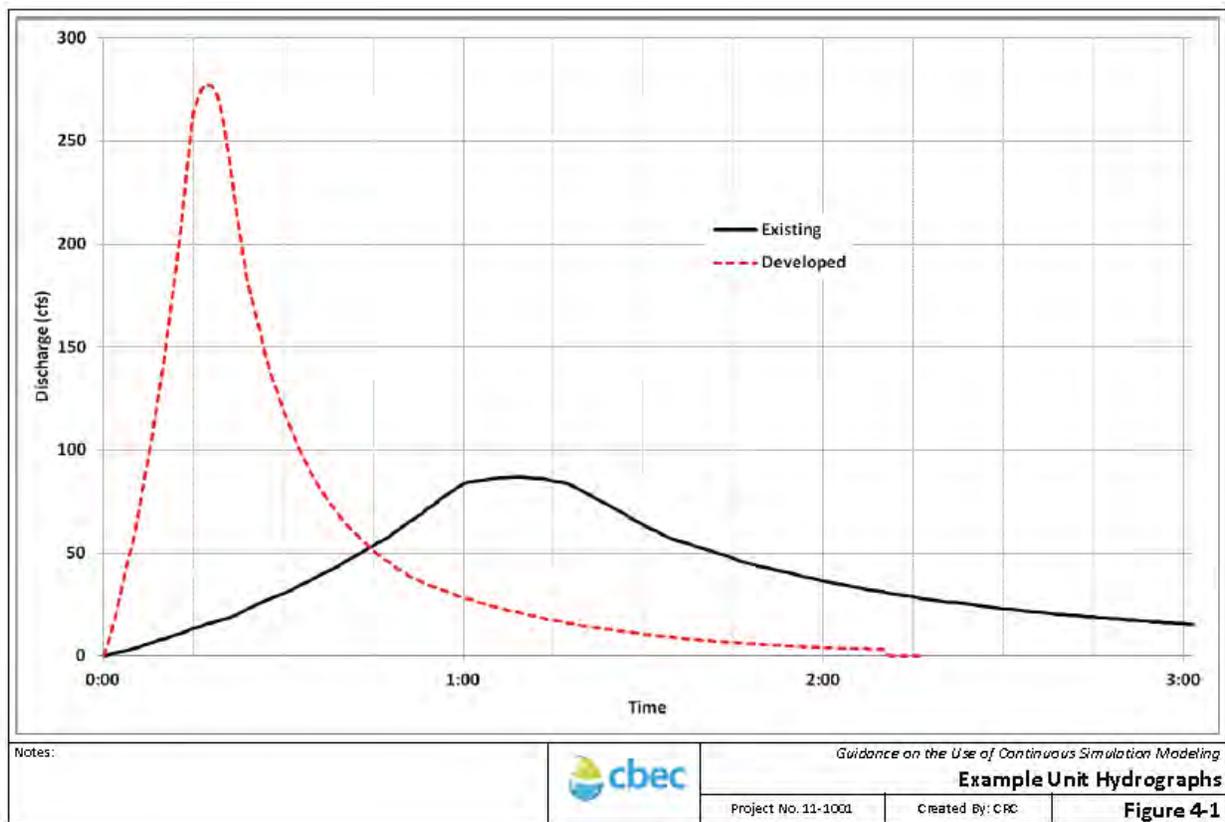


Figure 4-1 for a typical developed subwatershed, the unit hydrograph for developed conditions is flashier, peaks quicker (well within one hour), and the recession limb becomes small quickly. While a sub-hourly time step and output reporting interval may not be desirable due to the volume of model output that will be generated, it is possible to bias the results in favor of the developed condition due to under sampling of the flashier and larger developed flows under an hourly time step.

HYDROLOGIC MODEL CALIBRATION AND VALIDATION

In developing continuous simulation models, the model parameters describing soil characteristics, land use descriptions, and evapotranspiration should be derived from published data (e.g., soil survey, local studies, county standards, etc.). These parameters should be calibrated and validated, where applicable, by comparing modeled flows to measured or observed flows with the receiving waterbody for specific overlapping periods when there is adequate precipitation, evapotranspiration, and flow data. In the absence of site-specific data for calibration and validation, calibrated model parameters from neighboring watersheds within the region could be used so long as proper justification is provided that said parameters are appropriate. However, it is not recommended that local studies rely upon calibrated parameters from other regions where soil characteristics and land use descriptions are markedly different. Rather, when calibration cannot be performed, general review and comparison of continuous simulation model outputs (e.g., hydrograph shape, AMS, etc.) to standardized event-based approaches could be performed to demonstrate that continuous simulation results are generally consistent with local standards and methodologies.

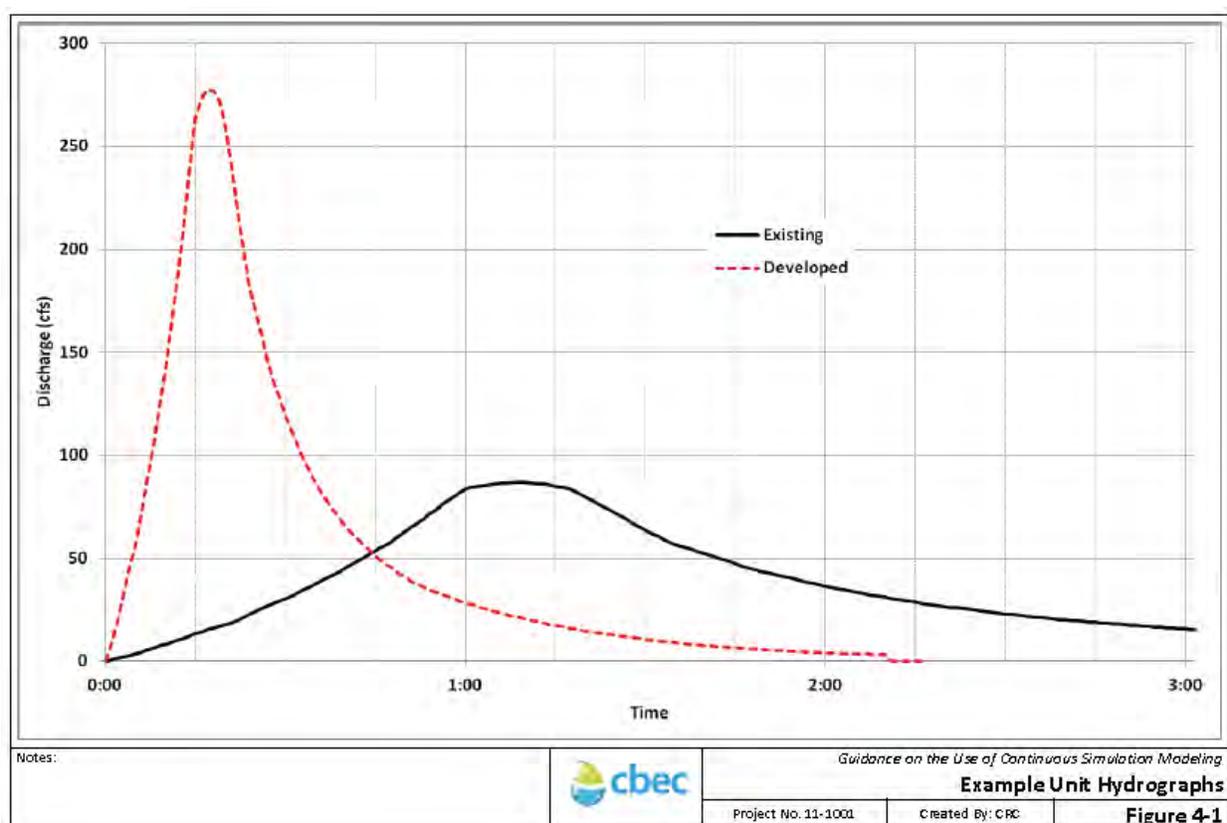


Figure 4-1. Unit Hydrograph Method

For example, continuous simulation modeling in Sacramento County for some developments has relied up conversion of SacCalc (HEC-1 pre- and post-processor) event-based models to the SMA method within HEC-HMS. This conversion often involves retaining the surface infiltration rate determined by SacCalc based on accepted land use descriptions, but parameterizing the subsurface based on soil survey information and local studies, using local potential evapotranspiration data, and reviewing model hydrographs for reasonableness.

HYDRAULIC MODEL CONSIDERATIONS

Sometimes hydraulic models are needed since the basic flow routing within the hydrologic models is not adequate to characterize the potential changes to the hydraulic and geomorphic character of the receiving waterbody, especially when instream measures are suggested or EP is used as the evaluation criteria. Potential considerations and issues encountered when developing and using hydraulic models for continuous simulation include:

1. Low flow instabilities can introduce anomalies into model output (which is commonly encountered in HEC-RAS), so careful hydraulic model selection is important for accuracy and efficiency
2. The sensitivity of the hydraulic model outputs (i.e., velocity and shear stress) to accurate hydraulic description of the receiving waterbody (i.e., cross section geometry (i.e., is it based on LiDAR influenced by vegetation or ground survey), proper definition of channel transitions, proper definition of channel bank markers, appropriate Manning's n-values, etc.)
3. Selection of appropriate compliance points that are representative of the reach and capture flow changes (e.g., downstream of points of discharge and not in backwater areas).

All of these issues have the potential to introduce error and subjectivity into long-term hydraulic analyses and care should be taken to systematically address each source of error.

GENERAL TIPS

A series of general tips are provided as follows. These can be used to increase efficiency and accuracy when performing CSM.

- To shorten the simulation time, the precipitation record can be truncated to only the rainy season (e.g., October through May) by removing the dry summer months from the simulation, especially in ephemeral systems where applicable.
- Hourly precipitation data does not prohibit the continuous simulation model from being run at a sub-hourly time step.
- Subwatershed delineation between existing conditions and developed conditions can often result in relatively large existing subwatersheds compared to relatively small developed subwatersheds. It is commonly known that smaller subwatersheds have flashier flows, so making existing and developed conditions subwatershed sizing consistent is recommended to provide a more meaningful comparison.

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APPENDIX B: APPLICATION OF SUITES OF MODELING AND ASSESSMENT TOOLS

Introduction. This appendix provides a discussion of four example “suites of tools” that can be used to perform predictive scientific assessments and address specific questions related to hydromodification assessment and management. The suites are changeable mixes of mechanistic models, statistical analyses, and expert scientific judgment that incorporate a number of the tools discussed in Chapter 4, combined in various ways. For example, some suites apply a series of cascading models, in which the output from one is used as input to the next; other suites apply a number of models in parallel to develop an assessment based on the weight of evidence. The suites of tools discussed below are used to perform a baseline stability assessment, a channel forming discharge analysis, an erosion potential analysis, and a sediment transport analysis. Most of these standard tools (with the exception of the erosion potential suite) have been widely employed in a variety of stream management activities for decades, and are considered essential components of the broader fluvial geomorphology toolbox. This is far from a comprehensive list of tools, as there are many other important tools (focused on both geomorphic and biologic endpoints) relevant to hydromodification management (Kondolf et al. 2003; Poff et al. 2010); however, the purpose of this appendix is to briefly illustrate how several standard tools can be integrated to answer key questions about stream responses and to provide a stronger technical basis for hydromodification management.

Application of these tools provides basic geomorphic data and knowledge that are typically needed to manage a stream for some desired future state in a watershed with changing land uses. This critical information comes at a cost—the tools require substantially more time and effort to apply than has been the norm in hydromodification management because they involve examining streams within their watershed context with a deeper level of geomorphic analysis. Stormwater management programs typically have made the “practical” assumptions that stream reaches can be managed in isolation from the larger systems of which they are a part, and that effective management prescriptions can be formulated with little or no substantive geomorphic analysis. ***These assumptions are in direct conflict with current understanding in fluvial geomorphology and stream ecology, which indicates that protection of stream integrity is often predicated upon careful assessments of geologic and historical context, performing detailed hydraulic and sedimentation analyses where appropriate, and developing basic understanding of streamflow-ecology linkages.*** If hydromodification management policies are to have a reasonable chance of actually achieving their aims, then it will most likely be necessary to reject these simplifying assumptions and instead rely on approaches rooted in current scientific understanding of stream systems.

The suites of tools described below go beyond screening level assessments that are designed, in part, to identify which streams lend themselves to relatively straightforward management prescriptions versus which streams do not. For streams that do not lend themselves to generic management prescriptions, the level of analysis performed with these tools should increase with the level of risk and geomorphic / biologic susceptibility of the streams. This does not mean that every stream will require in-depth analysis by local permitting agencies. It is not possible to carry out sufficient geomorphic analyses with the tools illustrated below on a permit-by-permit basis, and local governments may lack the resources and/or technical capacity to effectively apply these tools. Instead, ***the vital information provided by these tools***

will need to be obtained through proactive regional studies that involve baseline assessments followed by progressively more in-depth analyses as necessary to provide local governments with a sound basis for effective project-by-project decision-making within a broader watershed management framework.

1. **Baseline Stability Assessment.** This suite of tools is designed to answer the following key questions:

- What is the trajectory of the stream's form over time?
- How has the channel form responded to changes in water and sediment supply over the years?
- Is the channel close to a geomorphic threshold that could result in rapid, significant change in response to only minor flow alteration?
- How can past channel responses provide insight into potential responses to future watershed change, and so aid in prediction of future hydromodification-induced changes?
- What level of subsequent geomorphic analysis is appropriate given the complexity of the situation and the susceptibility of the streams of interest?

The goals of a baseline stability assessment are to:

- Document the historical trends of the system;
- Establish the present stability status of the system and identify the dominant processes and features within the system;
- Provide the foundation for projecting future trends with and without proposed project features;
- Provide critical data for calibration and proper interpretation of models; and
- Provide a rational basis for identification and design of effective alternatives to meet project goals.

The key tools that comprise this suite include:

- GIS mapping of topography, soils, geology, land use/land cover across the contributing watershed (e.g., Thorne 2002)
- Analysis of hydro-climatic data, e.g. streamflow gauge records, changes in stage-discharge relationships over time (e.g., Thorne 2002)
- Analysis of aerial photos and historical data (e.g., Thorne 2002)
- Field reconnaissance (e.g., Thorne 1998)
- Qualitative response (e.g., Lane 1955b, Schumm 1969, Henderson 1966 relations)
- Classification systems - (e.g., Thorne 1997; Schumm et al. 1982; and channel evolution model developed for S CA by Hawley et al. in press)
- Relationships between sediment transport and hydraulic variables
- Regional hydraulic geometry (e.g., Hawley 2008; Haines in prep)
- Regional planform and stability predictors (e.g., Hawley et al. in press, Bledsoe et al. in press, Dust and Wohl 2010)

- Bank stability analysis (e.g., BSTEM
<http://www.ars.usda.gov/Research/docs.htm?docid=5044>, Hawley (2009), Bledsoe et al. in press, Osman and Thorne 1988; Thorne et al. 1998)
- Sediment budgets (Booth et al. 2010; Reid and Dunne 1996)
- Fluvial audit (Thorne 2002 – a comprehensive framework for performing baseline assessments)

A baseline assessment is completed by integrating information from all the available data sources and analytical tools. Analysis with each of the individual tools may yield a verdict of aggradation, degradation, or dynamic equilibrium with respect to the channel bed, and stable or unstable with respect to the banks. The individual assessments can produce contradictory results. In this case, one should assign a level of confidence to the various components based on the reliability and availability of the data, and the analyst's own experience level. As is often the case in the management of fluvial systems, there is no "cookbook" answer, and we must always incorporate sound judgment.

A process-based channel evolution model (CEM) is a particularly useful element of the baseline assessment process. A CEM aids in identifying the dominant processes and trends of channel change and provides a framework for subsequent, more detailed modeling (ASCE 2008). In some locations, CEMs have already been developed and calibrated with regional data. For example, the CSU / SCCWRP Screening Tool (Bledsoe et al. 2010) grew out of a regional CEM (Hawley et al. in press) and integrates several baseline assessment tools including regionally-calibrated braiding, incision, and bank stability thresholds, and sediment supply analysis with "Geomorphic Landscape Units" (Booth et al. 2010). In locations where a CEM has not been sufficiently defined, the baseline assessment suite of tools can provide the data and understanding needed to develop a regionally calibrated CEM.

The following are example outputs from a baseline stability assessment, including channel stability and bank stability diagrams associated with key geomorphic thresholds of management concern in the channel evolution sequence (i.e. braiding, incision, and bank failure):

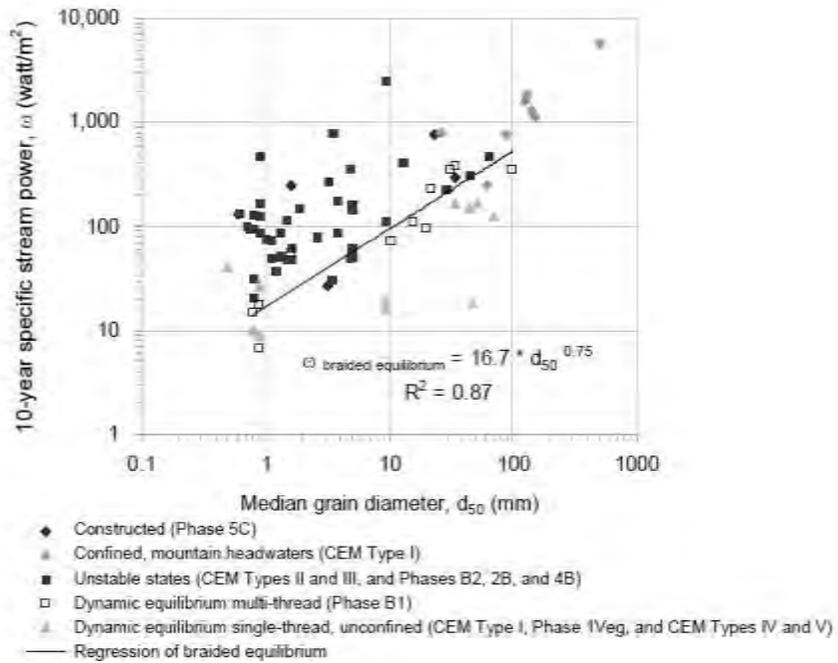


Figure B-1. Stability thresholds for channel types of southern CA, as identified through the development of a regional CEM (Hawley et al., in press).

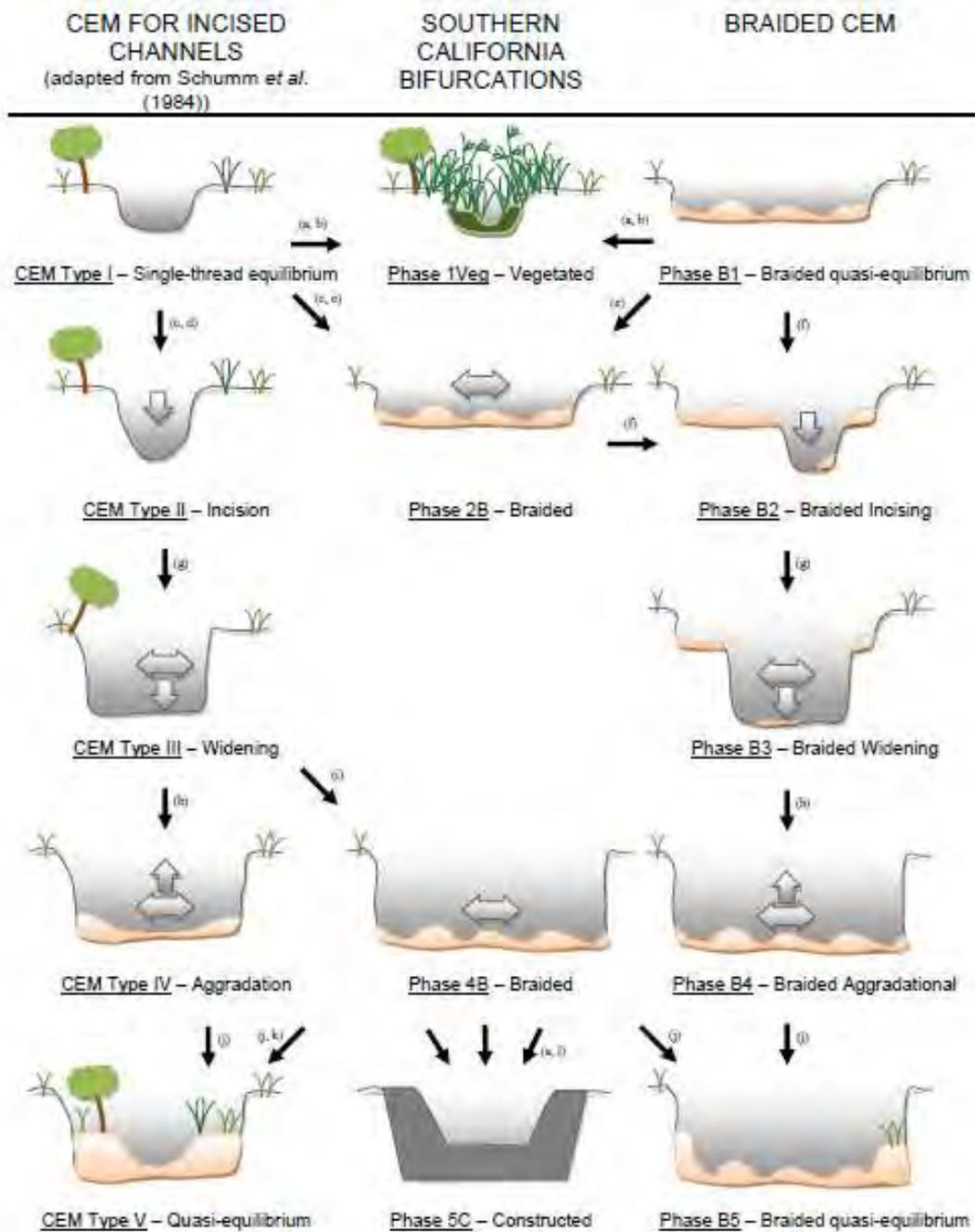


Figure B-2. Channel evolution model of response to hydromodification in southern California (Hawley et al. in press). Red and blue ovals highlight geomorphic thresholds that may be quantified using the baseline assessment suite of tools. By developing a general physical understanding of channel evolution sequences commonly observed in urbanizing watersheds of southern CA, two braiding thresholds and a bank stability threshold of management concern were identified. Channels may shift from single thread to braided planforms if widening is the dominant mode of initial adjustment. Alternatively, single thread channels may become braided after an initial period of incision that triggers geotechnical instability and failure of the banks. Quantitative predictors of these thresholds of braiding, incision, and bank failure can be developed in the baseline assessment process to evaluate the proximity of streams to these critical stages of channel evolution and instability.

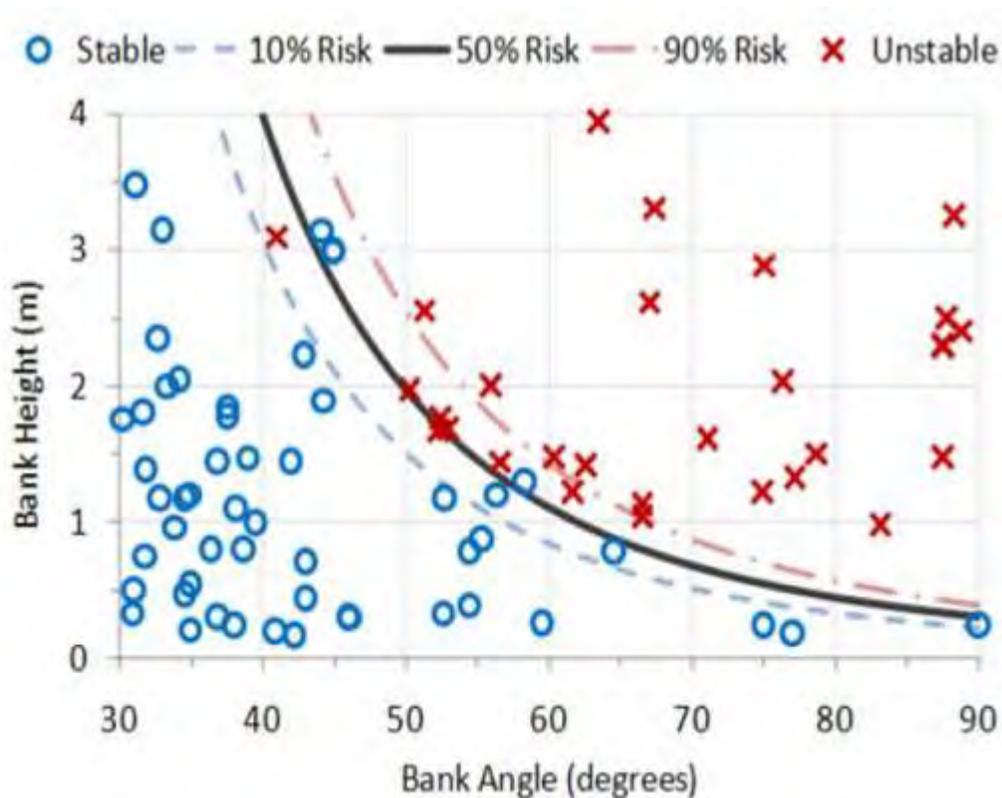


Figure B-3. Bank stability threshold for mass wasting identified through analysis of field data from southern California streams with stable and unstable banks (Bledsoe et al., in press).

2. Channel-forming discharge suite of tools. This suite of tools is designed to answer the following key questions:

- What ranges of discharges are most influential in controlling channel form and processes over decadal time scales?
- What channel-forming discharge should be used in sediment transport analyses to identify sediment transport capacity, equilibrium slope and geometry, etc.?

The tools that comprise this suite include the following:

- Effective discharge computations (e.g., Soar and Thorne 2001; Biedenharn et al. 2000; GeoTools – Bledsoe et al. 2007). An effective discharge analysis directly quantifies the range of discharges that transport the largest portion of the annual sediment yield over a period of many years.
- Field identification of high water elevations, depositional surfaces, and “bankfull” features
- Flood frequency analysis
- Un-gauged site analysis (e.g. USGS StreamStats) <http://water.usgs.gov/osw/streamstats/california.html>; Hawley and Bledsoe (2011), regional flow duration curve extrapolation – Biedenharn et al. 2000)

This suite incorporates a number of parallel analyses that can be used to establish likely upper and lower bounds to the range of influential discharges, and that can be assessed through a weight-of-evidence evaluation. The following is an example output from the channel forming discharge suite of tools:

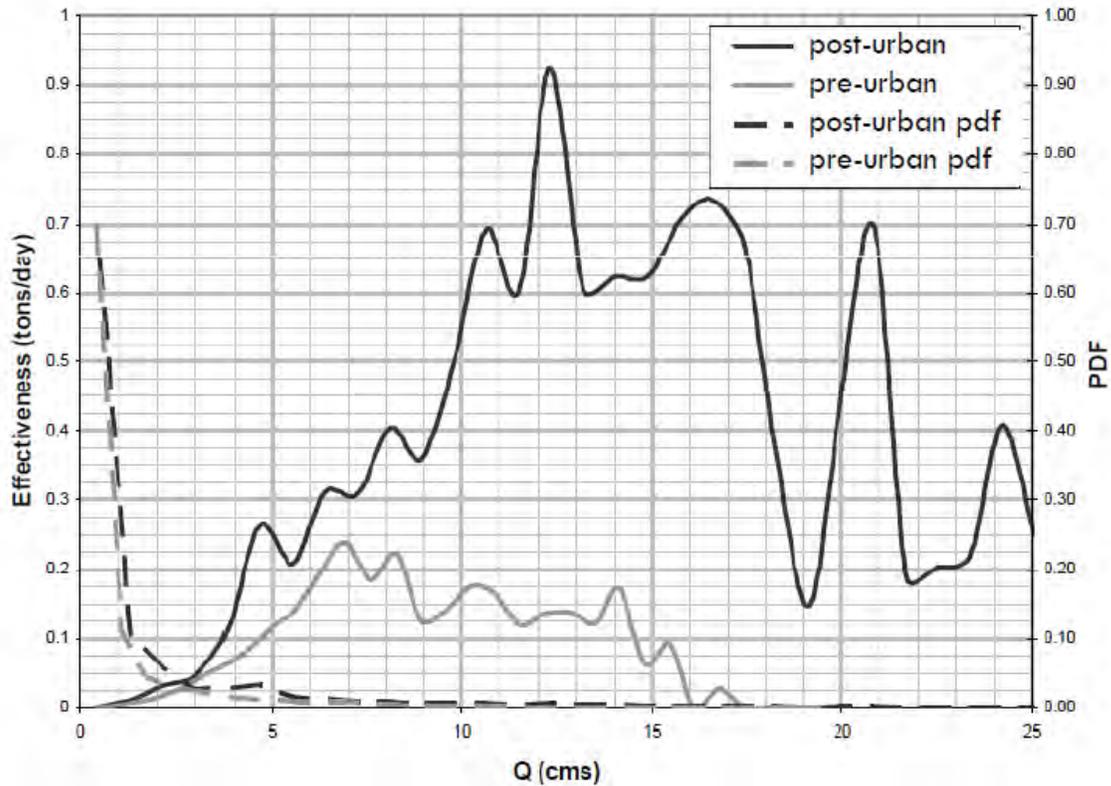


Figure B-4. Flow effectiveness curves for continuous series of pre-urban and post-urban discharges (Biedenbarn et al. 2000; Bledsoe et al. 2007). Cumulative sediment yield is approximated by the area under the respective curves. If the stream bed is the most erodible channel boundary, the ratio of areas under these curves would be the erosion potential metric described below in the next suite of tools.

3. Erosion potential suite of tools. This suite of tools is designed to answer the following key questions:

- How do proposed land-use changes or channel alteration affect the capacity of a channel to transport the *most erodible material in its boundary* over a period of many years (erosion potential – E_p)?
- Do proposed mitigation approaches match the pre- vs. post- development erosion potential over the full spectrum of erosive flows?
- Do past changes in erosion potential correspond to different states of channel stability and degradation in this region?
- Does a proposed change in streamflow make it more likely that a channel will enter an alternative / degraded state?

The underlying premise of the erosion potential approach advances the concept of flow duration control (discussed in Chapters 2 and 3) by addressing in-stream processes related to sediment transport. An erosion potential calculation combines flow parameters with stream geometry to assess long term (decadal) changes in the sediment transport capacity. The cumulative distribution of shear stress, specific stream power and sediment transport capacity across the entire range of relevant flows can be calculated and expressed using an erosion potential metric, E_p (e.g., Bledsoe, 2002). This erosion potential metric is a simple ratio of post- vs. pre-development sediment transport capacity over a period of many years. The calculated capacity to transport sediment can be based on the channel bed material or the bank material, depending on which one is more erodible.

This E_p suite of tools has been applied in two primary ways:

- a) At a project-level analysis, it has been applied to answer the first two questions above. A municipal stormwater permit may require a project design to achieve an erosion potential (E_p) value of 1.0. This means that a project must be designed so that the long-term erosion potential of the site's stormwater discharge is equal to the erosion potential of the pre-development condition. Section 3.1 below explains the process by which this analysis is conducted.
- b) At a regional level, this suite of tools can be applied to answer the third and fourth questions above and to provide further guidance to project-level assessments. For example, practical engineering considerations generally require that a tolerance be permitted around a target design value. It is unlikely that a project design can match an E_p target of 1.0 across all conditions and through all stream reaches, due to variations in a multitude of contributing factors. The selection of an acceptable tolerance or variance from 1.0 is a management decision that should be informed by regional data presented in a risk-based format. Section 3.2 below explains how such a study has been conducted, using the Santa Clara Valley example from northern California.

3.1. *Project-Level Analysis.* As applied to the analysis of project impacts and mitigation design, the steps and associated tools that comprise this suite include the following (Figure B-5):

- Perform continuous simulation of hydrology (e.g. SWMM, HEC-HMS, HSPF) for the project site, for both pre-project condition and post-project condition with the proposed mitigation design.
- Convert discharges and field surveys to hydraulic parameters (shear stress and specific stream power) – e.g., for uniform flow analysis use Manning's equation, GeoTools; for varied flow analysis use HEC-RAS
- Convert hydraulic parameters into sediment transport capacity – e.g., at-a-station hydraulic geometry, HEC-RAS, GeoTools, sediment transport relationships (bedload and total load)
- Integrate E_p over time – e.g., GeoTools

- Compare E_p values for pre-development and post development to determine if the proposed mitigation design is adequate. Adjust stormwater controls as necessary to meet target E_p .

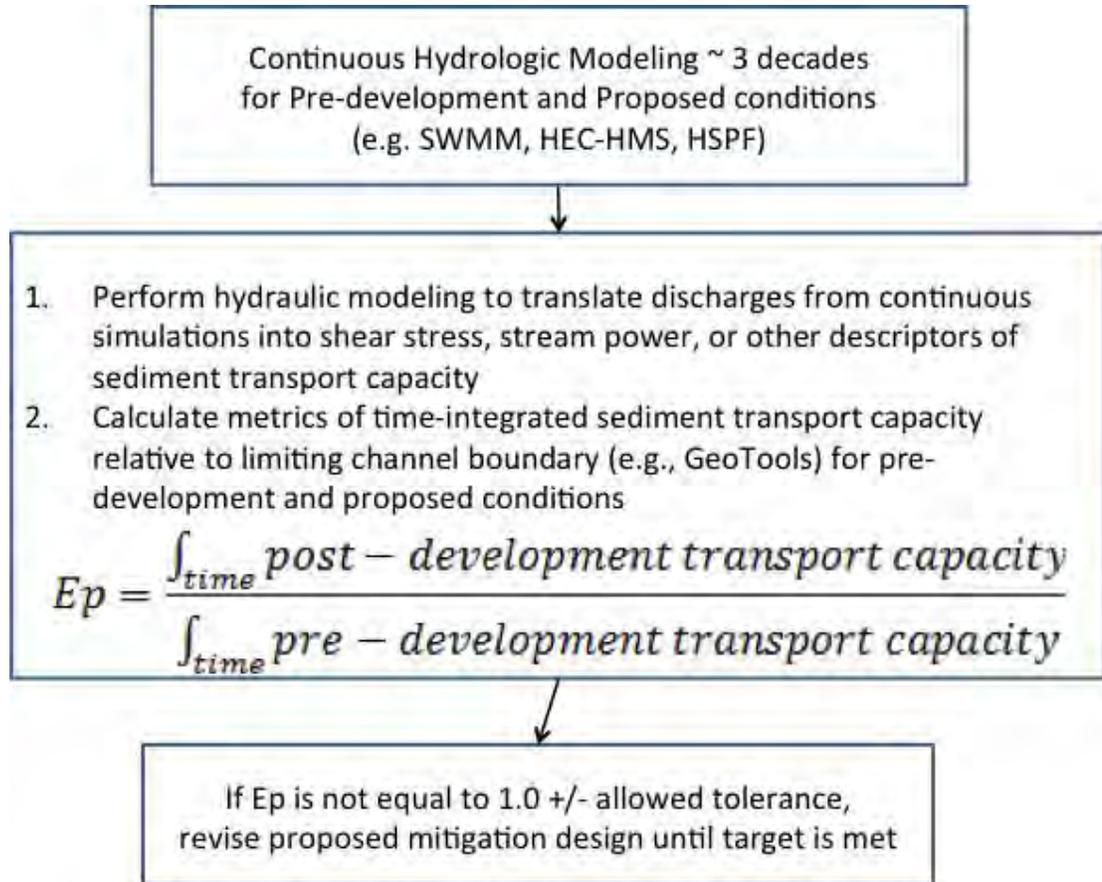


Figure B-5: Steps involved in a project-level Erosion Potential analysis

3.2. *Risk-Based Regional Analysis.* Risk-based modeling estimates the probability of stream geomorphic states. Decision-makers can then choose acceptable risk levels based on an explicit estimate of prediction error. The foundation of risk-based modeling in the context of hydromodification management is the integration of hydrologic and geomorphic data derived from the output of continuous hydrologic simulation models to generate metrics describing expected departures in the most important stream processes. These physical metrics are provided as inputs to probabilistic models that estimate the risk of streams shifting to some undesirable state. Because the decision endpoint is often categorical (e.g., stable, good habitat) the statistical tools of choice

are often logistic regression, classification and regression trees (CART), and/or Bayesian probability networks.

The steps below are used to develop a risk-based framework (Fig. B-6) for assessing how hydromodification may impact streams within a region, and for understanding the relationships between deviation from an E_p of 1.0 and the likelihood of channel instability. Illustrating figures are taken from a risk-based approach was used in the development of the Santa Clara Valley Urban Runoff Program Hydromodification Management Plan (www.SCVURPPP.org). This study demonstrated that a time-integrated index of erosion potential based on continuous hydrologic simulation and an assessment of stream power relative to the erodibility of channel boundary materials could be used to distinguish between channels of a particular regional type that are stable vs. degraded by hydromodification in urban watersheds.

- Perform project-level analysis as described in section 3.1 above for existing developments throughout the study watersheds.
- Perform stream surveys throughout the study watersheds to characterize condition (i.e., stable, unstable)
- Create statistical relationships between E_p and different channel states – e.g., logistic regression in R, SAS, Statistica, Minitab, etc. Note that standard regression techniques are applied when the dependent variable and the explanatory variables are quantitative and continuous. To analyze a binary qualitative variable (e.g., 0 or 1, stable or unstable, healthy or degraded) as a function of a number of explanatory variables, alternative techniques must be used. The regression problem may be revised so that, rather than predicting a binary variable, the regression model predicts a continuous probability of the binary variable that stays within 0–1 bounds. One of the most common regression models that accomplishes this is the logit or logistic regression model (Menard, 1995; Christensen, 1997).

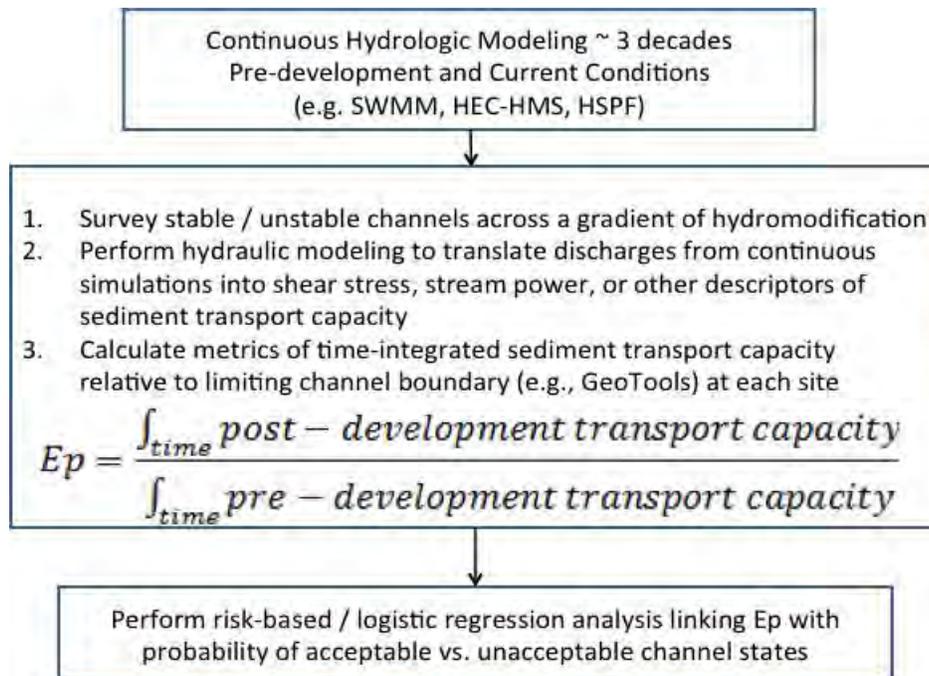


Figure B-6: Steps involved in a Risk-Based Erosion Potential analysis

The variables included in risk-based models of stream response are not limited to erosion potential. Additional multi-scale controls could be included. For example, simple categories of physical habitat condition and ecological integrity could be predicted by augmenting erosion potential metrics with descriptors of the condition of channel banks and riparian zones, geologic influences, floodplain connectedness, hydrologic metrics describing flashiness, proximity to known thresholds of planform change, and BMP types. Furthermore, although most of the emphasis to date has been on predicting geomorphic endpoints, the risk-based approach can be extended to the prediction of biological states in urban streams if the necessary data are available.

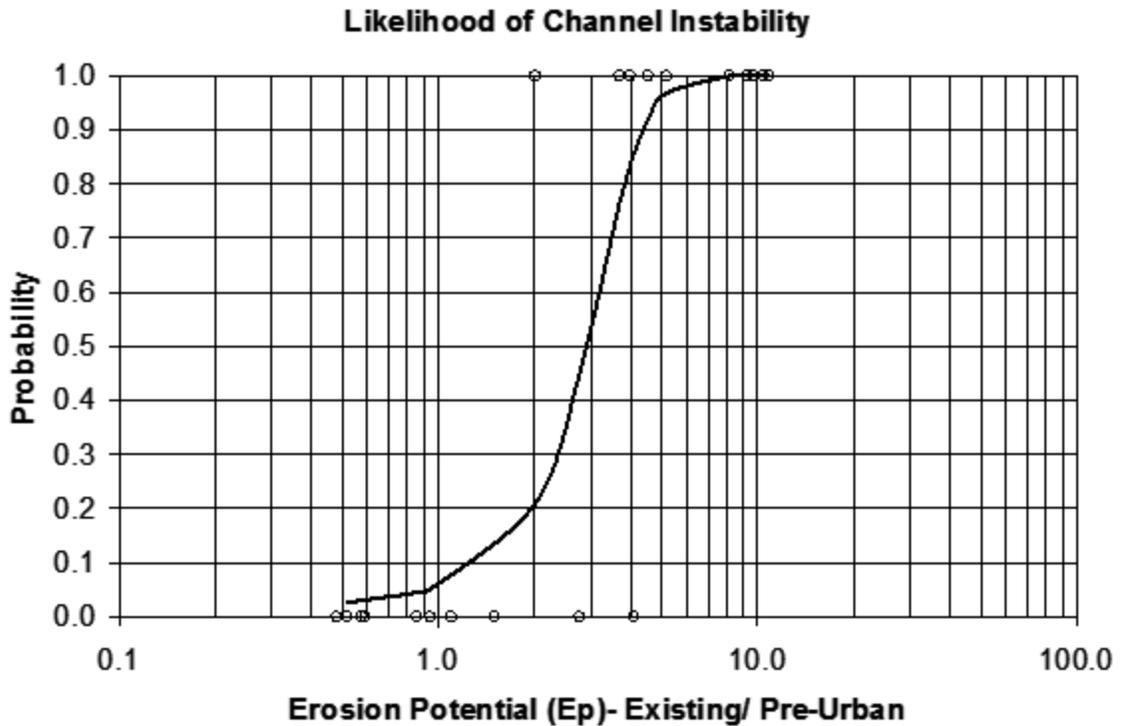


Figure B-7: Example of a logistic regression analysis of stable vs. unstable channels (Bledsoe and Watson, 2001; Bledsoe et al., 2007). The vertical axis represents the probability of stream instability which increases rapidly for channels with sediment transport capacity increased by urban hydromodification ($E_p > 1$).

3.3. *Strengths and Limitations.* The Erosion Potential approach combines a sound physical basis with probabilistic outputs and requires a substantial modeling effort. Such an effort is necessary to adequately characterize the effects of hydromodification on the stability of streams that are not armored with very coarse material such as large cobbles and boulders. Although policies based on this approach should reduce impacts to channel morphology, they may still fail to protect stream functions and biota. Key simplifying assumptions and prediction uncertainty in the inputs (hydrologic modeling, assumptions of static channel geometry in developing long term series of shear stresses or stream powers, assumptions of stationarity in sediment supply, etc.) have not been rigorously addressed. Its effectiveness also depends on careful stratification of streams in a region such that fundamentally different stream types are not lumped together (e.g. labile sand channels vs. armored threshold channels with grade control) in developing general relationships for instability risk. Endpoints to date have been rather coarse, e.g. stable vs. unstable; as such, they do not provide sufficient resolution for envisioning future stream states. However, the Erosion Potential approach provides

promise as an important tool for hydromodification management; it is recommended that it be refined to address sediment supply changes and to provide more finely resolved endpoints for improved predictive capabilities.

4. Sediment transport analysis suite of tools. This suite of tools is designed to answer the following questions:

- Do I need to incorporate sediment transport analysis in predicting channel response to hydromodification, i.e. what is the sensitivity of channel slope and geometry to inflowing sediment load?
- At what discharges are different fractions of bed material mobilized in a particular stream segment?
- What is inflowing sediment load to a stream segment, i.e. what is the water discharge $Q(t)$ and sediment supply rate $Q_s(t)$ and grain size $D(t)$ delivered to the upstream end of the channel segment of interest?
- How will the available flow move the supplied sediment through the segment of interest?
- What is the new equilibrium slope given some change in streamflow, and how much incision would be necessary to achieve this new slope?
- What is the sediment transport capacity of the segment of interest *relative to* the inflowing sediment load from *upstream* supply reaches?
- What is the sediment transport capacity of the segment of interest *relative to* the capacity of *downstream* reaches?
- At the network scale, where are zones of low vs. high energy, aggradation vs. degradation potential, and coarse sediment constriction located?

The primary tools that comprise this suite include the following:

- Tools for estimating watershed sediment supply (Reid and Dunne 1996), including the RUSLE (Renard et al. 1997; <http://www.ars.usda.gov/Research/docs.htm?docid=5971>) and WEPP (Lafin et al. 1991; <http://www.ars.usda.gov/Research/docs.htm?docid=10621>) models.
- Effective discharge analysis (see above)
- Incipient motion analysis (tractive force, e.g. ASCE 2008; Brown and Caldwell 2011; Buffington and Montgomery 1998; Lane 1955a)
- Sediment continuity analysis at single dominant discharge with an appropriate sediment transport relation – e.g., HEC-RAS, Bedload Assessment for Gravel-bed Streams (BAGS -Pitlick et al. 2009; GeoTools)
- Equilibrium slope / geometry analysis e.g., HEC-RAS – Copeland et al. 2001, iSURF-NCED 2011)
- Sensitivity to inflowing sediment load analysis e.g., Copeland’s method in HEC-RAS, iSURF-NCED 2011)
- Sediment continuity analysis over the entire flow frequency distribution e.g., Capacity-Supply Ratio of Soar and Thorne (2001), BAGS, GeoTools

- Network scale sediment balance – Sediment Impact Analysis Methods (SIAM) module in HEC-RAS

Movable bed / mobile boundary models also provide a mechanistic tool for estimating the trend and magnitude of changes in channel geometry due to hydromodification. However, a recent study evaluated the potential applicability of various movable bed and/or boundary models to streams in southern CA (Dust 2009), including HEC-RAS, CONCEPTS (Langendoen, 2000), and FLUVIAL 12 (Chang, 2006). The results of tests performed on urban streams in southern CA indicate that these models are difficult to apply and have high prediction uncertainty due to flows near critical, split flow conditions, and lack of fidelity to complex widening, bank failure, and armoring processes.

The following figures depict example outputs from an application of the sediment-transport suite of tools:

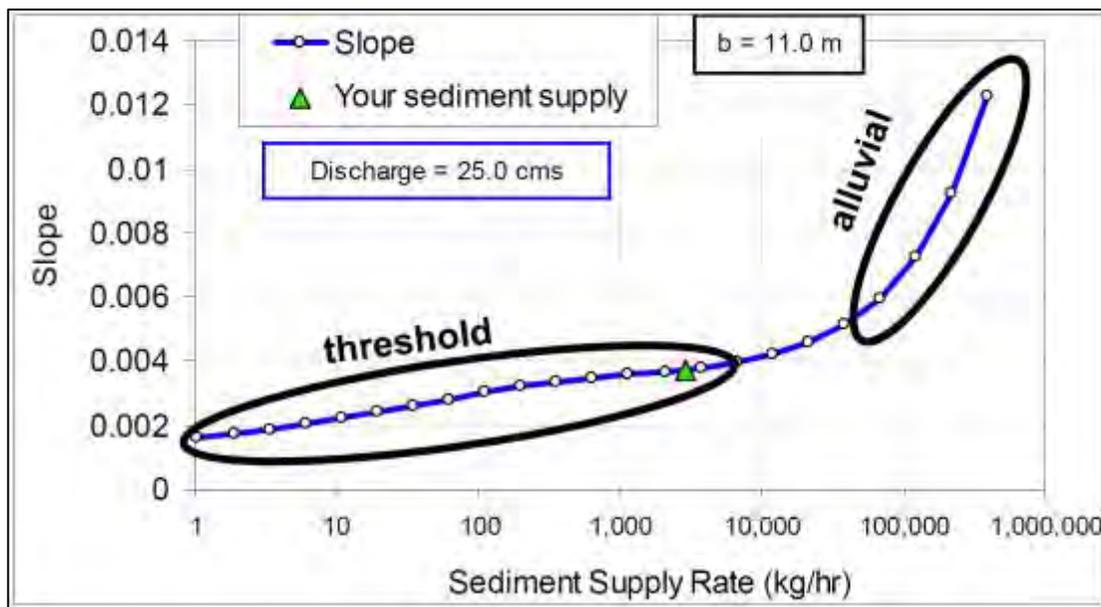


Figure B-8. Sensitivity analysis of equilibrium channel slope to inflowing sediment load (from iSURF, NCED 2011). Slopes of alluvial channels with high sediment supply are much more sensitive than threshold channels with relatively low sediment supply. Channels with beds composed of sand and fine gravels are generally much more geomorphically sensitive to hydromodification than threshold channels in which coarse bed sediments are primarily transported at relatively high flows.

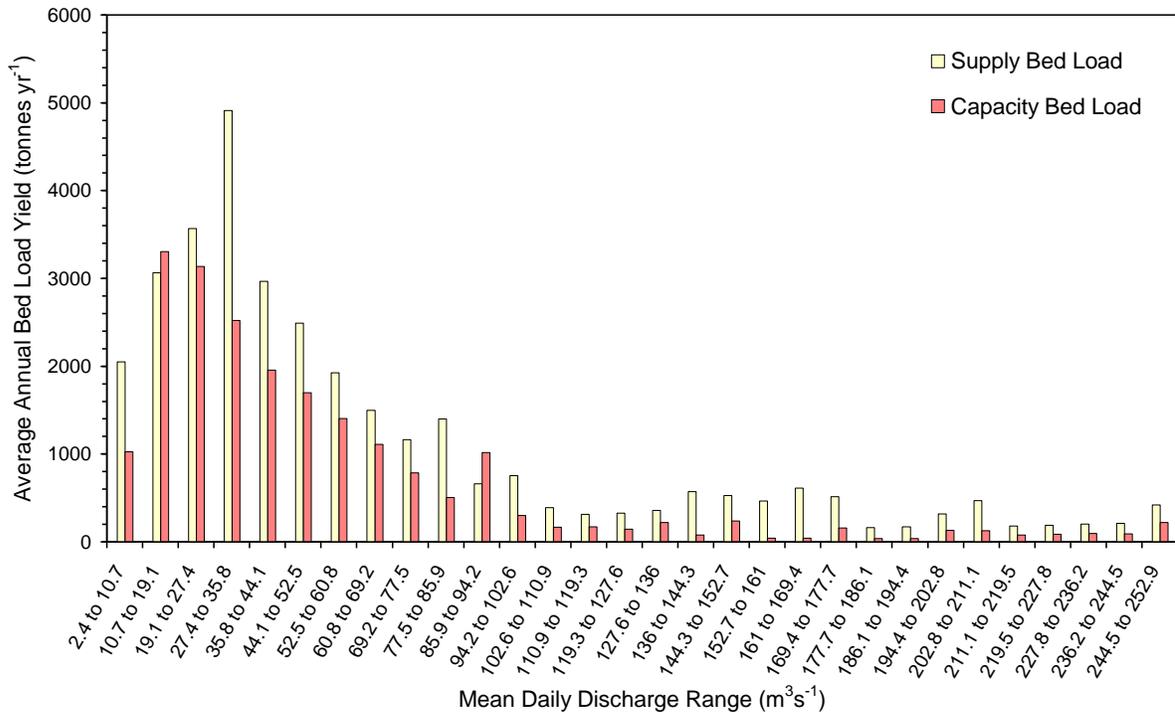


Figure B-9. Analysis of sediment transport capacity vs. inflowing sediment load over the full spectrum of stream discharges (capacity-supply ratio; Soar and Thorne 2001). In this case, the time-integrated capacity to transport bedload is 64% of the supplied bedload and significant aggradation is expected.

5. Relationship to Management Framework. These suites of tools could be applied to establish project-specific requirements for hydromodification assessment and mitigation, as recommended in the Management Framework presented in Chapter 3. In the example shown in the diagram below, results of the Baseline Assessment are used as a screening tool to assign high, moderate or low risk levels for stream reaches, in conjunction with the proposed land-use changes. Thus, the Baseline Assessment suite of tools is crucial in determining whether a detailed survey-level assessment and additional suites of tools are necessary for an adequate analysis. The need to apply additional suites of tools in formulating a management approach is commensurate with the level of risk and susceptibility of the stream. More complex and rigorous analysis with multiple suites of tools is necessary in predictive assessments for relatively susceptible stream types such as alluvial channels with sand beds.

Although a stream may have relatively low susceptibility for overall geomorphic change, it may nevertheless have ecological attributes that are highly susceptible to hydromodification. Thus, suites of tools focused on both geomorphic and biological endpoints must be used to fully assess stream susceptibility to hydromodification. More work will be required to develop tools for prediction of biological response to flow alterations throughout California, as noted in Chapter 3 (see Poff et al., 2010 and <http://conserveonline.org/workspaces/eloha>).

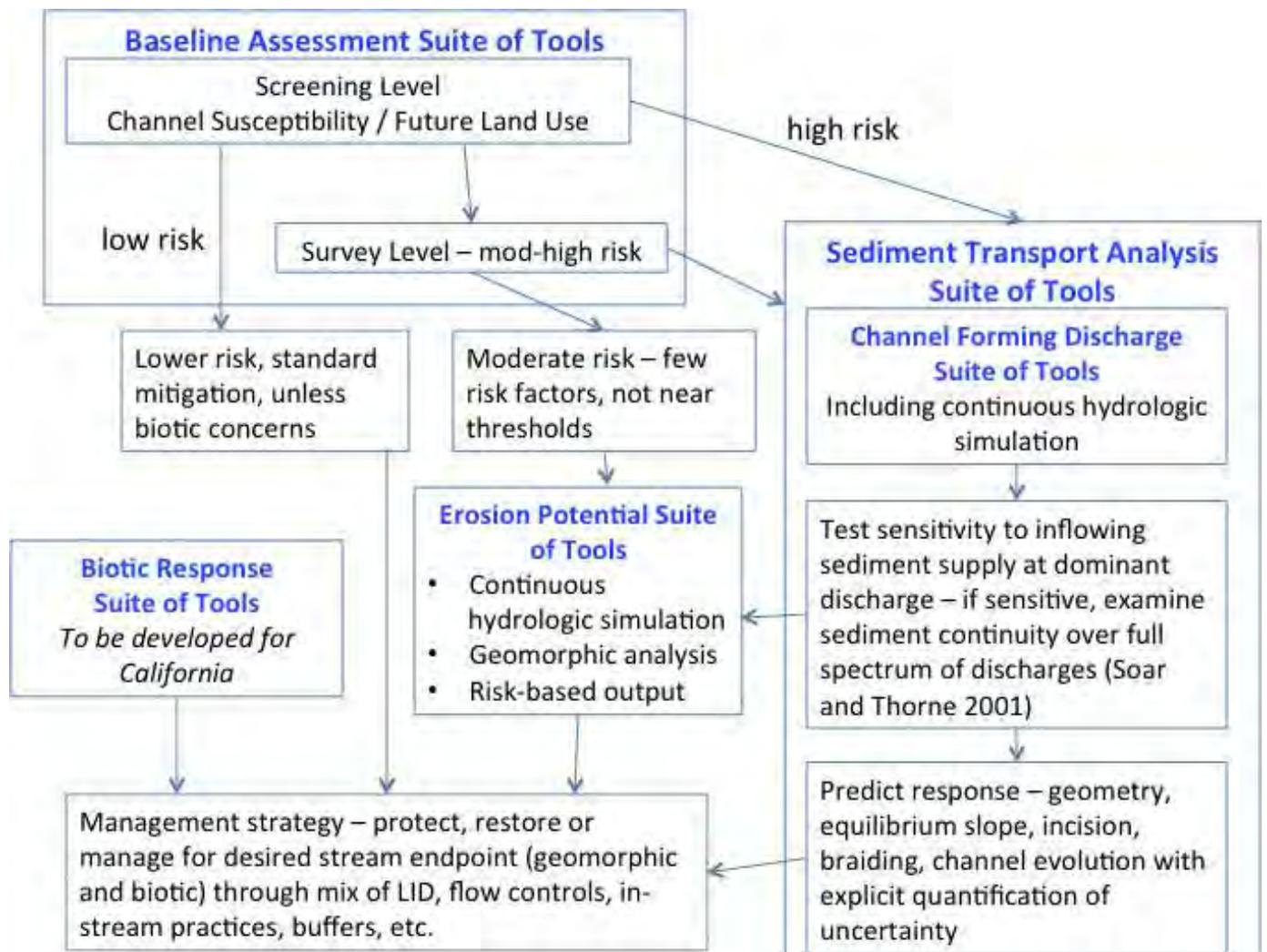


Figure B-10. Conceptual diagram showing relationships among the four suites of existing tools and biotic response tools to be developed in the future. Additional analyses will be required for engineering design.

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APPENDIX C: ADAPTIVE MANAGEMENT

WHAT IS ADAPTIVE MANAGEMENT

Adaptive management is a formalized approach for overcoming the inescapable difficulty in predicting ecological outcomes resulting from natural-resource management actions. It accomplishes this by treating all “management actions” (whether intentional or not) as experimental components within the larger structure of a monitoring program (Holling 1978, Walters 1986, Lee 1999, Ralph and Poole 2003). In other words, specific management actions that may affect ecological processes and functions are systematically evaluated, via “monitoring,” to provide the data to affirm or refute the expected outcomes. To the extent that the monitoring results indicate a need to revise the scientific understanding or the management actions built on that understanding, establishing the mechanism to change management actions is a precursor, not an afterthought, of the monitoring program.

Adaptive Management was first articulated over 30 years ago (Holling, 1978) and more recently embraced through various conservation efforts worldwide. Fundamental to this approach is the integration of management and monitoring, recognizing that any management action in the context of a complex ecological system is ultimately experimental, requiring feedback to make progress.

The process of adaptive implementation is iterative and continuous; new knowledge is actively incorporated into revised experiments, a practice best described as “learning while doing” (Lee 1999). The key difference between this approach and other commonly implemented environmental management strategies is the application of scientific principles, such as hypotheses-testing,[is used] to explicitly define the relationships between policy decisions, management actions, and their measured ecological outcomes. Furthermore, this approach provides a means to understand and document these cause-and-effect relationships; it can also point to alternative actions that may produce more desirable outcomes. Uncertainty is embraced and serves as a focal point for defining ever-more specific evaluations.

Scientifically credible and relevant information can only be generated when the management “experiments” are designed with clear hypotheses about the effects of proposed actions or prescriptions. These hypotheses must be testable at multiple scales using available technology and methods (Conquest and Ralph 1998; Currens *et al.* 2000). Hypotheses that cannot be tested, are trivial (e.g., “water flows downhill”), are not credible (“water flows uphill”), or only account for site-specific conditions are not useful in considerations of the singular or cumulative effects of management actions.

In order to retain clear linkages between key questions, hypotheses, and monitoring protocols, the experimental approach must be designed before determining which goals and endpoints are appropriate (Ralph and Poole 2003) since appropriate goals should be *outcomes* of the

effort, not a precondition; and the approach must explicitly tie stated hypotheses to the key ecological questions.

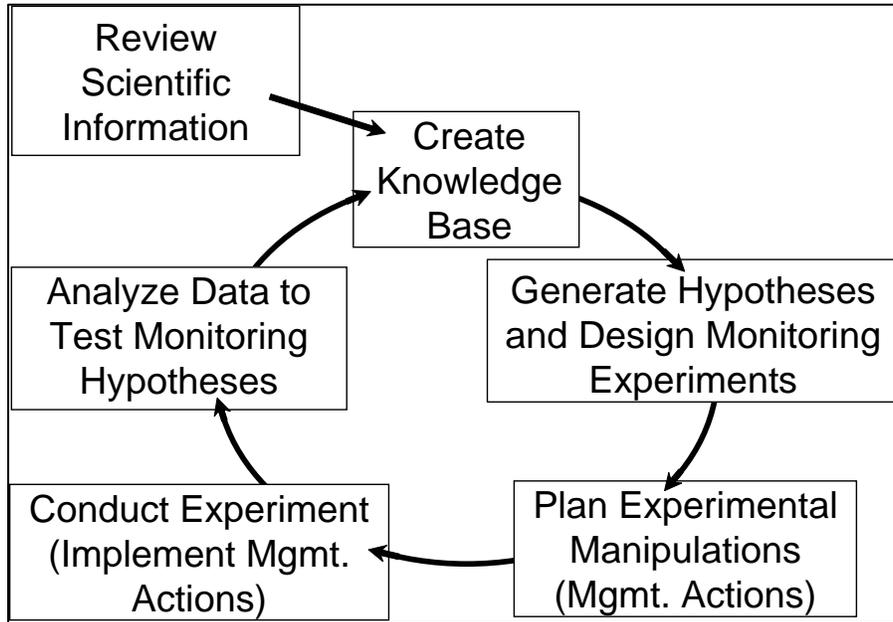


Figure A-1. Framework for an adaptive management program. The key feature of this cycle is the foundation of scientific principles and hypothesis generation; design of the management actions and the monitoring to evaluate their effects are integrated and designed to test assumptions, improve understanding, and reduce uncertainty (modified from Ralph and Poole 2003, Figure 3).

Wagner (2006) asserts that [stormwater] regulatory programs in the past often failed because they were designed in ways that ignored technological and scientific limitations. “Science-based” does not simply mean the monitoring of status and trends followed by responding to imposed benchmarks and goals, but rather that scientific principles must be the foundation of regulatory program design, and that these programs must rely on scientific methods to demonstrate results. Wagner suggests that regulations can still be designed despite incomplete or developing knowledge, but that gaps and limitations must be acknowledged and used to inform ongoing investigations. His argument clearly echoes those of scientists who insist that monitoring experiments and testable hypotheses must frame management decisions and land-use objectives.

WHAT IS NOT ADAPTIVE MANAGEMENT, AND WHY IS IT SO PROBLEMATIC?

Unlike the experimental approach embodied by adaptive management, an alternative process traditionally dominates in natural resource management: (1) a problem is identified, but a cause is simultaneously presumed (e.g., “increased sediment inputs into a stream are negatively impacting salmonid survival”); (2) a solution or set of solutions is proposed (e.g., timber harvest is restricted and riparian buffer width is increased), but the prescription is not translated into a testable hypothesis associated with the problem or question; and (3) if the problem is not solved within an arbitrarily reasonable period of time (e.g., a few years) then a different solution is proposed (e.g., “augmented upland and riparian restoration must be implemented”). Although simplified, this outline displays its divergence from adaptive management and from the basic principles of the scientific process—the resulting process is perpetually reactive.

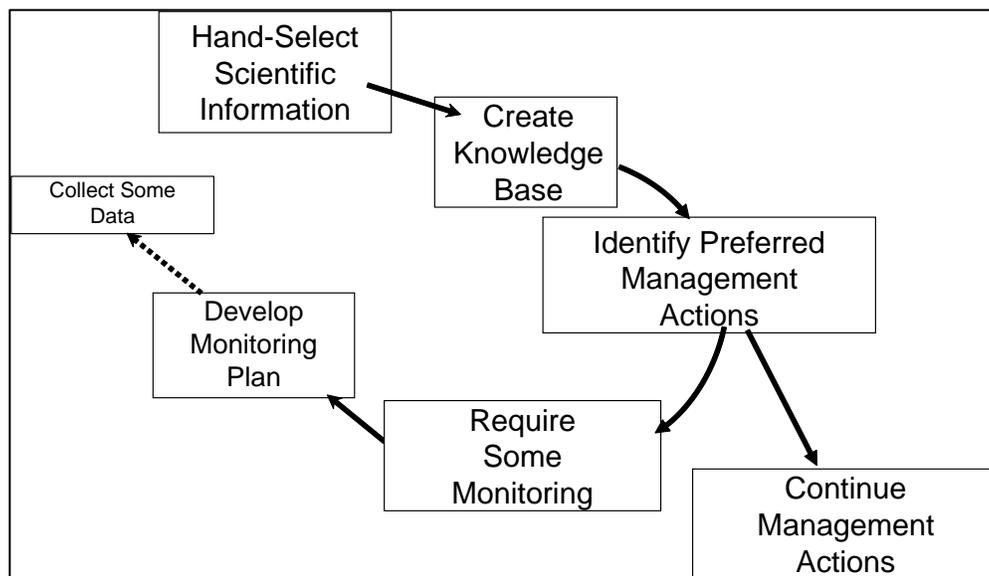


Figure A-2. Common framework for monitoring outside of an adaptive management structure. Management actions are chosen with a presumptive effect on ecological systems, and monitoring is conducted without any feedback to future actions. Even where monitoring is intended to “inform” future management actions, the absence of an explicit experimental design normally limits the utility of any monitoring data to provide meaningful insights.

In its best form, this paradigm has been termed passive adaptive management:

Restoration planners’ current management approach has been described as a “passive” adaptive management approach: science is used to

develop best-guess predictive models, make policies according to these models, and revise them as data become available. The National Academies advise that every effort be made to take a more "active" adaptive management approach by developing alternative hypotheses for the expected consequences of a particular project and then design the project so the hypotheses can be experimentally tested" (from the summary to *Adaptive Monitoring and Assessment for the Comprehensive Everglades Restoration Plan*, 2003, National Academies Press, 122 pp.).

Ralph and Poole (2003) have aptly named this approach "socio-political adaptive management" (i.e., SPAM).

BARRIERS TO IMPLEMENTING "ACTIVE" ADAPTIVE MANAGEMENT

Although the virtues of active adaptive management are readily articulated, the framework is surprisingly rare in practice. Some of these barriers are practical or logistical, and they include such issues as:

- Longevity and long-term institutionalization of monitoring;
- Effective data management systems that allow managers to readily access data;
- Ability to differentiate effects from natural variability and events, such as flood and fire;
- Cost and technical limitations of necessary data collection.

The most severe impediments, however, are not scientific but social: "We suggest that watershed-scale adaptive management must be recognized as a radical departure from established ways of managing natural resources if it is to achieve its promise... Adaptive management encourages scrutiny of prevailing social and organizational norms and this is unlikely to occur without a change in the culture of natural resource management and research" (Allan et al. 2008).

While science can provide defensible and replicable insights regarding the ecological outcomes of management prescriptions, it cannot offer absolute certainty. Policy can be and should be informed by science but is ultimately based on a variety of considerations that are not always amenable to the spatial, temporal, and technological limitations of the scientific process (Van Cleave et al. 2004). This is an uncomfortable truth for agency managers and elected officials to acknowledge, and it commonly results in funding decisions and public pronouncements using the "language" of science but not its substance.

Although efforts to build large, collaborative programs are commonly characterized by increasing stakeholder involvement and outreach, greater participation does not necessarily

mean that true adaptive management is occurring, or that scientific principals are being applied to either the choice of management actions or their evaluation. These efforts, however, do reflect a movement to extend natural resource management decision-making processes beyond just technical experts in order to reflect evolving social values (Pahl-Wostl *et al.* 2007). If they are successful, this approach can open a path to achieving the best of both realms, namely scientific rigor with a broad base of community support.

ATTRIBUTES OF USEFUL HYPOTHESES FOR AN ADAPTIVE MANAGEMENT PROGRAM

A key element of any adaptive management approach is the set of hypotheses that guide both the management actions and their associated monitoring. Because these management actions are recognized as “experimental” (because in a complex system most outcome(s) cannot be predicted with absolute certainty), their selection must be guided by assumptions about what *might happen*, or what is *expected* to happen. This defines the first attribute of a useful hypothesis: it is **credible**, typically because it is based on prior knowledge or scientific understanding of the system. Indeed, some hypotheses may already be so well evaluated and understood (e.g., “Stormwater runoff from freeways carries measurably elevated concentrations of toxic pollutants”) that there is little point in framing them in this structure at all—as new monitoring programs to address such hypotheses are highly unlikely to result in new information or knowledge and might be perceived as an unwise expenditure of scarce monitoring resources.

The second attribute of a useful hypothesis stems from the scientific reality that any experiment, whether conducted in the laboratory or across the landscape, provides value only insofar as its outcomes are measured and the effects are distinguishable from the influence of other, unrelated factors. Thus, the hypothesis that guides the experiment should not only be credible but also **testable**. Otherwise, why bother making measurements at all?

Lastly, these actions and measurements and analyses do not occur in a vacuum. Thus, the final guiding principle for any hypothesis in an adaptive management approach is that it be **actionable**, or that different outcomes, as revealed by monitoring, can (and will) result in different management responses. If no difference occurs, then clearly there is no reason to have made the effort in the first place.

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ATTACHMENT A

**ORANGE COUNTY LEGAL & TECHNICAL COMMENTS ON
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
TENTATIVE ORDER No. R9-2013-0001
NPDES NO. CAS0109266**

Appendix A-3

2009 Presentation to Santa Ana Regional Board

Storage and Reuse Systems for Stormwater Management

Preliminary Cost and Performance Estimates for
Residential Land Use in Irvine, CA

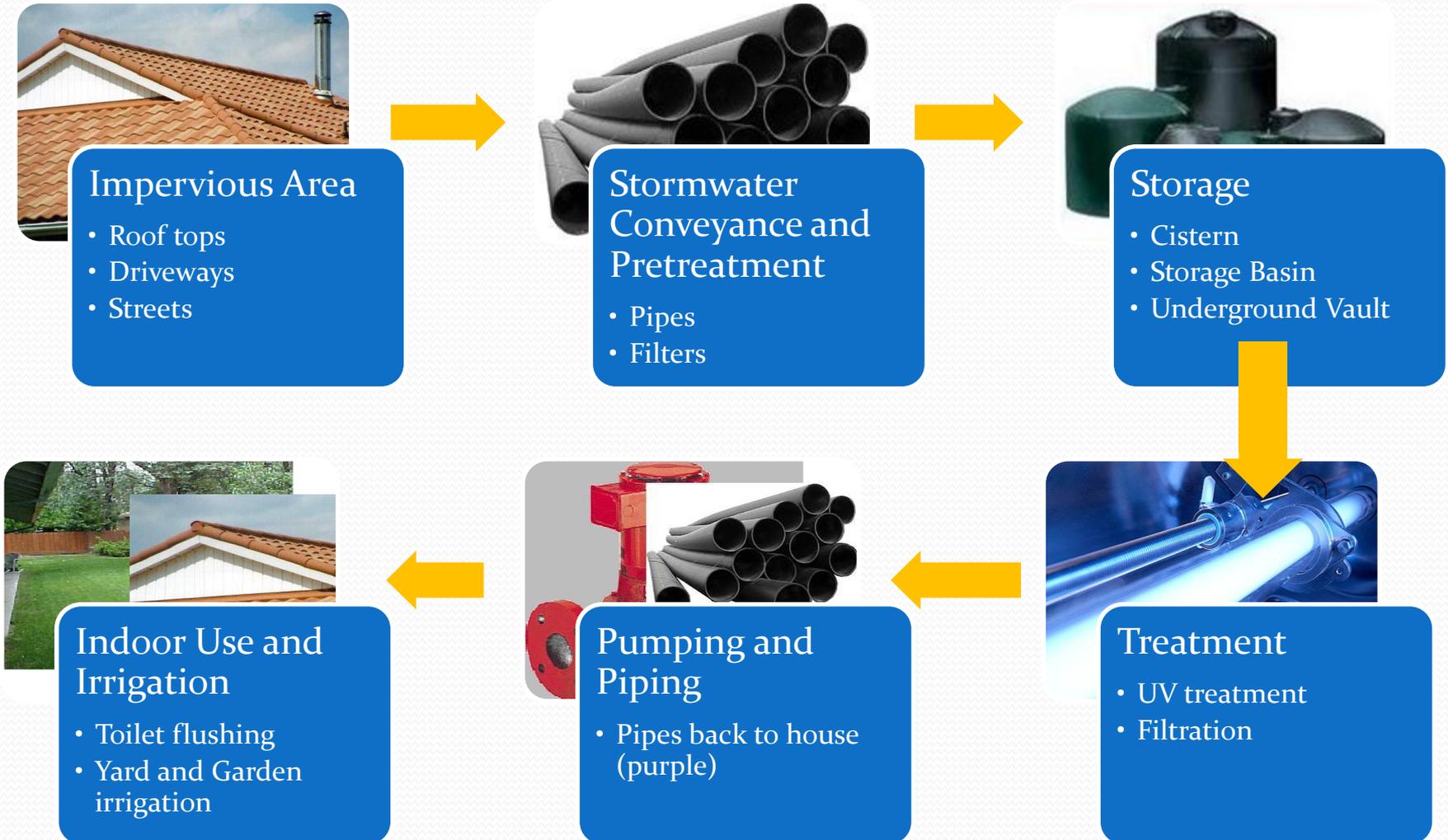
Eric Strecker, P.E.

Geosyntec
consultants

Summary of Study

- Compared hypothetical scenarios for rainwater harvesting and reuse systems (cisterns)
 - single lot scenario
 - 100 ac neighborhood scenario
- Compared resulting costs and for both scenarios
- Performed modeling (long term simulation) analysis for neighborhood scenario
- Evaluated water quality loading differences between rainwater harvesting and reuse systems and typical bioretention installation for single family residential
- Performed preliminary review of applicable codes

Rainwater harvesting and Reuse Systems



Single Lot Scenario

- Two reuse demands were examined: 1) indoor use only (toilet flushing), and 2) indoor and outdoor use (toilets and irrigation)
- Lot Characteristics:
 - 0.1 acres
 - 69% impervious area
 - Roof area - 2400 ft²
 - Other (patio) - 600 ft²
 - 3.5 people/house
 - Toilet use/capita = 18.5
- Method assumptions:
 - Rational Method
 - Impervious Runoff Coeff. (0.9)
 - Precipitation Depth – 0.8 in (85th percentile for large parts of Orange County)
 - Toilet use / house = 65 gal/day
 - Irrigation /house = 77 gal/day (Avg. from Irvine Water District data)

Single Lot Scenario Results

Water Collected From:	Roof	Roof + Other Impervious area
Demand Scenario	Average Drawdown Time (days)	
Toilets only	17	21
Both Toilets & Outdoor uses	7.6	9.5

Note: Outdoor demand assumes that irrigation demand is immediate; more sophisticated modeling would allow more accurate characterize of irrigation demand, but for purposes of this analyses, it was assumed to be immediate. This likely significantly overstates the demand for irrigation.

Neighborhood Scenario

- Two reuse demands were examined: 1) indoor use only (toilet flushing), and 2) indoor and outdoor use (toilets and irrigation)
- Neighborhood Properties:
 - 100 acres – 60 % impervious
 - 0.1 acre lots at 4.5 du/ac = 450 houses
 - 3.5 people/house
 - Toilet use/capita = 18.5
 - Basin used to store runoff
- Method assumptions:
 - Rational Method
 - Impervious Runoff Coeff. (0.9)
 - Precipitation Depth – 0.8 in (85th percentile for large parts of Orange County)
 - Toilet use / house = 65 gal/day
 - Irrigation /house = 77 gal/day (Avg. from Irvine Water District data)

Neighborhood Scenario Results

Demand Scenario	Average Drawdown Time (days)
Toilets only	45
Both Toilets & Outdoor uses	10

Note: Outdoor demand assumes that irrigation demand is immediate; more sophisticated modeling would allow more accurate characterize of irrigation demand, but for purposes of this analyses, it was assumed to be immediate. This likely significantly overstates the demand for irrigation.

General Cost List

Item	Description	Cost	Reference/Source
TANKS			
Galvanized steel	200 gal	\$225	Fairfax County, 2005
Polyethylene	165 gal	\$160	Fairfax County, 2005
Fiberglass	350 gal	\$660	Fairfax County, 2005
Plastic	800 gal	\$400	Plastic-mart.com
Plastic	1100 gal	\$550	Plastic-mart.com
Plastic	1350	\$600	Plastic-mart.com
Plastic cone	1500 gal w/metal stand	\$1500	Plastic-mart.com
Plastic	2500 gal	\$900	Plastic-mart.com
Plastic	5000 gal	\$3000	Plastic-mart.com
Plastic	10000 gal	\$6000	Plastic-mart.com
¹ Dry Det. Basin(1997)	$C = 12.4V^{0.760}$: for 1 ac-ft	\$41,600	stormwatercenter.net
² Below Ground Vault	$C = 38.1 (V / 0.02832)^{0.6816}$	\$55,300	fhwa.dot.gov
Concrete	1,000,000 gal above g. (O&P)	\$548,000	RSMMeans
Steel	1,000,000 gal above g. (O&P)	\$467,000	RSMMeans
TREATMENT			
UV (house-scale)	Whole system - 12 gpm	\$700-\$900	rainwatercollection.com
UV bulb	Life: 10,000 hrs or 14 months	\$80-\$110	rainwatercollection.com
UV (neighborhood-scale)	Whole system - 200 gpm	\$10,000	Bigbrandwater.com
Downspout filter	Placed in Gutter	\$20 - \$500	many online
1 st Flush Diverter	Vertical pipe w/ ball float	\$50-\$100	raintankdepot.com
PUMP	1 hp (all in one package)	\$575 - varies	rainwatercollection.com
PIPING (Purple)			
to Tank (lot)	PVC: 2"-6" (O&P)	\$2-\$12 / LF	RSMMeans
to House (lot)	PVC: 2"-6" (O&P)	\$2-\$12 / LF	RSMMeans
to Tank (neighbor.)	Concrete: 6" - 18" (O&P)	\$15-\$30 /LF	RSMMeans
to House (neighbor.)	HDPE- 4" - 10" (O&P)	\$11-\$27 / LF	RSMMeans
to Irrigation	PVC: 2"-6" (O&P)	\$2-\$12 / LF	RSMMeans
Backflow prev. valve	Each	\$100-\$200	web
STENCILS	Non-potable water	----	
INSTALLATION	Percentage of material cost	40 % - 50%	

¹ This dry detention cost equation - Brown and Schueler, 1997: C is the construction, design and permitting cost and V is the volume (cu-ft) need to control the 10-year design storm. In this case, the 0.8" storm runoff volume was used in place of the 10-yr design storm volume.

² This below ground storage vault equation - Weigand et al., 1986:C is the construction cost estimate (1995 dollars), and V is the runoff volume (cubic meters)

Single Lot Costs

Item	Description	Cost
TANKS		
	Plastic 1100 gal and 1350 gal	\$550
TREATMENT		
	UV Whole system - 12 gpm	\$800
	UV bulb Life: 10,000 hrs or 14 months	\$80-\$110
	Downspout filter Placed in Gutter	\$250
1 st FLUSH DIVERTER	Vertical pipe w/ ball float	\$100
PUMP	1 hp (all in one package)	\$575
PIPING (Purple)		
	to Tank (lot) PVC: 2"-6" (O&P) 20ft	\$8 / LF
	to House (lot) PVC: 2"-6" (O&P) 50ft	\$8/ LF
	to Irrigation PVC: 2"-6" (O&P) 50ft	\$8 / LF
Backflow prev. valve	each	\$200
STENCILS	Non-potable water	----
INSTALLATION	40% of material cost	\$1400
TOTAL		\$4,900

Neighborhood Costs

Item	Description	Cost	Units Assumed
TANKS			
Dry Det. Basin(1997)	$C = 12.4V^{0.760}$	\$119,000	174,000ft ³
Below Ground Vault	$C = 38.1 (V / 0.02832)^{0.6816}$	\$142,000	174,000ft ³
TREATMENT			
UV - neighborhood	Whole system - 200 gpm	\$10000	
Catch basin filters	1 every 2 acres	\$2000	50 catch basins
PUMP		\$50,000	
PIPING (Purple)			
to Tank (neighbor.)	Concrete: 6" – 18" (O&P)	\$15-\$30 /LF	\$23 - 14000 ft
to House (neighbor.)	HDPE- 4" – 10" (O&P)	\$11-\$27 / LF	\$19 - 14000 ft
to Irrigation	PVC: 2"-6" (O&P)	\$2-\$12 / LF	\$8 - 60 ft /house
Backflow prev. valve	each	\$100-\$200	\$200 per house
STENCILS	Non-potable water	----	
INSTALLATION	40% of material cost	\$470,000	
TOTAL		\$1,650,000	

SWMM Modeling Analysis

- Long term (40 yr) analysis of the neighborhood scenario was performed using SWMM. Two scenarios analyzed:
 - 0.8 inch design storm
 - 1.6 inch design storm
- Modeling assumptions:
 1. Toilet flushing – same as scenarios and applied as constant rate
 2. Irrigation – monthly values (from the IRWD) applied as constant rates by month (i.e. demand occurs continuously during and after storm event)
 3. Overflow from tanks considered to be untreated bypass
 4. Same total area and impervious areas in both studies

SWMM Modeling Results

	Units	Scenario			
		A	B	C	D
		Toilet Flushing Only, 0.8" design storm	Toilet Flushing + Irrigation, 0.8" design storm	Toilet Flushing Only, 1.6" design storm	Toilet Flushing + Irrigation, 1.6" design storm
Average Annual Drawdown Time	days	47	8.5	94	17
Average Stormwater % Capture and Reuse	%	32%	55%	41%	68%
Avg Annual Volume of Stormwater Reused	MG CCF	5.2 6,950	8.8 11,800	6.5 8,700	10.9 14,620
Avg % of Total Residential Demand Satisfied	%	6.2%	11%	7.8%	13%

Note: Outdoor demand assumes that irrigation demand is immediate; more sophisticated modeling would allow more accurate characterize of irrigation demand, but for purposes of this analyses, it was assumed to be immediate. This likely significantly overstates the demand for irrigation.

Pollutant Loading Example

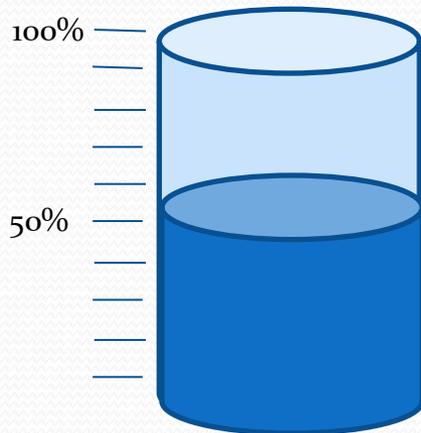
Assumptions

- Median Runoff EMC for TSS for HSFD: **70 mg/L**
- Median Effluent Concentration for TSS for Media Filters from International BMP Database: **15 mg/L**
- % Captured by cistern per SWMM (Scenario B – 0.8” design storm with toilet and irrigation re-use): **55%**
- % Captured by Bioretention with Underdrains per DAMP requirement: **80%** (requires approx 0.4” design storm)
- Bypass from both BMPs assumed to be untreated

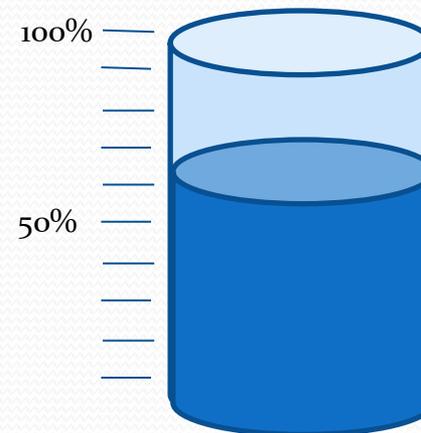
Pollutant Loading Example

Results – Average Annual TSS Load Removed

Cisterns and Re-Use: 55%

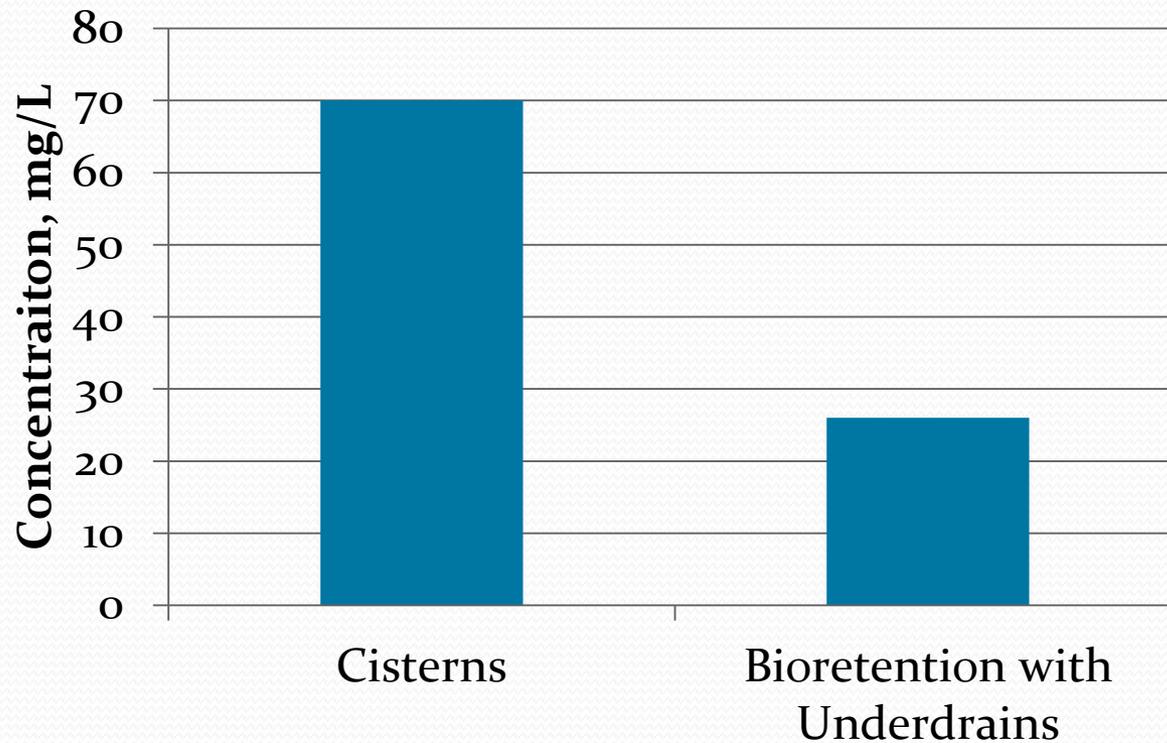


Bioretention with Underdrains: 63%



Pollutant Loading Example

Results - Average Annual TSS Concentration with BMPs



Rainwater Harvesting - Code and Regulations

Applicable Codes

- Title 24—Building Standards Code (plumbing code)
 - Mechanical design and installation procedures
- Title 22—Social Security (recycled water quality standards)
 - Current technologies can meet this requirement (filtration, UV, and others)
- Title 17—Public Health (public water system cross-connection and backflow prevention)

Preliminary Conclusions

Since state codes do not currently recognize rainwater harvesting and reuse, discretion in approval will likely reside at the county and/or City levels through local codes and ordinances.

ATTACHMENT A

**ORANGE COUNTY LEGAL & TECHNICAL COMMENTS ON
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
TENTATIVE ORDER No. R9-2013-0001
NPDES NO. CAS0109266**

Appendix A-4

The Water Report Issue #65:
Stormwater Retention on Site, An Analysis Of Feasibility and
Desirability, Strecker and Poresky (2009)



The Water Report™

Water Rights, Water Quality & Water Solutions in the West

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Tribal Water Needs	
& More!	

STORMWATER RETENTION ON SITE

AN ANALYSIS OF FEASIBILITY AND DESIRABILITY

by Eric W. Strecker, PE, and Aaron Poresky, EIT, Geosyntec Consultants (Portland, OR)

INTRODUCTION

Both nationally and in various localities, there is increasing regulatory pressure to maximize or require the retention of stormwater on site with compliance often linked to matching post-development runoff with predevelopment hydrology.

For example, in California the recently adopted Ventura Municipal Separate Storm Sewer System (MS4) NPDES permit requires retention on site — via infiltration, evapotranspiration and/or harvest and “re-use” — of precipitation from storms ranging up in size to the permit-defined “design storm” (Standard Urban Stormwater Mitigation Plan (SUSMP) depth of 3/4 of an inch — “design storms” are events defined in regulation and reflected in stormwater system design). There is an exception allowed where it is not feasible to retain the entire volume: the project may then retain “only” 70 percent of the SUSMP storm on site and mitigate the remaining volume off site. Another example is the North Orange County permit, which requires that infiltration, evapotranspiration, and/or harvest and re-use be employed to manage the water quality design storm, unless infeasible.

Nationally, the recent Energy Independence and Security Act (EISA) Section 438 requires that any Federal project with over 5,000 square feet of impervious area “maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow.” Guidance for compliance with this provision allows either retention of the 90th percentile, 24-hour storm event or a model-based evaluation of discharge rates and volumes, matching predevelopment with post-development runoff hydrology. In effect, both of these conditions mandate substantial on site retention.

These permits/regulations have “narrowed” the traditional definition of Low Impact Development (LID) down to only a few elements — i.e., infiltration, evapotranspiration and/or harvest and use. This narrowing precludes management options present in the broader LID definition, such as detention and bio-filtration in vegetation-based facilities that provide incidental infiltration and evapotranspiration, but have a surface discharge point (e.g. bioretention with underdrains).

Nationally, the US Environmental Protection Agency (EPA) has also limited the definition of LID in some of their various guidance documents. For example, *Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices*, December 2007 (EPA 841-F-07-006) includes the definition: “LID comprises a set of approaches and practices that are designed to reduce runoff of water and pollutants from the site at which they are generated. By means of **infiltration, evapotranspiration, and reuse of rainwater**, LID techniques manage water and water pollutants at the source and thereby prevent or reduce the impact of development on rivers, streams, lakes, coastal waters, and ground water.” (Emphasis added) It should be noted that other EPA documents include

Stormwater On Site

LID Definitions

Harvested Water

Natural Balance

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Editors: David Light
David Moon

Phone: 541/ 343-8504
Cellular: 541/ 517-5608
Fax: 541/ 683-8279
email:
thewaterreport@hotmail.com
website:
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definitions with the broader definition of filtration and surface release (see **Table 1**). It also should be noted that even in the guidance that includes the narrowed definition, in most cases the examples and guidance details include filtration and surface release of runoff.

Table 1. Summary of Filtration and Surface Release Inclusion in LID Definitions and associated guidance

Document/Reference	Filtration and Surface Release	
	In Definition	In Guidance/Examples
<i>Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices</i> , December 2007 (EPA 841-F-07-006)	No	Yes
<i>Low Impact Development (LID) Literature Review</i> , October 2000 (EPA-841-B-00-005)	Yes	Yes
<i>Low-Impact Development: An Integrated Environmental Design Approach</i> (Prepared by the Prince George's County Maryland Department of Environmental Resources Programs and Planning Division, with assistance from EPA), June 1999	Yes	Yes
<i>Polluted Runoff (Nonpoint Source Pollution) Low Impact Development (LID)</i> , Last updated on Thursday, January 15th, 2009 Additional information from linked factsheet: <i>Design Principles for Stormwater Management on Compacted, Contaminated Soils in Dense Urban Areas</i> , April 2008 (EPA-560-F-07-231)	Not Clear	Yes
<i>Low Impact Development (LID) and Other Green Design Strategies</i> , Last updated on October 09, 2008	No	Not Clear

To date, the retention of stormwater on site has been primarily been accomplished via infiltration and, to a much more limited extent, evapotranspiration. Only in a few cases has harvest and use (the authors believe that stormwater that is captured and used is not "re-used") been employed on a site scale (typically as a part of a Leadership in Energy and Environmental Design (LEED) rating process). Uses for harvested water typically include non-potable uses such as irrigation and toilet flushing and in some cases process water for industrial uses.

The feasibility and desirability of retaining stormwater on site up to some design storm level has not been vetted technically on a national or regional scale. For example, in the EPA *Reducing Stormwater Costs* Guidance referenced above there is virtually no assessment via monitoring or modeling information of the potential results of the case studies presented. It is primarily a compendium of antidotal information. There has been almost no consideration of the natural water balance (i.e., predevelopment conditions) in technical guidance or whether infiltrating more volume than occurs under natural conditions (as would tend to result from matching runoff hydrology without matching evapotranspiration) could, in many cases, cause problems. This paper attempts to present some of the considerations for retaining on site to determine whether it is feasible and/or desirable. It focuses on Southern California examples, but the factors discussed are applicable to much of the West and beyond.

It should be noted that "retaining stormwater on site" in its contemporary usage typically only refers to not having surface discharges result from specific "design storm" events. This usage ignores the fact that infiltrated or evapotranspired stormwater is not actually "retained" on site — it either enters a deeper aquifer, flows as shallow interflow which may emerge elsewhere or, in the case of evapotranspiration, escapes to rain another day.

The authors believe that, while one should try to maximize the retention of stormwater on site, such retention should not be mandated, as site specific circumstances often indicate wiser alternatives.

PERFORMANCE OF STORMWATER BEST MANAGEMENT PRACTICES (BMPs)

General Considerations

In order to assess the performance of stormwater treatment Best Management Practices (BMPs), it is important to understand the range of factors which may impact BMP performance. BMP performance is effected by: runoff patterns; pollutant types and forms; the storage volume and/or treatment rate; the ability to recover storage capacity (for BMPs that rely on storage); the treatment processes for released flows (to surface waters or groundwaters); and operations and maintenance issues that affect the ability of the BMP to continue operations (Strecker, et. al., 2006). For storage-based BMPs, methods for recovering storage capacity include: surface discharge; evapotranspiration; deeper infiltration; and putting the stored water to use. For systems which include cisterns (harvest and use), one of the most critical factors is the ability to quickly recover storage capacity before the next storm event arrives. Typically, if storage capacity cannot be recovered within two-to-four days, then the amount of runoff bypassing storage becomes significant due to the cistern being partially to nearly full.

**Stormwater
On Site**

**Storage Capacity
Recovery**

**Precipitation
v.
"ET"**

**Precipitation
Pattern**

Weather and Resulting Runoff Patterns

In Southern California and the West Coast in general, precipitation patterns in most urban areas are affected by the presence or absence of a high pressure ridge that in essence blocks-out low pressure storm systems. Typically, once the high pressure ridge is absent a series of storms arrives, delivering "back-to-back" storms until a high pressure ridge re-establishes. Storms arrive about every two to three days during this period. If the storage capacity is not quickly recovered, these back-to-back storms can result in storage-based BMPs that are full or partially full when the next storm arrives, which then causes significant bypass or overflow to occur. In Southern California, most precipitation arrives from December to March. **Figure 1** shows the monthly normal rainfall in Irvine California (and monthly evapotranspiration (ET)). Monthly normals tend to mask the patterns that occur within specific months in the period of record. **Figure 2** shows a typical precipitation pattern for the same gage, which includes the effect of "back-to-back" storm events on a weekly timescale in an actual year. These weather patterns indicate that the recovery of storage on a sub-weekly time scale is critical to ensure that sequential storms do not result in excessive bypass or overflow of BMPs. Study of typical storm patterns indicates that storage capacity should be regenerated within two-to-three days to maximize the stormwater management performance when harvesting stormwater.

Figure 1. Monthly Precipitation vs. Monthly Evapotranspiration for Irvine, California.

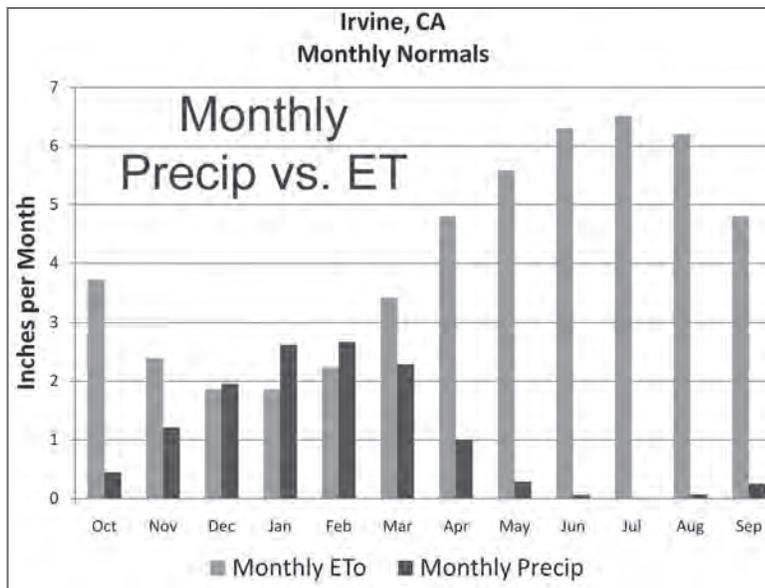
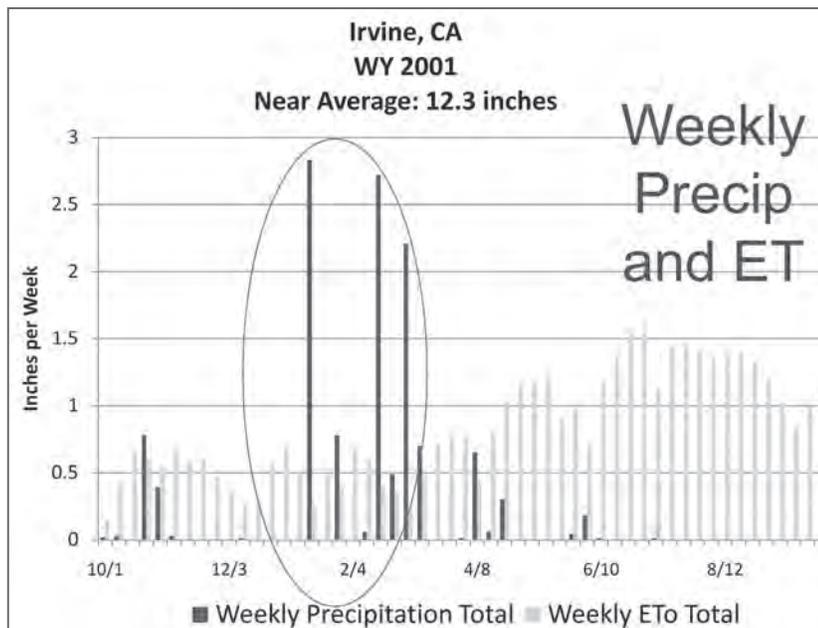


Figure 2. Typical Precipitation Pattern Showing Back-to-Back Storms at Irvine California for a Near Average Water Year.



**Stormwater
On Site**

**Infiltration
Issues**

Soil Factors

**Infiltration
Rates & Design**

Infiltration is the primary method that is employed to retain stormwater on site. This is because, when it can be accomplished, infiltration is the method most likely to be successful. However, the authors believe that three key questions/issues need to be addressed when considering infiltration strategies if unintended, problematic consequences are to be avoided.

KEY INFILTRATION CONSIDERATIONS INCLUDE:

- Can you do it?
- Should you do it and, if so, to what extent?
- If you do employ infiltration, what factors need to be addressed to insure a desirable outcome?

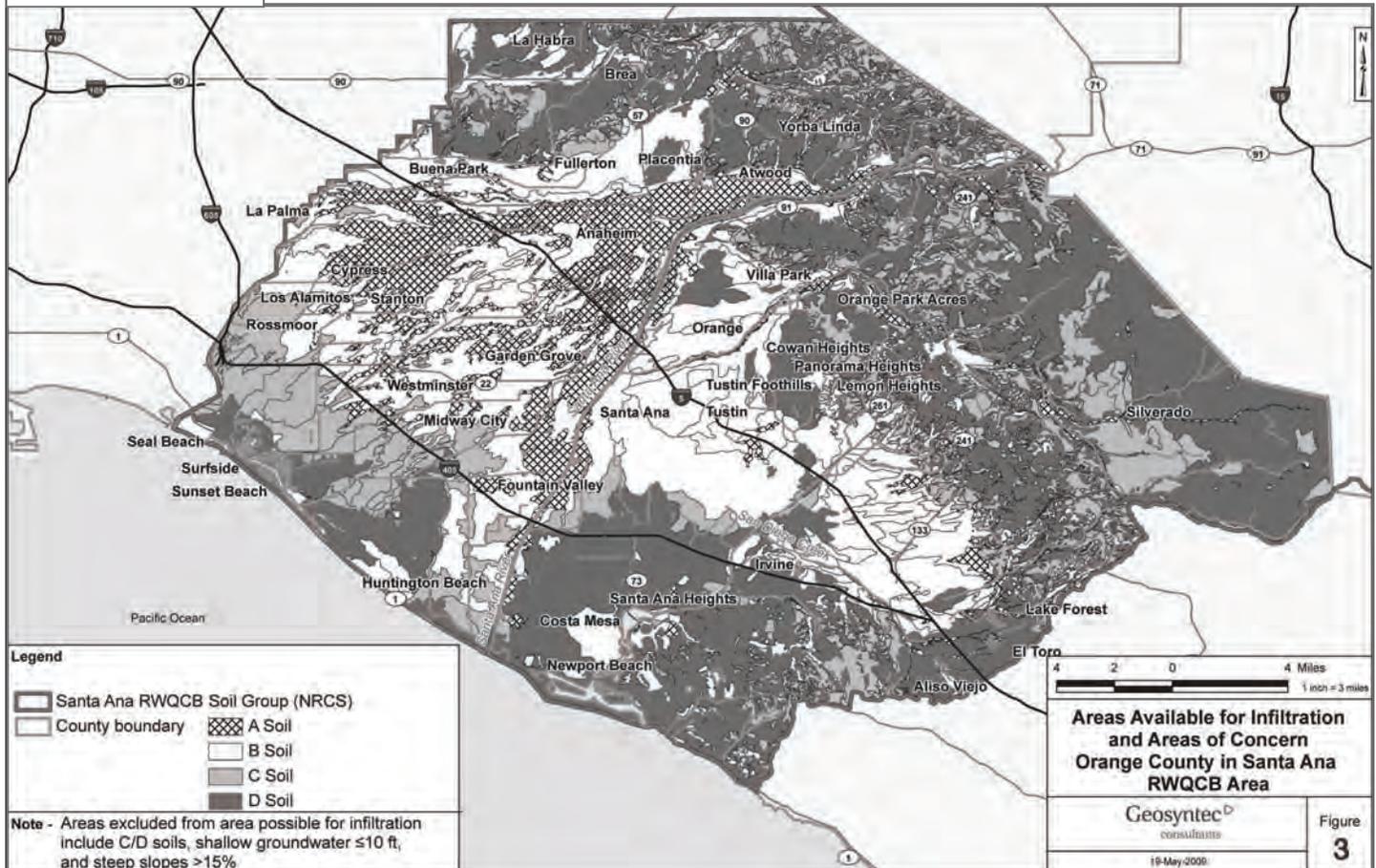
Infiltration: Can You Do It?

Underlying soils greatly affect the ability to infiltrate. In much of Southern California (and the West) urban areas are situated atop soils that are difficult for infiltration. Some practitioners have suggested soil amendments as a strategy for increasing infiltration. However, amending soils typically only addresses surface soils, so if underlying soils are still difficult for infiltration, soil amendments may only be increasing the storage available (vs. significantly increasing underlying infiltration rates). **Figure 3** presents a map that shows underlying soils for the North Orange County, California permit area. It is expected that, in general, infiltration will only be successful in areas with A and B soil types. Of course, in mapping broader soils groups, there may be pockets where infiltration is more feasible. However, the converse is also true. In this Orange County example, a little over 58% of the permit area has C and D soil types that would be unlikely to promote infiltration at an acceptable rate. Infiltration facilities that ignore low underlying infiltration rates in their design would tend to be full for much of the wet season, resulting in substantial bypass/overflow, thereby greatly reducing retention on site. Infiltration facilities designed with lower infiltration rates in mind would have shallower allowable ponding depths and thus require a greater amount of site area, possibly promoting sprawl. To ascertain feasibility, maps like this should be developed prior to requiring infiltration or on site stormwater retention.

Infiltration: Should You Do It?

The next question is “should you (or how much should you) infiltrate?” In many areas there are unnatural (e.g., solvent) or natural (e.g., selenium) plumes or soil contamination that infiltration could negatively impact by either moving or spreading the contaminants. Infiltration in industrial areas is often not desirable due to general concerns about groundwater contamination resulting from potentially elevated

Figure 3.
Soil types for North Orange County MS4 NPDES Permit Area



**Stormwater
On Site**

**Water Balance
Consequences**

**Groundwater
Quality**

**Maintenance
Issues**

pollutant concentrations in industrial stormwater runoff. Geotechnical issues associated with steep slopes or expansive soils may also be an issue for infiltration. Depth to groundwater typically limits infiltration to areas with 10 or more feet of separation from the bottom of infiltration facilities to groundwater. Finally, in some locations upgradient of an ephemeral stream, increased infiltration may cause undesirable habitat type changes downstream of the site due to increased periods of base flows that result in vegetation changes (e.g. conversion of dry wash to a thickly vegetated system). There has been a lack of consideration of the overall water balance consequences that a “retention on site” requirement may have in terms of habitat.

As an example, **Figure 4** presents a map of the North Orange County permit area that shows the areas remaining with good potential for infiltration after consideration of some of the issues covered above. The area remaining within the permit area for consideration of infiltration is less than 23 percent of the permit area, even without considering habitat issues or regulated facilities (small contamination areas shown as dots). There are large urbanized areas where infiltration would not be either feasible or desirable.

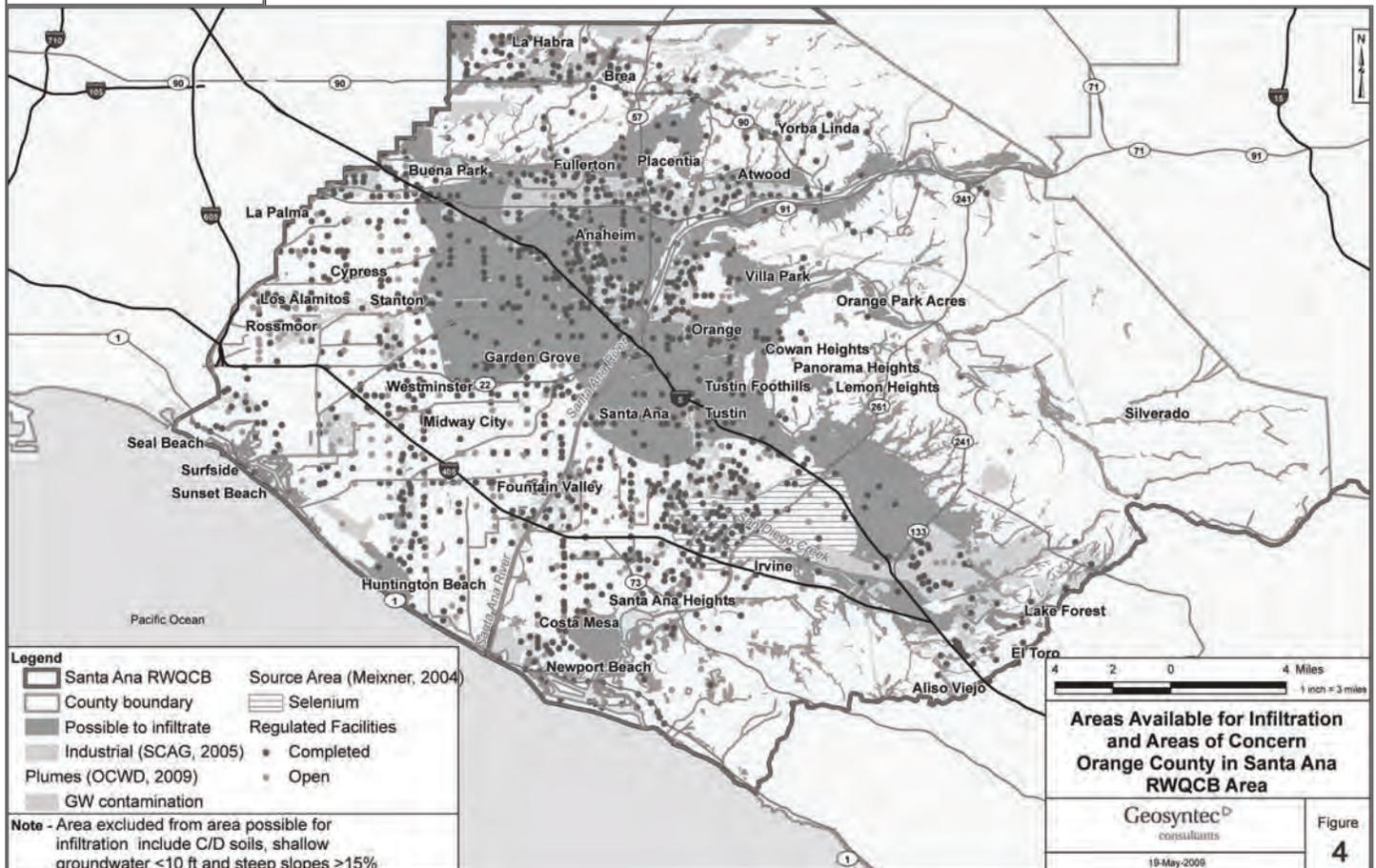
Infiltration: Do It Carefully

Finally, infiltration should be done carefully to ensure that groundwater quality is protected and widespread stormwater management facility failure does not occur. Proper treatment of infiltrating water should occur before this water reaches groundwater either via treatment with BMPs or ensuring that soils are adequate to provide treatment while passing infiltrating water. Infiltration facilities have often failed due to poor maintenance and operation of the facilities. One needs to think through how to design infiltration facilities to minimize maintenance issues, including whether widely-distributed infiltration facilities can be maintained as adequately as one centralized facility. Water districts that utilize groundwater should obviously be involved in decisions about where and how to infiltrate stormwater so that groundwater supplies are protected.

Infiltration: Summary

Infiltration must be done carefully to ensure that it can be successful on a long-term basis as well as be protective of water supplies. The best opportunities for successful infiltration are in areas where groundwater is actively managed for water supply. Such areas are unlikely to face as many water balance hindrances or other issues. For example, areas along the Santa Ana River are actively managed for recharge and withdrawals by the Orange County Water District. These localities provide the best opportunity for successful infiltration.

Figure 4.
Areas available for infiltration for the North Orange County Permit Area



EVAPOTRANSPIRATION (ET)

Stormwater
On Site

Development
Factors

Precipitation
v. ET

In Soil Storage
Recovery

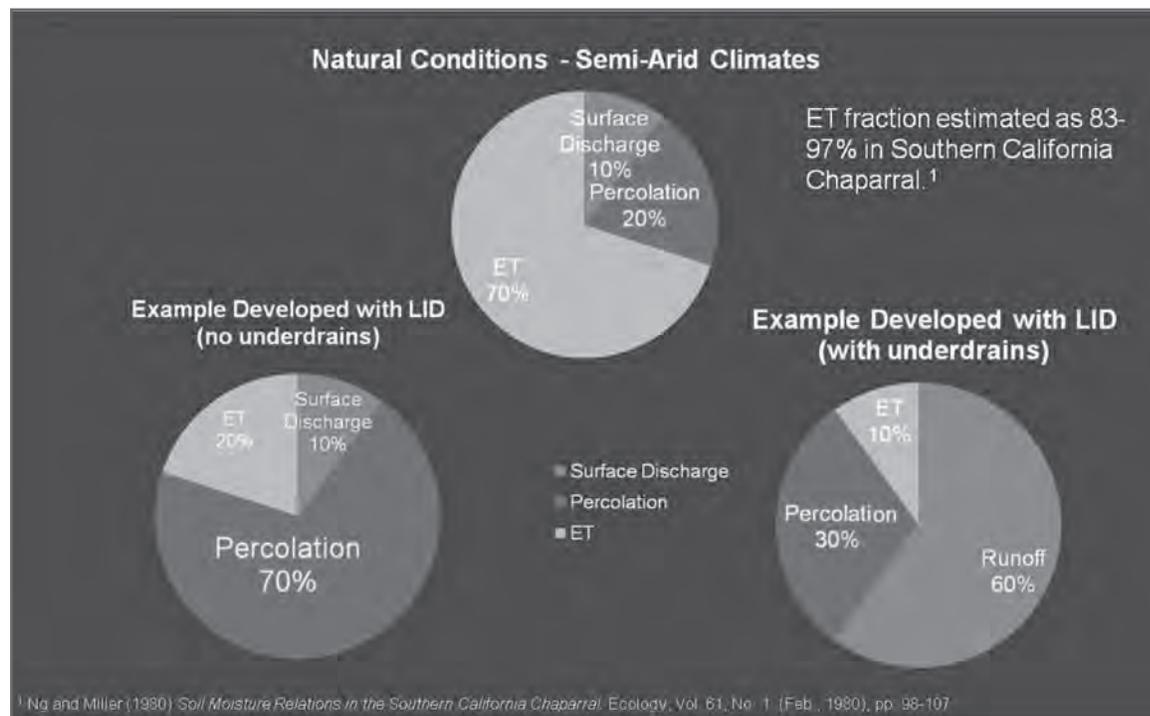
After an area undergoes development there will be less available area for evapotranspiration (ET) to occur. This holds true even when vegetated roofs, pervious pavements, and other “green” development practices are employed and is especially true for high density projects. Some analysts have compared monthly or seasonal ET to precipitation levels to assess the potential for ET losses as a significant retain-runoff on site measure. This is particularly inappropriate on the West Coast in light of the region’s tendency for back-to-back storm events.

Refer again to **Figures 1 and 2** appearing above. **Figure 1** shows monthly normal comparisons of precipitation versus ET, while **Figure 2** shows precipitation and ET as weekly totals for an example year. While the former suggests that ET matches or exceeds precipitation on a monthly normal bases, it does not account for back-to-back storms or the fact that months with higher than normal rainfall would be the same months that correspond to lower than normal ET. **Figure 2** clearly demonstrates that ET cannot keep up with precipitation on a weekly basis in critical periods of the typical back-to-back storms of an average year. During these critical periods, the storage provided in soils would not have recovered in time for subsequent rainfall. While ET of stormwater should be maximized, it almost certainly will not be able to match pre-development levels and is likely a minor component of retaining stormwater on site (without storage and use for irrigation).

ET is a very important consideration when assessing the ability to mimic predevelopment runoff volume. **Figure 5** presents typical arid southwest water balances for: undisturbed areas; areas developed with infiltration facilities (Example Developed with LID – no underdrains); and for areas developed using LID with underdrains. Predevelopment ET can range upwards of 80 to 97 percent of the precipitation on an average annual basis. It is very unlikely that predevelopment ET will be matched by post-development ET due to reduction in vegetated open soils areas. So, the choice for development, particularly high density development, is to either have more runoff than predevelopment or more infiltration, or a combination of the two. This fact and its ramifications have not been considered during the development of on site retention requirements that are focused on surface hydrology versus overall hydrology (including sub-surface).

Figure 5. Typical Water Balance from Precipitation in Arid Southwest Climate

Water Balance



CAPTURE & USE (“RE-USE”)

Stormwater
On Site

Harvest Demand

Model
Assumptions

Capture &
Use Levels

Biofiltration
Comparison

In most all cases where infiltration is not feasible or possible, the only option remaining to meet the retain on site requirements is to capture (harvest) and use the stormwater. In North Orange County, for example, this would be the option in about 77 percent of the permit area or more.

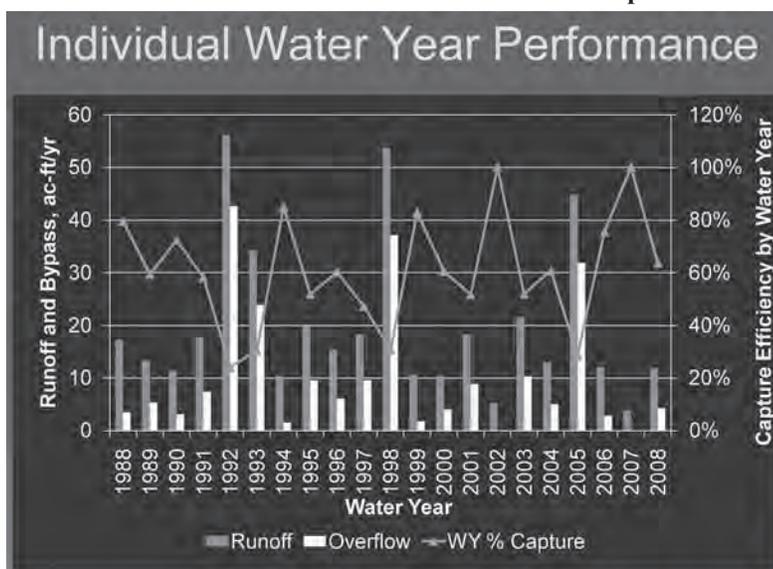
The key factor for success of capture and use of stormwater as a means to retaining water on site is the rate at which storage can be made available for subsequent events. This means having a demand for the captured water that is high enough, especially during the rainy season. The two most obvious uses for captured stormwater are for irrigation and toilet flushing. There are significant code issues with capture and use for internal non-potable demand in many jurisdictions. In addition, there are water rights issues associated with capture of stormwater in some areas (e.g., Colorado and Utah). These limitations are not the focus of this article. Other potential uses include process water for commercial or industrial purposes. A scenario for a residential development was conducted to illustrate the potential for capture and use of stormwater. This scenario is discussed next.

Capture and Use: Residential Scenario

Your authors modeled and evaluated a 100-acre residential catchment with 60 percent overall impervious area using a continuous simulation model (SWMM) as an example of a capture-and-use scenario. It was assumed that infiltration losses would be minimal (due to shallow groundwater depth, poor soils for infiltration and/or other issues). A tank (above ground storage) of 1.3 million gallons (equivalent to the runoff from the catchment resulting from a 0.8 inch storm event — the water quality design storm) was evaluated with toilet flushing and irrigation uses combined. Toilet flushing assumed 65 gallons per day per dwelling unit at 4.5 units per acre. For simplicity, irrigation demands were assumed to equal the monthly average ET levels for the 30 acres of landscaped areas. It was also assumed that irrigation was always on, even during rainfall (note that irrigation demands during and after rainfall are significantly over-estimated in this analysis). A 21-year hourly long-term simulation model was run to ascertain the potential effectiveness of such a system for retaining runoff on-site. We also evaluated potential pollutant removal results as compared to biofiltration with an underdrain (surface water release).

Overall the system resulted in an estimated capture and use of stormwater of about 48% of the total runoff volume (52% bypassing with no treatment — though one could treat the bypass as well). The capture and use levels varied annually from less than 30 percent to 100 percent for the 21 water years evaluated (Figure 6).

Figure 6. Predicted Annual Runoff and Overflow for Example Cistern System



Using data from International BMP Database (see: www.bmpdatabase.org), a comparison of total loadings performance to a biofiltration system with underdrains was made. This comparison showed that the biofiltration system reduced total suspended solids (TSS) loads by about 63% compared to 48% for the cistern scenario for the 21-year simulation. So, in this case the assumption that retain on site is the most effective at reducing pollutant loadings is not valid, unless one also required treatment of the bypassed flows (in essence an additional BMP treatment requirement). Finally, the average annual potable water saved was on the order of about 10 percent of the average annual demand.

**Stormwater
On Site**

**Evaluation
Factors**

**Rapid Storage
Recovery**

**Toilet Use
Ratio**

**Infrastructure
Needs**

Another scenario was run doubling the size of the cistern tank to 2.6 million gallons (equivalent to a 1.6 inch design storm). Under this scenario, the capture and use level went up to about 57 percent (so doubling the tank size resulted in another nine percent of the runoff being captured and used). Again, this emphasizes the point that being able to drain the cistern relatively rapidly is the key to success for capture and use.

Capture and Use: Limiting Factors

As illustrated in these examples, one should evaluate carefully potential scenarios to help ensure that choices made regarding retention on site requirements actually result in the desired results. Evaluation should consider land use and density assumptions as well as assessment of local precipitation and runoff patterns, irrigation needs, and ability to use water for toilet flushing or other non-potable uses.

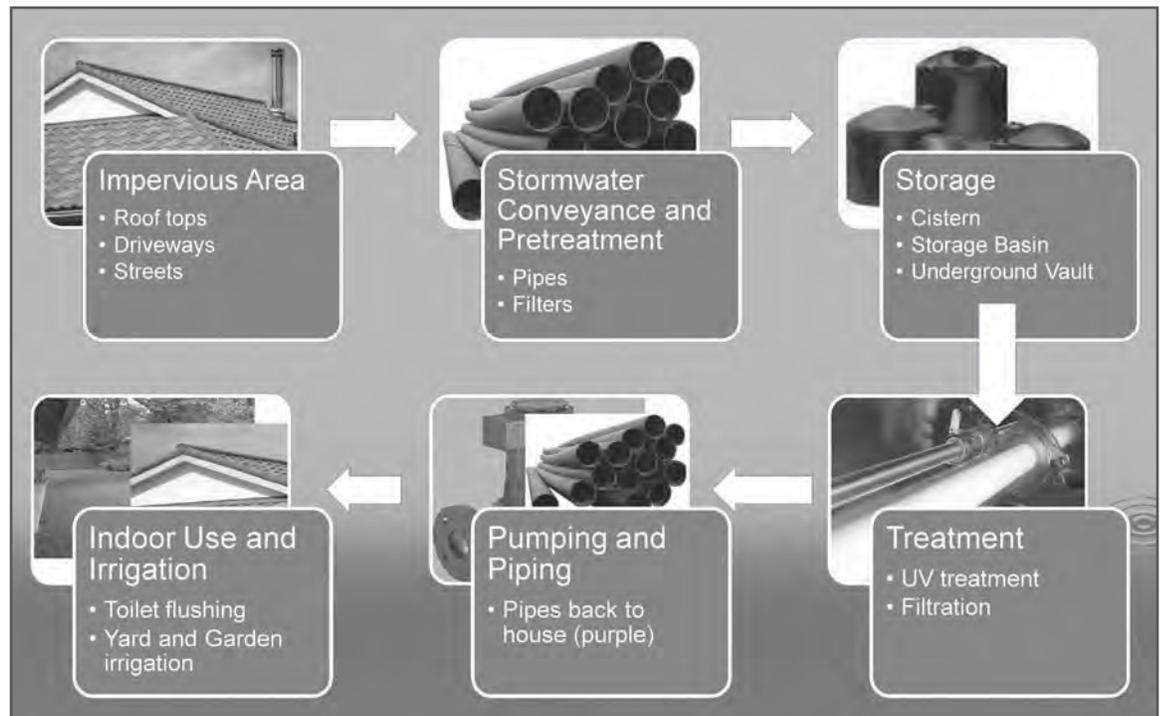
For capture and use to work, the storage must be quickly recovered. Irrigation typically is not an effective use for recovering storage quickly as irrigation needs during wet periods are minimal and in some cases (i.e., colder climates) there is no irrigation demand for long periods. In addition, much of the arid southwest is encouraging “xeri-scaping” (drought tolerant plants), which is likely much more effective at reducing potable demand than capture and use for irrigation. Xeriscape plant pallets typically do not like to be saturated for long periods, as would occur via over-irrigation if irrigation use was maximized. Further, use of a water-loving plant palate to maximize the use of captured runoff during normal and wet years could exert an additional demand for potable water during dry years.

For toilet flushing to be effective, there needs to be a high enough ratio of Toilet Users To Impervious Area (TUTIA). Perhaps in high-rise condominiums, office buildings, institutional buildings, etc. this ratio would be high enough to drain the tank sufficiently fast and in these cases capture and use should be considered.

However, there would be a “competition” for reclaimed water in much of the arid west. Reclaimed water systems tend to be limited in their ability to distribute water in the wetter and colder periods of the year due to low irrigation demands. In addition, in some locations use of reclaimed water for toilet flushing is required in high density projects. One has to question if the capture and use of stormwater that may result in reclaimed water being discharged is an effective strategy. Under this scenario, the captured stormwater would not be reducing potable water demand.

Finally, there is significant infrastructure (**Figure 7**) that would be required to employ cistern and use on a site basis, including piping, storage, treatment, pumping, and separate piping (purple pipes). Questions about sustainability for these systems need to be explored and assessed.

Figure 7. Typical Components of a Stormwater Harvest and Use system.



CONCLUSIONS

Stormwater
On SiteKey
Considerations

Unique Factors

In Summary:

- Infiltration is often not broadly feasible, effective and/or desirable. While it should be maximized where appropriate, studies are needed to identify suitable areas and also identify areas where infiltration may be feasible but not appropriate.
- Precipitation/runoff patterns in California and much of the West limit the ability of evapotranspiration-based BMPs to achieve retention on site requirements. Evapotranspiration of stormwater should be maximized, but will not be a significant component of retaining stormwater on site in densely developed areas.
- Precipitation/runoff patterns coupled with landscaping and reclaimed water considerations limit the applications where capture and use of runoff can be effective. Generally, only scenarios with high indoor demand and no competing requirements to use reclaimed water can be expected to provide a complete and reliable stormwater solution. Capture and use should be maximized in these cases, but in other cases it should be carefully considered against other options such as biofiltration and discharge to determine which option is most effective in meeting stormwater management goals.
- The overall water balance should be considered when making choices on proper levels of infiltration versus surface runoff.
- There needs to be more technical vetting of “retain on site” and stormwater harvest and use before these approaches are made mandatory.

Each watershed and site has unique soils, topography, groundwater, water quality, land uses, receiving water sensitivities, wastewater strategies, etc. which should be considered when evaluating retention on site as a requirement or strategy. The authors believe that management approaches that are “one size fit all” are not appropriate and in many cases would likely lead to undesirable results.

Proper Stormwater Management Includes:

- Source controls
- Infiltration where feasible and appropriate
- Maximizing ET losses
- Harvest and use where it makes sense
- Capture and treat with effective (i.e. vegetated) BMPs where it makes sense

We believe that significant progress could be made by improving BMP selection and design guidance for all BMPs to better target unit processes (i.e. physical, biological, chemical treatment processes) to the pollutants and parameters of concern for each watershed.

FOR ADDITIONAL INFORMATION:

ERIC STRECKER, Principal, GeoSyntec Consultants (Portland, OR)
503/ 222-9518 or email: estrecker@geosyntec.com

AARON PORESKY, Senior Staff Engineering Specialist, GeoSyntec Consultants (Portland, OR)
503/ 222-9518 or email: aporesky@geosyntec.com

Eric Strecker, P.E. is a Principal and Water Resources Practice Leader with Geosyntec Consultants in Portland, Oregon. He has over 25 years of stormwater management experience, including national level applied research efforts for EPA, FHWA, WERF, and NCHRP as well as state and local stormwater management, design and research projects throughout the United States. He is a Principal Investigator for the International BMP Database.

Aaron Poresky, E.I.T. has more than four years of experience in water resources and urban stormwater management. At Geosyntec, he has been involved in a variety of projects including structural BMP design and evaluation, water quality planning and impact analysis, hydromodification planning and impact analysis, stormwater policy support, and modeling methodology development. Key project areas have included stormwater retrofit planning and design for a variety of municipal and private clients, modeling methodology development and implementation, new development stormwater planning, and regulatory analysis. Mr. Poresky has been an invited speaker on the topics of modeling, BMP design, and stormwater policy.

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

**TENTATIVE
ORDER NO. R9-2013-0001
NPDES NO. CAS0109266**

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT
AND WASTE DISCHARGE REQUIREMENTS FOR
DISCHARGES FROM THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s)
DRAINING THE WATERSHEDS WITHIN THE SAN DIEGO REGION**

The San Diego County Copermittees in [Table 1a](#) are subject to waste discharge requirements set forth in this Order.

Table 1a. San Diego County Copermittees

City of Carlsbad	City of Oceanside
City of Chula Vista	City of Poway
City of Coronado	City of San Diego
City of Del Mar	City of San Marcos
City of El Cajon	City of Santee
City of Encinitas	City of Solana Beach
City of Escondido	City of Vista
City of Imperial Beach	County of San Diego
City of La Mesa	San Diego County Regional Airport Authority
City of Lemon Grove	San Diego Unified Port District
City of National City	

After the San Diego Water Board receives and considers the Orange County Copermittees' Report of Waste Discharge and makes any necessary changes to the Order, the Orange County Copermittees in [Table 1b](#) will become subject to waste discharge requirements set forth in this Order after expiration of Order No. R9-2009-0002, NPDES No. CAS0108740 on or after December 16, 2014.

Table 1b. Orange County Copermittees

City of Aliso Viejo	City of Rancho Santa Margarita
City of Dana Point	City of San Clemente
City of Laguna Beach	City of San Juan Capistrano
City of Laguna Hills	City of Laguna Woods
City of Laguna Niguel	County of Orange
City of Lake Forest	Orange County Flood Control District
City of Mission Viejo	

After the San Diego Water Board receives and considers the Riverside County Copermittees' Report of Waste Discharge and makes any necessary changes to this Order, the Riverside County Copermittees in [Table 1c](#) will become subject to waste discharge requirements set forth in this Order after expiration of Order No. R9-2010-0016, NPDES No. CAS0108766 on or after November 10, 2015.

Table 1c. Riverside County Copermittees

City of Murrieta	County of Riverside
City of Temecula	Riverside County Flood Control and
City of Wildomar	Water Conservation District

The Orange County Copermittees and Riverside County Copermittees may become subject to the requirements of this Order at a date earlier than the expiration date of their current Orders subject to the conditions described in Provision [F.6](#) of this Order if the Copermittees in the respective county receive a notification of coverage from the San Diego Water Board.

The term Copermittee in this Order refers to any San Diego County, Orange County, or Riverside County Copermittee covered under this Order, unless specified otherwise.

This Order provides permit coverage for the Copermittee discharges described in [Table 2](#).

Table 2. Discharge Locations and Receiving Waters

Discharge Points	Locations throughout San Diego Region
Discharge Description	Municipal Separate Storm Sewer System (MS4) Discharges
Receiving Waters	Inland Surface Waters, Enclosed Bays and Estuaries, and Coastal Ocean Waters of the San Diego Region

Table 3. Administrative Information

This Order was adopted by the San Diego Water Board on:	Month Day, 2013
This Order will become effective on:	Month Day, 2013
This Order will expire on:	Month Day, 2018
The Copermittees must file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than 180 days in advance of the Order expiration date.	

I, David W. Gibson, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Diego Region, on Month Day, 2013.

TENTATIVE

 David W. Gibson
 Executive Officer

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I. FINDINGS

The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), finds that:

JURISDICTION

1. **MS4 Ownership or Operation.** Each of the Copermitees owns or operates an MS4, through which it discharges storm water and non-storm water into waters of the U.S. within the San Diego Region. These MS4s fall into one or more of the following categories: (1) a medium or large MS4 that services a population of greater than 100,000 or 250,000 respectively; or (2) a small MS4 that is "interrelated" to a medium or large MS4; or (3) an MS4 which contributes to a violation of a water quality standard; or (4) an MS4 which is a significant contributor of pollutants to waters of the U.S.
2. **Legal and Regulatory Authority.** This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations (Code of Federal Regulations [CFR] Title 40, Part 122 [40 CFR 122]) adopted by the United States Environmental Protection Agency (USEPA), and chapter 5.5, division 7 of the California Water Code (CWC) (commencing with section 13370). This Order serves as an NPDES permit for discharges from MS4s to surface waters. This Order also serves as waste discharge requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the CWC (commencing with section 13260).
 The federal regulations make it clear that the Copermitees need only comply with permit conditions relating to discharges from the MS4s for which they are operators (40 CFR 122.26(a)(3)(vi)). This Order does not require the Copermitees to manage storm water outside of their jurisdictional boundaries, but rather to work collectively to improve storm water management within watersheds.
3. **CWA NPDES Permit Conditions.** Pursuant to CWA section 402(p)(3)(B), NPDES permits for storm water discharges from MS4s must include requirements to effectively prohibit non-storm water discharges into MS4s, and require controls to reduce the discharge of pollutants in storm water to the maximum extent practicable (MEP), and to require other provisions as the San Diego Water Board determines are appropriate to control such pollutants. This Order prescribes conditions to assure compliance with the CWA requirements for owners and operators of MS4s to effectively prohibit non-storm water discharges into the MS4s, and require controls to reduce the discharge of pollutants in storm water from the MS4s to the MEP.
4. **CWA and CWC Monitoring Requirements.** CWA section 308(a) and 40 CFR 122.41(h),(j)-(l) and 122.48 require that NPDES permits must specify monitoring and reporting requirements. Federal regulations applicable to large and medium MS4s

Deleted: The San Diego Water Board has the legal authority to issue a regional MS4 permit pursuant to its authority under CWA section 402(p)(3)(B) and 40 CFR 122.26(a)(1)(v). The USEPA also made it clear that the permitting authority, in this case the San Diego Water Board, has the flexibility to establish system- or region-wide permits (55 Federal Register [FR] 47990, 48039-48042). The regional nature of this Order will ensure consistency of regulation within watersheds and is expected to result in overall cost savings for the Copermitees and San Diego Water Board.¶

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also specify additional monitoring and reporting requirements in 40 CFR 122.26(d)(1)(iv)(D), 122.26(d)(1)(v)(B), 122.26(d)(2)(i)(F), 122.26(d)(2)(iii)(D), 122.26(d)(2)(iv)(B)(2) and 122.42(c). CWC section 13383 authorizes the San Diego Water Board to establish monitoring, inspection, entry, reporting and recordkeeping requirements. This Order establishes monitoring and reporting requirements to implement federal and State requirements.

- 5. Total Maximum Daily Loads.** CWA section 303(d)(1)(A) requires that “[e]ach state shall identify those waters within its boundaries for which the effluent limitations...are not stringent enough to implement any water quality standard applicable to such waters.” The CWA also requires states to establish a priority ranking of impaired water bodies known as Water Quality Limited Segments and to establish Total Maximum Daily Loads (TMDLs) for such waters. This priority list of impaired water bodies is called the Clean Water Act Section 303(d) List of Water Quality Limited Segments, commonly referred to as the 303(d) List. The CWA requires the 303(d) List to be updated every two years.

TMDLs are numerical calculations of the maximum amount of a pollutant that a water body can assimilate and still meet water quality standards. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point sources (waste load allocations or WLAs) and non-point sources (load allocations or LAs), background contribution, plus a margin of safety. Discharges from MS4s are point source discharges. The federal regulations (40 CFR 122.44(d)(1)(vii)(B)) require that NPDES permits to incorporate water quality based effluent limitations (WQBELs) developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, consistent with the assumptions and requirements of any available WLA for the discharge. Requirements of this Order implement the TMDLs adopted by the San Diego Water Board and approved by USEPA.

- 6. Non-Storm Water Discharges.** Pursuant to CWA section 402(p)(3)(B)(ii), this Order requires each Copermittee to effectively prohibit discharges of non-storm water into its MS4. Nevertheless, non-storm water discharges into and from the MS4s continue to be reported to the San Diego Water Board by the Copermittees and other persons. Monitoring conducted by the Copermittees, as well as the 303(d) List, have identified dry weather, non-storm water discharges from the MS4s as a source of pollutants causing or contributing to receiving water quality impairments in the San Diego Region. The federal regulations (40 CFR 122.26(d)(2)(iv)(B)(1)) require the Copermittees to have a program to prevent illicit discharges to the MS4. The federal regulations, however, allow for specific categories of non-storm water discharges to be addressed as illicit discharges only where such discharges are identified as sources of pollutants to waters of the U.S.

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- 7. In-Stream Treatment Systems.** Pursuant to federal regulations (40 CFR 131.10(a)), in no case shall a state adopt waste transport or waste assimilation as a designated use for any waters of the U.S. Authorizing the construction of a runoff treatment facility within a water of the U.S., or using the water body itself as a treatment system or for conveyance to a treatment system, would be tantamount to

accepting waste assimilation as an appropriate use for that water body. Runoff treatment must occur prior to the discharge of runoff into receiving waters. Treatment control best management practices (BMPs) must not be constructed in waters of the U.S. Construction, operation, and maintenance of a pollution control facility in a water body can negatively impact the physical, chemical, and biological integrity, as well as the beneficial uses, of the water body.

DISCHARGE CHARACTERISTICS AND RUNOFF MANAGEMENT

8. Point Source Discharges of Pollutants. Discharges from the MS4s may contain waste, as defined in the CWC, and pollutants that adversely affect the quality of the waters of the state. A discharge from an MS4 is a “discharge of pollutants from a point source” into waters of the U.S. as defined in the CWA. Storm water and non-storm water discharges from the MS4s may contain pollutants that cause or threaten to cause a violation of surface water quality standards, as outlined in the Water Quality Control Plan for the San Diego Basin (Basin Plan). Storm water and non-storm water discharges from the MS4s are subject to the conditions and requirements established in the Basin Plan for point source discharges.

9. Potential Beneficial Use Impairment. The discharge of pollutants and/or increased flows from MS4s may cause or threaten to cause the concentration of pollutants to exceed applicable receiving water quality objectives and impair or threaten to impair designated beneficial uses resulting in a condition of pollution, contamination, or nuisance.

10. Pollutants Generated by Land Development. Land development has created and continues to create new sources of non-storm water discharges and pollutants in storm water discharges as human population density increases. This brings higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, and trash. Pollutants from these sources are dumped or washed off the surface by non-storm water or storm water flows into and from the MS4s. When development converts natural vegetated pervious ground cover to impervious surfaces such as paved highways, streets, rooftops, and parking lots, the natural absorption and infiltration abilities of the land are lost. Therefore, runoff leaving a developed area without BMPs will contain greater pollutant loads and have significantly greater runoff volume, velocity, and peak flow rate than pre-development runoff from the same area.

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11. Runoff Discharges to Receiving Waters. The MS4s discharge runoff into lakes, drinking water reservoirs, rivers, streams, creeks, bays, estuaries, coastal lagoons, the Pacific Ocean, and tributaries thereto within the eleven hydrologic units comprising the San Diego Region. Historic and current development makes use of natural drainage patterns and features as conveyances for runoff. Numerous receiving water bodies and water body segments have been designated as impaired by the San Diego Water Board pursuant to CWA section 303(d).

Deleted: Rivers, streams and creeks in developed areas used in this manner are part of the Copermittees' MS4s regardless of whether they are natural, anthropogenic, or partially modified features. In these cases, the rivers, streams and creeks in the developed areas of the Copermittees' jurisdictions are both an MS4 and receiving water.

12. Pollutants in Runoff. The most common pollutants in runoff discharged from the MS4s include total suspended solids, sediment, pathogens (e.g., bacteria, viruses, protozoa), heavy metals (e.g., cadmium, copper, lead, and zinc), petroleum products and polynuclear aromatic hydrocarbons, synthetic organics (e.g., pesticides, herbicides, and PCBs), nutrients (e.g., nitrogen and phosphorus), oxygen-demanding substances (e.g., decaying vegetation, animal waste), detergents, and trash. As operators of the MS4s, the Copermittees cannot passively receive and discharge pollutants from third parties. These discharges may cause or contribute to a condition of pollution or a violation of water quality standards.

Deleted: By providing free and open access to an MS4 that conveys discharges to waters of the U.S., the operator essentially accepts responsibility for discharges into the MS4 that it does not prohibit or otherwise control.

13. Human Health and Aquatic Life Impairment. Pollutants in runoff discharged from the MS4s can threaten and adversely affect human health and aquatic organisms. Adverse responses of organisms to chemicals or physical agents in runoff range from physiological responses such as impaired reproduction or growth anomalies to mortality. Increased volume, velocity, rate, and duration of storm water runoff greatly accelerate the erosion of downstream natural channels. This alters stream channels and habitats and can adversely affect aquatic and terrestrial organisms.

14. Water Quality Effects. The Copermittees' water quality monitoring data submitted to date documents persistent exceedances of Basin Plan water quality objectives for runoff-related pollutants at various watershed monitoring stations. Persistent toxicity has also been observed at several watershed monitoring stations. In addition, bioassessment data indicate that the majority of the monitored receiving waters have Poor to Very Poor Index of Biological Integrity (IBI) ratings. These findings indicate that runoff discharges are causing or contributing to water quality impairments, and are a leading cause of such impairments in the San Diego Region. Non-storm water discharges from the MS4s have been shown to contribute significant levels of pollutants and flow in arid, developed Southern California watersheds, and contribute significantly to exceedances of applicable receiving water quality objectives.

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15. Non-Storm Water and Storm Water Discharges. The discharge of pollutants from the MS4 is subject to the MEP standard notwithstanding whether the pollutants are transported by stormwater or non-stormwater. Pursuant to CWA 402(p)(3)(B)(ii), non-storm water discharges into the MS4s, namely identified illicit discharges and pollutants from unlawful dumping, must be effectively prohibited.

Deleted: Non-storm water discharges from the MS4s are not considered storm water discharges and therefore are not subject to the MEP standard of CWA section 402(p)(3)(B)(iii), which is explicitly for "Municipal ... Stormwater Discharges (emphasis added)" from the MS4s.

16. Best Management Practices. Waste and pollutants which are deposited and accumulate in MS4 drainage structures may be discharged from these structures to waters of the U.S. unless they are removed. These discharges may cause or contribute to, or threaten to cause or contribute to, a condition of pollution in receiving waters. For this reason, pollutants in storm water discharges from the MS4s can be and must be effectively reduced in runoff by the application of a combination of pollution prevention, source control, and treatment control BMPs. Pollution prevention is the reduction or elimination of pollutant generation at its source and is the best "first line of defense". Source control BMPs (both structural and non-structural) minimize the contact between pollutants and runoff, therefore

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keeping pollutants onsite and out of receiving waters. Treatment control BMPs remove pollutants that have been mobilized by storm water or non-storm water flows.

17. BMP Implementation. Runoff needs to be addressed during the three major phases of development (planning, construction, and use) in order to reduce the discharge of storm water pollutants to the MEP, effectively prohibit non-storm water discharges, and protect receiving waters. Development which is not guided by water quality planning policies and principles can result in increased pollutant load discharges, flow rates, and flow durations which can negatively affect receiving water beneficial uses. Construction sites without adequate BMP implementation result in sediment runoff rates which greatly exceed natural erosion rates of undisturbed lands, causing siltation and impairment of receiving waters. Existing development can generate substantial pollutant loads which are discharged in runoff to receiving waters. Retrofitting areas of existing development with storm water pollutant control and hydromodification management BMPs may, in many cases be necessary to address storm water discharges from existing development that may cause or contribute to a condition of pollution or a violation of water quality standards.

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18. Long Term Planning and Implementation. Federal regulations require municipal storm water permits to expire 5 years from adoption, after which the permit must be renewed and reissued. The San Diego Water Board recognizes that the degradation of water quality and impacts to beneficial uses of the waters in the San Diego Region occurred over several decades. The San Diego Water Board further recognizes that a decade or more may be necessary to realize demonstrable improvement to the quality of waters in the Region. This Order includes a long term planning and implementation approach that will require more than a single permit term to complete.

WATER QUALITY STANDARDS

19. Basin Plan. The San Diego Water Board adopted the Water Quality Control Plan for the San Diego Basin (Basin Plan) on September 8, 1994 that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for receiving waters addressed through the plan. The Basin Plan was subsequently approved by the State Water Resources Control Board (State Water Board) on December 13, 1994. Subsequent revisions to the Basin Plan have also been adopted by the San Diego Water Board and approved by the State Water Board. Requirements of this Order implement the Basin Plan.

The Basin Plan identifies the following existing and potential beneficial uses for inland surface waters in the San Diego Region: Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Process Supply (PROC), Industrial

Service Supply (IND), Ground Water Recharge (GWR), Contact Water Recreation (REC1), Non-contact Water Recreation (REC2), Warm Freshwater Habitat (WARM), Cold Freshwater Habitat (COLD), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRSH), Hydropower Generation (POW), and Preservation of Biological Habitats of Special Significance (BIOL). The following additional existing and potential beneficial uses are identified for coastal waters of the San Diego Region: Navigation (NAV), Commercial and Sport Fishing (COMM), Estuarine Habitat (EST), Marine Habitat (MAR), Aquaculture (AQUA), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), and Shellfish Harvesting (SHELL).

20. Ocean Plan. The State Water Board adopted the Water Quality Control Plan for Ocean Waters of California, California Ocean Plan (Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, and 2005. The State Water Board adopted the latest amendment on April 21, 2005 and it became effective on February 14, 2006. The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean. Requirements of this Order implement the Ocean Plan.

The Ocean Plan identifies the following beneficial uses of ocean waters of the state to be protected: Industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated Areas of Special Biological Significance; rare and endangered species; marine habitat; fish spawning and shellfish harvesting

21. Sediment Quality Control Plan. On September 16, 2008, the State Water Board adopted the Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality (Sediment Quality Control Plan). The Sediment Quality Control Plan became effective on August 25, 2009. The Sediment Quality Control Plan establishes: 1) narrative sediment quality objectives for benthic community protection from exposure to contaminants in sediment and to protect human health, and 2) a program of implementation using a multiple lines of evidence approach to interpret the narrative sediment quality objectives. Requirements of this Order implement the Sediment Quality Control Plan.

22. National Toxics Rule and California Toxics Rule. USEPA adopted the National Toxics Rule (NTR) on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the California Toxics Rule (CTR). The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

23. Antidegradation Policy. This Order is in conformance with the federal Antidegradation Policy described in 40 CFR 131.12, and State Water Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality*

Waters in California. Federal regulations at 40 CFR 131.12 require that the State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. State Water Board Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. State Water Board Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies.

CONSIDERATIONS UNDER FEDERAL AND STATE LAW

24. Coastal Zone Act Reauthorization Amendments. Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) requires coastal states with approved coastal zone management programs to address non-point source pollution impacting or threatening coastal water quality. CZARA addresses five sources of non-point source pollution: agriculture, silviculture, urban, marinas, and hydromodification. This Order addresses the management measures required for the urban category, with the exception of septic systems. The runoff management programs developed pursuant to this Order fulfills the need for coastal cities to develop a runoff non-point source plan identified in the Non-Point Source Program Strategy and Implementation Plan. The San Diego Water Board addresses septic systems through the administration of other programs.

25. Endangered Species Act. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 USC sections 1531 to 1544). This Order requires compliance with receiving water limits, and other requirements to protect the beneficial uses of waters of the State. The Copermittees are responsible for meeting all requirements of the applicable Endangered Species Act.

26. Report of Waste Discharge Process. The waste discharge requirements set forth in this Order are based upon the Report of Waste Discharge submitted by the San Diego County Copermittees prior to the expiration of Order No. R9-2007-0001 (NPDES No. CAS0109266). The Orange County and Riverside County Copermittees are not immediately covered by the waste discharge requirements in this Order. The San Diego Water Board understands that each municipality is unique. The Order will continue to use the Report of Waste Discharge process prior to initially making Orange County or Riverside County Copermittees subject to the requirements of this Order.

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The federal regulations (40 CFR 122.21(d)(2)) and CWC section 13376 impose a duty on the Copermittees to reapply for continued coverage through submittal of a Report of Waste Discharge no later than 180 days prior to expiration of a currently effective permit. This requirement is set forth in the Orange County Copermittees'

FINDINGS

and Riverside County Copermittees' currently effective permits at Provisions K.2.b and K.2.c, respectively. The Orange County Permit, Order No. R9-2009-0002 (NPDES No. CAS0108740) expires on December 16, 2014 and the Riverside County MS4 Permit, Order No. R9-2010-0016 (NPDES No. CAS0108766) expires on November 10, 2015.

Unless the Orange County or Riverside County Copermittees apply for and receive early coverage under this Order, the Orange County Copermittees' and the Riverside County Copermittees' respective permits will be superseded by this Order upon expiration of their respective permits, subject to any necessary revisions to the requirements of this Order made after the San Diego Water Board considers their respective Reports of Waste Discharge through the public process provided in 40 CFR 124.

27. Integrated Report and Clean Water Act Section 303(d) List. The San Diego Water Board and State Water Board submit an Integrated Report to USEPA to comply with the reporting requirements of CWA sections 303(d), 305(b) and 314, which lists the attainment status of water quality standards for water bodies in the San Diego Region. USEPA issued its *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act* on July 29, 2005, which advocates the use of a five category approach for classifying the attainment status of water quality standards for water bodies in the Integrated Report. Water bodies included in Category 5 in the Integrated Report indicate at least one beneficial use is not being supported or is threatened, and a TMDL is required. Water bodies included in Category 5 in the Integrated Report are placed on the 303(d) List.

Water bodies with available data and/or information that indicate at least one beneficial use is not being supported or is threatened, but a TMDL is not required, are included in Category 4 in the Integrated Report. Impaired surface water bodies may be included in Category 4 if a TMDL has been adopted and approved (Category 4a); if other pollution control requirements required by a local, state or federal authority are stringent enough to implement applicable water quality standards within a reasonable period of time (Category 4b); or, if the failure to meet an applicable water quality standard is not caused by a pollutant, but caused by other types of pollution (Category 4c).

Implementation of the requirements of this Order may allow the San Diego Water Board to include surface waters impaired by discharges from the Copermittees' MS4s in Category 4 in the Integrated Report for consideration during the next 303(d) List submittal by the State to USEPA.

28. Economic Considerations. The California Supreme Court has ruled that although CWC section 13263 requires the State and Regional Water Boards (collectively Water Boards) to consider factors set forth in CWC section 13241 when issuing an NPDES permit, the Water Board may not consider the factors to justify imposing pollutant restrictions that are less stringent than the applicable federal regulations require. (*City of Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th

613, 618, 626-627.) However, when pollutant restrictions in an NPDES permit are more stringent than federal law requires, CWC section 13263 requires that the Water Boards consider the factors described in CWC section 13241 as they apply to those specific restrictions.

As noted in the following finding, the San Diego Water Board finds that the requirements in this permit are more stringent than the minimum federal requirements. Therefore, a CWC section 13241 analysis is required for permit requirements that implement the effective prohibition on the discharge of non-storm water into the MS4 or for controls to reduce the discharge of pollutants in storm water to the MEP, or other provisions that the San Diego Water Board has determined appropriate to control such pollutants, as those requirements are mandated by federal law. The economic analysis is provided in the Fact Sheet.

29. California Environmental Quality Act. The issuance of waste discharge requirements and an NPDES permit for the discharge of runoff from MS4s to waters of the U.S. is exempt from the requirement for preparation of environmental documents under the California Environmental Quality Act (CEQA) (Public Resources Code, Division 13, Chapter 3, section 21000 et seq.) in accordance with CWC section 13389.

STATE WATER BOARD DECISIONS

30. Compliance with Prohibitions and Limitations. The receiving water limitation language specified in this Order is consistent with language recommended by the USEPA and established in State Water Board Order WQ 99-05, *Own Motion Review of the Petition of Environmental Health Coalition to Review Waste Discharge Requirements Order No. 96-03, NPDES Permit No. CAS0108740*, adopted by the State Water Board on June 17, 1999. The receiving water limitation language in this Order requires storm water discharges from MS4s to not cause or contribute to a violation of water quality standards, which is to be achieved through an iterative approach requiring the implementation of improved and better-tailored BMPs over time. Implementation of the iterative approach to comply with receiving water limitations based on applicable water quality standards is necessary to ensure that storm water discharges from the MS4 will not ultimately cause or contribute to violations of water quality standards and will not create conditions of pollution, contamination, or nuisance.

31. Special Conditions for Areas of Special Biological Significance. On March 20, 2012, the State Water Board approved Resolution No. 2012-0012 approving an exception to the Ocean Plan prohibition against discharges to Areas of Special Biological Significance (ASBS) for certain nonpoint source discharges and NPDES permitted municipal storm water discharges. State Water Board Resolution No. 2012-0012 requires monitoring and testing of marine aquatic life and water quality in several ASBS to protect California's coastline during storms when rain water overflows into coastal waters. Specific terms, prohibitions, and special conditions

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Deleted: Notwithstanding the above, the San Diego Water Board has developed an economic analysis of the requirements in this Order.

Deleted: **<#>Unfunded Mandates.** This Order does not constitute an unfunded local government mandate subject to subvention under Article XIII B, Section (6) of the California Constitution for several reasons, including, but not limited to, the following: ¶

–<#>This Order implements federally mandated requirements under CWA section 402 (33 USC section 1342(p)(3)(B)). ¶

–<#>The local agency Copermittees' obligations under this Order are similar to, and in many respects less stringent than, the obligations of non-governmental and new dischargers who are issued NPDES permits for storm water and non-storm water discharges. ¶

–<#>The local agency Copermittees have the authority to levy service charges, fees, or assessments sufficient to pay for compliance with this Order. ¶

–<#>The Copermittees have requested permit coverage in lieu of compliance with the complete prohibition against the discharge of pollutants contained in CWA section 301(a) (33 USC section 1311(a)) and in lieu of numeric restrictions on their MS4 discharges (i.e. effluent limitations). ¶

–<#>The local agencies' responsibility for preventing discharges of waste that can create conditions of pollution or nuisance from conveyances that are within their ownership or control under State law predates the enactment of Article XIII B, Section (6) of the California Constitution. ¶

–<#>The provisions of this Order to implement TMDLs are federal mandates. The CWA requires TMDLs to be developed for water bodies that do not meet federal water quality standards (33 USC section 1313(d)). Once the USEPA or a state develops a TMDL, federal law requires that permits must contain water quality based effluent limitations consistent with the assumptions and requirements of any applicable wasteload allocation (40 CFR 122.44(d)(1)(vi)(B)). ¶

¶ See the Fact Sheet for further discussion of unfunded mandates.¶

were adopted to provide special protections for marine aquatic life and natural water quality in ASBS. The City of San Diego's municipal storm water discharges to the San Diego Marine Life Refuge in La Jolla, and the City of Laguna Beach's municipal storm water discharges to the Heisler Park ASBS are subject terms and conditions of State Water Board Resolution No. 2012-0012. The Special Protections contained in Attachment B to Resolution No. 2012-0012, applicable to these discharges, are hereby incorporated into this Order as if fully set forth herein.

ADMINISTRATIVE FINDINGS

- 32. Executive Officer Delegation of Authority.** The San Diego Water Board by prior resolution has delegated all matters that may legally be delegated to its Executive Officer to act on its behalf pursuant to CWC section 13223. Therefore, the Executive Officer is authorized to act on the San Diego Water Board's behalf on any matter within this Order unless such delegation is unlawful under CWC section 13223 or this Order explicitly states otherwise.
- 33. Standard Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in [Attachment B](#) to this Order.
- 34. Fact Sheet.** The Fact Sheet for this Order contains background information, regulatory and legal citations, references and additional explanatory information and data in support of the requirements of this Order. The Fact Sheet is hereby incorporated into this Order and constitutes part of the Findings of this Order.
- 35. Public Notice.** In accordance with State and federal laws and regulations, the San Diego Water Board notified the Copermitees, and interested agencies and persons of its intent to prescribe waste discharge requirements for the control of discharges into and from the MS4s to waters of the U.S. and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet.
- 36. Public Hearing.** The San Diego Water Board held a public hearing on Month Day, 2013 and heard and considered all comments pertaining to the terms and conditions of this Order. Details of the public hearing are provided in the Fact Sheet.
- 37. Effective Date.** This Order serves as an NPDES permit pursuant to CWA section 401 or amendments thereto, and becomes effective fifty (50) days after the date of its adoption, provided that the Regional Administrator, USEPA, Region IX, does not object to this Order.
- 38. Review by the State Water Board.** Any person aggrieved by this action of the San Diego Water Board may petition the State Water Board to review the action in accordance with CWC section 13320 and California Code of Regulations, title 23,

sections 2050, et seq. The State Water Board must receive the petition by 5:00 p.m., 30 days after the San Diego Water Board action, except that if the thirtieth day following the action falls on a Saturday, Sunday or State holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

FINDINGS

THEREFORE, IT IS HEREBY ORDERED that the Copermittees, in order to meet the provisions contained in division 7 of the CWC and regulations adopted thereunder, and the provisions of the CWA and regulations adopted thereunder, must each comply with the following:

II. PROVISIONS

A. PROHIBITIONS AND LIMITATIONS

The purpose of this provision is to describe the conditions under which storm water from and non-storm water discharges into the MS4s are effectively prohibited or limited. The goal of the prohibitions and limitations is to protect the water quality and designated beneficial uses of waters of the state from adverse impacts caused or contributed to by MS4 discharges. This goal will be accomplished through the implementation of water quality improvement strategies and runoff management programs that effectively prohibit non-storm water discharges into the Copermittees' MS4s, and reduce pollutants in storm water discharges from the Copermittees' MS4s to the MEP. The process for determining compliance with the Discharge Prohibitions (A.1), Receiving Water Limitations (A.2), and Effluent Limitations (A.3, including effluent limitations derived from the TMDL requirements – Attachment E) is defined in Provision A.4.

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1. Discharge Prohibitions

- a. Except as provided for in Provisions A.1.e or A.4, discharges from MS4s in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance in receiving waters of the state are prohibited.
- b. Non-storm water discharges into MS4s are to be effectively prohibited, unless such discharges are either authorized by a separate NPDES permit, or the discharge is a category of non-storm water discharges that must be addressed pursuant to Provisions E.2.a.(1)-(5) of this Order.
- c. Discharges from MS4s are subject to all waste discharge prohibitions in the Basin Plan, included in Attachment A to this Order.
- d. Storm water discharges from the City of San Diego's MS4 to the San Diego Marine Life Refuge in La Jolla, and the City of Laguna Beach's MS4 to the Heisler Park ASBS are authorized under this Order subject to the Special Protections contained in Attachment B to State Water Board Resolution No. 2012-0012 applicable to these discharges, included in Attachment A to this Order. All other discharges from the Copermittees' MS4s to ASBS are prohibited.
- e. For discharges associated with water body pollutant combinations addressed in a TMDL in Attachment E of this Order, the affected Copermittees shall achieve compliance as outlined in Attachment E.

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PROVISION A: PROHIBITIONS AND LIMITATIONS
A.1. Discharge Prohibitions
A.2. Receiving Water Limitations

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2. Receiving Water Limitations

- a. Discharges from MS4s must not cause or contribute to the violation of water quality standards in any receiving waters, including but not limited to all applicable provisions contained in the list below to the extent that they remain in effect and are operative, unless such discharges are being addressed by the Copermitttee(s) through the processes set forth in this Order (Provision A.4 and Attachment E). Where a TMDL has been developed and its terms have been incorporated into this Order (in a manner that is consistent with the waste load allocations set forth in the TMDL), a Permittee shall also be considered in compliance with such TMDL-related requirements provided in this Order, if it is timely and in good faith implementing the MEP-compliant control measures otherwise established by this Order.

- (1) The San Diego Water Board's Basin Plan, including beneficial uses, water quality objectives, and implementation plans;
- (2) State Water Board plans for water quality control including the following:
 - (a) Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries (Thermal Plan), and
 - (b) The Ocean Plan, including beneficial uses, water quality objectives, and implementation plans;
- (3) State Water Board policies for water and sediment quality control including the following:
 - (a) Water Quality Control Policy for the Enclosed Bays and Estuaries of California,
 - (b) Sediment Quality Control Plan which includes the following narrative objectives for bays and estuaries:
 - (i) Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities, and
 - (ii) Pollutants shall not be present in sediments at levels that will bioaccumulate in aquatic life to levels that are harmful to human health,
 - (c) The Statement of Policy with Respect to Maintaining High Quality of Waters in California;¹

¹ State Water Board Resolution No. 68-16

(4) Priority pollutant criteria promulgated by the USEPA through the following:

- (a) National Toxics Rule (NTR)² (promulgated on December 22, 1992 and amended on May 4, 1995), and
- (b) California Toxics Rule (CTR).^{3,4}

b. Discharges from MS4s composed of storm water runoff must not alter natural ocean water quality in an ASBS.

c. For receiving water limitations associated with a water body pollutant combination addressed in a TMDL in Attachment E of this Order, the affected Copermittees shall achieve compliance as outlined in Attachment E.

3. Effluent Limitations

a. TECHNOLOGY BASED EFFLUENT LIMITATIONS

Pollutants in storm water discharges from MS4s must be reduced to the MEP.⁵

b. WATER QUALITY BASED EFFLUENT LIMITATIONS

This Order establishes water quality based effluent limitations (WQBELs) consistent with the assumptions and requirements of all available TMDL waste load allocations (WLAs) assigned to discharges from the Copermittees' MS4s. Each Copermittee must comply with applicable WQBELs established for the TMDLs in [Attachment E](#) to this Order, pursuant to the applicable TMDL compliance schedules.

4. Compliance with Discharge Prohibitions, Receiving Water Limitations, and Effluent Limitations

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Each Copermittee must achieve compliance with Provisions [A.1](#), [A.2](#), and [A.3](#) of this Order through timely implementation of control measures and other actions as specified in Provisions [B](#) and [E](#) of this Order, including any modifications. The Water Quality Improvement Plans required under Provision [B](#) must be designed and adapted to ultimately achieve compliance with Provisions [A.1](#), [A.2](#), and [A.3](#).

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a. Except as provided in Parts [4.c](#), [4.d](#), [4.e](#), or [4.f](#) below, discharges from the MS4

² 40 CFR 131.36

³ 65 Federal Register 31682-31719 (May 18, 2000), adding Section 131.38 to 40 CFR

⁴ If a water quality objective and a CTR criterion are in effect for the same priority pollutant, the more stringent of the two applies, unless a previous regulatory action (i.e., TMDL) has specified otherwise.

⁵ This does not apply to MS4 discharges which receive subsequent treatment to reduce pollutants in storm water discharges to the MEP prior to entering receiving waters (e.g., low flow diversions to the sanitary sewer). Runoff treatment must occur prior to the discharge of runoff into receiving waters per Finding [7](#).

for which a Permittee is responsible shall not cause or contribute to an exceedance of any applicable water quality standard.

- b.** Except as provided in Parts 4.c, 4.d, 4.e, or 4.f below, discharges from the MS4 of storm water, or non-storm water, for which a Permittee is responsible, shall not cause a condition of nuisance.
- c.** In instances where discharges from the MS4 for which the permittee is responsible (1) causes or contributes to an exceedance of any applicable water quality standard or causes a condition of nuisance in the receiving water; (2) the receiving water is not subject to an approved TMDL that is in effect for the constituent(s) involved; and (3) the constituent(s) associated with the discharge is otherwise not specifically addressed by a provision of this Order (such as specific scheduled actions in a Water Quality Improvement Plan), the Permittee shall comply with the following iterative procedure:
 - (a)** Submit a report to the Regional Water Board that:
 - (i)** Summarizes and evaluates water quality data associated with the pollutant of concern in the context of applicable water quality objectives including the magnitude and frequency of the exceedances.
 - (ii)** Includes a work plan to identify the sources of the constituents of concern (including those not associated with the MS4 such that non-MS4 sources can be pursued).
 - (iii)** Describes the strategy and schedule for implementing best management practices (BMPs) and other controls (including those that are currently being implemented) that will address the Permittee's sources of constituents that are causing or contributing to the exceedances of an applicable water quality standard or causing a condition of nuisance, and are reflective of the severity of the exceedances. The strategy shall demonstrate that the selection of BMPs will address the Permittee's sources of constituents and include a mechanism for tracking BMP implementation. The strategy shall provide for future refinement pending the results of the source identification work plan noted in 4.c.(a)(ii) above.
 - (iv)** Outlines, if necessary, additional monitoring to evaluate improvement in water quality and, if appropriate, special studies that will be undertaken to support future management decisions.
 - (v)** Includes a methodology (ies) that will assess the effectiveness of the BMPs to address the exceedances.
 - (vi)** This report may be submitted in conjunction with the Annual Report unless the Regional Water Board directs an earlier submittal.

Deleted: If exceedance(s) of water quality standards persist in receiving waters notwithstanding implementation of this Order, the Copermittees must comply with the following procedures:

Deleted: <#>For exceedance(s) of a water quality standard in the process of being addressed by the Water Quality Improvement Plan, the Copermittee(s) must implement the Water Quality Improvement Plan as accepted by the San Diego Water Board, and update the Water Quality Improvement Plan, as necessary, pursuant to Provision F.2.c.¶
<#>¶
Upon a determination by either the Copermittees or the San Diego Water Board that discharges from the MS4 are causing or contributing to a new exceedance of an applicable water quality standard not addressed by the Water Quality Improvement Plan, the Copermittees must submit the following updates to the Water Quality Improvement Plan pursuant to Provision F.2.c or as part of the Annual Report required under Provision F.3.b, unless the San Diego Water Board directs an earlier submittal

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¶

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Water quality improvement strategies (i.e. BMPs, retrofitting projects, stream and/or habitat rehabilitation or restoration projects, adjustments to jurisdictional runoff management programs, etc.) that will be implemented to reduce or eliminate any pollutants or conditions that are causing or contributing to the exceedance of water quality standards,¶
¶
Updates to the schedule for implementation of the existing and additional water quality improvement strategies, and¶
¶
Updates to the monitoring and assessment program to track progress toward achieving compliance with Provisions A.1.a, A.1.c and A.2.a of this Order;

(b) Submit any modifications to the report required by the Regional Water Board within 60 days of notification. The report is deemed approved within 60 days of its submission if no response is received from the Regional Water Board.

(c) Implement the actions specified in the report in accordance with the acceptance or approval, including the implementation schedule and any modifications to this Order.

(d) As long as the Permittee has complied with the procedure set forth above and is implementing the actions, the Permittee does not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the Regional Water Board to develop additional BMPs.

(e) The information developed pursuant to A.4.c must be evaluated and incorporated into the Water Quality Improvement Plans and/or the Jurisdictional Runoff Management Plans, as needed.

d. For Receiving Water Limitations associated with waterbody-pollutant combinations addressed in an adopted TMDL that is in effect and that has been incorporated in this Order, a Permittee that is in compliance with Attachment E (Total Maximum Daily Load Provisions) is in compliance with Parts 4.a and 4.b above. For Receiving Water Limitations associated with waterbody-pollutant combinations on the CWA 303(d) list, which are not otherwise addressed by Attachment E or other applicable pollutant-specific provision of this Order, a Permittee that is in compliance with Part 4.c is in compliance with Parts 4.a and 4.b.

e. Alternatively, a Permittee that is in compliance with Provision B (Development and Implementation of Water Quality Improvement Plans) is in compliance with Parts 4.a and 4.b above.

f. If a Permittee is found to have discharges from the MS4 for which it is responsible that causes an exceedance of an applicable water quality standard in the receiving water or causes a condition of nuisance in the receiving water, the Permittee shall be in compliance with Parts 4.a and 4.b above, if the Permittee is in compliance with Parts 4.c, 4.d, or 4.e, or requirements otherwise covered by a provision of this Order specifically addressing the constituent in question, as applicable.

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The San Diego Water Board may require the incorporation of additional modifications to the Water Quality Improvement Plan required under Provision B. The applicable Copermittees must submit any modifications to the update to the Water Quality Improvement Plan within 90 days of notification that additional modifications are required by the San Diego Water Board, or as otherwise directed

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<#>Within 90 days of the San Diego Water Board determination that the update to the Water Quality Improvement Plan meets the requirements of this Order, the applicable Copermittees must revise the jurisdictional runoff management program documents to incorporate the updated water quality improvement strategies that have been and will be implemented, the implementation schedule, and any additional monitoring required; and¶
¶
<#>Each Copermittee must implement the updated Water Quality Improvement Plan.¶

Deleted: The procedure set forth above to achieve compliance with Provisions A.1.a, A.1.c and A.2.a of this Order do not have to be repeated for continuing or recurring exceedances of the same water quality standard(s) following implementation of scheduled actions unless directed to do otherwise by the San Diego Water Board.

Deleted: Nothing in Provisions A.4.a and A.4.b prevents the San Diego Water Board from enforcing any provision of this Order while the applicable Copermittees prepare and implement the above update to the Water Quality Improvement Plan and jurisdictional runoff management programs.

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PROVISION B: WATER QUALITY IMPROVEMENT PLANS
B.1. Watershed Management Areas

B. WATER QUALITY IMPROVEMENT PLANS⁶

The purpose of this provision is to develop Water Quality Improvement Plans (WQIPs) that guide the Copermittees' jurisdictional runoff management programs towards achieving the outcome of improved water quality in MS4 discharges and receiving waters. The goal of the Water Quality Improvement Plans is to address the impacts of MS4 discharges so that such discharges do not impair the water quality and designated beneficial uses of waters of the state. Therefore, implementation of the WQIPs also provides the basis for complying with Provisions II.A.1, II.A.2, and II.A.3, as described in Provision II.A.4. This goal will be accomplished through an adaptive planning and management process that identifies the highest priority water quality conditions within a watershed and implements strategies through the jurisdictional runoff management programs to achieve improvements in the quality of discharges from the MS4s and receiving waters. As such, the requirements outlined in Provision E may be modified for consistency with the WQIP priorities for the applicable Watershed Management Area, if appropriate justification is provided.

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1. Watershed Management Areas

The Copermittees must develop a Water Quality Improvement Plan for each of the Watershed Management Areas in [Table B-1](#). A total of ten Water Quality Improvement Plans must be developed for the San Diego Region.

Table B-1. Watershed Management Areas

Hydrologic Unit(s)	Watershed Management Area	Major Surface Water Bodies	Responsible Copermittees
San Juan (901.00)	South Orange County	<ul style="list-style-type: none"> - Aliso Creek - San Juan Creek - San Mateo Creek - Pacific Ocean - Heisler Park ASBS 	<ul style="list-style-type: none"> - City of Aliso Viejo¹ - City of Dana Point¹ - City of Laguna Beach¹ - City of Laguna Hills¹ - City of Laguna Niguel¹ - City of Laguna Woods¹ - City of Lake Forest¹ - City of Mission Viejo¹ - City of Rancho Santa Margarita¹ - City of San Clemente¹ - City of San Juan Capistrano¹ - County of Orange¹ - Orange County Flood Control District¹
Santa Margarita (902.00)	Santa Margarita River	<ul style="list-style-type: none"> - Murrieta Creek - Temecula Creek - Santa Margarita River - Santa Margarita Lagoon - Pacific Ocean 	<ul style="list-style-type: none"> - City of Murrieta² - City of Temecula² - City of Wildomar² - County of Riverside² - County of San Diego³ - Riverside County Flood Control and Water Conservation District²

⁶ Once developed and approved, the Water Quality Improvement Plan and corresponding Jurisdictional Runoff Management Plan will functionally replace the Load Reduction Plans.

Table B-1. Watershed Management Areas

Hydrologic Unit(s)	Watershed Management Area	Major Surface Water Bodies	Responsible Copermittees
San Luis Rey (903.00)	San Luis Rey River	- San Luis Rey River - San Luis Rey Estuary - Pacific Ocean	- City of Oceanside - City of Vista - County of San Diego
Carlsbad (904.00)	Carlsbad	- Loma Alta Slough - Buena Vista Lagoon - Agua Hedionda Lagoon - Batiquitos Lagoon - San Elijo Lagoon - Pacific Ocean	- City of Carlsbad - City of Encinitas - City of Escondido - City of Oceanside - City of San Marcos - City of Solana Beach - City of Vista - County of San Diego
San Dieguito (905.00)	San Dieguito River	- San Dieguito River - San Dieguito Lagoon - Pacific Ocean	- City of Del Mar - City of Escondido - City of Poway - City of San Diego - City of Solana Beach - County of San Diego
Penasquitos (906.00)	Penasquitos	- Los Penasquitos Lagoon - Pacific Ocean	- City of Del Mar - City of Poway - City of San Diego - County of San Diego
	Mission Bay	- Mission Bay - Pacific Ocean - San Diego Marine Life Refuge ASBS	- City of San Diego
San Diego (907.00)	San Diego River	- San Diego River - Pacific Ocean	- City of El Cajon - City of La Mesa - City of San Diego - City of Santee - County of San Diego
Pueblo San Diego (908.00) Sweetwater (909.00) Otay (910.00)	San Diego Bay	- Sweetwater River - Otay River - San Diego Bay - Pacific Ocean	- City of Chula Vista - City of Coronado - City of Imperial Beach - City of La Mesa - City of Lemon Grove - City of National City - City of San Diego - County of San Diego - San Diego County Regional Airport Authority - San Diego Unified Port District
Tijuana (911.00)	Tijuana River	- Tijuana River - Tijuana Estuary - Pacific Ocean	- City of Imperial Beach - City of San Diego - County of San Diego

Notes:

1. The Orange County Copermittees will be covered under this Order after expiration of Order No. R9-2009-0002, or earlier if the Orange County Copermittees meet the conditions in Provision F.6.
2. The Riverside County Copermittees will be covered under this Order after expiration of Order No. R9-2010-0016, or earlier if the Riverside County Copermittees meet the conditions in Provision F.6.
3. The County of San Diego is required to implement the requirements of Provision B for its jurisdiction within the Santa Margarita River Watershed Management Area until the Riverside County Copermittees have been notified of coverage under this Order.

PROVISION B: WATER QUALITY IMPROVEMENT PLANS
B.1. Watershed Management Areas

2. Priority Water Quality Conditions

The Copermittees must identify the water quality priorities within each Watershed Management Area that will be addressed by the Water Quality Improvement Plan. Where appropriate, Watershed Management Areas may be separated into subwatersheds to focus water quality prioritization and jurisdictional runoff management program implementation efforts by receiving water.

a. ASSESSMENT OF RECEIVING WATER CONDITIONS

The Copermittees must consider the following, at a minimum, to identify water quality priorities based on impacts of MS4 discharges on receiving water beneficial uses:

- (1) Receiving waters listed as impaired on the CWA Section 303(d) List of Water Quality Limited Segments (303(d) List);
- (2) TMDLs adopted and under development by the San Diego Water Board;
- (3) Receiving waters recognized as sensitive or highly valued by the Copermittees, including estuaries designated under the National Estuary Program under CWA section 320, wetlands defined by the State or U.S. Fish and Wildlife Service's National Wetlands Inventory as wetlands, and receiving waters identified as ASBS subject to the provisions of Attachment B to State Water Board Resolution No. 2012-0012 ([Attachment A](#));
- (4) The receiving water limitations of Provision [A.2](#);
- (5) Known historical versus current physical, chemical, and biological water quality conditions;
- (6) Available, relevant, and appropriately collected and analyzed physical, chemical, and biological receiving water monitoring data, including, but not limited to, data describing:
 - (a) Chemical constituents,
 - (b) Water quality parameters (i.e. pH, temperature, conductivity, etc.),
 - (c) Toxicity Identification Evaluations for both receiving water column and sediment,
 - (d) Trash impacts,
 - (e) Bioassessments, and
 - (f) Physical habitat;

- (7) Available evidence of erosional impacts in receiving waters due to accelerated flows (i.e. hydromodification);
- (8) Available evidence of adverse impacts to the chemical, physical, and biological integrity of receiving waters; and
- (9) The potential improvements in the overall condition of the Watershed Management Area that can be achieved.

b. ASSESSMENT OF IMPACTS FROM MS4 DISCHARGES

The Copermittees must consider the following, at a minimum, to identify the potential impacts to receiving waters that may be caused or contributed to by discharges from the Copermittees' MS4s:

- (1) The discharge prohibitions of Provision [A.1](#) and effluent limitations of Provision [A.3](#); and
- (2) Available, relevant, and appropriately collected and analyzed storm water and non-storm water monitoring data from the Copermittees' MS4 outfalls;
- (3) Locations of each Copermittee's MS4 outfalls that discharge to receiving waters;
- (4) Locations of MS4 outfalls that are known to persistently discharge non-storm water to receiving waters likely causing or contributing to impacts on receiving water beneficial uses;
- (5) Locations of MS4 outfalls that are known to discharge pollutants in storm water causing or contributing to impacts on receiving water beneficial uses; and
- (6) The potential improvements in the quality of discharges from the MS4 that can be achieved.

c. IDENTIFICATION OF PRIORITY WATER QUALITY CONDITIONS

- (1) The Copermittees must use the information gathered for Provisions [B.2.a](#) and [B.2.b](#) to develop a list of priority water quality conditions as pollutants, stressors and/or receiving water conditions that are the highest threat to receiving water quality or that most adversely affect the physical, chemical, and biological integrity of receiving waters. The list must include the following information for each priority water quality condition:

- (a) The beneficial use(s) associated with the priority water quality condition;
 - (b) The geographic extent of the priority water quality condition within the Watershed Management Area, if known;
 - (c) The temporal extent of the priority water quality condition (e.g., dry weather and/or wet weather);
 - (d) The Copermittees with MS4s discharges that may cause or contribute to the priority water quality condition; and
 - (e) An assessment of the adequacy of and data gaps in the monitoring data to characterize the conditions causing or contributing to the priority water quality condition, including a consideration of spatial and temporal variation.
- (2) The Copermittees must identify the highest priority water quality conditions to be addressed by the Water Quality Improvement Plan, and provide a rationale for selecting a subset of the water quality conditions identified pursuant to Provision [B.2.c.\(1\)](#) as the highest priorities.

d. IDENTIFICATION OF MS4 SOURCES OF POLLUTANTS AND/OR STRESSORS

The Copermittees must identify and prioritize known and suspected sources of storm water and non-storm water pollutants and/or other stressors associated with MS4 discharges that cause or contribute to the highest priority water quality conditions identified under Provision [B.2.c](#). The identification of known and suspected sources of pollutants and/or stressors that cause or contribute to the highest priority water quality conditions as identified for Provision [B.2.c](#) must consider the following:

- (1) Pollutant generating facilities, areas, and/or activities within the Watershed Management Area, including:
 - (a) Each Copermittee's inventory of construction sites, commercial facilities or areas, industrial facilities, municipal facilities, and residential areas,
 - (b) Publicly owned parks and/or recreational areas,
 - (c) Open space areas,
 - (d) All currently operating or closed municipal landfills or other treatment, storage or disposal facilities for municipal waste, and
 - (e) Areas not within the Copermittees' jurisdictions (e.g., Phase II MS4s, tribal lands, state lands, federal lands) that are known or suspected to be discharging to the Copermittees' MS4s;

- (2) Locations of the Copermittees' MS4s, including the following:
 - (a) All MS4 outfalls that discharge to receiving waters, and
 - (b) Locations of major structural controls for storm water and non-storm water (e.g., retention basins, detention basins, major infiltration devices, etc.);
- (3) Other known and suspected sources of non-storm water or pollutants in storm water discharges to receiving waters within the Watershed Management Area, including the following:
 - (a) Other MS4 outfalls (e.g., Phase II Municipal and Caltrans),
 - (b) Other NPDES permitted discharges,
 - (c) Any other discharges that may be considered point sources (e.g., private outfalls), and
 - (d) Any other discharges that may be considered non-point sources (e.g., agriculture, wildlife or other natural sources);
- (4) Review of available data, including but not limited to:
 - (a) Findings from the Copermittees' illicit discharge detection and elimination programs,
 - (b) Findings from the Copermittees' MS4 outfall discharge monitoring,
 - (c) Findings from the Copermittees' receiving water monitoring,
 - (d) Findings from the Copermittees' MS4 outfall discharge and receiving water assessments, and
 - (e) Other available, relevant, and appropriately collected data, information, or studies related to pollutant sources and/or stressors that contribute to the highest priority water quality conditions as identified for Provision [B.2.c](#).
- (5) The adequacy of the available data to identify and prioritize sources and/or stressors associated with MS4 discharges that cause or contribute to the highest priority water quality conditions identified under Provision [B.2.c](#).

e. NUMERIC GOALS AND SCHEDULES

The Copermittees must develop and incorporate action levels, interim and final numeric goals⁷ and schedules into the Water Quality Improvement Plan. Numeric goals must be used to support Water Quality Improvement Plan implementation and measure progress towards addressing the highest priority water quality conditions identified under Provision B.2.c. [Action levels and numeric goals, themselves, are not enforceable compliance standards, effluent limitations, or receiving water limitations.](#) When establishing numeric goals and corresponding schedules, the Copermittees must consider the following:

- (1) Final numeric goals must be based on measureable criteria or indicators, to be achieved in the receiving waters and/or MS4 discharges for the highest priority water quality conditions which will be capable of demonstrating the protection of water quality standards in receiving waters;
- (2) Interim numeric goals must be based on measureable criteria or indicators capable of demonstrating incremental progress toward achieving the final numeric goals in the receiving waters and/or MS4 discharges; and
- (3) Schedules must be adequate for measuring progress toward achieving the interim and final numeric goals required for Provisions B.2.e.(1) and B.2.e.(2). Schedules must incorporate the following:
 - (a) Interim dates for achieving the interim numeric goals,
 - (b) Compliance schedules for any applicable TMDLs in Attachment E to this Order,
 - (c) Compliance schedules for any ASBS subject to the provisions of Attachment B to State Water Board Resolution No. 2012-0012 (see Attachment A),
 - (d) Achievement of the final numeric goals in the receiving waters and/or MS4 discharges for the highest water quality priorities must be as soon as possible, and
- (4) The schedules for achieving the interim and final goals will be evaluated with each annual report [F.3.b.(1)(d)] and/or as a part of the ROWD development [B.5.a] to determine if they should be modified.

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Final dates for achieving the final numeric goals must not initially extend more than 10 years beyond the effective date of this Order, unless a longer period of time is authorized by the San Diego Water Board Executive Officer or the schedule includes an applicable TMDL in Attachment E to this Order.

⁷ Interim and final numeric goals may take a variety of forms such as TMDL established WQBELs, action levels, pollutant concentration, load reductions, number of impaired water bodies delisted from the List of Water Quality Impaired Segments, Index of Biotic Integrity (IBI) scores, or other appropriate metrics. Interim and final numeric goals are not necessarily limited to one criterion or indicator, but may include multiple criteria and/or indicators. Except for TMDL established WQBELs, interim and final numeric goals and corresponding schedules may be revised through the adaptive management process under Provision B.5.

3. Water Quality Improvement Strategies and Schedules

The Copermittees must develop specific water quality improvement strategies to address the highest priority water quality conditions identified within a Watershed Management Area. The water quality improvement strategies must address the highest priority water quality conditions by preventing or eliminating non-storm water discharges to and from the MS4, reducing pollutants in storm water discharges from the MS4 to the MEP, and protecting the water quality standards of receiving waters.

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a. WATER QUALITY IMPROVEMENT STRATEGIES

The Copermittees must identify and prioritize water quality improvement strategies based on their likely effectiveness and efficiency, and implement strategies to effectively prohibit non-storm water discharges to the MS4, reduce pollutants in storm water discharges from the MS4 to the MEP, improve the physical, chemical, and biological receiving water conditions, and achieve the interim and final numeric goals in accordance with the schedules required for Provision B.2.e.(3). The following water quality improvement strategies must be included and described in the Water Quality Improvement Plan:

- (1) Specific strategies and/or activities that may be implemented by one or more Copermittees within their jurisdictions through the jurisdictional runoff management programs that will address the highest priority water quality conditions within the Watershed Management Area, in accordance with the following requirements:
 - (a) Strategies and/or activities must, at a minimum, be described for each jurisdictional runoff management program component where strategies to address the highest priority water quality conditions are required under Provision E;
 - (b) The Water Quality Improvement Plan must describe the circumstances or conditions when and where the strategies or/activities should be or will be implemented, but specific details about how each Copermittee will implement the strategies and/or activities within its jurisdiction are not required; and
 - (c) Descriptions of strategies and/or activities must include any monitoring, information collection, special studies, and/or data analysis that is necessary to assess the effectiveness of the strategy and/or activity toward addressing the highest priority water quality conditions.
- (2) Additional strategies and/or activities that may be implemented within the Watershed Management Area on a jurisdictional, sub-watershed, or watershed scale by one or more Copermittees, not specifically required under Provision E, which are designed to achieve the interim and final numeric goals identified in Provisions B.2.e.(1) and B.2.e.(2);

b. IMPLEMENTATION SCHEDULES

- (1) The Copermittees must develop schedules for implementing the water quality improvement strategies identified under Provision [B.3.a](#) to achieve the interim and final numeric goals identified under Provision [B.2.e.\(1\)](#) and [B.2.e.\(2\)](#). Schedules must be developed for both the water quality improvement strategies implemented by each Copermittee within its jurisdiction and for strategies that the Copermittees choose to implement on a collaborative basis.
- (2) The Copermittees must incorporate the implementation compliance schedules for any ASBS subject to the provisions of Attachment B to State Water Board Resolution No. 2012-0012 (see [Attachment A](#)).

4. Water Quality Improvement Monitoring and Assessment Program

- a. The Copermittees in each Watershed Management Area must develop and incorporate an integrated monitoring and assessment program into the Water Quality Improvement Plan that assesses: 1) the progress toward achieving the numeric goals and schedules, 2) the progress toward addressing the highest priority water quality conditions for each Watershed Management Area, and 3) each Copermittee's overall efforts to implement the Water Quality Improvement Plan.
- b. The monitoring and assessment program must incorporate the monitoring and assessment requirements of Provision [D](#), which may allow the Copermittees to modify the program to be consistent with and focus on the highest priority water quality conditions for each Watershed Management Area.
- c. For Watershed Management Areas with applicable TMDLs, the monitoring and assessment program must incorporate the specific monitoring and assessment requirements of [Attachment E](#).
- d. For Watershed Management Areas with any ASBS, the water quality monitoring and assessment program must incorporate the monitoring requirements of Attachment B to State Water Board Resolution No. 2012-0012 (see [Attachment A](#)).

5. Iterative Approach and Adaptive Management Process

The Copermittees in each Watershed Management Area must implement the iterative approach pursuant to Provision [A.4](#) to adapt the Water Quality Improvement Plan, monitoring and assessment program, and jurisdictional runoff management programs to become more effective toward achieving compliance with Provisions [A.1](#), [A.2](#), and [A.3](#), and must include the following:

Deleted: [A.1.a](#), [A.1.c](#) and [A.2.a](#)

- PROVISION B: WATER QUALITY IMPROVEMENT PLANS
- B.3. Water Quality Improvement Strategies and Schedules
 - B.4. Water Quality Improvement Monitoring and Assessment Program
 - B.5. Iterative Approach and Adaptive Management Process

a. RE-EVALUATION OF PRIORITY WATER QUALITY CONDITIONS

The priority water quality conditions, and numeric goals and corresponding schedules, included in the Water Quality Improvement Plan pursuant to Provisions [B.2.c](#) and [B.2.e](#), may be re-evaluated by the Copermittees as needed during the term of this Order as part of the Annual Report. Re-evaluation and recommendations for modifications to the priority water quality conditions, and numeric goals and corresponding schedules must be provided in the Report of Waste Discharge, and must consider the following:

- (1) Achieving the outcome of improved water quality in MS4 discharges and receiving waters through implementation of the water quality improvement strategies identified in the Water Quality Improvement Plan;
- (2) Progress toward achieving interim and final numeric goals in receiving waters and/or MS4 discharges for the highest priority water quality conditions in the Watershed Management Area,
- (3) Progress toward achieving outcomes according to established schedules;
- (4) New information developed when the requirements of Provisions [B.2.a-c](#) have been re-evaluated;
- (5) New policies or regulations that may affect identified numeric goals;
- (6) Spatial and temporal accuracy of monitoring data collected to inform prioritization of water quality conditions and implementation strategies to address the highest priority water quality conditions;
- (7) Availability of new information and data from sources other than the jurisdictional runoff management programs within the Watershed Management Area that informs the effectiveness of the actions implemented by the Copermittees;
- (8) San Diego Water Board recommendations; and
- (9) Recommendations for modifications solicited through a public participation process.

b. ADAPTATION OF STRATEGIES AND SCHEDULES

The water quality improvement strategies and schedules, included in the Water Quality Improvement Plan pursuant to Provisions [B.3](#), must be re-evaluated and adapted as new information becomes available to result in more effective and efficient measures to achieve the numeric goals established pursuant to Provision [B.2.e](#). Re-evaluation of and modifications to the water quality improvement strategies must be provided in the Annual Report, and must consider the following:

- (1) Modifications to the priority water quality conditions, and numeric goals and corresponding schedules based on Provision [B.5.a](#);
- (2) Measurable or demonstrable reductions of non-storm water discharges to and from each Copermittee's MS4;
- (3) Measurable or demonstrable reductions of pollutants in storm water discharges from each Copermittee's MS4 to the MEP;
- (4) New information developed when the requirements of Provisions [B.2.b](#) and [B.2.d](#) have been re-evaluated;
- (5) Efficiency in implementing the Water Quality Improvement Plan;
- (6) San Diego Water Board recommendations; and
- (7) Recommendations for modifications solicited through a public participation process.

c. ADAPTATION OF MONITORING AND ASSESSMENT PROGRAM

The water quality improvement monitoring and assessment program, included in the Water Quality Improvement Plan pursuant to Provisions [B.4](#), must be re-evaluated and adapted when new information becomes available. Re-evaluation and recommendations for modifications to the monitoring and assessment program, pursuant to the requirements of Provision [D](#), may be provided in the Annual Report, but must be provided in the Report of Waste Discharge.

6. Water Quality Improvement Plan Submittal, Updates, and Implementation

- a. The Copermittees must submit the Water Quality Improvement Plans in accordance with the requirements of Provision [F.1](#).
- b. The Copermittees must submit proposed updates to the Water Quality Improvement Plan for acceptance by the San Diego Water Board Executive Officer in accordance with the requirements of Provision [F.2.c](#).
- c. The Copermittees must commence with implementation of the Water Quality Improvement Plans immediately after acceptance by the San Diego Water Board, in accordance with the schedules, or subsequently updated schedules, within the Water Quality Improvement Plan.

C. ACTION LEVELS

The purpose of this provision is for the Copermittees to incorporate numeric non-stormwater action levels (NALs) and stormwater action levels (SALs) in the Water Quality Improvement Plans (WQIP) and numeric non-stormwater action levels (NALs) in the Illicit Discharge Detection and Elimination (IDDE) Program.

- For the purposes of the WQIPs, the goal of the action levels is to guide the implementation efforts and measure progress towards the protection of the high priority water quality conditions and designated beneficial uses of waters of the state from adverse impacts caused or contributed to by MS4 discharges. This goal will be accomplished through monitoring and assessing the quality of the MS4 discharges during the implementation of the Water Quality Improvement Plans.
- For the purposes of the IDDE program, the goal of the action levels is to assist in the effective prohibition of non-stormwater discharges into the MS4.

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Action levels will be developed and incorporated into the WQIP (Provision B) and the IDDE Program (Provision E). Depending upon the goals/objectives for the use of the action levels and the priority receiving water conditions, the constituents and values at which they are set may differ between watersheds. Copermittees may develop Watershed Management Area specific numeric action levels for non-stormwater and stormwater MS4 discharges using an approach approved by the Regional Board or use the default non-stormwater and stormwater action levels prescribed in C.1 and C.2 below.

The Copermittees will submit the action levels as a part of the WQIP and JURMP submittals. The action levels currently established will serve as the interim action levels until revised action levels are completed and approved. Exceedances of the action levels are not subject to enforcement or non-compliance actions under this Order.

1. Default Non-Storm Water Action Levels⁸

The following non-stormwater action levels (NALs) must be incorporated in the WQIPs and IDDE program if the Copermittees have not developed their own NALs for the identified high priority constituents using an approach approved by the Regional Board EO.

a. The following NALs must be incorporated:

- (1) Non-Storm Water Discharges from MS4s to Ocean Surf Zone

Deleted: The Copermittees must develop and incorporate numeric non-storm water action levels (NALs) into the Water Quality Improvement Plan to: 1) support the development and prioritization of water quality improvement strategies for addressing non-storm water discharges to and from the MS4s, 2) assess the effectiveness of the water quality improvement strategies toward addressing MS4 non-storm water discharges, required pursuant to Provision D.4.b.(1), and 3) support the detection and elimination of non-storm water and illicit discharges to and from the MS4, required pursuant to Provision E.2.

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⁸ NALs are not considered by the San Diego Water Board to be enforceable limitations.

Table C-1. Non-Storm Water Action Levels for Discharges from MS4s to Ocean Surf Zone

Parameter	Units	AMAL	MDAL	Instantaneous Maximum	Basis
Total Coliform	MPN/100 ml	1,000	-	10,000/1,000 ¹	OP
Fecal Coliform	MPN/100 ml	200 ²	-	400	OP
<i>Enterococci</i>	MPN/100 ml	35	-	104 ³	OP

Abbreviations/Acronyms:

AMAL – average monthly action level
OP – Ocean Plan water quality objective

MDAL – maximum daily action level
MPN/100 ml – most probable number per 100 milliliters

Notes:

- Total coliform density NAL is 1,000 MPN/100 ml when the fecal/total coliform ratio exceeds 0.1.
- Fecal coliform density NAL is 200 MPN per 100 ml during any 30 day period.
- This value has been set to the Basin Plan water quality objective for saltwater “designated beach areas.”

(2) Non-Storm Water Discharges from MS4s to Bays, Harbors, and Lagoons/Estuaries

Table C-2. Non-Storm Water Action Levels for Discharges from MS4s to Bays, Harbors, and Lagoons/Estuaries

Parameter	Units	AMAL	MDAL	Instantaneous Maximum	Basis
Turbidity	NTU	75	-	225	OP
pH	Units	Within limit of 6.0 to 9.0 at all times			OP
Fecal Coliform	MPN/100 ml	200 ¹	-	400 ²	BP
<i>Enterococci</i>	MPN/100 ml	35	-	104 ³	BP
Priority Pollutants	ug/L	See Table C-3			

Abbreviations/Acronyms:

AMAL – average monthly action level
OP – Ocean Plan water quality objective
NTU – Nephelometric Turbidity Units
ug/L – micrograms per liter

MDAL – maximum daily action level
BP – Basin Plan water quality objective
MPN/100 ml – most probable number per 100 milliliters

Notes:

- Based on a minimum of not less than five samples for any 30-day period.
- The NAL is reached if more than 10 percent of total samples exceed 400 MPN per 100 ml during any 30 day period.
- This value has been set to the Basin Plan water quality objective for saltwater “designated beach areas” and is not applicable to waterbodies that are not designated with the water contact recreation (REC-1) beneficial use.

Table C-3. Non-Storm Water Action Levels for Priority Pollutants

Parameter	Units	Freshwater (CTR)		Saltwater (CTR)	
		MDAL	AMAL	MDAL	AMAL
Cadmium	ug/L	**	**	16	8
Copper	ug/L	*	*	5.8	2.9
Chromium III	ug/L	**	**	-	-
Chromium VI	ug/L	16	8.1	83	41
Lead	ug/L	*	*	14	2.9
Nickel	ug/L	**	**	14	6.8
Silver	ug/L	*	*	2.2	1.1
Zinc	ug/L	*	*	95	47

Abbreviations/Acronyms:

CTR – California Toxic Rule ug/L – micrograms per liter
AMAL – average monthly action level MDAL – maximum daily action level

Notes:

- * Action levels developed on a case-by-case basis (see below)

PROVISION C: ACTION LEVELS
C.1. Non-Storm Water Action Levels

** Action levels developed on a case-by-case basis (see below), but calculated criteria are not to exceed Maximum Contaminant Levels (MCLs) under the California Code of Regulations, Title 22, Division 4, Chapter 15, Article 4, Section 64431

The Cadmium, Copper, Chromium (III), Lead, Nickel, Silver and Zinc NALs for MS4 discharges to freshwater receiving waters will be developed on a case-by-case basis because the freshwater criteria are based on site-specific water quality data (receiving water hardness). For these priority pollutants, the following equations (40 CFR 131.38.b.2) will be required:

Cadmium (Total Recoverable)	= exp(0.7852[ln(hardness)] - 2.715)
Chromium III (Total Recoverable)	= exp(0.8190[ln(hardness)] + 0.6848)
Copper (Total Recoverable)	= exp(0.8545[ln(hardness)] - 1.702)
Lead (Total Recoverable)	= exp(1.273[ln(hardness)] - 4.705)
Nickel (Total Recoverable)	= exp(.8460[ln(hardness)] + 0.0584)
Silver (Total Recoverable)	= exp(1.72[ln(hardness)] - 6.52)
Zinc (Total Recoverable)	= exp(0.8473[ln(hardness)] + 0.884)

(3) Non-Storm Water Discharges from MS4s to Inland Surface Waters

Table C-4. Non-Storm Water Action Levels for Discharges from MS4s to Inland Surface Waters

Parameter	Units	AMAL	MDAL	Instantaneous Maximum	Basis
Dissolved Oxygen	mg/L	Not less than 5.0 in WARM waters and not less than 6.0 in COLD waters			BP
Turbidity	NTU	-	20	See MDAL	BP
pH	Units	Within limit of 6.5 to 8.5 at all times			BP
Fecal Coliform	MPN/100 ml	200 ¹	-	400 ²	BP
<i>Enterococci</i>	MPN/100 ml	33	-	61 ³	BP
Total Nitrogen	mg/L	-	1.0	See MDAL	BP
Total Phosphorus	mg/L	-	0.1	See MDAL	BP
MBAS	mg/L	-	0.5	See MDAL	BP
Iron	mg/L	-	0.3	See MDAL	BP
Manganese	mg/L	-	0.05	See MDAL	BP
Priority Pollutants	ug/L	See Table C-3			

Abbreviations/Acronyms:

AMAL – average monthly action level	MDAL – maximum daily action level
BP – Basin Plan water quality objective	WARM – warm freshwater habitat beneficial use
COLD – cold freshwater habitat beneficial use	MBAS – Methylene Blue Active Substances
NTU – Nephelometric Turbidity Units	MPN/100 ml – most probable number per 100 milliliters
mg/L – milligrams per liter	ug/L – micrograms per liter

Notes:

1. Based on a minimum of not less than five samples for any 30-day period.
2. The NAL is reached if more than 10 percent of total samples exceed 400 MPN per 100 ml during any 30 day period.
3. This value has been set to the Basin Plan water quality objective for freshwater “designated beach areas” and is not applicable to waterbodies that are not designated with the water contact recreation (REC-1) beneficial use.

- b. If not identified in Provision C.1.a, NALs must be identified, developed and incorporated in the Water Quality Improvement Plan for any pollutants or waste constituents that cause or contribute, or are threatening to cause or contribute to a condition of pollution or nuisance in waters of the state associated with the highest priority water quality conditions related to non-storm water discharges from the MS4s. NALs must be based on:

- (1) Applicable water quality standards which may be dependent upon site-specific or receiving water-specific conditions or assumptions to be identified by the Copermittees; or

PROVISION C: ACTION LEVELS
C.1. Non-Storm Water Action Levels

(2) Applicable numeric WQBELs required to meet the WLAs established for the TMDLs in [Attachment E](#) to this Order.

- c. Dry weather monitoring data from MS4 outfalls collected in accordance with Provision [D.2.b](#) may be utilized to develop or revise NALs based on watershed-specific data, subject to San Diego Water Board Executive Officer approval.

Deleted: <#>For the NALs incorporated into the Water Quality Improvement Plan, the Copermittees may develop and incorporate secondary NALs specific to the Watershed Management Area at levels greater than the NALs required by Provisions [C.1.a](#) and [C.1.b](#) which can be utilized to further refine the prioritization and assessment of water quality improvement strategies for addressing non-storm water discharges to and from the MS4s, as well as the detection and elimination of non-storm water and illicit discharges to and from the MS4. The secondary NALs may be developed using an approach acceptable to the San Diego Water Board.¶

2. Default Storm Water Action Levels¹⁰

The Copermittees must develop and incorporate numeric storm water action levels (SALs) in the Water Quality Improvement Plans to: 1) support the development and prioritization of water quality improvement strategies for reducing pollutants in storm water discharges from the MS4s, and 2) assess the effectiveness of the water quality improvement strategies toward reducing pollutants in storm water discharges, required pursuant to Provision [D.4.b.\(2\)](#).¹¹

The following stormwater action levels (SALs) must be incorporated in the WQIPs if the Copermittees have not developed their own SALs for the identified high priority constituents using an approach approved by the Regional Board EO.

- a. The following SALs for discharges of storm water from the MS4 must be incorporated:

Table C-5. Storm Water Action Levels for Discharges from MS4s to Receiving Waters

Parameter	Units	Action Level
Turbidity	NTU	126
Nitrate & Nitrite (Total)	mg/L	2.6
Phosphorus (Total P)	mg/L	1.46
Cadmium (Total Cd)*	µg/L	3.0
Copper (Total Cu)*	µg/L	127
Lead (Total Pb)*	µg/L	250
Zinc (Total Zn)*	µg/L	976

Abbreviations/Acronyms:
 NTU – Nephelometric Turbidity Units
 mg/L – milligrams per liter
 µg/L – micrograms per liter

Notes:
 * The sampling must include a measure of receiving water hardness at each MS4 outfall. If a total metal concentration exceeds the corresponding metals SAL in [Table C-5](#), that concentration must be compared to the California Toxics Rule criteria and the USEPA 1-hour maximum concentration for the detected level of receiving water hardness associated with that sample. If it is determined that the sample's total metal concentration for that specific metal exceeds that SAL, but does not exceed the applicable USEPA 1-hour maximum concentration criterion for the measured level of hardness, then the sample result will not be considered above the SAL for that measurement.

¹⁰ SALs are not considered by the San Diego Water Board to be enforceable limitations.
¹¹ The Copermittees may utilize SALs or other benchmarks currently established by the Copermittees as interim SALs until the Water Quality Improvement Plans are accepted by the San Diego Water Board Executive Officer.

b. If not identified in Provision C.2.a, SALs must be identified, developed and incorporated in the Water Quality Improvement Plan for pollutants or waste constituents that cause or contribute, or are threatening to cause or contribute to a condition of pollution or nuisance in waters of the state associated with the highest water quality priorities related to storm water discharges from the MS4s. SALs must be based on:

- (1) Federal and State water quality guidance and/or water quality standards; and
- (2) Site-specific or receiving water-specific conditions; or
- (3) Applicable numeric WQBELs required to meet the WLAs established for the TMDLs in Attachment E to this Order.

c. Wet weather monitoring data from MS4 outfalls collected in accordance with Provision D.2.c may be used to develop or revise SALs based upon watershed-specific data, subject to San Diego Water Board Executive Officer approval.

Deleted: For the SALs incorporated into the Water Quality Improvement Plan, the Copermittees may develop and incorporate secondary SALs specific to the Watershed Management Area at levels greater than the SALs required by Provisions C.2.a and C.2.b which can be utilized to further refine the prioritization and assessment of water quality improvement strategies for reducing pollutants in storm water discharges from the MS4s. The secondary SALs may be developed based on the approaches recommended by the State Water Board's Storm Water Panel

Deleted: ¹² or using an approach acceptable to the San Diego Water Board.[¶]

D. MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS

The purpose of this provision is for the Copermittees to monitor and assess the impact on the chemical, physical, and biological conditions of receiving waters caused by discharges from the Copermittees' MS4s under wet weather and dry weather conditions. The goal of the monitoring and assessment program is to inform the Copermittees about the nexus between the health of receiving waters and the water quality condition of the discharges from their MS4s. This goal will be accomplished through monitoring and assessing the conditions of the receiving waters, discharges from the MS4s, pollutant sources and/or stressors, and effectiveness of the water quality improvement strategies implemented as part of the Water Quality Improvement Plans.

1. Receiving Water Monitoring Requirements

The Copermittees must develop and conduct a program to monitor the condition of the receiving waters in each Watershed Management Area during dry weather and wet weather. Following acceptance of the Water Quality Improvement Plans for each Watershed Management Area, the Copermittees must conduct long-term receiving water monitoring during implementation of the Water Quality Improvement Plan to assess the long term trends and determine if conditions in receiving waters are improving. Any available monitoring data not collected specifically for this Order that meet the quality assurance criteria of the Copermittees and the monitoring requirements of this Order may be utilized by the Copermittees. The Copermittees must conduct the following receiving water monitoring procedures:

a. TRANSITIONAL RECEIVING WATER MONITORING

Until the monitoring requirements of Provisions [D.1.b-e](#) are incorporated into a Water Quality Improvement Plan that is accepted by the San Diego Water Board pursuant to Provision [F.1](#), the Copermittees must conduct the following receiving water monitoring in the Watershed Management Area:

- (1) Continue the receiving water monitoring programs required in Order Nos. R9-2007-0001, R9-2009-0002, and R9-2010-0016;
- (2) Continue the monitoring in the Hydromodification Management Plans approved by the San Diego Water Board;
- (3) Participate in the following regional receiving water monitoring programs, as applicable to the Watershed Management Area:
 - (a) Storm Water Monitoring Coalition Regional Monitoring,
 - (b) Southern California Bight Regional Monitoring, and
 - (c) Sediment Quality Monitoring;
- (4) Implement the monitoring programs developed as part of any implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) for the TMDLs in [Attachment E](#) to this Order; and
- (5) For Watershed Management Areas with ASBS, implement the monitoring requirements of Attachment B to State Water Board Resolution No. 2012-0012, included in [Attachment A](#) to this Order.

b. LONG-TERM RECEIVING WATER MONITORING STATIONS

The Copermittees must select at least one long-term receiving water monitoring station from among the existing mass loading stations, temporary watershed assessment stations, bioassessment stations, and stream assessment stations previously established by the Copermittees to be representative of the receiving water quality in the Watershed Management Area. Additional long-term receiving water monitoring stations must be selected where necessary to support the implementation and adaptation of the Water Quality Improvement Plan.

c. DRY WEATHER RECEIVING WATER MONITORING

During the term of the Order, the Copermittees must perform monitoring during at least three dry weather monitoring events at each of the long-term receiving water monitoring stations. At least one monitoring event must be conducted during the dry season (May 1 – September 30) and at least one monitoring event must be conducted during a dry weather period during the wet season (October 1

– April 30), after the first wet weather event of the season, with an antecedent dry period of at least 72 hours following a storm event producing measureable rainfall of greater than 0.1 inch.

(1) Dry Weather Receiving Water Field Observations

For each dry weather monitoring event, the Copermittees must record field observations consistent with [Table D-1](#) at each long-term receiving water monitoring station.

Table D-1. Field Observations for Receiving Water Monitoring Stations

Field Observations
<ul style="list-style-type: none"> • Station identification and location • Presence of flow, or pooled or ponded water • If flow is present: <ul style="list-style-type: none"> - Flow estimation (i.e. width of water surface, approximate depth of water, approximate flow velocity, flow rate) - Flow characteristics (i.e. presence of floatables, surface scum, sheens, odor, color) • If pooled or ponded water is present: <ul style="list-style-type: none"> - Characteristics of pooled or ponded water (i.e. presence of floatables, surface scum, sheens, odor, color) • Station description (i.e. deposits or stains, vegetation condition, structural condition, and observable biology) • Presence and assessment of trash in and around station

(2) Dry Weather Receiving Water Field Monitoring

For each dry weather monitoring event, if conditions allow the collection of the data, the Copermittees must monitor and record the parameters in [Table D-2](#) at each long-term receiving water monitoring station.

Table D-2. Field Monitoring Parameters for Receiving Water Monitoring Stations

Parameters
<ul style="list-style-type: none"> • pH • Temperature • Specific conductivity • Dissolved oxygen • Turbidity

(3) Dry Weather Receiving Water Analytical Monitoring

For each dry weather monitoring event, the Copermittees must collect and analyze samples from each long-term receiving water monitoring station as follows:

- (a) Analytes that are field measured are not required to be analyzed by a laboratory;
- (b) The Copermittees must implement consistent sample collection methods for regional comparability of data, unless site-specific conditions indicate the need for alternate methods;
- (c) Grab samples may be collected for pH, temperature, specific conductivity, dissolved oxygen, turbidity, hardness, and indicator bacteria;

- (d) For all other constituents, composite samples must be collected for a duration adequate to be representative of changes in pollutant concentrations and runoff flows using one of the following techniques:
 - (i) Time-weighted composites composed of 24 discrete hourly samples, which may be collected through the use of automated equipment, or
 - (ii) Flow-weighted composites collected over a typical 24-hour period, which may be collected through the use of automated equipment;
- (e) Only one analysis of the composite of aliquots is required;
- (f) Analysis for the following constituents is required:
 - (i) Constituents contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan,
 - (ii) Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List,
 - (iii) Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermitttees are listed responsible parties under the TMDLs in [Attachment E](#) to this Order,
 - (iv) Applicable NAL constituents, and
 - (v) Constituents listed in [Table D-3](#).

Table D-3. Analytical Monitoring Constituents for Receiving Water Monitoring Stations

Conventionals, Nutrients	Metals (Total and Dissolved)	Pesticides	Indicator Bacteria
<ul style="list-style-type: none"> • Total Dissolved Solids • Total Suspended Solids • Turbidity • Total Hardness • Total Organic Carbon • Dissolved Organic Carbon • Sulfate • Methylene Blue Active Substances (MBAS) • Total Phosphorus • Orthophosphate • Nitrite¹ • Nitrate¹ • Total Kjeldhal Nitrogen • Ammonia 	<ul style="list-style-type: none"> • Arsenic • Cadmium • Chromium • Copper • Iron • Lead • Mercury • Nickel • Selenium • Thallium • Zinc 	<ul style="list-style-type: none"> • Organophosphate Pesticides • Pyrethroid Pesticides 	<ul style="list-style-type: none"> • Total Coliform • Fecal Coliform² • <i>Enterococcus</i>

Notes:

- 1. Nitrite and nitrate may be combined and reported as nitrite+nitrate.
- 2. *E. Coli* may be substituted for ~~Total Coliform at inland receiving water monitoring stations.~~

Deleted: Fecal

PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS
 D.1. Receiving Water Monitoring Requirements

(4) Dry Weather Receiving Water Toxicity Monitoring

For each dry weather monitoring event, the Copermittees must collect grab or composite samples from each long-term receiving water monitoring station to be analyzed for toxicity in accordance with [Table D-4](#):

Table D-4. Dry Weather Toxicity Testing for Receiving Water Monitoring Stations

Freshwater Organism	Test Approach	USEPA Protocol ²
<i>Pimephales promelas</i>	1 acute 1 chronic ¹	EPA-821-R-02-012
<i>Hyaella Azteca</i>	1 acute 1 chronic ¹	EPA-821-R-02-012
<i>Pseudokirchneriella subcapitata</i>	1 acute 1 chronic ¹	EPA-821-R-02-013

Notes:

- Chronic toxicity testing is not required at receiving water monitoring stations located at mass loading stations if the channel flows are diverted year-round during dry weather conditions to the sanitary sewer for treatment.
- USEPA protocols must be utilized for toxicity testing unless alternate toxicity testing protocols have been approved by the San Diego Water Board.

(5) Dry Weather Receiving Water Bioassessment Monitoring

Bioassessment monitoring for each long-term receiving water monitoring station is required at least once during the term of this Order. The Copermittees must conduct bioassessment monitoring during at least one dry weather monitoring event at each long-term receiving water monitoring station as follows:

- The following bioassessment samples and measurements must be collected:
 - Macroinvertebrate samples must be collected in accordance with the "Reachwide Benthos (Multihabitat) Procedure" in the most current Surface Water Ambient Monitoring Program (SWAMP) Bioassessment Standard Operating Procedures (SOP), and amendments, as applicable;¹³
 - The "Full" suite of physical habitat characterization measurements must be collected in accordance with the most current SWAMP Bioassessment SOP, and as summarized in the SWAMP Stream Habitat Characterization Form – Full Version;¹⁴ and
 - Freshwater algae samples must be collected in accordance with the

¹³ Ode, P.R.. 2007. Standard operating procedures for collecting macroinvertebrate samples and associated physical and chemical data for ambient bioassessments in California. California State Water Resources Control Board Surface Water Ambient Monitoring Program (SWAMP) Bioassessment SOP 001. http://www.swrcb.ca.gov/water_issues/programs/swamp/tools.shtml#monitoring

¹⁴ Available at: http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/reports/fieldforms_fullversion052908.pdf

SWAMP Standard Operating Procedures for Collecting Algae Samples.¹⁵ Analysis of samples must include algal taxonomic composition (diatoms and soft algae) and algal biomass.

- (b) The bioassessment samples, measurements, and appropriate water chemistry data must be used to calculate the following:
- (i) An Index of Biological Integrity (IBI) for macroinvertebrates for each monitoring station where bioassessment monitoring was conducted, based on the most current calculation method,¹⁶ and
 - (ii) An IBI for algae for each monitoring station where bioassessment monitoring was conducted, when a calculation method is developed.¹⁷
- (c) In lieu of the requirements of Provision [D.1.c.\(5\)\(a\)](#), the Copermittees may conduct the bioassessment monitoring in accordance with the “Triad” assessment approach¹⁸ to calculate the IBIs required for Provision [D.1.c.\(5\)\(b\)](#). The Copermittees must conduct sampling, analysis, and reporting of specified in-stream biological and habitat data according to the protocols specified in the SCCWRP Technical Report No. 539, or subsequent protocols, if developed.

(6) Dry Weather Receiving Water Hydromodification Monitoring

In addition to the hydromodification monitoring conducted as part of the Copermittees’ Hydromodification Management Plans, hydromodification monitoring for each long-term receiving water monitoring station is required at least once during the term of this Order. The Copermittees must collect the following hydromodification monitoring observations and measurements within an appropriate domain of analysis during at least one dry weather monitoring event for each long-term receiving water monitoring station:

- (a) Channel conditions, including:
- (i) Channel dimensions,

¹⁵ Fetscher et al. 2009. Standard Operating Procedures for Collecting Stream Algae Samples and Associated Physical Habitat and Chemical Data for Ambient Bioassessments in California.

¹⁶ The most current calculation method at the time the Order was adopted is outlined in “A Quantitative Tool for Assessing the Integrity of Southern California Coastal Streams” (Ode, et al. 2005. Environmental Management. Vol. 35, No. 1, pp. 1-13). If an updated or new calculation method is developed, either both (i.e. current and updated/new) methods must be used, or historical IBIs must be recalculated with the updated or new calculation method.

¹⁷ When a calculation method is developed, IBIs must be calculated for all available and appropriate historical data.

¹⁸ Stormwater Monitoring Coalition Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. Technical Report #419. August 2004.

- (ii) Hydrologic and geomorphic conditions, and
 - (iii) Presence and condition of vegetation and habitat;
- (b) Location of discharge points;
- (c) Habitat integrity;
- (d) Photo documentation of existing erosion and habitat impacts, with location (i.e. latitude and longitude coordinates) where photos were taken;
- (e) Measurement or estimate of dimensions of any existing channel bed or bank eroded areas, including length, width, and depth of any incisions; and
- (f) Known or suspected cause(s) of existing downstream erosion or habitat impact, including flow, soil, slope, and vegetation conditions, as well as upstream land uses and contributing new and existing development.

d. WET WEATHER RECEIVING WATER MONITORING

During the term of the Order, the Copermittees must perform monitoring during at least three wet weather monitoring events at each long-term receiving water monitoring station. At least one wet weather monitoring event must be conducted during the first wet weather event of the wet season (October 1 – April 30), and at least one wet weather monitoring event during a wet weather event that occurs after February 1.

(1) Wet Weather Receiving Water Field Observations

For each wet weather monitoring event, the following narrative descriptions and observations must be recorded at each long-term receiving water monitoring station:

- (a) A narrative description of the station that includes the location, date and duration of the storm event(s) sampled, rainfall estimates of the storm event, and the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event;
- (b) The flow rates and volumes measured or estimated (data from nearby USGS gauging stations may be utilized, or flow rates may be measured or estimated in accordance with the [USEPA Storm Water Sampling Guidance Document](#) (EPA-833-B-92-001), section 3.2.1, or other method proposed by the Copermittees that is acceptable to the San Diego Water Board);
- (c) Station condition (i.e. deposits or stains, vegetation condition, structural

condition, observable biology); and

(d) Presence and assessment of trash in and around station.

(2) Wet Weather Receiving Water Field Monitoring

For each wet weather monitoring event, the Copermittees must monitor and record the parameters in [Table D-2](#) at each long-term receiving water monitoring station.

(3) Wet Weather Receiving Water Analytical Monitoring

For each wet weather monitoring event, the Copermittees must collect and analyze samples from each long-term receiving water monitoring station as follows:

- (a) Analytes that are field measured are not required to be analyzed by a laboratory;
- (b) The Copermittees must implement consistent sample collection methods for regional comparability of data, unless site-specific conditions indicate the need for alternate methods;
- (c) Grab samples may be collected for pH, temperature, specific conductivity, dissolved oxygen, turbidity, hardness, and indicator bacteria;
- (d) For all other constituents, composite samples must be collected for a duration adequate to be representative of changes in pollutant concentrations and runoff flows using one of the following techniques:
 - (i) Time-weighted composites composed of 24 discrete hourly samples, which may be collected through the use of automated equipment, or
 - (ii) Flow-weighted composites collected over the length of the storm event or a typical 24-hour period, which may be collected through the use of automated equipment;
- (e) Only one analysis of the composite of aliquots is required;
- (f) Analysis for the following constituents is required:
 - (i) Constituents contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan,
 - (ii) Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List,

- (iii) Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermittees are listed responsible parties under the TMDLs in [Attachment E](#) to this Order,
- (iv) Applicable SAL constituents, and
- (v) Constituents listed in [Table D-3](#).

(4) Wet Weather Receiving Water Toxicity Monitoring

For each wet weather monitoring event, the Copermittees must collect grab or composite samples from each long-term receiving water monitoring station to be analyzed for toxicity in accordance with [Table D-5](#):

Table D-5. Wet Weather Toxicity Testing for Receiving Water Monitoring Stations

Freshwater Organism	Test Approach	USEPA Protocol ¹
<i>Pimephales promelas</i>	1 acute	EPA-821-R-02-012
<i>Hyalella Azteca</i>	1 acute	EPA-821-R-02-012
<i>Psuedokirchneriella subcapitata</i>	1 acute	EPA-821-R-02-013

Notes:

1. USEPA protocols must be utilized for toxicity testing unless alternate toxicity testing protocols have been approved by the San Diego Water Board.

e. OTHER RECEIVING WATER MONITORING REQUIREMENTS

(1) Regional Monitoring

The Copermittees must participate in the following regional receiving waters monitoring programs, as applicable to the Watershed Management Area:

- (a) Storm Water Monitoring Coalition Regional Monitoring; and
- (b) Southern California Bight Regional Monitoring.

(2) Sediment Quality Monitoring

The Copermittees must perform sediment monitoring to assess compliance with sediment quality receiving water limits applicable to MS4 discharges to enclosed bays and estuaries. The monitoring may be performed either by individual or multiple Copermittees to assess compliance with receiving water limits, or through participation in a water body monitoring coalition. The Copermittees must identify sediment sampling stations that are spatially representative of the sediment within the water body segment or region of interest. Sediment quality monitoring must be conducted in conformance with the monitoring requirements set forth in the State Water Board Sediment Quality Control Plan.

(3) ASBS Monitoring

For Watershed Management Areas with ASBS, the Copermittees must implement the monitoring requirements of Attachment B to State Water Board Resolution No. 2012-0012, included in [Attachment A](#) to this Order.

f. **ALTERNATIVE WATERSHED MONITORING REQUIREMENTS**

The San Diego Water Board may direct the Copermittees to participate in an effort to develop alternative watershed monitoring with other regulated entities, other interested parties, and the San Diego Water Board to refine, coordinate, and implement regional monitoring and assessment programs to determine the status and trends of water quality conditions in 1) coastal waters, 2) enclosed bays, harbors, estuaries, and lagoons, and 3) streams.

In lieu of the Receiving Water Monitoring Program requirements specified in 1.a to 1.d, the Copermittees may participate in the development and implementation of monitoring for the collaborative receiving waters monitoring program. It is expected that a regional monitoring will allow for a more effective and efficient receiving waters monitoring program. The regional monitoring plan must be submitted to the Executive Officer for review and approval. Documentation of participation and monitoring shall be included in the annual report.

2. **MS4 Outfall Discharge Monitoring Requirements**

The Copermittees must develop and conduct a program to monitor the discharges from the MS4 outfalls in each Watershed Management Area during dry weather and wet weather. Following acceptance of the Water Quality Improvement Plans for each Watershed Management Area, the Copermittees must conduct MS4 outfall discharge monitoring during implementation of the Water Quality Improvement Plan to assess the effectiveness of their jurisdictional runoff management programs toward effectively prohibiting non-storm water discharges and reducing pollutants in storm water discharges to and from their MS4s. Any available monitoring data not collected specifically for this Order that meet the quality assurance criteria of the Copermittees and the monitoring requirements of this Order may be utilized by the Copermittees. The Copermittees must conduct the following MS4 outfall monitoring procedures:

a. **TRANSITIONAL MS4 OUTFALL DISCHARGE MONITORING**

Until the monitoring requirements of Provisions [D.2.b-c](#) are incorporated into a Water Quality Improvement Plan that is accepted by the San Diego Water Board pursuant to Provision [F.1](#), the Copermittees must conduct the following MS4 outfall discharge monitoring in the Watershed Management Area:

PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS

- D.1. Receiving Water Monitoring Requirements
- D.2. MS4 Outfall Discharge Monitoring Requirements

(1) MS4 Outfall Discharge Monitoring Station Inventory

Each Copermittee must identify all major MS4 outfalls that discharge directly to receiving waters within its jurisdiction and geo-locate those outfalls on a map of the MS4 pursuant to Provision [E.2.b.\(1\)](#). This information must be compiled into a MS4 outfall discharge monitoring station inventory, and must include the following information:

- (a) Latitude and longitude of MS4 outfall point of discharge;
- (b) Watershed Management Area;
- (c) Hydrologic subarea;
- (d) Outlet size;
- (e) Accessibility (i.e. safety and without disturbance of critical habitat);
- (f) Approximate drainage area; and
- (g) Classification of whether the MS4 outfall is known to have persistent dry weather flows, transient dry weather flows, no dry weather flows, or unknown dry weather flows.

(2) Transitional Dry Weather MS4 Outfall Discharge Field Screening Monitoring

Until the monitoring requirements of Provision [D.2.b](#) are incorporated into a Water Quality Improvement Plan that is accepted by the San Diego Water Board pursuant to Provision [F.1](#), each Copermittee must perform dry weather MS4 outfall field screening monitoring to identify non-storm water and illicit discharges within its jurisdiction in accordance with Provision [E.2.c](#), to determine which discharges are transient flows and which are persistent flows, and prioritize the dry weather MS4 discharges that will be investigated and eliminated in accordance with Provision [E.2.d](#). Each Copermittee must conduct the following dry weather MS4 outfall discharge field screening monitoring within its jurisdiction:

(a) Transitional Dry Weather MS4 Outfall Discharge Field Screening Monitoring Frequency

Each Copermittee must field screen the MS4 outfalls in its inventory developed pursuant to Provision [D.2.a.\(1\)](#) as follows:

- (i) For Copermittees with less than 125 major MS4 outfalls that discharge to receiving waters within a Watershed Management Area,

at least 80 percent of the outfalls must be visually inspected two times per year during dry weather conditions.

- (ii) For Copermittees with 125 major MS4 outfalls or more, but less than or equal to 500, that discharge to receiving waters within a Watershed Management Area all the outfalls must be visually inspected at least annually during dry weather conditions.
- (iii) For Copermittees with more than 500 major MS4 outfalls that discharge to receiving waters within a Watershed Management Area, at least 500 outfalls must be visually inspected at least annually during dry weather conditions. Copermittees with more than 500 major MS4 outfalls within a Watershed Management Area must identify and prioritize at least 500 outfalls to be inspected considering the following:
 - [a] Assessment of connectivity of the discharge to a flowing receiving water;
 - [b] Reported exceedances of NALs in water quality monitoring data;
 - [c] Surrounding land uses;
 - [d] Presence of constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List; and
 - [e] Flow rate.
- (iv) For Copermittees with more than 500 major MS4 outfalls within its jurisdiction that are located in more than one Watershed Management Area, at least 500 major MS4 outfalls within its inventory must be visually inspected at least annually during dry weather conditions. Copermittees with more than 500 major MS4 outfalls in more than one Watershed Management Area must identify and prioritize at least 500 outfalls to be inspected considering the following:
 - [a] Assessment of connectivity of the discharge to a flowing receiving water;
 - [b] Reported exceedances of NALs in water quality monitoring data;
 - [c] Surrounding land uses;
 - [d] Presence of constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List; and
 - [e] Flow rate.
- (v) Inspections of major MS4 outfalls conducted in response to public reports and staff or contractor reports and notifications may count toward the required visual inspections of MS4 outfall discharge monitoring stations.

(b) Transitional Dry Weather MS4 Outfall Discharge Field Screening Visual Observations

- (i) An antecedent dry period of at least 72 hours following any storm event producing measurable rainfall greater than 0.1 inch is required prior to conducting field screening visual observations during a field screening monitoring event.
- (ii) During the field screening monitoring event, each Copermittee must record visual observations consistent with [Table D-6](#) at each MS4 outfall discharge monitoring station inspected.

Table D-6. Field Screening Visual Observations for MS4 Outfall Discharge Monitoring Stations

Field Observations
<ul style="list-style-type: none"> • Station identification and location • Presence of flow, or pooled or ponded water • If flow is present: <ul style="list-style-type: none"> - Flow estimation (i.e. width of water surface, approximate depth of water, approximate flow velocity, flow rate) - Flow characteristics (i.e. presence of floatables, surface scum, sheens, odor, color) - Flow source(s) suspected or identified from non-storm water source investigation - Flow source(s) eliminated during non-storm water source identification • If pooled or ponded water is present: <ul style="list-style-type: none"> - Characteristics of pooled or ponded water (i.e. presence of floatables, surface scum, sheens, odor, color) - Known or suspected source(s) of pooled or ponded water • Station description (i.e. deposits or stains, vegetation condition, structural condition, observable biology) • Presence and assessment of trash in and around station • Evidence or signs of illicit connections or illegal dumping

- (iii) Each Copermittee must implement the requirements of Provisions [E.2.d.\(2\)\(c\)-\(e\)](#) based on the field observations.
- (iv) Each Copermittee must evaluate field observations together with existing information available from prior reports, inspections and monitoring results to determine whether any observed flowing, pooled, or ponded waters are likely to be transient or persistent flow.¹⁹

(c) Transitional Dry Weather MS4 Outfall Discharge Field Screening Monitoring Records

¹⁹ Persistent flow is defined as the presence of flowing, pooled, or ponded water more than 72 hours after a measurable rainfall event of 0.1 inch or greater during three consecutive monitoring and/or inspection events. All other flowing, pooled, or ponded water is considered transient.

Based upon the results of the transitional dry weather MS4 outfall discharge field screening monitoring conducted pursuant to [Provisions D.2.a.\(2\)\(a\)-\(b\)](#), each Copermittee must update its MS4 outfall discharge monitoring station inventory, compiled pursuant to Provision [D.2.a.\(1\)](#), with any new information on the classification of whether the MS4 outfall produces persistent flow, transient flow, or no dry weather flow.

(3) Transitional Wet Weather MS4 Outfall Discharge Monitoring

Until the monitoring requirements of Provision [D.2.c](#) are incorporated into a Water Quality Improvement Plan that is accepted by the San Diego Water Board pursuant to Provision [F.1](#), the Copermittees must conduct the following wet weather MS4 outfall discharge monitoring within the Watershed Management Area:

(a) Transitional Wet Weather MS4 Outfall Discharge Monitoring Stations

The Copermittees must select at least five wet weather MS4 outfall discharge monitoring stations from the inventories developed pursuant to Provision [D.2.a.\(1\)](#) that are representative of storm water discharges from areas consisting primarily of residential, commercial, industrial, and typical mixed-use land uses present within the Watershed Management Area.

(b) Transitional Wet Weather MS4 Outfall Discharge Monitoring Frequency

Each wet weather MS4 outfall discharge monitoring station selected pursuant to Provision [D.2.a.\(3\)\(a\)](#) must be monitored twice during the wet season (October 1 – April 30). One wet weather monitoring event must be conducted during the first wet weather event of the wet season, and one wet weather monitoring event at least a month after the first wet weather event of the wet season.

[Transitional wet weather MS4 outfall discharge monitoring may begin in year 2 of the transitional period once the MS4 outfall discharge monitoring stations have been inventoried and evaluated pursuant to Provision D.2.a.\(1\)](#)

(c) Transitional Wet Weather MS4 Outfall Discharge Field Observations

For each wet weather monitoring event, the following narrative descriptions and observations must be recorded at each wet weather MS4 outfall discharge monitoring station:

- (i) A narrative description of the station that includes the location, date and duration of the storm event(s) sampled, rainfall estimates of the storm event, and the duration between the storm event sampled and

the end of the previous measurable (greater than 0.1 inch rainfall) storm event; and

- (ii) The flow rates and volumes measured or estimated (data from nearby USGS gauging stations may be utilized, or flow rates may be measured or estimated in accordance with the [USEPA Storm Water Sampling Guidance Document](#) (EPA-833-B-92-001), section 3.2.1, or other method proposed by the Copermittees that is acceptable to the San Diego Water Board);
- (iii) Station condition (i.e. deposits or stains, vegetation condition, structural condition, observable biology); and
- (iv) Presence and assessment of trash in and around station.

(d) Transitional Wet Weather MS4 Outfall Discharge Field Monitoring

For each wet weather monitoring event, the Copermittees must monitor and record the parameters in [Table D-2](#) at each wet weather MS4 outfall discharge monitoring station.

(e) Transitional Wet Weather MS4 Outfall Discharge Analytical Monitoring

For each wet weather monitoring event, the Copermittees must collect and analyze samples from each wet weather MS4 outfall discharge monitoring station as follows:

- (i) Analytes that are field measured are not required to be analyzed by a laboratory;
- (ii) The Copermittees must implement consistent sample collection methods for regional comparability of data, unless site-specific conditions indicate the need for alternate methods;
- (iii) Grab samples may be collected for pH, temperature, specific conductivity, dissolved oxygen, turbidity, and indicator bacteria;
- (iv) For all other constituents, composite samples must be collected for a duration adequate to be representative of changes in pollutant concentrations and runoff flows using one of the following techniques:

[a] Time-weighted composites collected over the length of the storm event or the first 24 hour period, whichever is shorter, composed of discrete samples, which may be collected through the use of automated equipment, or

[b] Flow-weighted composites collected over the length of the storm event or a typical 24 hour period, whichever is shorter, which may be collected through the use of automated equipment, or

[c] If automated compositing is not feasible, a composite sample may be collected using a minimum of 4 grab samples, collected during

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the first 24 hours of the storm water discharge, or for the entire storm water discharge if the storm event is less than 24 hours;

- (v) Only one analysis of the composite of aliquots is required;
- (vi) The samples must be analyzed for the following constituents:
 - [a] Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List with the exception of toxicity²⁰,
 - [b] Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermittees are listed responsible parties under the TMDLs in [Attachment E](#) to this Order, and
 - [c] Constituents listed in in [Table D-7](#).
 - [e] The Copermittee may be relieved of analytical monitoring requirements [a] to [c] if supporting information can be provided or has historical data that can demonstrate or provide justification that the analysis of the constituent is not necessary.

²⁰ Copermittees may provide an alternate approach to evaluate and identify the cause of toxicity currently affecting receiving waters and to iteratively adapt the monitoring program to address these chemical stressors in their MS4 outfall discharges in the monitoring plan which is subject to Regional Board approval.

Table D-7. Analytical Monitoring Constituents for Wet Weather MS4 Outfall Discharge Monitoring Stations

Conventionals, Nutrients	Metals (Total and Dissolved)	Indicator Bacteria
<ul style="list-style-type: none"> • Total Dissolved Solids • Total Suspended Solids • Turbidity • Total Hardness • Total Organic Carbon • Dissolved Organic Carbon • Sulfate • Methylene Blue Active Substances (MBAS) • Total Phosphorus • Orthophosphate • Nitrite¹ • Nitrate¹ • Total Kjeldhal Nitrogen • Ammonia 	<ul style="list-style-type: none"> • Arsenic • Cadmium • Chromium • Copper • Iron • Lead • Nickel • Selenium • Thallium • Zinc 	<ul style="list-style-type: none"> • Total Coliform • Fecal Coliform² • <i>Enterococcus</i>

Notes:

1. Nitrite and nitrate may be combined and reported as nitrite+nitrate.

2. *E. Coli* may be substituted for Total Coliform for discharges to inland surface waters.

Deleted: Fecal

(f) Other Transitional Wet Weather MS4 Outfall Discharge Monitoring

The San Diego County Copermittees must continue the wet weather MS4 outfall monitoring program developed under Order No. R9-2007-0001, as approved by the San Diego Water Board, through its planned completion.

b. DRY WEATHER MS4 OUTFALL DISCHARGE MONITORING

Each Copermittee must perform dry weather MS4 outfall monitoring to identify non-storm water and illicit discharges within its jurisdiction pursuant to Provision [E.2.c](#), and to prioritize the dry weather MS4 discharges that will be investigated and eliminated pursuant to Provision [E.2.d](#). Each Copermittee must conduct the following dry weather MS4 outfall discharge monitoring within its jurisdiction:

(1) Dry Weather MS4 Outfall Discharge Field Screening Monitoring

Each Copermittee must continue to perform the dry weather MS4 outfall discharge field screening monitoring in accordance with the requirements of Provision [D.2.a.\(2\)](#). The Copermittee may adjust the field screening monitoring frequencies and locations for the MS4 outfalls in its inventory, as needed, to identify and eliminate sources of persistent flow non-storm water discharges in accordance with the highest priority water quality conditions identified in the Water Quality Improvement Plan, provided the number of visual inspections performed is equivalent to the number of visual inspections required under Provision [D.2.a.\(2\)\(a\)](#).

(2) Non-Storm Water Persistent Flow MS4 Outfall Discharge Monitoring

Each Copermittee must perform non-storm water persistent flow MS4 outfall discharge monitoring to determine which persistent non-storm water discharges contain concentrations of pollutants below NALs, and which persistent non-storm water discharges impact receiving water quality during dry weather. Each Copermittee must conduct the following non-storm water persistent flow MS4 outfall discharge monitoring within its jurisdiction:

(a) Prioritization of Non-Storm Water Persistent Flow MS4 Outfalls

Based upon the dry weather MS4 outfall discharge field screening monitoring records developed pursuant to Provision [D.2.a.\(2\)\(c\)](#), each Copermittee must identify and prioritize the MS4 outfalls with persistent flows based on the highest priority water quality conditions identified in the Water Quality Improvement Plan and any additional criteria developed by the Copermittee, which may include historical data and data from sources other than what the Copermittee collects.

(b) Non-Storm Water Persistent Flow MS4 Outfall Discharge Monitoring Frequency

- (i) Based on the prioritization of major MS4 outfalls developed under Provision [D.2.b.\(2\)\(a\)](#), each Copermittee must identify, at a minimum, the 10 highest priority major MS4 outfalls with non-storm water persistent flows that the Copermittee will monitor within each Watershed Management Area within its jurisdiction. The location of the highest priority non-storm water persistent flow MS4 outfall monitoring stations must be identified on the map required pursuant to Provision [E.2.b.\(1\)](#).
- (ii) Each of the highest priority non-storm water persistent flow MS4 outfall monitoring stations identified pursuant to Provision [D.2.b.\(2\)\(b\)\(i\)](#) must be monitored under dry weather conditions at least semi-annually until one of the following occurs:
 - [a] The non-storm water discharges have been effectively eliminated (i.e. no flowing, pooled, or ponded water) for three consecutive dry weather monitoring events; or
 - [b] The source(s) of the persistent flows has been identified as a category of non-storm water discharges that does not require an NPDES permit and does not have to be addressed as an illicit discharge because it was not identified as a source of pollutants (i.e. constituents in non-storm water discharge do not exceed NALs), and the persistent flow can be re-prioritized to a lower priority; or

- [c] The constituents in the persistent flow non-storm water discharge do not exceed NALs, and the persistent flow can be re-prioritized to a lower priority; or
 - [d] The source(s) of the persistent flows has been identified as a non-storm water discharge authorized by a separate NPDES permit.
- (iii) Where the criteria under Provision [D.2.b.\(2\)\(c\)\(ii\)](#) are not met, but the threat to water quality has been reduced by the Copermittee, the highest priority persistent flow MS4 outfall monitoring stations may be reprioritized accordingly for continued dry weather MS4 outfall discharge field screening monitoring required pursuant to Provision [D.2.b.\(1\)](#).
 - (iv) Each Copermittee must document removal or re-prioritization of the highest priority persistent flow MS4 outfall monitoring stations identified under Provision [D.2.b.\(2\)\(b\)](#) in the Annual Report. Persistent flow MS4 outfall monitoring stations that have been removed must be replaced with the next highest prioritized MS4 major outfall in the Watershed Management Area within its jurisdiction, unless there are no remaining qualifying major MS4 outfalls within the Copermittee's jurisdiction in the Watershed Management Area.
- (c) Non-Storm Water Persistent Flow MS4 Outfall Discharge Field Observations
- During each semi-annual monitoring event, each Copermittee must record field observations consistent with [Table D-6](#) at each of the highest priority persistent flow MS4 outfall monitoring stations within its jurisdiction.
- (d) Non-Storm Water Persistent Flow MS4 Outfall Discharge Field Monitoring
- During each semi-annual monitoring event, if conditions allow the collection of the data, each Copermittee must monitor and record the parameters in [Table D-2](#) at each of the highest priority persistent flow MS4 outfall monitoring stations within its jurisdiction.
- (e) Non-Storm Water Persistent Flow MS4 Outfall Discharge Analytical Monitoring
- During each semi-annual monitoring event in which measurable flow is present, each Copermittee must collect and analyze samples from each of the highest priority persistent flow MS4 outfall monitoring stations within its jurisdiction as follows:
- (i) Analytes that are field measured are not required to be analyzed by a laboratory;

- (ii) The Copermitees must implement consistent sample collection methods for regional comparability of data, unless site-specific conditions indicate the need for alternate methods;
- (iii) Collect grab or composite samples to be analyzed for the following constituents:
 - [a] Constituents contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan,
 - [b] Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List with the exception of toxicity²¹,
 - [c] Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermitees are listed responsible parties under the TMDLs in [Attachment E](#) to this Order,
 - [d] Applicable NAL constituents, and
 - [e] Constituents listed in [Table D-8](#), unless the Copermitee has historical data that can demonstrate or provide justification that the analysis of the constituent is not necessary.
 - [f] The Copermitee may be relieved of analytical monitoring requirements if supporting information can be provided or has historical data that can demonstrate or provide justification that the analysis of the constituent is not necessary.

Table D-8. Analytical Monitoring Constituents for Persistent Flow MS4 Outfall Discharge Monitoring Stations

Conventionals, Nutrients	Metals (Total and Dissolved)	Indicator Bacteria
<ul style="list-style-type: none"> • Total Dissolved Solids • Total Suspended Solids • Total Hardness • Total Phosphorus • Orthophosphate • Nitrite¹ • Nitrate¹ • Total Kjeldhal Nitrogen • Ammonia 	<ul style="list-style-type: none"> • Cadmium • Copper • Lead • Zinc 	<ul style="list-style-type: none"> • Total Coliform • Fecal Coliform² • <i>Enterococcus</i>

Notes:
 1. Nitrite and nitrate may be combined and reported as nitrite+nitrate.
 2. *E. Coli* may be substituted for Total Coliform for discharges to inland surface waters.

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²¹ Copermitees may provide an alternate approach to evaluate and identify the cause of toxicity currently affecting receiving waters and to iteratively adapt the monitoring program to address these chemical stressors in their MS4 outfall discharges in the monitoring plan which is subject to Regional Board approval.

- (iv) If the Copermittee identifies and eliminates the source of the persistent flow non-storm water discharge, analysis of the sample is not required.

c. WET WEATHER MS4 OUTFALL DISCHARGE MONITORING

The Copermittees must perform wet weather MS4 outfall monitoring to identify sources of pollutants in storm water discharges from the MS4s in the Watershed Management Area. The Copermittees must conduct the following wet weather MS4 outfall discharge monitoring within the Watershed Management Area:

(1) Wet Weather MS4 Outfall Discharge Monitoring Stations

The Copermittees may adjust the wet weather MS4 outfall discharge monitoring locations and frequencies in the Watershed Management Area, as needed, to identify sources of pollutants in storm water discharges from MS4s in the Watershed Management Area in accordance with the highest priority water quality conditions identified in the Water Quality Improvement Plan, provided the number of stations is at least equivalent to the number of stations required under Provision [D.2.a.\(3\)\(a\)](#).

(2) Wet Weather MS4 Outfall Discharge Monitoring Frequency

The Copermittees must monitor the wet weather MS4 outfall discharge monitoring stations in the Watershed Management Area at an appropriate frequency to identify sources of pollutants in storm water discharges from the MS4s causing or contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan.

(3) Wet Weather MS4 Outfall Discharge Field Observations

For each wet weather monitoring event, the following narrative descriptions and observations must be recorded at each wet weather MS4 outfall discharge monitoring station:

- (a) A narrative description of the station that includes the location, date and duration of the storm event(s) sampled, rainfall estimates of the storm event, and the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event; and
- (b) The flow rates and volumes measured or estimated (data from nearby USGS gauging stations may be utilized, or flow rates may be measured or estimated in accordance with the [USEPA Storm Water Sampling Guidance Document](#) (EPA-833-B-92-001), section 3.2.1, or other method proposed by the Copermittees that is acceptable to the San Diego Water Board);

(c) Station condition (i.e. deposits or stains, vegetation condition, structural condition, observable biology); and

(d) Presence and assessment of trash in and around station.

(4) Wet Weather MS4 Outfall Discharge Field Monitoring

For each wet weather monitoring event, the Copermittees must monitor and record the parameters in [Table D-2](#) at each wet weather MS4 outfall discharge monitoring station.

(5) Wet Weather MS4 Outfall Discharge Analytical Monitoring

For each wet weather monitoring event, the Copermittees must collect and analyze samples from each wet weather MS4 outfall discharge monitoring station as follows:

- (a) Analytes that are field measured are not required to be analyzed by a laboratory;
- (b) The Copermittees must implement consistent sample collection methods for regional comparability of data, unless site-specific conditions indicate the need for alternate methods;
- (c) Grab samples may be collected for pH, temperature, specific conductivity, dissolved oxygen, turbidity, hardness, and indicator bacteria;
- (d) For all other constituents, composite samples must be collected for a duration adequate to be representative of changes in pollutant concentrations and runoff flows using one of the following techniques:
 - (i) Time-weighted composites collected over the length of the storm event or the first 24 hour period, whichever is shorter, composed of discrete samples, which may be collected through the use of automated equipment, or
 - (ii) Flow-weighted composites collected over the length of the storm event or a typical 24 hour period, whichever is shorter, which may be collected through the use of automated equipment, or
 - (iii) If automated compositing is not feasible, a composite sample may be collected using a minimum of 4 grab samples, collected during the first 24 hours of the storm water discharge, or for the entire storm water discharge if the storm event is less than 24 hours.
- (e) Only one analysis of the composite of aliquots is required;

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(f) Analysis for the following constituents is required:

- (i) Constituents contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan,
- (ii) Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List, with the exception of toxicity²²,
- (iii) Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermittees are listed responsible parties under the TMDLs in [Attachment E](#) to this Order, and
- (iv) Applicable SAL constituents.
- (v) The Copermittee may be relieved of analytical monitoring requirements if supporting information can be provided or has historical data that can demonstrate or provide justification that the analysis of the constituent is not necessary.

²² Copermittees may provide an alternate approach to evaluate and identify the cause of toxicity currently affecting receiving waters and to iteratively adapt the monitoring program to address these chemical stressors in their MS4 outfall discharges in the monitoring plan which is subject to Regional Board approval.

PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS

D.2. MS4 Outfall Discharge Monitoring Requirements

D.3. Special Studies

3. Special Studies

- a. Within the term of this Order, the Copermittees must develop and implement the following special studies:
- (1) At least three special studies in each Watershed Management Area to address pollutant and/or stressor data gaps and/or develop information necessary to more effectively address the pollutants and/or stressors that cause or contribute to highest priority water quality conditions identified in the Water Quality Improvement Plan.
 - (2) At least two special studies for the San Diego Region to address pollutant and/or stressor data gaps and/or develop information necessary to more effectively address the pollutants and/or stressors that are impacting receiving waters on a regional basis in the San Diego Region.
 - (3) One of the three special studies in each Watershed Management Area may be replaced by a special study implemented pursuant to Provision [D.3.a.\(2\)](#).
- b. The special studies must, at a minimum, be in conformance with the following criteria:
- (1) The special studies must be related to the highest priority water quality conditions identified by the Copermittees in the Watershed Management Area and/or for the entire San Diego Region;
 - (2) The special studies developed pursuant to Provision [D.3.a.\(1\)](#) must:
 - (a) Be implemented within the applicable Watershed Management Area, and
 - (b) Require some form of participation by all the Copermittees within the Watershed Management Area;
 - (3) The special studies developed pursuant to Provision [D.3.a.\(2\)](#) must:
 - (a) Be implemented within the San Diego Region, and
 - (b) Require some form of participation by all Copermittees covered under the requirements of this Order.
- c. Special studies developed to identify sources of pollutants and/or stressors should be pollutant and/or stressor specific and based on historical monitoring data and monitoring performed pursuant to Provisions [D.1](#) and [D.2](#). Development of source identification special studies should include the following:
- (1) A compilation of known information on the specific pollutant and/or stressor, including data on potential sources and movement of the pollutant and/or

stressor within the watershed. Data generated by the Copermittees and others, as well as information available from a literature research on the pollutant and/or stressor should be compiled and analyzed as appropriate.

- (2) An identification of data gaps, based on the compiled information generated on the specific pollutant and/or stressor in Provision [D.3.d.\(1\)](#). Source identification special studies should be developed to fill identified data gaps.
- (3) A monitoring plan that will collect and provide data the Copermittees can utilize to do the following:
 - (a) Quantify the relative loading or impact of a pollutant and/or stressor from a particular source or pollutant generating activity;
 - (b) Improve understanding of the fate of a pollutant and/or stressor in the environment;
 - (c) Develop an inventory of known and suspected sources of a pollutant and/or stressor in the Watershed Management Area; and/or
 - (d) Prioritize known and suspected sources of a pollutant and/or stressor based on relative magnitude in discharges, geographical distribution (i.e., regional or localized), frequency of occurrence in discharges, human health risk, and controllability.
- d. Special studies initiated prior to the acceptance of the Water Quality Improvement Plan that meet the requirements of Provision [D.3.b](#) and are completed during the term of this Order may be utilized to fulfill the special study requirements of Provision [D.3.a](#).
- e. The Copermittees must submit the monitoring plans for the special studies in the Water Quality Improvement Plans required pursuant to Provision [F.1](#).
- f. The Copermittees are encouraged to share the results of the special studies regionally among the Copermittees to provide information useful in improving and adapting the management of non-storm water and storm water runoff through the implementation of the Water Quality Improvement Plans.

4. Assessment Requirements

Each Copermittee must evaluate the data collected pursuant to Provisions [D.1](#), [D.2](#) and [D.3](#), and information collected during the implementation of the jurisdictional runoff management programs required pursuant to Provision [E](#), to assess the progress of the water quality improvement strategies in the Water Quality Improvement Plan toward achieving compliance with Provisions [A.1.a](#), [A.1.c](#) and [A.2.a](#). Assessments must be performed as described in the following provisions:

PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS
D.3. Special Studies

a. RECEIVING WATERS ASSESSMENTS

(1) The Copermittees must assess and report the conditions of the receiving waters in the Watershed Management Area as follows:

(a) Based on data collected pursuant to Provision [D.1.a](#), the assessments under Provision [D.4.a.\(2\)](#) must be included in the first Annual Report required pursuant to Provision [F.3.b.\(1\)](#).

(b) Based on the data collected pursuant to Provisions [D.1.a-e](#), the assessments required under Provision [D.4.a.\(2\)](#) must be included in the Report of Waste Discharge required pursuant to Provision [F.5.b](#).

(2) The Copermittees must assess the status and trends of receiving water quality conditions in 1) coastal waters, 2) enclosed bays, harbors, estuaries, and lagoons, and 3) streams under dry weather and wet weather conditions. For each of the three types of receiving waters in each Watershed Management Area the Copermittees must:

(a) Determine whether or not the conditions of the receiving waters are protective of the designated beneficial uses;

(b) Identify the most critical beneficial uses that must be protected to ensure overall health of the receiving water;

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(c) Determine whether or not those critical beneficial uses are being protected;

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(d) Identify short-term and/or long-term improvements or degradation of those critical beneficial uses;

(e) Identify data gaps in the monitoring data necessary to assess Provisions [D.4.a.\(2\)\(a\)-\(d\)](#).

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b. MS4 OUTFALL DISCHARGES ASSESSMENTS

(1) Non-Storm Water Discharges Reduction Assessments

(a) Each Copermittee must assess and report the progress of its illicit discharge detection and elimination program, required to be implemented pursuant to Provision [E.2](#), toward effectively prohibiting non-storm water and illicit discharges into the MS4 within its jurisdiction as follows:

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(i) Based on data collected pursuant to Provisions [D.2.a.\(2\)](#), the assessments under Provision [D.4.b.\(1\)\(b\)](#) must be included in the first Annual Report required pursuant to Provision [F.3.b.\(1\)](#).

- (ii) Based on the data collected pursuant to Provisions [D.2.b](#), the assessments required under Provision [D.4.b.\(1\)\(c\)](#) must be included in the first Annual Report required pursuant to Provision [F.3.b.\(1\)](#), and annually thereafter.
 - (iii) Based on the data collected pursuant to Provisions [D.2.b](#), the assessment required under Provision [D.4.b.\(1\)\(c\)](#) must be included in the Report of Waste Discharge required pursuant to [F.5.b](#).
- (b) Based on the transitional dry weather MS4 outfall discharge field screening monitoring required pursuant to Provision [D.2.a.\(2\)](#), each Copermittee must assess and report the following:
- (i) Identify the known and suspected controllable sources (e.g. facilities, areas, land uses, pollutant generating activities) of transient and persistent flows within the Copermittee's jurisdiction in the Watershed Management Area;
 - (ii) Identify sources of transient and persistent flows within the Copermittee's jurisdiction in the Watershed Management Area that have been reduced or eliminated; and
 - (iii) Identify modifications to the field screening monitoring locations and frequencies for the MS4 outfalls in its inventory necessary to identify and eliminate sources of persistent flow non-storm water discharges pursuant to Provision [D.2.b.\(1\)](#).
- (c) Based on the dry weather MS4 outfall discharge field screening monitoring required pursuant to Provision [D.2.b](#), each Copermittee must assess and report the following:
- (i) The assessments required pursuant to Provision [D.4.b.\(1\)\(b\)](#);
 - (ii) Based on the data collected and applicable NALs in the Water Quality Improvement Plan, rank the MS4 outfalls in the Copermittee's jurisdiction according to potential threat to receiving water quality, and produce a prioritized list of major MS4 outfalls for follow-up action to update the Water Quality Improvement Plan, with the goal of eliminating persistent flow non-storm water discharges and/or pollutant loads in order of the ranked priority list through targeted programmatic actions and source investigations;
 - (iii) For the highest priority major MS4 outfalls with persistent flows that are in exceedance of NALs, identify the known and suspected sources within the Copermittee's jurisdiction in the Watershed Management Area that may cause or contribute to the NAL exceedances;

- (iv) Each Copermittee must analyze the data collected pursuant to Provision [D.2.b](#), and utilize a model or other method, to calculate or estimate the non-storm water volumes and pollutant loads discharged from all the major MS4s outfalls in its jurisdiction identified as having persistent dry weather flows during the monitoring year. These calculations or estimates must be updated annually. Each Copermittee must calculate or estimate:
 - [a] Annual non-storm water volumes and pollutant loads discharged from the Copermittee's major MS4 outfalls to receiving waters within the Copermittee's jurisdiction, with an estimate of the percent contribution from each known and suspected source for each MS4 outfall;
 - [b] Annual non-storm water volumes and pollutant loads from areas or facilities subject to the Copermittee's legal authority that are discharged from the Copermittee's major MS4 outfalls to downstream receiving waters.
- (v) Each Copermittee must review the data collected pursuant to Provision [D.2.b](#) and findings from the assessments required pursuant to Provision [D.4.b.\(1\)\(c\)\(i\)-\(iv\)](#) on an annual basis to:
 - [a] Identify reductions and progress in achieving reductions in non-storm water and illicit discharges to the Copermittee's MS4 in the Watershed Management Area;
 - [b] Assess the effectiveness of water quality improvement strategies being implemented by the Copermittees within the Watershed Management Area toward reducing or eliminating non-storm water and pollutant loads discharging from the MS4 to receiving waters within its jurisdiction, with an estimate, if possible, of the non-storm water volume and/or pollutant load reductions attributable to specific water quality strategies implemented by the Copermittee; and
 - [c] Identify modifications necessary to increase the effectiveness of the water quality improvement strategies implemented by the Copermittee in the Watershed Management Area toward reducing or eliminating non-storm water and pollutant loads discharging from the MS4 to receiving waters within its jurisdiction.
- (vi) Identify data gaps in the monitoring data necessary to assess Provisions [D.4.b.\(2\)\(c\)\(i\)-\(v\)](#).

(2) Storm Water Pollutant Discharges Reduction Assessments

- (a) The Copermittees must assess and report the progress of the water quality improvement strategies, required to be implemented pursuant to Provisions [B](#) and [E](#), toward reducing pollutants in storm water discharges from the MS4s within the Watershed Management Area as follows:

- (i) Based on data collected pursuant to Provisions [D.2.a.\(3\)](#), the assessments under Provision [D.4.b.\(2\)\(b\)](#) must be included in the first Annual Report required pursuant to Provision [F.3.b.\(1\)](#).
 - (ii) Based on the data collected pursuant to Provisions [D.2.c](#), the assessments required under Provision [D.4.b.\(2\)\(c\)](#) must be included in the first Annual Report required pursuant to Provision [F.3.b.\(1\)](#), and annually thereafter.
 - (iii) Based on the data collected pursuant to Provisions [D.2.c](#), the assessment required under Provisions [D.4.b.\(2\)\(c\)-\(d\)](#) must be included in the Report of Waste Discharge required pursuant to [F.5.b](#).
- (b) Based on the transitional wet weather MS4 outfall discharge monitoring required pursuant to Provision [D.2.a.\(3\)](#) the Copermittees must assess and report the following:
- (i) The Copermittees must analyze the monitoring data collected pursuant to Provision [D.2.a.\(3\)](#), and utilize a watershed model or other method, to calculate or estimate storm water volumes and pollutant loads discharged from the MS4s in each Copermittee's jurisdiction within the Watershed Management Area. The Copermittees must calculate or estimate the following for each monitoring year:
 - [a] The average storm water runoff coefficient for each land use type within the Watershed Management Area;
 - [b] The volume of storm water discharged from ~~the Copermittee's~~ major MS4 outfalls in its jurisdiction to receiving waters within the Watershed Management Area for each storm event with measurable rainfall greater than 0.1 inch;
 - [c] The pollutant loads discharged from ~~the Copermittee's~~ major MS4 outfalls in its jurisdiction to receiving waters within the Watershed Management Area for each storm event with measurable rainfall greater than 0.1 inch; and
 - [d] The percent contribution of storm water volumes and pollutant loads discharged from each land use type within the drainage basin to ~~the Copermittee's~~ major MS4 outfalls in its jurisdiction to receiving waters within the Watershed Management Area for each storm event with measurable rainfall greater than 0.1 inch.
 - (ii) Identify modifications to the wet weather MS4 outfall discharge monitoring locations and/or frequencies necessary to identify sources pollutants in storm water discharges from the MS4s in the Watershed Management Area pursuant to Provision [D.2.c.\(1\)](#).

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- (c) Based on the wet weather MS4 outfall discharge monitoring required pursuant to Provision [D.2.c](#) the Copermittees must assess and report the following:
- (i) The assessments required pursuant to Provision [D.4.b.\(2\)\(b\)](#);
 - (ii) Based on the data collected and applicable SALs in the Water Quality Improvement Plan, rank the MS4 outfalls in the Watershed Management Area according to potential threat to receiving water quality, and produce a prioritized list of major MS4 outfalls for follow-up action to update the Water Quality Improvement Plan;
 - (iii) The Copermittees must review the data collected pursuant to Provision [D.2.c](#) and findings from the assessments required pursuant to Provisions [D.4.b.\(2\)\(c\)\(i\)-\(ii\)](#) on an annual basis to:
 - [a] Identify reductions ~~or~~ progress in achieving reductions in pollutant concentrations and/or pollutant loads from different land uses and/or drainage areas discharging from the Copermittees' MS4s in the Watershed Management Area;
 - [b] Assess the effectiveness of water quality improvement strategies being implemented by the Copermittees within the Watershed Management Area toward reducing pollutants in storm water discharges from the MS4s to receiving waters within the Watershed Management Area to the MEP, with an estimate, if possible, of the pollutant load reductions attributable to specific water quality strategies implemented by the Copermittees; and
 - [c] Identify modifications necessary to increase the effectiveness of the water quality improvement strategies implemented by the Copermittees in the Watershed Management Area toward reducing pollutants in storm water discharges from the MS4s to receiving waters in the Watershed Management Area to the MEP.
 - (iv) Identify data gaps in the monitoring data necessary to assess Provisions [D.4.b.\(2\)\(c\)\(i\)-\(iii\)](#).
- (d) The Copermittees must evaluate all the data collected pursuant to Provision [D.2.c](#), and incorporate new outfall monitoring data into time series plots for each long-term monitoring constituent for the Watershed Management Area, and perform statistical trends analysis on the cumulative long-term wet weather MS4 outfall discharge water quality data set.

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c. SPECIAL STUDIES ASSESSMENTS

The Copermittees must annually evaluate the results and findings from the special studies developed and implemented pursuant to Provision [D.3](#), and assess their relevance to the Copermittees' efforts to characterize receiving water conditions, understand sources of pollutants and/or stressors, and control

and reduce the discharges of pollutants from the MS4 outfalls to receiving waters in the Watershed Management Area. The Copermittees must report the results of the special studies assessments applicable to the Watershed Management Area, and identify any necessary modifications or updates to the Water Quality Improvement Plan based on the results in the Annual Reports required pursuant to Provision [F.3.b](#).

d. INTEGRATED ASSESSMENT OF WATER QUALITY IMPROVEMENT PLAN

As part of the iterative approach and adaptive management process required for the Water Quality Improvement Plan pursuant to Provision [B.5](#), the Copermittees in each Watershed Management Area must integrate the data collected pursuant to Provisions [D.1-D.3](#), the findings from the assessments required pursuant to Provisions [D.4.a-c](#), and information collected during the implementation of the jurisdictional runoff management programs required pursuant to Provision [E](#) to assess the effectiveness of, and identify necessary modifications to, the Water Quality Improvement Plan as follows:

- (1) The Copermittees must re-evaluate the priority water quality conditions and numeric goals for the Watershed Management Area, as needed, during the term of this Order pursuant to Provision [B.5.a](#). The re-evaluation and recommendations for modifications to the priority water quality conditions, and/or numeric goals and corresponding schedules may be provided in the Annual Reports required pursuant to Provision [F.3.b](#), but must at least be provided in the Report of Waste Discharge pursuant to Provision [F.5.b](#). The priority water quality conditions and numeric goals for the Watershed Management Area must be re-evaluated as follows:
 - (a) Re-evaluate the receiving water conditions in the Watershed Management Area in accordance with Provision [B.2.a](#);
 - (b) Re-evaluate the impacts on receiving waters in the Watershed Management Area from MS4 discharges in accordance with Provision [B.2.b](#);
 - (c) Re-evaluate the identification of MS4 sources of pollutants and/or stressors in accordance with Provision [B.2.d](#);
 - (d) Identify beneficial uses of the receiving waters that are protected in accordance with Provision [D.4.a](#);
 - (e) Evaluate the progress toward achieving the interim and final numeric goals for protecting beneficial uses in the receiving waters.
- (2) The Copermittees must re-evaluate the water quality improvement strategies for the Watershed Management Area during the term of this Order pursuant to Provision [B.5.b](#). The re-evaluation and recommendations for modifications

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to the water quality improvement strategies and schedules must be provided in the Annual Reports required pursuant to Provision F.3.b, and provided in the Report of Waste Discharge pursuant to Provision F.5.b. The water quality improvement strategies for the Watershed Management Area must be re-evaluated as follows:

- (a) Identify the non-storm water and storm water pollutant loads from the Copermittees' MS4 outfalls in the Watershed Management Area, calculated or estimated pursuant to Provisions D.4.b;
 - (b) Identify the non-storm water and storm water pollutant load reductions, or other improvements to receiving water or water quality conditions, that are necessary to attain the interim and final numeric goals for protecting beneficial uses in the receiving waters;
 - (c) Identify the non-storm water and storm water pollutant load reductions, or other improvements to the quality of MS4 discharges, that are necessary for the Copermittees to demonstrate that non-storm water and storm water discharges from their MS4s are not causing or contributing to exceedances of receiving water limitations;
 - (d) Evaluate the progress of the water quality improvement strategies toward achieving the interim and final numeric goals for protecting beneficial uses in the receiving waters.
- (3) The Copermittees must re-evaluate and adapt the water quality monitoring and assessment program for the Watershed Management Area when new information becomes available to improve the monitoring and assessment program pursuant to Provision B.5.c. The re-evaluation and recommendations for modifications to the monitoring and assessment program may be provided in the Annual Reports required pursuant to Provision F.3.b, but must at least be provided in the Report of Waste Discharge pursuant to Provision F.5.b. Modifications to the water quality monitoring and assessment program must be consistent with the requirements of Provision D.1-D.3. The re-evaluation of the water quality monitoring and assessment program for the Watershed Management Area must consider the data gaps identified by the assessments required pursuant to Provisions D.4.a-b, and results of the special studies implemented pursuant to Provision D.4.c.

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5. Monitoring Provisions

Each Copermittee must comply with all the monitoring, reporting, and recordkeeping provisions of the Standard Permit Provisions and General Provisions contained in Attachment B to this Order.

E. JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS

The purpose of this provision is for each Copermittee to implement a program to control non-stormwater discharges into and stormwater discharges from the MS4 within its jurisdiction and to focus and prioritize those implementation actions based on the highest water quality priorities identified within the associated Water Quality Improvement Plan. The goal of the jurisdictional runoff management programs is to implement strategies and actions that effectively prohibit non-storm water discharges into the MS4 and reduce the discharge of pollutants in storm water to the MEP. This goal will be accomplished through implementing the jurisdictional runoff management programs in accordance with the water quality priorities and strategies identified in the Water Quality Improvement Plans.

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Each Copermittee must update its jurisdictional runoff management program document, in accordance with Provision F.2.a, to incorporate the requirements of Provision E consistent with the highest water quality priorities as identified in the corresponding Water Quality Improvement Plan. Until the Copermittee has updated its jurisdictional runoff management program document with the requirements of Provision E, the Copermittee must continue implementing its current jurisdictional runoff management program.

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1. Legal Authority Establishment and Enforcement

a. Each Copermittee must establish, maintain, and enforce adequate legal authority within its jurisdiction to control pollutant discharges into and from its MS4 through statute, ordinance, permit, contract, order, or similar means. This legal authority must, at a minimum, authorize the Copermittee to:

- (1) Effectively prohibit and eliminate all illicit discharges and illicit connections into its MS4;
- (2) Control the contribution of pollutants in discharges of runoff associated with industrial and construction activity into its MS4 and control the quality of runoff from industrial and construction sites²³;
- (3) Control the discharge of spills, dumping, or disposal of materials other than storm water into its MS4;
- (4) Control through interagency agreements among Copermittees the contribution of pollutants from one portion of the MS4 to another portion of the MS4;
- (5) Control, by coordinating and cooperating with other owners of the MS4 such

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Deleted: , including industrial and construction sites which have coverage under the statewide General Permit for Discharges of Storm Water Associated with Industrial Activities (Industrial General Permit) or General Permit for Discharges of Storm Water Associated with Construction Activities (Construction General Permit), as well as to those sites which do not

²³ The Copermittees will only be responsible for administering and enforcing the codes and ordinances applicable to their jurisdictions (i.e., a municipality is not responsible for administering and/or enforcing a permit issued by the State of California).

as Caltrans, the U.S. federal government, or sovereign Native American Tribes through interagency agreements, where possible, the contribution of pollutants from their portion of the MS4 to the portion of the MS4 within the Copermittee's jurisdiction;

- (6) Require compliance with conditions in its statutes, ordinances, permits, contracts, orders, or similar means to hold dischargers to its MS4 accountable for their contributions of pollutants and flows;
- (7) Require the use of BMPs to prevent or reduce the discharge of pollutants in storm water from its MS4 to the MEP;
- (8) ~~Require the use of BMPs to prevent or reduce the discharge of pollutants in storm water from its MS4 to the MEP;~~
- (9) Utilize enforcement mechanisms to require compliance with its statutes, ordinances, permits, contracts, orders, or similar means; and
- (10) Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with its statutes, ordinances, permits, contracts, orders, or similar means and with the requirements of this Order, including the effective prohibition of illicit discharges and connections to its MS4. The Copermittee's ordinance must include adequate legal authority, to the extent permitted by California and Federal Law and subject to the limitations on municipal action under the constitutions of California and the United States. ~~The Copermittee must also~~ have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from industrial facilities, including construction sites, discharging into its MS4.

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b. With the first Annual Report required pursuant to Provision F.3.b, each Copermittee must submit a statement certified by its Principal Executive Officer, Ranking Elected Official, or Duly Authorized Representative that the Copermittee has taken the necessary steps to obtain and maintain full legal authority within its jurisdiction to implement and enforce each of the requirements contained in this Order.

2. Illicit Discharge Detection and Elimination

Each Copermittee must implement a program to actively detect and eliminate illicit discharges and improper disposal into the MS4, or otherwise require the discharger to apply for and obtain a separate NPDES permit. The illicit discharge detection and elimination program must be implemented in accordance with the strategies identified in the Water Quality Improvement Plan. The requirements of the jurisdictional runoff management programs as outlined below may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality Improvement Plan(s).

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PROVISION E: JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS

E.1. Legal Authority Establishment and Enforcement

E.2. Illicit Discharge Detection and Elimination

a. STRATEGIES TO ADDRESS THE HIGHEST PRIORITY WATER QUALITY CONDITIONS

Comment [K1]: It is recommended that this Provision (2.e) be moved to Provision 2.a

Each Copermittee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented as part of the illicit discharge detection and elimination program to address illicit discharges and connections that the Copermittee has identified as potential sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:

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(1) Provide specific details about how the strategies and/or activities will be implemented (e.g. designate BMPs, focus education, and/or increase/decrease frequency of inspections in specific areas); and

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(2) The strategies and/or activities must be consistent with the requirements of Provisions E.2.a-d and the strategies identified in the Water Quality Improvement Plan.

b. NON-STORM WATER DISCHARGES

Each Copermittee must address non-storm water discharges as illicit discharges, where the likelihood exists that they are a source of pollutants to the waters of the state, unless the discharge is either identified as a discharge authorized by a separate NPDES permit, or identified as a category of non-storm water discharges that must be addressed pursuant to the following requirements:

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Deleted: a non-storm water

Deleted: or flows

(1) Discharges of non-storm water from water line flushing and water main breaks to the MS4 must be addressed as illicit discharges unless the discharge has coverage under NPDES Permit No. CAG 679001 (Order No. R9-2010-0003, or subsequent order). This category includes water line flushing and water main break discharges from water purveyors issued a water supply permit by the California Department of Public Health or federal military installations. Discharges from recycled or reclaimed water lines to the MS4 must be addressed as illicit discharges, unless the discharges have coverage under a separate NPDES permit.

Deleted: <#>Discharges of non-storm water to the MS4 from the following categories must be addressed as illicit discharges unless the discharge has coverage under NPDES Permit No. CAG919001 (Order No. R9-2007-0034, or subsequent order) for discharges to San Diego Bay, or NPDES Permit No. CAG919002 (Order No. R9-2008-0002, or subsequent order) for discharges to surface waters other than San Diego Bay: ¶
¶ <#>Uncontaminated pumped ground water;¶
¶ Discharges from foundation drains;

(2) Discharges of non-storm water to the MS4 from the following categories must be addressed by the Copermittee as illicit discharges only if the Copermittee or the San Diego Water Board identifies the discharge as a source of pollutants to receiving waters:

Deleted: ²⁴¶
¶ <#>Water from crawl space pumps; and¶
¶ <#>Water from footing drains.¹⁹¶
¶

(a) Diverted stream flows;

(b) Rising ground waters;

(c) Uncontaminated ground water infiltration to MS4s;

(d) Uncontaminated pumped ground water;

(e) Discharges from foundation drains;²⁵

(f) Springs;

(g) Water from crawl space pumps;

(h) Water from footing drains;²⁴

(i) Flows from riparian habitats and wetlands;

(j) Discharges from potable water sources;

(k) Discharges from foundation drains;²⁶ and

(l) Discharges from footing drains.²⁶

- (3) Discharges of non-storm water into the MS4 from the following categories must be controlled by the requirements given below through statute, ordinance, permit, contract, order, or similar means, where there is evidence that those discharges are a source of pollutants to waters of the state. Discharges of non-storm water into the MS4 from the following categories not controlled by the requirements given below through statute, ordinance, permit, contract, order, or similar means must be addressed by the Copermittee as illicit discharges.

(a) Air conditioning condensation

The discharge of air conditioning condensation must be directed to landscaped areas or other pervious surfaces where feasible.

(b) Individual residential vehicle washing

- (i) The discharge of wash water must be directed to landscaped areas or other pervious surfaces where feasible; and
- (ii) Minimize the use of water for vehicle washing, use as little washing detergent and other vehicle wash products as possible, wash vehicles at commercial wash facilities, and implement other practices or behaviors that will prevent the discharge of pollutants associated

²⁵ Provision E.2.a.(1) only applies to this category on non-storm water if the system is designed to be located at or below the highest historical groundwater table to actively or passively extract groundwater during any part of the year.

²⁶ Provision E.2.a.(3) only applies to this category of non-storm water discharge if the system is designed to be located above the highest historical groundwater table at all times of the year, and the system is only expected to discharge non-storm water under unusual circumstances.

with individual residential vehicle washing from entering the MS4.

(c) Dechlorinated swimming pool discharges

- (i) Eliminate residual chlorine, algaecide, filter backwash, or other pollutants from swimming pools prior to discharging to the MS4; and
- (ii) The discharge of saline swimming pool water must be directed to the sanitary sewer, landscaped areas, or other pervious surfaces that can accommodate the volume of water, unless the saline swimming pool water can be discharged via a pipe or concrete channel directly to a naturally saline water body (e.g. Pacific Ocean).

(4) Firefighting discharges to the MS4 must continue to be addressed by the Copermittees as follows:

(a) Non-emergency firefighting discharges

- (i) Building fire suppression system maintenance discharges (e.g. sprinkler line flushing) to the MS4 must be addressed as illicit discharges.
- (ii) Non-emergency firefighting discharges (i.e., discharges from controlled or practice blazes, firefighting training, and maintenance activities not associated with building fire suppression systems) must be addressed by a program, to be developed and implemented by the Copermittee in conjunction with the local Fire Authority/District, to reduce or eliminate pollutants in such discharges from entering the MS4.

(b) Emergency firefighting discharges (i.e., flows necessary for the protection of life or property) do not require BMPs and need not be prohibited.

(5) If the Copermittee or San Diego Water Board identifies any category of non-storm water discharges listed under Provisions E.2.a.(1)-(4) as a source of pollutants to receiving waters, the category must be prohibited through ordinance, order, or similar means and addressed as an illicit discharge.

Deleted: as illicit discharges only if the Copermittee or the San Diego Water Board identifies the discharge as a significant source of pollutants to receiving waters. Firefighting discharges to the MS4 not identified as a significant source of pollutants to receiving waters, must be addressed, at a minimum,

Deleted: ¶ Each Copermittee should develop and encourage implementation of BMPs to reduce or eliminate pollutants in emergency firefighting discharges to the MS4s and receiving waters within its jurisdiction. During emergency situations, priority of efforts should be directed toward life, property, and the environment (in descending order). BMPs should not interfere with immediate emergency response operations or impact public health and safety.¶

c. PREVENT AND DETECT ILLICIT DISCHARGES AND CONNECTIONS

Each Copermittee must include the following measures within its program to prevent and detect illicit discharges to the MS4:

- (1) Each Copermittee must maintain an updated map of its entire MS4 and the corresponding drainage areas. The accuracy of the MS4 map must be confirmed during the field screening required pursuant to Provision E.2.c. The MS4 map must be included as part of the jurisdictional runoff management program document. Any geographic information system (GIS)

Deleted: ¶ (7) Each Copermittee must, where feasible, reduce or eliminate non-storm water discharges listed under Provisions E.2.a.(1)-(4) into its MS4 whether or not the non-storm water discharge has been identified as an illicit discharge, unless a non-storm water discharge is identified as a discharge authorized by a separate NPDES permit.

layers or files used by the Copermittee to maintain the MS4 map must be made available to the San Diego Water Board upon request. The MS4 map must identify the following:

- (a) All segments of the MS4 owned, operated, and maintained by the Copermittee;
 - (b) All known locations of inlets that discharge and/or collect runoff into the Copermittee's MS4;
 - (c) All known locations of connections with other MS4s not owned or operated by the Copermittee (e.g. Caltrans MS4s);
 - (d) All known locations of MS4 outfalls and private outfalls that discharge runoff collected from areas within the Copermittee's jurisdiction;
 - (e) All segments of receiving waters within the Copermittee's jurisdiction that receive and convey runoff discharged from the Copermittee's MS4 outfalls;
 - (f) Locations of the MS4 outfalls, identified pursuant to Provision [D.2.a.\(1\)](#), within its jurisdiction; and
 - (g) Locations of the non-storm water persistent flow MS4 outfall discharge monitoring stations, identified pursuant to Provision [D.2.b.\(2\)\(b\)](#), within its jurisdiction.
- (2) Each Copermittee must use Copermittee personnel and contractors to assist in identifying and reporting illicit discharges and connections during their daily employment activities.
- (3) Each Copermittee must promote, publicize, and facilitate public reporting of the presence of illicit discharges or water quality impacts associated with discharges [into](#) or from the MS4, including the following methods for public reporting:
- (a) Operate a public hotline, which can be Copermittee-specific or shared by the Copermittees, and must be capable of receiving reports in both English and Spanish 24 hours per day and seven days per week; and
 - (b) Designate an e-mail address for receiving electronic reports from the public, which can be Copermittee-specific or shared by the Copermittees, and must be prominently displayed on the Copermittee's webpage and the Regional Clearinghouse required pursuant to Provision [F.4](#).
- (4) Each Copermittee must implement practices and procedures (including a notification mechanism) to prevent, respond to, contain, and clean up any

spills that may discharge into the MS4 within its jurisdiction from any source. The Copermittee must coordinate, to the extent possible, with spill response teams to prevent entry of spills into the MS4, and prevent contamination of surface water, ground water, and soil. The Copermittee must coordinate spill prevention, containment, and response activities throughout all appropriate Copermittee departments, programs, and agencies.

- (5) Each Copermittee must implement practices and procedures to prevent and limit infiltration of seepage from sanitary sewers (including private laterals and failing septic systems) to the MS4.
- (6) Each Copermittee must coordinate, when necessary, with upstream Copermittees and/or entities to prevent illicit discharges from upstream sources into the MS4 within its jurisdiction.

d. FIELD SCREENING

Each Copermittee must conduct field screening (i.e. visual observations, field testing, and/or analytical testing) of MS4 outfalls and other portions of its MS4 within its jurisdiction to detect ~~illicit discharges and connections to the MS4 in accordance with the dry weather MS4 outfall discharge monitoring requirements in Provisions D.2.a.(2) and D.2.b.(1).~~

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e. INVESTIGATE AND ELIMINATE ILLICIT DISCHARGES AND CONNECTIONS

Each Copermittee must include the following measures within its program to investigate and eliminate illicit discharges to the MS4:

- (1) Each Copermittee must prioritize and determine when follow-up investigations will be performed in response to visual observations and/or water quality monitoring data collected during an investigation of a detected non-storm water or illicit discharge ~~into or from the MS4~~. The criteria for prioritizing investigations must consider the following:
 - (a) Pollutants identified as causing or contributing to the highest water quality priorities identified in the Water Quality Improvement Plan;
 - (b) Pollutants identified as causing or contributing, or threatening to cause or contribute to impairments in water bodies on the 303(d) List and/or in environmentally sensitive areas (ESAs), located within its jurisdiction;
 - (c) Pollutants identified from sources or land uses known to exist within the area, drainage basin, or watershed that discharges to the portion of the MS4 within its jurisdiction included in the investigation;
 - (d) Pollutants identified as causing or contributing to an exceedance of an

NAL described in Provision C.1; and

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(e) Pollutants identified as an immediate and significant threat to human health or the environment.

(2) Each Copermittee must implement procedures to investigate and inspect portions of its MS4 that, based on reports or notifications, field screening, or other appropriate information, indicate a reasonable potential of receiving, containing, or discharging pollutants due to illicit discharges or illicit connections. The procedures must include the following:

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(a) Each Copermittee must develop criteria to:

- (i) Assess the validity of each report or notification received; and
- (ii) Prioritize the response to each report or notification received.

(b) Each Copermittee must prioritize and respond to each valid report or notification (e.g., public reports, staff or contractor reports and notifications, etc.) of an incident in a timely manner.

(c) Each Copermittee must investigate and seek to identify the source(s) of illicit discharges or illicit connections observed into and from the MS4 during the field screening required pursuant to Provision D.2.b.(1) as follows:

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- (i) Obvious illicit discharges must be immediately investigated to identify the source(s);
- (ii) The investigation must include field investigations to identify sources or potential sources for the discharge, unless the source or potential source has already been identified during previous investigations; and
- (iii) The investigation may include follow-up field investigations and/or reviewing Copermittee inventories and other land use data to identify potential sources of the discharge.

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(d) Each Copermittee must maintain records and a database of the following information:

- (i) Location of incident, including hydrologic subarea, portion of MS4 receiving the illicit discharge or connection, and point of discharge or potential discharge from MS4 to receiving water;
- (ii) Source of information initiating the investigation (e.g., public reports, staff or contractor reports and notifications, field screening, etc.);
- (iii) Date the information used to initiate the investigation was received;

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- (iv) Date the investigation was initiated;
- (v) Dates of follow-up investigations;
- (vi) Identified or suspected source of the illicit discharge or connection, if determined;
- (vii) Known or suspected related incidents, if any;
- (viii) Result of the investigation; and
- (ix) If a source cannot be identified and the investigation is not continued, a rationale for why a discharge does not pose a threat to water quality and/or does not require additional investigation.

(e) Each Copermittee must track and seek to identify the source(s) of illicit discharges or connections, from the MS4 where there is evidence of illicit discharges or connections, having been discharged into or from the MS4 (e.g., pooled water), in accordance with MS4 outfall discharge monitoring requirements in Provisions D.2.a.(2) and D.2.b.

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(3) Each Copermittee must initiate the implementation of procedures, in a timely manner, to eliminate all detected and identified illicit discharges and connections within its jurisdiction. The procedures must include the following responses:

(a) Each Copermittee must enforce its legal authority, as required under Provision E.1, to eliminate illicit discharges and connections to the MS4.

(b) If the Copermittee identifies the source as a controllable source, the Copermittee must implement its Enforcement Response Plan pursuant to Provision E.6 and enforce its legal authority to prohibit and eliminate illicit discharges and connections to its MS4.

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(c) If the Copermittee identifies the source of the discharge as a category of non-storm water discharges in Provision E.2.a, and the discharge is in exceedance of the NALs, then the Copermittee must determine if: (1) this is an isolated incident or set of circumstances that will be addressed through its Enforcement Response Plan pursuant to Provision E.6, or (2) the category of discharge must be addressed through the prohibition of that category of discharge as an illicit discharge pursuant to Provision E.2.a.(6).

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(d) If the Copermittee suspects the source of the illicit discharge or connection as natural in origin (i.e. non-anthropogenically influenced) and in conveyance into the MS4, then the Copermittee must document and provide the data and evidence necessary to demonstrate to the San Diego Water Board that it is natural in origin and does not require further investigation.

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(e) If the Copermittee is unable to identify and document the source of a recurring illicit discharges or connections into or from the MS4, then the Copermittee must address the discharge and update its jurisdictional runoff management program to address the common and suspected sources of the discharge within its jurisdiction in accordance with the Copermittee's priorities.

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(4) Each Copermittee must submit a summary of the illicit discharges and connections investigated and eliminated within its jurisdiction with each Annual Report required under Provision F.3.b of this Order.

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3. Development Planning

Each Copermittee must use their land use and planning authorities to implement a development planning program in accordance with the strategies identified in the Water Quality Improvement Plan. The requirements of the jurisdictional runoff management programs as outlined below may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality Improvement Plan(s).

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<#>STRATEGIES TO ADDRESS THE HIGHEST PRIORITY WATER QUALITY CONDITIONS ¶

¶ Each Copermittee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented as part of the illicit discharge detection and elimination program to address non-storm water and illicit discharges and connections that the Copermittee has identified as potential sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:¶

¶ <#>Provide specific details about how the strategies and/or activities will be implemented (e.g. designate additional BMPs, focus education, and/or increase/decrease frequency of inspections in specific areas); and¶

¶ <#>The strategies and/or activities must be consistent with the requirements of Provisions E.2.a-d and the strategies identified in the Water Quality Improvement Plan.¶

a. STRATEGIES TO ADDRESS THE HIGHEST PRIORITY WATER QUALITY CONDITIONS

Each Copermittee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented as part of the development planning program to address development and redevelopment projects that may become sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:

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Comment [K2]: It is recommended that this Provision (3.g) be moved to Provision 3.a

Deleted: additional

- (1) Provide specific details about how the strategies and/or activities will be implemented (e.g. designate BMPs, focus education, increase frequency of verifications and/or inspections, alternative compliance options);
- (2) Each Copermittee must identify areas within its jurisdiction where Priority Development Projects may be allowed or should be encouraged to implement or contribute toward the implementation of alternative compliance retrofitting and/or stream, channel, or habitat rehabilitation projects;
- (3) Each Copermittee should collaborate and cooperate with other Copermittees and/or entities in the Watershed Management Area to identify regional alternative compliance projects that Priority Development Projects may be allowed or should be encouraged to implement or participate in implementing; and
- (4) The strategies and/or activities must be consistent with the requirements of Provisions E.3.b-d and E.3.f-g and the strategies identified in the Water Quality Improvement Plan.

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b. BMP REQUIREMENTS FOR ALL DEVELOPMENT PROJECTS

Each Copermitttee must prescribe the following BMP requirements during the planning process (i.e. prior to project approval and issuance of local permits) for all development projects (regardless of project type or size), where local permits are issued, including unpaved roads and flood management projects:

(1) General Requirements

- (a) Onsite BMPs must be located so as to remove pollutants from runoff prior to its discharge to any receiving waters, and as close to the source as possible; and
- (b) Structural BMPs must not be constructed within a waters of the U.S. or waters of the state.

(2) Source Control BMP Requirements

The following source control BMPs must be implemented at all development projects where applicable and feasible:

- (a) Prevention of illicit discharges into the MS4;
- (b) Storm drain system stenciling or signage;
- (c) Properly designed outdoor material storage areas;
- (d) Properly designed outdoor work areas;
- (e) Properly designed trash storage areas; and
- (f) Any additional BMPs necessary to minimize pollutant generation at each project.

(3) Low Impact Development (LID) BMP Requirements

The following LID BMPs must be implemented at all development projects where applicable and feasible:

- (a) Maintenance or restoration of natural storage reservoirs and drainage corridors (including topographic depressions, areas of permeable soils, natural swales, and ephemeral and intermittent streams);²⁷

²⁷ Development projects proposing to dredge or fill materials in waters of the U.S. must obtain a CWA Section 401 Water Quality Certification. Projects proposing to dredge or fill waters of the state must obtain waste discharge requirements.

- (b) Buffer zones for natural water bodies (where buffer zones are technically infeasible, require project applicant to include other buffers such as trees, access restrictions, etc.);
- (c) Conservation of natural areas within the project footprint including existing trees, other vegetation, and soils;
- (d) Construction of streets, sidewalks, or parking lot aisles to the minimum widths necessary, provided public safety is not compromised;
- (e) Minimization of the impervious footprint of the project;
- (f) Minimization of soil compaction to landscaped areas;
- (g) Disconnection of impervious surfaces through distributed pervious areas;
- (h) Landscaped or other pervious areas designed and constructed to effectively receive and infiltrate, retain and/or treat runoff from impervious areas, prior to discharging to the MS4;
- (i) Small collection strategies located at, or as close as possible to, the source (i.e. the point where storm water initially meets the ground) to minimize the transport of runoff and pollutants to the MS4 and receiving waters;
- (j) Use of permeable materials for projects with low traffic areas and appropriate soil conditions;
- (k) Landscaping with native or drought tolerant species; and
- (l) Harvesting and using precipitation.

C. PRIORITY DEVELOPMENT PROJECTS

(1) Definition of Priority Development Project

Priority Development Projects include the following:

- (a) All new development projects that fall under the Priority Development Project categories listed under Provision E.3.b.(2); and
- (b) Those redevelopment projects that create, add, or replace at least 5,000 square feet of impervious surfaces on an already developed site, and the redevelopment project is a Priority Development Project category listed under Provision E.3.b.(2) (where redevelopment results in an increase of less than fifty percent of the impervious surfaces of a previously existing

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development, and the existing development was not subject to Priority Development Project requirements, the performance requirements of Provisions E.3.c.(1) and E.3.c.(2) apply only to the addition or replacement, and not to the entire development; where redevelopment results in an increase of more than fifty percent of the impervious surfaces of a previously existing development, and was not subject to previous Priority Project Development requirements, the performance requirements of Provisions E.3.c.(1) and E.3.c.(2) apply to the entire development).

(2) Priority Development Project Categories

- (a) New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This category includes commercial, industrial, residential, mixed-use, and public development projects on public or private land which fall under the planning and building authority of the Copermittee.
- (b) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 7532-7534, or 7536-7539.
- (c) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812), where the land area for development is 5,000 square feet or more.
- (d) Hillside development projects. This category includes any development which creates 5,000 square feet or more of impervious surface which is located in an area with known erosive soil conditions, where the development will grade on any natural slope that is twenty-five percent or greater.
- (e) Environmentally sensitive areas (ESAs). This category includes any development located within, directly adjacent to, or discharging directly to an ESA, which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10 percent or more of its naturally occurring condition. "Directly adjacent to" means situated within 200 feet of the ESA. "Discharging directly to" means outflow from a drainage conveyance system that collects runoff from the subject development or redevelopment site and terminates at or in receiving waters within the ESA.
- (f) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce that has 5,000 square feet or more of

impervious surface.

- (g) Streets, roads, highways, and freeways. This category is defined as any paved impervious surface that is 5,000 square feet or more used for the transportation of automobiles, trucks, motorcycles, and other internal combustion vehicles.
- (h) Retail gasoline outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.
- (i) Large development projects. This category includes any post-construction pollutant-generating new development projects that result in the disturbance of one acre or more of land.

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(3) Priority Development Project Exemptions

Each Copermittee has the discretion to exempt the following projects from being defined as Priority Development Projects:

- (a) Sidewalks, bicycle lanes, driveways, parking lots, or trails that meet the following criteria:
 - (i) Designed and constructed to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas; OR
 - (ii) Designed and constructed to be hydraulically disconnected from paved streets or roads; OR
 - (iii) Designed and constructed with permeable pavements or surfaces in accordance with USEPA Green Streets guidance.²⁸
- (b) Any impervious surface that is 5,000 square feet or more used for the transportation of automobiles, trucks, motorcycles, and other vehicles that follows the USEPA guidance regarding Managing Wet Weather with Green Infrastructure: Green Streets1to the MEP. ;
- (c) Single-family residential projects that are not part of a larger development or proposed subdivision.

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Deleted: <#>Must be two lanes or less; AND¶
 ¶
 <#>Must be a retrofitting project implemented as part of an alternative compliance project option under Provision E.3.c.(3)(b)(v) to achieve the performance requirements of Provisions E.3.c.(1) and/or E.3.c.(2) for a Priority Development Project; AND¶
 ¶
 <#>Designed and constructed in accordance with the USEPA Green Streets guidance.²⁹¶

Deleted: New single family residences that meet the following criteria:

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Deleted: <#>Must not be constructed as part of a larger development or proposed subdivision; AND¶
 ¶
 <#>Designed and constructed to be certified under the U.S. Green Building Council (USGCB) Leadership in Energy and Environmental Design (LEED) for Homes green building certification program, receiving at least four (4) Surface Water Management credits under the Sustainable Sites category;³⁰ OR¶
 ¶
 <#>Designed and constructed with structural BMPs that will achieve the performance requirements of Provisions E.3.c.(1) and E.3.c.(2) onsite.¶

Deleted: ²⁸ See "Managing Wet Weather with Green Infrastructure – Municipal Handbook: Green Streets" (USEPA, 2008).¶

³² This volume is not a single volume to be applied to all areas covered by this Order. The size of the 85th percentile storm event is different for various parts of the San Diego Region. The Copermittees are encouraged to calculate the 85th percentile storm event for each of its jurisdictions using local rain data pertinent to its particular jurisdiction. In addition, isopluvial maps may be used to extrapolate rainfall data to areas where insufficient data exists in order to determine the volume of the local 85th percentile storm event in such areas. Where the Copermittees will use isopluvial maps to determine the 85th percentile storm event in areas lacking rain data, the Copermittees must describe their method for using isopluvial maps in its BMP Design Manuals.

(d) Flood control and stream restoration projects.

(e) Emergency public safety projects in any of the Priority Development Categories may be excluded if the delay caused due to the requirement for a SSMP compromises public safety, public health and/or environmental protection.

d. PRIORITY DEVELOPMENT PROJECT STRUCTURAL BMP PERFORMANCE REQUIREMENTS

In addition to the BMP requirements listed for all development projects under Provision E.3.a, Priority Development Projects must also implement structural BMPs that conform to performance requirements below. If watershed-specific performance requirements are developed as part of a Water Quality Improvement Plan; these requirements would take precedence over the general performance requirements below. The watershed-specific requirement must provide at least equal protection as the general performance requirements below.

Deleted: Redevelopment of existing single family residences that meet the following criteria:

Deleted: Designed and constructed to be certified under the USGCB LEED for Homes green building certification program, receiving at least four (4) Surface Water Management credits under the Sustainable Sites category;

Deleted: ³¹ OR [¶] Designed and constructed with structural BMPs that will achieve the performance requirements of Provisions E.3.c.(1) and E.3.c.(2) onsite

(1) On-site Storm Water Pollutant Control Structural BMP Requirements

Each Copermittee must require each Priority Development Project to implement onsite structural BMPs to control pollutants in storm water that may be discharged from a project as follows:

(a) Each Priority Development Project must be required to implement LID BMPs that are designed to retain (i.e. intercept, store, infiltrate, evaporate, and evapotranspire) onsite the pollutants contained in the design capture volume. The design capture volume is equivalent to:

- (i) The volume of storm water runoff produced from a 24-hour 85th percentile storm event;³² OR
- (ii) The average annual volume of storm water runoff that would be retained onsite annually if the site was fully undeveloped and naturally vegetated, as determined using continuous simulation modeling or other techniques based on site-specific soil conditions and typical native vegetative cover.

(b) A Priority Development Project may be allowed to utilize alternative compliance under Provision E.3.c.(3) to comply with the storm water

³² This volume is not a single volume to be applied to all areas covered by this Order. The size of the 85th percentile storm event is different for various parts of the San Diego Region. The Copermittees are encouraged to calculate the 85th percentile storm event for each of its jurisdictions using local rain data pertinent to its particular jurisdiction. In addition, isopluvial maps may be used to extrapolate rainfall data to areas where insufficient data exists in order to determine the volume of the local 85th percentile storm event in such areas. Where the Copermittees will use isopluvial maps to determine the 85th percentile storm event in areas lacking rain data, the Copermittees must describe their method for using isopluvial maps in its BMP Design Manuals.

pollutant control BMP performance requirements of Provision E.3.c.(1)(a).

(c) If a Priority Development project is allowed to utilize alternative compliance pursuant to Provisions E.3.c.(1)(b), flow-thru conventional treatment control BMPs must be implemented to treat the portion of the design capture volume that is not retained onsite. Additionally, project applicants must mitigate for the portion of the pollutant load in the design capture volume that is not retained onsite through one or more alternative compliance options under Provision E.3.c.(3). Conventional treatment control BMPs must be sized and designed to:

- (i) Remove pollutants from storm water to the MEP;
- (ii) Filter or treat either: 1) the maximum flow rate of runoff produced from a rainfall intensity of 0.2 inch of rainfall per hour, for each hour of a storm event, or 2) the maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity (for each hour of a storm event), as determined from the local historical rainfall record, multiplied by a factor of two;
- (iii) Be ranked with high or medium pollutant removal efficiency for the Priority Development Project's most significant pollutants of concern. Conventional treatment control BMPs with a low removal efficiency ranking must only be approved by a Copermittee when a feasibility analysis has been conducted which exhibits that implementation of conventional treatment control BMPs with high or medium removal efficiency rankings are infeasible for a Priority Development Project or portion of a Priority Development Project.

(2) On-site Hydromodification Management Structural BMP Requirements

Each Copermittee must require each Priority Development Project to implement onsite structural BMPs to manage hydromodification to ensure that storm water runoff discharged from a project does not cause adverse hydromodification impacts in the downstream receiving waters.

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The Copermittees in each Watershed Management Area may establish, as part of the WQIP, watershed specific requirements that will apply to priority development projects based on the susceptibility of the receiving waters to hydromodification impacts and historic receiving water changes from development. If watershed specific requirements are developed they will supersede requirements in the HMP. The watershed specific requirements must include the following:

(a) Post-project runoff flow rates and durations must not exceed the performance standard for runoff flow rates and durations to be determined as part of the development of the WQIPs for each Watershed Management Area by more than 10 percent (for the range of flows that

result in increased potential for erosion, or degraded instream habitat conditions downstream of Priority Development Projects).

- (i) In evaluating the range of flows that results in increased potential for erosion of natural (non-hardened) channels, the lower boundary must correspond with the critical channel flow that produces the critical shear stress that initiates channel bed movement or that erodes the toe of channel banks.
 - (ii) ~~The Copermittees may use monitoring results collected pursuant to Provision D.1.a.(2) to re-define the range of flows resulting in increased potential for erosion, or degraded instream habitat conditions, as warranted by the data.~~
- (b) Post-project runoff flow rates and durations must compensate for the loss of sediment supply due to the development project, should loss of sediment supply occur as a result of the development project.
- (c) A Priority Development Project may be allowed to utilize alternative compliance under Provision E.3.c.(3) to comply with the performance requirements of Provisions E.3.c.(2)(a)-(b).

(d) Exemptions

Each Copermittee has the discretion to exempt a Priority Development Project from the hydromodification management BMP performance requirements of Provisions E.3.c.(2)(a)-(b) where the project:

- (i) Discharges storm water runoff into existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean;
- (ii) Discharges storm water runoff into conveyance channels that are engineered for the capacity to convey the 10-year ultimate build out condition flow and are regularly maintained to ensure flow capacity all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.
- (iii) Discharges to large rivers where large rivers are defined as reaches for which the contributing drainage area exceeds 100 square miles and with a 100-year design flow in excess of 20,000 cfs.
- (iv) Discharges from infill redevelopment projects that meet criteria to be established in updates to the Copermittees' HMPs.
- (v) Flood control and stream restoration projects.

Deleted: <#>For artificially hardened channels, analysis to identify the lower boundary must use characteristics of a natural stream segment similar to that found in the watershed. The lower boundary must correspond with the critical channel flow that produces the critical shear stress that initiates channel bed movement or erodes the toe of the channel banks.¶

- (vi) Is a redevelopment Priority Development Project that meets the alternative compliance requirements of Provision [E.3.c.\(3\)\(b\)\(ii\)](#); or
- (vii) Discharges storm water runoff into other areas identified by the San Diego Water Board as exempt from the requirements of Provisions [E.3.c.\(2\)\(a\)-\(b\)](#).

If the Copermittees in a Watershed Management Area select not to develop watershed specific requirements, development projects will be subject to the current Copermittee HMPs inclusive of the exemptions identified in Section [E.3.c.\(2\)\(d\)](#) that will be integrated into updated Copermittee HMPs.

(3) Alternative Compliance to Onsite Structural BMP Performance Requirements

(a) Applicability

At the discretion of each Copermittee, Priority Development Projects may be allowed to utilize an alternative option to comply with the onsite structural BMP performance requirements of Provisions [E.3.c.\(1\)](#) and [E.3.c.\(2\)](#) under the following conditions:

- (i) The Copermittee must determine that implementation of the alternative compliance option will have a greater overall water quality benefit for the Watershed Management Area than fully complying with the performance requirements of Provisions [E.3.c.\(1\)](#) and [E.3.c.\(2\)](#) onsite;
- (ii) The alternative compliance options must be designed by a registered professional engineer, geologist, architect, or landscape architect;
- (iii) The alternative compliance options must be implemented within the same hydrologic unit as the Priority Development Project, and preferably within the same hydrologic subarea;
- (iv) Receiving waters must not be utilized to convey storm water runoff to the alternative compliance options;
- (v) The pollutants in storm water runoff from the Priority Development Project must be treated to the MEP by the alternative compliance options prior to being discharged to receiving waters;
- (vi) Unless otherwise allowed by Provision [E.3.c.\(3\)\(b\)](#), the alternative compliance options must have a net result of at least the same level of pollutant removal as would have been achieved if the Priority Development Project had fully complied with the storm water pollutant control BMP performance requirements of Provision [E.3.c.\(1\)](#) onsite;
- (vii) Unless otherwise allowed by Provision [E.3.c.\(3\)\(b\)](#), the alternative

compliance options must have a net result of at least the same level of protection from potential downstream and upstream erosion in the receiving water as would have been achieved if the Priority Development Project had fully complied with the hydromodification management BMP performance requirements of Provision E.3.c.(2) onsite; and

- (viii) The alternative compliance options utilized by the Priority Development Project to comply with the performance requirements of Provisions E.3.c.(1) and E.3.c.(2) must have reliable sources of funding for operation and maintenance.

(b) Alternative Compliance Project Options

The Copermittee may allow implementation of one or more of the following project options as part of an alternative approach to complying with the onsite structural BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2):

(i) Onsite LID Biofiltration Treatment Control BMPs

The Copermittee may allow Priority Development Projects to utilize onsite LID biofiltration treatment control BMPs to comply with the storm water pollutant control BMP performance requirements of Provision E.3.c.(1). Onsite LID biofiltration treatment control BMPs must be sized and designed to:

- [a] Remove pollutants from storm water to the MEP; AND
- [b] Have an appropriate surface loading rate to prevent erosion, scour and channeling within the BMP; AND
- [c] Biofilter up to the design capture volume that is not reliably retained onsite, and if necessary, mitigate for the portion of the pollutant load in the design capture volume not retained onsite through one or more alternative compliance project, in-lieu fee and/or water quality credit system options below.

(ii) Watershed-Based Planned Development Projects

The Copermittee may allow Priority Development Projects greater than 100 acres in total project size (or smaller than 100 acres in size yet part of a larger common plan of development that is over 100 acres) to comply with the onsite structural BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2). The Priority Development Project must comply with the following conditions:

- [a] The Priority Development Project was planned utilizing watershed and/or subwatershed based water quality, hydrologic, and fluvial geomorphologic planning principles that implement regional LID BMPs in accordance with the performance and location criteria of

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[c] Biofilter at least 1.5 times the design capture volume that is not reliably retained onsite; OR

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Deleted: AND 1) treat the remaining portion of the design capture volume not retained onsite with conventional treatment control BMPs in accordance with Provision E.3.c.(1)(c),

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¶
The Copermittee may allow redevelopment Priority Development Projects to comply with the hydromodification management BMP performance requirements of Provision E.3.c.(2) where the project is designed and constructed to be certified under the USGCB LEED for New Construction and Major Renovations green building certification program. The Priority Development Project must receive at least one (1) Site Design credit and two (2) Stormwater Design credits under the Sustainable Sites category.³³ In addition, the existing and future configuration of the receiving water must not be unnaturally altered or adversely impacted by storm water flow rates and durations discharged from the site.¶

this Order and acceptable to the San Diego Water Board;

[b] Regional BMPs may be used provided that the BMPs capture and retain the volume of runoff produced from the design capture volume defined in Provision E.3.c.(1)(a)(i) and that such controls are located upstream of receiving waters;

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[c] Regional BMPs must clearly exhibit that they will not result in a net impact from pollutant loadings over and above the impact caused by capture and retention of the design capture volume;

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[d] Any portion of the design capture volume that is not retained by the regional BMPs must be treated using biofiltration BMPs; and

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[e] Where regional BMPs are demonstrated to the Copermittee as technically infeasible to retain the entire design capture volume, any volume up to and including the design capture volume not retained by regional BMPs, nor treated by biofiltration BMPs, must be treated using conventional treatment control BMPs and the project applicant must implement additional alternative compliance project, in-lieu fee and/or water quality credit system options below.

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(iii) *Offsite Regional BMPs*

[a] The Copermittee may allow Priority Development Projects to utilize offsite regional BMPs to comply with the storm water pollutant control BMP performance requirements of Provision E.3.c.(1) if the offsite regional BMPs have the capacity to receive and retain the design capture volume that is not reliably retained onsite.

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[b] The Copermittee may allow Priority Development Projects to utilize offsite regional BMPs to comply with the hydromodification management BMP performance requirements of Provision E.3.c.(2) if the offsite regional BMPs have the capacity to manage the storm water flows rates and durations from the site such that the receiving waters are protected from the potential for increased erosion that would be caused if the unmanaged portion of the runoff was discharged from the site.

(iv) *Offsite Retrofitting Projects*

The Copermittee may allow Priority Development Projects to utilize offsite retrofitting projects to comply with the storm water pollutant control and hydromodification management BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2) if the retrofitting projects have been identified within the strategies included in the Water Quality Improvement Plan, or identified as potential retrofitting projects by the Copermittee pursuant to Provision E.5.

(v) *Offsite Channel, Stream, or Habitat Rehabilitation Projects*

The Copermittee may allow Priority Development Projects to utilize

offsite channel, stream, or habitat rehabilitation projects to comply with the hydromodification management BMP performance requirements of Provision E.3.c.(2) if the rehabilitation projects have been identified within the strategies included in the Water Quality Improvement Plan, or identified as potential channel rehabilitation projects by the Copermittee pursuant to Provision E.5. The channel, stream, or habitat rehabilitation project cannot be utilized for pollutant treatment except where artificial wetlands are constructed and located upstream of receiving waters.

(vi) *Offsite Regional Water Supply Augmentation Projects*

The Copermittee may allow Priority Development Projects to utilize offsite regional water supply augmentation projects (i.e. groundwater recharge, recycled water, storm water harvesting) to comply with Provisions E.3.c.(1) and E.3.c.(2) if the projects have been identified within the strategies included in the Water Quality Improvement Plan.

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(vii) *Project Applicant Proposed Alternative Compliance Projects*

The Copermittee may allow one or more Priority Development Project applicant(s) to propose and implement alternative compliance projects to comply with Provisions E.3.c.(1) and E.3.c.(2) if the alternative compliance projects are consistent with, and will address the highest water quality priorities of the Water Quality Improvement Plan, and comply with the requirements of Provision E.3.c.(3)(a).

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(c) *Alternative Compliance In-Lieu Fee Option*

The Copermittee may develop and implement an alternative compliance in-lieu fee option, individually or with other Copermittees and/or entities, as a means for designing, developing, constructing, operating and maintaining offsite alternative compliance projects under Provision E.3.c.(3)(b). Priority Development Projects allowed to utilize the alternative compliance in-lieu fee option must comply with the following conditions:

(i) The in-lieu fee should be collected and held in accordance with the Mitigation Fee Act and all other applicable development fee laws.

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(ii) If the in-lieu fee is applied to the development, design and construction of offsite alternative compliance projects, the following conditions must be met:

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[a] The offsite alternative compliance projects must allow the Priority Development Project to comply with the onsite BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2);

[b] The offsite alternative compliance projects must be constructed

as soon as possible, but no later than 4 years after the certificate of occupancy is granted for the first Priority Development Project that contributed funds toward the construction of the offsite alternative compliance projects, unless a longer period of time is authorized by the San Diego Water Board Executive Officer;

[c] The in-lieu fee for the Priority Development Project must include mitigation of the pollutant loads and increased storm water flow rates and durations that are allowed to discharge from the site before the offsite alternative compliance projects are constructed; and

[d]

(iii) If the in-lieu fee is applied to the operation and maintenance of offsite alternative compliance projects that have already been constructed, the offsite alternative compliance projects must allow the Priority Development Project to comply with the onsite structural BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2).

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(d) Alternative Compliance Water Quality Credit System Option

The Copermittee may develop and implement an alternative compliance water quality credit system option, individually or with other Copermittees and/or entities. Any credit system that a Copermittee chooses to implement must be submitted to the San Diego Water Board Executive Officer for review and acceptance as part of the Water Quality Improvement Plan.

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Deleted: provided that such a credit system clearly exhibits that it will not allow discharges from Priority Development Projects to cause or contribute to a net impact over and above the impact caused by projects meeting the onsite structural BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2).

(4) Long-Term Structural BMP Maintenance

Each Copermittee must require the project applicant to submit proof of the mechanism under which ongoing long-term maintenance of all structural BMPs will be conducted.

(5) Infiltration and Groundwater Protection

(a) Structural BMPs designed to primarily function as large, centralized infiltration devices (such as large infiltration trenches and infiltration basins) must not cause or contribute to an exceedance of an applicable groundwater quality objective. At a minimum, such infiltration BMPs must be in conformance with the design criteria listed below, unless the development project applicant demonstrates to the Copermittee that one or more of the specific design criteria listed below are not necessary to protect groundwater quality. The design criteria listed below do not apply to small infiltration systems dispersed throughout a development project.

(i) Runoff must undergo pretreatment such as sedimentation or filtration

- prior to infiltration;
- (ii) Pollution prevention and source control BMPs must be implemented at a level appropriate to protect groundwater quality at sites where infiltration BMPs are to be used;
 - (iii) Infiltration BMPs must be adequately maintained to remove pollutants in storm water to the MEP;
 - (iv) The vertical distance from the base of any infiltration BMP to the seasonal high groundwater mark must be at least 10 feet. Where groundwater basins do not support beneficial uses, this vertical distance criteria may be reduced, provided groundwater quality is maintained;
 - (v) The soil through which infiltration is to occur must have physical and chemical characteristics (e.g., appropriate cation exchange capacity, organic content, clay content, and infiltration rate) which are adequate for proper infiltration durations and treatment of runoff for the protection of groundwater beneficial uses;
 - (vi) Infiltration BMPs must not be used for areas of industrial or light industrial activity, and other high threat to water quality land uses and activities as designated by each Copermittee, unless first treated or filtered to remove pollutants prior to infiltration; and
 - (vii) Infiltration BMPs must be located a minimum of 100 feet horizontally from any water supply wells.
- (b) The Copermittee may develop, individually or with other Copermittees, alternative mandatory design criteria to that listed above for infiltration BMPs which are designed to primarily function as centralized infiltration devices. Before implementing the alternative design criteria in the development planning process the Copermittee(s) must:
- (i) Notify the San Diego Water Board of the intent to implement the alternative design criteria submitted; and
 - (ii) Comply with any conditions set by the San Diego Water Board.

e. BMP DESIGN MANUAL UPDATE

Each Copermittee must update its BMP Design Manual³⁴ pursuant to Provision [F.2.b](#). Until the Copermittee has updated its BMP Design Manual with the requirements of Provisions [E.3.a-c](#), the Copermittee must continue implementing its current BMP Design Manual. Unless directed otherwise by the San Diego Water Board, the Copermittee must implement the BMP Design Manual within 180 days of completing the update. The update of the BMP Design Manual must include the following:

³⁴ The BMP Design Manual was formerly known as the Standard Storm Water Mitigation Plan under Order Nos. R9-2007-0001, R9-2009-0002, and R9-2010-0016.

- (1) Updated procedures to determine the nature and extent of storm water requirements applicable to a potential development or redevelopment projects. These procedures must inform project applicants of the storm water management requirements applicable to their project including, but not limited to, general requirements for all development projects, structural BMP design procedures and requirements, hydromodification management requirements, requirements specific to phased projects, and procedures specific to private developments and public improvement projects;
- (2) Updated procedures to identify pollutants and conditions of concern for selecting the most appropriate structural BMPs that consider, at a minimum, the following:
 - (a) Receiving water quality (including pollutants for which receiving waters are listed as impaired under the CWA section 303(d) List);
 - (b) Pollutants, stressors, and/or receiving water conditions that cause or contribute to the highest priority water quality conditions identified in the Water Quality Improvement Plan;
 - (c) Land use type of the project and pollutants associated with that land use type; and
 - (d) Pollutants expected to be present onsite.
- (3) Updated procedures for designing structural BMPs, including any updated performance requirements to be consistent with the requirements of Provision [E.3.c](#) for all structural BMPs listed in the BMP Design Manual;
- (4) Long-term maintenance criteria for each structural BMP listed in the BMP Design Manual; and
- (5) Alternative compliance criteria, in accordance with the requirements under Provision [E.3.c.\(3\)](#), if the Copermittee elects to allow Priority Development Projects within its jurisdiction to utilize alternative compliance.

f. PRIORITY DEVELOPMENT PROJECT BMP IMPLEMENTATION AND OVERSIGHT

Each Copermittee must implement a program that requires and confirms structural BMPs on all Priority Development Projects are designed, constructed, and maintained to remove pollutants in storm water to the MEP.

(1) Structural BMP Approval and Verification Process

- (a) Each Copermittee must require and confirm that for all Priority Development Project applications that have not received prior lawful approval by the Copermittee by 18 months after the commencement of

coverage under this Order, the requirements of Provision E.3 are implemented. For project applications that have received prior lawful approval by 18 months after the commencement of coverage under this Order, the Copermittee may allow previous land development requirements to apply.

- (b) Each Copermittee must identify the roles and responsibilities of various municipal departments in implementing the structural BMP requirements, including each stage of a project from application review and approval through BMP maintenance and inspections.
- (c) Each Copermittee must require and confirm that appropriate easements and ownerships are properly recorded in public records and the information is conveyed to all appropriate parties when there is a change in project or site ownership.
- (d) Each Copermittee must require and confirm that prior to occupancy and/or intended use of any portion of the Priority Development Project, each structural BMP is inspected to verify that it has been constructed and is operating in compliance with all of its specifications, plans, permits, ordinances, and the requirements of this Order.

(2) Priority Development Project Inventory and Prioritization

- (a) Each Copermittee must develop, maintain, and update at least annually, a watershed-based database to track and inventory all Priority Development Projects and associated structural BMPs within its jurisdiction. Inventories must be accurate and complete beginning from January 2002 for the San Diego County Copermittees, February 2003 for the Orange County Copermittees, and July 2005 for the Riverside County Copermittees. The use of an automated database system, such as GIS, is highly recommended. The database must include, at a minimum, the following information:
 - (i) Priority Development Project location (address and hydrologic subarea);
 - (ii) Descriptions of structural BMP type(s);
 - (iii) Date(s) of construction;
 - (iv) Party responsible for structural BMP maintenance;
 - (v) Dates and findings of structural BMP maintenance verifications; and
 - (vi) Corrective actions and/or resolutions.
- (b) Each Copermittee must prioritize the Priority Development Projects with structural BMPs within its jurisdiction. The designation of Priority Development Projects as high priority must consider the following:

- (i) The highest water quality priorities identified in the Water Quality Improvement Plan;
- (ii) Receiving water quality;
- (iii) Number and sizes of structural BMPs;
- (iv) Recommended maintenance frequency of structural BMPs;
- (v) Likelihood of operation and maintenance issues of structural BMPs;
- (vi) Land use and expected pollutants generated; and
- (vii) Compliance record.

(3) Structural BMP Maintenance Verifications and Inspections

Each Copermittee is required to verify that structural BMPs on each Priority Development Project are adequately maintained, and continue to operate effectively to remove pollutants in storm water to the MEP through inspections, self-certifications, surveys, or other equally effective approaches.

- (a) All (100 percent) of the structural BMPs at Priority Development Projects that are designated as high priority must be inspected directly by the Copermittee annually prior to each rainy season;
- (b) For verifications performed through a means other than direct Copermittee inspection, adequate documentation must be required by the Copermittee to provide assurance that the required maintenance of structural BMPs at each Priority Development Project has been completed; and
- (c) Appropriate follow-up measures (including re-inspections, enforcement, etc.) must be conducted to ensure that structural BMPs at each Priority Development Project continue to reduce pollutants in storm water to the MEP as originally designed.

g. DEVELOPMENT PROJECT ENFORCEMENT

Each Copermittee must enforce its legal authority established pursuant to Provision [E.1](#) for all development projects, as necessary, to achieve compliance with the requirements of this Order, in accordance with its Enforcement Response Plan pursuant to Provision [E.6](#).

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¶ Each Copermittee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented as part of the development planning program to address development and redevelopment projects that may become sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:¶

¶ ~~<#>Provide specific details about how the strategies and/or activities will be implemented (e.g. designate additional BMPs, focus education, increase frequency of verifications and/or inspections, alternative compliance options):¶~~

¶ ~~<#>Each Copermittee must identify areas within its jurisdiction where Priority Development Projects may be allowed or should be encouraged to implement or contribute toward the implementation of alternative compliance retrofitting and/or stream, channel, or habitat rehabilitation projects:¶~~

¶ ~~<#>Each Copermittee should collaborate and cooperate with other Copermittees and/or entities in the Watershed Management Area to identify regional alternative compliance projects that Priority Development Projects may be allowed or should be encouraged to implement or participate in implementing; and¶~~

¶ ~~<#>The strategies and/or activities must be consistent with the requirements of Provisions [E.3.a-c](#) and [E.3.e-f](#) and the strategies identified in the Water Quality Improvement Plan.¶~~

4. Construction Management

Each Copermittee must implement a construction management program in accordance with the strategies identified in the Water Quality Improvement Plan. The requirements of the jurisdictional runoff management programs as outlined below may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality improvement Plan(s).

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a. STRATEGIES TO ADDRESS THE HIGHEST PRIORITY WATER QUALITY CONDITIONS

Comment [K3]: It is recommended that this Provision (4.f) be moved to Provision 4.a

Each Copermittee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented as part of the construction management program to address construction sites that the Copermittee has identified as potential sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:

- (1) Provide specific details about how the strategies and/or activities will be implemented (e.g. designate BMPs, focus education, and/or increase/decrease frequency of inspections for specific types of sites and/or activities); and
- (2) The strategies and/or activities must be consistent with the requirements of Provisions E.4.c-e and the strategies identified in the Water Quality Improvement Plan.

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b. PROJECT APPROVAL PROCESS

Prior to issuance of any local permit(s) that allows the commencement of construction projects that involve ground disturbance or soil disturbing activities that can potentially generate pollutants in storm water runoff, each Copermittee must:

- (1) Require a site-specific pollution control, construction BMP, and/or erosion and sediment control plan, to be submitted by the project applicant to the Copermittee;
- (2) Confirm the pollution control, construction BMP, and/or erosion and sediment control plan, complies with the local grading ordinance, other applicable local ordinances, and the requirements of this Order;
- (3) Confirm the pollution control, construction BMP, and/or erosion and sediment control plan, includes seasonally appropriate and effective BMPs and management measures described in Provision E.4.c, as applicable to the project; and

(4) Verify that the project applicant has obtained coverage under the Construction General Permit.

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c. CONSTRUCTION SITE INVENTORY AND TRACKING

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(1) Each Copermittee must maintain, and update at least quarterly, a watershed-based inventory of all construction projects issued a local permit that allows ground disturbance or soil disturbing activities that can potentially generate pollutants in storm water runoff. The use of an automated database system, such as GIS, is highly recommended. The inventory must include:

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- (a) Relevant contact information for each site (e.g., name, address, phone, and email for the owner and contractor);
- (b) The basic site information including location (address and hydrologic subarea), Waste Discharge Identification (WDID) number (if applicable), size of the site, and approximate area of disturbance;
- (c) Whether or not the site is considered a high threat to water quality, as defined in Provision E.4.b.(2) below;
- (d) The project start and anticipated completion dates;
- (e) Current construction phase;
- (f) The required inspection frequency, as defined in the Copermittee's jurisdictional runoff management program document;
- (g) The date the Copermittee accepted and/or approved the site-specific pollution control, construction BMP, and/or erosion and sediment control plan; and
- (h) Whether or not there are ongoing enforcement actions administered to the site.

(2) Each Copermittee must identify all construction sites within its jurisdiction that represent a high threat to downstream surface water quality. The designation of construction sites as high threat to water quality must consider the following:

- (a) Sites located within a hydrologic subarea where sediment is known or suspected to contribute to the highest priority water quality conditions identified in the Water Quality Improvement Plan;
- (b) Sites located within the same hydrologic subarea and tributary to a water body segment listed as impaired for sediment on the CWA section 303(d) List;

- (c) Sites located within, directly adjacent to, or discharging directly to a receiving water within an ESA; and
- (d) Other sites determined by the Copermittees or the San Diego Water Board as a high threat to water quality.

d. CONSTRUCTION SITE BMP IMPLEMENTATION

Each Copermittee must implement, or require the implementation of effective BMPs to reduce discharges of pollutants in storm water from construction sites to the MEP, and prevent non-storm water discharges from construction sites into the MS4. These BMPs must be site specific, seasonally appropriate, and construction phase appropriate. BMPs must be implemented at each construction site year round. Dry season BMP implementation must plan for and address unseasonal rain events that may occur during the dry season (May 1 through September 30). Copermittees must implement, or require the implementation of, BMPs in the following categories:

- (1) Project Planning;
- (2) Good Site Management “Housekeeping”, including waste management;
- (3) Non-storm Water Management;
- (4) Erosion Control;
- (5) Sediment Control;
- (6) Run-on and Run-off Control; and
- (7) Active/Passive Sediment Treatment Systems, where applicable.

e. CONSTRUCTION SITE INSPECTIONS

Each Copermittee must conduct construction site inspections to require and confirm compliance with its local permits and applicable local ordinances, and the requirements of this Order. Priority for site inspections must consider threat to water quality pursuant to Provision [E.4.b](#) as well as the nature of the construction activity, topography, and the characteristics of soils and receiving water quality.

(1) Inspection Frequency

- (a) Each Copermittee must conduct inspections at all inventoried sites, including high threat to water quality sites, at an appropriate frequency for each phase of construction to ensure the site reduces the discharge of pollutants in storm water from construction sites to the MEP, and prevents non-storm water discharges from entering the MS4.

- (b) Each Copermitee must establish appropriate inspection frequencies for high threat to water quality sites, and all other sites, for each phase of construction. Inspection frequencies appropriate for addressing the highest water quality priorities identified in the Water Quality Improvement Plan, and for complying with the requirements of this Order must be identified in each Copermitee's jurisdictional runoff management program document.
- (c) Based upon inspection findings, each Copermitee must implement all follow-up actions (i.e., re-inspection, enforcement) necessary to require and confirm site compliance with its local permits and applicable local ordinances, and the requirements of this Order.

(2) Inspection Content

Inspections of construction sites by the Copermitee must include, at a minimum:

- (a) Verification of coverage under the Construction General Permit (Notice of Intent (NOI) and/or WDID number) during initial inspections, when applicable;
- (b) Assessment of compliance with its local permits and applicable local ordinances related to pollution prevention, including the implementation and maintenance of applicable BMPs;
- (c) Assessment of BMP adequacy and effectiveness;
- (d) Visual observations of actual non-storm water discharges;
- (e) Visual observations of actual or potential discharge of sediment and/or construction related materials from the site;
- (f) Visual observations of actual or potential illicit connections; and
- (g) If any violations are found and BMP corrections are needed, inspectors must take and document appropriate actions in accordance with the Enforcement Response Plan pursuant to Provision [E.6](#).

(3) Inspection Tracking and Records

Each Copermitee must track all inspections and re-inspections at all inventoried construction sites. The Copermitee must retain all inspection records in an electronic database or tabular format, which must be made available to the San Diego Water Board upon request. Inspection records must include, at a minimum:

- (a) Site name, location (address and hydrologic subarea), and WDID number (if applicable);
- (b) Inspection date;
- (c) Weather condition during inspection;
- (d) Description of problems observed with BMPs and indication of need for BMP addition/repair/replacement and any scheduled re-inspection, and date of re-inspection;
- (e) Descriptions of any other specific inspection comments which must, at a minimum, include rationales for longer compliance time;
- (f) Description of enforcement actions issued in accordance with the Enforcement Response Plan pursuant to Provision E.6; and
- (g) Resolution of problems noted and date problems fixed.

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f. CONSTRUCTION SITE ENFORCEMENT

Each Copermittee must enforce its legal authority established pursuant to Provision E.1 for all its inventoried construction sites, as necessary, to achieve compliance with the requirements of this Order, in accordance with its Enforcement Response Plan pursuant to Provision E.6.

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5. Existing Development Management

Each Copermittee must implement an existing development management program in accordance with the strategies identified in the Water Quality Improvement Plan. The requirements of the jurisdictional runoff management programs as outlined below may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality improvement Plan(s).

¶ Each Copermittee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented as part of the construction management program to address construction sites that the Copermittee has identified as potential sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:¶

a. STRATEGIES TO ADDRESS THE HIGHEST PRIORITY WATER QUALITY CONDITIONS

Each Copermittee must implement the water quality improvement strategies, where necessary, to address areas of existing development within its jurisdiction that are identified as sources of pollutants and/or stressors contributing to the highest priority water quality conditions in the Watershed Management Area. For the existing development management program, the following strategies must be implemented:

¶ <#>Provide specific details about how the strategies and/or activities will be implemented (e.g. designate additional BMPs, focus education, and/or increase/decrease frequency of inspections for specific types of sites and/or activities); and¶

(1) Specific Existing Development Management Program Strategies

¶ <#>The strategies and/or activities must be consistent with the requirements of Provisions E.4.c-e and the strategies identified in the Water Quality Improvement Plan.¶

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Comment [K4]: It is recommended that this Provision (5.e) be moved to Provision 5.a

Each Copermittee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented within its jurisdiction to address areas of existing development that the Copermittee has identified as sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:

- (a) Provide specific details about how the strategies and/or activities will be implemented (e.g. designate BMPs, focus education, and/or increase/decrease frequency of inspections for specific types of facilities, areas and/or activities);
- (b) The facilities and/or areas within the Copermittee's jurisdiction where the strategies and/or activities will be implemented; and
- (c) The strategies and/or activities must be consistent with the requirements of Provisions E.5.b-d and the strategies identified in the Water Quality Improvement Plan.

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a. EXISTING DEVELOPMENT INVENTORY AND TRACKING

Each Copermittee must maintain, and update at least annually, a watershed-based inventory of the existing development within its jurisdiction that may discharge a high priority pollutant load to and from the MS4. The use of an automated database system, such as GIS, is highly recommended. The inventory must, at a minimum, evaluate and include the following if identified as a source of a high priority pollutant;

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- (1) Name, location (hydrological subarea and address, if applicable) of the following types of existing development with its jurisdiction:
 - (a) Commercial facilities or areas;
 - (b) Industrial facilities;
 - (c) Municipal facilities, including:
 - (i) MS4 and related structures,³⁵
 - (ii) Roads, streets, and highways,
 - (iii) Parking facilities,
 - (iv) Municipal airfields,
 - (v) Parks and recreation facilities,

³⁵ The inventory may refer to the MS4 map required to be maintained pursuant to Provision E.2.b.(1).

- (vi) Flood management projects and flood control devices and structures,
 - (vii) Operating or closed municipal landfills,
 - (viii) Publicly owned treatment works (including water and wastewater treatment plants) and sanitary sewer collection systems,
 - (ix) Corporate yards, including maintenance and storage yards for materials, waste, equipment, and vehicles,
 - (x) Hazardous waste collection facilities,
 - (xi) Other treatment, storage or disposal facilities for municipal waste, and
 - (xii) Other municipal facilities that the Copermittee determines may contribute a significant high priority pollutant load to the MS4; and
- (d) Residential areas, which may be designated by one or more of the following:
- (i) Residential management area,
 - (ii) Drainage basin or area,
 - (iii) Land use (e.g., single family, multi-family, rural),
 - (iv) Neighborhood,
 - (v) Common Interest Area,
 - (vi) Home Owner Association,
 - (vii) Mobile home park, and/or
 - (viii) Other designations accepted by the San Diego Water Board Executive Officer.
- (2) A description of the facility or area, including the following information:
- (a) Classification as commercial, industrial, municipal, or residential;
 - (b) Status of facility or area as active or inactive;
 - (c) Identification if a business is a mobile business;
 - (d) SIC Code or NAICS Code, if applicable;
 - (e) Industrial General Permit NOI and/or WDID number, if applicable;
 - (f) Identification if a residential area is or includes a Common Interest Area / Home Owner Association, or mobile home park;

(g) Identification of the high priority pollutants potentially generated by the facility or area;

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(h) Whether the facility or area is adjacent to an ESA;

(i) Whether the facility or area is tributary to and within the same hydrologic subarea as a water body segment listed as impaired on the CWA section 303(d) List and generates pollutants for which the water body segment is impaired; and

(3) An annually updated map showing the location of inventoried existing development, watershed boundaries, and water bodies.

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<#>Whether the facility or area contributes or potentially contributes to the highest priority water quality conditions identified in the Water Quality Improvement Plan.¶

b. EXISTING DEVELOPMENT BMP IMPLEMENTATION AND MAINTENANCE

Each Copermittee must designate a set of BMPs required for all inventoried existing development, including special event venues. The designated BMPs must be specific to the identified high priority facility or area types and high priority pollutant generating activities, as appropriate.

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(1) Commercial, Industrial, and Municipal Facilities and Areas

(a) Pollution Prevention

Each Copermittee must require the use of pollution prevention methods by the commercial, industrial, and municipal facilities and areas in its inventoried existing development.

(b) BMP Implementation

Each Copermittee must implement, or require the implementation of, designated BMPs at commercial facilities and areas, industrial facilities, and municipal facilities in its inventoried existing development.

(c) BMP Operation and Maintenance

(i) Each Copermittee must properly operate and maintain, or require the proper operation and maintenance of designated BMPs at commercial facilities and areas, industrial facilities, and municipal facilities in its inventoried existing development.

(ii) Each Copermittee must implement a schedule of operation and maintenance activities for its MS4 and related structures (including but not limited to catch basins, storm drain inlets, detention basins, etc.), and verify proper operation of all its municipal structural treatment controls designed to reduce pollutants (including floatables) in storm water discharges to or from its MS4s and related

drainage structures. Operation and maintenance activities may include, but is not limited to, the following:

- [a] Inspections of the MS4 and related structures;
- [b] Cleaning of the MS4 and related structures; and
- [c] Proper disposal of materials removed from cleaning of the MS4 and related structures.

- (iii) Each Copermittee must implement a schedule of operation and maintenance for public streets, unpaved roads, paved roads, and paved highways and freeways within its jurisdiction to minimize pollutants that can be discharged in storm water.
- (iv) Each Copermittee must implement controls to prevent infiltration of sewage into the MS4 from leaking sanitary sewers. Copermittees that operate both a municipal sanitary sewer system and a MS4 must implement controls and measures to prevent and eliminate seeping sewage from infiltrating the MS4. Copermittees that do not operate both a municipal sanitary sewer system and a MS4 must coordinate with sewerage agencies to keep themselves informed of relevant and appropriate maintenance activities and sanitary sewage projects in their jurisdiction that may cause or contribute to seepage of sewage into the MS4.

(d) Pesticides, Herbicides, and Fertilizers BMPs

Each Copermittee must implement BMPs, or require the implementation of BMPs, to reduce pollutants in storm water discharges to the MEP and effectively prohibit non-storm water discharges associated with the application, storage, and disposal of pesticides, herbicides and fertilizers from commercial facilities and areas, industrial facilities, and municipal facilities in its inventoried existing development. Such BMPs must include, as appropriate, educational activities, permits, certifications and other measures for applicators and distributors.

(2) Residential Areas

(a) Pollution Prevention

Each Copermittee must promote and encourage the use of pollution prevention methods, where appropriate, by the residential areas in its inventoried existing development.

(b) BMP Implementation

Each Copermittee must promote and encourage the implementation of designated BMPs at residential areas in its inventoried existing development.

(c) BMP Operation and Maintenance

Each Copermittee must properly operate and maintain, or require the proper operation and maintenance of designated BMPs at residential areas in its inventoried existing development.

(d) Pesticides, Herbicides, and Fertilizers BMPs

Each Copermittee must promote and encourage the implementation of BMPs to reduce pollutants in storm water discharges to the MEP and effectively prohibit non-storm water discharges associated with the application, storage, and disposal of pesticides, herbicides and fertilizers from residential areas in its inventoried existing development.

c. EXISTING DEVELOPMENT INSPECTIONS

Each Copermittee must conduct inspections of inventoried existing development to ensure compliance with applicable local ordinances and permits, and the requirements of this Order.

(1) Inspection Frequency

- (a) Each Copermittee must establish appropriate inspection frequencies for inventoried existing development in accordance with the following requirements:
- (i) At a minimum, inventoried existing development must be inspected once every five years utilizing one or more of the following methods:
 - [a] Drive-by inspections by Copermittee municipal and contract staff,
 - [b] Onsite inspections by Copermittee municipal and contract staff, and/or
 - [c] Inspections by volunteer monitoring or patrol programs trained by the Copermittee;
 - (ii) The frequency of inspections must be appropriate to confirm that BMPs are being implemented to reduce the discharge of pollutants in storm water from the MS4 to the MEP and effectively prohibit non-storm water discharges into the MS4;
 - (iii) The frequency of inspections must be based on the potential for a facility or area to discharge non-storm water and pollutants in storm water, and should reflect the priorities set forth in the Water Quality Improvement Plan;
 - (iv) Each Copermittee must annually perform onsite inspections of an equivalent of at least 20 percent of the commercial facilities and areas, industrial facilities, and municipal facilities in its inventoried

existing development;³⁶ and

- (v) Inventoried existing development must be inspected by the Copermittee, as needed, in response to valid public complaints and findings from the Copermittee's municipal and contract staff or volunteer monitoring or patrol program inspections.
- (b) Based upon inspection findings, each Copermittee must implement all follow-up actions (i.e. education and outreach, re-inspection, enforcement) necessary to require and confirm compliance with its applicable local ordinances and permits and the requirements of this Order, in accordance with its Enforcement Response Plan pursuant to Provision [E.6](#).

(2) Inspection Content

- (a) Inspections of existing development by the Copermittee or volunteer monitoring or patrol programs must include, at a minimum:
 - (i) Visual inspections for actual non-storm water discharges;
 - (ii) Visual inspections for actual or potential discharge of pollutants;
 - (iii) Visual inspections for actual or potential illicit connections; and
 - (iv) Verification that the description of the facility or area in the inventory, required pursuant to Provision [E.5.a.\(2\)](#), has not changed.
- (b) Onsite inspections of existing development by the Copermittee must include, at a minimum:
 - (i) Assessment of compliance with its applicable local ordinances and permits related to non-storm water and storm water discharges and runoff;
 - (ii) Assessment of the implementation of the designated BMPs;
 - (iii) Verification of coverage under the Industrial General Permit, when applicable; and
 - (iv) If any problems or violations are found, inspectors must take and document appropriate actions in accordance with the Enforcement Response Plan pursuant to Provision [E.6](#).

³⁶ If any commercial, industrial, or municipal facilities or areas require multiple onsite inspections during any given year, those additional inspection may count toward the total annual inspection requirement. This requirement excludes linear municipal facilities (i.e., MS4, streets, roads and highways).

(3) Inspection Tracking and Records

Each Copermitttee must track all inspections and re-inspections at all inventoried existing development. The Copermitttee must retain all inspection records in an electronic database or tabular format, which must be made available to the San Diego Water Board upon request. Inspection records must include, at a minimum:

- (a) Name and location of facility or area (address and hydrologic subarea) consistent with the inventory name and location, pursuant to Provision E.5.a.(1);
- (b) Inspection and re-inspection date(s);
- (c) Inspection method(s) (i.e. drive-by, onsite);
- (d) Observations and findings from the inspection(s);
- (e) For onsite inspections of existing development by Copermitttee municipal or contract staff, the records must also include, as applicable:
 - (i) Description of any problems or violations found during the inspection(s),
 - (ii) Description of enforcement actions issued in accordance with the Enforcement Response Plan pursuant to Provision E.6, and
 - (iii) The date problems or violations were resolved.

d. **EXISTING DEVELOPMENT ENFORCEMENT**

Each Copermitttee must enforce its legal authority established pursuant to Provision E.1 for all its inventoried existing development, as necessary, to achieve compliance with the requirements of this Order, in accordance with its Enforcement Response Plan pursuant to Provision E.6.

e. **RETROFITTING AREAS OF EXISTING DEVELOPMENT**

(2) Retrofitting Areas of Existing Development

Each Copermitttee must describe in its jurisdictional runoff management program document, a program to retrofit areas of existing development within its jurisdiction to address identified sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area. The program must be implemented as follows:

- (a) Each Copermitttee must identify areas of existing development as candidates for retrofitting, focusing on areas where retrofitting will address

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¶ **<#>Specific Existing Development Management Program Strategies¶**

¶ Each Copermitttee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented within its jurisdiction to address areas of existing development that the Copermitttee has identified as sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:¶

¶ **<#>Provide specific details about how the strategies and/or activities will be implemented (e.g. designate additional BMPs, focus education, and/or increase/decrease frequency of inspections for specific types of facilities, areas and/or activities); ¶**

¶ **<#>The facilities and/or areas within the Copermitttee's jurisdiction where the strategies and/or activities will be implemented; and¶**

¶ **<#>The strategies and/or activities must be consistent with the requirements of Provisions E.5.b-d and the strategies identified in the Water Quality Improvement Plan.¶**

¶

pollutants and/or stressors that contribute to the highest priority water quality conditions identified in the Water Quality Improvement Plan;

- (b) Candidates for retrofitting projects may be utilized to reduce pollutants that may be discharged in storm water from areas of existing development, and/or address storm water runoff flows and durations from areas of existing development that cause or contribute to hydromodification in receiving waters;
- (c) Each Copermittee must develop a strategy to facilitate the implementation of retrofitting projects in areas of existing development identified as candidates;
- (d) Each Copermittee should identify areas of existing development where Priority Development Projects may be allowed or should be encouraged to implement or contribute toward the implementation of alternative compliance retrofitting projects; and
- (e) Where retrofitting projects within specific areas of existing development are determined to be infeasible to address the highest priority water quality conditions in the Water Quality Improvement Plan, the Copermittee should collaborate and cooperate with other Copermittees and/or entities in the Watershed Management Area to identify, develop, and implement regional retrofitting projects (i.e. projects that can receive and/or treat storm water from one or more areas of existing development and will result in a net benefit to water quality and the environment) adjacent to and/or downstream of the areas of existing development.

(3) Stream, Channel and/or Habitat Rehabilitation in Areas of Existing Development

Each Copermittee must describe in its jurisdictional runoff management program document, a program to rehabilitate streams, channels, and/or habitats in areas of existing development within its jurisdiction or just downstream of its jurisdiction to address the highest priority water quality conditions in the Watershed Management Area. The program must be implemented as follows:

- (a) Candidates for stream, channel, and/or habitat rehabilitation projects may be utilized to address storm water runoff flows and durations from areas of existing development that cause or contribute to hydromodification in receiving waters, rehabilitate channelized or hydromodified streams, restore wetland and riparian habitat, restore watershed functions, and/or protect beneficial uses of receiving waters;
- (b) Each Copermittee must develop a strategy to facilitate the implementation of stream, channel, and/or habitat rehabilitation projects in areas of

Deleted: <#>Each Copermittee must identify streams, channels, and/or habitats in areas of existing development as candidates for rehabilitation, focusing on areas where stream, channel, and/or habitat rehabilitation projects will address the highest priority water quality conditions identified in the Water Quality Improvement Plan;¶

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existing development identified as candidates;

(c) Each Copermittee should identify areas of existing development where Priority Development Projects may be allowed or should be encouraged to implement or contribute toward the implementation of alternative compliance stream, channel, and/or habitat rehabilitation projects; and

(d) Where stream, channel, and/or habitat rehabilitation projects within specific areas of existing development are determined to be infeasible to address the highest priority water quality conditions in the Water Quality Improvement Plan, the Copermittee should collaborate and cooperate with other Copermittees and/or entities in the Watershed Management Area to identify, develop, and implement regional stream, channel, and/or habitat rehabilitation projects (i.e. projects that can receive storm water from one or more areas of existing development and will result in a net benefit to water quality and the environment).

6. Enforcement Response Plans

Each Copermittee must develop and implement an Enforcement Response Plan as part of its jurisdictional runoff management program document. The Enforcement Response Plan must describe the applicable approaches and options to enforce its legal authority established pursuant to Provision E.1, as necessary, to achieve compliance with the requirements of this Order. [Copermittees may continue to utilize and implement established, equivalent guidelines and procedures for enforcement.](#) The Enforcement Response Plan must include the following:

a. ENFORCEMENT RESPONSE PLAN COMPONENTS

The Enforcement Response Plan must include [and/or address](#) the following individual components:

- (1) Illicit Discharge Detection and Elimination Enforcement Component;
- (2) Development Planning Enforcement Component;
- (3) Construction Management Enforcement Component; and
- (4) Existing Development Enforcement Component.

b. ENFORCEMENT RESPONSE APPROACHES AND OPTIONS

Each component of the Enforcement Response Plan must describe the enforcement response approaches that the Copermittee will implement to compel compliance with its statutes, ordinances, permits, contracts, orders, or similar means, and the requirements of this Order. The description must include the protocols for implementing progressively stricter enforcement responses. The

enforcement response approaches must include appropriate sanctions to compel compliance, including, at a minimum, the following tools or their equivalent:

- (1) Verbal and written notices of violation;
- (2) Cleanup requirements;
- (3) Fines;
- (4) Bonding requirements;
- (5) Administrative and criminal penalties;
- (6) Liens;
- (7) Stop work orders; and
- (8) Permit and occupancy denials.

c. CORRECTION OF VIOLATIONS

- (1) Violations must be corrected in a timely manner with the goal of correcting the violations within 30 calendar days after the violations are discovered, or prior to the next predicted rain event, whichever is sooner.
- (2) If more than 30 calendar days are required to achieve compliance, then a rationale must be recorded in the applicable electronic database or tabular system used to track violations.

d. PROGRESSIVE ENFORCEMENT

- (1) The Enforcement Response Plan must include a definition of “progressive enforcement”. Progressive enforcement must include a series of enforcement actions that match the severity of the violations and include distinct, progressive steps. Progressive enforcement may be defined differently for development planning, construction sites, commercial facilities or areas, industrial facilities, municipal facilities, and/or residential areas.
- (2) Where the Copermittee determines progressive enforcement is not required, a rationale must be recorded in the applicable electronic database or tabular system used to track violations.
- (3) Progressive enforcement actions must continue to increase in severity, as necessary, to compel compliance as soon as possible.

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e. REPORTING OF NON-COMPLIANT SITES

- (1) Each Copermittee must notify the San Diego Water Board in writing within 2 working days of issuing escalated enforcement (as defined in the Copermittee's Enforcement Response Plan) to a construction site that poses a significant threat to water quality as a result of violations or other non-compliance with its permits and applicable local ordinances, and the requirements of this Order. Written notification may be provided electronically by email.
- (2) Each Copermittee must notify the San Diego Water Board of non-filers under the Industrial General Permit and Construction General Permit by email to Nonfilers_R9@waterboards.ca.gov.

7. Public Education and Participation

Each Copermittee must implement, individually or with other Copermittees, a public education and participation program in accordance with the strategies identified in the Water Quality Improvement Plan to promote and encourage the development of programs, management practices, and behaviors that reduce the discharge of pollutants in storm water to the MEP, prevent controllable non-storm water discharges from entering the MS4, and protect water quality standards in receiving waters. The requirements of the jurisdictional runoff management programs as outlined below may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality improvement Plan(s).

a. STRATEGIES TO ADDRESS THE HIGHEST PRIORITY WATER QUALITY CONDITIONS

Comment [K5]: It is recommended that this Provision (7.c) be moved to Provision 7.a

Each Copermittee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented within its jurisdiction, as applicable, to educate the public and encourage public participation to address potential sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:

- (1) The target audiences and/or areas within the Copermittee's jurisdiction where the strategies and/or activities will be implemented;
- (2) Provide specific details about how the strategies and/or activities will be implemented (e.g. educational topics, materials and/or activities, public outreach and participation programs and/or opportunities);
- (3) Each Copermittee should collaborate and cooperate with other Copermittees and/or entities in the Watershed Management Area to identify and implement regional public education and participation activities, programs and opportunities;

PROVISION E: JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS
E.6. Enforcement Response Plans
E.7. Public Education and Participation

- (4) Each Copermittee must incorporate a mechanism for evaluating and assessing educational and other public outreach activities, as needed, to identify progress and incorporate modifications necessary to increase the effectiveness of the public education and participation program.

B. PUBLIC EDUCATION

The public education program component implemented within the Copermittee's jurisdiction may include the following:

- (1) Educational activities, public information activities, and other appropriate outreach activities intended to reduce pollutants associated with the highest priority water quality conditions identified in the Water Quality Improvement Plan;
- (2) Educational activities, public information activities, and other appropriate outreach activities to facilitate the proper management and disposal of used oil and toxic materials; and
- (3) Appropriate education and training measures for specific target audiences, such as construction site operators, residents, underserved target audiences and school-aged children, as determined and prioritized by the Copermittee(s) by jurisdiction and/or watershed, based on high risk behaviors and pollutants of concern.

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C. PUBLIC PARTICIPATION

The public participation program component implemented within the Copermittee's jurisdiction must include, at a minimum, the following:

- (1) A process for members of the public to participate in updating the highest priority water quality conditions, numeric goals, and water quality improvement strategies in the Water Quality Improvement Plan.
- (2) Opportunities for members of the public to participate in providing the Copermittee recommendations for improving the effectiveness of the water quality improvement strategies implemented within its jurisdiction.
- (3) Opportunities for members of the public to participate in programs and/or activities that can result in the prevention or elimination of non-storm water discharges to the MS4, reduction of pollutants in storm water discharges from the MS4, and/or protection of the quality of receiving waters.

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<#>STRATEGIES TO ADDRESS THE HIGHEST PRIORITY WATER QUALITY CONDITIONS¶

¶

Each Copermittee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented within its jurisdiction, as applicable, to educate the public and encourage public participation to address potential sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:¶

¶

<#>The target audiences and/or areas within the Copermittee's jurisdiction where the strategies and/or activities will be implemented; ¶

¶

<#>Provide specific details about how the strategies and/or activities will be implemented (e.g. educational topics, materials and/or activities, public outreach and participation programs and/or opportunities);¶

¶

<#>Each Copermittee should collaborate and cooperate with other Copermittees and/or entities in the Watershed Management Area to identify and implement regional public education and participation activities, programs and opportunities;¶

¶

<#>Each Copermittee must incorporate a mechanism for evaluating and assessing educational and other public outreach activities, as needed, to identify progress and incorporate modifications necessary to increase the effectiveness of the public education and participation program.¶

8. Fiscal Analysis

- a. Each Copermittee must secure the resources necessary to meet all the

requirements of this Order.

- b.** Each Copermittee must conduct an annual fiscal analysis of its jurisdictional runoff management program in its entirety. The fiscal analysis must include the following:
 - (1) Identification of the various categories of expenditures necessary to implement the requirements of this Order, including a description of the specific capital, operation and maintenance, and other expenditure items to be accounted for in each category of expenditures;
 - (2) The staff resources needed and allocated to meet the requirements of this Order, including any development, implementation, and enforcement activities required;
 - (3) The estimated expenditures for Provisions [E.8.b.\(1\)](#) and [E.8.b.\(2\)](#) for the current fiscal year; and
 - (4) The source(s) of funds that are proposed to meet the necessary expenditures described in Provisions [E.8.b.\(1\)](#) and [E.8.b.\(2\)](#), including legal restrictions on the use of such funds, for the current fiscal year and next fiscal year.
- c.** Each Copermittee must submit a summary of the annual fiscal analysis with each Annual Report required pursuant to Provision [F.3.b](#).
- d.** Each Copermittee must provide the documentation used to develop the summary of the annual fiscal analysis upon request by the San Diego Water Board.

F. REPORTING

The purpose of this provision is to determine and document compliance with the requirements set forth in this Order. The goal of reporting is to communicate to the San Diego Water Board and the people of the State of California the implementation status of each jurisdictional runoff management program and compliance with the requirements of this Order. This goal is to be accomplished through the submittal of specific deliverables to the San Diego Water Board by the Copermittees.

1. Water Quality Improvement Plans

The Copermittees for each Watershed Management Area must develop and submit the Water Quality Improvement Plan in accordance with the following requirements:

a. WATER QUALITY IMPROVEMENT PLAN DEVELOPMENT

Each Water Quality Improvement Plan must be developed in accordance with the following process:

(1) Priority Water Quality Conditions and Numeric Goals

- (a) The Copermittees must implement a public participation process to solicit data and information to be utilized in the development and identification of the priority water quality conditions for the Watershed Management Area.
- (b) The Copermittees are encouraged to involve the public and key stakeholders as early and often as possible during the development of the priority water quality conditions and numeric goals to be included in the Water Quality Improvement Plan.
- (c) Within 6 months after the commencement of coverage under this Order, the Copermittees must develop and submit the Water Quality Improvement Plan requirements of Provision B.2 to the San Diego Water Board. The San Diego Water Board will issue a public notice and solicit public comments on the Water Quality Improvement Plan for a minimum of 30 days.
- (d) Within 30 days of receiving the public comments, the Copermittees must revise the priority water quality conditions and numeric goals based on comments received and/or recommendations or direction from the San Diego Water Board Executive Officer.

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(2) Water Quality Improvement Strategies and Schedules

- (a) The Copermittees are encouraged to involve the public and key stakeholders as early and often as possible during the development of the water quality improvement strategies and schedules to be included in the Water Quality Improvement Plan.

(b) Within 3 months after the development of the priority water quality conditions and numeric goals, the Copermittees must develop and submit the Water Quality Improvement Plan requirements of Provision B.3 to the San Diego Water Board. The San Diego Water Board will issue a public notice and solicit public comments on the Water Quality Improvement Plan for a minimum of 30 days.

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(c) Within 30 days of receiving the public comments, the Copermittees must revise the water quality improvement strategies and schedules based on comments received and/or recommendations or direction from the San Diego Water Board Executive Officer.

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b. WATER QUALITY IMPROVEMENT PLAN SUBMITTAL

(1) Within 18 months after the commencement of coverage under this Order, the Copermittees for each Watershed Management Area must submit a complete Water Quality Improvement Plan in accordance with the requirements of Provision B to the San Diego Water Board. The San Diego Water Board will issue a public notice and solicit public comments on the Water Quality Improvement Plan for a minimum of 30 days.

(2) Based on the comments received, the San Diego Water Board will determine whether to hold a public hearing or to limit public input to submittal of written comments. If no hearing is held the San Diego Water Board will notify the Copermittees within 6 months that the Water Quality Improvement Plan has been accepted as complete following its review and determination that the Water Quality Improvement Plan meets the requirements of this Order.

(3) Within 60 days of receiving comments, the Copermittees must revise the Water Quality Improvement Plan based on comments received and/or recommendations or direction from the San Diego Water Board Executive Officer.

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(4) The Water Quality Improvement Plan must be made available on the Regional Clearinghouse required pursuant to Provision F.4 within 30 days of the finalization of the Water Quality Improvement Plan and acceptance by the San Diego Water Board.

2. Updates

a. JURISDICTIONAL RUNOFF MANAGEMENT PROGRAM DOCUMENT UPDATES

Each Copermittee must update its jurisdictional runoff management program document in accordance with the following requirements:

- (1) Each Copermittee is encouraged to involve the public and key stakeholders as early and often as possible to solicit recommendations for updates to its jurisdictional runoff management program document.
- (2) Each Copermittee must update its jurisdictional runoff management program document to incorporate the requirements of Provision E no later than 6 months after the completion of the corresponding Water Quality Improvement Plan and acceptance of the Water Quality Improvement Plan by the San Diego Water Board.
- (3) Each Copermittee must submit updates to its jurisdictional runoff management program, with a rationale for the modifications, either in the Annual Report required pursuant to Provision F.3.b, and/or as part of the Report of Waste Discharge required pursuant to Provision F.5.b. The requested updates are considered accepted by the San Diego Water Board if no response is provided to the Copermittee after 3 months of submitting the request.
- (4) The Copermittee must revise the modifications as directed by the San Diego Water Board Executive Officer.
- (5) Updated jurisdictional runoff management program documents must be made available on the Regional Clearinghouse required pursuant to Provision F.4 within 30 days of completing the updates ~~submitting the Annual Report.~~

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D. BMP DESIGN MANUAL UPDATES

Each Copermittee must update its BMP Design Manual in accordance with the following requirements:

- (1) Each Copermittee must update its BMP Design Manual to incorporate the requirements of Provisions E.3.a-d no later than 18 months after the commencement of coverage under this Order.
- (2) Subsequent updates must be consistent with the requirements of Provisions E.3.a-d and must be submitted as part of the Annual Reports required pursuant to Provision F.3.b, and/or as part of the Report of Waste Discharge required pursuant to Provision F.5.b. The requested updates are considered accepted by the San Diego Water Board if no response is provided to the Copermittee after 3 months of submitting the request.
- (3) Updated BMP Design Manuals must be made available on the Regional Clearinghouse required pursuant to Provision F.4 within 30 days of completing the updates.

E. WATER QUALITY IMPROVEMENT PLAN UPDATES

The Water Quality Improvement Plans must be updated in accordance with the following process:

- (1) The Copermittees must implement a public participation process to solicit data and information to be utilized in updating the Water Quality Improvement Plan.
- (2) The Copermittees are encouraged to involve the public and key stakeholders as early and often as possible during the updates to the Water Quality Improvement Plan.
- (3) The Copermittees for each Watershed Management Area must submit requested updates to the Water Quality Improvement Plan, with the public input received and the rationale for the requested updates, either in the Annual Reports required pursuant to Provision [F.3.b](#), [and/or](#) as part of the Report of Waste Discharge required pursuant to Provision [F.5.b](#). The requested updates are considered accepted by the San Diego Water Board if no response is provided to the Copermittee after 3 months of submitting the request.
- (4) The Copermittees must revise the requested updates as directed by the San Diego Water Board Executive Officer.
- (5) Updated Water Quality Improvement Plans must be made available on the Regional Clearinghouse required pursuant to Provision [F.4](#) within 30 days of acceptance of the requested updates by the San Diego Water Board.

3. Progress Reporting

a. PROGRESS REPORT PRESENTATIONS

The Copermittees for each Watershed Management Area must appear before the San Diego Water Board, as requested by the San Diego Water Board, to provide progress reports on the implementation of the Water Quality Improvement Plan and jurisdictional runoff management programs.

B. ANNUAL REPORTS

- (1) Transitional Period JRMP Reports: Each Copermittee must complete and submit a Jurisdictional Runoff Management Program Annual Report no later than October 31 of each year prior to the implementation of updated JRMP programs pursuant to F.2.a. Each Copermittee must submit the information on the Jurisdictional Runoff Management Program specific to the area within its jurisdiction in each Watershed Management Area.

(2) Transitional Period Monitoring Report: The transitional period monitoring conducted pursuant to D.1.a and D.2.a. shall be reported in a single report that covers the entire reporting period from the initiation of the transitional period monitoring (as described in D.1.a and D.2.a.), through September 30th following approval of the Water Quality Improvement Plan. The Transitional Period Monitoring Report shall include the assessments required per D.4.a.(1)(a), D.4.b.(1)(a) and D.4.b.(2)(a); and be submitted by January 31st following completion of the above mentioned transitional period.

(3) Post-Transitional Annual Reports – Following the initial transitional period after enrollment into this Order, the Copermittees for each Watershed Management Area must submit a combined Annual Report for each reporting period no later than January 31 of the following year. The annual reporting period consists of two periods: 1) July 1 to June 30 of the following year for the jurisdictional runoff management programs, 2) October 1 to September 30 of the following year for the monitoring and assessment programs. Annual Reports must be made available on the Regional Clearinghouse required pursuant to Provision F.4. Each Annual Report must include the following:

- (a) The receiving water and MS4 outfall discharge monitoring data collected pursuant to Provisions D.1 and D.2, summarized and presented in tabular and graphical form;
- (b) Progress of the special studies required pursuant to Provision D.3, and the results or findings when a special study, or each phase of a special study, is completed;
- (c) The findings from the assessments required pursuant to Provision D.4;
- (d) The progress of implementing the Water Quality Improvement Plan, including, but not limited to, the following:
 - (i) The progress toward achieving the interim and final numeric goals for the highest water quality priorities for the Watershed Management Area,
 - (ii) The water quality improvement strategies that were implemented and/or no longer implemented by each of the Copermittees during the reporting period and previous reporting periods, and are planned to be implemented during the next reporting period,
 - (iii) Proposed modifications to the water quality improvement strategies, with public input received and rationale for the proposed modifications,
 - (iv) Previously proposed modifications or updates incorporated into the Water Quality Improvement Plan and/or each Copermittee's

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Deleted: The first Annual Report must be prepared for the reporting period beginning July 1 after commencement of coverage under this Order, and upon San Diego Water Board determination that the Water Quality Improvement Plan meets the requirements of this Order to June 30 in the following year for the jurisdictional runoff management programs, and September 30 in the following year for the monitoring and assessment programs.

jurisdictional runoff management program document and implemented by the Copermittees in the Watershed Management Area, and

- (v) Proposed modifications or updates to the Water Quality Improvement Plan and/or each Copermittee's jurisdictional runoff management program document;

(e) For each Water Quality Improvement Plan, the progress of implementing the corresponding Jurisdictional Urban Runoff Management Programs. Each Copermittee should report on the items listed below. The individual JRMP annual reports may be included as attachments to the corresponding WQIP annual report. The JRMP annual report should include, but not be limited to, the following:

- (i) The water quality improvement strategies that were implemented and/or no longer implemented by each of the Copermittees during the reporting period and previous reporting periods, and are planned to be implemented during the next reporting period.
- (ii) Proposed modifications to the water quality improvement strategies, with public input received and rationale for the proposed modifications.
- (iii) Previously proposed modifications or updates incorporated into each Copermittee's jurisdictional runoff management program document and implemented by the Copermittees in the Watershed Management Area, and
- (iv) Proposed modifications or updates to each Copermittee's jurisdictional runoff management program document;

- (4) Until the Copermittees have updated their jurisdictional runoff management programs consistent with Provision F.2.a, the Copermittees must continue to utilize the current jurisdictional runoff management program annual reporting format. Each Copermittee must submit the information on the Jurisdictional Runoff Management Program Annual Report Form specific to the area within its jurisdiction in each Watershed Management Area.

- (5) Each Copermittee must provide any data or documentation utilized in developing the Annual Report upon request by the San Diego Water Board. Any monitoring data utilized in developing the Annual Report must be uploaded to the California Environmental Data Exchange Network (CEDEN).³⁷ Any monitoring and assessment data utilized in developing the Annual Report must be provided on the Regional Clearinghouse required

Deleted: <#>A completed Jurisdictional Runoff Management Program Annual Report Form (**Attachment D** or accepted revision) for each Copermittee in the Watershed Management Area, certified by a Principal Executive Officer, Ranking Elected Official, or Duly Authorized Representative. ¶

¶ Each Copermittee must complete and submit a Jurisdictional Runoff Management Program Annual Report Form (**Attachment D** or accepted revision) no later than October 31 of each year

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³⁷ Data must be uploaded to CEDEN Southern California Regional Data Center (<http://www.sccwrp.org/Data/DataSubmission/SouthernCaliforniaRegionalDataCenter.aspx>) using the templates provided on the CEDEN website.

pursuant to Provision F.4.

F. REGIONAL MONITORING AND ASSESSMENT REPORT

Comment [K6]: This was moved from F.5.c since it is a part of the ROWD.

4. Regional Clearinghouse

The Copermittees must develop, update, and maintain an internet-based Regional Clearinghouse that is made available to the public no later than 18 months after the effective date of this Order. The Copermittees may elect to develop and maintain the clearinghouse(s) provided by other Copermittees or agencies.

- a. The Copermittees, through the Regional Clearinghouse, must make the following documents and data available, organized by Watershed Management Area, which may be linked to other internet-based data portals and databases where the original documents are stored:
- (1) Water Quality Improvement Plan for the Watershed Management Area, and all updated versions with date of update;
 - (2) Annual Reports for the Watershed Management Area;
 - (3) Jurisdictional Runoff Management Program document for each Copermittee within the Watershed Management Area, and all updated versions with date of update;
 - (4) BMP Design Manual for each Copermittee within the Watershed Management Area, and all updated versions with date of update;
 - (5) Reports from special studies (e.g. source identification, BMP effectiveness assessment) conducted in the Watershed Management Area;
 - (6) Monitoring data collected pursuant to Provision D for each Watershed Management Area must be uploaded to CEDEN,³⁸ with links to the uploaded data; and
 - (7) Available GIS data, layers, and/or shapefiles used to develop the maps generated and maintained by the Copermittees for the Water Quality Improvement Plans, Annual Reports, and jurisdictional runoff management program documents.
- b. The Copermittees, through the Regional Clearinghouse, must make the following information and documents available:

Deleted: <#>The Copermittees must submit a Regional Monitoring and Assessment Report no later than 180 days in advance of the expiration date of this Order. The Regional Monitoring and Assessment Report may be submitted as part of the Report of Waste Discharge required pursuant to Provision F.5.b. The Copermittees must review the receiving water and MS4 outfall discharge monitoring data collected pursuant to Provisions D.1 and D.2, and findings from the assessments required pursuant to Provision D.4, to assess the following:¶
¶
<#>The beneficial uses of the receiving waters within the San Diego Region that are protected or must be restored;¶
¶
<#>The progress toward restoring impacted beneficial uses in the receiving waters within the San Diego Region; and¶
¶
<#>Pollutants or conditions of emerging concern that may impact beneficial uses in the receiving waters within the San Diego Region.¶
¶
<#>The Regional Monitoring and Assessment Report must include recommendations for improving the implementation and assessment of the Water Quality Improvement Plans and jurisdictional runoff management programs. ¶
¶
<#>Each Copermittee must provide any data or documentation utilized in developing the Regional Monitoring and Assessment Report upon request by the San Diego Water Board. Any monitoring and assessment data utilized in developing the Regional Monitoring and Assessment Report must be provided on the Regional Clearinghouse required pursuant to Provision F.4.¶
¶

³⁸ Data must be uploaded to CEDEN Southern California Regional Data Center (<http://www.sccwrp.org/Data/DataSubmission/SouthernCaliforniaRegionalDataCenter.aspx>) using the templates provided on the CEDEN website.

- (1) Contact information (point of contact, phone number, email address, and mailing address) for each Copermittee;
- (2) Public hotline number for reporting non-storm water and illicit discharges for each Copermittee;
- (3) Email address for reporting non-storm water and illicit discharges for each Copermittee;
- (4) Link to each Copermittee's website, if available, where the public may find additional information about the Copermittee's storm water management program and for requesting records for the implementation of its program;
- (5) Information about opportunities for the public to participate in programs and/or activities that can result in the prevention or elimination of non-storm water discharges to the MS4, reduction of pollutants in storm water discharges from the MS4, and the protection of the quality of receiving waters; and
- (6) Reports from regional monitoring programs in which the Copermittees participate (e.g. Southern California Monitoring Coalition, Southern California Coastal Water Research Project Bight Monitoring);
- (7) Regional Monitoring and Assessment Reports; and
- (8) Any other information, data, and documents the Copermittees determine as appropriate for making available to the public.

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5. Report of Waste Discharge

- a. The Orange County Copermittees and the Riverside County Copermittees are required to submit a complete Report of Waste Discharge pursuant to the requirements of their current Orders. The San Diego Water Board will review and consider the Reports of Waste Discharge to determine whether modification to this Order, pursuant to the requirements of Provision H, will be required prior the Orange County Copermittees and/or Riverside County Copermittees becoming covered under this Order. The current Orders for the Orange County Copermittees and Riverside County Copermittees are rescinded upon notification of coverage under this Order except for enforcement purposes.
- b. The Copermittees subject to the requirements of this Order must submit to the San Diego Water Board a complete Report of Waste Discharge as an application for the re-issuance of this Order and NPDES permit. The Report of Waste Discharge must be submitted no later than 180 days in advance of the expiration date of this Order. The Report of Waste Discharge must contain the following minimum information:

PROVISION F: REPORTING
F.4. Regional Clearinghouse
F.5. Report of Waste Discharge

- (1) Names and addresses of the Copermittees;
- (2) Names and titles of the primary contacts of the Copermittees;
- (3) Proposed changes to the Copermittees' Water Quality Improvement Plans and the supporting justification;
- (4) Proposed changes to the Copermittees' jurisdictional runoff management programs and the supporting justification;
- (5) Any other information necessary for the re-issuance of this Order;
- (6) Any information to be included as part of the Report of Waste Discharge pursuant to the requirements of this Order; and
- (7) Any other information required by federal regulations for NPDES permit reissuance.

c. The Copermittees must submit a Regional Monitoring and Assessment Report no later than 180 days in advance of the expiration date of this Order. The Copermittees must review the receiving water and MS4 outfall discharge monitoring data collected pursuant to Provisions [D.1](#) and [D.2](#), and findings from the assessments required pursuant to Provision [D.4](#), to assess the following:

Comment [K7]: This was moved from F.3.c to this section since it is a part of the ROWD.

Deleted: The Regional Monitoring and Assessment Report may be submitted as part of the Report of Waste Discharge required pursuant to Provision [F.5.b](#).

(a) The beneficial uses of the receiving waters within the San Diego Region that are protected;

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(b) The progress toward protecting the impacted beneficial uses in the receiving waters within the San Diego Region; and

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(c) Pollutants or conditions of concern that may impact beneficial uses in the receiving waters within the San Diego Region.

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- (1) The Regional Monitoring and Assessment Report must include recommendations for improving the implementation and assessment of the Water Quality Improvement Plans and jurisdictional runoff management programs.
- (2) Each Copermittee must provide any data or documentation utilized in developing the Regional Monitoring and Assessment Report upon request by the San Diego Water Board. Any monitoring and assessment data utilized in developing the Regional Monitoring and Assessment Report must be provided on the Regional Clearinghouse required pursuant to Provision [F.4](#).

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PROVISION F: REPORTING
F.6. Application for Early Coverage
F.7. Reporting Provisions

6. Application for Early Coverage

- a. The Orange County Copermittees, collectively, or Riverside County Copermittees, collectively, may apply for early coverage under this Order by submitting a Report of Waste Discharge [Form 200](#), with a written request for early coverage under this Order and identification of the necessary changes to this Order, if any, that the Copermittees are recommending based on the ROWD submittal.
- b. The San Diego Water Board will review the application for early coverage and will make any necessary changes to this Order. A notification of coverage under this Order will be issued to the Copermittees in the respective county by the San Diego Water Board upon completion of the early coverage application requirements and consideration of any necessary changes to this Order. The effective coverage date will be specified in the notification of coverage. The Copermittees in the respective county are authorized to have MS4 discharges pursuant to the requirements of this Order starting on the effective coverage date specified in the notification of coverage. The existing Order for the respective county is rescinded upon the effective coverage date specified in the notification of coverage except for enforcement purposes.
- c. The timelines specified within this Order will be initiated based on the effective coverage date (as specified within the notification of coverage).

7. Reporting Provisions

Each Copermittee must comply with all the reporting and recordkeeping provisions of the Standard Permit Provisions and General Provisions contained in [Attachment B](#) to this Order.

G. PRINCIPAL WATERSHED COPERMITTEE RESPONSIBILITIES

1. The Copermittees within each Watershed Management Area must designate a Principal Watershed Copermittee and notify the San Diego Water Board of the name of the Principal Watershed Copermittee. An individual Copermittee should not be designated a Principal Watershed Copermittee for more than two Watershed Management Areas. The notification may be submitted with the Water Quality Improvement Plan required pursuant to Provision [F.1](#) of this Order.
2. The Principal Watershed Copermittee is responsible for, at a minimum, the following:
 - a. Serving as liaison between the Copermittees in the Watershed Management Area and the San Diego Water Board on general permit issues, and when necessary and appropriate, representing the Copermittees in the Watershed Management Area before the San Diego Water Board.
 - b. Facilitating the development of the Water Quality Improvement Plan in accordance with the requirements of Provision [B](#) of this Order
 - c. Coordinating the submittal of the deliverables required by Provisions [F.1](#), [F.2](#), [F.3.a](#), and [F.3.b](#) of this Order.
 - d. Coordinating and developing, with the other Principal Watershed Copermittees, the requirements of Provisions [F.3.c](#), [F.4](#), and [F.5.b](#) of this Order.

H. MODIFICATION OF PROGRAMS

1. Modifications of the Order may be initiated by the San Diego Water Board or by the Copermittees. Requests by Copermittees must be made to the San Diego Water Board.
2. Minor modifications to the Order may be made by the San Diego Water Board where the proposed modification complies with all the prohibitions and limitations, and other requirements of this Order.
3. Proposed modifications to the Order that are not minor require amendment of this Order in accordance with this Order's rules, policies, and procedures.
4. The San Diego Water Board may re-open and modify this Order at any time prior to its expiration, after opportunity for public comment and a public hearing, if the State Water Board determines that revisions are warranted to those provisions of the Order addressing compliance with water quality standards in the receiving water and/or those provisions of the Order establishing an iterative process for implementation of management practices to assure compliance with water quality standards in the receiving water.
5. The San Diego Water Board will review any applications received for early coverage under this Order (Provision F.6) as well as any general applications received for coverage under this Order and will consider any necessary changes to this Order based on the newly-obtained information and/or reports received as a part of the application process. Within the applications for coverage under this Order, the Copermittees shall identify the changes that are proposed to this Order.
6. Modifications of the Order shall be initiated to incorporate provisions as a result of future amendments to the Basin Plan, such as a new or revised water quality objectives or the adoption or reconsideration of a TMDL, including the program of implementation. As soon as practicable, but no later than 6 months of the effective date of a revised TMDL where the revisions warrant a change to the provisions of this Order, the Regional Water Board shall modify this Order consistent with the assumptions and requirements of the revised WLA(s), including the program of implementation.
7. Modification to the Order shall be considered 18 months prior to the compliance date for WQBELs where the compliance mechanism is based upon numeric effluent limitations. The intent of the reconsideration is to evaluate the inclusion of provisions or modifications to WQBELs in Attachment E of this Order prior to the final compliance deadlines that would allow an action-based, BMP compliance demonstration approach with regard to final WQBELs.

I. STANDARD PERMIT PROVISIONS AND GENERAL PROVISIONS

Each Copermittee must comply with all the Standard Permit Provisions and General Provisions contained in [Attachment B](#) to this Order.

ATTACHMENT A**DISCHARGE PROHIBITIONS AND SPECIAL PROTECTIONS****1. Basin Plan Waste Discharge Prohibitions**

California Water Code Section 13243 provides that a Regional Water Board, in a water quality control plan, may specify certain conditions or areas where the discharge of waste or certain types of waste is not permitted. The following waste discharge prohibitions in the Water Quality Control Plan for the San Diego Basin (Basin Plan) are applicable to any person, as defined by Section 13050(c) of the California Water Code, who is a citizen, domiciliary, or political agency or entity of California whose activities in California could affect the quality of waters of the state within the boundaries of the San Diego Region.

1. The discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in California Water Code Section 13050, is prohibited.
2. The discharge of waste to land, except as authorized by waste discharge requirements or the terms described in California Water Code Section 13264 is prohibited.
3. The discharge of pollutants or dredged or fill material to waters of the United States except as authorized by a National Pollutant Discharge Elimination System (NPDES) permit or a dredged or fill material permit (subject to the exemption described in California Water Code Section 13376) is prohibited.
4. Discharges of recycled water to lakes or reservoirs used for municipal water supply or to inland surface water tributaries thereto are prohibited, unless this San Diego Water Board issues a NPDES permit authorizing such a discharge; the proposed discharge has been approved by the State Department of Health Services (DHS) and the operating agency of the impacted reservoir; and the discharger has an approved fail-safe long-term disposal alternative.
5. The discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives, is prohibited. Allowances for dilution may be made at the discretion of the San Diego Water Board. Consideration would include streamflow data, the degree of treatment provided and safety measures to ensure reliability of facility performance. As an example, discharge of secondary effluent would probably be permitted if streamflow provided 100:1 dilution capability.
6. The discharge of waste in a manner causing flow, ponding, or surfacing on lands not owned or under the control of the discharger is prohibited, unless the discharge is authorized by the San Diego Water Board.

7. The dumping, deposition, or discharge of waste directly into waters of the state, or adjacent to such waters in any manner which may permit its being transported into the waters, is prohibited unless authorized by the San Diego Water Board.
8. Any discharge to a storm water conveyance system that is not composed entirely of "*storm water*" is prohibited unless authorized by the San Diego Water Board. [The federal regulations, 40 CFR 122.26(b)(13), define storm water as storm water runoff, snow melt runoff, and surface runoff and drainage. 40 CFR 122.26(b)(2) defines an illicit discharge as any discharge to a storm water conveyance system that is not composed entirely of storm water except discharges pursuant to a NPDES permit and discharges resulting from fire fighting activities.] [§122.26 amended at 56 FR 56553, November 5, 1991; 57 FR 11412, April 2, 1992].
9. The unauthorized discharge of treated or untreated sewage to waters of the state or to a storm water conveyance system is prohibited.
10. The discharge of industrial wastes to conventional septic tank/subsurface disposal systems, except as authorized by the terms described in California Water Code Section 13264, is prohibited.
11. The discharge of radioactive wastes amenable to alternative methods of disposal into the waters of the state is prohibited.
12. The discharge of any radiological, chemical, or biological warfare agent into waters of the state is prohibited.
13. The discharge of waste into a natural or excavated site below historic water levels is prohibited unless the discharge is authorized by the San Diego Water Board.
14. The discharge of sand, silt, clay, or other earthen materials from any activity, including land grading and construction, in quantities which cause deleterious bottom deposits, turbidity or discoloration in waters of the state or which unreasonably affect, or threaten to affect, beneficial uses of such waters is prohibited.
15. The discharge of treated or untreated sewage from vessels to Mission Bay, Oceanside Harbor, Dana Point Harbor, or other small boat harbors is prohibited.
16. The discharge of untreated sewage from vessels to San Diego Bay is prohibited.
17. The discharge of treated sewage from vessels to portions of San Diego Bay that are less than 30 feet deep at mean lower low water (MLLW) is prohibited.
18. The discharge of treated sewage from vessels, which do not have a properly functioning US Coast Guard certified Type I or Type II marine sanitation device, to portions of San Diego Bay that are greater than 30 feet deep at mean lower low water (MLLW) is prohibited.

2. Attachment B to State Water Board Resolution 2012-0012

Special Protections for Areas of Special Biological Significance, Governing Point Source Discharges of Storm Water and Nonpoint Source Waste Discharges

I. PROVISIONS FOR POINT SOURCE DISCHARGES OF STORM WATER AND NONPOINT SOURCE WASTE DISCHARGES

The following terms, prohibitions, and special conditions (hereafter collectively referred to as special conditions) are established as limitations on point source storm water and nonpoint source discharges. These special conditions provide Special Protections for marine aquatic life and natural water quality in Areas of Special Biological Significance (ASBS), as required for State Water Quality Protection Areas pursuant to California Public Resources Code Sections 36700(f) and 36710(f). These Special Protections are adopted by the State Water Board as part of the California Ocean Plan (Ocean Plan) General Exception.

The special conditions are organized by category of discharge. The State Water Resources Control Board (State Water Board) and Regional Water Quality Control Boards (Regional Water Boards) will determine categories and the means of regulation for those categories [e.g., Point Source Storm Water National Pollutant Discharge Elimination System (NPDES) or Nonpoint Source].

A. PERMITTED POINT SOURCE DISCHARGES OF STORM WATER

1. General Provisions for Permitted Point Source Discharges of Storm Water

- a. Existing storm water discharges into an ASBS are allowed only under the following conditions:
 - (1) The discharges are authorized by an NPDES permit issued by the State Water Board or Regional Water Board;
 - (2) The discharges comply with all of the applicable terms, prohibitions, and special conditions contained in these Special Protections; and
 - (3) The discharges:
 - (i) Are essential for flood control or slope stability, including roof, landscape, road, and parking lot drainage;
 - (ii) Are designed to prevent soil erosion;
 - (iii) Occur only during wet weather;
 - (iv) Are composed of only storm water runoff.
- b. Discharges composed of storm water runoff shall not alter natural ocean water quality in an ASBS.
- c. The discharge of trash is prohibited.

- d. Only discharges from existing storm water outfalls are allowed. Any proposed or new storm water runoff discharge shall be routed to existing storm water discharge outfalls and shall not result in any new contribution of waste to an ASBS (i.e., no additional pollutant loading). "Existing storm water outfalls" are those that were constructed or under construction prior to January 1, 2005. "New contribution of waste" is defined as any addition of waste beyond what would have occurred as of January 1, 2005. A change to an existing storm water outfall, in terms of re-location or alteration, in order to comply with these special conditions, is allowed and does not constitute a new discharge.
- e. Non-storm water discharges are prohibited except as provided below:
- (1) The term "non-storm water discharges" means any waste discharges from a municipal separate storm sewer system (MS4) or other NPDES permitted storm drain system to an ASBS that are not composed entirely of storm water.
 - (2) (i) The following non-storm water discharges are allowed, provided that the discharges are essential for emergency response purposes, structural stability, slope stability or occur naturally:
 - (a) Discharges associated with emergency fire fighting operations.
 - (b) Foundation and footing drains.
 - (c) Water from crawl space or basement pumps.
 - (d) Hillside dewatering.
 - (e) Naturally occurring groundwater seepage via a storm drain.
 - (f) Non-anthropogenic flows from a naturally occurring stream via a culvert or storm drain, as long as there are no contributions of anthropogenic runoff.
 - (ii) An NPDES permitting authority may authorize non-storm water discharges to an MS4 with a direct discharge to an ASBS only to the extent the NPDES permitting authority finds that the discharge does not alter natural ocean water quality in the ASBS.
 - (3) Authorized non-storm water discharges shall not cause or contribute to a violation of the water quality objectives in Chapter II of the Ocean Plan nor alter natural ocean water quality in an ASBS.

2. Compliance Plans for Inclusion in Storm Water Management Plans (SWMP) and Storm Water Pollution Prevention Plans (SWPPP).

The discharger shall specifically address the prohibition of non-storm water runoff and the requirement to maintain natural water quality for storm water discharges to an ASBS in an ASBS Compliance Plan to be included in its SWMP or a SWPPP, as appropriate to permit type. If a statewide permit includes a SWMP, then the discharger shall prepare a stand-alone compliance plan for ASBS discharges. The ASBS Compliance Plan is subject to approval by the Executive Director of the State Water Board (statewide permits) or Executive Officer of the Regional Water Board (for permits issued by Regional Water Boards).

- a. The Compliance Plan shall include a map of surface drainage of storm water runoff, showing areas of sheet runoff, prioritize discharges, and describe any structural Best Management Practices (BMPs) already employed and/or BMPs to be employed in the future. Priority discharges are those that pose the greatest water quality threat and which are identified to require installation of structural BMPs. The map shall also show the storm water conveyances in relation to other features such as service areas, sewage conveyances and treatment facilities, landslides, areas prone to erosion, and waste and hazardous material storage areas, if applicable. The SWMP or SWPPP shall also include a procedure for updating the map and plan when changes are made to the storm water conveyance facilities.
- b. The ASBS Compliance Plan shall describe the measures by which all non-authorized non-storm water runoff (e.g., dry weather flows) has been eliminated, how these measures will be maintained over time, and how these measures are monitored and documented.
- c. For Municipal Separate Storm Sewer System (MS4s), the ASBS Compliance Plan shall require minimum inspection frequencies as follows:
 - (1) The minimum inspection frequency for construction sites shall be weekly during rainy season;
 - (2) The minimum inspection frequency for industrial facilities shall be monthly during the rainy season;
 - (3) The minimum inspection frequency for commercial facilities (e.g., restaurants) shall be twice during the rainy season; and
 - (4) Storm water outfall drains equal to or greater than 18 inches (457 mm) in diameter or width shall be inspected once prior to the beginning of the rainy season and once during the rainy season and maintained to remove trash and other anthropogenic debris.
- d. The ASBS Compliance Plan shall address storm water discharges (wet weather flows) and, in particular, describe how pollutant reductions in storm water runoff, that are necessary to comply with these special conditions, will be achieved through BMPs. Structural BMPs need not be installed if the discharger can document to the satisfaction of the State Water Board Executive Director (statewide permits) or Regional Water Board Executive Officer (Regional Water Board permits) that such installation would pose a threat to health or safety. BMPs to control storm water runoff discharges (at the end-of-pipe) during a design storm shall be designed to achieve on average the following target levels:
 - (1) Table B Instantaneous Maximum Water Quality Objectives in Chapter II of the Ocean Plan; or
 - (2) A 90% reduction in pollutant loading during storm events, for the applicant's total discharges. The baseline for the reduction is the effective date of the Exception. The baseline for these determinations is the effective date of the Exception, and the

reductions must be achieved and documented within four (4) years of the effective date.

- e. The ASBS Compliance Plan shall address erosion control and the prevention of anthropogenic sedimentation in ASBS. The natural habitat conditions in the ASBS shall not be altered as a result of anthropogenic sedimentation.
- f. The ASBS Compliance Plan shall describe the non-structural BMPs currently employed and planned in the future (including those for construction activities), and include an implementation schedule. The ASBS Compliance Plan shall include non-structural BMPs that address public education and outreach. Education and outreach efforts must adequately inform the public that direct discharges of pollutants from private property not entering an MS4 are prohibited. The ASBS Compliance Plan shall also describe the structural BMPs, including any low impact development (LID) measures, currently employed and planned for higher threat discharges and include an implementation schedule. To control storm water runoff discharges (at the end-of-pipe) during a design storm, permittees must first consider using LID practices to infiltrate, use, or evapotranspire storm water runoff on-site.
- g. The BMPs and implementation schedule shall be designed to ensure that natural water quality conditions in the receiving water are achieved and maintained by either reducing flows from impervious surfaces or reducing pollutant loading, or some combination thereof.
- h. If the results of the receiving water monitoring described in IV.B. of these special conditions indicate that the storm water runoff is causing or contributing to an alteration of natural ocean water quality in the ASBS, the discharger shall submit a report to the State Water Board and Regional Water Board within 30 days of receiving the results.
 - (1) The report shall identify the constituents in storm water runoff that alter natural ocean water quality and the sources of these constituents.
 - (2) The report shall describe BMPs that are currently being implemented, BMPs that are identified in the SWMP or SWPPP for future implementation, and any additional BMPs that may be added to the SWMP or SWPPP to address the alteration of natural water quality. The report shall include a new or modified implementation schedule for the BMPs.
 - (3) Within 30 days of the approval of the report by the State Water Board Executive Director (statewide permits) or Regional Water Board Executive Officer (Regional Water Board permits), the discharger shall revise its ASBS Compliance Plan to incorporate any new or modified BMPs that have been or will be implemented, the implementation schedule, and any additional monitoring required.
 - (4) As long as the discharger has complied with the procedures described above and is implementing the revised SWMP or SWPPP, the discharger does not have to repeat the same procedure for continuing or recurring exceedances of natural ocean water quality conditions due to the same constituent.
 - (5) Compliance with this section does not excuse violations of any term, prohibition, or condition contained in these Special Protections.

3. Compliance Schedule

- a. On the effective date of the Exception, all non-authorized non-storm water discharges (e.g., dry weather flow) are effectively prohibited.
- b. Within one year from the effective date of the Exception, the discharger shall submit a written ASBS Compliance Plan to the State Water Board Executive Director (statewide permits) or Regional Water Board Executive Officer (Regional Water Board permits) that describes its strategy to comply with these special conditions, including the requirement to maintain natural water quality in the affected ASBS. The ASBS Compliance Plan shall include a time schedule to implement appropriate non-structural and structural controls (implementation schedule) to comply with these special conditions for inclusion in the discharger's SWMP or SWPPP, as appropriate to permit type.
- c. Within 18 months of the effective date of the Exception, any non-structural controls that are necessary to comply with these special conditions shall be implemented.
- d. Within four (4) years of the effective date of the Exception, any structural controls identified in the ASBS Compliance Plan that are necessary to comply with these special conditions shall be operational.
- e. Within four (4) years of the effective date of the Exception, all dischargers must comply with the requirement that their discharges into the affected ASBS maintain natural ocean water quality. If the initial results of post-storm receiving water quality testing indicate levels higher than the 85th percentile threshold of reference water quality data and the pre-storm receiving water levels, then the discharger must re-sample the receiving water, pre- and post-storm. If after re-sampling the post-storm levels are still higher than the 85th percentile threshold of reference water quality data, and the pre-storm receiving water levels, for any constituent, then natural ocean water quality is exceeded. See attached Flowchart.
- f. The Executive Director of the State Water Board (statewide permits) or Executive Officer of the Regional Water Board (Regional Water Board permits) may only authorize additional time to comply with the special conditions d. and e., above if good cause exists to do so. Good cause means a physical impossibility or lack of funding.

If a discharger claims physical impossibility, it shall notify the Board in writing within thirty (30) days of the date that the discharger first knew of the event or circumstance that caused or would cause it to fail to meet the deadline in d. or e. The notice shall describe the reason for the noncompliance or anticipated noncompliance and specifically refer to this Section of this Exception. It shall describe the anticipated length of time the delay in compliance may persist, the cause or causes of the delay as well as measures to minimize the impact of the delay on water quality, the measures taken or to be taken by the discharger to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The discharger shall adopt all reasonable measures to avoid and minimize such delays and their impact on water quality.

The discharger may request an extension of time for compliance based on lack of funding. The request for an extension shall require:

- (1) for municipalities, a demonstration of significant hardship to discharger ratepayers, by showing the relationship of storm water fees to annual household income for residents within the discharger's jurisdictional area, and the discharger has made timely and complete applications for all available bond and grant funding, and either no bond or grant funding is available, or bond and/or grant funding is inadequate; or
- (2) for other governmental agencies, a demonstration and documentation of a good faith effort to acquire funding through that agency's budgetary process.

B. NONPOINT SOURCE DISCHARGES

[NOT INCLUDED]

[PROVISIONS FOR NONPOINT SOURCE DISCHARGES NOT APPLICABLE]

II. ADDITIONAL REQUIREMENTS FOR PARKS AND RECREATION FACILITIES

[NOT INCLUDED]

[ADDITIONAL REQUIREMENTS FOR PARKS AND RECREATION FACILITIES NOT APPLICABLE]

III. ADDITIONAL REQUIREMENTS – WATERFRONT AND MARINE OPERATIONS

[NOT INCLUDED]

[ADDITIONAL REQUIREMENTS FOR WATERFRONT AND MARINE OPERATIONS NOT APPLICABLE]

IV. MONITORING REQUIREMENTS

Monitoring is mandatory for all dischargers to assure compliance with the Ocean Plan. Monitoring requirements include both: (A) core discharge monitoring, and (B) ocean receiving water monitoring. The State and Regional Water Boards must approve sampling site locations and any adjustments to the monitoring programs. All ocean receiving water and reference area monitoring must be comparable with the Water Boards' Surface Water Ambient Monitoring Program (SWAMP).

Safety concerns: Sample locations and sampling periods must be determined considering safety issues. Sampling may be postponed upon notification to the State and Regional Water Boards if hazardous conditions prevail.

Analytical Chemistry Methods: All constituents must be analyzed using the lowest minimum detection limits comparable to the Ocean Plan water quality objectives. For metal analysis, all samples, including storm water effluent, reference samples, and ocean receiving water samples, must be analyzed by the approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry) described in the Ocean Plan.

A. CORE DISCHARGE MONITORING PROGRAM

1. General sampling requirements for timing and storm size:

Runoff must be collected during a storm event that is greater than 0.1 inch and generates runoff, and at least 72 hours from the previously measurable storm event. Runoff samples shall be collected when post-storm receiving water is sampled, and analyzed for the same constituents as receiving water and reference site samples (see section IV B) as described below.

2. Runoff flow measurements

- a. For municipal/industrial storm water outfalls in existence as of December 31, 2007, 18 inches (457mm) or greater in diameter/width (including multiple outfall pipes in combination having a width of 18 inches, runoff flows must be measured or calculated, using a method acceptable to and approved by the State and Regional Water Boards.
- b. This will be reported annually for each precipitation season to the State and Regional Water Boards.

3. Runoff samples – storm events

- a. For outfalls equal to or greater than 18 inches (0.46m) in diameter or width:
 - (1) samples of storm water runoff shall be analyzed during the same storm as receiving water samples for oil and grease, total suspended solids, and, within the range of the southern sea otter indicator bacteria or some other measure of fecal contamination, ; and
 - (2) samples of storm water runoff shall be analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS
 - (3) If an applicant has no outfall greater than 36 inches, then storm water runoff from the applicant's largest outfall shall be further analyzed during the same storm as receiving water samples for Ocean Plan Table B metals for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and phosphates).
- b. For outfalls equal to or greater than 36 inches (0.91m) in diameter or width:
 - (1) samples of storm water runoff shall be analyzed during the same storm as receiving water samples for oil and grease, total suspended solids, and, within the range of the southern sea otter indicator bacteria or some other measure of fecal contamination; and
 - (2) samples of storm water runoff shall be further analyzed during the same storm as receiving water samples for Ocean Plan Table B metals for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and phosphates) and

- (3) samples of storm water runoff shall be analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS.
 - c. For an applicant not participating in a regional monitoring program [see below in Section IV (B)] in addition to (a.) and (b.) above, a minimum of the two largest outfalls or 20 percent of the larger outfalls, whichever is greater, shall be sampled (flow weighted composite samples) at least three times annually during wet weather (storm event) and analyzed for all Ocean Plan Table A constituents, Table B constituents for marine aquatic life protection (except for toxicity, only chronic toxicity for three species shall be required), DDT, PCBs, Ocean Plan PAHs, OP pesticides, pyrethroids, nitrates, phosphates, and Ocean Plan indicator bacteria. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one (the largest) such discharge shall be sampled annually in each Region.
4. The Executive Director of the State Water Board (statewide permits) or Executive Officer of the Regional Water Board (Regional Water Board permits) may reduce or suspend core monitoring once the storm runoff is fully characterized. This determination may be made at any point after the discharge is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.

B. OCEAN RECEIVING WATER AND REFERENCE AREA MONITORING PROGRAM

In addition to performing the Core Discharge Monitoring Program in Section II.A above, all applicants having authorized discharges must perform ocean receiving water monitoring. In order to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within their ASBS, dischargers may choose either (1) an individual monitoring program, or (2) participation in a regional integrated monitoring program.

1. Individual Monitoring Program: The requirements listed below are for those dischargers who elect to perform an individual monitoring program to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within the affected ASBS. In addition to Core Discharge Monitoring, the following additional monitoring requirements shall be met:
 - a. Three times annually, during wet weather (storm events), the receiving water at the point of discharge from the outfalls described in section (IV)(A)(3)(c) above shall be sampled and analyzed for Ocean Plan Table A constituents, Table B constituents for marine aquatic life, DDT, PCBs, Ocean Plan PAHs, OP pesticides, pyrethroids, nitrates, phosphates, salinity, chronic toxicity (three species), and Ocean Plan indicator bacteria.

The sample location for the ocean receiving water shall be in the surf zone at the point of discharges; this must be at the same location where storm water runoff is sampled. Receiving water shall be sampled at approximately the same time prior to (pre-storm) and during (or immediately after) the same storm (post storm). Reference water quality shall also be sampled and analyzed for the same constituents pre-storm and post-storm, during the same storms when receiving water is sampled. Reference stations will be determined by the State Water Board's Division of Water Quality and the applicable Regional Water Board(s).

- b. Sediment sampling shall occur at least three times during every five (5) year period. The subtidal sediment (sand or finer, if present) at the discharge shall be sampled and analyzed for Ocean Plan Table B constituents for marine aquatic life, DDT, PCBs, PAHs, pyrethroids, and OP pesticides. For sediment toxicity testing, only an acute toxicity test using the amphipod *Eohaustorius estuarius* must be performed.
 - c. A quantitative survey of intertidal benthic marine life shall be performed at the discharge and at a reference site. The survey shall be performed at least once every five (5) year period. The survey design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The results of the survey shall be completed and submitted to the State Water Board and Regional Water Board at least six months prior to the end of the permit cycle.
 - d. Once during each five (5) year period, a bioaccumulation study shall be conducted to determine the concentrations of metals and synthetic organic pollutants at representative discharge sites and at representative reference sites. The study design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The bioaccumulation study may include California mussels (*Mytilus californianus*) and/or sand crabs (*Emerita analoga* or *Blepharipoda occidentalis*). Based on the study results, the Regional Water Board and the State Water Board's Division of Water Quality, may adjust the study design in subsequent permits, or add or modify additional test organisms (such as shore crabs or fish), or modify the study design appropriate for the area and best available sensitive measures of contaminant exposure.
 - e. Marine Debris: Representative quantitative observations for trash by type and source shall be performed along the coast of the ASBS within the influence of the discharger's outfalls. The design, including locations and frequency, of the marine debris observations is subject to approval by the Regional Water Board and State Water Board's Division of Water Quality.
 - f. The monitoring requirements of the Individual Monitoring Program in this section are minimum requirements. After a minimum of one (1) year of continuous water quality monitoring of the discharges and ocean receiving waters, the Executive Director of the State Water Board (statewide permits) or Executive officer of the Regional Water Board (Regional Water Board permits) may require additional monitoring, or adjust, reduce or suspend receiving water and reference station monitoring. This determination may be made at any point after the discharge and receiving water is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.
2. Regional Integrated Monitoring Program: Dischargers may elect to participate in a regional integrated monitoring program, in lieu of an individual monitoring program, to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within their ASBS. This regional approach shall characterize natural water quality, pre- and post-storm, in ocean reference areas near the mouths of identified open space watersheds and the effects of the discharges on natural water quality (physical, chemical, and toxicity) in the ASBS receiving waters, and should include benthic marine aquatic life and bioaccumulation components. The design of the ASBS stratum of a regional integrated monitoring program may deviate from the otherwise prescribed individual monitoring approach (in Section IV.B.1) if approved by the State Water Board's Division of Water Quality and the Regional Water Boards.

- a. Ocean reference areas shall be located at the drainages of flowing watersheds with minimal development (in no instance more than 10% development), and shall not be located in CWA Section 303(d) listed waterbodies or have tributaries that are 303(d) listed. Reference areas shall be free of wastewater discharges and anthropogenic non-storm water runoff. A minimum of low threat storm runoff discharges (e.g. stream highway overpasses and campgrounds) may be allowed on a case-by-case basis. Reference areas shall be located in the same region as the ASBS receiving water monitoring occurs. The reference areas for each Region are subject to approval by the participants in the regional monitoring program and the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean reference water samples must be collected from each station, each from a separate storm. A minimum of one reference location shall be sampled for each ASBS receiving water site sampled per responsible party. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one reference station and one receiving water station shall be sampled in each region.
 - b. ASBS ocean receiving water must be sampled in the surf zone at the location where the runoff makes contact with ocean water (i.e. at "point zero"). Ocean receiving water stations must be representative of worst-case discharge conditions (i.e. co-located at a large drain greater than 36 inches, or if drains greater than 36 inches are not present in the ASBS then the largest drain greater than 18 inches.) Ocean receiving water stations are subject to approval by the participants in the regional monitoring program and the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean receiving water samples must be collected during each storm season from each station, each from a separate storm. A minimum of one receiving water location shall be sampled in each ASBS per responsible party in that ASBS. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one reference station and one receiving water station shall be sampled in each region.
 - c. Reference and receiving water sampling shall commence during the first full storm season following the adoption of these special conditions, and post-storm samples shall be collected when annual storm water runoff is sampled. Sampling shall occur in a minimum of two storm seasons. For those ASBS dischargers that have already participated in the Southern California Bight 2008 ASBS regional monitoring effort, sampling may be limited to only one storm season.
 - d. Receiving water and reference samples shall be analyzed for the same constituents as storm water runoff samples. At a minimum, constituents to be sampled and analyzed in reference and discharge receiving waters must include oil and grease, total suspended solids, Ocean Plan Table B metals for protection of marine life, Ocean Plan PAHs, pyrethroids, OP pesticides, ammonia, nitrate, phosphates, and critical life stage chronic toxicity for three species. In addition, within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination shall be analyzed.
3. Waterfront and Marine Operations: In addition to the above requirements for ocean receiving water monitoring, additional monitoring must be performed for marinas and boat launch and pier facilities:
- a. For all marina or mooring field operators, in mooring fields with 10 or more occupied moorings, the ocean receiving water must be sampled for Ocean Plan indicator bacteria,

residual chlorine, copper, zinc, grease and oil, methylene blue active substances (MBAS), and ammonia nitrogen.

- (1) For mooring field operators opting for an individual monitoring program (Section IV.B.1 above), this sampling must occur weekly (on the weekend) from May through October.
 - (2) For mooring field operators opting to participate in a regional integrated monitoring program (Section IV.B.2 above), this sampling must occur monthly from May through October on a high use weekend in each month. The Water Boards may allow a reduction in the frequency of sampling, through the regional monitoring program, after the first year of monitoring.
- b. For all mooring field operators, the subtidal sediment (sand or finer, if present) within mooring fields and below piers shall be sampled and analyzed for Ocean Plan Table B metals (for marine aquatic life beneficial use), acute toxicity, PAHs, and tributyltin. For sediment toxicity testing, only an acute toxicity test using the amphipod *Eohaustorius estuarius* must be performed. This sampling shall occur at least three times during a five (5) year period. For mooring field operators opting to participate in a regional integrated monitoring program, the Water Boards may allow a reduction in the frequency of sampling after the first sampling effort's results are assessed.

Tentative Order No. R9-2013-0001

Month Day, 2013

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ATTACHMENT B**STANDARD PERMIT PROVISIONS AND GENERAL PROVISIONS****1. Standard Permit Provisions**

Code of Federal Regulations Title 40 Section 122.41 (40 CFR 122.41) includes conditions, or provisions, that apply to all National Pollutant Discharge Elimination System (NPDES) permits. Additional provisions applicable to NPDES permits are in 40 CFR 122.42. All applicable provisions in 40 CFR 122.41 and 40 CFR 122.42 must be incorporated into this Order and NPDES permit. The applicable 40 CFR 122.41 and 40 CFR 122.42 provisions are as follows:

a. DUTY TO COMPLY [40 CFR 122.41(a)]

The Copermittee must comply with all of the provisions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

- (1) The Copermittee must comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement. [40 CFR 122.41(a)(1)]
- (2) The CWA provides that any person who violates Section 301, 302, 306, 307, 308, 318 or 405 of the CWA, or any permit condition or limitation implementing any such sections in a permit issued under Section 402, or any requirement imposed in a pretreatment program approved under Section 402(a)(3) or 402(b)(8) of the CWA, is subject to a civil penalty not to exceed \$25,000 per day for each violation. The CWA provides that any person who *negligently* violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA, or any requirement imposed in a pretreatment program approved under Section 402(a)(3) or 402(b)(8) of the CWA, is subject to criminal penalties of \$2,500 to \$25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation, or by imprisonment of not more than 2 years, or both. Any person who *knowingly* violates such sections, or such conditions or limitations is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than 6 years, or both. Any person who knowingly violates Section 301, 302, 303, 306, 307, 308, 318 or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of

not more than \$250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in Section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can be fined up to \$2,000,000 for second or subsequent convictions.
[40 CFR 122.41(a)(2)]

- (3) Any person may be assessed an administrative penalty by the San Diego Regional Water Quality Control Board (San Diego Water Board), State Water Resources Control Board (State Water Board), or United States Environmental Protection Agency (USEPA) for violating Section 301, 302, 306, 307, 308, 318 or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed \$10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed \$25,000. Penalties for Class II violations are not to exceed \$10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed \$125,000.
[40 CFR 122.41(a)(3)]

b. DUTY TO REAPPLY [40 CFR 122.41(b)]

If a Copermittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Copermittee must apply for and obtain a new permit.

c. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE [40 CFR 122.41(c)]

It shall not be a defense for a Copermittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

d. DUTY TO MITIGATE [40 CFR 122.41(d)]

The Copermittee must take all reasonable steps to minimize or prevent any discharge or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

e. PROPER OPERATION AND MAINTENANCE [40 CFR 122.41(e)]

The Copermittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Copermittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by a Copermittee only when the operation is necessary to achieve compliance with the conditions of this permit.

f. PERMIT ACTIONS [40 CFR 122.41(f)]

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Copermittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

g. PROPERTY RIGHTS [40 CFR 122.41(g)]

This permit does not convey any property rights of any sort, or any exclusive privilege.

h. DUTY TO PROVIDE INFORMATION [40 CFR 122.41(h)]

The Copermittee must furnish to the San Diego Water Board, State Water Board, or USEPA within a reasonable time, any information which the San Diego Water Board, State Water Board, or USPEA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Copermittee must also furnish to the San Diego Water Board, State Water Board, or USPEA upon request, copies of records required to be kept by this permit.

i. INSPECTION AND ENTRY [40 CFR 122.41(i)]

The Copermittee must allow the San Diego Water Board, State Water Board, USEPA, and/or their authorized representative (including an authorized contractor acting as their representative), upon presentation of credentials and other documents as may be required by law, to:

- (1) Enter upon the Copermittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit; [40 CFR 122.41(i)(1)]
- (2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit; [40 CFR 122.41(i)(2)]
- (3) Inspect and photograph at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; [40 CFR 122.41(i)(3)] and
- (4) Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location. [40 CFR 122.41(i)(4)]

j. MONITORING AND RECORDS [40 CFR 122.41(j)]

- (1) Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity. [40 CFR 122.41(j)(1)]
- (2) Except for records of monitoring information required by this permit related to the Copermittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five (5) years (or longer as required by 40 CFR Part 503), the

Copermittee must retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the San Diego Water Board at any time. [40 CFR 122.41(j)(2)]

- (3) Records for monitoring information must include: [40 CFR 122.41(j)(3)]
- (a) The date, exact place, and time of sampling or measurements; [40 CFR 122.41(j)(3)(i)]
 - (b) The individual(s) who performed the sampling or measurements; [40 CFR 122.41(j)(3)(ii)]
 - (c) The date(s) analyses were performed; [40 CFR 122.41(j)(3)(iii)]
 - (d) The individual(s) who performed the analyses; [40 CFR 122.41(j)(3)(iv)]
 - (e) The analytical techniques or methods used; [40 CFR 122.41(j)(3)(v)] and
 - (f) The results of such analyses. [40 CFR 122.41(j)(3)(vi)]
- (4) Monitoring must be conducted according to test procedures under 40 CFR Part 136 unless another method is required under 40 CFR Subchapters N or O. [40 CFR 122.41(j)(4)]

In the case of pollutants for which there are no approved methods under 40 CFR Part 136 or otherwise required under 40 CFR Subchapters N and O, monitoring must be conducted according to a test procedure specified in the permit for such pollutants. [40 CFR 122.44(i)(1)(iv)]

- (5) The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than 4 years, or both. [40 CFR 122.41(j)(5)]

k. SIGNATORY REQUIREMENT [40 CFR 122.41(k)]

- (1) All applications, reports, or information submitted to the San Diego Water Board, State Water Board, or USEPA must be signed and certified. (See 40 CFR 122.22) [40 CFR 122.41(k)(1)]
- (a) *For a municipality, State, Federal, or other public agency.* [All applications must be signed] [b]y either a principal executive officer or ranking elected official. [40 CFR 122.22(a)(3)]
 - (b) All reports required by permits, and other information requested by the San Diego Water Board, State Water Board, or USEPA must be signed by a person described in paragraph (a) of this section, or by a duly authorized representative of that person. A person is a duly authorized representative only if: [40 CFR 122.22(b)]

- (i) The authorization is made in writing by a person described in paragraph (a) of this section; [40 CFR 122.22(b)(1)]
 - (ii) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company, (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) [40 CFR 122.22(b)(2)] and,
 - (iii) The written authorization is submitted to the San Diego Water Board and State Water Board. [40 CFR 122.22(b)(3)]
- (c) *Changes to authorization.* If an authorization under paragraph (b) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (b) of this section must be submitted to the San Diego Water Board prior to or together with any reports, information, or applications to be signed by an authorized representative. [40 CFR 122.22(c)]
- (d) *Certification.* Any person signing a document under paragraph (a) or (b) of this section shall make the following certification:
- “I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.” [40 CFR 122.22(d)]
- (2) The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both. [40 CFR 122.41(k)(2)]

I. REPORTING REQUIREMENTS [40 CFR 122.41(l)]

- (1) *Planned changes.* The Copermittee must give notice to the San Diego Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when: [40 CFR 122.41(l)(1)]
- (a) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); [40 CFR 122.41(l)(1)(i)] or
 - (b) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which

are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42(a)(1).
[40 CFR 122.41(l)(1)(ii)]

- (c) The alteration or addition results in a significant change in the Copermittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. [40 CFR 122.41(l)(1)(iii)]
- (2) *Anticipated noncompliance.* The Copermittee must give advance notice to the San Diego Water Board or State Water Board of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. [40 CFR 122.41(l)(2)]
- (3) *Transfers.* This permit is not transferable to any person except after notice to the San Diego Water Board. The San Diego Water Board may require modification or revocation and reissuance of the permit to change the name of the Copermittee and incorporate such other requirements as may be necessary under the CWA. [40 CFR 122.41(l)(3)]
- (4) *Monitoring reports.* Monitoring results must be reported at the intervals specified elsewhere in this permit. [40 CFR 122.41(l)(4)]
- (a) Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the San Diego Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. [40 CFR 122.41(l)(4)(i)]
- (b) If the Copermittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or another method required for an industry-specific waste stream under 40 CFR Subchapters N or O, the results of this monitoring must be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the San Diego Water Board or State Water Board. [40 CFR 122.41(l)(4)(ii)]
- (c) Calculations for all limitations which require averaging of measurements must utilize an arithmetic mean unless otherwise specified in the permit. [40 CFR 122.41(l)(4)(iii)]
- (5) *Compliance schedules.* Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit must be submitted no later than 14 days following each schedule date. [40 CFR 122.41(l)(5)]

(6) *Twenty-four hour reporting.*

- (a) The Copermittee must report any noncompliance that may endanger health or the environment. Any information must be provided orally within 24 hours from the time the Copermittee becomes aware of the circumstances. A written submission must also be provided within five (5) days of the time the Copermittee becomes aware of the circumstances. The written submission must contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6)(i)]
- (b) The following must be included as information which must be reported within 24 hours under this paragraph: [40 CFR 122.41(l)(6)(ii)]
 - (i) Any unanticipated bypass that exceeds any effluent limitation in the permit (See 40 CFR 122.41(g)). [40 CFR 122.41(l)(6)(ii)(A)]
 - (ii) Any upset which exceeds any effluent limitation in the permit. [40 CFR 122.41(l)(6)(ii)(B)] and,
 - (iii) Violation of a maximum daily discharge limitation for any of the pollutants listed by the San Diego Water Board in the permit to be reported within 24 hours. (See 40 CFR 122.44(g)) [40 CFR 122.41(l)(6)(ii)(C)]
- (c) The San Diego Water Board may waive the above-required written report on a case-by-case basis if the oral report has been received within 24 hours. [40 CFR 122.41(l)(6)(iii)]

(7) *Other noncompliance.* The Copermittee must report all instances of noncompliance not reported in accordance with the standard provisions required under 40 CFR 122.41(l)(4), (5), and (6), at the time monitoring reports are submitted. The reports must contain the information listed in the standard provisions required under 40 CFR 122.41(l)(6). [40 CFR 122.41(l)(7)]

(8) *Other information.* When the Copermittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the San Diego Water Board, State Water Board, or USEPA, the Copermittee must promptly submit such facts or information. [40 CFR 122.41(l)(8)]

m. BYPASS [40 CFR 122.41(m)]

(1) *Definitions.*

- (a) "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. [40 CFR 122.41(m)(1)(i)] or
- (b) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be

expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

[40 CFR 122.41(m)(1)(ii)]

- (2) *Bypass not exceeding limitations.* The Copermittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the standard provisions required under 40 CFR 122.41(m)(3) and (4).

[40 CFR 122.41(m)(2)]

- (3) *Notice.*

- (a) *Anticipated bypass.* If the Copermittee knows in advance of the need for a bypass, it must submit a notice, if possible at least ten days before the date of the bypass. [40 CFR 122.41(m)(3)(i)] or

- (b) *Unanticipated bypass.* The Copermittee must submit notice of an unanticipated bypass in accordance with the standard provisions required under 40 CFR 122.41(l)(6) (24-hour notice).

[40 CFR 122.41(m)(3)(ii)]

- (4) *Prohibition of Bypass.*

- (a) Bypass is prohibited, and the San Diego Water Board may take enforcement action against a Copermittee for bypass, unless:

[40 CFR 122.41(m)(4)(i)]

- (i) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; [40 CFR 122.41(m)(4)(i)(A)]

- (ii) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance;

[40 CFR 122.41(m)(4)(i)(B)] and,

- (iii) The Copermittee submitted notice in accordance with the standard provisions required under 40 CFR 122.41(m)(3).

[40 CFR 122.41(m)(4)(i)(C)]

- (b) The San Diego Water Board may approve an anticipated bypass, after considering its adverse effects, if the San Diego Water Board determines that it will meet the three conditions listed above.

[40 CFR 122.41(m)(4)(ii)]

n. UPSET [40 CFR 122.41(n)]

- (1) *Definition.* "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Copermittee. An upset does not

include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. [40 CFR 122.41(n)(1)]

- (2) *Effect of an upset.* An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the standard provisions required under 40 CFR 122.41(n)(3) are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. [40 CFR 122.41(n)(2)]
- (3) *Conditions necessary for a demonstration of upset.* A Copermittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
[40 CFR 122.41(n)(3)]
 - (a) An upset occurred and that the Copermittee can identify the cause(s) of the upset; [40 CFR 122.41(n)(3)(i)]
 - (b) The permitted facility was at the time being properly operated;
[40 CFR 122.41(n)(3)(ii)] and
 - (c) The Copermittee submitted notice of the upset in accordance with the standard provisions required under 40 CFR 122.41(l)(6)(ii)(B) (24-hour notice).
[40 CFR 122.41(n)(3)(iii)]
 - (d) The Copermittee complied with any remedial measures pursuant to the standard provisions required under 40 CFR 122.41(d).
[40 CFR 122.41(n)(3)(iii)]
- (4) *Burden of proof.* In any enforcement proceeding, the Copermittee seeking to establish the occurrence of an upset has the burden of proof.
[40 CFR 122.41(n)(4)]

o. STANDARD PERMIT PROVISIONS FOR MUNICIPAL SEPARATE STORM SEWER SYSTEMS
[40 CFR 122.42(c)]

The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer that has been designated by the San Diego Water Board or State Water Board under 40 CFR 122.26(a)(1)(v) must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report must include:

- (1) The status of implementing the components of the storm water management program that are established as permit conditions; [40 CFR 122.42(c)(1)]
- (2) Proposed changes to the storm water management programs that are established as permit conditions. Such proposed changes must be consistent with 40 CFR 122.26(d)(2)(iii); [40 CFR 122.42(c)(2)] and
- (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under 40 CFR 122.26(d)(2)(iv) and (v);
[40 CFR 122.42(c)(3)]

- (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; [40 CFR 122.42(c)(4)]
- (5) Annual expenditures and budget for year following each annual report; [40 CFR 122.42(c)(5)]
- (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; [40 CFR 122.42(c)(6)]
- (7) Identification of water quality improvements or degradation. [40 CFR 122.42(c)(7)]

p. STANDARD PERMIT PROVISIONS FOR STORM WATER DISCHARGES [40 CFR 122.42(d)]

The initial permits for discharges composed entirely of storm water issued pursuant to 40 CFR 122.26(e)(7) must require compliance with the conditions of the permit as expeditiously as practicable, but in no event later than three years after the date of issuance of the permit.

2. General Provisions

In addition to the standard provisions required to be incorporated into the Order and NPDES permit pursuant to 40 CFR 122.41 and 40 CFR 122.42, several other general provisions apply to this Order. The general provisions applicable to this Order and NPDES permit are as follows:

a. DISCHARGE OF WASTE IS A PRIVILEGE

No discharge of waste into the waters of the State, whether or not such discharge is made pursuant to waste discharge requirements, shall create a vested right to continue such discharge. All discharges of waste into waters of the State are privileges, not rights. [CWC Section 13263(g)]

b. DURATION OF ORDER AND NPDES PERMIT

- (1) *Effective date.* This Order and NPDES permit becomes effective on the 50th day after its adoption provided the USEPA has no objection. If the USEPA objects to its issuance, this Order shall not become effective until such objection is withdrawn. This Order supersedes Order No. R9-2007-0001 upon the effective date of this Order, and supersedes Order Nos. R9-2009-0002 and R9-2010-0016 upon their expiration or earlier notice of coverage.
- (2) *Expiration.* This Order and NPDES permit expires five years after its effective date. [40 CFR 122.46(a)]
- (3) *Continuation of expired order.* After this Order and NPDES permit expires, the terms and conditions of this Order and NPDES permit are automatically continued pending issuance of a new permit if all requirements of the federal NPDES regulations on the continuation of expired permits (40 CFR 122.6) are complied with.

ATTACHMENT B: STANDARD PERMIT PROVISIONS AND GENERAL PROVISIONS

1. Standard Permit Provisions
2. General Provisions

c. AVAILABILITY

A copy of this Order must be kept at a readily accessible location and must be available to on-site personnel at all times.

d. CONFIDENTIALITY OF INFORMATION

Except as provided for in 40 CFR 122.7, no information or documents submitted in accordance with or in application for this Order will be considered confidential, and all such information and documents shall be available for review by the public at the San Diego Water Board office.

Claims of confidentiality for the following information will be denied:
[40 CFR 122.7(b)]

- (1) The name and address of any permit applicant or Copermittee;
[40 CFR 122.7(b)(1)] and
- (2) Permit applications and attachments, permits, and effluent data.
[40 CFR 122.7(b)(2)]

e. EFFLUENT LIMITATIONS

- (1) *Interim effluent limitations.* The Copermittee must comply with any interim effluent limitations as established by addendum, enforcement action, or revised waste discharge requirements which have been, or may be, adopted by the San Diego Water Board.
- (2) *Other effluent limitations and standards.* If any applicable toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the CWA for a toxic pollutant and that standard or prohibition is more stringent than any limitation on the pollutant in the permit, the San Diego Water Board shall institute proceedings under these regulations to modify or revoke and reissue the permit to conform to the toxic effluent standard or prohibition. [40 CFR 122.44(b)(1)]

f. DUTY TO MINIMIZE OR CORRECT ADVERSE IMPACTS

The Copermittee must take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Order, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncompliance.

g. PERMIT ACTIONS

The filing of a request by the Copermittee for modification, revocation and reissuance, or termination of this Order, or a notification of planned change in or anticipated noncompliance with this Order does not stay any condition of this Order. (See 40 CFR 122.41(f)) In addition, the following provisions apply to this Order:

- (1) Upon application by any affected person, or on its own motion, the San Diego Water Board may review and revise the requirements in this Order. All requirements must be reviewed periodically. [CWC Section 13263(e)]
- (2) This Order may be terminated or modified for cause, including, but not limited to, all of the following: [CWC Section 13381]
 - (a) Violation of any condition contained in the requirements of this Order. [CWC Section 13381(a)]
 - (b) Obtaining the requirements in this Order by misrepresentation, or failure to disclose fully all relevant facts. [CWC Section 13381(b)]
 - (c) A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge. [CWC Section 13381(c)]
- (3) When this Order is transferred to a new owner or operator, such requirements as may be necessary under the CWC may be incorporated into this Order.

h. NPDES PERMITTED NON-STORM WATER DISCHARGES

The San Diego Water Board has, in prior years, issued a limited number of individual NPDES permits for non-storm water discharges to MS4s. The San Diego Water Board or State Water Board may in the future, upon prior notice to the Copermittee(s), issue an NPDES permit for any non-storm water discharge (or class of non-storm water discharges) to an MS4.

i. MONITORING

In addition to the standard provisions required under 40 CFR 122.41(j) and (l)(4), the following general monitoring provisions apply to this Order:

- (1) Where procedures are not otherwise specified in Order, sampling, analysis and quality assurance/quality control must be conducted in accordance with the Quality Assurance Management Plan (QAMP) for the State of California's Surface Water Ambient Monitoring Program (SWAMP), adopted by the State Water Resources Control Board (State Water Board).
- (2) Pursuant to 40 CFR 122.41(j)(2) and CWC Section 13383(a), each Copermittee must retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five (5) years from the date of the sample, measurement, report or application. This period may be extended by request of the San Diego Water Board at any time.
- (3) All chemical, bacteriological, and toxicity analyses must be conducted at a laboratory certified for such analyses by the California Department of Public Health or a laboratory approved by the San Diego Water Board.

- (4) For priority toxic pollutants that are identified in the California Toxics Rule (CTR) (65 Fed. Reg. 31682), the Copermittees must instruct their laboratories to establish calibration standards that are equivalent to or lower than the Minimum Levels (MLs) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP). If a Copermittee can demonstrate that a particular ML is not attainable, in accordance with procedures set forth in 40 CFR Part 136, the lowest quantifiable concentration of the lowest calibration standard analyzed by a specific analytical procedure (assuming that all the method specified sample weights, volumes, and processing steps have been followed) may be used instead of the ML listed in Appendix 4 of the SIP. The Copermittee must submit documentation from the laboratory to the San Diego Water Board for approval prior to raising the ML for any priority toxic pollutant.

j. ENFORCEMENT

- (1) The San Diego Water Board is authorized to enforce the terms of this Order under several provisions of the CWC, including, but not limited to, CWC Sections 13385, 13386, and 13387.
- (2) Nothing in this Order shall be construed to protect the Copermittee from its liabilities under federal, state, or local laws.
- (3) The CWC provides for civil and criminal penalties comparable to, and in some cases greater than, those provided for under the CWA.
- (4) Except as provided in the standard conditions required under 40 CFR 122.41(m) and (n), nothing in this Order shall be construed to relieve the Copermittee from civil or criminal penalties for noncompliance.
- (5) Nothing in this Order shall be construed to preclude the institution of any legal action or relieve the Copermittee from any responsibilities, liabilities, or penalties to which the Copermittee is or may be subject to under Section 311 of the CWA.
- (6) Nothing in this Order shall be construed to preclude institution of any legal action or relieve the Copermittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authoring preserved by Section 510 of the CWA.

k. SEVERABILITY

The provisions of this Order are severable, and if any provision of this Order, or the application of any provisions of this Order to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this Order shall not be affected thereby.

l. APPLICATIONS

Any application submitted by a Copermittee for reissuance or modification of this Order must satisfy all applicable requirements specified in federal regulations as well as any additional requirements for submittal of a Report of Waste Discharge specified in the CWC and the California Code of Regulations.

m. IMPLEMENTATION

All plans, reports and subsequent amendments submitted in compliance with this Order must be implemented immediately (or as otherwise specified). All submittals by Copermittees must be adequate to implement the requirements of this Order.

n. REPORT SUBMITTALS

- (1) All report submittals must include an executive summary, introduction, conclusion, recommendations, and signed certified statement.
- (2) Each Copermittee must submit a signed certified statement covering its responsibilities for each applicable submittal.
- (3) The Principal Watershed Copermittee(s) must submit a signed certified statement covering its responsibilities for each applicable submittal and the sections of the submittals for which it is responsible.
- (4) Unless otherwise directed, the Copermittees must submit one hard copy and one electronic copy of each report required under this Order to the San Diego Water Board, and one electronic copy to the USEPA.
- (5) The Copermittees must submit reports and provide notifications as required by this Order to the following:

EXECUTIVE OFFICER
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
9174 SKY PARK COURT, SUITE 100
SAN DIEGO CA 92123-4340
Telephone: (858) 467-2952 Fax: (858) 571-6972

EUGENE BROMLEY
US ENVIRONMENTAL PROTECTION AGENCY
REGION IX
PERMITS ISSUANCE SECTION (W-5-1)
75 HAWTHORNE STREET
SAN FRANCISCO CA 94105

ATTACHMENT C**ACRONYMS AND ABBREVIATIONS**

AMAL	Average Monthly Action Level
ASBS	Area(s) of Special Biological Significance
BMP	Best Management Practice
Basin Plan	Water Quality Control Plan for the San Diego Basin
CEQA	California Environmental Quality Act
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CWA	Clean Water Act
CWC	California Water Code
CZARA	Coastal Zone Act Reauthorization Amendments of 1990
ESAs	Environmentally Sensitive Areas
GIS	Geographic Information System
IBI	Index of Biological Integrity
LID	Low Impact Development
MDAL	Maximum Daily Action Level
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
NAL	Non-Storm Water Action Level
NAICS	North American Industry Classification System
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
ROWD	Report of Waste Discharge (application for NPDES reissuance)
SAL	Storm Water Action Level
San Diego Water Board	California Regional Water Quality Control Board, San Diego Region
SIC	Standard Industrial Classification Code
State Water Board	State Water Resources Control Board
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
WDID	Waste Discharge Identification Number
WLA	Waste Load Allocation
WQBEL	Water Quality Based Effluent Limitation

DEFINITIONS

Active/Passive Sediment Treatment - Using mechanical, electrical or chemical means to flocculate or coagulate suspended sediment for removal from runoff from construction sites prior to discharge.

Anthropogenic Litter – Trash generated from human activities, not including sediment.

Average Monthly Action Level – The highest allowable average of daily discharges over a calendar month.

Beneficial Uses - The uses of water necessary for the survival or wellbeing of man, plants, and wildlife. These uses of water serve to promote tangible and intangible economic, social, and environmental goals. “Beneficial Uses” of the waters of the State that may be protected include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. Existing beneficial uses are uses that were attained in the surface or ground water on or after November 28, 1975; and potential beneficial uses are uses that would probably develop in future years through the implementation of various control measures. “Beneficial Uses” are equivalent to “Designated Uses” under federal law. [California Water Code Section 13050(f)].

Best Management Practices (BMPs) - Defined in 40 CFR 122.2 as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Bioassessment - The use of biological community information to evaluate the biological integrity of a water body and its watershed. With respect to aquatic ecosystems, bioassessment is the collection and analysis of samples of the benthic macroinvertebrate community together with physical/habitat quality measurements associated with the sampling site and the watershed to evaluate the biological condition (i.e. biotic integrity) of a water body.

Biofiltration - Practices that use vegetation and amended soils to detain and treat runoff from impervious areas. Treatment is through filtration, infiltration, adsorption, ion exchange, and biological uptake of pollutants.

Biological Integrity - Defined in Karr J.R. and D.R. Dudley. 1981. Ecological perspective on water quality goals. *Environmental Management* 5:55-68 as: “A balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of natural habitat of the region.” Also referred to as ecosystem health.

BMP Design Manual – A plan developed to eliminate, reduce, or mitigate the impacts of runoff from development projects, including Priority Development Projects.

Channel Rehabilitation and Improvement – Remedial measures or activities for the purpose of improving the environmental health of streams, channels, or river systems. Techniques may vary from in-stream restoration techniques to off-line stormwater management practices

installed in the system corridor or upland areas. Rehabilitation techniques may include, but are not limited to the following: riparian zone restoration, constructed wetlands, bank stabilization, channel modifications, and daylighting of drainage systems. Effectiveness may be measured in various manners, including: assessments of habitat, reduced streambank erosion, and/or restoration of water and sediment transport balance.

Clean Water Act Section 303(d) Water Body - An impaired water body in which water quality does not meet applicable water quality standards and/or is not expected to meet water quality standards, even after the application of technology based pollution controls required by the CWA. The discharge of runoff to these water bodies by the Copermittees is significant because these discharges can cause or contribute to violations of applicable water quality standards.

Construction Site – Any project, including projects requiring coverage under the Construction General Permit, that involves soil disturbing activities including, but not limited to, clearing, grading, disturbances to ground such as stockpiling, and excavation.

Contamination - As defined in the Porter-Cologne Water Quality Control Act, contamination is “an impairment of the quality of waters of the State by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease. ‘Contamination’ includes any equivalent effect resulting from the disposal of waste whether or not waters of the State are affected.”

Copermittee – A permittee to a NPDES permit that is only responsible for permit conditions relating to the discharge for which it is operator [40 CFR 122.26(b)(1)]. For the purposes of this Order, a Copermittee may include the following jurisdictions: an incorporated city within the County of Orange, County of Riverside, or County of San Diego in the San Diego Region, the County of Orange, the County of Riverside, the County of San Diego, the Orange County Flood Control District, the Riverside County Water Conservation and Flood Control District, the San Diego Regional Airport Authority, or the San Diego Unified Port District.

Deleted: A

Copermittees – All of the individual Copermittees, collectively.

Critical Channel Flow (Qc) – The channel flow that produces the critical shear stress that initiates bed movement or that erodes the toe of channel banks. When measuring Qc, it should be based on the weakest boundary material – either bed or bank.

Daily Discharge – Defined as either: (1) the total mass of the constituent discharged over the calendar day or any 24 hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g. concentration.)

The Daily Discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day, or other 24 hour period other than a day), or by the arithmetic mean of analytical results from one or more grab samples taken over the course of a day.

Development Projects - Construction, rehabilitation, redevelopment, or reconstruction of any public or private residential project, industrial, commercial, or any other projects.

Dry Season –May 1 to September 30.

Dry Weather – Weather is considered dry if the preceding 72 hours has been without measurable precipitation (>0.1 inch).

Enclosed Bays – Enclosed bays are indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost bay works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays do not include inland surface waters or ocean waters.

Erosion – When land is diminished or worn away due to wind, water, or glacial ice. Often the eroded debris (silt or sediment) becomes a pollutant via storm water runoff. Erosion occurs naturally but can be intensified by land clearing activities such as farming, development, road building, and timber harvesting.

Environmentally Sensitive Areas (ESAs) - Areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and San Diego Water Board; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and San Diego Water Board; areas designated as preserves or their equivalent under the Natural Communities Conservation Program within the Cities and County of Orange; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees.

Estuaries – Waters, including coastal lagoons, located at the mouth of streams that serve as areas of mixing fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and ocean water. Estuaries do not include inland surface waters or ocean waters.

Existing Development – Any area that has been developed and exists for municipal, commercial, industrial, or residential purposes, uses, or activities. May include areas that are not actively used for its originally developed purpose, but may be re-purposed or redeveloped for another use or activity.

Flow Duration – The long-term period of time that flows occur above a threshold that causes significant sediment transport and may cause excessive erosion damage to creeks and streams (not a single storm event duration). The simplest way to visualize this is to consider a histogram of pre- and post-project flows using long-term records of hourly data. To maintain pre-development flow duration means that the total number of hours (counts) within each range of flows in a flow-duration histogram cannot increase between the pre- and post-development condition. Flow duration within the range of geomorphologically significant flows is important for managing erosion.

Grading - The cutting and/or filling of the land surface to a desired slope or elevation.

Hazardous Material – Any substance that poses a threat to human health or the environment due to its toxicity, corrosiveness, ignitability, explosive nature or chemical reactivity. These also include materials named by the USEPA in 40 CFR 116 to be reported if a designated quantity of the material is spilled into the waters of the U.S. or emitted into the environment.

Hazardous Waste - Hazardous waste is defined as “any waste which, under Section 600 of Title 22 of this code, is required to be managed according to Chapter 30 of Division 4.5 of Title 22 of this code” [CCR Title 22, Division 4.5, Chapter 11, Article 1].

Household Hazardous Waste – Paints, cleaning products, and other wastes generated during home improvement or maintenance activities.

Hydromodification – The change in the natural watershed hydrologic processes and runoff characteristics (i.e., interception, infiltration, overland flow, and groundwater flow) caused by urbanization or other land use changes that result in increased stream flows and sediment transport. In addition, alteration of stream and river channels, such as stream channelization, concrete lining, installation of dams and water impoundments, and excessive streambank and shoreline erosion are also considered hydromodification, due to their disruption of natural watershed hydrologic processes.

Illicit Connection – Any man-made conveyance or drainage system through which the discharge of any pollutant to the stormwater drainage system occurs or may occur.

Deleted: Any connection to the MS4 that conveys an illicit discharge.

Illicit Discharge - Any discharge to a MS4 that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities [40 CFR 122.26(b)(2)].

Deleted: the

Inactive Areas – Areas of construction activity that are not active and those that have been active and are not scheduled to be re-disturbed for at least 14 days.

Infiltration – Water other than wastewater that enters a sewer system (including sewer service connections and foundation drains) from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow [40 CFR 35.2005(20)]. In the context of low impact development, infiltration may also be defined as the percolation of water into the ground. Infiltration is often expressed as a rate (inches per hour), which is determined through an infiltration test.

Inland Surface Waters – Includes all surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Jurisdictional Runoff Management Program Document – A written description of the specific jurisdictional runoff management measures and programs that each Copermittee will implement to comply with this Order and ensure that storm water pollutant discharges in runoff are reduced to the MEP and do not cause or contribute to a violation of water quality standards.

Low Impact Development (LID) – A storm water management and land development strategy that emphasizes conservation and the use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely reflect pre-development hydrologic functions.

Low Impact Development Best Management Practices (LID BMPs) – LID BMPs include schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States through storm water management and land development strategies that emphasize conservation and the use of on-site natural features integrated with engineered, small-scale hydrologic controls to

more closely reflect pre-development hydrologic functions. LID BMPs include retention practices that do not allow runoff, such as infiltration, rain water harvesting and reuse, and evapotranspiration. LID BMPs also include flow-through practices such as biofiltration that may have some discharge of storm water following pollutant reduction.

Major Outfall – As defined in the Code of Federal Regulations, a major outfall is a MS4 outfall that discharges from a single pipe with an inside diameter of 36 inches or more or its equivalent (i.e. discharge from a single conveyance other than a circular pipe which is associated with a drainage area of more than 50 acres); or, for MS4s that receive storm water from lands zoned for industrial activity (based on comprehensive zoning plans or equivalent), a MS4 outfall that discharges from a single pipe with an inside diameter of 12 inches or more or from its equivalent (i.e. discharge from other than a circular pipe associated with a drainage area of 2 acres or more).

Maximum Daily Action Level (MDAL) –The highest allowable daily discharge of a pollutant, over a calendar day (or 24 hour period). For pollutants with action levels expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with action levels expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Maximum Extent Practicable (MEP) – The technology-based standard established by Congress in CWA section 402(p)(3)(B)(iii) for storm water that operators of MS4s must meet. Technology-based standards establish the level of pollutant reductions that dischargers must achieve, typically by treatment or by a combination of source control and treatment control BMPs. MEP generally emphasizes pollution prevention and source control BMPs primarily (as the first line of defense) in combination with treatment methods serving as a backup (additional line of defense). MEP considers economics and is generally, but not necessarily, less stringent than BAT. A definition for MEP is not provided either in the statute or in the regulations. Instead the definition of MEP is dynamic and will be defined by the following process over time: municipalities propose their definition of MEP by way of their runoff management programs. Their total collective and individual activities conducted pursuant to the runoff management programs becomes their proposal for MEP as it applies both to their overall effort, as well as to specific activities (e.g., MEP for street sweeping, or MEP for MS4 maintenance). In the absence of a proposal acceptable to the San Diego Water Board, the San Diego Water Board defines MEP.

In a memo dated February 11, 1993, entitled "Definition of Maximum Extent Practicable," Elizabeth Jennings, Senior Staff Counsel, SWRCB addressed the achievement of the MEP standard as follows:

"To achieve the MEP standard, municipalities must employ whatever Best Management Practices (BMPs) are technically feasible (i.e., are likely to be effective) and are not cost prohibitive. The major emphasis is on technical feasibility. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the cost would be prohibitive. In selecting BMPs to achieve the MEP standard, the following factors may be useful to consider:

- a. *Effectiveness: Will the BMPs address a pollutant (or pollutant source) of concern?*
- b. *Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?*
- c. *Public Acceptance: Does the BMP have public support?*

- d. *Cost: Will the cost of implementing the BMP have a reasonable relationship to the pollution control benefits to be achieved?*
- e. *Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc.?*

The final determination regarding whether a municipality has reduced pollutants to the maximum extent practicable can only be made by the Regional or State Water Boards, and not by the municipal discharger. If a municipality reviews a lengthy menu of BMPs and chooses to select only a few of the least expensive, it is likely that MEP has not been met. On the other hand, if a municipal discharger employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost would exceed any benefit derived, it would have met the standard. Where a choice may be made between two BMPs that should provide generally comparable effectiveness, the discharger may choose the least expensive alternative and exclude the more expensive BMP. However, it would not be acceptable either to reject all BMPs that would address a pollutant source, or to pick a BMP based solely on cost, which would be clearly less effective. In selecting BMPs the municipality must make a serious attempt to comply and practical solutions may not be lightly rejected. In any case, the burden would be on the municipal discharger to show compliance with its permit. After selecting a menu of BMPs, it is the responsibility of the discharger to ensure that all BMPs are implemented."

Monitoring Year – October 1 to September 30

Municipal Separate Storm Sewer System (MS4) – A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) Designated or used for collecting or conveying storm water; (iii) Which is not a combined sewer; (iv) Which is not part of the Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.26.

National Pollutant Discharge Elimination System (NPDES) - The national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of the CWA.

Non-Storm Water - All discharges to and from a MS4 that do not originate from precipitation events (i.e., all discharges from a MS4 other than storm water). Non-storm water includes illicit discharges and NPDES permitted discharges.

Nuisance - As defined in the Porter-Cologne Water Quality Control Act, a nuisance is "anything which meets all of the following requirements: 1) Is injurious to health, or is indecent, or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. 2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. 3) Occurs during, or as a result of, the treatment or disposal of wastes."

Ocean Waters – the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Board's California Ocean Plan.

Order – Unless otherwise specified, refers to this Order, Order No. R9-2013-0001 (NPDES No. CAS0109266)

Persistent Flow - Persistent flow is defined as the presence of flowing, pooled, or ponded water more than 72 hours after a measureable rainfall event of 0.1 inch or greater during three consecutive monitoring and/or inspection events. All other flowing, pooled, or ponded water is considered transient.

Person - A person is defined as an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof [40 CFR 122.2].

Point Source - Any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operations, landfill leachate collection systems, vessel, or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Pollutant - Any agent that may cause or contribute to the degradation of water quality such that a condition of pollution or contamination is created or aggravated.

Pollution - As defined in the Porter-Cologne Water Quality Control Act, pollution is “the alteration of the quality of the waters of the State by waste, to a degree that unreasonably affects the either of the following: 1) The waters for beneficial uses; or 2) Facilities that serve these beneficial uses.” Pollution may include contamination.

Pollution Prevention - Pollution prevention is defined as practices and processes that reduce or eliminate the generation of pollutants, in contrast to source control BMPs, treatment control BMPs, or disposal.

Pre-Development Runoff Conditions – Runoff conditions that existed onsite before the existing development was constructed, or exists onsite before planned development activities occur.

Priority Development Projects - New development and redevelopment projects defined under Provision [E.3.b](#) of Order No. R9-2012-0011.

Progressive Enforcement - A series of enforcement actions that increase in severity commensurate with the violation. Such enforcement actions may include verbal and written notices of violation, fines, stop work orders, administrative penalties, criminal penalties, etc.

Rainy Season (aka Wet Season) –October 1 to April 30

Receiving Waters – Waters of the United States.

Receiving Water Limitations - Waste discharge requirements issued by the San Diego Water Board typically include both: (1) “Effluent Limitations” (or “Discharge Limitations”) that specify the technology-based or water-quality-based effluent limitations; and (2) “Receiving Water

Limitations” that specify the water quality objectives in the Basin Plan as well as any other limitations necessary to attain those objectives. In summary, the “Receiving Water Limitations” provision is the provision used to implement the requirements of CWA section 402(p)(3)(B).

Redevelopment - The creation, addition, and or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition to or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Redevelopment does not include trenching and resurfacing associated with utility work; [parking lots](#), resurfacing existing roadways; [cutting and reconfiguring of surface parking lots](#); new sidewalk construction, pedestrian ramps, or bike lane on existing roads; and routine replacement of damaged pavement, such as pothole repair.

[**Regional Clearinghouse** – A central location for the collection, classification, and distribution of information including, but not limited to, plans, reports, manuals, data, contact information, and/or links to such documents and information. The clearinghouse\(s\) may be organized by the following regions: Watershed Management Areas, County jurisdictions, and/or the San Diego Regional Water Quality Control Board jurisdiction.](#)

Reporting Period – The period of information that is reported in the Annual Report. The reporting period consists of two components: 1) July 1 to June 30, consistent with the fiscal year, for the implementation of the jurisdictional runoff management programs, and 2) October 1 to September 30, consistent with the monitoring year for the monitoring and assessment programs. Together, these two time periods constitute the reporting year for the Annual Report due January 31 following the end of the monitoring year.

Retain –Keep or hold in a particular place, condition, or position without discharge to surface waters.

Retrofitting – Storm water management practice put into place after development has occurred in watersheds where the practices previously did not exist. Retrofitting of developed areas is intended to improve water quality, protect downstream channels, reduce flooding, or meet other specific objectives. Retrofitting developed areas may include, but is not limited to replacing roofs with green roofs, disconnecting downspouts or impervious surfaces to drain to pervious surfaces, replacing impervious surfaces with pervious surfaces, installing rain barrels, installing rain gardens, and trash area enclosures.

Runoff - All flows in a storm water conveyance system that consists of the following components: (1) storm water (wet weather flows) and (2) non-storm water including dry weather flows.

San Diego Water Board – As used in this document the term "San Diego Water Board" is synonymous with the term "Regional Board" as defined in Water Code section 13050(b) and is intended to refer to the California Regional Water Quality Control Board for the San Diego Region as specified in Water Code Section 13200.

Sediment - Soil, sand, and minerals washed from land into water. Sediment resulting from anthropogenic sources (i.e. human induced land disturbance activities) is considered a pollutant. This Order regulates only the discharges of sediment from anthropogenic sources and does not regulate naturally occurring sources of sediment. Sediment can destroy fish-

nesting areas, clog animal habitats, and cloud waters so that sunlight does not reach aquatic plants.

Source Control BMP – Land use or site planning practices, or structural or nonstructural measures that aim to prevent runoff pollution by reducing the potential for contamination at the source of pollution. Source control BMPs minimize the contact between pollutants and runoff.

Storm Water – Per 40 CFR 122.26(b)(13), means storm water runoff, snowmelt runoff and surface runoff and drainage.

Deleted: Surface runoff and drainage pertains to runoff and drainage resulting from precipitation events.

Stream, Channel, or Habitat Rehabilitation – Measures or activities for the purpose of improving or restoring the environmental health (i.e. physical, chemical and biological integrity) of streams, channels, or river systems. Rehabilitation techniques may include, but are not limited to, riparian zone restoration, constructed wetlands, bank stabilization, channel reconfiguration, and daylighting drainage systems.

Structural BMPs - A subset of BMPs which detains, retains, filters, removes, or prevents the release of pollutants to surface waters from development projects in perpetuity, after construction of a project is completed.

Total Maximum Daily Load (TMDL) - The maximum amount of a pollutant that can be discharged into a water body from all sources (point and non-point) and still maintain water quality standards. Under CWA section 303(d), TMDLs must be developed for all water bodies that do not meet water quality standards after application of technology-based controls.

Toxicity - Adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). The water quality objectives for toxicity provided in the Basin Plan, state in part...“All waters shall be free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life....The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge”.

Treatment Control BMP – Any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media absorption or any other physical, biological, or chemical process.

Unpaved Road – Any long, narrow stretch without pavement used for traveling by motor passenger vehicles between two or more points. Unpaved roads are generally constructed of dirt, gravel, aggregate or macadam and may be improved or unimproved.

Waste - As defined in CWC Section 13050(d), “waste includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal.”

Article 2 of CCR Title 23, Chapter 15 (Chapter 15) contains a waste classification system that applies to solid and semi-solid waste, which cannot be discharged directly or indirectly to water of the state and which therefore must be discharged to land for treatment, storage, or disposal in accordance with Chapter 15. There are four classifications of waste (listed in order of highest

to lowest threat to water quality): hazardous waste, designated waste, non-hazardous solid waste, and inert waste.

Water Quality Objective - Numerical or narrative limits on constituents or characteristics of water designated to protect designated beneficial uses of the water. [California Water Code Section 13050 (h)]. California's water quality objectives are established by the State and Regional Water Boards in the Water Quality Control Plans. Numeric or narrative limits for pollutants or characteristics of water designed to protect the beneficial uses of the water. In other words, a water quality objective is the maximum concentration of a pollutant that can exist in a receiving water and still generally ensure that the beneficial uses of the receiving water remain protected (i.e., not impaired). Since water quality objectives are designed specifically to protect the beneficial uses, when the objectives are violated the beneficial uses are, by definition, no longer protected and become impaired. This is a fundamental concept under the Porter Cologne Act. Equally fundamental is Porter Cologne's definition of pollution. A condition of pollution exists when the water quality needed to support designated beneficial uses has become unreasonably affected or impaired; in other words, when the water quality objectives have been violated. These underlying definitions (regarding beneficial use protection) are the reason why all waste discharge requirements implementing the federal NPDES regulations require compliance with water quality objectives. (Water quality objectives are also called water quality criteria in the CWA.)

Water Quality Standards - Water quality standards, as defined in Clean Water Act section 303(c) consist of the beneficial uses (e.g., swimming, fishing, municipal drinking water supply, etc.,) of a water body and criteria (referred to as water quality objectives in the California Water Code) necessary to protect those uses. Under the Water Code, the water boards establish beneficial uses and water quality objectives in water quality control or basin plans. Together with an anti-degradation policy, these beneficial uses and water quality objectives serve as water quality standards under the Clean Water Act. In Clean Water Act parlance, state beneficial uses are called "designated uses" and state water quality objectives are called "criteria." Throughout this Order, the relevant term is used depending on the statutory scheme.

Waters of the State - Any surface water or groundwater, including saline waters, within the boundaries of the State [CWC section 13050 (e)]. The definition of the Waters of the State is broader than that for the Waters of the United States in that all water in the State is considered to be a Waters of the State.

Deleted: water,

Deleted: underground

Deleted: regardless of circumstances or condition

Waters of the United States - As defined in the 40 CFR 122.2, the Waters of the U.S. are defined as: "(a) All waters, which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (b) All interstate waters, including interstate "wetlands;" (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation or destruction of which would affect or could affect interstate or foreign commerce including any such waters: (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) Which are used or could be used for industrial purposes by industries in interstate commerce; (d) All impoundments of waters otherwise defined as waters of the United States under this definition; (e) Tributaries of waters identified in paragraphs (a) through (d) of this definition; (f) The territorial seas; and (g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition. Waters of the United States do not include prior

converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA."

Watershed - That geographical area which drains to a specified point on a water course, usually a confluence of streams or rivers (also known as drainage area, catchment, or river basin).

Wet Season (aka Rainy Season) –October 1 to April 30

Wet Weather – Weather is considered wet if there is a storm event of 0.1 inches and greater preceded by 72 hours of dry weather, unless otherwise defined by another regulatory mechanism, such as a TMDL.

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Tentative Order No. R9-2013-0001

Month Day, 2013

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ATTACHMENT D
JURISDICTIONAL RUNOFF MANAGEMENT PROGRAM
ANNUAL REPORT FORM

Comment [K8]: It is recommended that this form be deleted and that the Copermitees use their existing reporting format and structure until the WQIPs and corresponding JRMPs are developed and/or updated.

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**JURISDICTIONAL RUNOFF MANAGEMENT PROGRAM
ANNUAL REPORT FORM
FY _____**

I. COPERMITTEE INFORMATION	
Copermittee Name: _____	
Copermittee Primary Contact Name: _____	
Copermittee Primary Contact Information:	
Address: _____	
City: _____	County: _____ State: _____ Zip: _____
Telephone: _____	Fax: _____ Email: _____
II. LEGAL AUTHORITY	
Has the Copermittee established adequate legal authority within its jurisdiction to control pollutant discharges into and from its MS4 that complies with Order No. R9-2013-0001?	YES <input type="checkbox"/> NO <input type="checkbox"/>
A Principal Executive Officer, Ranking Elected Official, or Duly Authorized Representative has certified that the Copermittee obtained and maintains adequate legal authority?	YES <input type="checkbox"/> NO <input type="checkbox"/>
III. JURISDICTIONAL RUNOFF MANAGEMENT PROGRAM DOCUMENT UPDATE	
Was an update of the jurisdictional runoff management program document required or recommended by the San Diego Water Board?	YES <input type="checkbox"/> NO <input type="checkbox"/>
If YES to the question above, did the Copermittee update its jurisdictional runoff management program document and make it available on the Regional Clearinghouse?	YES <input type="checkbox"/> NO <input type="checkbox"/>
IV. ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM	
Has the Copermittee implemented a program to actively detect and eliminate illicit discharges and connections to its MS4 that complies with Order No. R9-2013-0001?	YES <input type="checkbox"/> NO <input type="checkbox"/>
Number of non-storm water discharges reported by the public	_____
Number of non-storm water discharges detected by Copermittee staff or contractors	_____
Number of non-storm water discharges investigated by the Copermittee	_____
Number of sources of non-storm water discharges identified	_____
Number of non-storm water discharges eliminated	_____
Number of sources of illicit discharges or connections identified	_____
Number of illicit discharges or connections eliminated	_____
Number of enforcement actions issued	_____
Number of escalated enforcement actions issued	_____
V. DEVELOPMENT PLANNING PROGRAM	
Has the Copermittee implemented a development planning program that complies with Order No. R9-2013-0001?	YES <input type="checkbox"/> NO <input type="checkbox"/>
Was an update to the BMP Design Manual required or recommended by the San Diego Water Board?	YES <input type="checkbox"/> NO <input type="checkbox"/>
If YES to the question above, did the Copermittee update its BMP Design Manual and make it available on the Regional Clearinghouse?	YES <input type="checkbox"/> NO <input type="checkbox"/>
Number of proposed development projects in review	_____
Number of Priority Development Projects in review	_____
Number of Priority Development Projects approved	_____
Number of approved Priority Development Projects exempt from any BMP requirements	_____
Number of approved Priority Development Projects allowed alternative compliance	_____
Number of Priority Development Projects granted occupancy	_____
Number of completed Priority Development Projects in inventory	_____
Number of high priority Priority Development Project structural BMP inspections	_____
Number of Priority Development Project structural BMP violations	_____
Number of enforcement actions issued	_____
Number of escalated enforcement actions issued	_____

**JURISDICTIONAL RUNOFF MANAGEMENT PROGRAM
ANNUAL REPORT FORM
FY _____**

VI. CONSTRUCTION MANAGEMENT PROGRAM

Has the Copermittee implemented a construction management program that complies with Order No. R9-2013-0001? YES
NO

Number of construction sites in inventory	
Number of active construction sites in inventory	
Number of inactive construction sites in inventory	
Number of construction sites closed/completed during reporting period	
Number of construction site inspections	
Number of construction site violations	
Number of enforcement actions issued	
Number of escalated enforcement actions issued	

VII. EXISTING DEVELOPMENT MANAGEMENT PROGRAM

Has the Copermittee implemented an existing development management program that complies with Order No. R9-2013-0001? YES
NO

	Municipal	Commercial	Industrial	Residential
Number of facilities or areas in inventory				
Number of existing development inspections				
Number of follow-up inspections				
Number of violations				
Number of enforcement actions issued				
Number of escalated enforcement actions issued				

VIII. PUBLIC EDUCATION AND PARTICIPATION

Has the Copermittee implemented a public education program component that complies with Order No. R9-2013-0001? YES
NO

Has the Copermittee implemented a public participation program component that complies with Order No. R9-2013-0001? YES
NO

IX. FISCAL ANALYSIS

Has the Copermittee attached to this form a summary of its fiscal analysis that complies with Order No. R9-2013-0001? YES
NO

X. CERTIFICATION

I [Principal Executive Officer Ranking Elected Official Duly Authorized Representative] certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Signature

Date

Print Name

Title

Telephone Number

Email

ATTACHMENT E**SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS
APPLICABLE TO ORDER NO. R9-2013-0001**

These provisions implement Total Maximum Daily Loads (TMDLs), adopted by the San Diego Water Board and approved by USEPA under Clean Water Act section 303(c), which are applicable to discharges regulated under this Order. The provisions and schedules for implementation of the TMDLs described below must be incorporated into the Water Quality Improvement Plans, required pursuant to Provision B of this Order, for the specified Watershed Management Areas.

1. Total Maximum Daily Load for Diazinon in Chollas Creek Watershed
2. Total Maximum Daily Loads for Dissolved Copper in Shelter Island Yacht Basin
3. Total Maximum Daily Loads for Total Nitrogen and Total Phosphorus in Rainbow Creek Watershed
4. Total Maximum Daily Loads for Dissolved Copper, Lead, and Zinc in Chollas Creek
5. Total Maximum Daily Loads for Indicator Bacteria, Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay
6. Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)

1. Total Maximum Daily Load for Diazinon in Chollas Creek Watershed

a. APPLICABILITY

- (1) TMDL Basin Plan Amendment: Resolution No. R9-2002-0123
- (2) TMDL Adoption and Approval Dates:
- | | |
|---|--------------------|
| San Diego Water Board Adoption Date: | August 14, 2002 |
| State Water Board Approval Date: | July 16, 2003 |
| Office of Administrative Law Approval Date: | September 11, 2003 |
| US EPA Approval Date: | November 3, 2003 |
- (3) TMDL Effective Date: September 11, 2003
- (4) Watershed Management Area: San Diego Bay
- (5) Water Body: Chollas Creek
- (6) Responsible Copermittees: City of La Mesa, City of Lemon Grove, City of San Diego, County of San Diego, San Diego Unified Port District

b. WATER QUALITY BASED EFFLUENT LIMITATIONS

The WQBELs for Chollas Creek consist of the following:

(1) Receiving Water Limitations

Discharges from the MS4s must not cause or contribute to the violation of the following receiving water limitations by the end of the compliance schedule under Specific Provision 1.c:

Table 1.1

Receiving Water Limitations as Concentrations in Chollas Creek

Constituent	Exposure Duration	Receiving Water Limitation	Averaging Period
Diazinon	Acute	0.08 µg/L	1 hour
	Chronic	0.05 µg/L	4 days

(2) Effluent Limitations

Discharges from the MS4s must not contain concentrations that exceed the following effluent limitations by the end of the compliance schedule under Specific Provision 1.c:

Table 1.2

Effluent Limitations as Concentrations in MS4 Discharges to Chollas Creek

Constituent	Exposure Duration	Effluent Limitation	Averaging Period
Diazinon	Acute	0.072 µg/L	1 hour
	Chronic	0.045 µg/L	4 days

(3) Best Management Practices

The following BMPs for Chollas Creek must be incorporated into the Water Quality Improvement Plan for the San Diego Bay Watershed Management Area and implemented by the Responsible Copermittees:

- (a) The Responsible Copermittees must implement BMPs to support the achievement of the WQBELs under Specific Provision 1.b for Chollas Creek.
- (b) The Responsible Copermittees must implement the Diazinon Toxicity Control Plan and Diazinon Public Outreach/Education Program as described in the report titled, *Technical Report for Total Maximum Daily Load for Diazinon in Chollas Creek Watershed, San Diego County*, dated August 14, 2002, including subsequent modifications, in order to achieve the WQBELs under Specific Provision 1.b.
- (c) The Responsible Copermittees should coordinate any BMPs implemented to address this TMDL with Caltrans as possible.

c. COMPLIANCE SCHEDULE

The Responsible Copermittees are required to achieve their respective WLAs by December 31, 2010. The Responsible Copermittees must be in compliance with the WQBELs under Specific Provision 1.b.

d. SPECIFIC MONITORING AND ASSESSMENT REQUIREMENTS

- (1) The Responsible Copermittees must implement the monitoring and assessment requirements issued under Investigation Order No. R9-2004-0277, *California Department of Transportation and San Diego Municipal Separate Storm Sewer System Copermittees Responsible for the Discharge of Diazinon into the Chollas Creek Watershed*. The monitoring reports required under Investigation Order No. R9-2004-0277 must be submitted as part of the Annual Reports required under Provision F.3.b of this Order.
- (2) The Responsible Copermittees must monitor the effluent of the MS4 outfalls for diazinon within the Chollas Creek watershed, and calculate or estimate the annual diazinon loads, in accordance with the requirements of Provisions D.2, D.4.b.(1), and D.4.b.(2) of this Order. The monitoring and assessment results must be submitted as part of the Annual Reports required under Provision F.3.b of this Order.

e. COMPLIANCE DETERMINATION

Compliance with WQBELs of Specific Provision 1.b may be demonstrated via one of the following methods:

- (1) There is no direct or indirect discharge from the Responsible Copermittees' MS4s to the receiving water;
- (2) There are no exceedances of the applicable receiving water limitations under Specific Provision 1.b.(1) in the receiving water at, or downstream of the Responsible Copermittees' MS4 outfalls; OR
- (3) There are no violations of the applicable effluent limitations under Specific Provision 1.b.(2) at the Responsible Copermittees' MS4 outfalls.

2. Total Maximum Daily Loads for Dissolved Copper in Shelter Island Yacht Basin

a. APPLICABILITY

(1) TMDL Basin Plan Amendment: Resolution No. R9-2005-0019

(2) TMDL Adoption and Approval Dates:

San Diego Water Board Adoption Date:	February 9, 2005
State Water Board Approval Date:	September 22, 2005
Office of Administrative Law Approval Date:	December 2, 2005
US EPA Approval Date:	February 8, 2006

(3) TMDL Effective Date: December 2, 2005

(4) Watershed Management Area: San Diego Bay

(5) Water Body: Shelter Island Yacht Basin

(6) Responsible Copermittee: City of San Diegot

b. WATER QUALITY BASED EFFLUENT LIMITATIONS

The WQBELs for Shelter Island Yacht Basin consist of the following:

(1) Receiving Water Limitations

Discharges from the MS4s must not cause or contribute to the violation of the following receiving water limitations by the end of the compliance schedule under Specific Provision [2.c](#):

Table 2.1

Receiving Water Limitations as Concentrations in Shelter Island Yacht Basin

Constituent	Exposure Duration	Receiving Water Limitation	Averaging Period
Dissolved Copper	Acute	4.8 µg/L	1 hour
	Chronic	3.1 µg/L	4 days

(2) Effluent Limitations

Discharges from the MS4s must not contain pollutant loads that exceed the following effluent limitations by the end of the compliance schedule under Specific Provision [2.c](#):

Table 2.2

Effluent Limitations as Annual Loads in MS4 Discharges to Shelter Island Yacht Basin

Constituent	Effluent Limitation
Dissolved Copper	30 kg/yr

(3) Best Management Practices

The Responsible Copermittee must implement BMPs to support the achievement of the WQBELs under Specific Provision [2.b](#) for Shelter Island Yacht Basin

c. COMPLIANCE SCHEDULE

The Responsible Copermittee is required to achieve the MS4 WLA by December 2, 2005. The Responsible Copermittee must be in compliance with the WQBELs under Specific Provision [2.b](#).

d. SPECIFIC MONITORING AND ASSESSMENT REQUIREMENTS

The Responsible Copermittee must monitor the effluent of its MS4 outfalls for dissolved copper, and calculate or estimate the monthly and annual dissolved copper loads, in accordance with the requirements of Provisions [D.2](#), [D.4.b.\(1\)](#), and [D.4.b.\(2\)](#) of this Order. The monitoring and assessment results must be submitted as part of the Annual Reports required under Provision [F.3.b](#) of this Order.

e. COMPLIANCE DETERMINATION

Compliance with WQBELs of Specific Provision [2.b](#) may be demonstrated via one of the following methods:

- (1) There is no direct or indirect discharge from the Responsible Copermittee's MS4s to the receiving water;
- (2) There are no exceedances of the applicable receiving water limitations under Specific Provision [2.b.\(1\)](#) in the receiving water at, or downstream of the Responsible Copermittee's MS4 outfalls; OR
- (3) There are no violations of the applicable effluent limitations under Specific Provision [2.b.\(2\)](#) at the Responsible Copermittee's MS4 outfalls.

3. Total Maximum Daily Loads for Total Nitrogen and Total Phosphorus in Rainbow Creek Watershed

a. APPLICABILITY

(1) TMDL Basin Plan Amendment: Resolution No. R9-2005-0036

(2) TMDL Adoption and Approval Dates:

San Diego Water Board Adoption Date:	February 9, 2005
State Water Board Approval Date:	November 16, 2005
Office of Administrative Law Approval Date:	February 1, 2006
US EPA Approval Date:	March 22, 2006

(3) TMDL Effective Date: February 1, 2006

(4) Watershed Management Area: Santa Margarita River

(5) Water Body: Rainbow Creek

(6) Responsible Copermittee: County of San Diego

b. WATER QUALITY BASED EFFLUENT LIMITATIONS

The WQBELs for Rainbow Creek consist of the following

(1) Receiving Water Limitations

Discharges from the MS4s must not cause or contribute to the violation of the following receiving water limitations by the end of the compliance schedule under Specific Provision 3.c.(1):

Table 3.1

Receiving Water Limitations as Concentrations in Rainbow Creek

Constituent	Receiving Water Limitation
Nitrate (as N)	10 mg/L
Total Nitrogen	1 mg/L
Total Phosphorus	0.1 mg/L

(2) Effluent Limitations

- (a) Discharges from the MS4s must not contain concentrations that exceed the following effluent limitations by the end of the compliance schedule under Specific Provision 3.c.(1):

Table 3.2

Effluent Limitations as Concentrations in MS4 Discharges to Rainbow Creek

Constituent	Effluent Limitation
Nitrate (as N)	10 mg/L
Total Nitrogen	1 mg/L
Total Phosphorus	0.1 mg/L

- (b) Pollutant loads from given land uses discharging to and from the MS4s must not exceed the following effluent limitations by the end of the compliance schedule under Specific Provision 3.c.(1):

Table 3.3

Effluent Limitations as Annual Loads in MS4 Discharges to Rainbow Creek

Land Use	Total N	Total P
Commercial nurseries	116 kg/yr	3 kg/yr
Park	3 kg/yr	0.1 kg/yr
Residential areas	149 kg/yr	12 kg/yr
Urban areas	27 kg/yr	6 kg/yr

Interim effluent limitations expressed as pollutant loads are given in the compliance schedule under Specific Provision 3.0.

(3) Best Management Practices

- (a) The Responsible Copermittee must implement BMPs to support the achievement of the WQBELs under Specific Provision 3.b for Rainbow Creek.
- (b) The Responsible Copermittee should coordinate any BMPs implemented to address this TMDL with Caltrans and other sources as possible.

c. COMPLIANCE SCHEDULE(1) Compliance Date

The Responsible Copermittee must be in compliance with the WQBELs under Specific Provision 3.b, by December 31, 2021.

(2) Interim Compliance Requirements**Table 3.4**

Interim Effluent Limitations as Annual Loads in MS4 Discharges from Specific Land Uses to Rainbow Creek

Land Use	Total N Interim Effluent Limitations (kg/yr)			Total P Interim Effluent Limitations (kg/yr)		
	Interim Compliance Date			Interim Compliance Date		
	2009	2013	2017	2009	2013	2017
Commercial nurseries	390	299	196	20	16	10
Park	5	3	3	0.15	0.10	0.10
Residential areas	507	390	260	99	74	47
Urban areas	40	27	27	9	6	6

d. SPECIFIC MONITORING AND ASSESSMENT REQUIREMENTS

The Responsible Copermittee must implement the Sampling and Analysis Plan for Rainbow Creek Nutrient Reduction TMDL Implementation Water Quality Monitoring, dated January 2010. The results of any monitoring conducted during the reporting period, and assessment of whether the interim and final WQBELs have been achieved must be submitted as part of the Annual Reports required under Provision F.3.b of this Order.

e. COMPLIANCE DETERMINATION

- (1) Compliance with interim compliance requirements of Specific Provision 3.c.(2) may be demonstrated via one of the following methods:
- There is no direct or indirect discharge from the Responsible Copermittee's MS4s to the receiving water;
 - There are no exceedances of the applicable receiving water limitations under Specific Provision 3.b.(1) in the receiving water at, or downstream of the Responsible Copermittee's MS4 outfalls;
 - There are no violations of the applicable effluent limitations under Specific Provision 3.b.(2)(a) at the Responsible Copermittee's MS4 outfalls;
 - The pollutant loads from given land uses discharging to and from the MS4s do not exceed the applicable effluent limitations under Specific Provision 3.b.(2)(b); OR

- (e) The Responsible Copermittee has submitted and is fully implementing a Water Quality Improvement Plan, accepted by the San Diego Water Board, which provides reasonable assurance that the interim compliance requirements will be achieved by the interim compliance dates.
- (2) Compliance with WQBELs of Specific Provision 3.b may be demonstrated via one of the following methods:
 - (a) There is no direct or indirect discharge from the Responsible Copermittee's MS4s to the receiving water;
 - (b) There are no exceedances of the applicable receiving water limitations under Specific Provision 3.b.(1) in the receiving water at, or downstream of the Responsible Copermittee's MS4 outfalls;
 - (c) There are no violations of the applicable effluent limitations under Specific Provision 3.b.(2)(a) at the Responsible Copermittee's MS4 outfalls; OR
 - (d) The pollutant loads from given land uses discharging to and from the MS4s do not exceed the applicable effluent limitations under Specific Provision 3.b.(2)(b).

4. Total Maximum Daily Loads for Dissolved Copper, Lead, and Zinc in Chollas Creek

a. APPLICABILITY

- (1) TMDL Basin Plan Amendment: Resolution No. R9-2007-0043
- (2) TMDL Adoption and Approval Dates:
- | | |
|---|-------------------|
| San Diego Water Board Adoption Date: | June 13, 2007 |
| State Water Board Approval Date: | July 15, 2008 |
| Office of Administrative Law Approval Date: | October 22, 2008 |
| US EPA Approval Date: | December 18, 2008 |
- (3) TMDL Effective Date: October 22, 2008
- (4) Watershed Management Area: San Diego Bay
- (5) Water Body: Chollas Creek
- (6) Responsible Copermittees: City of La Mesa, City of Lemon Grove, City of San Diego, County of San Diego, San Diego Unified Port District

b. WATER QUALITY BASED EFFLUENT LIMITATIONS

The WQBELs for Chollas Creek consist of the following:

(1) Receiving Water Limitations

Discharges from the MS4s must not cause or contribute to the violation of the following receiving water limitations by the end of the compliance schedule under Specific Provision 4.c.(1):

Table 4.1

Receiving Water Limitations as Concentrations in Chollas Creek

Constituent	Exposure Duration	Receiving Water Limitation (µg/L)	Averaging Period
Dissolved Copper	Acute	$(0.96) \times e^{[0.9422 \times \ln(\text{hardness}) - 1.700]} \times \text{WER}^*$	1 hour
	Chronic	$(0.96) \times e^{[0.8545 \times \ln(\text{hardness}) - 1.702]} \times \text{WER}^*$	4 days
Dissolved Lead	Acute	$[1.46203 - 0.145712 \times \ln(\text{hardness})] \times e^{[1.273 \times \ln(\text{hardness}) - 1.460]} \times \text{WER}^*$	1 hour
	Chronic	$[1.46203 - 0.145712 \times \ln(\text{hardness})] \times e^{[1.273 \times \ln(\text{hardness}) - 4.705]} \times \text{WER}^*$	4 days
Dissolved Zinc	Acute	$(0.978) \times e^{[0.8473 \times \ln(\text{hardness}) + 0.884]} \times \text{WER}^*$	1 hour
	Chronic	$(0.986) \times e^{[0.8473 \times \ln(\text{hardness}) + 0.884]} \times \text{WER}^*$	4 days

Notes:

* The Water Effect Ratio (WER) is assumed to be 1.0 unless there is a site-specific and chemical-specific WER.

(2) Effluent Limitations

Discharges from the MS4s must not contain pollutant loads that exceed the following effluent limitations by the end of the compliance schedule under Specific Provision 4.c.(1):

Table 4.2*Effluent Limitations as Concentrations in MS4 Discharges to Chollas Creek*

Constituent	Exposure Duration	Effluent Limitation (µg/L)	Averaging Period
Dissolved Copper	Acute	$90\% \times (0.96) \times e^{[0.9422 \times \ln(\text{hardness}) - 1.700]} \times \text{WER}^*$	1 hour
	Chronic	$90\% \times (0.96) \times e^{[0.8545 \times \ln(\text{hardness}) - 1.702]} \times \text{WER}^*$	4 days
Dissolved Lead	Acute	$90\% \times [1.46203 - 0.145712 \times \ln(\text{hardness})] \times e^{[1.273 \times \ln(\text{hardness}) - 1.460]} \times \text{WER}^*$	1 hour
	Chronic	$90\% \times [1.46203 - 0.145712 \times \ln(\text{hardness})] \times e^{[1.273 \times \ln(\text{hardness}) - 4.705]} \times \text{WER}^*$	4 days
Dissolved Zinc	Acute	$90\% \times (0.978) \times e^{[0.8473 \times \ln(\text{hardness}) + 0.884]} \times \text{WER}^*$	1 hour
	Chronic	$90\% \times (0.986) \times e^{[0.8473 \times \ln(\text{hardness}) + 0.884]} \times \text{WER}^*$	4 days

Notes:

* The Water Effect Ratio (WER) is assumed to be 1.0 unless there is a site-specific and chemical-specific WER.

(3) Best Management Practices

- (a) The Responsible Copermittees must implement BMPs to support the achievement of the WQBELs under Specific Provision 4.b for Chollas Creek.
- (b) The Responsible Copermittees should coordinate any BMPs implemented to address this TMDL with Caltrans and the U.S. Navy as possible.

c. COMPLIANCE SCHEDULE**(1) WLA Compliance Date**

The Responsible Copermittees are required to achieve the WLA, thus must be in compliance with the WQBELs under Specific Provision 4.b, by October 22, 2028.

(2) Interim Compliance Requirements

The Responsible Copermitee must comply with the following interim WQBELs by the interim compliance date:

Table 4.3

Interim Effluent Limitations as Concentrations in MS4 Discharges to Chollas Creek

Interim Compliance Date	Constituent	Exposure Duration	Effluent Limitation (µg/L)	Averaging Period
October 22, 2018	Dissolved Copper	Acute	$1.2 \times 90\% \times (0.96) \times e^{[0.9422 \times \ln(\text{hardness}) - 1.700]} \times \text{WER}^*$	1 hour
		Chronic	$1.2 \times 90\% \times (0.96) \times e^{[0.8545 \times \ln(\text{hardness}) - 1.702]} \times \text{WER}^*$	4 days
	Dissolved Lead	Acute	$1.2 \times 90\% \times [1.46203 - 0.145712 \times \ln(\text{hardness})] \times e^{[1.273 \times \ln(\text{hardness}) - 1.460]} \times \text{WER}^*$	1 hour
		Chronic	$1.2 \times 90\% \times [1.46203 - 0.145712 \times \ln(\text{hardness})] \times e^{[1.273 \times \ln(\text{hardness}) - 4.705]} \times \text{WER}^*$	4 days
	Dissolved Zinc	Acute	$1.2 \times 90\% \times (0.978) \times e^{[0.8473 \times \ln(\text{hardness}) + 0.884]} \times \text{WER}^*$	1 hour
		Chronic	$1.2 \times 90\% \times (0.986) \times e^{[0.8473 \times \ln(\text{hardness}) + 0.884]} \times \text{WER}^*$	4 days

Notes:

* The Water Effect Ratio (WER) is assumed to be 1.0 unless there is a site-specific and chemical-specific WER.

d. SPECIFIC MONITORING AND ASSESSMENT REQUIREMENTS

- (1) The Responsible Copermitees must implement the monitoring and assessment requirements issued under Investigation Order No. R9-2004-0277, *California Department of Transportation and San Diego Municipal Separate Storm System Copermitees Responsible for the Discharge of Diazinon into the Chollas Creek Watershed*, when it is amended to include monitoring requirements for the Total Maximum Daily Loads for Dissolved Copper, Lead, and Zinc in Chollas Creek. The monitoring reports required under Investigation Order No. R9-2004-0277 must be submitted as part of the Annual Reports required under Provision [F.3.b](#) of this Order.
- (2) The Responsible Copermitees must monitor the effluent of the MS4 outfalls discharging to Chollas Creek for dissolved copper, lead, and zinc, and calculate or estimate the monthly and annual dissolved copper, lead, and zinc loads, in accordance with the requirements of Provisions [D.2](#), [D.4.b.\(1\)](#), and [D.4.b.\(2\)](#) of this Order. The monitoring and assessment results must be submitted as part of the Annual Reports required under Provision [F.3.b](#) of this Order.

e. COMPLIANCE DETERMINATION

- (1) Compliance with interim compliance requirements of Specific Provision 4.c.(2) may be demonstrated via one of the following methods:
 - (a) There is no direct or indirect discharge from the Responsible Copermittees' MS4s to the receiving water;
 - (b) There are no exceedances of the applicable receiving water limitations under Specific Provision 4.b.(1) in the receiving water at, or downstream of the Responsible Copermittees' MS4 outfalls;
 - (c) There are no violations of the applicable effluent limitations under Specific Provision 4.b.(2) at the Responsible Copermittees' MS4 outfalls; OR
 - (d) The Responsible Copermittees have submitted and is fully implementing a Water Quality Improvement Plan, accepted by the San Diego Water Board, which provides reasonable assurance that the interim compliance requirements will be achieved by the interim compliance dates.
- (2) Compliance with WQBELs of Specific Provision 4.b may be demonstrated via one of the following methods:
 - (a) There is no direct or indirect discharge from the Responsible Copermittees' MS4s to the receiving water;
 - (b) There are no exceedances of the applicable receiving water limitations under Specific Provision 4.b.(1) in the receiving water at, or downstream of the Responsible Copermittees' MS4 outfalls; OR
 - (c) There are no violations of the applicable effluent limitations under Specific Provision 4.b.(2) at the Responsible Copermittees' MS4 outfalls.

5. Total Maximum Daily Loads for Indicator Bacteria, Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay

a. APPLICABILITY

(1) TMDL Basin Plan Amendment: Resolution No. R9-2008-0027

(2) TMDL Adoption and Approval Dates:

San Diego Water Board Adoption Date: June 11, 2008
 State Water Board Approval Date: June 16, 2009
 Office of Administrative Law Approval Date: September 15, 2009
 US EPA Approval Date: October 26, 2009

(3) TMDL Effective Date: September 15, 2009

(4) Watershed Management Areas: See [Table 5.0](#)

(5) Water Bodies: See [Table 5.0](#)

(6) Responsible Copermittees: See [Table 5.0](#)

Table 5.0

*Applicability of Total Maximum Daily Loads for Indicator Bacteria
 Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay*

Watershed Management Area	Water Body	Segment or Area	Responsible Copermittees
South Orange County	Dana Point Harbor	Baby Beach	-City of Dana Point -County of Orange
San Diego Bay	San Diego Bay	Shelter Island Shoreline Park	- San Diego Unified Port District

ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS

45. Total Maximum Daily Loads for [Dissolved Copper, Lead, Indicator Bacteria, Baby Beach in Dana Point Harbor and Zinc Shelter Island Shoreline Park](#) in [Chollas Creek San Diego Bay](#)

b. WATER QUALITY BASED EFFLUENT LIMITATIONS

The WQBELs for segments or areas of the water bodies listed in [Table 5.0](#)³⁹ consist of the following:

(1) Interim WQBELs – Effluent Limitations

The Responsible Copermittees for MS4 discharges to Baby Beach must comply with the following interim WQBELs by the interim compliance dates identified in Provision 5.d.(1)(b):

Table 5.1
Interim Effluent Limitations as Loads in MS4 Discharges to Baby Beach

Constituent	Effluent Limitation	
	Dry Weather Interim Effluent Limitation (Billion MPN/day)	Wet Weather Interim Effluent Limitation (Billion MPN/30 days)
Total Coliform	4.50	NA
Fecal Coliform	0.50	NA
Enterococcus	0.40	150.5

Deleted: <#>Receiving Water Limitations¶
¶ <#>Discharges from the MS4s must not cause or contribute to the violation of the following receiving water limitations by the end of the compliance schedules under Specific Provisions 5.c.(1)(a) and 5.c.(2):¶
¶ **Table 5.1¶**
Receiving Water Limitations as Bacteria Densities in the Water Body¶

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(2) Final WQBELs - Effluent Limitations

(a) Discharges from the MS4s must not exceed the following mass-based effluent limitations by the end of the compliance schedules under Specific Provision 5.d.(1)(a) to demonstrate the discharge is not causing or contributing to a violation of receiving water quality standards:

Table 5.2
Effluent Limitations as Mass-Based limits in MS4 Discharges to the Water Body

Constituent	Effluent Limit	
	Dry Weather Billion MPN/Day	Wet Weather Billion MPN/30 days
Total Coliform	0.86	3,254
Fecal Coliform	0.17	112
Enterococcus	0.03	114

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(b) If the final WQBELs are not met in the MS4 discharges, the Responsible Copermittees must demonstrate that the discharges from the MS4s are

³⁹ Per Resolution R9-2008-0027, the interim and final WQBELs only apply to waterbodies that remain on the 303(d) list for REC-1 water quality objectives due to impacts from controllable sources of bacteria. If waterbodies are put back on the list or delisted in subsequent iterations, the San Diego Water Board will revise the current NPDES requirements and/or issue additional waste discharge requirements to be consistent with these TMDLs.

ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS

45. Total Maximum Daily Loads for Dissolved Copper, Lead, Indicator Bacteria, Baby Beach in Dana Point Harbor and Zinc Shelter Island Shoreline Park in Chollas CreekSan Diego Bay

not causing or contributing to the exceedance of receiving water limitations. Such demonstration may be achieved by (1) demonstrating the attainment of the Receiving Water Limitations in Provision 5.c.(1), or (2) demonstrating that the natural and background sources appear to be the sole source of the continued impairment. The natural sources exclusion approach (NSEA) may be applied. The Municipal Dischargers are responsible for collection of the data to support the application of the NSEA to recalculate the TMDL.

(3) Best Management Practices

(a) The Water Quality Improvement Plans for the applicable Watershed Management Areas in Table 5.0 must incorporate the Bacteria Load Reduction Plan (BLRP) required to be developed pursuant to Resolution No. R9-2008-0027.

(b) The Responsible Copermittee must implement BMPs to support the achievement of the WQBELs under Specific Provision 5.b for the segments or areas of the water bodies listed in Table 5.0

C. RECEIVING WATER LIMITATIONS

The Receiving Water Limitations for segments or areas of the water bodies listed in Table 5.0⁴⁰ consist of the following:

(1) Discharges from the MS4s must not cause or contribute to the violation of the following receiving water limitations by the end of the compliance schedules under Specific Provisions 5.d.(1)(a):

Table 5.3
Receiving Water Limitations as Bacteria Densities in the Water Body
Receiving Water Limitations

<u>Constituent</u>	<u>Single Sample Maximum^{1,2}</u>	<u>30-Day Geometric Mean²</u>
<u>Total Coliform</u>	<u>10,000 MPN/100mL</u>	<u>1,000 MPN/100mL</u>
<u>Fecal Coliform</u>	<u>400 MPN/100mL</u>	<u>200 MPN/100mL</u>
<u>Enterococcus</u>	<u>104 MPN/100mL</u>	<u>35 MPN/100mL</u>

Notes:

1. During wet weather days, only the single sample maximum receiving water limitations are required to be achieved.

2. During dry weather days, the single sample maximum and 30-day geometric mean receiving water limitations are required to be achieved.

(2) If the above receiving water limitations are not met in the receiving water, the Responsible Copermittees must demonstrate that the discharges from the MS4s are not causing or contributing to the exceedance of receiving water

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⁴⁰ Per Resolution R9-2008-0027, the Receiving Water Limitations only apply to waterbodies that remain on the 303(d) list for REC-1 water quality objectives due to impacts from controllable sources of bacteria. If waterbodies are put back on the list or delisted in subsequent iterations, the San Diego Water Board will revise the current NPDES requirements and/or issue additional waste discharge requirements to be consistent with these TMDLs.

ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS

45. Total Maximum Daily Loads for **Dissolved Copper, Lead, Indicator Bacteria, Baby Beach in Dana Point Harbor and Zinc Shelter Island Shoreline Park in Chollas CreekSan Diego Bay**

[limitations. Such demonstration may be achieved by demonstrating the attainment of the final WQBELs in Provision 5.b.\(2\).](#)

(3) Best Management Practices

- (c) The Water Quality Improvement Plans for the applicable Watershed Management Areas in [Table 5.0](#) must incorporate the Bacteria Load Reduction Plan (BLRP) required to be developed pursuant to Resolution No. R9-2008-0027.
- (d) The Responsible Copermittee must implement BMPs to support the achievement of the [Receiving Water Limitations](#) under Specific Provision [5.0](#) for the segments or areas of the water bodies listed in [Table 5.0](#)

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d. COMPLIANCE SCHEDULE

(1) Baby Beach in Dana Point Harbor

(a) Final Compliance Dates

The Responsible Copermittees for MS4 discharges to Baby Beach are required to achieve the WLA, thus must be in compliance with the WQBELs under Specific Provision [5.0](#), according to the following compliance schedule:

Table 5.4
Compliance Schedule Dates to Achieve Baby Beach WLAs

Constituent	Dry Weather WLA Compliance Date	Wet Weather WLA Compliance Date
Total Coliform	September 15, 2014	September 15, 2009
Fecal Coliform		September 15, 2009
<i>Enterococcus</i>		September 15, 2019

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(b) Interim Compliance Dates

The Responsible Copermittees for MS4 discharges to Baby Beach must comply with the following interim WQBELs by the interim compliance date:

Table 5.5
Compliance Schedule Dates to Achieve Interim WQBELs

Constituent	Interim Dry Weather Compliance Date	Interim Wet Weather Compliance Date
Total Coliform	September 15, 2012	NA
Fecal Coliform		NA
<i>Enterococcus</i>		September 15, 2016

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September 15, 2012

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¶
Table 5.4¶
Interim Effluent Limitations as Loads in MS4 Discharges to Baby Beach¶
Constituent

(2) Shelter Island Shoreline Park in San Diego Bay

The Responsible Copermittee for MS4 discharges to Shelter Island Shoreline Park is required to achieve the WLA, thus must be in compliance with the ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS

[45. Total Maximum Daily Loads for Dissolved Copper, Lead, Indicator Bacteria, Baby Beach in Dana Point Harbor and Zinc Shelter Island Shoreline Park in Chollas CreekSan Diego Bay](#)

WQBELs under Specific Provision 5.0, by December 31, 2012.

e. SPECIFIC MONITORING AND ASSESSMENT REQUIREMENTS

The BLRPs to be submitted by the Responsible Copermittees and approved by the Regional Board Executive Officer contain monitoring programs. Implementation of those Regional Board-approved monitoring programs constitutes compliance with the Monitoring Station and Monitoring Procedure requirements described below.

(1) Monitoring Stations

(a) Monitoring locations should consist of, at a minimum, the same locations used to collect data required pursuant to Order Nos. R9-2007-0001 and R9-2009-0002, and beach monitoring for Health and Safety Code section 115880.41 If sources of bacteria from the MS4 persist at levels that exceed the applicable receiving water limitations, additional monitoring locations and/or other source identification methods shall be implemented to identify the controllable sources causing the chronic contamination.

(b) If natural and background sources appear to be the sole source of the impairment, Responsible Copermittees may select collect and provide additional data and the application of the NSEA to revise the TMDLs may be appropriate. Such revisions would be made to the TMDL via a Basin Plan Amendment and then subsequently incorporated into this Order consistent with Provision H.5.

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(2) Monitoring Procedures

(a) The Responsible Copermittees must conduct the dry and wet weather monitoring consistent with the monitoring and reporting program developed as part of the BLRP. Dry weather samples collected from additional monitoring stations established to support application of the NSEA must be collected at an appropriate frequency to demonstrate bacteria loads from the identified controllable anthropogenic sources have been addressed and do not indicate a health risk.

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(b) The Responsible Copermittees must collect wet weather monitoring samples within the first 24 hours of a storm event⁴² of the rainy season (i.e. October 1 through April 30). Wet weather samples collected from receiving water stations and any additional monitoring stations established to support the application of the NSEA must be collected at an appropriate frequency to demonstrate bacteria loads from the identified sources have

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⁴¹ Commonly referred to as AB 411 monitoring

⁴² Wet weather days are defined by the TMDL as storm events of 0.2 inches or greater and the following 72 hours. The Responsible Copermittees may choose to limit their wet weather sampling requirements to storm events of 0.2 inches or greater, or also include storm events of 0.1 inches or greater as defined by the federal regulations [40CFR122.26(d)(2)(iii)(A)(2)].

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been addressed and do not indicate a health risk,

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- (c) Samples must be analyzed for total coliform, fecal coliform, and *Enterococcus* indicator bacteria.

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(3) Assessment and Reporting Requirements

- (a) The Responsible Copermittees must analyze the dry weather and wet weather monitoring data to assess whether the interim and final WQBELs have been achieved.
- (b) The monitoring and assessment results must be submitted as part of the Annual Reports required under Provision F.3.b of this Order.

f. COMPLIANCE DETERMINATION

- (1) Compliance with interim compliance requirements of Specific Provision 5.b(1) may be demonstrated via one of the following methods:

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- (a) There is no discharge from the Responsible Copermittees' MS4s to the receiving water; OR

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- (b) There are no exceedances of the applicable receiving water limitations under Specific Provision 5.c in the receiving water at, or downstream of the Responsible Copermittees' MS4 outfalls; OR

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- (c) There are no violations of the applicable effluent limitations under Specific Provision 5.b.(2) at the Responsible Copermittees' MS4 outfalls; OR

- (d) The pollutant loads discharging from the Responsible Copermittees' MS4 outfalls do not exceed the applicable effluent limitations under Specific Provision 5.b.(2); OR

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- (e) The Responsible Copermittees can demonstrate that exceedances of the applicable receiving water limitations under Specific Provision 5.c in the receiving water are due to loads from natural sources, AND pollutant loads from the Copermittees' MS4 are not causing or contributing to the exceedances; OR

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- (f) The Responsible Copermittees have submitted and are fully implementing a Water Quality Improvement Plan, accepted by the San Diego Water Board, which provides reasonable assurance that the interim compliance requirements will be achieved by the interim compliance dates.

(g) Upon the effective date of this Order, a Copermittee's full compliance with all of the following requirements shall constitute a Copermittee's compliance with provisions pertaining to interim WQBELs with compliance

ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS

- 45. Total Maximum Daily Loads for Dissolved Copper, Lead, Indicator Bacteria, Baby Beach in Dana Point Harbor and Zinc Shelter Island Shoreline Park in Chollas Creek San Diego Bay

deadlines occurring prior to approval of a WQIP.

(i) Meets all interim and final deadlines for development of a WQIP,

(ii) Targets implementation of watershed control measures in its existing storm water management program, including watershed control measures to eliminate non-storm water discharges of pollutants through the MS4 to receiving waters, to address known contributions of pollutants from MS4 discharges that cause or contribute to the impairment(s) addressed by the TMDL(s), and

(iii) Receives final approval of its WQIP from the Regional Board.

(2) Compliance with final WQBELs of Specific Provision 5.b.(2) may be demonstrated via one of the following methods:

(a) There is no discharge from the Responsible Copermittees' MS4s to the receiving water;

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(b) There are no exceedances of the applicable receiving water limitations under Specific Provision 5.c. in the receiving water at, or downstream of the Responsible Copermittees' MS4 outfalls;

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(c) There are no violations of the applicable effluent limitations under Specific Provision 5.b.(2) at the Responsible Copermittees' MS4 outfalls;

(d) The pollutant loads discharging from the Responsible Copermittees' MS4 outfalls do not exceed the applicable effluent limitations under Specific Provision 5.b.(2); OR

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(e) The Responsible Copermittees can demonstrate that exceedances of the applicable receiving water limitations under Specific Provision 5.c in the receiving water are due to loads from natural sources, AND pollutant loads from the Copermittees' MS4 are not causing or contributing to the exceedances.

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(f) The Responsible Copermittees have submitted and are fully implementing a Water Quality Improvement Plan, accepted by the San Diego Water Board, which provides reasonable assurance that the final compliance requirements will be achieved by the final compliance dates. A Responsible Copermittee that does not implement its WQIP in accordance with the milestones and compliance schedules shall demonstrate compliance with the final WQBELs pursuant to Provision 5.f(2)(a – e).

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ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS

45. Total Maximum Daily Loads for Dissolved Copper, Lead, Indicator Bacteria, Baby Beach in Dana Point Harbor and Zinc Shelter Island Shoreline Park in Chollas Creek San Diego Bay

6. Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)

a. APPLICABILITY

(1) TMDL Basin Plan Amendment: Resolution No. R9-2010-0001

(2) TMDL Adoption and Approval Dates:

San Diego Water Board Adoption Date: February 10, 2010
 State Water Board Approval Date: December 14, 2010
 Office of Administrative Law Approval Date: April 4, 2011
 US EPA Approval Date: June 22, 2011

(3) TMDL Effective Date: April 4, 2011

(4) Watershed Management Areas: See [Table 6.0](#)

(5) Water Bodies: See [Table 6.0](#)

(6) Responsible Copermittees: See [Table 6.0](#)

Table 6.0

Applicability of Total Maximum Daily Loads for Indicator Bacteria

Project I - Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek)

Watershed Management Area	Water Body ¹	Segment or Area	Responsible Copermittees
South Orange County	Pacific Ocean Shoreline	Cameo Cove at Irvine Cove Drive – Riviera Way	-City of Laguna Beach -County of Orange -Orange County Flood Control District
		at Heisler Park - North	
	Pacific Ocean Shoreline	at Main Laguna Beach	-City of Aliso Viejo -City of Laguna Beach -City of Laguna Woods -County of Orange -Orange County Flood Control District
		Laguna Beach at Ocean Avenue	
		Laguna Beach at Cleo Street	
		Arch Cove at Bluebird Canyon Road	
	Pacific Ocean Shoreline	Laguna Beach at Dumond Drive	-City of Aliso Viejo -City of Laguna Beach -City of Laguna Hills -City of Laguna Niguel -City of Laguna Woods -City of Lake Forest -City of Mission Viejo -County of Orange -Orange County Flood Control District
		Laguna Beach at Lagunita Place / Blue Lagoon Place at Aliso Beach	
	Aliso Creek	Entire reach (7.2 miles) and associated tributaries: - Aliso Hills Channel - English Canyon Creek - Dairy Fork Creek - Sulfur Creek - Wood Canyon Creek	

ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS

[5.6. Revised](#) Total Maximum Daily Loads for Indicator Bacteria, [Baby Beach in Dana Point Harbor](#) [Project I – Twenty Beaches](#) and [Shelter Island Shoreline Park in Creeks in the San Diego Bay Region \(Including Tecolote Creek\)](#)

	Aliso Creek Mouth	at mouth	
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Table 6.0 (Cont'd)

Applicability of Total Maximum Daily Loads for Indicator Bacteria

Project I - Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek)

Watershed Management Area	Water Body	Segment or Area	Responsible Copermittees
South Orange County (cont'd)	Pacific Ocean Shoreline	Aliso Beach at West Street	-City of Dana Point -City of Laguna Beach -City of Laguna Niguel -County of Orange -Orange County Flood Control District
		Aliso Beach at Table Rock Drive	
		100 Steps Beach at Pacific Coast Hwy at hospital (9 th Avenue)	
		at Salt Creek (large outlet)	
		Salt Creek Beach at Salt Creek service road	
		Salt Creek Beach at Strand Road	
	Pacific Ocean Shoreline	at San Juan Creek	-City of Dana Point -City of Laguna Hills -City of Laguna Niguel -City of Mission Viejo -City of Rancho Santa Margarita -City of San Juan Capistrano -County of Orange -Orange County Flood Control District
	San Juan Creek	lower 1 mile	
	San Juan Creek Mouth	at mouth	
	Pacific Ocean Shoreline	at Poche Beach	-City of Dana Point -City of San Clemente -County of Orange -Orange County Flood Control District
		Ole Hanson Beach Club Beach at Pico Drain	
		San Clemente City Beach at El Portal Street Stairs	
		San Clemente City Beach at Mariposa Street	
		San Clemente City Beach at Linda Lane	
		San Clemente City Beach at South Linda Lane	
		San Clemente City Beach at Lifeguard Headquarters	
		under San Clemente Municipal Pier	
		San Clemente City Beach at Trafalgar Canyon (Trafalgar Lane)	
		San Clemente State Beach at Riviera Beach	
San Clemente State Beach at Cypress Shores			

ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS

5.6. Revised Total Maximum Daily Loads for Indicator Bacteria, [Baby Beach in Dana Point Harbor](#) [Project I - Twenty Beaches and Shelter Island Shoreline Park in Creeks in the San Diego Bay Region \(Including Tecolote Creek\)](#)

San Luis Rey River	Pacific Ocean Shoreline	at San Luis Rey River mouth	-City of Oceanside -City of Vista -County of San Diego
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ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS

5.6. Revised Total Maximum Daily Loads for Indicator Bacteria, Baby Beach in Dana Point Harbor Project

Twenty Beaches and
Shelter Island Shoreline Park in Creeks in the San Diego Bay Region (Including Tecolote Creek)

Table 6.0 (Cont'd)

*Applicability of Total Maximum Daily Loads for Indicator Bacteria
Project I - Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek)*

Watershed Management Area	Water Body	Segment or Area	Responsible Copermittees
Carlsbad	Pacific Ocean Shoreline	at Moonlight State Beach	-City of Carlsbad -City of Encinitas -City of Escondido -City of San Marcos -County of San Diego
San Dieguito River	Pacific Ocean Shoreline	at San Dieguito Lagoon mouth	-City of Del Mar -City of Escondido -City of Poway -City of San Diego -City of Solana Beach -County of San Diego
Penasquitos	Pacific Ocean Shoreline	Torrey Pines State Beach at Del Mar (Anderson Canyon)	-City of Del Mar -City of Poway -City of San Diego -County of San Diego
Mission Bay	Pacific Ocean Shoreline	La Jolla Shores Beach at El Paseo Grande	-City of San Diego
		La Jolla Shores Beach at Caminito del Oro	
		La Jolla Shores Beach at Vallecitos	
		La Jolla Shores Beach at Avenida de la Playa	
		at Casa Beach, Children's Pool	
		South Casa Beach at Coast Boulevard	
		Whispering Sands Beach at Ravina Street	
		Windansea Beach at Vista de la Playa	
		Windansea Beach at Bonair Street	
		Windansea Beach at Playa del Norte	
		Windansea Beach at Palomar Avenue	
		at Tourmaline Surf Park	
		Pacific Beach at Grand Avenue	
	Tecolote Creek	Entire reach and tributaries	

ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS

5.6. Revised Total Maximum Daily Loads for Indicator Bacteria, [Baby Beach in Dana Point Harbor](#) [Project L - Twenty Beaches](#) and [Shelter Island Shoreline Park in Creeks in the San Diego Bay Region \(Including Tecolote Creek\)](#)

Table 6.0 (Cont'd)

*Applicability of Total Maximum Daily Loads for Indicator Bacteria
Project I- Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek)*

Watershed Management Area	Water Body	Segment or Area	Responsible Copermittees
San Diego River	Forrester Creek	lower 1 mile	-City of El Cajon -City of Santee -County of San Diego
	San Diego River	lower 6 miles	-City of El Cajon -City of La Mesa -City of San Diego -City of Santee -County of San Diego
	Pacific Ocean Shoreline	at San Diego River mouth at Dog Beach	
San Diego Bay	Chollas Creek	lower 1.2 miles	-City of La Mesa -City of Lemon Grove -City of San Diego -County of San Diego - San Diego Unified Port District

1 These TMDL provisions do not apply to waterbodies, segments, or areas removed from the 303(d) list for REC-1 indicator bacteria numeric objectives, consistent with the assumptions and requirements of the Basin Plan Amendment. If the waterbodies are subsequently placed back on the 303(d) list for exceedances of the REC-1 indicator bacteria numeric objectives, all TMDL provisions will apply to those waterbodies and the Responsible Copermittees for those waterbodies.

b. WATER QUALITY BASED EFFLUENT LIMITATIONS⁴³

The WQBELs for segments or areas of the water bodies listed in [Table 6.0](#) consist of the following:

(1) Final Dry Weather WQBELs – Effluent Limitations

Table 6.1
Final Dry Weather WQBELs Expressed as Mass-Based Limits

Waterbody	Effluent Limitation		
	Total Coliform Billion MPN/month	Fecal Coliform Billion MPN/month	Enterococcus Billion MPN/month
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	<u>1,134</u>	<u>227</u>	<u>40</u>
Aliso HSA (901.13)	<u>1,208</u>	<u>242</u>	<u>40</u>
Dana Point HSA (901.14)	<u>462</u>	<u>92</u>	<u>16</u>

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⁴³ The Water Quality Based Effluent Limitations, both interim and final, do not apply to the waterbodies and the associated Responsible Copermittees for that waterbody if the waterbody segment in [Table 6.0](#) is not on the 303(d) list for exceedances of the REC-1 numeric objectives for indicator bacteria. If the waterbody is subsequently placed back on the 303(d) for exceedances of the REC-1 numeric objectives for indicator bacteria, the WQBELs, both interim and final, will apply to the associated Responsible Copermittees for that waterbody.

Lower San Juan HSA (901.27)	8,342	1,665	275
San Clemente HA (901.30)		192	

[\(2\) Final Wet Weather WQBELs – Effluent Limitations](#)

Table 6.2

Final Wet Weather WQBELs Expressed as Mass-Based Limits

Waterbody	Effluent Limitation		
	Total Coliform Billion MPN/year	Fecal Coliform Billion MPN/year	Enterococcus Billion MPN/year
San Joaquin Hills/Laguna Hills HSAs (901.11 and 901.12)	880,652	37,167	66,417
Aliso HSA (901.13)	8,923,264	477,069	735,490
Dana Point HSA (901.14)	3,404,008	152,446	219,528
Lower San Juan HSA (901.27)	16,093,160	1,156,419	1,385,094
San Clemente HA (901.30)	3,477,739	192,653	295,668

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[\(3\) Best Management Practices](#)

- [\(a\) The Water Quality Improvement Plans for the applicable Watershed Management Areas in Table 6.0 must incorporate the Bacteria Load Reduction Plans \(BLRPs\) or Comprehensive Load Reduction Plans \(CLRPs\) required to be developed pursuant to Resolution No. R9-2010-0001. For segments or areas in Table 6.0 that have been delisted from the Clean Water Act Section 303\(d\) List of Water Quality Limited Segments, a BLRP and/or CLRP is not required.](#)
- [\(b\) The Responsible Copermittee must implement BMPs to support the achievement of the WQBELs under Specific Provision 6. for the segments or areas of the water bodies listed in Table 6.0.](#)
- [\(c\) The Responsible Copermittees should coordinate any BMPs implemented to address this TMDL with Caltrans and owners/operators of small MS4s as possible.](#)

c. RECEIVING WATER LIMITATIONS

[\(1\) Interim Dry Weather Receiving Water Limitations](#)

[The Responsible Copermittee must calculate the “existing” exceedance frequencies of the 30-day geometric mean water quality objectives for each of the indicator bacteria by analyzing the available monitoring data collected between January 1, 1996 and December 31, 2002. “Existing” exceedance](#)

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frequencies may be calculated by segment or area of a water body, or by water body, and/or by Watershed Management Area listed in Table 6.0. Separate “existing” exceedance frequencies must be calculated for beaches and creeks/creek mouths.

The Responsible Copermittees must achieve a 50 percent reduction in the “existing” exceedance frequency of the 30-day geometric mean Receiving Water Limitation for the segments or areas of the water bodies listed in Table 6.0⁴⁴. A 50 percent reduction in the “existing” exceedance frequency is equivalent to half of the “existing” exceedance frequency of the 30-day geometric mean final Receiving Water Limitations.

The “existing” exceedance frequencies and the interim dry weather allowable exceedance frequencies (i.e. interim dry weather Receiving Water Limitations) calculated by the Responsible Copermittees must be included in the Water Quality Improvement Plans for the applicable Watershed Management Areas. Consistent with the assumptions and requirements of the Basin Plan Amendment, the Responsible Copermittees may provide evidence that indicates another controllable or uncontrollable source is responsible for the exceedances in the receiving waters. Responsible Copermittees may therefore include such demonstrations (including but not limited to reference system exceedance frequencies, natural source exclusion approach) as part of the “existing” exceedance frequency calculation.

The schedule for attaining the interim Receiving Water Limitations is specified in Provision 6.d.(3).

(2) Interim Wet Weather Receiving Water Limitations

The Responsible Copermittees must achieve a 50 percent reduction in the “existing” exceedance frequency of the applicable wet weather Receiving Water Limitation for the segments or areas of the water bodies listed in Table 6.0. A 50 percent reduction in the “existing” exceedance frequency is equivalent to half of the “existing” exceedance frequency of the applicable final Receiving Water Limitations. The exceedance frequency estimated to be equivalent to a 50 percent reduction in the “existing” exceedance frequency is shown in Table 6.4. Unless the Responsible Copermittees calculate a revised “existing” exceedance frequency that is part of an approved WQIP, the allowable existing exceedance frequencies in Table 6.3 shall apply.

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⁴⁴ The interim Receiving Water Limitations requirements do not apply to waterbodies that are not on the 303(d) list for exceedances of the REC-1 indicator bacteria numeric objectives. Consistent with the assumptions and requirements of the Basin Plan Amendment, no further action is required for these waterbodies. If the waterbodies are subsequently placed back on the 303(d) list for exceedances of the REC-1 indicator bacteria numeric objectives, all TMDL provisions will apply to these waterbodies and the Responsible Copermittees for those waterbodies.

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Twenty Beaches and Shelter Island Shoreline Park in Creeks in the San Diego Bay Region (Including Tecolote Creek)

As the wet weather Receiving Water Limitations include an allowable exceedance frequency, the 50 percent reduction shall not require Responsible Permittees to attain an exceedance frequency less than the final allowable exceedance frequency.

Where Responsible Copermittees elect to calculate a revised “existing” exceedance frequency, the “existing” exceedance frequencies and the interim wet weather allowable exceedance frequencies (i.e. interim wet weather Receiving Water Limitations) calculated by the Responsible Copermittees must be included in the Water Quality Improvement Plans for the applicable Watershed Management Areas. Consistent with the assumptions and requirements of the Basin Plan Amendment, the Responsible Copermittees may provide evidence that indicates another controllable or uncontrollable source is responsible for the exceedances in the receiving waters. Responsible Copermittees may therefore include such demonstrations (including but not limited to reference system antidegradation approach or natural source exclusion approach) as part of the “existing” exceedance frequency calculation.

The schedule for attaining the interim Receiving Water Limitations is specified in Provision 6.d(3).

Table 6.3

Interim Wet Weather Receiving Water Limitations Expressed as Interim Wet Weather Allowable Exceedance Frequencies⁴⁵

<u>Watershed</u>			<u>Interim Wet Weather Allowable Exceedance Frequencies</u>		
<u>Managem ent Area</u>	<u>Water Body</u>	<u>Segment or Area</u>	<u>Total Colifor m</u>	<u>Fecal Colifor m</u>	<u>Entero- coccus</u>
<u>South Orange County</u>	<u>Pacific Ocean Shoreline</u>	<u>Cameo Cove at Irvine Cove Drive – Riviera Way</u>	38%	37%	39%
		<u>at Heisler Park - North at Main Laguna Beach</u>			
	<u>Pacific Ocean Shoreline</u>	<u>Laguna Beach at Ocean Avenue</u>			
		<u>Laguna Beach at Cleo Street</u>			
		<u>Arch Cove at Bluebird Canyon Road</u>			
		<u>Laguna Beach at Dumond Drive</u>			

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⁴⁵ Responsible Copermittees may submit interim wet weather allowable exceedance frequencies as part of the WQIP. Upon approval of the WQIP, the interim allowable exceedance frequencies shall supersede the applicable exceedance frequencies in Table 6.3.

ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS

5.6. Revised Total Maximum Daily Loads for Indicator Bacteria, [Baby Beach in Dana Point Harbor](#) ¹⁻ [Project Twenty Beaches](#) and [Shelter Island Shoreline Park](#) in [Creeks in the San Diego Bay](#) Region (Including Tecolote Creek)

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	<u>Pacific Ocean Shoreline</u>	<u>Laguna Beach at Lagunita Place / Blue Lagoon Place at Aliso Beach</u>	<u>41%</u>	<u>41%</u>	<u>42%</u>
	<u>Aliso Creek</u>	<u>Entire reach (7.2 miles) and associated tributaries:</u> <u>- Aliso Hills Channel</u> <u>- English Canyon Creek</u> <u>- Dairy Fork Creek</u> <u>- Sulfur Creek</u> <u>- Wood Canyon Creek</u>	<u>41%</u>	<u>41%</u>	<u>42%</u>
	<u>Aliso Creek Mouth</u>	<u>at mouth</u>	<u>41%</u>	<u>41%</u>	<u>42%</u>
	<u>Pacific Ocean Shoreline</u>	<u>Aliso Beach at West Street</u> <u>Aliso Beach at Table Rock Drive</u> <u>100 Steps Beach at Pacific Coast Hwy at hospital (9th Avenue)</u> <u>at Salt Creek (large outlet)</u> <u>Salt Creek Beach at Salt Creek service road</u> <u>Salt Creek Beach at Strand Road</u>	<u>36%</u>	<u>36%</u>	<u>36%</u>

Table 6.3 (Cont'd)

Interim Wet Weather Receiving Water Limitations Expressed as Interim Wet Weather Allowable Exceedance Frequencies

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<u>Watershed</u>	<u>Managem ent Area</u>	<u>Water Body</u>	<u>Segment or Area</u>	<u>Interim Wet Weather Allowable Exceedance Frequencies</u>		
				<u>Total Colifor m</u>	<u>Fecal Colifor m</u>	<u>Entero- coccus</u>
<u>South Orange County (cont'd)</u>	<u>Pacific Ocean Shoreline</u>		<u>at San Juan Creek</u>	<u>44%</u>	<u>44%</u>	<u>48%</u>
	<u>San Juan Creek</u>		<u>lower 1 mile</u>	<u>44%</u>	<u>44%</u>	<u>47%</u>
	<u>San Juan Creek Mouth</u>		<u>at mouth</u>	<u>44%</u>	<u>44%</u>	<u>47%</u>
	<u>Pacific</u>		<u>at Poche Beach</u>	<u>35%</u>	<u>35%</u>	<u>36%</u>

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5.6. Revised Total Maximum Daily Loads for Indicator Bacteria, Baby Beach in Dana Point Harbor Project
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	<u>Ocean Shoreline</u>	<u>Ole Hanson Beach Club Beach at Pico Drain</u> <u>San Clemente City Beach at El Portal Street Stairs</u> <u>San Clemente City Beach at Mariposa Street</u> <u>San Clemente City Beach at Linda Lane</u> <u>San Clemente City Beach at South Linda Lane</u> <u>San Clemente City Beach at Lifeguard Headquarters under San Clemente Municipal Pier</u> <u>San Clemente City Beach at Trafalgar Canyon (Trafalgar Lane)</u> <u>San Clemente State Beach at Riviera Beach</u> <u>San Clemente State Beach at Cypress Shores</u>			
<u>San Luis Rey River</u>	<u>Pacific Ocean Shoreline</u>	<u>at San Luis Rey River mouth</u>	<u>45%</u>	<u>44%</u>	<u>47%</u>
<u>Carlsbad</u>	<u>Pacific Ocean Shoreline</u>	<u>at Moonlight State Beach</u>	<u>40%</u>	<u>40%</u>	<u>41%</u>
<u>San Dieguito River</u>	<u>Pacific Ocean Shoreline</u>	<u>at San Dieguito Lagoon mouth</u>	<u>33%</u>	<u>33%</u>	<u>36%</u>

(3) Final Receiving Water Limitations⁴⁶

(a) Discharges from the MS4s must not cause or contribute to the violation of the receiving water limitations in Table 6.4 by the end of the compliance schedules under Specific Provision 6.d.(2), unless the Responsible Copermittees provide evidence that indicates another controllable or

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⁴⁶ The Final Receiving Water Limitations requirements do not apply to waterbodies that are not on the 303(d) list for exceedances of the REC-1 indicator bacteria numeric objectives. Consistent with the assumptions and requirements of the Basin Plan Amendment, no further action is required for these waterbodies. If the waterbodies are subsequently placed back on the 303(d) list for exceedances of the REC-1 indicator bacteria numeric objectives, all TMDL provisions will apply to these waterbodies and the Responsible Copermittees for those waterbodies.

ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS

5.6. Revised Total Maximum Daily Loads for Indicator Bacteria, Baby Beach in Dana Point Harbor Project

Twenty Beaches and Shelter Island Shoreline Park in Creeks in the San Diego Bay Region (Including Tecolote Creek)

uncontrollable source is responsible for the exceedances in the receiving waters (a described in E.6.(3)(b)).

Table 6.4

Final Receiving Water Limitations as Bacteria Densities and Allowable Exceedance Frequencies in the Water Body

Receiving Water Limitations				
Constituent	Single Sample Maximum ^{1,2} (MPN/100mL)	Single Sample Maximum Allowable Exceedance Frequency ³	30-Day Geometric Mean ² (MPN/100mL)	30-Day Geometric Mean Allowable Exceedance Frequency
Total Coliform ⁷	10,000	22% / 0%	1,000	0%
Fecal Coliform	400	22% / 0%	200	0%
<i>Enterococcus</i>	104 ^{4,5} / 61 ⁵	22% / 0%	35 ⁴ / 33 ⁵	0%

Notes:

1. During wet weather days, only the single sample maximum receiving water limitations are required to be achieved. (the geometric mean does not apply to wet weather days)
2. During dry weather days, only the 30-day geometric mean receiving water limitations are required to be achieved (the single sample maximum does not apply to dry weather days).
3. The 22% single sample maximum allowable exceedance frequency only applies to wet weather days. The 0% single sample maximum allowable exceedance frequency applies to dry weather days.
4. This *Enterococcus* receiving water limitation applies to segments of areas of Pacific Ocean Shoreline listed in Table 6.0.
5. This *Enterococcus* receiving water limitations applies to segments or areas of creeks or creek mouths listed in Table 6.0.
6. A wet weather receiving water limitation for *Enterococcus* of 104 MPN/100mL may be applied as a receiving water limitation for creeks, instead of 61 MPN/100mL, if one or more of the creeks addressed by these TMDLs (San Juan Creek, Aliso Creek, Tecolote Creek, Forrester Creek, San Diego River, and/or Chollas Creek) is designated with a "moderately to lightly used area" or less frequent usage frequency in the Basin Plan. Otherwise, the wet weather receiving water limitation of 61 MPN/100mL for *Enterococcus* will be used to assess compliance with the wet weather allowable exceedance frequency.
7. Total Coliform Receiving Water Limitations only apply to the Pacific Ocean Shoreline segments listed in Table 6.0 and do not apply to the creeks or creek mouths listed in Table 6.0.

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(b) If the above receiving water limitations are not met in the receiving water, the Responsible Copermitees must demonstrate that the discharges from the MS4s are not causing or contributing to the violation of receiving water limitations. Such demonstration may be achieved by (1) demonstrating that the discharges from the MS4s are meeting the effluent limitations under Specific Provision 6.b.(1) for dry weather discharges and Specific Provision 6.b.(2) for wet weather discharges, (2) through the attainment of the final WQBELs in Specific Provision 6.b.(1) for dry weather discharges and Specific Provision 6.b.(2) for wet weather discharges, (3) by providing data from their discharge points to the receiving waters, (4) by providing data collected at jurisdictional boundaries, and/or (5) by using other methods accepted by the San Diego Water Board, which may include but are not limited to the reference system antidegradation approach (RSAA) or natural sources exclusion approach (NSEA)⁴⁷...

Deleted: Interim receiving water limitations expressed as allowable exceedance frequencies are given in the compliance schedule under Specific Provision 6.c.¶

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 <#>Effluent Limitations ¶
 ¶
 Discharges from the MS4s must not contain densities that exceed the following effluent limitations by the end of the compliance schedules under Specific Provision 6.c.(1) to demonstrate the discharge is not causing or contributing to a violation of receiving water quality standards:¶
 ¶
Table 6.2¶
 Effluent Limitations as Bacteria Densities and Allowable Exceedance Frequencies ¶
 in MS4 Discharges to the Water Body¶

(4) Best Management Practices

⁴⁷ Resolution R9-2008-0028

ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS

5.6. Revised Total Maximum Daily Loads for Indicator Bacteria, Baby Beach in Dana Point Harbor Project

Twenty Beaches and
Shelter Island Shoreline Park in Creeks in the San Diego Bay Region (Including Tecolote Creek)

- (a) The Water Quality Improvement Plans for the applicable Watershed Management Areas in [Table 6.0](#) must incorporate the [Bacteria Load Reduction Plans \(BLRP\)](#) or Comprehensive Load Reduction Plans (CLRPs) required to be developed pursuant to Resolution No. R9-2010-0001. For segments or areas in [Table 6.0](#) that have been delisted from the Clean Water Act Section 303(d) List of Water Quality Limited Segments, a [BLRP and/or](#) CLRP is not required.
- (b) The Responsible Copermittee must implement BMPs to support the achievement of the [Receiving Water Limitations](#) under Specific Provision [6.c](#) for the segments or areas of the water bodies listed in [Table 6.0](#).
- (c) The Responsible Copermittees should coordinate any BMPs implemented to address this TMDL with Caltrans and owners/operators of small MS4s as possible.

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d. COMPLIANCE SCHEDULE

(1) [WQBELs Compliance Dates](#)

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The Responsible Copermittees for MS4 discharges to a segment or area of the water bodies listed in [Table 6.0](#)⁴⁸ are required to achieve the [Wasteload Allocations \(WLAs\)](#) defined as the WQBELs under Specific Provision [6.b](#), according to the following compliance schedule:

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Table 6.5

Compliance Schedule Dates to Achieve Indicator Bacteria WLAs

Constituent	Dry Weather WLA Compliance Date	Wet Weather WLA Compliance Date
Total Coliform*	April 4, 2021	April 4, 2031
Fecal Coliform		
Enterococcus		

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* Total coliform receiving water limitations only apply to segments or areas of Pacific Ocean Shoreline listed in [Table 6.0](#).

(2) [Final Receiving Water Limitations Compliance Requirements](#)

[The Responsible Copermittees for MS4 discharges to a segment or area of the water bodies listed in \[Table 6.0\]\(#\)](#)⁴⁹ are required to achieve the Final

⁴⁸ [The WQBELs \(WLAs\) do not apply to waterbodies that are not on the 303\(d\) list for exceedances of the REC-1 indicator bacteria numeric objectives. Consistent with the assumptions and requirements of the Basin Plan Amendment, no further action is required for these waterbodies. If the waterbodies are subsequently placed back on the 303\(d\) list or delisted in subsequent iterations, the San Diego Water Board will revise the current NPDES requirements and/or issue additional waste discharge requirements to be consistent with these TMDLs.](#)

⁴⁹ [The WQBELs \(WLAs\) do not apply to waterbodies that are not on the 303\(d\) list for exceedances of the REC-1 indicator bacteria numeric objectives. Consistent with the assumptions and requirements of the Basin Plan Amendment, no further action is required for these waterbodies. If the waterbodies are subsequently placed back on the 303\(d\) list for exceedances of the REC-1 indicator bacteria numeric](#)

Receiving Water Limitations according to the following compliance schedule:

Table 6.6
Compliance Schedule Dates to Achieve Indicator Bacteria WLAs

Constituent	Dry Weather WLA Compliance Date	Wet Weather WLA Compliance Date
Total Coliform*	April 4, 2021	April 4, 2031
Fecal Coliform		
Enterococcus		

* Total coliform receiving water limitations only apply to segments or areas of Pacific Ocean Shoreline listed in Table 6.0.

(3) Interim Receiving Water Limitations Compliance Requirements

The Responsible Copermittees must comply with the Interim Receiving Water Limitations by the interim compliance dates specified within the Regional Board approved CLRPs or BLRPs.

(4) Submittals to Support TMDL Basin Plan Amendment

The Responsible Copermittees are encouraged to submit data to support the TMDL reopener scheduled for April 2016 including but not limited to data related to implementation of the reference system antidegradation approach (RSAA), the natural sources exclusion approach (NSEA), reference watershed monitoring and beneficial use usage frequency.

e. SPECIFIC MONITORING AND ASSESSMENT REQUIREMENTS

(1) Monitoring and Assessment Requirements for Beaches

The BLRPs and CLRPs to be submitted by the Copermittees and approved by the Regional Board Executive Officer contain monitoring programs. Implementation of those Regional Board-approved monitoring programs constitutes compliance with the Monitoring Station and Monitoring Procedure requirements, described below.

Waterbodies that have been delisted are not required to develop and/or implement a BLRP or CLRP, including additional monitoring. Therefore, the monitoring requirements of this provision do not apply to delisted waterbodies. Delisted waterbodies shall continue monitoring consistent with Provision D.

(a) Monitoring Stations

For beaches addressed by the TMDL, monitoring locations should consist

objectives, all TMDL provisions will apply to these waterbodies and the Responsible Copermittees for those waterbodies.

ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS
5.6. Revised Total Maximum Daily Loads for Indicator Bacteria, Baby Beach in Dana Point Harbor Project
Twenty Beaches and
Shelter Island Shoreline Park in Creeks in the San Diego Bay Region (Including Tecolote Creek)

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<#>Interim Dry Weather Receiving Water Limitations¶

¶

The Responsible Copermittee must calculate the "existing" exceedance frequencies of the 30-day geometric mean water quality objectives for each of the indicator bacteria by analyzing the available monitoring data collected between January 1, 1996 and December 31, 2002. "Existing" exceedance frequencies may be calculated by segment or area of a water body, or by water body, and/or by Watershed Management Area listed in Table 6.0. Separate "existing" exceedance frequencies must be calculated for beaches and creeks/creek mouths. ¶

¶

The Responsible Copermittees must achieve a 50 percent reduction in the "existing" exceedance frequency of the 30-day geometric mean WQBELs for the segments or areas of the water bodies listed in Table 6.0 by the interim compliance dates for achieving the interim dry weather WQBELs given in Table 6.5. A 50 percent reduction in the "existing" exceedance frequency is equivalent to half of the "existing" exceedance frequency of the 30-day geometric mean WQBELs.¶

¶

The "existing" exceedance frequencies and the interim dry weather allowable exceedance frequencies (i.e. interim dry weather WQBELs) calculated by the Responsible Copermittees must be included in the Water Quality Improvement Plans for the applicable Watershed Management Areas.¶

¶

<#>Interim Wet Weather Receiving Water Limitations¶

¶

The Responsible Copermittees must achieve the interim wet weather receiving water limitations in Table 6.4, expressed as interim allowable exceedance frequencies, by the interim compliance dates for achieving the interim wet weather WQBELs given in Table 6.5.¶

¶

Table 6.4¶
Interim Wet Weather Receiving Water Limitations Expressed as ¶
Interim Wet Weather Allowable Exceedance Frequencies¶

Watershed

of, at a minimum, the same locations used to collect data required pursuant to Order Nos. R9-2007-0001 and R9-2009-0002, and beach monitoring for Health and Safety Code section 115880.⁵⁰ If exceedances of the applicable interim or final receiving water limitations are observed in the monitoring data, additional monitoring locations and/or other source identification methods must be implemented to identify the sources causing the exceedances. The additional monitoring locations must also be used to demonstrate that the bacteria loads from the identified anthropogenic sources have been addressed and are no longer causing exceedances in the receiving waters.

(b) Monitoring Procedures

- (i) The Responsible Copermittees must collect dry weather monitoring samples from the receiving water monitoring stations at least monthly. Dry weather samples collected from additional monitoring stations established to identify sources must be collected at an appropriate frequency to demonstrate bacteria loads from the identified sources have been addressed and are no longer causing exceedances in the receiving waters.
- (ii) The Responsible Copermittees must collect wet weather monitoring samples from the receiving water monitoring stations at least once within the first 24 hours of the end of a storm event⁵¹ of the rainy season (i.e. October 1 through April 30). Wet weather samples collected from receiving water stations and any additional monitoring stations established to identify sources must be collected at an appropriate frequency to demonstrate bacteria loads from the identified sources have been addressed and are no longer in exceedance of the allowable exceedance frequencies in the receiving waters.
- (iii) Samples must be analyzed for total coliform, fecal coliform, and *Enterococcus* indicator bacteria.

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(c) Assessment and Reporting Requirements

- (i) The Responsible Copermittees must analyze the dry weather and wet weather monitoring data to assess whether the interim and final WQBELs for the Pacific Ocean Shoreline segments or areas listed in

⁵⁰ Commonly referred to as AB 411 monitoring

⁵¹ Wet weather days are defined by the TMDL as storm events of 0.2 inches or greater and the following 72 hours. The Responsible Copermittees may choose to limit their wet weather sampling requirements to storm events of 0.2 inches or greater, or also include storm events of 0.1 inches or greater as defined by the federal regulations [40CFR122.26(d)(2)(iii)(A)(2)].

ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS

5.6. Revised Total Maximum Daily Loads for Indicator Bacteria, Baby Beach in Dana Point Harbor Project
Twenty Beaches and
Shelter Island Shoreline Park in Creeks in the San Diego Bay Region (Including Tecolote Creek)

Table 6.0 have been achieved.

- (ii) The monitoring and assessment results must be submitted as part of the Annual Reports required under Provision F.3.b of this Order.

(2) Monitoring and Assessment Requirements for Creeks and Creek Mouths

The BLRPs and CLRPs to be submitted by the Copermitees and approved by the Regional Board Executive Officer contain monitoring programs. Implementation of those Regional Board-approved monitoring programs constitutes compliance with the Monitoring Station and Monitoring Procedure requirements, described below.

Waterbodies that have been delisted are not required to develop and/or implement a BLRP or CLRP, including additional monitoring. Therefore, the monitoring requirements of this provision do not apply to delisted waterbodies. Delisted waterbodies shall continue monitoring consistent with Provision D.

(a) Monitoring Stations

For creeks addressed by the TMDL, monitoring locations should consist of, at a minimum, a location at or near the mouth of the creek (e.g. Mass Loading Station or Mass Emission Station) and one or more locations upstream of the mouth (e.g. Watershed Assessment Station). If exceedances of the applicable interim or final receiving water limitations are observed in the monitoring data, additional monitoring locations and/or other source identification methods must be implemented to identify the sources causing the exceedances. The additional monitoring locations must also be used to demonstrate that the bacteria loads from the identified sources have been addressed and are no longer causing exceedances in the receiving waters.

(b) Monitoring Procedures

- (i) The Responsible Copermitees must collect dry weather monitoring samples from the receiving water monitoring stations in accordance with the requirements of Provision D.
- (ii) The Responsible Copermitees must collect wet weather monitoring samples from the receiving water monitoring stations within 24 hours of the end of a storm event⁵² of the rainy season (i.e. October 1 through April 30).

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⁵² Wet weather days are defined by the TMDL as storm events of 0.2 inches or greater and the following 72 hours. The Responsible Copermitees may choose to limit their wet weather sampling requirements to storm events of 0.2 inches or greater, or also include storm events of 0.1 inches or greater as defined by the federal regulations [40CFR122.26(d)(2)(iii)(A)(2)].

ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS

5.6. Revised Total Maximum Daily Loads for Indicator Bacteria, Baby Beach in Dana Point HarborProject
Twenty Beaches and
Shelter Island Shoreline Park in Creeks in the San Diego Bay Region (Including Tecolote Creek)

- (iii) Samples collected from receiving water monitoring stations must be analyzed for fecal coliform and *Enterococcus* indicator bacteria.

(c) Assessment and Reporting Requirements

- (i) The Responsible Copermittees must analyze the receiving water monitoring data to assess whether the interim and final receiving water WQBELs for the creeks and creek mouths listed in [Table 6.0](#) have been achieved.
- (ii) The Responsible Copermittee must identify and incorporate additional MS4 outfall and receiving water monitoring stations and/or adjust monitoring frequencies to identify sources causing exceedances of the receiving water WQBELs.
- (iii) The monitoring and assessment results must be submitted as part of the Annual Reports required under Provision [F.3.b](#) of this Order.

f. COMPLIANCE DETERMINATION

(1) Compliance with interim compliance requirements of Specific Provision [6.c.\(1\)](#) and [Provision 6.c.\(2\)](#) may be demonstrated via one of the following methods:

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(a) There is no direct or indirect discharge from the Responsible Copermittees' MS4s to the receiving water; [OR](#)

(b) There are no exceedances of the applicable receiving water limitations under Specific Provision [6.c.\(1\)](#) or [Provision 6.c.\(2\)](#) in the receiving water at, or downstream of the Responsible Copermittees' MS4 outfalls; [OR](#)

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(c) There are no violations of the applicable effluent limitations under Specific Provision [6.b.\(1\)](#) or [Provision 6.b.\(2\)](#) at the Responsible Copermittees' MS4 outfalls; [OR](#)

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(d) There are no exceedances of the applicable interim receiving water limitations under Specific Provision [6.c.\(1\)](#) or [Provision 6.c.\(2\)](#) in the receiving water at, or downstream of the Responsible Copermittees' MS4 outfalls; [OR](#)

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(e) The Responsible Copermittees can demonstrate that exceedances of the applicable interim or final receiving water limitations under Specific Provision [6.c.](#) in the receiving water are due to loads from natural sources, AND pollutant loads from the Copermittees' MS4 are not causing or contributing to the exceedances; OR

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(f) The Responsible Copermittees have submitted and are fully implementing a Water Quality Improvement Plan, accepted by the San Diego Water Board, which provides reasonable assurance that the interim compliance requirements will be achieved by the interim compliance dates. [OR](#)

ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS
[5.6. Revised](#) Total Maximum Daily Loads for Indicator Bacteria, [Baby Beach in Dana Point Harbor Project](#)
 Twenty Beaches and
[Shelter Island Shoreline Park in Creeks in the San Diego Bay Region \(Including Tecolote Creek\)](#)

(g) Upon the effective date of this Order, a Copermittee's full compliance with all of the following requirements shall constitute a Copermittee's compliance with provisions pertaining to interim WQBELs with compliance deadlines occurring prior to approval of a WQIP.

(i) Meets all interim and final deadlines for development of a WQIP,

(ii) Targets implementation of watershed control measures in its existing storm water management program, including watershed control measures to eliminate non-storm water discharges of pollutants through the MS4 to receiving waters, to address known contributions of pollutants from MS4 discharges that cause or contribute to the impairment(s) addressed by the TMDL(s), and

(iii) Receives final approval of its WQIP from the Regional Board.

(2) Compliance with WQBELs of Specific Provision 6.b may be demonstrated via one of the following methods:

(a) There is no direct or indirect discharge from the Responsible Copermittees' MS4s to the receiving water; OR

(b) There are no exceedances of the applicable receiving water limitations under Specific Provision 6.c.(3) in the receiving water at, or downstream of the Responsible Copermittees' MS4 outfalls; OR

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(c) There are no violations of the applicable effluent limitations under Specific Provision 6.b.(1) at the Responsible Copermittees' MS4 outfalls; OR

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(d) The Responsible Copermittees can demonstrate that exceedances of the applicable final receiving water limitations under Specific Provision 6.c.(3) in the receiving water are due to loads from natural sources, AND pollutant loads from the Copermittees' MS4 are not causing or contributing to the exceedances, OR,

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(e) The Responsible Copermittees have submitted and are fully implementing a Water Quality Improvement Plan, accepted by the San Diego Water Board, which provides reasonable assurance that the final compliance requirements will be achieved by the final compliance dates. A Responsible Copermittee that does not implement its WQIP in accordance with the milestones and compliance schedules shall demonstrate compliance with the final WQBELs pursuant to Provisions 6.f(2)(a-d).

ATTACHMENT E: SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS

5.6. Revised Total Maximum Daily Loads for Indicator Bacteria, Baby Beach in Dana Point HarborProject

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Twenty Beaches and

Shelter Island Shoreline Park inCreeks in the San Diego BayRegion (Including Tecolote Creek)

Tentative Order No. R9-2013-0001

Month Day, 2013

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ATTACHMENT

31

November 19, 2014

By E-Mail and Delivery

Laurie Walsh, P.E.
California Regional Water Quality Control Board, San Diego region
2375 Northside Drive, Suite 100
San Diego, CA 92108

Subject: Comment – Tentative Order No. R9-2015-0001, Regional MS4 Permit, Place ID: 658018Lwalsh.

Dear Ms. Walsh:

The County of Orange, as Principal Permittee of the Orange County Stormwater Program, appreciates the opportunity to provide comments on *Tentative Order No. R9-2015-0001, An Order Amending the Regional Municipal Separate Storm Sewer (MS4) Permit for the San Diego Region (Order No. R9-2013-0001)* issued on September 18, 2014. The south Orange County Permittees (hereinafter, Copermittees) were involved in the development of these comments and the Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest and Mission Viejo have directed that they be recognized as concurring entities on this letter.

We acknowledge the significant efforts of Regional Board staff to continue to collaboratively engage with the Copermittees and key stakeholders in the further development of a fifth term permit municipal stormwater permit for south Orange County. We also recognize that Tentative Order No. R9-2015-0001 incorporates a number of changes directly in response to specific recommendations made in our Report of Waste Discharge. The Tentative Order, however, still presents key issues of significant concern including the attainability of the proposed Prohibitions and Limitations provisions.

This letter is a summary of five overarching concerns with the Tentative Order and Regional Permit. Attachment A includes a more detailed discussion of these concerns in addition to providing you with comprehensive technical and legal comments on outstanding issues with the Tentative Order. Attachment B consists of proposed redlines to the Tentative Order consistent with the comments made in Attachment A. In addition to these comments, the Copermittees by this reference incorporate all prior letters, comments, reports, presentations, oral and written testimony, data, communications, and other evidence made by, on behalf of, and in support of the Copermittees during the various workshops, hearings, and meetings relevant to the adoption of Order R9-2013-0001 and Tentative Order R9-2015-0001. The Copermittees reserve the right to provide further comment as applicable.

I. The State of the Environment

The Fact Sheet / Technical Report discuss the statutes, regulations, plans and policies that establish the regulatory and evidentiary basis for the Regional Permit. It omits, however, the numerous environmental quality monitoring programs that have been undertaken over many years, and is silent on the environmental rationale for the stormwater mandate. The Findings include a single paragraph on "Water Quality Effects." In contrast, our Report of Waste Discharge included a comprehensive *State of the Environment* discussion that has since been published as a standalone report, summarizing the results of long term monitoring and special studies related to swimming safety and aquatic ecosystem health. The report's findings have significant implications for the structure of the Tentative Order and the compliance framework for stormwater and its future management in south Orange County. Based on the successes of the Orange County Stormwater Program, there is little justification for much of the Tentative Order.

Bacteria: Bacterial contamination of coastal waters in south Orange County is very low during dry weather, as a direct result of the Copermittees' targeted and comprehensive control actions, and beach report card grades are now consistently high. While contamination is more prevalent in wet weather, the annual percentage of A grades for wet weather on the Heal The Bay Report Card has reached 70 percent in recent years. Achieving further reductions in wet weather contamination will be a challenge as bacterial contamination in wet weather arises from a much wider range of sources compared to dry weather. Also, limitations in current monitoring methods make it difficult to determine if human fecal contamination, a significant health threat, is actually present.

Total Dissolved Solids (TDS) and Nutrients: TDS and Nutrients consistently exceed Basin Plan Objectives in wet and dry weather and create the potential for detrimental impacts on aquatic ecosystems. TDS is suspected as a causal factor in poor macroinvertebrate community condition. Nutrient impacts, such as excessive macroalgal growth, are not prevalent in south Orange County streams in spite of exceedances of regulatory thresholds for bio-stimulatory substances. For both constituents, the principal source is unlikely to be urban in nature and instead can be identified as a consequence of marine sedimentary formations characteristic of the area and their overlying saline soils. The key to effective future management efforts will therefore be to determine the environmental significance, if any, of the urban sources of TDS and nutrients. The permit should recognize this current uncertainty and not mandate on-site retention of runoff in the first instance where it may exacerbate the exfiltration of shallow groundwater with elevated TDS and nutrients.

Toxicity: Toxicity occurs sporadically in streams and creeks in south Orange County. It occurs at low levels and at different locations and different times and varies unpredictability across test species. In dry weather, aquatic toxicity is encountered in open (undeveloped) areas at levels equivalent to those in urban areas. This pattern

suggests that dry weather toxicity is not caused by urban sources of pollutants. There is a greater prevalence of toxicity in wet weather and pesticides are implicated as the principal source of this toxicity. Pesticide use, however, presents a moving target for management efforts due to the continuous introduction of new products. Moreover, the regulation of pesticide use is exclusively within the jurisdiction of state and federal agencies and not the role of MS4s.

II. Prohibitions and Limitations Provisions

The proposed Prohibitions and Limitations provisions in the Tentative Order do not provide the Copermittees with the necessary compliance pathway needed to ensure innovation and progress. Although there is flexibility in the water quality management plans, without some form of compliance path, the Copermittees remain strictly liable for any exceedance. This was not the intent of Congress or the EPA under the Clean Water Act and has not been the intent of the State Water Board under Orders 1999-05 and 2001-15.

The required linkage between implementing control programs and the prohibitions and limitations provisions is created if the Tentative Order is modified to affirm an adaptive management process as the basis for compliance. The adaptive management or iterative process is and has been a fundamental tenet of MS4 programs, as envisioned by USEPA, State Water Board Order 99-05 and later reconfirmed in Order WQ 2001 15 (BIA Order), and is the mechanism by which the Copermittees can and should demonstrate compliance. The County strongly supports this approach which we believe is technically necessary given the major findings both in our *State of the Environment Report* and in the recent American Society of Civil Engineers (ASCE) publication – *Pathogens in Urban Stormwater Systems*. The Regional Board has discretion with receiving water limitations language beyond what is required to be included by Order 99-05, and the County envisions the Water Quality Improvement Plan (WQIPs) being the foundation for the required iterative BMP-based compliance approach for the discharge prohibitions and limitations provisions.

III. TMDL Incorporation

The Regional Board has adopted two Basin Plan Amendments to establish Total Maximum Daily Loads (TMDLs) where the Copermittees are assigned wasteload allocations: (1) Indicator Bacteria in Baby Beach in Dana Point Harbor and (2) Indicator Bacteria, Project I - Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek).

There are several fundamental and substantive discrepancies between the adopted TMDL Basin Plan Amendments and the provisions of the Tentative Order. These inconsistencies negate the Basin Plan Amendment process that occurred to establish the TMDLs, and clearly contradict the Board's intent for how the TMDLs would be incorporated into the MS4 Permit. The Tentative Order should be revised to ensure that the TMDLs are properly incorporated as mass-based WLAs and not as concentration-based limits and that BMP-based compliance is established for the TMDL provisions. The Tentative Order should also provide an explicit re-opener provision to ensure that any revision to a TMDL is included in the adopted Order.

IV. Complementary Watershed and Jurisdictional Planning

The WQIP framework allows for the identification and development of a program built around the highest priority water quality conditions and constraints within a specific watershed. The WQIP also allows for the integration of all program elements and focuses the efforts on the highest priorities for each watershed through the customization of actions and strategies. If positioned correctly, the WQIP is the necessary next step in making the Tentative Order and corresponding compliance programs truly strategic, adaptive, and optimally supportive of the *Practical Vision (Resolution No. R9-2013-0153)*.

The County believes the Tentative Order provisions—especially Provision E, JRMP—deviate from the strategic and adaptive approach to the “one-size fits all” approach. For example, the Existing Development provisions dictate that specific BMPs that must be implemented, regardless of the high priority water quality concerns within a watershed. These provisions become “additive” instead of “prioritized” and are not supportive of the overarching WQIP. The Tentative Order needs to be modified so that the WQIPs and related Jurisdictional Runoff Management Plans can be streamlined and focus on the highest priorities within each watershed.

V. Regional Permit

The Permittees understand that the regional nature of the permit is one of the defining features of our fifth term permit renewal and that this permitting approach is supported by the members of the Regional Board. Nonetheless, it must also be noted that the Regional Board does not have the legal authority to include Orange County in a Regional Permit because there is no system-wide, jurisdiction-wide, or common watershed basis to do so.

Thank you for your attention to our comments. Please contact me directly if you have any questions. For technical questions, please contact Chris Crompton at (714) 955-0630 or Richard Boon at (714) 955-0670. For legal questions, please contact Ryan Baron at (714) 834-5206.

Sincerely,



Mary Anne Skorpanich
Deputy Director, OC Public Works Department
OC Environmental Resources

Attachments: A - Detailed Comments
B - Redline Version of the Tentative Order

Cc: (Electronic copies only)

David Gibson, San Diego Regional Board

Tony Felix, San Diego Regional Board

South Orange County Permittees

Orange County Technical Advisory Committee

Tony Olmos, Orange County Public Works

Todd Snyder, County of San Diego

Jason Uhley, Riverside County Flood Control and Water Conservation District

Andrew Kleis, City of San Diego

ATTACHMENT

32



September 14, 2015

By E-Mail

Mr. Wayne Chiu
California Regional Water Quality Control Board, San Diego Region
2375 Northside Drive, Suite 100
San Diego, CA 92108

Dear Mr. Chiu

The County of Orange, as Principal Permittee of the Orange County Stormwater Program, and the Orange County Flood Control District (collectively, "County"), appreciate the opportunity to provide comments on Tentative Order No. R9-2015-0100 ("Tentative Order") proposing to amend the National Pollutant Discharge Elimination System (NPDES) Permit for *Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region, Order No. R9-2013-0001, as amended by Order No. R9-2015-0001 (Regional MS4 Permit)* ("Regional MS4 Permit" or "Permit"). In addition to the County, the Cities of Dana Point, Laguna Beach, Laguna Hills, Laguna Niguel, Mission Viejo and San Juan Capistrano (collectively, "Permittee") were involved in the development of these comments and hereby concur with the issues herein. Where a Copermittee has more specific comments relevant to its jurisdiction, these will be expressed in separate written comments provided by the individual Copermittee.

The County supports vigorous implementation of programs and projects that will further water quality improvements in south Orange County. The County hereby submits these comments in belief that modifications to the Regional MS4 Permit are needed in order to better effectuate improvements to water quality as well as balance the role and obligations of the MS4s under the Clean Water Act and Porter-Cologne Water Quality Control Act.¹

¹ In addition to these supplemental comments, the County by this reference incorporates all prior letters, comments, reports, presentations, oral and written testimony, data, communications, and other evidence made by, on behalf of, and in support of the County and the Permittees during the various workshops, hearings, and meetings relevant to the adoption of Order No. R9-2013-0001, as amended by Order No. R9-2015-0001 and Tentative Order No. R9-2015-0100. The County and Permittees reserve the right to provide further comment as applicable.

I. Stakeholder Workshops Have Been Effective.

The Permittee laud the efforts of Regional Board staff to collaboratively engage the Permittee and other stakeholders through the use of mediated, roundtable workshops. This manner of comment has worked well in allowing all viewpoints to be expressed with sufficient time provided to allow for vigorous discussion of issues regarding the Regional MS4 Permit.

II. The Alternative Compliance Pathway for Prohibitions and Limitations Is Necessary, But It Must Contain Compliance During the Planning Period Along With Workable Implementation Milestones.

The Tentative Order proposes to include an alternative compliance pathway that would offer the Permittees compliance with the prohibitions and limitations provisions of the Regional MS4 Permit. The Permittees generally support this approach, and believe that an alternative compliance pathway is necessary in light of the difficulties in achieving water quality standards, the strict liability regime created by the Ninth Circuit's decision in *Los Angeles County Flood Control District v. NRDC*,² and recent clarification on receiving water limitations language by the State Water Resources Control Board ("State Board") on the LA MS4 Permit.³

As has been stated in prior comments by the Permittee, federal law does not require MS4 dischargers to strictly comply with water quality standards. In the Ninth Circuit Court of Appeals decision in *Defenders of Wildlife v. Browner*,⁴ the court held that Congress only intended MS4 dischargers to meet the maximum extent practicable standard and that compliance with numeric effluent limitations was not required.⁵ In fact, EPA has not promulgated any binding regulation requiring strict compliance with numeric limits, but has only issued guidance

¹In addition, for the reasons provided by the Permittees in prior oral and written comments, the Permittees continue to assert that the Regional Board has no system-wide, jurisdiction-wide, watershed or other basis by which to enroll the Permittees in the Regional MS4 Permit. By virtue of filing this comment letter, the Permittees do not waive any argument with respect to this issue, and have enrolled in the Regional MS4 Permit under protest.

² *NRDC v. County of Los Angeles* 673 F.3d 880, 886 (9th Cir. 2011) (revd. on other grounds and remanded by *Los Angeles County Flood Control District v. Natural Resources Defense Council* (133 S.Ct. 710 (2013)) ("NRDC II).

³ Order WQ 2015-0075, *In the Matter of Review of Order No. R4-2012-0175, NPDES Permit No. CAS004001, Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4*. ("State Board Order").

⁴ 191 F.3d 1159 (9th Cir. 1999); *see also* 33 U.S.C. § 1342(p)(3)(B).

⁵ This interpretation of the Clean Water Act has recently been upheld in the State of Maryland, and is thus, not unique to the Ninth Circuit. *Chesapeake Bay Foundation v. Md. Dep't of the Env't.*, Case No. 02-C-14-186144 (Anne Arundel Cir. Ct., Dec. 2, 2014); *In re Baltimore County MS4 Permit*, Case No. 03-C-14-000761 (Baltimore Cir. Ct., Oct. 7, 2014).

encouraging EPA regions and the States to adopt and require strict compliance with numeric effluent limits where feasible.⁶ Thus, compliance with receiving water limitations is a State and Regional Board requirement. To further emphasize this point, the Ninth Circuit Court of Appeals in *NRDC II* interpreted the LA MS4 Permit's receiving water limitations language as a contract requiring the LA permittees to strictly meet numeric standards in that any exceedance was a violation of the permit.⁷

Regional Board staff has interpreted the Regional MS4 Permit as requiring strict compliance with water quality standards, noting at the Regional Board's May 8, 2013 adoption hearing on Order No. R9-2013-0001 that the Permittees were in immediate noncompliance with the Permit and that compliance would not be achieved within the 5-year Permit term.⁸ The State Board, too, has clarified and mandated that regional water boards require strict compliance with water quality standards.⁹

As noted in Comments 13 through 15 in the County's November 19, 2014 comment letter and in various presentations by the Permittee and others throughout the adoption proceedings for the Permit, the Permittee have demonstrated that compliance with certain of the Permit's prohibitions, receiving water limitations and numeric effluent limits is not yet achievable, and may not be achievable in certain environmental conditions. This is due to the long-time urbanization of certain watersheds, the need to extensively retrofit this urbanization, the nature of stormwater transport, the lack of control municipalities have over certain pollutants, the technical and economic infeasibility of meeting certain numeric standards, and the need to change certain standards. Indeed, the Permittee have previously noted in testimony the key finding in *Pathogens In Urban Stormwater Systems* (American Society of Civil Engineers, 2014) that current recreational water quality criteria may likely be unattainable in wet weather. Therefore, in light of the State's mandate that water quality standards be strictly adhered to and the difficulties in attaining standards, an alternative compliance pathway is needed so that the

⁶ See, e.g., Letter from Andrew D. Sawyers, Office of Wastewater Management, and Benita Best-Wong, Office of Wetlands, Ocean and Watersheds, United States Environmental Protection Agency, to Water Division Directors, Regions 1-10, United States Environmental Protection Agency, *Revisions to the November 22, 2002 Memorandum "Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on LAs"* (Nov. 26, 2014) ("EPA recommends . . . where feasible and appropriate, numeric requirements that attempt to maintain pre-development runoff conditions." "This memorandum is guidance. It is not a regulation and does not impose legally binding requirements on EPA or States.").

⁷ *NRDC v. County of Los Angeles*, 673 F.3d at 892.

⁸ Transcript vol. II, 75:15-19 (May 8, 2013).

⁹ Order WQ 2015-0075, *In the Matter of Review of Order No. R4-2012-0175, NPDES Permit No. CAS004001, Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4*. ("State Board Order").

Permittee can continue to diligently plan, fund and rigorously implement their watershed programs without the trepidation of open-ended enforcement that follows from a strict liability regime. If the Regional Board is to require strict compliance with the prohibitions and limitations provisions of the Regional MS4 Permit, the Permittee support the addition of an alternative compliance pathway where it is robust, provides for regulatory certainty, and its implementation is technically and economically feasible.

A. The Permittee Support The Flexibility Of The Alternative Compliance Pathway

The proposed alternative compliance pathway at Provision B.3.c provides flexibility

B. Alternative Compliance Should Be Provided During The WQIP Planning Process.

The Permittees fundamental issue with the proposed alternative compliance pathway is that it does not address compliance during the WQIP planning process. It is only after a plan has been submitted and approved by the Executive Officer of the Regional Board that a Permittee is in compliance with the Permit’s prohibitions and limitations.¹⁰ This is directly contrary to the State Board’s Order directing regional water boards to establish alternative compliance pathways and is in conflict with the findings and conclusions on which the Order is predicated. It also raises questions of the Permit’s fairness as well as its legal validity. The Permittees request that the Regional Board include a provision that allows compliance during the planning phase of the WQIP consistent with the State Board Order.

In the State Board Order, the State Board recognized that strict compliance with receiving water limitations “may result in many years of permit noncompliance, because it may take years of technical efforts to achieve compliance with the receiving water limitations, especially for wet weather discharges.”¹¹ This statement is also referenced in the Tentative Order.¹² In recognizing the difficulties with attaining water quality standards, the State Board not only directed regional water boards to adopt alternative compliance pathways, it also upheld the interim compliance provisions of the LA Permit that allow the LA County Permittees to maintain compliance during the planning process for the WMP/EWMP (the functional equivalent of the Regional MS4 Permit’s WQIP), so long as the planning process “is clearly constrained in a manner that sustains incentives to move on to approval and implementation and is structured with clear, enforceable provisions.”¹³ In fact, the State Board thought that there should have been more flexibility during the planning period than what was initially in the LA Permit, and allowed interim compliance

¹⁰ Tentative Order, Provision B.3(c)(2).

¹¹ State Board Order, pg. 15.

¹²Tentative Order, Finding 10, pg. 4. The Tentative Order attributes this to the Permittees, but it is actually a direct quote from the State Board Order. The Permittees assert there are broader grounds by which strict compliance is unwarranted and, in some cases, unachievable.

¹³ State Board Order, pp. 48-50.

even when there were deviations to the development schedule.¹⁴ The State Board went even further and directed regional water boards to consider and adopt the WMP/EWMP approach unless regional differences dictated variances.¹⁵

The Tentative Order does not incorporate interim compliance during the planning phase of a WQIP, and the accompanying Fact Sheet does not indicate any region-specific or permit-specific reason why a material variance is warranted. The only justification that has been given during workshops on the alternative compliance option is that EPA has supported San Diego's proposed approach and that the San Diego Region "is not L.A." This insufficiently addresses the issue of why the Permittee should not be afforded a basic threshold of compliance during the 18-month planning period. It is also in direct conflict with the State Board Order, which describes in detail the issues with meeting water quality standards and the need for compliance over time. It is also the County's understanding that other regional water boards are following the State Board Order's compliance directive, such as the forthcoming MS4 permit by the Santa Ana Water Board for North Orange County where staff has indicated that the alternative compliance option will allow for interim compliance.

The absence of interim compliance when a Copermittee is diligently undergoing WQIP planning is patently unfair. As explained above, it undermines the State Board Order as well as the Tentative Order's recognition that compliance with water quality standards may take years to achieve.¹⁶ It is unreasonable to insist on strictly meeting water quality standards and establishing a compliance pathway, but not extending such compliance to the point at which a Copermittee most needs it.

The WQIP planning process is a significant financial undertaking. In Los Angeles County, preparation of equivalent watershed management plans has cost approximately \$250,000 per watershed and these plans have identified final implementation costs per watershed in the range of \$300 million to \$6 billion.¹⁷ It also unnecessarily exposes the Permittee to potentially

¹⁴ *Id.* at pg. 50 (adding Part VI.C.4.g. to the LA Permit allowing deviation from the WMP/EWMP development schedule).

¹⁵ *Id.* at pg. 51 ("We direct all regional water boards to consider the WMP/EWMP approach to receiving water limitations compliance when issuing Phase I MS4 permits going forward. In doing so, we acknowledge that regional differences may dictate a variation on the WMP/EWMP approach, but believe that such variations must nevertheless be guided by a few principles. We expect the regional water boards to follow these principles unless a regional water board makes a specific showing that application of a given principle is not appropriate for region-specific or permit-specific reasons.").

¹⁶ State Board Order, Conclusion 2, pg. 76. ("However, we find that municipal storm water dischargers may not be able to achieve water quality standards in the near term and therefore that it is appropriate for municipal storm water permits to incorporate a well-defined, transparent, and finite alternative path to permit compliance that allows MS4 dischargers that are willing to pursue significant undertakings beyond the iterative process to be deemed in compliance with the receiving water limitations.").

¹⁷ County of Los Angeles Cost Study, *Projected WMP/EWMP Implementation Costs* (attached hereto).

unnecessary enforcement when significant resources and expenditures are underway to develop a long-term plan to improve water quality, particularly when a pollutant that is being addressed through the planning process is now the subject of an enforcement action or third party challenge. In other words, it would be unjustifiable to allow enforcement of a standard when the plan for attaining that standard is being developed and being reviewed by Regional Board staff. Furthermore, if the Regional MS4 Permit does not contain interim compliance, for the reasons set forth in the County's prior comments on the Regional MS4 Permit, it is unlawful. A permit that does not contain a compliance pathway or that is impossible to comply with is not in accordance with federal and state law.¹⁸

C. The Annual Milestone Requirement in the Alternative Compliance Pathway Is Arbitrary and Unworkable, and Should be Modified to Correspond to the Term of the MS4 Permit.

The alternative compliance pathway proposed in the Tentative Order includes Provision B.3.c(1)(a)(vii), recommended by certain stakeholders, requiring an annual milestone in the WQIP for each numeric goal. The Permittee believe that an annual milestone requirement is arbitrary, unworkable and may put the Permittee in a position to violate the California Constitution.

As has been expressed by the Permittee and Regional Board staff in the workshops leading up to the Tentative Order, the proposed alternative compliance pathway essentially requires the Permittee to develop an implementation plan and time schedule for each and every waterbody pollutant combination that exceeds or is likely to exceed a numeric limit. Thus, the alternative compliance pathway essentially requires the Permittee to develop a total maximum daily load (TMDL) and be under a Time Schedule Order for each pollutant to be deemed in compliance with the Permit.¹⁹ When EPA or the State establish a TMDL, Section 303(d) of the Clean Water Act does not require implementation plans, but instead, implementation plans are left to a State's discretion as to whether one will be established as part of the MS4 permit. When an implementation plan is established by a State, it is a document or section of a document detailing the suite of corrective actions needed to reduce pollution and remediate an impaired waterbody.²⁰

¹⁸ See County Comment Letter, Comments 13-15. See also, *Atlantic States Legal Fdn., Inc. v. Eastman Kodak Co.* 12 F.3d 353, 357 (2nd Cir, 1994); *Hughey v. JMS Development Corp.* 78 F.3d 1523, 1530 (11th Cir. 1996); *Divers Envi'l Conservation Organization v. State Water Resources Control Board*, 145 Cal.App.4th 246, 256 and 258 (2006).

¹⁹ The County has previously commented on the Regional MS4 Permit that the imposition of an implementation plan and a time schedule sidesteps the procedures called for in the Clean Water Act and shifts the Regional Board's regulatory obligations to the Permittees. See County Comments, Comment 17, pg. 26, fn. 35 (Jan. 11, 2013).

²⁰ US EPA, Total Maximum Daily Loads, Glossary <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/glossary.cfm#implementationplan> ("Current 303(d)

Section 130.33(b)(10) of the Code of Federal Regulations sets forth certain criteria that an implementation plan must include, such as a description of actions and/or management measures and a general timeline for implementing those actions or measures along with interim milestones. There is no federal (or state) legal requirement, or EPA guidance, regarding the specific timing of the milestone or even that the milestone be anything more than a suggested target to attain.

It has been consistently recognized that the WQIPs will develop plans over a multi-year period that may span 10, 20 or 30 years in order to attain standards. It is inconceivable that an implementation plan will contain 20 annual milestones or even that a Copermittee could identify what that milestone might be in year 16, for example, in either the development or early implementation of the plan. WQIPs will focus on studies, monitoring, and review of data to inform the Copermittee as to what corrective actions are necessary, which will result in revisions to the plan. To imbed a milestone into a WQIP for each and every year is arbitrary. It is simply not how project or program development works from a planning perspective. For instance, in developing a project for the benefit of multiple MS4s across a watershed, a few years can be spent applying for grant funding and encumbering monies for the project. Oftentimes, environmental studies and the design of a project are being prepared concurrent with funding planning. A watershed-based program or project involves the letting of multiple contracts with various partners and stakeholders. Contracts include grant agreements; right-of-way dedications and other real property agreements; cooperative agreements with state, municipal and developer partners; architect-engineer agreements; construction contracts; operations and maintenance agreements; and procurement contracts. Although a general schedule is put together, project milestones often span multiple years and can fluctuate as new information is obtained or in the event of changing circumstances. Based on the robustness of the planning and development process, it is simply arbitrary to imbed an annual milestone for each and every numeric goal into an enforceable regulatory document. It also has Regional Board staff micro-managing the implementation process whereby unnecessary time will be spent developing an annual milestone and getting Regional Board staff's re-approval for any slippage in the timeline.

In many cases, WQIPs will be predicated on finding the necessary funds for carrying out implementation. The costs to address the numeric goals contemplated in a WQIP will be significant. Many of years of planning funding will go into even one numeric goal where monies will be allocated by the legislative body on a fiscal year basis and encumbered over many years. In addition to outside grant funds, a program or project's source of revenue will also be derived from taxes and fees, which fluctuate annually depending on factors like the market, inflation and cost indices, income, development, and other factors. Taxes and fees are further constrained in California by Propositions 218 and 26. Most fee programs, for instance, are designed for 10 or

regulations do not require implementation plans, though some state regulations do require an implementation plan for a TMDL.”); *see also*, 40 CFR § 130.

more years of fee collection in order to fund the necessary infrastructure or housing improvements needed. Therefore, a long-term implementation plan utilizing rigid annual milestones that include the funding and financing of projects is unworkable.

While an annual milestone may be the norm for a 5-year TSO that focuses on BMPs for a specific pollutant where final numeric limits are close to being attained, as demonstrated above, annual milestones for a 10 or 20-year plan for a difficult regulatory problem are arbitrary and unworkable. Instead, the Regional Board should consider a time period already used by state and federal law, which is the 5-year term of the Permit. When a TMDL implementation plan is developed, the plan is reported on in the annual report and then again in the Report of Waste Discharge. The next permit is fashioned based on the progress the Copermittee has made in that 5-year permit term.²¹ The Regional Board should not deviate then from the established timelines already set forth in the law as the appropriate place to review progress is at the renewal of the Regional MS4 Permit. Compliance should not hinge on whether an individual action has occurred, but should be predicated on the collective actions of the Permit term, such that a Copermittee can demonstrate that reasonable progress has been made in attaining water quality standards.

D. The Prohibitions and Limitations Language of Provision A Should Specify That Compliance Can Be Determined By Utilizing The Alternative Compliance Pathway At Provision B.3.c.

The Prohibitions and Limitations language in Provision A should be aligned with the Water Quality Improvement Planning process described in Provision B. The Permittee appreciate the efforts to clarify the compliance determination in Provision B.3.c by linking it back to Provision A. However, as currently incorporated into the Tentative Order, Provision A makes no reference to Provision B.3.c, and thus, the Prohibitions and Limitations language may still be interpreted as stand-alone provisions that could subject the Permittee to state and federal enforcement actions as well as third party actions under the Clean Water Act's citizen suit provisions. To prevent this from occurring, a clear linkage between the compliance provisions in Provision B and the prohibitions, receiving water limitations, and effluent limitations must be established. Compliance with Provisions A.1, A.2 and A.3 should be linked to Provision B so that it is clear that the compliance mechanism for A.4 is the Water Quality Improvement Plan (Provision B) and/or the TMDL (Attachment E), as applicable. Permits are construed as contracts, and such a change would be a routine matter of contract drafting whereby contract provisions refer to one another for ease of reading and interpretation.

This change has been requested throughout the workshop and adoption proceedings for the Regional MS4 Permit, but no reason has been given for why this change could not be made. The

²¹ This is also how air quality laws work under the Clean Air Act where a state implementation plan must demonstrate reasonable progress towards national ambient air quality standards, and is revisited on an 8-year basis.

Provision A language is not sacrosanct, and could be modified accordingly without changing the substance of the prohibitions and limitations set forth therein.

III. Provision E.2 Should Be Clarified That Implementation of A Copermittee’s Illicit Discharge Detection and Elimination Program Constitutes Compliance with Effectively Prohibiting Non-Stormwater Discharges.

Section 402(p)(3)(B)(ii) of the Clean Water Act imposes a requirement to “effectively prohibit” non-storm water discharges. The State Board Order acknowledged that preventing all non-stormwater runoff into an MS4 can be a nearly impossible standard to meet at times, since third parties—such as residents watering their lawns in a reasonable manner—are likely to cause at least some incidental runoff to enter a Copermittee’s MS4.²² Other regional water boards have determined that Permittee are in compliance with the Clean Water Act’s mandate to “effectively prohibit” all dry weather discharges when the Copermittee is implementing its illicit discharge prevention program. However, the Tentative Order in Provision E.2 could be interpreted to impose strict liability on the Permittee even where: (1) all or most dry weather flows are diverted before the water reaches a water of the State, (2) the discharge to the MS4 resulted from actions that the Copermittee may have very limited ability to control, and (3) the Copermittee was fully implementing its illicit discharge prevention program.

Provision E.2 of the Tentative Order should be amended to clarify that implementation of a Copermittee’s illicit discharge, detection and elimination constitutes compliance with the requirement to effectively prohibit non-stormwater discharges.

IV. Compliance Dates For The Bacteria TMDL Should Be Changed.

Attachment E notes that the Responsible Permittee for MS4 discharges to waterbodies listed in Table 6.0 must be in compliance with final TMDL compliance requirements. However, the TMDL includes language stating that specific waterbody or beach segments included in the TMDL that have been delisted from the 2008 303(d) list are not subject to any further action as long as monitoring data continues to support compliance with water quality standards. Thus, the language in Attachment E is in conflict with the TMDL, and should be revised to reflect that no action is needed for delisted waterbody segments.

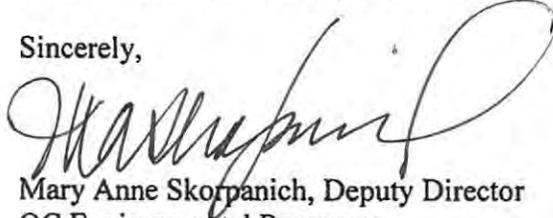
V. Exemption For Self Remediating Priority Development Projects

The list Priority Development Exemptions (Section E.3.b.(3)) should be revised to include projects that are effectively self remediating (i.e. all rainfall is retained) including, but not limited to, reservoirs and swimming pools.

²² State Board Order, pg. 48, fn. 133 (“We recognize that even the most comprehensive efforts to address unauthorized non-storm water discharges may not eliminate all such discharges.”).

Thank you for your attention to our comments. Please contact each of the undersigned directly if you have questions. For technical questions please also contact Chris Crompton at (714)955-0630 or Richard Boon at (714)955-0670.

Sincerely,



Mary Anne Skorpanich, Deputy Director
OC Environmental Resources



Ryan Baron, Senior Deputy County Counsel
Office of the County Counsel

Attachments: A - Summary of Projected WMP/EWMP Costs

Attachments: A - Summary of Projected WMP/EWMP Costs

Watershed	Project Type	Capital Costs	O/M Costs	TOTAL
Upper Santa Clara River	EWMP	\$623.7 Million	-	\$623.7 Million
Upper LA River	EWMP	\$6.097 Billion	\$210.84 Million (Annually)	\$6.308 Billion
Rio Hondo/San Gabriel River	EWMP	\$1.417 Billion	-	\$1.417 Billion
Upper San Gabriel River	EWMP			\$2.14 Billion
Malibu Creek	EWMP	\$194.6 Million	\$3.7 Million	\$198.3 Million
Marina Del Rey	EWMP	\$347.4 Million	\$44.5 Million (Total)	\$391.9 Million
North Santa Monica Bay Coastal Watersheds	EWMP	\$32.5 Million	\$21.7 Million (20-year life cycle)	\$52.2 Million (20-year life Cycle)
Santa Monica Bay Jurisdictions 2 & 3	EWMP	\$648.7 Million	\$94.7 Million (20-year life cycle)	\$743.4 Million
Santa Monica Bay and Dominguez Channel (Beach Cities)	EWMP	\$89 Million	\$3.1 Million (Annually)	\$150 Million (20-year life cycle)
Palos Verdes Peninsula Agencies	EWMP	\$129.5 Million	\$1.52 Million (Annually)	\$131.02 Million
Ballona Creek	EWMP	\$2.723 Billion (by year 2021)	\$77.74 Million (annually)	\$2.8 Billion
Dominguez Channel	EWMP	\$1.294 Billion	\$12.4 Million (in year 2041)	\$1.3064 Billion
Los Angeles River Upper Reach 2	WMP	\$311 Million	-	\$311 Million
Lower Los Angeles River	WMP	\$293 Million	-	\$293 Million
East San Gabriel Valley	WMP	\$646.5 Million	-	\$646.5 Million
Lower San Gabriel River	WMP	\$64.63 Million	-	\$64.63 Million
Los Cerritos Channel	WMP	\$332 Million?		\$332 Million?

ATTACHMENT

33



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

FEB 14 2012

Eric Becker
Senior Water Resources Control Engineer
Southern Watershed Unit
San Diego Regional Water Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Re: Draft San Diego Regional MS4 Permit

Dear Mr. Becker:

The following are EPA Region 9's comments on the pre-notice draft MS4 permit for the municipal separate storm sewer systems (MS4s) located within the jurisdiction of the San Diego Regional Board, which was forwarded to us for review on January 31, 2012.

Given the relatively short time period provided for review of the permit (which is complex), our review has been somewhat cursory, and we may have additional comments on future drafts. We would also like to arrange a conference call with you to discuss our comments before the public notice version of the permit is released.

A. *Permit Expiration Date*

As you know, NPDES regulations at 40 CFR 122.46 require that the term of a permit not exceed five years. Consistent with this requirement, the draft MS4 permit (Attachment B.2.b) provides that the permit would expire five years after the adoption date. However, we are somewhat concerned about the discussion in Finding D.12 for the permit suggesting that the Board may administratively extend (deliberately) the permit for a term of perhaps 10 years or more. NPDES regulations at 40 CFR 122.6 provide that a permit may be administratively extended beyond its expiration date, but only a last resort, for example, when time and resource constraints do not allow timely permit reissuance.

We note that certain permittees in Orange and Riverside Counties, which are currently covered under alternate MS4 permits, would be covered by the new regional MS4 permit when their existing MS4 permits expire (in 2014 for Orange County and 2015 for Riverside County). We also understand that the Board would like to not reissue the regional permit until the Orange and Riverside County permittees have been covered for five years (i.e., in 2020 for Riverside County). Unfortunately, we believe this would

not be possible in light of the five-year limit for the term of a permit at 40 CFR 122.46. As such, we recommend the permit expire (and be reissued) in 2017 for all permittees.

B. *Low Impact Development (LID) Requirements*

We generally support the proposed LID requirements (beginning on page 61) in the draft permit. However, during our conference call, it would be helpful to confirm our understanding of the proposed approach for biofiltration. Presumably biofiltration is considered "a flow through LID treatment control BMP." Rather than specifying design parameters, the permit provides that these systems should be designed for an appropriate surface loading rate to prevent erosion, scour and channeling within the BMP. This seems appropriate to us. Also, if biofiltration does not result in meeting the retention standard, offsite mitigation is apparently required (but we would like to confirm our understanding of this matter).

We also support the proposed hydromodification provisions which appear to be condensed from the approach used in the San Diego Regional Board's Orange County permit (no Hydromodification Control Plan preparation). During our conference call, we would be interested in hearing what considerations the San Diego Board gave to these new hydromodification provisions.

The proposed permit (page 68) provides for alternative (i.e., offsite) projects only in the event of technical infeasibility onsite. In other Southern California areas (and as noted in the statewide MS4 workgroup) we are hearing the suggestion that offsite projects should be allowed to facilitate groundwater recharge. We are wondering if that has been suggested within the San Diego Board's jurisdiction, and whether the San Diego Board would be interested in allowing this under its permit. We believe the idea has merit given the importance of groundwater recharge in Southern California.

Finally, it appears there may be a typographical error on page 72 concerning the beginning date for the project inventories. For example, you may have intended January 2012 rather than 2002 for the San Diego inventory.

C. *Total Maximum Daily Loads (TMDLs)*

We generally support the Board's approach for incorporation of applicable TMDL requirements into the MS4 permit. We are pleased to see applicable wasteload allocations (WLAs) widely incorporated as numeric effluent limits since this approach will enhance enforceability and will most clearly ensure consistency with the WLAs. However, it appears section A.3.b needs some revision; we would suggest the following: "Pollutants in the discharges must be reduced to comply with any effluent limitations expressed as part of any ~~water~~ WQBELs required . . ."

We have not had sufficient time to fully review the requirements of the applicable TMDLs, and the provisions of Attachment E of the permit to ensure all requirements of the TMDLs have been accurately incorporated into the permit. Thus far however, we did note the following:

- For the Rainbow Creek nutrient TMDL, the interim compliance deadlines are included, but not the final compliance deadline (December 31, 2021).

- For the Shelter Island Yacht Basin copper TMDL, the proposed permit provides the permittee may monitor "any (of) its MS4 outfalls. . ." Rather than allowing "any" outfall, we suggest requiring the permittee to monitor a representative outfall in the Shelter Island drainage area (there are 9 outfalls total according to the TMDL) or at least an outfall which drains similar land uses as found in the Shelter Island drainage area.

There are also certain provisions which are somewhat unclear which we would like to discuss further for clarification:

- Section A.2.b; we are unclear on the intent of the prohibition of exceedances of "receiving water limitations expressed as part of any WQBELs . . ." We believe you mean WLAs, established as a strict numeric WQBEL or not, should not exceed receiving WQS. But we would like clarity on this provision.

- In Attachment E (page E-7, section 3.b.1(a)), we are unclear whether the WQBEL is the same as the receiving water limit; we need to have clear language so there is no confusion on what is a WQBEL, whether it is a receiving water limit or an effluent limit.

Regarding monitoring requirements, we believe it is important to specify a minimum number of samples to be collected at the designated MS4 outfalls, and in the receiving water. For example, appropriate requirements were included for the Beaches and Creeks Bacteria TMDL (page E-31, section 2.a.(i)) and similar requirements should be included for all the TMDLs.

Finally, for TMDLs that are approved during the term of the permit, we suggest a provision similar to that recently proposed by the Central Coast Regional Board for the reissuance of the Salinas MS4 permit (section O of permit No. CA0049981) available at: http://www.waterboards.ca.gov/centralcoast/board_info/agendas/2012/feb/Item_21/attachment_6.pdf. The provision requires the development and submittal (within one year of final TMDL approval) of a plan for complying with applicable WLAs. This provision will expedite compliance with the WLAs by the permittees.

D. *Water Quality Improvement Plan Review*

The draft permit (section F.1, page 90) requires the development and submittal of Water Quality Improvement Plans by co-permittees no later than 12 months after permit adoption. Although the Plans would be made available for review in the Regional Clearinghouse, we believe this may be insufficient to ensure an adequate opportunity for public participation consistent with 2005 decision by the Second Circuit Court in *Waterkeeper Alliance et al. v. EPA*, 399 F.3d 486, and the 2003 decision by the Ninth Circuit Court in *Environmental Defense Center, Inc. v. EPA*, 344 F.3d 832. In addition to providing the Plans in the Clearinghouse, we recommend the Board actively solicit public comment (e.g., provide a 30-day public comment period when a Plan is submitted) and then respond to the comments as appropriate.

We also note that section D.2.d of the permit provides for alternate watershed monitoring requirements in certain circumstances. For the reasons noted above, the permit (or the fact sheet) should clarify that the Board will solicit public comment prior to the approval of alternate plans of this nature.

E. Inspection Program for Construction Sites

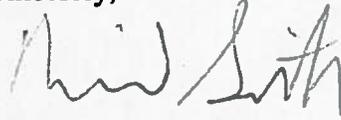
We are still reviewing the proposed requirements for construction site management (section E.4). However, we do have certain concerns with the proposed requirements for construction site inspections in section D.4.d. The proposed permit would require inspections "at an appropriate frequency" for the construction project and its phase. The existing San Diego MS4 permit, however, includes specific frequencies for the inspections (such as once/two weeks, or once/month); other recent California MS4 permits such as the San Ana Board's 2009 MS4 permit for Orange County also commonly include specific inspection frequencies. As you know, we are trying to improve the enforceability of MS4 permits and imprecise terms such as "an appropriate frequency" may make enforcement of the permit more difficult. This is an issue we would like to discuss further during our conference call.

F. Action Levels

Section C of the draft permit includes what are termed "action levels" for certain pollutants. However, there do not appear to be any clear actions associated with these concentrations which would be required to be implemented by the permittees (unlike, for example, the San Diego Board's 2009 MS4 permit for Orange County which requires additional BMPs when an action level is exceeded). For the current draft of the regional permit, the values in section C might be more appropriately termed "assessment levels." If the Board's intent is to use the values as a basis for requiring upgrades to the water quality improvement plans, this should be made clearer in the permit.

We appreciate the opportunity to provide our views on the pre-notice draft permit. If you would like to discuss these comments, please contact me at (415) 972-3464 or John Tinger of the NPDES Permits Office at (415) 972-3519.

Sincerely,

A handwritten signature in black ink, appearing to read "David Smith". The signature is written in a cursive style with a large initial "D" and "S".

David Smith, Manager
NPDES Permits Office (WTR-5)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

JAN 11 2013

Wayne Chui
San Diego Regional Water Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

Re: Draft San Diego Regional MS4 Permit

Dear Mr. Chui:

The following are EPA Region 9's comments on the draft permit for the municipal separate storm sewer system (MS4) located within the jurisdiction of the San Diego Regional Board, which the Board released for public comment on October 31, 2012. We also provided comments on an early draft of this permit in a letter to the Board dated February 14, 2012. For the most part, we are pleased with the latest version of the permit and we commend the Board and its staff for their extensive efforts in developing this draft permit. We also offer the following comments for the Board's consideration:

A. *Total Maximum Daily Loads (TMDLs)*

In our February 14, 2012 letter, we also generally supported the Board's approach for incorporation of applicable TMDL requirements into the permit, i.e., incorporation of applicable wasteload allocations (WLAs) as numeric effluent limits. We urge the Board to retain this approach in the final permit as well since it will enhance enforceability and will most clearly ensure consistency with the WLAs.

Our February 14, 2012 letter had also suggested revisions of certain provisions of the early draft permit related to TMDLs; the October 31, 2012 draft permit has been substantially revised from the early draft and many of our early comments have been addressed. However, as discussed below, we still have certain concerns whether the monitoring requirements of the October 31, 2012 draft permit would be adequate to ensure compliance with the TMDLs.

Sections II.D.1 and 2 set forth the receiving water monitoring and MS4 outfall monitoring requirements of the draft permit. In general, a monitoring program would be developed and conducted by the permittees to assess the impacts of the discharges and the effectiveness of the Water Quality Improvement Plans (WQIPs), focusing on the highest priority water quality conditions. Compliance with applicable WLAs from TMDLs would be one of several competing priorities in selecting monitoring locations in the receiving waters and at MS4 outfalls.

Attachment E to the draft permit requires monitoring at MS4 outfalls or receiving water locations, but the locations to be monitored are not fully specified. Although TMDL compliance would presumably receive a high ranking in setting the monitoring program priorities, it is still not clear that appropriate monitoring locations would necessarily be selected to measure compliance with WLAs. As such, we recommend that Section II.D of the permit clarify that notwithstanding other monitoring priorities, at a minimum, appropriate monitoring locations must be selected to ensure compliance with all applicable WLAs and associated effluent limitations. The permit should specify that a mix of receiving water and representative end-of-pipe monitoring locations must be selected to ensure that the monitoring data collected will be sufficient to determine compliance with effluent limitations based on WLAs and to determine whether individual copermitees have caused or contributed to observed in-stream noncompliance. The permit should provide that the parties that develop and submit for Regional Board review a monitoring plan for a WQIP agree to the use of monitoring plan results for purposes of compliance determination.

Section II.D.2.c.(2) of the draft permit also requires monitoring at an “appropriate” frequency for the post-transitional period; the transitional monitoring program (Section II.D.2.a.(3)) would require twice/year monitoring during the wet season. We recommend the permit clarify the minimum monitoring frequency for the post-transitional period and suggest maintaining the twice/year frequency.

Attachment E also describes the specific provisions for TMDLs adopted and approved that are applicable to this tentative order. We note that a few of the compliance requirements provided in an existing TMDL were not included in this tentative order. We recommend that all applicable TMDL WLAs and compliance endpoints be included in Attachment E. For instance, the TMDL for Indicator Bacteria Project I – Twenty Beaches and Creeks in San Diego Region (including Tecolote Creek), provided both concentration-based and mass-based TMDLs. All identified TMDL WLAs and endpoints should be included in Attachment E to prevent confusion with the WLA requirements described and adopted in the TMDL.

Provision B.6 identifies the WQIP submittal, updates and implementation. Paragraph 3 under this Provision should clarify that the intent of all monitoring and assessment is to improve our evaluation of the waterbodies’ conditions, including the 303(d) listed impaired waterbodies. We recommend paragraph 3 under Provision B.6 be modified to the following:

“All State identified impaired waterbodies within the Watershed Management Area should be placed on the 303(d) List as required under CWA Section 303(d) and 40 CFR §130.7(b)(4)). However, in specific cases supported by robust analytical documentation the implementation of the Water Quality Improvement Plans may demonstrate that TMDLs are not necessary for identified impaired waterbodies within the Watershed Management Area if the analytical record demonstrates that technology-based effluent limitations required by the CWA, more stringent effluent

limitations required by state, local, or federal authority, and/or other pollution control requirements (e.g., best management practices) required by local, state or federal authority are together stringent enough to implement applicable water quality standards associated with the waterbody impairment causes within a reasonable period of time.”

Finally, we reiterate our suggestion from the February 14, 2012 letter that a provision be added to the draft permit to address TMDLs approved during the term of the permit; we had suggested a provision similar to section O of the 2012 MS4 permit for the City of Salinas (NPDES permit No. CA0049981) available at: http://www.ci.salinas.ca.us/services/maintenance/pdf/NPDES_Permit.pdf. The provision requires the development and submittal (within one year of final TMDL approval) of a plan for complying with applicable WLAs. Such a provision would expedite compliance with the WLAs by the permittees.

B. Low Impact Development (LID) Requirements

In our February 14, 2012 letter, we generally supported the LID provisions of the early draft permit, and we continue to largely support the proposed LID requirements of the October 31, 2012 draft permit. The proposed requirements in the October 31, 2012 draft (beginning on page 78) are also similar to the requirements in other recent California MS4 permits such as those for Los Angeles and Orange Counties. As you know, Region 9 is encouraging the Boards to include measurable requirements in MS4 permits to enhance clarity and enforceability of the permits. We are pleased to see the inclusion of the measurable requirement for onsite management of the runoff from the 85% storm similar to other recent permits. However, we also note that Section II.E.3.c.(1)(a)(ii) of the October 31, 2012 draft permit provides a new alternative of retaining the volume (determined by modeling) that would be retained under natural, undeveloped conditions. We are concerned that this option may create uncertainty and provide opportunities for subjective analyses that would be resource intensive and difficult to review. For this reason, and for consistency with other recent California MS4 permits, we recommend that Section II.E.3.c.(1)(a)(ii) of the proposed permit be removed. However, if this provision is retained, the permit and fact sheet should fully clarify that undeveloped conditions refer to natural conditions prior to any anthropogenic impacts.

We did raise a couple of questions regarding LID in our February 14, 2012 letter which we believe have been adequately addressed in the latest draft. We had been unclear concerning requirements related to biofiltration; the October 31, 2012 permit has been restructured in a way which clarifies the questions we had raised.

We had also suggested that the Board may want to consider off-site water supply augmentation projects as an acceptable alternative when onsite stormwater management is not feasible. Several recent studies have highlighted the many benefits (such as energy

savings) of increased stormwater infiltration for groundwater recharge. We note such a provision has been added to the draft permit, and we support this provision.

C. *Water Quality Improvement Plan Review*

In our February 14, 2012 letter, we had expressed concern whether the public would have an adequate opportunity to review draft WQIPs consistent with the 2005 decision by the Second Circuit Court in *Waterkeeper Alliance et al. v. EPA*, 399 F.3d 486, and the 2003 decision by the Ninth Circuit Court in *Environmental Defense Center, Inc. v. EPA*, 344 F.3d 832. We are pleased to see the draft permit (section F) and the fact sheet have been revised to clarify that the Board would be soliciting public comment concerning draft WQIPs submitted to the Board for approval during the term of the permit.

The fact sheet and the permit also describe the WQIPs as dynamic and evolving documents which are likely to be updated and modified over time in accordance with the iterative process. Although permittees must solicit public input in developing proposed updates that are submitted to the Board, it does not appear that public comment would necessarily be solicited concerning Board action in approving, disapproving or revising proposed updates; we suggest that an opportunity be provided for public comment on such Board actions similar to that provided when the original WQIPs are submitted.

D. *Prescriptive BMP Requirements*

In our February 14, 2012 letter, we expressed concern that the early draft permit would only require inspections of construction sites "at an appropriate frequency"; this provision has also been included in the October 31, 2012 draft permit. We noted in our comments that the existing San Diego MS4 permit includes specific frequencies for the inspections (such as once/two weeks, or once/month), as do other recent California MS4 permits such as the San Ana Board's 2009 MS4 permit for Orange County. As noted earlier, we are trying to improve the clarity and enforceability of MS4 permits and terms such as "an appropriate frequency" reduce clarity and make enforcement of the permit more difficult. Such provisions may also be insufficient to ensure compliance with the Clean Water Act's requirement to reduce pollutants in the discharges to the maximum extent practicable (MEP). We recommend that the permit specify the required frequency of construction site inspections.

Certain other provisions of the October 31, 2012 draft permit are also less prescriptive than the existing permit, such as the storm drain maintenance requirements and the inspection requirements for commercial and industrial facilities. We recognize that the Board is attempting to improve the environmental outcome of its stormwater program by shifting the focus from prescriptive BMPs to prescriptive water quality results, and we concur with the increased emphasis on water quality results. However, we are not convinced that the prescriptive BMPs of the existing permit are as significant

a burden as portrayed in the draft fact sheet, and we suggest they be retained for the most part in the new permit to ensure permit clarity, enforceability and compliance with MEP. To the extent the requirements for numeric water quality goals in the WQIPs would also ensure compliance with MEP, such requirements would be acceptable.

We recommend the permit or fact sheet also clarify that the numeric water quality goals (and the schedule for attainment of the goals) in the draft WQIPs would become enforceable permit requirements once the Plans are approved by the Board. EPA's 1999 regulations for Phase II MS4s (64 FR 68722, December 8, 1999) required similar measurable goals for stormwater management programs and intended that "goals" would be enforceable permit requirements once approved. Further, a wide variety of measurable goals were intended to be considered including measurable BMPs and measurable water quality improvements.

E. Action Levels

In our February 14, 2012 letter, we expressed concern that there did not seem to be any clear actions which would be required on the part of permittees if an action level concentration were exceeded. Although the draft fact sheet of October 31, 2012 provides additional insight into the Board's intent, we still believe the clarity and enforceability of the permit would be enhanced by adding clearer provisions for acting upon action level exceedences to the permit similar to the Board's 2009 permit for Orange County.

Footnote 7 in the proposed permit notes that NALs are not intended to be enforceable limitations. Provision II.C.1.b.(2) also provides that some NALs may be based on WLAs established in TMDLs included in Attachment E of the permit. We believe the Board intends the WLAs to be enforceable permit requirements; as such, we recommend NALs not be based on the WLAs. Instead, enforceable effluent limitations should be incorporated that are consistent with and ensure effective implementation of WLAs.

F. Toxicity Testing

The toxicity testing monitoring provisions proposed in the draft permit should be brought up to date with those in MS4 permits recently issued by the State Water Board (Caltrans MS4) and the Los Angeles Regional Water Board (Los Angeles MS4). Following the approach in these permits, only chronic toxicity monitoring should be required and biological toxicity test endpoints should be analyzed using the Test of Significant Toxicity hypothesis testing approach. At minimum, the permit should be revised to reflect the following requirements: (1) monitoring for chronic toxicity in fresh or marine waters shall be estimated as specified in U.S. EPA's short-term chronic toxicity methods in the most recent edition of 40 CFR 136; and (2) for chronic toxicity test samples (either stormwater or non-stormwater), the in-stream waste concentration (IWC) is 100 percent to calculate either a pass or fail test sample result following Appendix A in

National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, June 2010). A pass result indicates no toxicity at the IWC. A fail result indicates toxicity at the IWC.

G. *Permit Expiration Date*

In our letter of February 14, 2012, we had expressed concern that the Board appeared to be considering a permit term longer than five years to accommodate the expiration dates of the current MS4 permits for Orange County and Riverside County. We noted such a provision would conflict with NPDES regulations at 40 CFR 122.46 which require that the term of a permit not exceed five years. We are pleased to see the proposed permit term has been revised to be consistent with this requirement.

We appreciate the opportunity to provide our views on the draft permit. If you would like to discuss these comments, please contact me at (415) 972-3464 or Eugene Bromley of the NPDES Permits Office at (415) 972-3510.

Sincerely,

A handwritten signature in black ink, appearing to read "David Smith". The signature is fluid and cursive, with a large initial "D" and "S".

David Smith, Manager
NPDES Permits Office (WTR-5)

ATTACHMENT

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ATTACHMENT

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From: Bromley.Eugene@epamail.epa.gov
To: Chiu.Wayne@Waterboards
Cc: Smith.DavidW@epamail.epa.gov; Becker.Eric@Waterboards; Barker.David@Waterboards; Kemmerer.John@epamail.epa.gov; Lin.Cindy@epamail.epa.gov; Brown.Samuel@epamail.epa.gov; Marincola.JamesPaul@epamail.epa.gov
Subject: Re: Fw: San Diego Regional Permit Compliance Option for Prohibitions and Receiving Water Limitations
Date: Tuesday, February 12, 2013 1:31:00 PM
Attachments: [USEPA Review.pdf](#)

Wayne,

Here's a few comments on your new proposal:

1) Regarding compliance with receiving water limitations (RWLs), our first preference would be to just continue using the current RWLs language. However, if you choose to include the new B.3.c compliance option, the proposal should clarify when the potential "safe harbor" period would begin; we would recommend that any such "safe harbor" period begin only after approval of an appropriate WQIP by the Board. Providing "safe harbor" coverage based solely upon submittal by a jurisdiction of a notice of intent to develop a WQIP is legally questionable. This approach could be read to provide the functional equivalent of a compliance schedule without satisfying the requirements that must be met to grant a compliance schedule (e.g., provisions of 40 CFR 122.47 requiring that such schedules result in attainment as soon as possible and include specific interim milestones and schedules leading to attainment of effluent limitations). In reviewing and approving a proposed WQIP, the Board can ensure that the plan will be robust enough to result in attainment within a reasonable period of time.

2) to better ensure that permittees provide a robust demonstration that proposed strategies and activities in a WQIP would lead to compliance with WLAs/RWLs, we suggest revising the second sentence in B.3.c.(2) to the following:

"the results must be included in the water quality improvement plan to quantitatively demonstrate that the implementation of the water quality improvement strategies. . ."

3) in the new proposed B.3.c.(1)(c) the phrase "protect the physical and biological conditions of the receiving waters" is somewhat vague and should be clarified. We believe your overall intent is to require compliance with RWLs (provisions A.1.a, A.1.c and A.2.a of the permit) and B.3.c.(1)(c) would fill in any gaps not covered by B.3.c.(1)(a) and (b). We recommend the requirement to be revised to provide this clarification. The phrase "protect the physical and biological conditions of the receiving water" could be read to provide only for protection of existing conditions, not to require reduction of pollutant discharges necessary to result in attainment of applicable water quality standards. It would be much more defensible to simply revise the phrase to something like "protect and restore the physical and biological conditions of receiving waters and attain water quality objectives."

Eugene Bromley
NPDES Permits Office (WTR-5)
EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105
bromley.eugene@epa.gov
(415) 972-3510
(415) 947-3549 (fax)

From: DavidW Smith/R9/USEPA/US
To: Eugene Bromley/R9/USEPA/US@EPA,
Date: 02/07/2013 03:26 PM
Subject: Fw: San Diego Regional Permit Compliance Option for Prohibitions and Receiving Water Limitations

David Smith
Manager
NPDES Permits Office (WTR-5)
EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105
(415) 972-3464
(415) 947-3545 (fax)

----- Forwarded by DavidW Smith/R9/USEPA/US on 02/07/2013 03:26 PM -----

From: "Chiu, Wayne@Waterboards" <Wayne.Chiu@waterboards.ca.gov>
To: Cindy Lin/R9/USEPA/US@EPA, John Kemmerer/R9/USEPA/US@EPA, DavidW Smith/R9/USEPA/US@EPA
Cc: "Becker, Eric@Waterboards" <Eric.Becker@waterboards.ca.gov>, "Barker, David@Waterboards" <David.Barker@waterboards.ca.gov>, "Arias, Christina@Waterboards" <Christina.Arias@waterboards.ca.gov>, "Walsh, Laurie@Waterboards" <Laurie.Walsh@waterboards.ca.gov>
Date: 02/06/2013 01:45 PM
Subject: San Diego Regional Permit Compliance Option for Prohibitions and Receiving Water Limitations

Hi John, Cindy and Dave,

We have developed some language that we plan on including in our Regional MS4 Permit to lay out a pathway for demonstrating compliance with the discharge prohibitions and receiving water limitations. I've attached the pertinent sections of the permit to generally show where it would go into the permit.

The attachment begins with an excerpt of most of Provision A, which lays out the discharge prohibitions (A.1) and receiving water limitations (A.2), as well as the "iterative process" language (A.4). We do not plan on making any changes to this language other than Provision A.1.b.

Following the excerpt from Provision A is a new section we plan on putting into the Water Quality Improvement Goals, Strategies and Schedules section of the Water Quality Improvement Plan requirements under Provision B. Provision B.3.c is where we provide the option for each Copermittee to develop a robust set of goals, strategies and schedules that can demonstrate they will achieve the discharge prohibitions and receiving water limitations in Provision A. The review of the goals, strategies, and schedules for the compliance option will go through a rigorous public process, as well as review by a Water Quality Improvement Consultation Panel which is described in Provision F.1.a.(1)(b), before being reviewed for acceptance by the San Diego Water Board.

Provision F.1.a.(1) describes the public participation process that will be required for the development of each Water Quality Improvement Plan. You will find the details about the Water Quality Improvement Consultation Panel under this section.

Provision B.3.c is a fairly important piece of our response to the comments we've heard and received. We are currently trying to finalize the changes we want to make to the permit so we can start responding to all the comments we've received. Our current direction is to get the permit to our Board in April. In order for that to

happen, we need to finalize our changes and finish responding to comments by the end of this month.

We'd like to get your feedback on the language before we finalize it. We need your feedback by February 22 if we want to make sure we have enough time to get all our ducks in a row for the April Board meeting.

Let me know if you have any questions. Otherwise, hope to get your feedback on or before February 22.

Thanks,

Wayne Chiu, PE

Water Resource Control Engineer

Southern Watershed Unit

California Regional Water Quality Control Board

San Diego Region

9174 Sky Park Court

San Diego, California 92123

858-637-5558

858-571-6972 Fax

ATTACHMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

APR 24 2013

OFFICE OF THE
REGIONAL ADMINISTRATOR

The Honorable Darrell Issa
U.S. House of Representatives
Attention: Ellen Dargie
2347 Rayburn House Office Building
Washington, DC 20515

Dear Congressman Issa:

Thank you for your letter of April 2, 2013 to Acting EPA Administrator Bob Perciasepe and me concerning the draft Municipal Separate Storm Sewer System (MS4) permit proposed for the San Diego Region by the San Diego Regional Water Quality Control Board (Regional Board).

We have been working closely with the Regional Board in developing the draft San Diego Regional MS4 permit over the past two years, and have carefully reviewed the draft MS4 permit to ensure it implements federal statutory and regulatory requirements and is sensitive to the challenges permittees face in funding and implementing stormwater controls. Stormwater management is a very high priority for us, as urban stormwater runoff is the principal cause of numerous water quality impairments that affect beaches, streams, lakes, and rivers throughout Southern California. (see http://waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml)

The draft MS4 permit represents the fifth iteration of MS4 permits developed by the Regional Board since 1990. Over the past 10 years, the Regional Board also developed six total maximum daily loads (TMDLs) which evaluate discharge sources causing pollution problems and identify needed pollutant load reductions. These TMDLs indicate that substantial reduction of pollutants from municipal stormwater sources is needed to restore the health of beaches and other waters in the San Diego Region. The draft MS4 permit incorporates specific requirements based on these TMDLs to reduce pollutants in stormwater discharges. We believe the draft MS4 permit appropriately reconciles the need for more effective action to restore our polluted waters with the practical realities municipalities face in controlling stormwater pollution.

Your letter expresses concern regarding the potential costs that complying with the draft MS4 permit requirements would entail, particularly those associated with TMDL implementation; similar concerns have been expressed by the permittees. Over the past few months, we have met several times with representatives of San Diego County and other municipal jurisdictions to discuss their concerns.

The TMDL that has generated the most concern among the permittees is the bacteria TMDL adopted by the Regional Board in 2010. Implementation of the TMDL will result in improved controls on stormwater and other sources that cause bacterial water quality impairment at San Diego area beaches and will address widespread concerns about beach closures and illnesses suffered by swimmers. We recognize stormwater controls are costly, but ineffective stormwater control already imposes high costs to the local economy when swimmers in polluted water get sick and beach visitation declines. The Regional Board recognized that TMDL implementation may require a considerable amount of time and provided for a 20-year timeframe, while indicating it would be willing to consider extending the timeframe, if new information supports those changes. TMDL implementation schedules were based on the best information at the time of adoption, but the State acknowledges the difficulty of accurately forecasting the time needed for implementation. For this reason, the draft MS4 permit recognizes that modification of the initial requirements in the permit implementing the TMDL may be necessary. As set forth in Provision B.5 of the permit, the Board is committed to an iterative, adaptive management process through which permit requirements will be periodically revised as new information becomes available. Provision II.H.4.c also provides a specific permit reopener to modify permit requirements related to TMDLs when appropriate.

The draft MS4 permit would also provide a new, innovative mechanism through which permittees can implement permit requirements through watershed-based implementation plans that allow for focusing first on highest priority, cost-effective pollution controls. Through the development and implementation of these Water Quality Improvement Plans, permittees can have substantial flexibility to determine how best to sequence implementation actions. This planning process would also afford permittees the ability to collect information needed to support potential revisions in permit schedules and requirements. While the draft MS4 permit and associated TMDLs provide several "reopener" opportunities, the permit needs to be renewed every five years, which provides another opportunity for the State, permittees, and other stakeholders to consider revisions in permit implementation requirements and timeframes. Thus, we believe the draft MS4 permit is sensitive to the concerns raised by San Diego County and that its implementation can be reasonably and practicably guided by the permittees' progress.

Your letter also noted that Permittees have raised concerns regarding the science and analysis underlying the TMDLs, in particular the bacteria TMDL. The Regional Board developed the bacteria TMDL through a multi-year process which provided numerous opportunities for input by stakeholders. That process included review of the science underlying the TMDL by third-party peer reviewers, and extensive analysis of TMDL implementation costs prior to State adoption of the TMDL. We also carefully reviewed the basis for the TMDL and believe the science and analysis are sound. Nevertheless, given the TMDL reopener provisions and draft MS4 permit's adaptive management process noted above, the State has clearly signaled its willingness to consider modifying the TMDLs and permit if new information supports changes.

Finally, in response to the request in your letter, EPA held a conference call with your staff on April 9, 2013. We discussed details of the draft MS4 permit and TMDLs and, more generally, opportunities to address the funding concerns raised by San Diego County. We noted

that to help address stormwater control costs, low cost loans are available through the California State Revolving Fund program. We also described EPA's new Clean Water Act integrated planning initiative started in 2012. This initiative provides the opportunity for municipalities to work with States and EPA to develop plans designed to reduce overall compliance costs by considering all wastewater and stormwater management obligations in an integrated fashion and sequencing implementation of control projects to address the most significant water quality issues first. While we have discussed this initiative with many municipalities in California, none have yet opted to pursue this opportunity. Lastly, as mentioned in your letter, EPA is currently working with municipalities to clarify how financial capabilities of local governments should be considered in determining Clean Water Act obligations. We welcome the opportunity to discuss these initiatives further with municipal governments.

We trust this information is helpful in addressing your concerns. If we can be of further assistance, please call me or our Congressional Liaison Officer, Brent Maier at (415) 947-4256.

Sincerely,



Jared Blumenfeld

ATTACHMENT

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MEETING
STATE OF CALIFORNIA
SAN DIEGO REGIONAL WATER QUALITY BOARD
PARTIAL TRANSCRIPT

SAN DIEGO REGIONAL
WATER QUALITY CONTROL BOARD
2375 NORTHSIDE DRIVE, SUITE 100
SAN DIEGO, CALIFORNIA

REPORTED BY: KASEY L. MOBLEY, CSR 13407

California Reporting, LLC
52 Longwood Drive
San Rafael, CA 94901
(415) 457-4417

1 APPEARANCES

2
3 BOARD MEMBERS:

4 Henry Abarbanel, Chair

5 Gary Strawn, Vice Chair

6 Betty Olson

7 Stefanie Warren

8 Eric Andersen

9 Tomas Morales

10
11
12 OTHER STAFF PRESENT:

13 David W. Gibson, Executive Officer

14 James G. Smith, Assistant Executive Officer

15 Catherine Hagan, Regional Board Attorney

16 Wayne Chiu, Water Resource Control Engineer

17 Christina Arias, Water Resource Control Engineer

18 Julie Chan, Supervising Engineering Geologist

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1 NOVEMBER 18, 2015, SAN DIEGO, CALIFORNIA

2 9:03 A.M.

3
4 CHAIRMAN ABARBANEL: Good morning.

5 I'd like to call to order the regular meeting of
6 the San Diego Regional Water Quality Control Board
7 on November 18th, 2015.

8 May we have a roll call.

9 (Roll call done.)

10 CHAIRMAN ABARBANEL: The first item on
11 the agenda after being here is our public forum.
12 Anybody can address the Board on any issue that is
13 not on the agenda. So plenty of time to speak to
14 the agenda items as they arise, but very often,
15 the public has important and interesting things to
16 say that I didn't get -- manage to get on the
17 agenda.

18 Did anybody wish to speak to items not
19 on the agenda?

20 And you've given Gary a blue card or
21 whatever?

22 You've given him four?

23 JIM WHALEN: Yeah, that's how
24 entrenched it is.

25 CHAIRMAN ABARBANEL: Okay.

1 JIM WHALEN: Thank you very much. Is
2 this thing on?

3 Good morning, Mr. Chair, members of
4 the Board. My name is Jim Whalen of J. Whalen
5 Associates, 1660 Hotel Circle, here in Mission
6 Valley. I'm the president of J. Whalen
7 Associates, a land use consulting firm, and chair
8 of the Building associations Legislative
9 Committee.

10 I've been monitoring the progress of
11 the MS4 permit implications, and I'm concerned
12 that the biological consequences of reducing
13 runoff into certain water bodies, especially the
14 Otay River --

15 CHAIRMAN ABARBANEL: Excuse me. I
16 believe that is the subject of Item No. 11.

17 MR. WHALEN: We did talk to your
18 counsel about this is the greatest level of detail
19 you're going to get. I'm done in one second.

20 MS. HAGAN: Mr. Whalen is talking
21 about the water quality improvement plan process,
22 but he's not going to talk about any details of
23 the specific water quality improvement plan.

24 CHAIRMAN ABARBANEL: I'm sorry for
25 interrupting, but I --

1 MR. WHALEN: That's okay. We were
2 careful to make sure we talked to folks in
3 advance, to make sure we didn't --

4 CHAIRMAN ABARBANEL: Okay. You can
5 start from the beginning, but I think we know who
6 you are now.

7 MR. WHALEN: I think you do. I've
8 been monitoring the progress of the MS4 permit
9 implication, and I am concerned that the
10 consequences of reducing runoff into certain water
11 bodies for biological reasons may have been
12 overlooked during the permitting process, and I'm
13 simply requesting that the Executive Officer
14 Gibson schedule a public hearing on the San Diego
15 Bay Water Quality Improvement Plan to consider
16 this issue before the full Board. Thank you.
17 That's it.

18 CHAIRMAN ABARBANEL: Do you have
19 specific requests of the executive officer?

20 MR. WHALEN: Simply to calendar it.
21 We can't do specific requests. Simply to
22 calendar.

23 CHAIRMAN ABARBANEL: Okay.

24 Please. I wouldn't interrupt you.

25 TORY WALKER: Good morning, Chair and

1 board members. My name is Tory Walker. I'm at
2 2559 Vista de Palomar, Fallbrook, California. I'm
3 the principal of Tory R. Walker Engineering, a
4 water resources firm, and I prepared a hydro
5 modification study for the Otay River.

6 I believe the San Diego Bay Water
7 Quality Improvement Plan does not take into
8 account all the available science --

9 MS. HAGAN: Excuse me. You need to
10 limit this to no details whatsoever. I was under
11 the impression that folks would be asking for a
12 hearing, but getting into any details is not
13 appropriate today. That's a process for the water
14 quality improvement plan.

15 MR. WALKER: All right. Thank you.
16 So I would like it to be vetted at a public
17 hearing before the Board.

18 CHAIRMAN ABARBANEL: Is that enough
19 details?

20 BOARD MEMBER STRAWN: I think the next
21 one is Nick Dangus.

22 NICK DANGUS: Good morning, Chair,
23 Board members and Executive Officer. My name is
24 Nick Dangus, 1660 Hotel Circle North, J. Whalen
25 Associates, land use consultants.

1 I believe there are significant issues
2 with San Diego Bay Water Quality Improvement Plan,
3 and I request that Extensive Officer Gibson
4 schedule a public hearing before this Board to
5 address these issues.

6 Thank you.

7 BOARD MEMBER STRAWN: Mr. O'Connor?

8 JEFF O'CONNOR: Good morning Chair,
9 Board members and staff. My name is Jeff
10 O'Connor. I work for Home Fed Corporation in
11 Carlsbad. We have significant property holdings
12 in Otay Mesa. I've been working with staff over
13 the past several years over the storm water permit
14 and will continue to do so. We believe that San
15 Diego Bay Water Quality Improvement Plan has
16 unresolved issues and should be subject to a
17 public hearing before this Board.

18 Thank you.

19 BOARD MEMBER STRAWN: Next, Laura, I
20 have a card from somebody that says they want to
21 follow you, but I have your card for Item 11.

22 MS. HUNTER: I had to take my card out
23 because I was advised not to speak.

24 BOARD MEMBER STRAWN: That explains
25 the other mystery of what happened to your card.

1 Come up to the microphone. Identify
2 yourself.

3 BOARD MEMBER WARREN: Can I step down
4 before you go.

5 MS. HAGAN: The matter is a pending
6 matter. It's a 401 certification that's pending.
7 Ms. Hunter wanted to talk about some of the
8 details at the site, and it's not proper for this
9 forum, so I told her that.

10 CHAIRMAN ABARBANEL: Before we go on,
11 I want to ask Dave if the requests of the first
12 four speakers are sufficient for you to put
13 together a public forum that would meet their
14 various --

15 EXECUTIVE OFFICER GIBSON:
16 Mr. Chairman, members of the Board, good morning.

17 Their requests are sufficient for me
18 to look at the issues, the Watershed Water Quality
19 Improvement Plan for San Diego Bay, and to make a
20 determinate, as you have delegated me to do, as to
21 whether or not to schedule that, and I would do so
22 in conference with you, Mr. Chairman, and look at
23 the calendar when that would happen.

24 Optimistically, it would be into next
25 year, and I think there should be some concerns as

1 to certain aspects of the permit that would not
2 come into play until that happened.

3 So I think it would be best to look at
4 this issue and discuss it before making this
5 decision.

6 CHAIRMAN ABARBANEL: I wanted to
7 ensure the people who were present that it was
8 clear enough.

9
10 BOARD MEMBER MORALES: Out of
11 curiosity -- maybe we don't know yet -- is it
12 something that would be scheduled in a regular
13 meeting or.

14 CHAIRMAN ABARBANEL: Board Member
15 Morales, if we determine the best course of action
16 is to consider it, we would plan it for a
17 regularly scheduled Board meeting in 2016.

18 CHAIRMAN ABARBANEL: That would be
19 February?

20 EXECUTIVE OFFICER GIBSON: That would
21 be the earliest it could be.

22 CHAIRMAN ABARBANEL: Okay. Sorry for
23 keeping you waiting. I wanted to make sure --

24 MR. MODIANO: That's fine. Ed
25 Modiano, project coordinator for Chatham site, PRP

1 Group.

2 BOARD MEMBER WARREN: I need to recuse
3 myself if we're going to talk about the Chatham
4 site.

5 MR. MODIANO: We're not. Essentially,
6 we're here -- we have a humble relationship with
7 Escondido Neighbors United. I've always been
8 directed to attend these meetings in case the
9 Chatham site does come up. Apparently, Laura is
10 not going to be talking about the Chatham site, so
11 I remove my card.

12 MS. HUNTER: I put my card back in.
13 From now on, I'm going to put in a request to be
14 after Ed.

15 Anyway, I'm just going to be asking
16 for a request for a public hearing on the 401
17 certification for the Oak Creek development
18 project. Thank you.

19 CHAIRMAN ABARBANEL: Now, we've had
20 several public hearings here on that issue. Are
21 there additional issues that would merit having a
22 hearing of the Board, or would it be a separate
23 occasion?

24 EXECUTIVE OFFICER GIBSON: Mr.
25 Chairman, this concerns a water quality

1 certification under Section 401 that's a pending
2 project right now. I will confer with staff to
3 determine whether I should act on that
4 ministerially, as you have delegated me to do, or
5 if indeed it does rise to the occasion where the
6 Board should consider it.

7 As you know, I have two basic metrics
8 for making that determination, independent of
9 public forum. One is that the impacts are
10 significant, and the other is that there's
11 significant public interest.

12 We've heard perhaps two requests, if I
13 can interpret it that way, and I'll take that
14 under advisement.

15 CHAIRMAN ABARBANEL: Thank you.

16 Anyone else wish to speak on an item
17 that is not on the agenda?

18 Thank you. We will move on to Item 3.

19 (Minutes of Board meeting
20 approved.)

21 CHAIRMAN ABARBANEL: Move on to Item
22 No. 4, which are comments by the Board members.

23 I guess Fran is not with us today.

24 EXECUTIVE OFFICER GIBSON: Correct,
25 Mr. Chairman. She is attending a State Board

1 meeting today.

2 CHAIRMAN ABARBANEL: She will not have
3 any comments.

4 Board members and executive officer --
5 Board members have any comments, reports?

6 BOARD MEMBER WARREN: I just had a
7 question on the executive officer's report. On
8 Item No. 2, the public meeting at Magnolia
9 Elementary School, if we could take a few minutes
10 to share more details.

11 Is it our impression that the parents
12 and teachers are getting the answers that they
13 want, and they're feeling that they're in the
14 loop?

15 CHAIRMAN ABARBANEL: Thank you, Board
16 Member Warren. I will ask if Craig Carlisle or
17 Sean McClain is available -- or Julie Chan. I see
18 Julie is closer to the microphone.

19 Julie, would you please?

20 MS. CHAN: Hi. Julie Chan with the
21 Groundwater Protection Unit. I did attend the
22 meeting. I believe the parents and teachers of
23 the school are getting the information that
24 they're looking for, and another public meeting is
25 scheduled for January. DTSC presented -- the DTSC

1 schools group has installed a pilot remediation
2 system in one of the classrooms, and based on the
3 outcome of the pilot study, they will expand it to
4 the entire school.

5 Then we continue to work aggressively
6 with Amitech to get the groundwater cleaned up. I
7 would say the discussion at the meeting quickly
8 moved away from the school and to the residents'
9 down gradient of the plume. So at that meeting,
10 it was arranged that we would beef up our public
11 information plan, and since then, we met with
12 Amitech and directed them to prepare a public
13 information plan that deals with the residents not
14 just the school.

15 Are there any other questions?

16 BOARD MEMBER WARREN: Will you come
17 back to us and let us know how the January meeting
18 goes.

19 MS. CHAN: Absolutely.

20 CHAIRMAN ABARBANEL: Thank you.

21 BOARD MEMBER STRAWN: As you know, I
22 represent this Board on the San Diego River
23 Conservancy, and we had a really interesting
24 meeting here last week where we began to allocate
25 some of the Prop 1 money for various projects

1 along the San Diego River. The first increments
2 that's designated for the San Diego River will be
3 \$3 million out of a total of 17 for this
4 watershed. This is exclusive of the area-wide
5 money that's being administrated by Coastal
6 Keepers.

7 The three projects that were presented
8 are worthy of some discussion here. The first one
9 is Mass Park. The City has had a plan, been
10 working on a plan for several years to restore
11 that park. Under Prop 1, they added to that and
12 divided out a section that's going to specifically
13 restore -- I think it's about nine and a half
14 acres of repairing habitat, wetland restoration.

15 They're moving the old asphalt trail.
16 They're tearing that up and moving it back away
17 from the bank of the river, restoring that bank
18 and adding to the flood plan, replacing the trail
19 with a permeable surface. And they're planting
20 some native grasses and flowers. It's going to be
21 a really nice project.

22 I was particularly mindful of the idea
23 that that can be a good example of some of the
24 urban projects that can be done under Prop 1,
25 where they take some urban city parks and, at

1 least, modify them or add to them in such a way
2 we're also taking care of the watershed.

3 This particular park is surrounded by
4 a lot of high-density, low-income housing. All
5 those parking lots have drained down into the
6 park. So they're building a big bioswale, and
7 they take that and duct it into a gravel bed that
8 actually augments the playground. It will be a
9 big boulder field for the kids to play on when
10 it's dry, and it helps act as an attachment that
11 can recharge the groundwater.

12 The other project was the County of
13 San Diego had a trash removal pilot project. I
14 think it was 12 sites, and they're -- they worked
15 with some of the other cities in the state to look
16 at some of the other projects that are going on to
17 remove trash from the storm water. In these 12
18 sites, they'll put a high-tech catchment down in
19 the storm drain catchment area to filter out
20 anything bigger than a cigarette butt, or
21 including a cigarette butt, I guess.

22 Then they'll pick that up and analyze
23 it, and they're going to match this with some
24 public outreach and education BMPs to look at --
25 and volunteer cleanups to see how do you decide

1 where to put these things, what are you catching,
2 what are the big concerns, and how does this
3 physical trap work compared to the other
4 alternatives, which is volunteer cleanups and
5 education.

6 That one was particularly of interest
7 because the areas of interest are probably the
8 most low-income high-density urban areas that the
9 county's got responsibility for: out in Lakeside,
10 Bostonia, and I don't remember; a couple other
11 sites.

12 It's going to be an interesting
13 project. It wasn't a whole lot of money but we
14 would hope to expand there, and I think it's safe
15 to say that the impetece behind that is the new
16 State Board mandate on trash removal and going
17 forward with the idea that will probably become
18 incorporated in the MS4 at some future point.

19 So they're doing a pilot project that
20 I think can be beneficial to all the cities in our
21 area to look at methods of removing trash from the
22 storm water.

23 San Diego state put in a request to --
24 for watershed restoration along Alvarado Creek
25 adjacent to Interstate 8 and alongside the new

1 student housing areas in there. That's kind of a
2 bad area of the stream, so just the physical work
3 of clearing that out, removing some concrete and
4 invasive plants and improving that whole wetland
5 area and watershed is important from a flood
6 avoidance aspect, but the really cool part about
7 that project is Prop 1 has some serious mandates
8 in there that it's targeted for shovel-ready
9 dirt-moving projects, physical restoration
10 projects, and there's not a lot of allowance for
11 data collection and evaluations and studies of the
12 long-range effects. This particular project,
13 because it's sponsored by San Diego State, there's
14 a consortium of four or five professors and their
15 graduate students that doing water monitoring in
16 there, hydrology, absorption studies, bio
17 assessments, and I think they're already working
18 with Chad's team, if that's correct -- or we're
19 providing historical data in there.

20 So we should, in addition to fixing up
21 a bad part of that watershed, I think we're going
22 to gain a lot of data out of that and be useful in
23 evaluating and selecting future projects like
24 that.

25 The one thing at this -- going

1 forward, they've got the another half of that 3
2 million will probably come up in the next couple
3 months. One of those projects had to do with
4 irrigation in some of the urban ponds along the San
5 Diego river, to try to raise the DO levels. I had
6 previously asked that to be a future agenda item
7 and information item. I suggest we hold that in
8 abeyance a little bit until we see how this
9 project pans out. Maybe we can get a briefing on
10 what they're doing and how they expect it to work.
11 I want to tie that in with the rigging issue.

12 I've kind of segued into the next
13 agenda item. I'll leave it at that.

14 CHAIRMAN ABARBANEL: In a modest break
15 with tradition, the State Board has agreed to
16 consult with the regions on the disposition of the
17 resources that the State gives to the water boards
18 as a whole. And to discuss priorities, as seen by
19 the regions in consultation with the State Board.

20 That is going to happen three times in
21 three sessions during the coming year, 2016, and
22 the agreement was the chair and one other Board
23 member, as well as the executive officer, and, if
24 available, the assistant executive officer, be in
25 these discussions. We will have, in January, a

1 staff-and-Board-only discussion of how we will
2 present ourselves in that occasion. And we will
3 also have a public discussion of what is important
4 to the public that you would like us to bring
5 forward with discussion with the regions. That
6 will probably be in February.

7 Everything is open to discussion. I
8 have no idea what the experiment will result in,
9 but it's an opportunity for everybody, with
10 whatever views you hold on whatever issues are
11 important to you, to come forward and see what we
12 can do statewide.

13 In particular, cooperation with other
14 regions, I think, should be strongly encouraged.
15 We have many, many overlapping issues. Gary has
16 talked often about the homeless issue. It's a
17 complicated issue. It's not just the water
18 quality issue. It's an ethical issue. It's a
19 legal issue. We don't expect the State Board to
20 solve it. But the other regions, San Francisco
21 and L.A. in particular, probably have a much more
22 severe problem than we, so we'll talk to them
23 about a cooperative activity. There may be many,
24 many others. We don't in any way claim to have
25 figured them out yet.

1 Anyway, we're going to do that. I
2 think that's all I wanted to say for myself.

3 Dave, do you want to say anything more
4 about the executive officer's report?

5 EXECUTIVE OFFICER GIBSON: Thank you,
6 Mr. Chairman. I'd be very happy to. First of
7 all, are there any other questions on this month's
8 report? It is a rather extensive report.

9 Seeing none at this time, I have a
10 couple of updates for you. First of all, I'm
11 happy to announce that yesterday, the State Water
12 Resources Control Board did act on and approve the
13 basin plan amendment this Board adopted this year
14 for the on-site waste treatment system and
15 groundwater nitrate concentration water quality
16 objectives. That was approved. It's on its way
17 not to EPA and OAL. I think it will ultimately be
18 approved.

19 We have several new staff. Erica
20 Ryan.

21 Erica, will you please stand up.

22 Erica joins us as a water resource
23 control engineer, in the topic du jour. Welcome,
24 Erica. Baptism by fire, as they say -- or ice
25 water bucket, maybe.

1 We have two new scientific aids with
2 us Anayeli Picasso and Kate Moore. I know Kate is
3 at a class today.

4 Anayeli, are you here?

5 She's not here either. Probably hard
6 at work, no doubt.

7 Today the Commissioner Drusina is
8 convening with Commissioner Salmon at a Minute 320
9 Binational Corps Group, this afternoon, of course,
10 from 2:00 to 5:00 p.m. If it pleases the Board, I
11 will excuse myself at 1 o'clock to attend on its
12 behalf on that work group to discuss how we're
13 going to manage water quality, sediment and trash
14 bi-nationally under that treaty. That runs today
15 from 2:00 to 5:00 p.m., and I will update you
16 periodically in the executive officer's report.

17 The operations plan and budget for our
18 office for our next calendar year is under
19 preparation, and I plan to bring that to you for
20 discussion on the plan, the priorities, and indeed
21 our budget, as we did this year, in February of
22 next year.

23 Just a reminder, Item No. 10 on the
24 San Ysidro point of entry wastewater treatment and
25 reuse, we decided to have that with the recycled

1 wastewater item on December 16th at Padre Dam
2 Municipal Water District.

3 I'm very happy to also report, no
4 doubt you know, the City of San Diego approved the
5 significant rate increase, which is very important
6 for the recycled water efforts. So we will be
7 able to count on the City of San Diego to
8 participate in that very important discussion next
9 month.

10 That concludes my report unless there
11 are any follow-up questions.

12 Thank you very much.

13 CHAIRMAN ABARBANEL: Item 5 is the
14 opportunity for Board members to request or
15 suggest future agenda items. Gary is ahead of us
16 by an item or two.

17 Tom?

18 CHAIRMAN ABARBANEL: I have one, which
19 is kind of a recycled item. I'm pretty sure it
20 was in 2013 that the executive officer and Board
21 members made many visits to water districts,
22 municipalities, the three counties. I don't know
23 if we got to Riverside county.

24 BOARD MEMBER ANDERSON: We did indeed.
25 Mr. Strawn and I went several times.

1 CHAIRMAN ABARBANEL: Good. I would
2 like to suggest that we do that again in 2016.
3 It's been three years. We've had multiple very
4 significant permit modifications and new permits.

5 By the end of the day, we will
6 possibly -- I think it's time to go back and see
7 how things are going. I personally found those
8 visits to be very productive. And I had a sense
9 that the municipalities, surprised as they were
10 that we showed up on their doorstep, found it
11 productive.

12 EXECUTIVE OFFICER GIBSON: Yes,
13 indeed, Mr. Chairman, I agree. Debra Jane, our
14 outreach coordinator, and I are working up a plan
15 for next year for that. I am going to suggest
16 that we perhaps have several small group meetings
17 rather than individual meetings, as far as
18 practical for those, in Riverside and Orange
19 Counties to make use of our travel time and of
20 their time to be available. Small groups rather
21 than large groups and emphasis on discussion and
22 listening rather than lecturing.

23 CHAIRMAN ABARBANEL: That sounds like
24 a good start.

25 We're now going to move on to Item 6.

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(2016 meeting schedule
approved.)

CHAIRMAN ABARBANEL: We're going to
move on to the consent calendar. I have a
potential conflict of interest with Item No. 8.
I'm going to turn it over to Vice Chair Strawn and
step aside.

BOARD MEMBER STRAWN: First we ask if
there's any comments from the Board about the
consent item. If not, I would entertain a motion
to approve the consent calendar.

BOARD MEMBER MORALES: I move that we
approve the consent calendar for Items 7 through
9.

BOARD MEMBER STRAWN: We have a motion
and a second.

MS. HAGAN: May I ask a question? Mr.
Abarbanel, because you've stepped aside for Item
8, you're not participating in the vote for Items
7 or 9, either?

CHAIRMAN ABARBANEL: That is correct.

MS. HAGAN: Okay.

Ms. Warren?

BOARD MEMBER WARREN: Aye.

1 MS. HAGAN: Ms. Olson?

2 BOARD MEMBER OLSON: Aye.

3 MS. HAGAN: Mr. Anderson?

4 BOARD MEMBER ANDERSON: Aye.

5 MS. HAGAN: Mr. Morales?

6

7 BOARD MEMBER MORALES: Aye.

8 MS. HAGAN: Mr. Strawn?

9 BOARD MEMBER STRAWN: Aye.

10 MS. HAGAN: Chairman Abarbanel --

11 excuse me.

12 BOARD MEMBER STRAWN: Did you get your

13 coffee, Mr. Chairman?

14 EXECUTIVE OFFICER GIBSON: Mr. Vice

15 Chairman, if I could, I would like to thank and

16 acknowledge the U.S. Navy for coming today and

17 being prepared to engage on Item No. 9, had there

18 been any discussion. And I'd like to observe this

19 is a nice bookend in terms of our relationship

20 with the Navy as to how this permit was handled in

21 2008 and where we got today. Their assistance was

22 very much appreciated, as was the staff's

23 preparation for this item today, which was not

24 insignificant.

25 BOARD MEMBER STRAWN: Thank you. I'll

1 add it's good to see the Navy was here and
2 prepared, as usual. Thank you.

3 CHAIRMAN ABARBANEL: Okay. We'll now
4 move on to Item 11. As mentioned, Item 10 has
5 been postponed until next month.

6 I have a formal statement I will read:
7 Now is the time and place for a public hearing on
8 tentative order R92015-0100. If adopted, the
9 tentative order will amend Order NO. R92013 --
10 0001. The NPDES permit and waste discharge
11 requirements for discharges in municipal separate
12 storm sewer systems -- that's why we call them
13 "MS4" -- draining the watersheds within the San
14 Diego region, also known as Regional MS4.

15 The purpose of this hearing is for the
16 Board to hear testimony and comments about the
17 tentative order from staff, the co-electees and
18 their elected officials, the environmental
19 organizations, the building industry and other
20 interested persons.

21 At this time, I want to allow any
22 Board member to make any disclosures if they have
23 received any ex parte communications or disclose
24 if they have a conflict of interest.

25 BOARD MEMBER WARREN: Thank you. I

1 will not be participating in this matter based on
2 work that my firm conducts.

3 CHAIRMAN ABARBANEL: All right. I do
4 want to clarify, this is a tentative order to
5 amend the existing permit, the regional MS4
6 permit. The regional MS4 permit was adopted after
7 two days of public hearing with extensive public
8 comment and testimony. The Board also held a
9 public hearing in February of this year to amend
10 the regional MS4 permit to incorporate
11 Copermittees. For the most part, the parties have
12 incorporated their comments from the 2013 comments
13 into this action. And the staff prepared
14 responsive comments that also incorporate the
15 Board's 2013 responses.

16 Given that, I want to make sure people
17 know that comments and responses to comments from
18 the initial adoption of the regional MS4 permit
19 from 2013 and the February amendment from this
20 year are part of the record, and they don't have
21 to reargue all the points they made earlier to
22 make them part of the record.

23 Procedures will be the following: The
24 Board will conduct this hearing in a relatively
25 informal matter. We have received several

1 advanced requests for blocks of presentation time,
2 which we plan to allow, and I will indicate at the
3 end of this formal presentation today. Although,
4 due to time constraints, we will not give Orange
5 County Copermittees all of the time they
6 requested, they will have time to address their
7 issues.

8 We will consider requests for more
9 time as the hearing moves forward. Interested
10 persons will generally have three minutes each.
11 As noted below, we have set a time for elected
12 officials to speak. Do we have any elected
13 officials that are here?

14 Then we will have a specific time for
15 that. Elected officials wishing to address the
16 Board, if so, at about 10 o'clock. It may happen
17 before that. Please don't leave.

18 We also received a request from Orange
19 County and Orange County Flood Control District to
20 ask clarifying questions of staff. We will
21 accommodate the request within their 30-minute
22 block of time.

23 If other parties want to ask questions
24 of staff or other parties, they may do so within
25 their time of allotment. If any speaker wants to

1 reserve time for closing arguments or rebuttal,
2 they should indicate the request at the beginning
3 of their presentation.

4 As always, Board members and counsel
5 can ask questions at any time. Questions and
6 responses won't count against the speaker's time.

7 Finishing up the formal structure, if
8 you haven't already, all persons wishing to the
9 address the Board must fill out a speaker card.

10 Either color?

11 We're colorblind as to the cards
12 today. Speaker cards are available on the table
13 at the back of the room. And as a reminder, if
14 you're using an electronic presentation, be sure
15 to give the board's executive assistant a copy so
16 it can be included in the record.

17 General order of presentations will be
18 as follows: The staff will begin in about 25
19 minutes.

20 Wayne, are you leading the staff
21 discussion?

22 MR. CHIU: I am.

23 CHAIRMAN ABARBANEL: As the EPA could
24 not attend today, a staff member will speak, in
25 effect, in their place. Elected officials will

1 get three minutes each, and then we will move on
2 to Riverside County Copermittees, then Orange
3 County Copermittees. The cities of Laguna Beach
4 and Dana Point will have 20 minutes out of the San
5 Diego County time, and San Diego County will have
6 10 minutes. The Building Association will have 15
7 minutes. The Coast Keeper and Coast Environmental
8 Rights Foundation, 30 minutes, and additional
9 interested persons not associated with any of the
10 organizations will have three minutes each after
11 about 1 o'clock.

12 Somewhere in there, we are likely to
13 need a lunch break, and at about 10:30 or so,
14 we'll also have a biological break.

15 MS. HAGAN: Mr. Chair, I want to
16 clarify. I may have misheard you. The San Diego
17 County Copermittees have 20 minutes. I think you
18 might have said 10.

19 CHAIRMAN ABARBANEL: I thought 10
20 minutes of their time went to Laguna Beach and
21 Dana Point.

22 MS. HAGAN: And then they have the
23 remaining 20.

24 CHAIRMAN ABARBANEL: All right.
25 Apologies to the County of San Diego.

1 information, I will have the time there.

2 MR. CHIU: You're only going to give
3 me only 25 minutes?

4 BOARD MEMBER STRAWN: I just want you
5 to be able to know how you're doing.

6 MR. CHIU: Okay.

7 Good morning, Chair Abarbanel, members
8 of the Board. My name is Wayne Chiu. I'm a water
9 resource control engineer in the storm water
10 management unit, and on the regional MS4 permit
11 team.

12 On the team with me are Christina
13 Arias -- she's not here right now. She'll come
14 back shortly. Our newest member, Erica Ryan, and,
15 of course, our supervisor, Laurie Walsh.

16 Today we bring to you for your
17 consideration, tentative order No. R9-2015-0100,
18 an order amending the regional MS4 permit to
19 incorporate the Riverside County Copermittees, and
20 the last piece in an effort that began in 2011 to
21 cover all the Copermittees in the San Diego region
22 under one MS4 permit.

23 At this time, I'd like to enter the
24 files into the record. Before I go over what
25 you'll be considering today, I'd like to go over

1 where we came from to get here.

2 To start, let's review what the
3 regional MS4 permit is regulating. "MS4" is short
4 for municipal separate storm sewer system. It's a
5 mouthful. For most people, the only part of the
6 MS4 they see are the roads, the curbs and gutters
7 and the storm drain inlets. But the storm water
8 and the liquids and materials that go into these
9 storm drain inlets contain pollutants that
10 discharge into creeks, streams and rivers. Those
11 discharges can have a significant impact on the
12 physical, biological and chemical integrity of
13 those waters. Like the trash, that can have -- or
14 an impact on the chemical and biological integrity
15 of the water in the Tijuana River watershed or the
16 impacts that hydro modification can have on these
17 creeks in Temecula and Murrieta in Riverside
18 County.

19 These creeks, streams and rivers
20 convey and transport the pollutants to downstream
21 water bodies like reservoirs, lakes, estuaries and
22 the ocean. And those pollutants can also have a
23 significant impact on the physical, biological and
24 chemical integrity of the downstream water bodies,
25 which impacts the quality of those downstream

1 waters for our use and the environment's health.

2 Now, because these pollutants in the
3 discharges from the MS4s are recognized as a
4 significant source of pollutants, the Federal
5 Clean Water Act requires that the discharges be
6 regulated under the National Pollutant Discharge
7 Elimination.

8 So MS4 discharges are regulated by an
9 NPS permit, and in California, the state water
10 board and regional water boards issue NPS permits
11 for MS4 discharges. In the San Diego region,
12 we've been issuing MS4 NPS permits since 1990.

13 So here's an overview of our region:
14 Our region consists of a large watershed that
15 drains the western part of San Diego county, the
16 southern part of Orange County and the
17 southwestern part of Riverside County. The areas
18 in yellow are areas with the highest
19 concentrations of developed areas and MS4s. Red
20 shows the water bodies that have been identified
21 as impaired by pollutants like bacteria, heavy
22 metals, pesticides and trash, among others.

23 As you can see, most of these impaired
24 water bodies are located within or downstream of
25 these developed areas, where there is the highest

1 concentration of MS4 discharges.

2 So there's a strong link between
3 discharges from the MS4s and the impaired water in
4 our region. The MS4 permitting program is one of
5 our most important regulatory programs to address
6 a significant source of pollutants causing our
7 contributing to these impairments.

8 Beginning in 1990, the San Diego Water
9 Board began issuing MS4 permits, which were based
10 on county and political boundaries. MS4 permits
11 are issued on five-year terms and are supposed to
12 be renewed every five years. The last MS4
13 permits, based on the political boundaries, were
14 the fourth term MS4 permits issued between 2007
15 and 2010.

16 After the renewal of the fourth term
17 Riverside County MS4 permit in November of 2010,
18 we are about to begin the cycle again with renewal
19 of the fifth term of San Diego County MS4 permits.
20 However, we decided at that time it was time to
21 try a new approach to regulating MS4 discharges
22 and water equality improvements faster.

23 Around the time the fourth term
24 Riverside County MS4 permit was being completed,
25 the San Diego Water Board staff started forming

1 its practical vision. During the formation of our
2 practical vision, as an organization, we realized
3 we were only focused on the work we were doing
4 today, like the numbers of inspections we had to
5 do, the numbers of reports we had to review or the
6 number of permits we had to issue, but not really
7 knowing if those actions were going to result in
8 improvements to water quality.

9 So our practical vision focuses our
10 work on water outcomes. We want to achieve
11 through our actions. We want to utilize our
12 resources in the best way possible to improve
13 water quality where it's needed most. We want all
14 the monitoring in our region to be coordinated to
15 allow us to better assess the conditions in our
16 receiving waters, in the most cost-effect possible
17 way for us. We want to recover lost and degraded
18 streams, wetlands and riparian habitats. We want
19 sustainable local water supply, and we want to
20 reach out and better communicate with public about
21 the water quality in our regions so people
22 understand improving water quality improves our
23 future. We believe if we can achieve these
24 outcomes, we will have healthy waters and healthy
25 people.

1 So while we were forming that
2 practical vision, we began the process of
3 developing the regional MS4 permit. The regional
4 MS4 permit is the embodiment of our practical
5 vision. We shifted the MS4 paradigm from
6 requiring implementation of actions like minimum
7 numbers of inspections and miles of streets swept.

8 On a jurisdictional scale, to
9 prioritize water quality conditions of concern,
10 require the coordination and implementation
11 strategies on a watershed scale to achieve
12 outcomes that will improve water quality. By
13 threat to obtain areas that are sources of
14 pollutants with BMPs that can remove those
15 pollutants before they get in our waters or
16 restoring and rehabilitating channels and
17 habitats, or implementing projects that can
18 capture storm water to be used as a local water
19 supply resource.

20 And finally, the watershed base
21 monitoring assessment program to determine if the
22 strategies are working to improve water quality
23 over time. This paradigm shift was supported by
24 San Diego County, Orange County and Riverside
25 County Copermittees, as well as the environmental

1 counsel.

2 To transition from regulating MS4
3 discharges primarily on a jurisdictional scale,
4 under three separate MS4 permits based on county
5 and political boundaries, we began the paradigm
6 shift in May 2013, we got another regional MS4
7 permit, which superceded the fourth term San Diego
8 County MS4 permit.

9 Next, the Board amended the regional
10 MS4 permit in February of this year to the extend
11 coverage to the Orange County Copermittees and
12 superceded their regional MS4 permit. Today,
13 we're proposing to amend the MS4 permit to extend
14 coverage to the Riverside County Copermittees and
15 supercede their fourth term MS4 permit and
16 complete the process of having one MS4 discharges
17 in the San Diego region.

18 This is a portion of Riverside county
19 and the San Diego region that will be covered by
20 the MS4 permit if you adopt the tentative order
21 today. This map is provided, Supporting Document
22 No. 2, in your agenda package.

23 There are four incorporated cities in
24 Riverside County with all or part of their
25 boundaries within the San Diego region: Temecula,

1 Murrieta, Wildomar and Menifee.

2 The remaining area in blue is the
3 unincorporated area in our region. And the creeks
4 shown in that dark blue area are operated and
5 maintained by the Riverside County Flood Control
6 and Water Conservation District.

7 The cities of Wildomar, Murrieta and
8 Menifee also have parts of their jurisdictions in
9 the Santa Ana region, regulated by our neighboring
10 water boards to the north.

11 During the development of the fourth
12 term MS4 permit, the San Diego Water Board and the
13 Santa Ana Water Board entered into an agreement to
14 have a single water board regulate the MS4
15 discharges in the cities. So the tentative order
16 will continue that agreement for the cities of
17 Murrieta and Wildomar to be regulated by the San
18 Diego Water Board, and for the city of Menifee to
19 be regulated by the Santa Ana Water Board. So
20 this is the part of the Menifee that will be
21 regulated by the Santa Ana region, and these are
22 the parts that will be regulated by San Diego
23 Water Board.

24 At the Orange County amendment
25 adoption hearing in February, the Board requested

1 we investigate two issues and consider including
2 them as amendments to the regional MS4 permit
3 during the proceedings to extend coverage to the
4 Riverside County Copermittees.

5 The first issue was language that will
6 define when a development project will be subject
7 to the development planning requirements for the
8 regional MS4 permit or the fourth term MS4
9 permits, known as prior lawful approval language.

10 The second issue was including an
11 alternative compliance pathway option that a
12 Copermittee could implement to be deemed in
13 compliance with water prohibitions and limitations
14 in the permit, even if they are actually not in
15 compliance. We held three workshops to discuss
16 these issues of key stakeholders, the
17 Copermittees, the environmental community and the
18 development community.

19 Board Member Olson attended the
20 workshop in April. Board Member Morales attended
21 the workshop in May, and in June, we provided a
22 final draft for the proposed amendments to the
23 stakeholders.

24 In May, the Riverside County
25 Copermittees submitted their reported waste

1 discharge to apply for renewal of their fourth
2 term MS4 permit. We released the tentative order
3 on July 31st for public comment, and that
4 tentative order and attachments are included as
5 supporting Document 1 in your agenda package.

6 The comment period closed September 14
7 for a 40 day comment period. We received 18
8 comment letters before the end of the comment
9 period, included as supporting document three in
10 your agenda package, and one late comment letter
11 which we provided in your supplemental package as
12 supporting document 11. We released a response to
13 comments report and errata sheet on November four,
14 included as supporting documents four and five in
15 your agenda package, and we released a revised
16 responses to comments report and revised errata
17 sheet on November 10 provided in your supplemental
18 agenda package as supporting documents 12 and 13.

19 Today we are ready for you to consider
20 options of the tentative order. When we released
21 the tentative order in July, the proposed
22 amendments to the MS4 permit can be categorized in
23 five areas. The primary reason for the tentative
24 order was to amend the regional MS4 permits to
25 include the Riverside County Copermittees as well

1 as continuing the agreement to allow the cities of
2 measure yet, which will do mar and men fee to be
3 regulated by one single water board. The
4 tentative order also proposes to include the prior
5 lawful approval language and alternative
6 compliance pathway option, developed as a result
7 of the public workshops we conducted, and I'll
8 discuss those in a little more detail, and finally
9 we amendment to see make corrections updates and
10 clarifications in the permit, which I'll summarize
11 later for you.

12 So let's start with the prior lawful
13 approval language. This language was requested by
14 the San Diego Copermittees and the development
15 community. We discussed this topic at length it
16 at the public workshops everyone freeze the permit
17 language should provide a clear understanding for
18 when a development project should be subject to
19 the development requirements of the regional MS4
20 permit. The project that meets the conditions of
21 prior lawful approval would not be subject to the
22 conditions of the regional MS4 permit but would be
23 allowed to implement the development requirements
24 of the fourth term MS4 permit.

25 After we released the tentative order

1 in July, we received two comment letters about
2 this issue. The City of San Diego supported
3 inclusion of the language but requested a
4 significant change that would remove the
5 requirement for the commencement of construction
6 activities as a condition for a project to have
7 prior lawful approval.

8 San Diego Coast Keeper and the Coastal
9 Environmental Rights Foundation expressed some
10 reservations with the language, and they also
11 requested some significant changes which would
12 remove prior lawful approval for projects that had
13 not begun construction activities -- or have --
14 for projects that have begun construction
15 activities after the effective date of the BMP
16 design manual and also require a development
17 project to have all approvals and permits in hand
18 to complete a project prior to the effective date.
19 We doesn't receive any comments from the
20 development community on this.

21 After carefully considering the
22 comments, we decided the conditions for the
23 project to have prior lawful approval developed
24 from the public workshops were reasonable and the
25 language was clear and easy to enforce, so we

1 didn't make any changes

2 Next I'll cover the proposed

3 alternative compliance pathway options. This

4 issue is related to an optional compliance pathway

5 that would allow a key to be deemed in compliance

6 with the receiving water prohibitions and

7 limitations of the permit. This is not part of

8 the offsite alternative compliance program that is

9 applicable to development projects; it's part of a

10 completely different discussion. Now, at this

11 point in time the Copermittees are not in

12 compliance with the receiving water prohibitions

13 and limitations and the or at least nobody thinks

14 they are. San Diego County, Riverside County and

15 Orange County Copermittees have repeatedly

16 requested the inclusion of an alternative

17 compliance pathway option they can implement to be

18 deemed in compliance of the receiving water

19 prohibitions and limitations. And even if they

20 are actually not in compliance with those

21 prohibitions and limitations. In contrast, the

22 the environmental community strongly opposes the

23 alternative compliance pathway because their

24 concern that it removes the potential for

25 enforcement for existing violations of receiving

1 water prohibitions. The version of the
2 alternative compliance pathway was considered by
3 this board at the may 2013 regional MS4 permit
4 adoption hearing. At the Orange County adoption
5 hearing, amendment adoption hearing, the board was
6 very interested in adding the optional compliance
7 pathway to the permit but agreed the issue
8 required additional discussion before it could be
9 included, so we thoroughly discussed topic at the
10 public workshops held in April, May and June of
11 this year with the Copermittees and the
12 environmental community.

13 At the workshops, the discussions
14 began based on the version of the optional
15 compliance pathway that was considered in May
16 2013. At the workshop, the Copermittees strongly
17 supported incorporating the optional compliance
18 pathway, but also wanted compliance during the
19 pathway process as well as more language that
20 would clearly state they were in compliance with
21 receiving water prohibitions and limitations.

22 At the workshop, the environmental
23 community was strongly opposed to putting the
24 optional compliance pathway in the permit, but for
25 discussion, if it had to be included, they wanted

1 provisions that clearly specified when a
2 Copermittee was no longer in compliance and they
3 were strongly opposed to the pathway preparation
4 process because they believe that compliance
5 during the preparation process would remove the
6 intention to propose a rigorous and comprehensive
7 alternative optional compliance pathway.

8 Based on the information we received
9 at the workshops, we chose to include the optional
10 compliance pathway into the regional MS4 permit
11 but not to include compliance during the
12 preparation process. As it so happens, on June
13 15th, the state water board adopted an order,
14 2015-00075, a presidential order which directs all
15 the regional water boards to consider including an
16 optional compliance pathway in all MS4 permits
17 going forward.

18 Now, if a regional water board chooses
19 not to include an optional compliance pathway,
20 then they would have to provide findings in the
21 permit that support not including it. If a
22 regional water board chooses to include an
23 optional compliance pathway in the permit, then
24 the optional compliance pathway is expected
25 incorporate certain principals in the order.

1 Fortunately the requirements of the regional MS4
2 permit and the optional compliance pathway option
3 we developed as a result of those public workshops
4 are consistent with the state water board's order
5 and incorporates the seven principals. The fact
6 sheet, which is attachment two to the tentative
7 order provided as supporting document one in your
8 agenda package have the requirements of the
9 regional MS4 permit and the optional compliance
10 pathway that incorporated seven principles of the
11 state water board's order starting on page F60 on
12 the fact sheet.

13 On this topic we received the most
14 written comments. We received comments from the
15 San Diego county, Orange County and Riverside
16 County Copermittees as groups as well as from
17 several individual Copermittees. The Copermittees
18 requested several modifications that, generally,
19 from our point of view, affect the rigor and
20 transparency of the alternative compliance pathway
21 options and would make the conditions much easier
22 to be able to have the privilege of being deemed
23 in compliance with the receiving water
24 prohibitions and limitations.

25 In particular, the Copermittees

1 requested a reduction in the number of milestones
2 that were required to be proposed for the
3 alternative compliance pathway schedules from one
4 milestone per year until a numeric goal is
5 achieved to just one or two milestones in a
6 five-year permit term. And they requested
7 language that would deem them to be in compliance
8 during the pathway preparation process.

9 The environmental community, again,
10 objected to the inclusion of the alternative
11 compliance pathway and asserted there were several
12 legal issues as well as the inconsistencies with
13 the state water board order that justified the
14 removal of the alternative compliance pathway
15 option from the regional MS4 permit.

16 There were no comments from the
17 development community.

18 So after carefully considering the
19 comments, they made a few minor modifications to
20 the alternative compliance pathway, but the most
21 significant change was reducing the number of
22 annual milestones required to be included in the
23 alternative compliance pathway schedules from one
24 milestone per year until a final numeric goal was
25 achieved, which we agreed was difficult to project

1 for 10 or 20 years, to just having five annual
2 milestones per permit term, to be revised and
3 updated with each permit term.

4 Now, the tentative order also includes
5 several amendments, corrections, updates, and
6 clarifications to the permit language.

7 CHAIRMAN ABARBANEL: Will you review
8 as well as you can the thought process of the
9 State Board in requiring alternative compliance
10 pathways?

11 MR. CHIU: Well, okay. The State
12 Board's order doesn't actually require us to have
13 an alternative compliance pathway. It requires
14 that we consider including an alternative
15 compliance pathway into the permit. Now, it is a
16 very strong encouragement that we include it in
17 the permit, and that's why, if we don't include it
18 in the permit, we have to provide good reason for
19 not including it in the permit. That's why we
20 have to provide findings in the permit that say
21 this is why we are not including it in the permit.

22 Now, on the flip side, for reasons
23 including it in the permit, I think they --
24 there's a recognition that -- it's unlikely that
25 the dischargers are going to be able to achieve

1 within our limitations within a five-year period,
2 and there's a recognition that it's probably going
3 to take multiple permit terms in order to get to
4 that end point.

5 But, you know, I think they wanted to
6 have some fairly rigorous and controlled process
7 in which the regional boards can oversee
8 implementation of some sort of process that will
9 provide some assurance that we can achieve those
10 limitations within a limited period of time, not
11 an unknown period of time.

12 EXECUTIVE OFFICER GIBSON: Mr. Chair,
13 if I could also offer a point of view another way
14 of looking, I think, at the state board's approach
15 at this is putting some meat on the bones of the
16 process the State Board set out in 1998 and 1999
17 for achieving water quality objectives through the
18 municipal separate storm sewer system permits and
19 program. That process was open-ended. It had not
20 been exactly clear the across the spectrum of the
21 environmental advocates and municipalities exactly
22 how the process was to be structured, where it
23 starts and stops, et cetera. Our approach in this
24 region permit is for that order and the order
25 itself I believe is to put structure to that

1 iterative process and to identify a particular
2 target or goals and achieve those.

3 In this case, with the alternative
4 compliance, we would be looking at all of the
5 outstanding water quality objectives that are not
6 being met that we have impaired water bodies for.
7 It's an option. Not every watershed or
8 municipality may take that approach, but that is
9 the basis for the State Board's approach in the
10 regional permit itself.

11 CHAIRMAN ABARBANEL: What are the
12 impediments for achieving those water quality
13 objectives in a five-year period?

14 EXECUTIVE OFFICER GIBSON: Mr.
15 Chairman, I think you will hear there are many
16 reasons why those are hard impediments. Number
17 one will be cost.

18 CHAIRMAN ABARBANEL: So there's no --
19 it doesn't violate the laws of physics?

20 EXECUTIVE OFFICER GIBSON: Not being a
21 physicist --

22 CHAIRMAN ABARBANEL: They don't have
23 to invent new physical laws in order to make
24 miracles happen. It's a matter of implementing
25 what they know how to do?

1 EXECUTIVE OFFICER GIBSON: It is a
2 question of technology and function.

3 BOARD MEMBER MORALES: Maybe to put it
4 in different terms, it's not a matter of
5 impossibility, it's impracticability.

6 EXECUTIVE OFFICER GIBSON: I am nodding
7 my head in agreement.

8 CHAIRMAN ABARBANEL: Well, you
9 mentioned technology. If we are unable to
10 implement something that remediates the water
11 quality issue, then it doesn't matter how much
12 money we spend on it, it's not possible. It may
13 be possible in 50 years with different equipment,
14 I don't know. Is that a kind of technical issue?

15 EXECUTIVE OFFICER GIBSON: I think
16 that's pushing it out to the edge of the envelope,
17 Mr. Chairman. I do think it's practical for us to
18 achieve our water quality objectives. In some
19 cases you may want to consider how those
20 objectives have been set historically in the basin
21 plan, and our permitting approach allows us and
22 the Copermittees to address that question while
23 working on the attainable goals.

24 The alternative compliance is an
25 option wherein, perhaps, a particular watershed or

1 with a particular storm water Copermittee, we
2 might actually be able to define the process for
3 getting there, know we've gotten there, and be
4 able to do so in such a way as to merit the
5 significant increase of the costs among one or
6 more Copermittees to achieve that.

7 And as a evaluation or approach for
8 that, municipalities would like to see some
9 assurance that they would not be held in violation
10 of water quality objectives while they are
11 undertaking that effort both in terms of the
12 implementation of the plan, which will certainly
13 take many years in some cases, and the development
14 of that plan, as you will hear testimony today,
15 what they want in terms of assurances on those.

16 I will simply point out in summation
17 that this issue has been with us for over 25
18 years. The federal regulations were issued in
19 1990, and if there was any ambiguity about the
20 obligation to comply with water quality
21 objectives, those were erased in late 1990s,
22 certainly with state board's order of 9801 to
23 9805.

24 Going forward, we have significantly
25 improved our capacity to manage our storm water

1 systems, far above and beyond what they were 15
2 years ago. It's now taking those tools and
3 applying them in the watershed and obtaining those
4 goals we are here to talk about today again.

5 Moving forward with that in a
6 practical way is our next step, whether or not the
7 Board considers the alternative compliance, you
8 have significant testimony on that, and I will be
9 glad to provide a recommendation during the course
10 of the day, but I'd invite you to hear the
11 testimony first.

12 CHAIRMAN ABARBANEL: I have one more
13 question.

14 EXECUTIVE OFFICER GIBSON: I hope that
15 I am not stealing Mr. Chiu's thunder for the rest
16 of his presentation.

17 CHAIRMAN ABARBANEL: Repetition will
18 not be harmful.

19 In assessing costs of achieving the
20 water quality, is the benefit of having achieved
21 it republic in many dimensions, including health
22 accounted for.

23 EXECUTIVE OFFICER GIBSON: At the
24 present time, I'm going to say that is an
25 imperfect science an incomplete science.

1 CHAIRMAN ABARBANEL: So I'll take that
2 as a no.

3 BOARD MEMBER OLSON: I'd like to ask
4 you, in terms of these milestones, how
5 prescriptive are they?

6 MR. CHIU: Certainly. The way it's
7 laid out in the permit, a milestone can be almost
8 anything. It's just a way to mark progress. So
9 it could be as simple as saying we need to develop
10 some sort of program. As part of that program, we
11 need to have, you know, a plan developed by
12 such-and-such time.

13 It could consist of some sort of
14 numeric interim goal for the final goal. It could
15 be implementation of a certain number of BMPs by a
16 certain date.

17 BOARD MEMBER OLSON: Can it be part of
18 a program that has alternatives?

19 MR. CHIU: The milestones are simply a
20 way for us and the public to be able to see what
21 the Copermittees are proposing to implement, if
22 they implement it within the time period they have
23 proposed, and then if that implementation is going
24 to move the needle towards achieving the final
25 goal.

1 BOARD MEMBER OLSON: Well, if you try
2 something, and it doesn't work, then is that
3 allowable, or do you try things that you're
4 guaranteed a success?

5 MR. CHIU: With the water quality
6 improvement plan, there is an aspect to have
7 adaptive management. If things change, you have
8 the ability to adaptively manage the program and
9 your milestones. That's why we changed the
10 milestones from, you know, one milestone per every
11 year until you achieve your goal, which, like I
12 said, 20 years down, you have 20 annual milestones
13 for one goal, it could get a little bit hard to
14 project 20 years out.

15 So we reduced it down to a five-year
16 period, which, then every five years, they
17 re-evaluate their milestones and then project the
18 milestones they plan to achieve within the next
19 five-year period.

20 BOARD MEMBER OLSON: If I understood
21 your language, they still need a milestone a year?

22 MR. CHIU: Correct.

23 BOARD MEMBER OLSON: So it's 20 in a
24 20-year period?

25 MR. CHIU: No, five. They only have

1 to propose five that they will try to achieve.

2 BOARD MEMBER OLSON: Five milestones?

3 MR. CHIU: Within a permit term.

4 BOARD MEMBER OLSON: So there's one
5 milestone per five years?

6 MR. CHIU: No, there's five milestones
7 per five years.

8 BOARD MEMBER OLSON: I'm confused.
9 Maybe you can repeat it one more time.

10 MR. CHIU: Initially, the language says
11 you must have an annual milestone for each annual
12 period until you achieve your numeric goal, and
13 you set up a numeric goal that you plan on
14 achieving, say, 25 years from now, you would have
15 to have 25 annual milestones. Now, what we
16 changed it to is instead of saying you have to
17 have 25 annual milestones, you have to have five
18 annual milestones and that final goal.

19 BOARD MEMBER OLSON: So you still have
20 to have -- I don't see what the difference is.

21 MR. CHIU: You start out with five, and
22 then as you learn something during those five,
23 when you submit your next five with your report of
24 waste discharge, you have learned something with
25 the first five, hopefully, and then you can

1 project your next five.

2 BOARD MEMBER OLSON: But you still
3 require the same number of milestones. What
4 you're saying is different in that you don't have
5 to lay out all 25 milestones.

6 MR. CHIU: Correct.

7 BOARD MEMBER OLSON: So -- I'm
8 struggling with this. So we are learning as we
9 go. So we have more knowledge at the end of five
10 years.

11 MR. CHIU: Hopefully.

12 BOARD MEMBER OLSON: Hopefully. So it
13 may be just as difficult to obtain an objective
14 after five years even with more knowledge, we may
15 realize there is more natural influence, and there
16 may be issues that we find out, too.

17 So what is the advantage -- I mean, I
18 can understand, but you could have three
19 milestones for five years. I'm not quite sure
20 exactly what the difference is except you think if
21 you have one milestone every two years, people
22 will not be working toward that milestone?

23 MR. CHIU: Well, I think, you know,
24 most of our permits -- I should say, the regional
25 permit has an annual reporting cycle, and I think

1 when it comes to showing progress, they want to
2 have something each year to show the Copermittee
3 or Copermittees as a group are implementing things
4 that are progress. That's why there is some
5 flexibility in what those annual milestones can
6 be, because we understand that implementing some
7 of these projects can take some time. But that
8 doesn't mean that, you know, we should wait five
9 years to hear whether or not it was completed.
10 There are interim steps in any project, so we
11 would like to see that there are ways to see how
12 things are moving along.

13 BOARD MEMBER OLSON: We all agree the
14 most important outcome is to achieve the
15 objective.

16 MR. CHIU: I agree.

17 BOARD MEMBER OLSON: And I want to
18 make sure that what we do doesn't become over
19 burdensome because you would like, and I would
20 like, and I believe the public would like money
21 spent to review the problems, and not hiring a
22 consultant to write a report that you have to --

23 MR. CHIU: I agree with that. That
24 speaks to the permit that we have tried to change
25 relative to previous permits. We have one annual

1 report per year now for the entire watershed
2 versus, you know, 50 annual reports that we had
3 the previous permits. So we reduced the amount of
4 paperwork that is necessary in order to record
5 everything.

6 BOARD MEMBER OLSON: Didn't you just
7 make a larger report? So in that report, you get
8 one big report instead of 60 little reports?

9 MR. CHIU: I would say we reduced the
10 areas that are unnecessary and increased the areas
11 that are necessary. So what we had in the past
12 was a lot of reports that were provided, a lot of
13 unnecessary information that was very difficult to
14 boil down into useful information. What we've
15 done with the reports now is we've reduced a lot
16 of the jurisdictional reporting requirements such
17 as a set of numbers and focused a lot of the
18 reporting on the monitoring data that is collected
19 and how the information from those assessments can
20 be used to improve the jurisdictional programs and
21 the strategies that are being implemented.

22 In the past we had a lot of
23 monitoring, but it wasn't really connected to the
24 programs and outcomes, and the programs and
25 outcomes were reporting a lot of the action they

1 were implementing without seeing how they would
2 improve water quality or contribute towards the
3 improvement of water quality.

4 We try to strike a balance between
5 what's necessary to report and what's unnecessary.

6 BOARD MEMBER OLSON: And we'll be
7 evaluating ourselves during this period?

8 MR. CHIU: Absolutely. This whole
9 process is intended to get everybody involved on
10 trying to achieve outcomes, not just the
11 dischargers, but us as well. We have to figure
12 out how to make our programs more effective, how
13 to make the permit more effective, because we have
14 permits in the past that, while they did move the
15 needle a little bit to improve water quality, it's
16 really hard for us to tell how or where they
17 improved or what actually did the improvements.
18 With what we've done with this permit, we've
19 really tried to change it so that we can figure
20 out what is working and what is not working, and
21 where things work, expand on that, where things
22 don't work, let's decrease that. It's trying to
23 maximize the efficiency that we all want with our
24 resources and our time. That's really what we're
25 trying to do with this permit.

1 The milestones are part of that. It's
2 hard to track how things are moving if you don't
3 have a way to track. That's partially why we
4 recognize that 25 years of milestones all upfront
5 is difficult. So let's break it down into smaller
6 chunks that are a little more manageable, but
7 let's really use that to think about how that can
8 help us in the future. That's why it's a
9 five-year process can spring from.

10

11 BOARD MEMBER MORALES: Staff, anybody
12 out in the audience, feel free to correct me if
13 you think I'm wrong, but in terms of what may have
14 been going through the State Board's head, I
15 wasn't in there, but as I see it, what they may
16 have been thinking is "Regional boards, we are not
17 going to micromanage you. An alternative
18 compliance pathway is something that you don't
19 have to have, but if you do not, it's incumbent
20 upon you to explain to us why you didn't include
21 one. We're not going to give you the benefit of
22 the doubt.

23 "On the other hand, if you get people
24 together and you adopt an alternative compliance
25 pathway, we'll give the benefit of the doubt."

1 That's kind of what I took from it.
2 So if anybody disagrees with that, please tell me
3 when you all speak.

4 MR. CHIU: I'll agree with you.

5 BOARD MEMBER STRAWN: I stopped the
6 clock when they started asking questions.

7 MR. CHIU: Thank you.

8 CHAIRMAN ABARBANEL: The Copermittees
9 that are going to be speaking later, I'm going to
10 ask you -- you heard staff's intentions of
11 reducing the paperwork load and making the
12 reporting more meaningful -- is that a good way to
13 describe it?

14 I would be very interested in hearing
15 your comment to that, specifically what you think
16 we put here, what we're putting together is going
17 to, in fact, reduce your paperwork load, or are we
18 still dumping some rather useless requirements
19 onto you?

20 We're not trying to kill trees or burn
21 up ink here. So please let us know your honest
22 belief on how we're doing. I think the proper
23 goal that Wayne stressed, let us know if we're
24 going in the right direction.

25 MR. CHIU: Can I make a comment on

1 that particular aspect?

2 At least for the last two years, we've
3 had these transitional jurisdictional runoff
4 management program annual reports. In the past,
5 we used to get 20 binders about that this thick
6 that we would have a hard time really
7 understanding what's in there. And now each
8 Copermittee has provided to us a two-page annual
9 report.

10 Going into the future -- we've also
11 been receiving their monitoring reports for the
12 watershed. And where we had one monitoring report
13 for the entire region, we now have eight
14 monitoring reports that are broken up by
15 watershed. So it's a little more watershed
16 specific. Like I said, we've increased some
17 reporting but decreased some reporting, as well.

18 CHAIRMAN ABARBANEL: It appears to me
19 you have about three minutes left.

20 MR. CHIU: That should be plenty.

21 BOARD MEMBER STRAWN: Take what you
22 need up to three minutes.

23 MR. CHIU: I will. I think I should
24 get three minutes and 14 seconds.

25 CHAIRMAN ABARBANEL: Take three

1 minutes and fifteen seconds.

2 MR. CHIU: Thank you for your
3 generosity.

4 BOARD MEMBER STRAWN: You're welcome.

5 MR. CHIU: The amendments included
6 several corrections, updates and clarifications to
7 the permit language. I'll summarize those for
8 you.

9 The amendments included revisions to
10 the requirements for two TMDLs in the permit. We
11 identified an inadvertent omission of an option to
12 develop a bacterial load reduction plan instead of
13 a comprehensive load reduction plan for the
14 beaches and creeks bacteria TMDLs. So we
15 corrected those TMDL requirements to allow for
16 bacteria load reduction plan to be developed. And
17 then we added some language to the Los Penasquitos
18 lagoon present TMDLs to help compliance.

19 We also amended the permit to update
20 the requirements for non-storm-water discharges to
21 reference a recently-adopted State Water Board
22 permit which regulates discharges from water line
23 flushing and water main breaks, and then, also,
24 change a reference to a San Diego Water Board
25 permit to a more recently adopted permit for

1 discharges for groundwater extraction.

2 And then we also added some language
3 to the fact sheet and response to comment to
4 clarify that if a Copermittee is in compliance
5 with the elicit discharge, detection and
6 elimination requirements, then the Copermittee
7 would be deemed in compliance with the effective
8 prohibition of non-storm-water discharges to the
9 MS4.

10 Finally, we will made a few amendments
11 to the development and planning requirements.
12 After the amendment to incorporate the Orange
13 County Copermittees into the MS4 permit, we
14 identified an inconsistency in the definition of
15 priority development projects compared to the
16 fourth term Orange County and Riverside County MS4
17 permits. So we corrected the definition to be
18 consistent with those previous definitions.

19 And as a result of those corrections,
20 we needed to include some clarifications on how a
21 Copermittee was expected to update their BMP
22 design manual with the corrected definitions.
23 After reviewing the written comments we received,
24 we decided a few initial revisions were warranted,
25 including language to clarify the effective date

1 of the BMP design manual and the definitions of
2 construction activities and redevelopment. So
3 those revisions we made in response to the
4 comments, along with the other revisions made to
5 the tentative order included in your revised
6 errata sheet provided in Supporting Document 13.

7 So to conclude, we recommend that you
8 adopt Tentative Order R9-2015-0100 with the
9 revised errata and Supporting Document 13 of the
10 MS4 permit to incorporate the Riverside County
11 Copermittees, as well as incorporate the prior
12 lawful approval language and the alternative
13 compliance pathway option.

14 BOARD MEMBER STRAWN: 26 seconds.

15 MR. CHIU: I'm available to answer any
16 questions you may have now.

17 BOARD MEMBER MORALES: No.

18 CHAIRMAN ABARBANEL: Thanks to
19 Mr. Chiu and staff for all of their hard work. I
20 really hope that the public -- I know a lot of you
21 that were part of the process will understand what
22 they've done. It's a lot of work that went into
23 this. A lot of effort.

24 MR. CHIU: Thank you.

25 Christina is going to read into the

1 record a statement from the EPA.

2 CHAIRMAN ABARBANEL: In a second.

3 Because of the time, and the mission of the Water
4 Board, physical, chemical, and biological
5 improvements, I'm going to declare a seven-minute
6 physical, chemical and biological break, after
7 which we will hear from elected officials and
8 Christina. Thank you.

9 (Recess taken.)

10 CHAIRMAN ABARBANEL: Are there any
11 elected officials who wish to speak to the
12 information discussion of Item 11?

13 BOARD MEMBER STRAWN: We have two
14 cards. Mr. Olvera, Mayor of Dana Point.

15 MR. OLVERA: Thank you very much.
16 Good morning. Carlos Olvera, Mayor of the City of
17 Dana Point, registered mechanical engineer with
18 the state of California.

19 We are trying to solve a problem, all
20 of us going in the same direction. I would ask
21 you not to give me a box wrench that you do not
22 know the size of the nut that has to be turned.
23 If you give me an adjustable wrench, I can use
24 that and get the job done. So give me the tools
25 that I can do and accomplish the job you want me

1 to do.

2 Thank you very much.

3 BOARD MEMBER STRAWN: Mr. Green.

4 MR. GREEN: South Coast Water

5 District, Bill Green.

6 BOARD MEMBER STRAWN: I recognize that

7 face.

8 MR. GREEN: Good morning, honorable

9 Board. It's good to be here once again.

10 As a resident of Dana Point, we live
11 in very water-conscious community, and we focus
12 and pride ourselves on water quality. To remind
13 the Board, I started surfing over 50 years ago. I
14 love clean water.

15 However, I have five unique
16 dimensional perspectives on water quality in
17 California. The first is, my vantage point was
18 from your position. As the governors of the
19 appointed water quality member of this Board,
20 serving with Gary and Eric to establish just
21 policies for the citizens of California.

22 My perspective has also been when the
23 USA EPA dictates to the state, CAL EPA lawyers
24 interprets them and renders opinions to the
25 regional staff, and the regional staff further

1 finds and recommends and interprets to your view
2 of the body to set policy and water quality
3 issues.

4 However, not all regions are setting
5 like policies. If not, why not are all regions
6 not the same in one state? Perhaps all counties
7 are not the same, as well, in one region. No
8 matter, it is a difficult question and a complex
9 answer.

10 As a second dimension, as a
11 supervisorial appointed commissioner to the
12 Riverside County Flood and Water Conservation
13 District, I have the privilege of implementing
14 policies and mandates and/or CIP programs.

15 As a third dimension, being an elected
16 official for the South Coast Water District by the
17 people representing them, and having to explain
18 why their taxes and fees are increasing as a
19 result of those mandates.

20 Four, as a state president for the
21 American Counsel of Engineering Companies, working
22 with the State Water Board to develop water
23 quality certifications for professional engineers.

24 My fifth dimension of water quality is
25 33 years as an avocado farmer, a member of the

1 Riverside County Farm Bureau, and a member of the
2 San Bernardino Irrigated Land where I personally
3 managed BMPs and do reports.

4 As a coastal community and entity of
5 the water district, water quality is our top
6 priority. Many beach cities work together to
7 implement water quality. Clean beaches mean happy
8 visitors to our community; therefore, we are
9 motivated to keep our constituents satisfied.

10 The South Coast Water District has
11 reduced water usage by 30 percent this summer,
12 well above the 20 percent target mandated by the
13 state. Aggressive sewer line inspections, as a
14 result of numerous sewer line (inaudible) have
15 included the state park at Doheny and the Dana
16 Point Harbor. We've done our fair share in our
17 community to preserve water quality.

18 Thank you very much for your time.

19 BOARD MEMBER STRAWN: Do we have any
20 other elected officials that I missed cards to?

21 Thank you. We'll go to San Diego
22 County.

23 CHAIRMAN ABARBANEL: No, we're going to
24 hear from Christina appearing for the EPA.

25 MS. ARIAS: Good morning, members of

1 the Board. My name is Christina Arias. I
2 actually stepped out of the room when you were
3 issuing the oath, so I believe I need to take the
4 oath.

5 CHAIRMAN ABARBANEL: Do you swear the
6 testimony you provide is true and correct. If so,
7 say "I do."

8 MS. ARIAS: I do.

9 We've been in contact with U.S. EPA
10 region 9 over the last several weeks, and,
11 specifically, David Smith has sent his regrets
12 he's not able to be here today, but he did ask us
13 to share some thoughts for you to consider.
14 There's two main items.

15 Number one, alternative compliance
16 pathway. Consistent with our prior comments on
17 proposed MS4 permits developed by the San Diego,
18 Los Angeles and Santa Ana region, EPA strongly
19 supports the proposed provision that permittees
20 would not be considered in compliance with the
21 water quality improvement plan provisions prior to
22 plan approval. Prior to a determination by the
23 regional board that the submitted plan contains
24 specific implementation commitments that are
25 sufficient to provide reasonable assurance that

1 TMDL and other relevant water quality based
2 requirements will be met. There is insufficient
3 basis to conclude that the permittees are or will
4 be in compliance.

5 Number two, this has to do with
6 clarifying expectations for the analysis and
7 planning under the alternative compliance pathway.
8 The proposed permit modifications include
9 additional language recognizing the availability
10 of an alternative compliance pathway based on
11 reasonable assurance analysis but provide only
12 limited direction concerning the regional board's
13 technical, analytical inclined expectations that
14 must be met by permittees pursuing this
15 alternative compliance pathway.

16 We have learned through our
17 observation of other regional board's experiences
18 with implementing this approach that more detailed
19 explanation of the regional board's expectations
20 greatly assists development of analyses and plans
21 that meet permit requirements.

22 If the Board adopts the proposed
23 language providing for this alternative compliance
24 pathway, we recommend you commit to promptly
25 develop a follow-up guidance to assist permittees

1 and other stakeholders in interpreting the
2 permit's provisions concerning this pathway.

3 It will best serve everyone's interest
4 if there are clear understandings about the level
5 of technical rigor necessary to demonstrate
6 reasonable assurance and the specificity of
7 implementation commitment necessary in the
8 associated implementation plans to secure
9 approval.

10 As EPA is currently working with the
11 state board on reasonable assurance analysis
12 guidance, we may be able to help the regional
13 board in developing guidelines to assist in
14 consistent, effective implementation of the
15 proposed permit alternative compliance pathway.

16 Thank you for considering these
17 comments. David Smith, manager NPDES, permit
18 section, U.S. EPA, Region 9.

19 CHAIRMAN ABARBANEL: Thank you. The
20 next speakers listed are the Riverside County
21 Copermittees. You'll have 15 minutes.

22 MR. MCKIBBON: Thanks. I won't need
23 that long.

24 Good morning, Mr. Chairman, fellow
25 Board members, I'm Stewart McKibbon with the

1 Riverside County Flood Control Conservation
2 District.

3 Our district is the lead permittee for
4 the Riverside County Copermittees, which consist
5 of the cities of Murrieta, Wildomar, Temecula and
6 the unincorporated county.

7 The first thing I want to do is say
8 we're pleased the staff and the board took this
9 opportunity of our enrollment in the regional
10 permit to include the alternative compliance
11 pathway. It's something we've been asking for for
12 many years, and to see it now is a very good
13 thing.

14 I also want to say, we are very
15 pleased with how staff has conducted the
16 introduction of the language to the community. I
17 want to say that Lorry Walsh and Wayne Chiu and
18 Mr. Gibson have been extremely helpful in
19 clarifying things that we -- we were trying to
20 understand, and they helped straighten us out a
21 little bit.

22 We have written comments on the
23 record, but what I want to take this 15 minutes to
24 do is just to focus on three issues that mean
25 quite a bit to our Copermittees. And you also

1 find out that it may mean something to our other
2 permittee friends in Orange County and San Diego.

3 The first thing, we believe the permit
4 should include compliance language for receiving
5 waters during the time the WQIP is being
6 developed. I'll be calling this "interim
7 compliance" while developing our plan.

8 In our conversations with the
9 executive officer and staff, they let us know that
10 they had concerns about it, and we just heard from
11 the EPA know that they had a concern that they
12 don't know people are going to follow through and
13 actually commit to improving water quality.

14 What I want to propose today, and I
15 provided this in writing to staff, but in more
16 detail is an approach that would provide for rigor
17 and accountability to the Copermittees during that
18 preparation phase. In short, what it is, is
19 simply -- you already have milestones for the WQIP
20 development in the permit. What we propose is
21 simply add deadlines for each one of those
22 milestones. If they're natural check-in points
23 that are already in the permit -- for example, we
24 have to start a public process or public
25 participation process to develop the model. We

1 have to have a committee, the consultation
2 committee. We have to submit an interim WQIP to
3 the regional board.

4 What we suggest is that we give
5 specific timeframes for when that has to be done.
6 And consistent with what's in the rest of the
7 permit, if we miss those timeframes and we're not
8 able to provide a rationale why we missed it, for
9 example, "We didn't have the meeting because
10 people were on vacation," instead of day 60, we
11 had it on day 72, that the regional board can say,
12 "That's a good rationale, and you're okay," and we
13 also have to provide some sort of plan to get back
14 on track if we're off track.

15 But if we don't make it on track, we
16 would recommend that the regional board can look
17 at this and then take away our compliance, because
18 we haven't performed like we said we would. What
19 we want to do is increase our accountability. We
20 want to increase our transparency, and we want to
21 increase our rigor during that formation process.

22 So like I said earlier, I provided
23 draft language to regional staff. I don't want to
24 go through it now and bog down the hearing, but
25 it's there if this Board is interested in

1 providing interim compliance to Copermittees.

2 The second issue I want to bring up is
3 a major issue. We did not include it in our
4 written comments, although I did bring it up in
5 our workshops, and that's the time available to
6 prepare the water quality improvement plan. Right
7 now, it's two years from the time of this adoption
8 that we have to complete the plan.

9 What I do for a living is I prepare
10 master drainage plans. That's what I do for a
11 living. I've done it six times in my life. Never
12 done one in two years. Never happened. We just
13 did one recently near Lake Elsinore. They only
14 covered 13 square miles. We ended up proposing
15 nine miles of channel and, probably, the total
16 cost of improvements was 50 million dollars. That
17 took us several years, like five, including
18 environment review, and over 9,000 hours of staff.

19 To try to compress that into two
20 years, my experience says that's going to be
21 really, really tough; it's not practical.

22 The second thing on why we want more
23 time and we should get more time is we want to
24 have a good plan. The best way to have a good
25 plan is community involvement, public

1 participation. If we have more time, then there
2 can actually be give and take. They can make a
3 suggestion; we can look at different alternatives.

4 If you only have two years, you have
5 to be very focused on getting to the finish line.
6 You can't look at better options. You might have
7 already made up your mind or you don't have the
8 time to really investigate what other people are
9 suggesting to you. So as a matter of having a
10 better plan, we recommend more time.

11 Third just another issue that -- this
12 permit originally came out in 2013. It was
13 recently readopted with our friends in Orange
14 County. This permit adds a public participation
15 process for the modeling, but there was no
16 additional time given. There was two years
17 before, now even more you have to do, you still
18 have two years. It simply was probably not fair,
19 is the right way to put it.

20 What we think would be a good time
21 period -- it would be tough but 36 to 40 months
22 from the adoption of this permit. That's similar
23 to what L.A. has; I think they have 40 months in
24 their permit. But we think 36- to 40-month,
25 something like that, will give that time

1 particularly for the interaction with the public,
2 get their input, incorporate their, ideas give it
3 a real shot, real alternative analysis.

4 The last thing I had is, Mr. Chiu,
5 when he was talking during the presentation talked
6 about the City of Menifee, and that the City of
7 Menifee is going to be governed by Region 8. They
8 need to participate in the process. The City of
9 Menifee has 1.3 square miles that is in the
10 watershed, and has no MS4 major outfalls. We have
11 the only one that's in the city. We control it
12 already.

13 They do have some curb and gutter, but
14 for the vast majority of the land that is in the
15 city, that is owned by private hands. So it makes
16 senses to us as a practical matter to excuse the
17 City from participation in the WQIP preparation
18 process. They really have nothing to do. They
19 don't even have an MS4 outfall. There's nothing
20 going on, really.

21 So the City of Menifee wrote a letter
22 that's in your written comments. We support their
23 letter. Also, support the -- there's discussion
24 earlier about milestones. We support having five
25 when we adopt our WQIP -- having the next five

1 years of milestones laid out. That's something,
2 as public works agencies, we have capital
3 improvement plans, which normally apply to
4 horizons. Those can be easily foretold. Trying
5 to predict something, year 15, year 20, 10, you're
6 going to end up changing it anyway. It's better
7 if you keep it close where you really have a good
8 control and can protect it better.

9 Finally, whether the actual reporting
10 increases our load, that was your question. That
11 came up, Ms. Olson. We believe there's some
12 consolidation, and there's a benefit from having
13 all of the information in one watershed and one
14 report. As far as the burden, Riverside county
15 permittees are only in one watershed.

16 We can definitely see if some of our
17 friends in San Diego -- the county has six or
18 seven watersheds -- this could be a burden on
19 them. For our own particular purposes, it
20 wouldn't be that much.

21 So I don't know. I've got six minutes
22 left. I can reserve that time for later in case
23 something comes up. I'd like to reserve that time
24 if there's any questions you have, I'm available.

25 BOARD MEMBER MORALES: Unfortunately,

1 you're the first speaker from the Copermittees so
2 I'm cutting right to it. Is the reason that the
3 Copermittees want, basically, to be deemed in
4 compliance while they're working on the WQIP so
5 they feel they're shielded from attack or
6 litigation or something like that? Are there
7 other reasons besides that?

8 MR. MCKIBBON: That's one reason.
9 Another reason is there is going to be a
10 substantial expense. We're talking a million
11 dollars to prepare a model and do all the meetings
12 that are necessary and all the alternatives that
13 we might have to accomplish. To have coverage --
14 that's real money; real commitment. Since we're
15 making that real commitment, there should be
16 coverage at the same time.

17 BOARD MEMBER MORALES: This will be a
18 question for everybody. You gave an estimate of
19 36 to 40 months as the timeframe for Riverside. I
20 am assuming that estimate is based on your
21 understanding for the availability of staff to put
22 into the process, and that will differ from
23 Riverside to San Diego to Orange County. So their
24 window timeframe may be different, may be the
25 same, may be wildly -- they may come in and say

1 "We can do it in two years." Some may say, "We
2 can't do it for eight. We don't have the
3 resources to get it done." That's a tough one for
4 me.

5 But I guess the last question I ha?ve
6 -- again, this will be for everybody is, having
7 anticipated that we were going to reach this point
8 today, have you all done any advanced work on the
9 WQIP process? Have any of your staff --

10 MR. MCKIBBON: Absolutely. We've
11 already gotten inventories, we're working on our
12 outfalls, determining whether they're persistent
13 flows or not; staff is working on that. They're
14 working to have a scope ready so I can go by
15 Thursday to consultants to do the modeling and do
16 the support work for the WQIP. We developed this
17 scope. We developed timelines. We've done a lot
18 of work already.

19 I've been talking to people that would
20 sit on the consultation panel. What we would like
21 to have is a public works director for the City of
22 Wildomar on this panel, and the city engineer for
23 Temecula on this panel. Why is that? Because we
24 have to make commitments to spending real dollars.
25 You need people to make decisions to do that.

1 That's not lower-level staff. Nothing against
2 lower-level staff, but they don't have the
3 authority and these people do.

4 So we have been doing work to do that.
5 We've also been talking to the water districts
6 here at the same time that we're doing this
7 regional planning effort, we should be doing
8 something that's not in the permit, which is storm
9 water recharge. I want to invite the Rancho
10 California Water District and Western Municipal
11 Water District to sit on the consultation panel so
12 we can examine and do storm water recharge at the
13 same time. It may not be in the WQIP, but it
14 would be in an adopted plan that's going to be
15 adopted by our Board.

16 And then going back to your middle
17 question, which was -- it's not just the fact that
18 the resources -- money is not the only resource;
19 time is an important resource. To have
20 interaction with people, you can't throw money at
21 them and think that's interaction. You have to
22 talk to them; you have to analyze what they
23 propose and have some give-and-take. You can't
24 sit there and say "I know what's best." It won't
25 fly. We want a plan that has community buy-in.

1 You won't get community buy-in if you stiff-arm
2 them on this process.

3 BOARD MEMBER MORALES: Maybe it was
4 inartfully phrased but I equated money with staff
5 positions.

6 MR. MCKIBBON: Right now I've got --
7 anticipating five people in house, working on it,
8 plus two consultants on the outside. It's going
9 to be a substantial investment in money for
10 Riverside County.

11 BOARD MEMBER MORALES: Thank you.

12 BOARD MEMBER STRAWN: I was going to --
13 with your permission, I'm going to add 30 seconds.
14 I don't want to charge people for answering the
15 question about the paperwork. I want to encourage
16 you.

17 CHAIRMAN ABARBANEL: Just for the
18 public's information, we bought Gary an atomic
19 clock.

20 MR. MCKIBBON: Appreciate your
21 consideration.

22 CHAIRMAN ABARBANEL: I have a
23 question. I understand your argument for
24 extending the time fully creating -- creating a
25 full-blown WQIP. Would an interesting or

1 acceptable middle position be that in a two-year
2 period, you have to come up with a draft of where
3 you're going but not come up -- that you may still
4 be working, but a final plan would come 12 to 14
5 months later.

6 MR. MCKIBBON: That's workable. I
7 want to point out there's no mention of getting
8 SEQA approval in the permit. That takes time as
9 well.

10 I want to say yes to your middle
11 ground -- I also want to say if you want the
12 permittees, you want them to build BMPs to
13 actually impact water quality, go to places that
14 have been hydromodified, if that's a word, we're
15 going to need a SEQA document, and you're going to
16 have to consider all these things together because
17 one of those SEQA things is the cumulative impact.
18 What is the cumulative impact do in all this?

19 You don't know until you have that
20 whole plan. And then we can go adopt it. That
21 plan, once adopted, is our Board authority to go
22 get right of way, to build these things, for us to
23 spend funds. So the SEQA is an important element
24 of this plan for the way it's being envisioned.

25 At no timeframe has been accounted

1 for. Some of these facilities may come later
2 because we need to do the SEQA, as well.

3 Thank you.

4 BOARD MEMBER OLSON: I just wanted to
5 understand this a little better. You have
6 submitted to the staff a plan that would have
7 certain requirements, but would give you -- but
8 would put the agency in compliance during the time
9 period that they're developing the water quality
10 plan.

11 MR. MCKIBBON: Yes, we developed
12 specific language, looks just like your permit,
13 that can be inserted to the permit. Here are the
14 check-in points. Here are the time frames when
15 we'll check in. We have to have a rationale and
16 plan to get back on track. Then the executive
17 officer can say you're out or whatever. I imagine
18 the executive officer would recommend to this
19 board our compliance be terminated until we adopt
20 a WQIP.

21 BOARD MEMBER OLSON: So I guess the
22 end of the time for comments was on September
23 14th. So you -- can you give me a timeframe about
24 when --

25 MR. MCKIBBON: I submitted it to Lorry

1 on Monday, and we developed it last week because
2 we knew that -- I don't know how this Board feels
3 about compliance during this time period, but we
4 wanted to have, if this board thought it was
5 acceptable, an option, something you could choose
6 from. "Heres something that's already been
7 thought about to incorporate into the permit." So
8 that's the idea.

9 We've always been asking for interim
10 compliance, but this is specific language that
11 could make that work, more than just saying: "We
12 want interim compliance," something more.
13 Something more accountable.

14 BOARD MEMBER OLSON: Thank you.

15 CHAIRMAN ABARBANEL: The next group of
16 speakers or individual speakers is the Orange
17 County Copermittees. You'll have 30 minutes.
18 Given the time, we will follow that with the
19 cities of Laguna Beach and Dana Point and the San
20 Diego County Copermittees, and then we will have a
21 lunch break.

22 MS. CORPANICH: Good morning,
23 Mr. Chair, members of the Board. I'm Mary Anne
24 Skorpanich from the County of Orange. I want to
25 thank you for the opportunity to speak with you

1 once again today and thank you in advance for
2 consideration of our comments and the kickoff for
3 a three-part presentation, to be followed by Ryan
4 Baron, County Counsel, and Jeremy Jungreis,
5 representing some of the city Copermittees. And I
6 did want to make note that our comments are on
7 behalf of all the permittees in South Orange
8 County, and that we would like to save whatever
9 remainder of time we have at the end for questions
10 and answers that may come later.

11 You may have noticed, but I did the
12 green card today because I'm here to say "Yay for
13 alternative compliance options and thank you."
14 Let me just -- I should also note you won't have
15 the pleasure of hearing from Richard Boon from our
16 staff today. He usually presents many witty
17 insights into the issues that we're talking about,
18 and always ends with quotes. I did begin with a
19 quote from one of my personal heroes.

20 So I've addressed your Board a number
21 of times asking that we have a permit with which
22 we can be in compliance. This has been a big
23 issue for us over the years. It's something that
24 we take as a point of pride in our careers that we
25 are operating a program, and we have a permit with

1 which we are in compliance. So we very much do
2 appreciate what you have included in the permit
3 today.

4 For as much as there's been progress
5 by the Orange County permittees improving water
6 quality in south Orange County, what we have
7 achieved over the years, even if we could achieve
8 a hundred times more than that, we would not be in
9 compliance if there was a single excuse in a
10 single water body on a single day, coming from any
11 discharge, whether it's our own MS4 system or
12 otherwise.

13 This issue of having a pathway to
14 compliance to extremely important to us. No other
15 area of environmental regulation, to my knowledge,
16 imposes new requirements where the onus is to be
17 in compliance upon adoption. Air quality
18 regulations, for example, there are always targets
19 out in the future are saying "You need to change
20 vehicle fleets by this year. You need to reduce
21 vehicle emissions by this source out in the
22 future." I think this may be unique in the realm
23 of environmental regulations. I think it's a big
24 step forward that permits today are being
25 processed and adopted that have a means by which

1 we can achieve compliance.

2 The amendments before you are critical
3 for the regulated community for a number of
4 reasons. First, this permit establishes a paradigm
5 shift, and it places the permittees in the
6 position of being responsible and being stewards
7 of the entire watershed, including not only our
8 own discharges but the discharges from other
9 parties, and also naturally-occurring conditions.

10 We do have instances that I think you
11 may be aware of where we have reference streams in
12 the region where numbers are higher than what the
13 basin plan objectives are. There are
14 naturally-occurring conditions or things that come
15 from non-anthropogenic sources that cause
16 exceedances that have nothing to do with what the
17 MS4s do or do not do, or how fast they do it, or
18 how well they do it.

19 In some cases, the solutions are
20 exceptionally long-term, and you were asked
21 earlier about impediments. We fundamentally need
22 to remake the structure of our communities that
23 have been developed over a hundred years and more
24 including the very patterns that underlie those
25 communities, and that's not something we can

1 achieve.

2 I think logistics is probably the
3 biggest impediment. Cost, of course, goes along
4 with that, but we couldn't achieve that in a day
5 or year or permit term. So having that pathway to
6 compliance helps us work around that type of
7 impediment. I would also say it's a long-term
8 process to achieve water quality standards,
9 complicated by vagueries in the science, lack of
10 technology, with some of the issues like
11 wet-weather bacteria, for example, what technology
12 we can use and logistics we can employ getting
13 back to the pure physics of how do you deal with
14 that volume and velocity of water that comes with
15 a storm. We don't have the means to achieve that
16 today. There's also shortfalls in funding and
17 education and development and so on.

18 You heard us say before the current
19 state of the environmental conditions was not
20 reflected in the permit, which we see as a
21 necessary starting point for what the permit
22 should have in it. Fortunately, with the water
23 quality improvement plan, with alternative
24 pathways we can now use those current conditions
25 going forward as the basis for the water quality

1 improvement plan. I think we achieved a great
2 deal of progress in that.

3 Finally, the Clean Water Act does not
4 require MS4s to meet effluent limits, and there
5 are many numbers that I mentioned earlier from
6 naturally-occurring or non-anthropogenic sources
7 that we cannot meet. If we're going to be
8 required to do so under this permit, then we need
9 to have a way to be in compliance.

10 This watershed planning, the water
11 quality improvement plan now provides the means to
12 achieve this, and the permit finally provides this
13 pathway for us, and is generally supported by the
14 permittees from South Orange County. It provides
15 a measurable profit for attaining compliance with
16 numeric standards, and it allows us permittees to
17 focus our resources on implementation rather than
18 checklists and, potentially, third-party lawsuits.

19 I'm going to be followed up today by
20 Ryan Baron from County Counsel to talk some more
21 about how we think we can make this better.

22 Thank you.

23 CHAIRMAN ABARBANEL: Any questions of
24 Mary?

25 BOARD MEMBER MORALES: What is Orange

1 County's response to, say, if somebody were to ask
2 that question, "If you're given this field during
3 that period you're developing the WQIP, what's the
4 incentive for you all to hurry or get it right?"

5 You know, in fact it could also be
6 phrased as if there's no downside to not hurrying
7 up or not doing it, what's the disincentive to
8 doing very little?

9 MS. CORPANICH: As I understand it,
10 you have two parts of your question; one is the
11 time urgency, and the one is the level of effort
12 or the degree of effort that we put into it, the
13 rigor with which we approach.

14 I would say in terms of the timeline,
15 you already have that built into the permits. You
16 already have a deadline for us to prepare this and
17 submit it to your staff.

18 BOARD MEMBER MORALES: Could Orange
19 County do it in two years?

20 MS. CORPANICH: We are are going to
21 make every effort to do that in two years. I will
22 say that my colleagues from Riverside County made
23 a very good point that you have better engagement
24 with the public, if you have a little bit more
25 time. I don't know that we would be asking for

1 more time if we aren't going to have an interim
2 compliance. It just stretches out the amount of
3 time that we are out there.

4 The other is the rigor with which we
5 prepare these WQIPs. I would say there the
6 incentive is already built in for us. We need to
7 submit something to your staff that your staff
8 will accept, so we also are having to submit
9 something that we believe that we can implement
10 and that we believe from our best analysis that
11 will get us to the finish line. So I really think
12 that incentive is already built into what you have
13 in the permit today.

14 BOARD MEMBER MORALES: I'm trying to
15 play on all the scenarios.

16 MS. CORPANICH: In fact, we've had our
17 permit now since February, I believe it was.
18 We've already started our public process. We've
19 already sort of laid out how we're going to attack
20 the work. We are well underway because we know
21 two years is not a lot of time. But I will tell
22 you that, probably, the most criticism we hear
23 from the public is that we're having these public
24 meetings, we're asking for their input, but we're
25 rushing to the next step because we don't have a

1 lot of time to grind through alternatives, as
2 Mr. McKibbon was pointing out, and to consider
3 that for more discussion and things of that
4 nature.

5 So we do hear that complaint a lot
6 from the public when we're on a timeline, as with
7 the water quality management plan, as well. We
8 had, I believe it was, two years to do that, and
9 it was a very aggressive schedule, but we did it.

10 CHAIRMAN ABARBANEL: May I ask you the
11 same question I asked Mr. McKibbon. I have never
12 prepared a WQIP, neither have you, yet there are
13 many things one might be able to do with a longer
14 time period. I think 40 months might be a good
15 time. What would be your response to having a
16 draft of the WQIP in two years to be discussed
17 with the staff but a final a year later, in which
18 you could respond to that, have more public input,
19 whatever you deem.

20 MS. CORPANICH: I think that would be
21 preferable. I think that would be good, and I
22 think, based on the -- from what I know, the
23 experience with the San Diego permittees has been,
24 it takes some time once they're submitted, until
25 we can get to final approval.

1 CHAIRMAN ABARBANEL: I wonder if I can
2 ask Mr. Chiu a question in that regard.

3 MR. CHIU: Yes.

4 CHAIRMAN ABARBANEL: Suppose the
5 County of Orange came in in two years with a WQIP
6 and came in with a modification, is there a
7 provision to accept that modification in place of
8 the two-year WQIP?

9 MR. CHIU: The way the process is set
10 up, they are provided up to two years to develop
11 the water quality improvement plan. The water
12 quality improvement plans are given two years to
13 be developed. The permit also allows those water
14 quality improvement plans to be updated on an
15 annual basis, so there's every opportunity to make
16 improvements to the plan itself, on an annual
17 basis, but they have to do it at least once every
18 five years in a report of waste discharge.

19 CHAIRMAN ABARBANEL: So there's a path
20 to do what I've been trying to explore. Come to
21 you in two years, "This is where we've gotten, but
22 we're not yet satisfied. We want more public
23 input. We want more time for new ideas and so
24 forth," and choose on their own to proceed for
25 another year, for example, and come back and say

1 "This is where we are after three years."

2 MR. CHIU: There's -- with the water
3 quality improvement plans, there's the water
4 quality improvement plan process, which has
5 elements that are required be included in the
6 plan, elements that need to be discussed, vetted
7 through the public participation process. There
8 are submittal requirements for us to review and
9 for the public to review along the way, and at the
10 end of the process, we have to determine whether
11 or not they're in compliance with the permit.

12 The plans themselves, I don't know
13 that we ever call them final plans, right, because
14 they're meant to be adapted over time, and they're
15 intended to be living documents, essentially. So
16 the first plan that they submit may be considered
17 final in terms of what we would accept as a
18 starting point, but it is never considered the end
19 point until water quality has been fully restored
20 and achieved in the watershed and/or region,
21 relevant to MS4 discharges, of course.

22 If you are looking to have some
23 opportunity for the Copermittees to submit a draft
24 plan of some sort, which we can then allow them to
25 begin implements or -- I'm not exactly sure how we

1 would transition from planning to implementation.
2 The way we have permits set up, again, once we
3 accept the plan, that is the starting point for
4 implementation. We've seen enough in the plan to
5 understand how they intend to implement their
6 program to achieve their goals.

7 Now, a plan does not necessarily have
8 to have every single water body combination under
9 the sun be part of the plan in order for it to be
10 accepted. At least for the water quality
11 improvement plan, only under the alternative
12 compliance pathway, there is a certain subset of
13 pollutants that need to be incorporated in the
14 plan, namely that is not every pollutant under the
15 sun, but it is a fairly large set of pollutants.

16 I understand there are other
17 pollutants that are currently in exceedance of
18 water quality objectives that are not on the 303
19 list, and they would also like to have coverage
20 for those pollutants, as well. The permit allows
21 for that, or the alternative pathway compliance
22 language allows for that. But that doesn't
23 require them to have every pollutant under the sun
24 under their water quality improvement plan.

25 They can focus a lot of their work on

1 those 303 listed to begin with and then adapt
2 their plan in the future to incorporate the other
3 pollutants that they are concerned with, as well,
4 in future generations of the plan.

5 We need to have someplace where they
6 begin implementation, and that is the part I'm not
7 quite will clear how we would do that if we had a
8 draft plan that would have some additional time
9 for a final plan.

10 CHAIRMAN ABARBANEL: Lest it leak out
11 that we're looking to the Los Angeles region for
12 leadership, do you understand why they have a
13 longer period than 24 months, as I understand one
14 of the speakers to say.

15 MR. CHIU: My recollection of their
16 language was that they had 24 months to develop
17 the plan, but it could have been because of their
18 rather long review period, and they had, I guess,
19 some back and forth with the plan developers as to
20 how the final plan should look. May have been
21 extended to 36 to 40 months, but my understanding
22 is they were given 24 months to begin with. And
23 similarly with the Santa Ana region, they've
24 proposed an alternative compliance pathway, as
25 well in their draft permit. That similarly

1 provides 18 months with an option to extend it an
2 additional 6 months for their plan. I think we
3 are right in there in terms of the amount of time
4 we're allotting to the development of a plan.

5 If you think about a permit term being
6 five years, if we were to have 40 months of plan
7 development, you would only have you know 20-some
8 months of actual implementation before you would
9 have to start relooking at a plan. I'm a firm
10 believer that planning has its place but
11 implementation is where you get results. I would
12 much rather have a plan that may have been rushed
13 a little bit but has great potential to improve
14 water quality and begin the implementation and
15 start learning from implementation and the
16 mistakes that you may make along the way.

17 MS. SKORPANICH: If I could just
18 elaborate on what Mr. Chiu said, our permit
19 expires in 2018. So we won't be talking to you
20 next year but it's not going to be a full five
21 years.

22 CHAIRMAN ABARBANEL: I understand the
23 transition to incorporating all three counties in
24 the same permit, but we'll see you in 2018.

25 BOARD MEMBER OLSON: I just had one

1 question. So if you had to say the greatest
2 hardship with meeting what the staff has proposed
3 and what the negatives are for you, can you sort
4 of elaborate on that for us.

5 MS. SKORPANICH: I think not having
6 that compliance option, and you'll hear more from
7 my fellow speakers on this presentation about what
8 not only can happen but what has happened when we
9 don't have some means of being in compliance with
10 the permit.

11 BOARD MEMBER OLSON: Do you also have
12 CEQA requirements.

13 MS. SKORPANICH: We're still sorting
14 out how exactly that would happen. While you're
15 the ones approving the plan, we're the ones
16 implementing it. Who's the lead agency? There's
17 some finite details we need to work out on that.

18 BOARD MEMBER OLSON: Have you had a
19 chance to look at what Riverside has proposed for
20 an interim compliance where you go -- where you
21 have coverage over the interim compliance which,
22 right now, the proposal before the Board is no
23 interim compliance.

24 MS. SKORPANICH: Right. So the three
25 counties actually met with your executive officer

1 two weeks ago or so, two to three weeks ago, and
2 talked about this very point. What we heard from
3 the staff at the time was that they had nothing --
4 no means by which they could enforce compliance
5 during the period of time the WQIP was being
6 developed, and we suggested that if there were
7 sort of reporting in milestones, deadlines that we
8 had to meet during the development process, that
9 they would then have a clear enforceability built
10 in.

11 We would agree that milestones during
12 development of the water quality improvement plan
13 should meet the needs of what your staff is
14 looking for.

15 BOARD MEMBER OLSON: Mr. Chiu, could
16 you comment?

17 MR. CHIU: I'm sorry, exactly what was
18 the topic we were talking about?

19 BOARD MEMBER OLSON: What we were
20 talking about was there was a proposal brought
21 forward by, as I understand it, by Riverside and
22 the three counties met with our executive director
23 and it was said that you couldn't have interim
24 compliance because there would be no way to
25 enforce it. They're saying if you had certain

1 things built into the interim compliance...

2 I'd like to hear your view on that or
3 what the staff concluded.

4 MR. CHIU: So we received a proposed
5 set of language from Mr. McKibbon early this week.
6 We reviewed it. The way they have structured
7 their compliance pathway during the plan
8 preparation process essentially boils down to
9 document submittals or process completions. It's
10 not really having to do with improvements to water
11 quality. It is all about process, and as long as
12 they have met some process requirements in the
13 interim time between those processes being
14 completed, they would be deemed in compliance.
15 But compliance would be, essentially, with
16 their submittal of a notice of intent to develop a
17 plan.

18 For us, at least in this region, we
19 didn't think it was appropriate to be granting the
20 Copermittees -- what we consider a real privilege.
21 I mean, this compliance pathway is not a right.
22 This ability to be deemed in compliance is not a
23 right; it is a privilege. We strongly believe
24 that in order to have a privilege like this, to be
25 deemed in compliance, there has to be something to

1 show us compliance with receiving water
2 limitations will, in fact, be achieved at some
3 point in the future.

4 Until we can see a plan and the
5 content of that plan, it's very difficult for us
6 to make that determination. So, you know, in a
7 lot of ways, what we consider as a compliance
8 pathway, it's kind of like a real -- it's kind of
9 like a club. It's a club of very special
10 Copermittees that have made a real commitment to
11 improve water quality.

12 The way we formed our club is to have
13 some things that need to be completed before you
14 can actually enter the club. In other regions,
15 they make their club a little less exclusive than
16 our club, and we think that to earn a place in our
17 club, you have to show us that you deserve that
18 spot. And for us to say that anybody can be in
19 the club as long as you hand in a slip of paper,
20 we just don't think that rises to the level of an
21 exclusive club that we want.

22 BOARD MEMBER OLSON: I get confused.
23 Do you not -- do you think people are somehow not
24 serious about trying to improve the water quality?
25 If they meet their goal, continue to meet their

1 goal, make the environment better, their lives are
2 much easier to deal with. So I understand that
3 you want people to be very serious about what they
4 do. It's my intention or my belief people are
5 serious.

6 So maybe I'm missing something, and
7 you'll have time to speak, and maybe you can
8 explain it a little better to me because I really
9 would like to be able to be able to understand
10 your viewpoint.

11 MR. CHIU: I understand how it seems a
12 little odd that we keep on making it seem like
13 there's no real dedication to improving water
14 quality. We see the efforts the Copermittees have
15 gone to in order to improve water quality. At the
16 same time, we have also seen the Copermittees have
17 not taken the opportunity that they've already had
18 to improve water quality. We've had this interim
19 process in place since our 2001 permit, the third
20 term permits.

21 That interim process was intended to
22 be self-implementing by the Copermittees. They
23 were supposed to tell us when there were
24 exceedances caused by their MS4 discharges, and
25 they were to prepare a plan to tell us how they

1 would address those exceedances.

2 Since we've put that language into the
3 permit, not one Copermittee has come forward to
4 say "We are causing this." In fact, it was always
5 the opposite. It is -- there are problems in the
6 receiving water, we acknowledge that. But we
7 don't have data to show we are causing it. We
8 don't believe we should be doing much more than
9 what we're doing today.

10 It's hard for us, at this point in
11 time, to really believe that they have a true
12 commitment to improving water quality to the level
13 we believe is necessary, because this board has
14 been mandated and given the great responsibility
15 of protecting the waters of this state -- not just
16 protecting, preserving, restoring and enhancing
17 the waters of this state.

18 We're not just trying to make it was
19 good as it was today. We want to make it as great
20 as it was before and we want to make it better for
21 tomorrow. So it's not that we want to keep the
22 status quo. That's our mission. So in a lot of
23 ways, what we've seen and heard from the
24 Copermittees is they agree with our mission, but
25 they don't agree that they have to help us in our

1 mission.

2 The water quality improvement plan was
3 our way of saying, "Well, we've heard from you on
4 many occasions that you know a better way. That
5 can happen, but you need to give us the
6 flexibility to do it because these permit
7 requirements are tying our hands. It's making us
8 do things that are not necessary."

9 So we changed it. We said, "Here's
10 the flexibility you're looking for, but we want
11 the outcomes."

12 We've tried to align our objectives as
13 much as possible but the water quality improvement
14 plan and the alternative compliance pathway,
15 again -- the alternative compliance pathway is, in
16 our mind, a privilege. It is something that is
17 going to say you are in compliance. We will
18 consider you in compliance knowing full well that
19 your discharges are actually causing or
20 contributing to impairments, right?

21 So we need to have some assurance that
22 we will get credible plans, durable plans,
23 rigorous and transparent plans that everybody,
24 including the public, can understand how we will
25 get from today's water quality conditions to water

1 quality conditions we say we want, and what this
2 Board wants.

3 I think we're getting a lot by
4 including this alternative compliance pathway to
5 begin with. To actually offer compliance during
6 the preparation process, I think that is asking a
7 little much when we have not seen a record.

8 BOARD MEMBER OLSON: Thank you very
9 much.

10 *Mr. Chairman, members of the Board,
11 we're going to hear a range of discussions on this
12 today, and this is a good opportunity to hear from
13 other folks on this very different subject.

14 CHAIRMAN ABARBANEL: Moving on with
15 Orange County.

16 MR. BARON: Good morning, Chairman
17 Abarbanel, honorable Board members, Ryan Baron,
18 County Counsel's Office, County of Orange. I
19 think the shot clock is at 25:30, for the record,
20 but who is counting. I'll try to be brief.

21 I want to begin by saying that we join
22 in the comments of Riverside and San Diego County,
23 but we come with one issue today on behalf of the
24 Orange County permittees. That's been the biggest
25 issue for us since 2013, when the regional permit

1 was adopted. It's been the biggest issue up and
2 down the state that was dealt with by the state
3 Board order this summer; that is compliance during
4 development and during implementation.

5 Just to give you a little road map
6 where I'm going. First I'll talk about the
7 background for development and implementation in
8 Orange County. Some of the assumptions and
9 implications about the WQIP planning and
10 development process. A little background on the
11 State Board order on the LA permit, and then some
12 response on EPAs comments, and then Mr. Youngrice
13 is going to follow up with some of the recent
14 litigation of an MS4 permit in South Orange
15 County.

16 In order to understand our request --
17 I'm going to refer to as "full compliance" --
18 compliance during the development process, I want
19 to first talk about the process that's going on
20 right now. Orange County enrolled in the regional
21 permit in February of 2015. It began the WQIP
22 process in August 2015 to, as you'll see there
23 from the first arrow, to determine an approach,
24 identify existing data sources, obtain public
25 input and form a consultation panel.

1 Under the tentative order, this is
2 over a two-, two-and-a-half-year process from
3 February 2015 or August 2015 when it began to the
4 fall of 2017. The next few years, spent
5 developing a detailed and rigorous implementation
6 plan with the input of 12 Copermittees, various
7 stakeholders and the public. It's a fairly
8 significant effort, which I'll talk about in a
9 second.

10 The technical consultant costs alone
11 are estimated to be about \$500,000 for this
12 two-year period. That does not include internal
13 staff costs, which are usually from 20 to 50
14 percent of a project, CEQA review and the need for
15 negative declaration or programatic EIR. Those
16 can cost a half million dollars by themselves.
17 And attorney review of the WQIP, looking for
18 compliance, which is going on in L.A., and all the
19 cooperative agreements that both sides might have
20 in house get involved in, trying to put together,
21 multi-party contracts, take them to the 12 city
22 councils and and district boards to enter into
23 these agreements and change scopes of work and
24 consultant contracts and so forth.

25 So it's a fairly significant effort in

1 this two-and-a-half-year process. This is a list
2 of the pollutants of concern from 303 impairment
3 that Orange County will be dealing with and south
4 Orange County, that will be preparing final
5 numeric goals for, compliance schedules, other
6 implementation strategies and control measures.

7 So without compliance during the
8 two-and-a-half-year period of development, the
9 Orange County permittees will need to strictly
10 comply with the numeric limits for each of these
11 pollutants during this development period.

12 Now, normally when a pollutant has --
13 or a water body is on the 303D list, the state is
14 required to prepare or establish a total maximum
15 daily load, TMDL. If the state does not do that,
16 they can be sued to be establish the TMDL. If the
17 state fails to do so, the EPA must establish one.

18 In my opinion, when a county and the
19 permittees are putting together interim and final
20 numeric goals, implementation plans, control other
21 strategies, these are the things that typically go
22 into a TMDL, and it's accompanied by an
23 implementation plan that goes into the permit
24 later on when it's adopted.

25 Essentially, the permittees through

1 the WQIP process are preparing TMDLs, time
2 schedule, orders compliance schedules on behalf of
3 the state during this time. TMDLs typically take
4 several years to develop. They can take a decade
5 or more to implement. And we are sort of taking
6 on this responsibility in order to improve water
7 quality and hopefully obtain full compliance
8 during development and during implementation.

9 Now, most what I'm going to focus on
10 is development, but I will touch briefly on
11 projected implementation costs for coliform in
12 south Orange County. Geo Syntech, the county's
13 consultant, did a rough analysis including that.
14 Implementation costs alone will be somewhere
15 between 1.6 billion to 2.1 billion for the south
16 Orange County watershed. This will include some
17 other combinations as well, but it's primarily
18 looking at coliform bacteria.

19 CHAIRMAN ABARBANEL: These are five
20 year costs or annual costs?

21 MR. BARON: I believe this is the
22 total projected cost for a 10, 20 or 30-year
23 period.

24 BOARD MEMBER MORALES: That makes a
25 difference.

1 BOARD MEMBER OLSON: That makes a big
2 difference.

3 BOARD MEMBER MORALES: Could you give
4 us the background on one of those numbers so we
5 know what went into the reason.

6 MR. BARON: If I could call up Richard
7 Moon.

8 MR. MOON: Richard Moon with the
9 County of Orange. I've not taken the oath.

10 CHAIRMAN ABARBANEL: We can fix that.
11 Do you swear the testimony you will
12 provide is true and correct. If so, say "I do."

13 MR. MOON: I do.

14 So we had we asked Geo Syntech to look
15 at the cost projections prepared for Los Angeles
16 County, and the costs that were available for the
17 WQIPs that have been prepared for San Diego
18 county. And this, as Ryan said, focused
19 principally on bacteria, but they calculated a
20 range of cost for meeting water quality
21 objectives, standardized on impervious areas. So
22 the costs have been pulled from all of these
23 different plans, and I think they looked at
24 between nine and 12 of these watershed management
25 plans.

1 From those, we arrived at a range, so
2 at the low end, 1.6 billion. The top end of the
3 range, 2 billion, based on figures called from
4 these other plans.

5 CHAIRMAN ABARBANEL: Did those plans
6 take into account the financial benefits from
7 having implemented the plans?

8 MR. MOON: No.

9 CHAIRMAN ABARBANEL: So one can assume
10 there will be benefits, and the numbers will be
11 comensurably smaller.

12 MR. MOON: That's correct.

13 BOARD MEMBER MORALES: Again, is it
14 based on per year? Per 10 years? Per 100 years?

15 MR. MONN: It's the total projected
16 cost. So we would need to spend if we --
17 regardless, whether you do it over one year or 40
18 years or 20 years, yes.

19 CHAIRMAN ABARBANEL: Other questions?

20 BOARD MEMBER STRAWN: Now year
21 dollars?

22 MR. MOON: Yes.

23 MR. BARON: The second issue I wanted
24 to bring up before I get to the punch line, I want
25 to discuss some of the assumptions and legal

1 issues involving the WQIP process. It's been said
2 compliance is not a right, but, in fact, the way
3 environmental law works, you're deemed to be in
4 compliance until you're out of compliance, and
5 when you're out of compliance there come
6 significant civil penalties and even criminal
7 sanctions under the Clean Water Act. We take
8 compliance as a big deal, and it's sort of my job
9 to worry about it.

10 By way of legal background, Courts
11 have held that MS4s are not required by the Clean
12 Water Act to strictly comply with the numeric
13 effluent limitations, and the State Board order
14 went through a thorough analysis in this case. It
15 came to the same conclusion. That was also
16 reiterated in an opinion in a circuit court in
17 Maryland, that federal law does not require MS4s
18 to meet strict numeric standards.

19 Now, EPA has not promulgated any
20 binding regulations to that effect. When EPA has
21 encouraged states to require strict compliance for
22 numeric limits, where feasible, it has been
23 through guidance documents; the most significant
24 of which was 2014 EPA storm water memo on the
25 establishment of TMDL waste load allocations where

1 it said "This memorandum is guidance and does not
2 impose legally binding requirements on EPA or the
3 states.

4 The state boards also analyzed this
5 particular memo and came to the same conclusion
6 that I'm articulating today. However, the State
7 Water Board clarified its prior order on receiving
8 water limitations, and it said that regional water
9 boards should require strict compliance with water
10 quality standards.

11 So, in essence, what I'm trying to say
12 is, it's not a federal issue; it's a state law and
13 policy issue to basically go through the WQIP
14 process, which is premised on meeting numeric
15 limitations at the end of that process. The third
16 point I'd like to discuss is the implications of
17 alternative compliance pathway. The permittees
18 are required to develop watershed improvement
19 plans. They have the option under the tentative
20 order to develop interim compliance and final
21 numeric goals, strategies, compliance schedules,
22 annual milestones, if they choose in order to
23 obtain compliance at the Executive Officer
24 approval of the implementation plan.

25 So, again, we've talked about this

1 many times in the workshops last summer: This
2 effectively requires permittees to not just to put
3 together a plan, but to put together a very
4 rigorous, expensive development implementation
5 plan, that is almost identical to developing a
6 TMDL, compliance schedules, time schedule orders
7 by the permittees in this two to
8 two-and-a-half-year period.

9 Those are typically obligations of the
10 state. The state typically has the responsibility
11 with collaboration of the permittee to establish
12 those.

13 In this case, the permittees will be
14 taking on all of those costs and responsibilities
15 and submitting it to executive officer, hopefully
16 for approval of these TMDL compliant-schedule-like
17 improvement plans. So we feel, and as Richard
18 Moon has said, you're becoming the ultimate
19 stewards of the watershed in taking on a lot of
20 these obligations.

21 So I guess with a fear of sounding
22 like my 5-year-old kindergarten daughter, we feel
23 there's a fundamental fairness that should be with
24 being deemed in compliance at the time we tender a
25 notice of intent to develop one of these plans.

1 This is the path followed in LA. It's also the
2 path being proposed in Santa Ana, and I believe
3 it's the path being heard today in the Bay Area,
4 as well.

5 If there's extensive planning to deal
6 with state requirements and taking on a lot of the
7 state's obligations, in costs and resources, there
8 should be an incentive to have full compliance
9 from the start of the development process to the
10 end of implementation, so long as the permittee is
11 diligently and rigorously adhering by that
12 development schedule and meeting all those
13 milestones.

14 Planning and development is
15 fundamental to implementation. I don't believe it
16 can be bifurcated or sort of have this line drawn
17 as to where that approval should be. The planning
18 and development process will include prioritizing
19 pollutants, extensive modeling, setting interim
20 goals, assessing strategies, et cetera.

21 I wanted to give some background on
22 the State Board order, because that came up early
23 on. The State Board, on page 15 of the order,
24 started out, "We are sympathetic that receiving
25 water limitations may result in many years of

1 noncompliance."

2 So the State Board rightfully
3 understood the position that the MS4s were in as
4 transporters of water and not actual dischargers
5 -- industrial dischargers discharge pollutants in
6 their chemical manufacturing process.

7 But as transporters of water, it would
8 take years, many years of technical efforts to
9 comply with receiving water limitations. It said
10 it was reasonable to provide for an alternative
11 compliance process if seven principles were
12 followed.

13 The fact sheet states the regional
14 water board is to consider an alternative
15 compliance option. But actually, in my
16 interpretation of the State Board order, which I
17 think is probably with Mr. Morales's
18 interpretation, is Principal 3 says phase 1
19 permits should provide for a compliance
20 alternative that allows permittees to achieve
21 compliance with receiving water limitations over a
22 period of time. Consider is used on page 51, as
23 part of that "should implement."

24 To consider the L.A. WMP, EWMP pathway
25 as a potential option. In a footnote, the State

1 Board order also says you can look at (inaudible)
2 options, so long as those meet the several
3 principles set out.

4 The idea is that an alternative
5 compliance pathway should be implemented to
6 achieve compliance over a period of time, and if
7 one is not, or one of the other principles aren't
8 followed the region specific or permit specific,
9 the reason should be articulated. The
10 regional board found that compliance during the
11 development period was sufficiently constraint and
12 reasonable because the permittees were still
13 having to meet the relevant deadlines for
14 watershed management, planning and development.
15 They were still having to implement low-impact
16 development, green streets policies, and other
17 watershed control measures. Those measures were
18 not allowed to be put on hold during that 18-month
19 or 24-month period.

20 In fact, the initial version of the LA
21 permit was so stringent that if a permittee did
22 not hit one of those development milestones, it
23 was found out of compliance and could not come
24 back into compliance until the implementation plan
25 was approved by the executive officer at the end

1 of the period.

2 The State Board found that was too
3 stringent and changed the L.A. permit and allowed
4 dead lines to be adjusted or extended for good
5 cause.

6 So we believe the tentative order, as
7 written, does not follow their principle 3.
8 Instead of allowing compliance to (inaudible) over
9 time, it requires permittees to strictly comply
10 with the prohibitions and limitations immediately
11 upon enrollment and throughout the two,
12 two-and-a-half-year planning period, or four
13 years, whatever this Board decides to set.

14 There's no ability right now to
15 prioritize pollutants. WQIPs are premised on
16 prioritizing pollutants so that you are chasing
17 the biggest pollutants of concern. However, that
18 prioritization doesn't come into affect until the
19 WQIP is approved by the executive officer. So
20 there really is a status quo period during this
21 two to two-and-a-half-year time period where we
22 have to worry about each and every one.

23 We also believe that there's no permit
24 specific or region specific finding for this
25 partial compliance option that's being offered in

1 the permit and would ask that if the Board chooses
2 not to, then we would need to amend the fact sheet
3 or permit to articulate that reason, consistent
4 with Principle 3 and 4.

5 I'm going to talk a little bit about
6 the EPA's comment letters. They were mentioned in
7 the response to comments EPA filed --

8 CHAIRMAN ABARBANEL: Before you go
9 into that, I want to ask you a question.

10 It seems to me we've been struggling
11 -- I've heard today that we as concerned citizens
12 about water quality, have been struggling for at
13 least 25 years to find a way to achieve what we
14 have in mind as far as water quality. It hasn't
15 worked really well so we're trying different ways.
16 Region 4, Los Angeles, is trying one way. Our MS4
17 permit gives a lot of responsibility to the
18 individual Copermittees and asks them to develop
19 water quality improvement plans.

20 In 2018, do you anticipate that the
21 board -- I don't know what the Board composition
22 will be then -- are going to ask you for new water
23 quality improvement plans or relatively simple
24 modifications, which will not be on a new path but
25 a step along that path?

1 I'm trying to understand whether you
2 see this as a long-term issue in which you will be
3 deemed out of compliance or whether it's a
4 short-term issue from transition to a new method
5 that that we hope is much more effective.

6 MR. BARON: I think it's definitely a
7 long-term problem. I'm not a scientist, but I
8 believe that there have been improvements in the
9 water quality. And I think there have been
10 significant improvements in dry-weather
11 conditions. The problems still remain with
12 pollutants like bacteria and other wet-weather
13 conditions.

14 I think that there will be one
15 implementation plan -- now to the WQIP, that will
16 be hopefully approved in 2017, when the permit is
17 renewed, and it will be subject to modification as
18 folks go through an adaptive management process
19 and monitoring gives them the data they need to
20 adjust their programs.

21 So I think the problem itself is
22 long-term, based on science, technology, funding.
23 Municipalities like Orange County talk about
24 funding because we have to look at budgets. But I
25 think the real issue -- not the real issue but

1 subsequent to that is also how do you tackle
2 things like bacteria? What types of technology
3 are there for selenium when it's naturally
4 occurring?

5 So I think the problem is long-term.
6 The compliance issue is definitely short term in
7 the sense that this is a two, two-and-a-half-year
8 period that we fear we will be out of compliance
9 for. If we develop a rigorous plan, we'll be
10 deemed in compliance.

11 Overall I think it's a long-term
12 issue. I don't for foresee a new plan being
13 developed in 2018 unless they're so poorly
14 fashioned.

15 BOARD MEMBER MORALES: I hear it's
16 going to be a two, two-and-a-half-year period in
17 which you all will be out of compliance. You're
18 probably, today, not in compliance, correct?

19 MR. BARON: It was said on the record
20 at the May 2013 hearing that we were out of
21 compliance.

22 BOARD MEMBER MORALES: And how long
23 has that been?

24 MR. BARON: I would argue under the
25 federal Clean Water Act, you go through the best

1 management practice and that is NEP. So to the
2 extent that we're not meeting numeric numbers,
3 yes, that is a compliance issue. I see where
4 you're going. It's not necessarily --

5 BOARD MEMBER MORALES: Is this
6 anything new, is the basic question. It's being
7 pitched as "Going forward, we're going to be out
8 of compliance for two years." We're just
9 continuing what it is until compliance or the
10 government WQIP is --

11 MR. BARON: But there --

12 BOARD MEMBER MORALES: I don't want us
13 to fall into the trap of it being so easy to talk
14 about it in those terms. We all want the same
15 thing; I truly believe that.

16 MR. BARON: I think that -- I think
17 there was a perception in the storm water
18 community that if you were going through the
19 process and you were implementing your program,
20 the water boards would not enforce against you.

21 And then NRGCC versus L.A. County
22 litigation came about and turned that on its head.
23 It said the permits have receiving water
24 limitations in there, and therefore, the state has
25 determined that you're strictly liable with that

1 language and you view the permit like a contract.

2 From that point on, the storm water
3 community woke up and said "We thought we had sort
4 of compliance if we were making reasonable
5 progress."

6 I don't know if the question has been
7 "You're still out of compliance. You've been out
8 of compliance all this time." It's sort of a
9 pathway forward, and we can articulate that it is
10 impracticable to meet numbers. In some cases,
11 right now it is impossible to do so. So it isn't
12 reasonable under federal or even state law that
13 there shouldn't be some kind of alternative
14 compliance pathway built into that, to light a
15 fire underneath MS4s but also incentivize them to
16 continue these plans and programs.

17 So I think that strict liability -- I
18 don't mean to sound like a broken record after two
19 years -- but it doesn't really exist anywhere in
20 other parts of the law except with oil spills and
21 things of that nature.

22 The Clean Air Act and Clean Water Act,
23 that's not the way it was set up to be. I think
24 that's the aftermath of the L.A. litigation, and,
25 sort of, the storm water community is struggling

1 with that. And Jeremy is going to talk about some
2 of these issues. It is a very real issue for us.

3 I don't want to be perceived as
4 Chicken Little or "The sky is falling." "We're
5 gonna get sued." We're a very large county. We
6 get sued every other day. But in terms of its
7 impact on the storm water programs, I think --

8 CHAIRMAN ABARBANEL: You were here in
9 May 2013, and by what you said, you said you
10 weren't in compliance? What happened to you in
11 the last two-and-a-half years because of that?

12 MR. BARON: Jeremy is going to talk
13 about that after this.

14 CHAIRMAN ABARBANEL: I wasn't asking
15 for a review of lawsuits every other day. I
16 assume that's just business.

17 All right. Let's hear the answer.
18 Are you ready to turn over?

19 MR. BARON: I've got 30 more seconds.

20 So the major premise as to why not to
21 provide a compliance option, the way I read the
22 response to comments to letters from EPA
23 disapproving of this notion of compliance during
24 the development process. In my opinion, it's sort
25 of a ball conclusion. That bright line should be

1 drawn there. There's no citation to any federal
2 regulations because there aren't any. So EPA is
3 commenting as a federal preference. It's a state
4 issue, not a federal mandate. I want to point out
5 the State Board did not adopt the EPA's position.
6 It disregarded it. And EPA did not disapprove of
7 the L.A. permit.

8 So these letters carry a lot of weight
9 because it is the EPA, but at the same time,
10 legally speaking, this Board does not have to give
11 deference to them.

12 With that, I will conclude. Thank
13 you.

14 MR. JUNGREIS: Honorable chair, I'm
15 going to go quickly because I know you folks want
16 to go to lunch.

17 I think Ryan already covered it: The
18 EPA, one of the reasons they would have trouble
19 objecting is because fundamentally, you're still
20 operating under the MEP standard, and you've got
21 the case law Ryan pointed to.

22 EPA doesn't necessarily have to worry
23 about costs; they don't have to worry about
24 attainability. What they do worry about is "We
25 want to see massive improvements in water

1 quality." And that's great. We get that. We do,
2 too. But just take the EPA's guidance for what it
3 is. It's guidance; not a requirement.

4 So the question that's been asked by a
5 couple board members just now is, you've been out
6 of compliance for awhile, and the world has not
7 ended. Big deal. In fact, it really has been,
8 and it started to be a real (inaudible), and the
9 big issue is are we worried about getting sued?
10 Is a Clean Water Act lawsuit that big a deal?
11 The answer is yes. It's not just a Clean Water
12 Act lawsuit. The fact is that being out of
13 compliance is not something -- I represent Laguna
14 Beach and Dana Point. They care deeply about
15 water quality. It's part of their livelihoods.
16 The idea of being out of compliance, of
17 potentially criminal responsibility for not being
18 in compliance, that's a big deal. But the
19 specific issue of lawsuits -- so Laguna Beach was
20 sued by River Watch. Seems like they're picking
21 up the pace of their lawsuits. One of the things
22 they included in their amended complaint was
23 illegal discharges into the MS4 and discharges
24 from the MS4. So they have now brought storm
25 water and storm water compliance into the realm.

1 So what did that do? Strict liability
2 for non-storm-water discharges, demanded a
3 substantial infrastructure overhaul.

4 Now why is that significant? Each
5 city is going to have its own capital improvements
6 plan. They're going to prioritize. Does the
7 police department need new police cars? They
8 wanted every pipe over age four years, or whatever
9 it was, they've all got to be replaced within "X"
10 number of years. It gets into -- rather than the
11 regional board, who in many cases understands the
12 systems they're regulating, citizen's groups don't
13 necessarily.

14 If you look at the River Watch
15 complaints, they all tend to be cookie cutter.
16 Same approach. There's attorneys' fees. The
17 whole thing cost the City about \$400,000 for 16
18 months to settle it.

19 The bigger issues were staff time.
20 Tracey Inglebrits, who is here today from Laguna
21 Beach, it's practically all she did for a year.
22 Daycia, who you'll hear from later, it was half
23 the stuff she did. She's the water quality
24 administrator. It's a huge amount of staff time.

25 Not only that, the other issue is with

1 the regional board, you work things out. Regional
2 boards understand how to interface with cities.
3 Environmental groups, one of the risks with River
4 Watch or others is that you wind up having an
5 environmental group who doesn't understand your
6 city and is not accountability to the voters
7 running your public works department.

8 So that is the kind of thing that
9 troubles cities. It's one of the things the Board
10 should think about.

11 Other examples -- as I said, River
12 Watch is one group that seems to be getting more
13 advanced in their tactics. They're not going after
14 bad actors. They're going after cities that
15 presumably have a reputation of being pretty
16 conscientious: Monterey, Carlsbad, Laguna Beach.
17 They're not the top of the list of being bad
18 actors. They're all they serious about their
19 storm water programs.

20 And lately, the last three permits,
21 Laguna Beach, San Luis Obispo, in the last month,
22 alleging storm water violations and Whittier.
23 It's not just sewage spills.

24 So is it a risk? Absolutely. Maybe
25 from the regional board's perspective, you figure

1 out it's another enforcement. I think it's worked
2 really well historically over time, but in this
3 circumstance where everyone is deemed out of
4 compliance, it can cause some problems. Let me
5 talk about that.

6 I will say right now, the word
7 wrongful should be taken out. Lawsuits, there's a
8 time and place for citizens using the Clean Water
9 Act, no doubt.

10 Why is it bad for the regional board
11 not to provide interim compliance? One,
12 potentially, the settlement -- each individual
13 settlement is individual. You can have one
14 federal district judges who are very conservative,
15 some who are very liberal. You can go to the same
16 watershed and have very different results and it
17 makes it very tough to implement a water quality
18 improvement plan, to have the kind of synergistic
19 effect that gets you to water quality.

20 For Laguna Beach, it took up so much
21 time in order to deal with the lawsuit. With the
22 regional board, there's a set program. If you get
23 an NOV, you deal with it; it's a process. You
24 have to go to federal district court. The
25 \$400,000, that was one motion. If they had gone

1 to trial, who knows.

2 So it's incongruent with the
3 watershed-based approach that the board's
4 practical vision talks about.

5 One of the things that came up as well
6 as and I've heard suggested is a citizen's suit
7 comes up, the regional board can jump in and
8 intervene and -- because there is a provision in
9 the Clean Water Act that says if there is a
10 current enforced action, that a citizen's suit
11 cannot proceed. Unfortunately, it's not a good
12 fit here. What the regional board would need to
13 do is go to federal court and file a lawsuit.
14 There's case law, the California Sportsfishers
15 Association, which limits what regional boards can
16 do. Does a regional board, a state agency, want
17 to go to federal court and subject itself to the
18 authority of a federal court to begin with. So
19 could it work under some circumstances,
20 potentially. But it's definitely not a clean-cut
21 way of doing business.

22 What should the regional board do?
23 This regional board, by providing interim
24 compliance, you talk about a hammer hanging over
25 permittees' heads. "You're in compliance now, but

1 if you don't make that milestone, if you don't
2 provide everything in good faith you've suggested
3 you're going to do, it will be taken away from
4 you." And everybody is out of compliance right
5 now already. Everybody.

6 So I would suggest to the Board that,
7 one, this provides the Board with much greater
8 control and is a much greater incentive for people
9 to giddy up. "Hey, let's get this thing going.
10 We don't want to lose compliance."

11 One thing Ryan mentioned, and we
12 believe this to be true -- we checked through
13 other parts of the state. It appears the only
14 region not providing interim compliance, at least
15 considering it, is San Diego. It's really a
16 fairness issue. So I'd ask you to consider that.
17 If there was a particularly compelling reason to
18 do it differently here, I understand, but there
19 really isn't. It's a great incentive.

20 The idea of losing compliance if you
21 don't do everything you're supposed to do is a
22 huge disincentive to wait around and not do the
23 things we should be doing.

24 I talked about that incentivizing
25 planning. What the Board should do is what it's

1 already requiring, requiring data, requiring
2 deadlines, review prior quality water conditions
3 to the consultation panel, draft agreements with
4 watershed partners. Be part of the process.

5 So I will leave you with our proposed
6 language. We would also be amenable to the
7 proposed language Riverside County has provided.
8 Bottom line is, while we're going through this
9 process that shifts the burden to do what would
10 essentially be done with TMDLs by the state to the
11 Copermittees, allow us to be in compliance while
12 going through that process. If we fail, if we
13 don't do it properly, take it away from us.
14 That's the language we would propose.

15 With that, I will give one minute back
16 to Mary Anne.

17 BOARD MEMBER MORALES: Just a few
18 questions. Let me see if I have this correct:
19 Right now you're not in compliance. So what
20 you're asking is "Please revise this and deem us
21 in compliance while we were doing whatever we do
22 to come up with a WQIP."

23 So it's a change in status that you're
24 requesting to obtain -- one of the reasons is a
25 protection from -- of suits of this type. I think

1 as you mentioned, somebody presented those facts
2 to me, was that settlement. Was it -- what was
3 the main allegations? Did an attorney just throw
4 in an MS4 violation as one of 50 allegations?

5 So I'm not going to read into that
6 there was a lawsuit against Laguna Beach for a
7 sewage spill or something that came out of their
8 MS4 system, and they paid \$400,000 without more
9 facts.

10 MR. JUNGREIS: The actual payments
11 were several million dollars. I don't know what
12 the prime claims were.

13 BOARD MEMBER MORALES: Finally at
14 least there is one lawsuit that you all can point
15 to. I've been asking. Are you claiming this is
16 the sort of data breach (inaudible). But there
17 isn't this rush of lawsuits that have been filed
18 that I'm aware of. It's been years where -- I
19 wouldn't say years -- where conceivably you have
20 not been in compliance and they could have filed
21 these lawsuits.

22 I also, personally, think it would be
23 a risk for anybody that wanted to file a lawsuit
24 for -- against any of you all because it appears
25 to me that he you're diligently working at

1 developing (inaudible). And if they had to claim
2 to a judge -- it would be either declaratory
3 relief where they might say "change out all their
4 pipes." Basically, they'd be asking the judge
5 "Make them fix." You all could go to the judge
6 and say, "We have been diligently" -- before they
7 file their 60-day whatever -- "been in the process
8 of fixing this and quite likely there's a
9 possibility it gets fixed during dependency of
10 this lawsuit."

11 If there are organizations or
12 attorneys out there that are simply interested in
13 making a quick buck, they're going to think long
14 and hard because the judge will have the
15 discretion to tell them "Thank you, but you didn't
16 cause the cities to do what they are doing. It is
17 because of their own nature, their better angles.
18 They're in process. They're doing what everybody
19 would like them do."

20 And I believe that. I believe you all
21 are -- that's why I asked the question. I was not
22 surprised to hear you've been diligently starting
23 the process in advance.

24 Am I wrong that what you're requesting
25 is, basically, for us to vote and give a

1 protection that you don't currently have?

2 MR. JUNGREIS: I would couch it
3 somewhat differently, Mr. Morales -- Board Member
4 Morales. I'm sorry.

5 Two things, one is in 2013 --
6 certainly the cities I represent, Dana Point and
7 Laguna Beach, they've had all sorts of systems --
8 they thought they were in compliance. We all did.
9 It was certainly a surprise when we found out that
10 the receiving water limitations, the numbers that
11 were in -- from the basin plan of the permit --
12 that we were going to be held liable and deemed
13 out of compliance.

14 That's a real seat change for us.
15 We've been following this interim process, and we
16 thought we were improving. I can tell you what
17 we've done in the meantime. At least in the
18 cities of Laguna Beach and Dana Point, they've put
19 in massive amounts of dry weather diversions.
20 They're diverting 80, 90 percent of their nuisance
21 flows. They're all going to the sanitary sewer at
22 very large cost.

23 Are they doing things? Absolutely.
24 And I think a lot of cities are the same way. The
25 current approach seems troubling because it treats

1 everyone the same. It treats everyone as if
2 they're bad actors; they're all out of compliance.
3 Whereas, you've got some cities who really went
4 for it, and you have some who have done very
5 little.

6 In answer to your direct question, I
7 would say I don't think we thought we were out of
8 compliance, and we certainly want to be deemed in
9 compliance. If we're going to go forward and
10 spend, as a region, up to 2 billion dollars, we
11 should be doing it in partnership with the
12 regional board, and we should be doing it without
13 worrying about people suing us.

14 Just another point: And that was you
15 mentioned the complaints that were seen. I don't
16 know what drives River Watch. I can't speak to
17 their motivation. I can tell you their complaints
18 are nearly identical. So are there cities who
19 probably are legitimately sued? Absolutely. I
20 don't doubt it. I'm not sure that the ones I just
21 listed are legitimately sued. If you look at any
22 city or department, you're always going to find
23 noncompliance somewhere.

24 Anyway, I hope I answered your
25 question, sir.

1 CHAIRMAN ABARBANEL: It seems to me
2 that one conclusion, logical but not necessarily
3 practical discussion that we've heard from you and
4 others is that you're out of compliance, you ought
5 to take your water quality improvement plan, work
6 on it really hard and submit it in four months,
7 and not expose yourself for two years. Why don't
8 you do that?

9 MR. JUNGREIS: That goes back to a
10 point that Mr. McKibbon made from Riverside
11 County. These are the equivalent of TMDLs except
12 you're doing them for multiple pollutants. I sat
13 on a water quality improvement plan. The level of
14 complexity associated with trying to figure out
15 what are the sources and how do you reduce them
16 all? What are the projects you can actually
17 achieve without having undesirable environmental
18 effects? If you can do that in four months, I'd
19 say hire that consultant right away. But if you
20 want to do it right where you can actually
21 implement it, at the end you're confident you can
22 get the numbers you're told to hit, I would be
23 inclined to agree with Mr. McKibbon.

24 So your point is well taken. We
25 should hustle. We should go as fast as we can.

1 At the end of that plan, if we don't have
2 something scientifically defensible, what did we
3 achieve?

4 CHAIRMAN ABARBANEL: And my other is a
5 semi-question. If you're asking the board to
6 identify something as being compliant, when
7 everybody agrees no one is compliant, doesn't that
8 undercut the moral authority of this Board.

9 MR. JUNGREIS: I would argue it
10 doesn't because I would argue that we -- at least
11 municipalities because the way we are treated
12 under the Clean Water Act, we shouldn't be -- I
13 noticed we would be deemed out of compliance. We
14 heard Mr. Gibson acknowledge he feels differently
15 about different watersheds, but at least in some
16 there's places where of re-evaluation of numbers
17 may be appropriate.

18 Do I think you lose moral authority?
19 I don't. The state board didn't seem to think so.
20 The other regional boards don't seem to think so.
21 Fundamentally, I don't think you lose moral
22 authority because what you gain in the process is
23 the ability to ensure with about as great a
24 leverage tool as you could ever get by ensuring
25 people have the chance of losing that compliance.

1 I don't think you loss any moral authority. I
2 understand where you're coming from, but I don't
3 think you do. I don't think the public would
4 perceive it that way.

5 MS. SKORPANICH: Could I add to that
6 answer very quickly?

7 How to define compliance is a policy
8 matter that's in your hands. So it is within your
9 purview and your judgment to decide how to define
10 compliance, just as the State Board did with the
11 precedential order. I don't think you lose any
12 moral authority by how you choose to resolve that
13 policy question.

14 CHAIRMAN ABARBANEL: Thank you.

15 It's 12:25. We're going to break for
16 lunch and come back with the cities of Laguna
17 Beach and and Dana Point.

18 (Lunch recess taken.)

19 CHAIRMAN ABARBANEL: The regional
20 Board's permit is a matter of great importance to
21 the City. Specifically, we are concerned the
22 permit, as currently drafted, will provide no
23 compliance to the City during the interim period
24 prior the adoption of the water quality
25 improvement plan.

1 The Laguna Beach city council is fully
2 committed to pursuing improvements in water
3 quality. As one of the many examples of the
4 City's strong commitment to improving water
5 quality, will the City has installed 25 water
6 diversion units that divert approximately 83
7 percent of our entire watershed of the city's
8 drainage area.

9 This program has consistently earned
10 the City a summer dry weather report card of a
11 grade of A by Heal The Bay at all of our beaches
12 within the City. We are proud of that
13 accomplishment; however, we're concerned the
14 permit proposed for approval today will actually
15 frustrate others improvement programs in the
16 future. Our specific concerns and recommendations
17 are as follows:

18 Number one, the permit should provide
19 for interim compliance while the City develops a
20 water quality improvement plan for southern Orange
21 County. We think the regional board's mandate to
22 develop the WQIP has positive attributes. To be
23 successful in improving water quality to the
24 maximum extent practicable within the city, the
25 WQIP needs to be a deliberate, scientifically

1 rigorous collaborative effort between all parties
2 and interested stakeholders that recognize the
3 need for interim compliance and for long-term
4 compliance.

5 Secondly, the permit should clarify
6 that implementation of the City's elicit
7 prevention and detection program constitutes
8 compliance even when unauthorized discharges enter
9 the City's MS4. As Orange County presented, they
10 illustrated perhaps River Watch and other
11 environmental organizations are going after cities
12 for discharges into the MS4 that may occur
13 notwithstanding a city's full and rigorous
14 implementation of its elicit discharge and
15 protection program. The proposed errata changes
16 in the staff report gave a response to the City's
17 prior comments are a step in the right direction
18 but she should be given the force of the law by
19 placement in Section E.2 of the permit itself.

20 Accordingly the City asks the Board
21 revise the regional permit to eliminate any
22 inference of strict liability where the City fully
23 implements it's elicit program by adding the
24 clarifying language requested by our legal counsel
25 to Section E.2 of the permit.

1 Thank you for your consideration of
2 the City's comments. We know the regional board's
3 task is not easy, and the city of Laguna Beach
4 appreciates what this board is doing a balanced
5 need -- is doing to balance needed water quality
6 improvement with the realities of managing a
7 complex municipal storm drain program.

8 To that, I conclude and state that our
9 city is extremely comitted to water quality. I
10 think no one can argue that as our community
11 demands it. Our city council expects it, and we
12 work every single day to the maximum extent
13 practical.

14 CHAIRMAN ABARBANEL: Do you agree with
15 an earlier speaker that you are out of compliance?

16 UNIDENTIFIED SPEAKER: I agree with
17 Mary Ann Skorpanich's response. I think that's a
18 bigger picture. I think we run under a maximum
19 extent practical on a daily basis. From a
20 boots-on-the-ground perspective, which is where we
21 are from a very small community, that's all we
22 have.

23 If I carry over my six minutes, it's
24 going to be Dana Point and Laguna Beach together,
25 if that's okay.

1 BOARD MEMBER STRAWN: Together you
2 have 20 minutes. We will not stand at the
3 boundary between your cities and tell you how to
4 do it.

5 MR. FALLER: My name is Brad Faller.
6 I'm the director of public works for the City of
7 Dana Point. Thank you very much for allowing us
8 to speak today. Both our Dana Point mayor and our
9 South Coast Water District board member that does
10 our water sewer district, Mr. Bill Green spoke
11 this morning. We are a team. Many cities have
12 those entities in one city, but we have both
13 different entities working together.

14 Many beach cities are working hard to
15 improve water quality. Clean beaches equals happy
16 citizens and visitors. So we're already motivated
17 to meet the needs of our constituents Dana Point
18 has invested heavily in storm water catch basin
19 filters on public streets, we installed 18
20 diversions to help control dry-weather runoff, and
21 we're the first to use ozone treatment to kill
22 pathogens at Salt Creek and North Creek. The only
23 place where we have untreated runoff during the
24 dry season that goes into the ocean is San Juan
25 Creek. We've banned Styrofoam and plastic bags in

1 town. We have reduced the cities potable water
2 consumption by 40 percent this summer, well above
3 the 20 percent goal. Three beaches in South
4 Orange County have been delisted through our
5 efforts. We haven't met the final goal yet, it's
6 in the basin plan. Hopefully this tells you we're
7 working hard, and we are making progress.

8 Moving forward with your concern of
9 the possible lack of interim compliance during the
10 WQIP development and the initial cost between 1.6
11 and 2.1 billion to reach effective compliance,
12 you're really talking a difference between us
13 spending, over the last 20 years, 20 billion or 30
14 billion, you're really taking a magnitude up as we
15 move forward to hundreds of millions of dollars.
16 It's daunting for us. It's got everyone's
17 attention.

18 Regarding interim compliance, what
19 happened in Laguna Beach has been a wakeup call
20 for all of us. Laguna also takes its
21 environmental responsibilities very seriously and
22 has a robust water quality program, so when they
23 were sued by River Watch, it surprised us, and it
24 is great cause for concern. If you look at River
25 Watch's website, they have 8 cities in 2015 that

1 they're litigating or bringing suit against.

2 So what we see that's happened, the
3 change that start with the NRDC has now made it
4 relatively easy to say "You're not in compliance."

5 When we see great cities getting hit,
6 that's a source of concern. We're trying very
7 hard to meet the goals of the Board as well as the
8 requirements of our citizens?

9 Please give us the opportunity to
10 develop a water quality improvement plan without
11 having to worry about being sued while developing
12 that plan. We think the focus needs to be on
13 developing the water quality improvement plans,
14 not fighting lawsuits. So why penalize the good
15 performers with opportunistic lawsuits.

16 I'm asking for your help in making
17 sure our taxpayers' dollars are going to effective
18 and beneficial water quality improvements.

19 We understand the Board's need for
20 leveraging bad performers. But what we're saying
21 is, try and realize that you don't penalize the
22 good with the bad. You have to make that
23 distinction. Where you have bad performers, we're
24 suggesting that you put into the permit that says,
25 "If you aren't producing the plan, and you aren't

1 making progress over the next few years, then you
2 aren't meeting those requirements."

3 And remember that this compliance
4 protection does not include compliance enforcement
5 for other areas, such as new development,
6 construction and existing development. The Board
7 staff still has the ability to enforce compliance
8 there. And, also, we're not asking that you take
9 out, for example, A.3(a) in the permit, which
10 still requires, and I quote, "pollutants in storm
11 water discharged from MS4s must be reduced to the
12 maximum extent practicable."

13 So we're not given a pass. What we're
14 asking you to do is make the choices. Help us
15 that are trying to help you, and you still have
16 the stick if you need it for somebody who's not
17 meeting the requirements.

18 So we're appealing to the Board to
19 adjust the permit interim compliance protection
20 for both storm water and non-storm-water
21 discharges similar to what the L.A. Board and
22 Santa Ana Board are doing.

23 Thank you very much for allowing me
24 the time to comment. And to Mr. Strawn's query
25 earlier, we very much think that the

1 administrative requirements in the permit have
2 been reduced, and that's been helpful.

3 BOARD MEMBER STRAWN: Can I get a card
4 from you when you get a chance? Just for the
5 record, to make sure she gets your name spelled
6 right.

7 CHAIRMAN ABARBANEL: Mr. Green from
8 South Coast Water District.

9 MR. GREEN: Well, thank you. This
10 morning I had to rush through my three minutes'
11 presentation, and I felt a little like the Federal
12 Express presenter this morning. So I'm here.
13 This will be short. I appreciate your time.

14 We really feel at South Coast Water
15 District, as well as at the City worked very hard
16 in the area to do our best for water quality. In
17 fact, South Coast Water District adopted, a few
18 years ago, a zero tolerance for any kind of spills
19 in your district, and I want to believe we've done
20 a very good job of maintaining that goal.

21 My message here is, please consider
22 providing -- or providing for the interim
23 compliance, which seems to be reasonable and fair.
24 Make it more like the other regions in the area.

25 So with this closing, I ask,

1 respectfully, the Board would be mindful of
2 setting the water quality improvement policies,
3 and do the right thing for the tentative order.

4 Thank you so much.

5 CHAIRMAN ABARBANEL: Mr. Green, may I
6 ask you a question?

7 We've learned this morning that there
8 are really two times where the water quality
9 improvement plans have deadlines: One is their
10 submission, and one is their acceptance by the
11 Board. Which period do you have in mind for what
12 you call "interim compliance"?

13 MR. GREEN: I would say from now until
14 the final completion of the -- the final WQIP is
15 completed; that would be the period. I can't
16 dictate the timeframe I heard Mr. McKibbon mention
17 up to 40 months might be a reasonable time.

18 CHAIRMAN ABARBANEL: I thought that
19 was actually an extension of the first submission
20 of the plan, additional time.

21 MR. GREEN: I can't answer that
22 question for him. Sorry about that.

23 CHAIRMAN ABARBANEL: Thank you.

24 MR. GREEN: But I think perhaps Jerry
25 might have an answer for you.

1 I'd be happy to answer. I think the
2 Board has a great deal of discretion as to when
3 they would want to start interim compliance. I
4 think, as of today -- you don't have to start from
5 scratch. You can look at other models from around
6 the state and see how they've done it.

7 I think from the approval of the
8 permit would be fair, but I think look at the
9 other processes that have been put out there by
10 the other Boards, and that may provide some
11 guidance, as well.

12 Does that answer your question, sir?

13 CHAIRMAN ABARBANEL: Not really, but
14 it's okay.

15 UNIDENTIFIED SPEAKER: Okay. At this
16 point, we have a short presentation, a short
17 PowerPoint, if we can -- I'm going to go through
18 this very quickly. Just a couple quick points.

19 So just for a technical comment, this
20 was raised by Dana Point: They've been pretty
21 active participants because it is so important.
22 This slide is meant to illustrate the importance
23 of why it's important to have clear language in
24 the permit itself in 2010, so there's an issue
25 about -- apparently the response to comments, and

1 this wasn't originally an issue, but in response
2 to comments, it indicates d-listed water bodies
3 are still going to have to have these BLRPs and
4 CLRPs.

5 That was contrary to what had been the
6 Board's direction in 2010, and there was some
7 ambiguity that might be problematic. We'd like
8 the Board to address that. It should be a pretty
9 minor issue and just clarify -- we can look at the
10 transcript from 2010 as to what the Board's
11 direction was. But also, it illustrates the
12 importance of why the next thing I'm going to ask
13 for for Laguna Beach is so important. The issue
14 for Laguna Beach, one of the allegations that
15 River Watch made in their complaint is,
16 essentially, that if third-party spills or your
17 own spills make it's into your MS4, you own it and
18 you're liable.

19 So it would be helpful to have some
20 clarification that is not the case. With the
21 language we requested would provide that. Now,
22 staff has been helpful, and has met with Laguna
23 Beach and tried to address some of the concerns.
24 So it just needs to be tweaked a little bit. I'm
25 asking to change the language of the -- it would

1 be as amended it would read "where a Copermittee
2 is implementing requirements" it would clarify if
3 you're implementing your program fully, you're in
4 compliance. If something gets in it, and you're
5 doing everything reasonable under the permit to
6 prevent spills, you're in compliance and shouldn't
7 be held liable. Otherwise it requires a prior
8 finding by the Board that make it's more
9 difficult.

10 BOARD MEMBER MORALES: Who gets to
11 decide?

12 UNIDENTIFIED SPEAKER: Well, it's
13 unclear at this point. You have a requirement
14 under E.2 to do a variety of things under Section
15 E.2 to carry out the requirements of your elicited
16 detection.

17 BOARD MEMBER MORALES: If the San
18 Diego Water Board -- currently it's the water
19 board or probably staff that makes the finding,
20 the determination. If we revise it to say "when
21 you're in compliance," that's fine, but who
22 decides when you're in compliance or when you're
23 not in compliance.

24 UNIDENTIFIED SPEAKER: Under the
25 approach we've asked for, staff would essentially

1 make the finding. They would be deeming you in
2 compliance. Arguably -- this is in the staff
3 report, so it's meant to provide guidance. It
4 provides additional verification you don't need
5 the Board to actually find someone is fully
6 implementing their program. That's one area where
7 clarification would be helpful.

8 CHAIRMAN ABARBANEL: I was going to
9 ask you about a historical example in this region.
10 The City of San Diego runs a pump station at the
11 edge of Penasquitos Lagoon, which is near Torrey
12 Pines Beach State Park. That pump station is runs
13 when electricity is delivered to it by SDG&E.
14 There was a ground out or power outage in which
15 SDG&E did not deliver power and there was a spill.
16 Everybody was in compliance, but there was a spill
17 and somebody was held responsible.

18 UNIDENTIFIED SPEAKER: That's a great
19 point. I guess my response to that would be did
20 they have backup generators in place? Did they
21 have a system in place to prevent spills? I don't
22 know anything about the scenario.

23 CHAIRMAN ABARBANEL: Of course. Only
24 to suggest the unexpected may happen. You could
25 be trying your best and still this went into the

1 lagoon rather than the MS4 system. These things
2 happen. And I only throw that into the
3 conversation.

4 UNIDENTIFIED SPEAKER: It's a good
5 point. The point is raised because of the issue.
6 Laguna Beach wasn't frequently appearing before
7 this Board before because they were busy trying to
8 improve water quality. It's been a seat change.
9 They haven't wanted to get into this business
10 they've been dragged into it. Now that they're
11 here, it makes sense to -- to the extent they do
12 what they're supposed to do in the future, they
13 don't wind up in court again. That's what this
14 effort is, an effort to make minor tweaks to help
15 address the concerns. Pleasure of the board,
16 obviously, but that would be our recommendation.
17 The staff report is helpful but I think that
18 clarification would be beneficial. Also similar
19 clarification to the permit itself.

20 I wanted -- I'm not going to spend
21 much time -- good, my time is back on.

22 This is the question raised by Board
23 Member Morales about aren't you already out of
24 compliance? Haven't you been out of compliance
25 for a couple years? This summarizes the responses

1 that Mr. Baron. It's really a question of are we
2 out of compliance and we wish for the privilege of
3 being in compliance, or are we already
4 implementing programs trying to do our best with
5 the interim process and then a regulatory change
6 to put us in a posture where everybody is deemed
7 to be out of compliance. If everybody is in
8 violation of the Clean Water Act, how do you tell
9 the good from the bad?

10 Anyway, so I think those are just the
11 points I wanted to make. I think Ryan made most
12 of them. It's very expensive. Dana Point,
13 regardless of what you do today, Dana Point,
14 Laguna Beach, the people I'm here on behalf of,
15 they're going to pull out the stops to improve
16 water quality. It's important to them, and it
17 will continue to be. Their citizens demand it.
18 But I think it will -- first of all, it's the fair
19 thing to do but also not having to worry about
20 "are we going to have to devote one person here to
21 dealing with" -- I don't want to malign
22 environmental groups here, either. They're good
23 people. They're trying to do the right thing,
24 too. I get that. But it does make it difficult
25 to try to get the mission accomplished when you

1 had things that went down in Laguna Beach.

2 I think that interim compliance -- the
3 task you've given us is very steep. We've got to
4 come up with a lot of money. It will be a big
5 step in the right direction if we have interim.
6 If I could reserve my time -- if you'll permit me
7 to do that.

8 CHAIRMAN ABARBANEL: Does that end the
9 presentations by the cities of Laguna Beach and
10 Dana Point?

11 MR. BARON: Yes. We're good to go.

12 CHAIRMAN ABARBANEL: Before we move
13 on, then, to the San Diego county permittees who
14 have three minutes, I would like to ask a question
15 of Mr. Chiu.

16 CHAIRMAN ABARBANEL: We have heard
17 that the Copermittes have two years to submit for
18 the inspection of the board, water quality
19 improvement plans. When does that two years
20 begin?

21 MR. CHIU: Well, it varies, depending
22 on the group, so depends on when they come into
23 the permit, but we set an effective date that is
24 50 days after you adopt the permit or adopt the
25 amendment to the permit. Orange County when they

1 came in February, their effective date became two
2 years from April 1st.

3 CHAIRMAN ABARBANEL: April 1st, 2017.

4 MR. CHIU: For Riverside county
5 Copermittees, the effective date would be January
6 7.

7 CHAIRMAN ABARBANEL: 2018.

8 MR. CHIU: January 7, 2018.

9 CHAIRMAN ABARBANEL: San Diego?

10 MR. CHIU: San Diego went through
11 their water quality improvement plan, and they
12 submitted theirs back in June 26th of this year.

13 CHAIRMAN ABARBANEL: San Diego county.

14 MR. VAN RYAN: Good afternoon, members
15 of the Board. I'm John van Ryan. I'm with the
16 County of San Diego. I'm here to represent the 21
17 Copermittees of the San Diego region portion of
18 the permit. I'm going to be speaking exclusively
19 to the land development requirements of the permit
20 that are in Section E.4.

21 CHAIRMAN ABARBANEL: Before you do
22 that and without loss of time, your time San Diego
23 county Copermittees went through a two-year
24 process to develop the water quality improvement
25 plans. During that time, you had no alternative

1 compliance capabilities; is that right -- interim
2 compliance protection; is that correct?

3 MR. VAN RYAN: That's my
4 understanding.

5 CHAIRMAN ABARBANEL: What happened?

6 MR. VAN RYAN: I'm not the best person
7 to ask. I don't deal with that portion of the
8 program.

9 CHAIRMAN ABARBANEL: Is there somebody
10 who can answer?

11 UNIDENTIFIED SPEAKER: John is dealing
12 with the development issues.

13 CHAIRMAN ABARBANEL: Is it a long
14 answer, or is it nothing?

15 UNIDENTIFIED SPEAKER: We were very
16 busy at work trying to meet the requirements of
17 the permit. We were doing several plans at the
18 same time. I think we worked very hard and
19 diligently.

20 CHAIRMAN ABARBANEL: During that time
21 when you were exposed and potentially not in
22 compliance with the new MS4 permit, did anything
23 unusual happen to you?

24 UNIDENTIFIED SPEAKER: We continued
25 running our program, sir.

1 MR. VAN RYAN: So behind you is a
2 summary of the issues I'll be speaking to. I have
3 a handout that summarizes what we'll be asking
4 for.

5 So basically, we've got three issues I
6 want to address. First are essentially support.
7 Issue A was support for the fact that staff in the
8 November 4th errata clarified an inconsistency in
9 the dates for the effective date of the BMP design
10 manual, and the updates to that. Thanks to staff
11 for fixing that. We agree with the fix.

12 B, we also support staff's stated
13 intent to further extend the date of the BMP
14 design manual for San Diego County permittees by
15 90 days from the current effective date of
16 December 24th of this year.

17 As I'll talk about in a little while,
18 that's something that's only in the response to
19 comment. That's not part of this permit and
20 that's not part of this adoption. We'll have some
21 thoughts how we prefer to see that move forward.
22 The rest of these are the issues I'll be
23 concentrating on for the rest of this
24 presentation. They primarily deal with time, and
25 the time needed to complete updates.

1 The first is the permit should
2 generally allow the extension of BMP design manual
3 effective date by 180 days instead of 90 days
4 anytime new or modified land development
5 requirements are adopted, which would be the case
6 today.

7 We specifically would like to see the
8 proposed extensions that are in the tentative
9 order today. The effective dates for those to
10 actually be June 21st, so in other words, 180 days
11 on top of what's already being suggested by staff
12 in response to the comments.

13 So it would give us a full 180 days
14 beyond the existing December 24th effective date.

15 So number one, first of all, we just
16 want to see when new requirements are brought in
17 after the initial permit, which is the case now,
18 that we have enough time to do what we need to do
19 to bring those into our programs and implement
20 them. What we're suggesting here is a full 180
21 days when new requirements come in, instead of 90,
22 which is currently in the draft. The simple edit
23 we're suggesting is the bottom of the slide.
24 Simply change F.2(b)(4) to be 180 days instead of
25 90 days. Simple edit.

1 So anytime we have to make
2 modifications to our BMP design manual, a whole
3 lot of other things have to go along with that.
4 This slide breaks it up into three major pieces.
5 We have updates we have to complete. We have a
6 public process we have to go through, and that's
7 fairly well defined. And then we have to actually
8 work with applicants to identify where those
9 changes are going to be applicable, whether it's
10 new applicants or applicants with projects in the
11 pipeline, to work with them to make sure the
12 correct requirements are being applied.

13 Under the completion of updates, the
14 critical things for us are updates to the BMP
15 design manual. The lion's share of BMP design
16 manual updates have been completed over the last
17 two years.

18 So, arguably, the new things that are
19 being brought in under this tentative order are,
20 in comparison, not a lot. Keep in mind we have to
21 go through the same process. The critical thing
22 here -- any of these things can take months,
23 sometimes years depending on what it is. We can
24 try to keep the timeframes as collapsed as
25 possible, but for the county of San Diego, as I'm

1 used to illustrate, our board updates take at a
2 minimum, if all the dates lined up, for us to
3 basically do our administrative process, get an
4 ordinance update through our administrative
5 process to our board, for the first hearing,
6 second hearing and then 30 days for that to be
7 effective. In the best of all possible scenarios,
8 that is 90 days, which is currently provided for
9 updates.

10 We have to update our watershed
11 protection ordinance to implement the requirements
12 of the BMP design manual. I can't speak for all
13 Copermittees, but some will have the same process,
14 some will have more process. Realistically, if
15 we're being given 90 days to do it all, and this
16 one piece of it ignores the fact we need to reach
17 out to industry, work with people, develop the
18 requirements up front, it's just enough to get us
19 to squeak in.

20 We're certainly not concerned if we're
21 a few weeks behind the deadline, staff is going to
22 come after us. That's not the case. But we're
23 really concerned this isn't a realistic timeframe.
24 We're not going to be squeaking in. We're going
25 to be much behind it. But that's generally what

1 we have to go through.

2 Our second request is -- so in
3 addition to making the general extension of design
4 manual effective dates to 180 days, in this
5 particular case, for the changes that are imposed
6 through today's hearing, we would like the
7 extension date to be 90 days, in addition to what
8 staff suggested in the response to comments. An
9 additional 90 days to what they're suggesting
10 would be a total of 180 days from the current
11 December 24 date. That would take it to June 21,
12 2016.

13 I'm providing specific edits at the
14 bottom of this slide. All you would really be
15 doing here is putting a sentence at the end that
16 says "For these specific updates, San Diego
17 Copermittes, the effective date for these
18 requirements will be June 21, 2016" and this
19 slight edit up in the previous sentence to clarify
20 you have the authority to do that. We think
21 that's fair. Let me go through why that's
22 necessary at this point.

23 So these are the major things -- I'm
24 not going to go through -- these are the major
25 things in the land development requirements right

1 now that effect what we have to implement. PDP
2 categories have been modified. The definition of
3 redevelopment has been modified, and more
4 importantly, grandfathering or prior lawful
5 approval provisions have been added.

6 Going back to the timeline I just
7 described, we need that 90-plus days to get
8 through the minimum administrative and adoptive
9 process for our ordinances.

10 I want to go back to grandfathering
11 provisions here. These are important provisions.
12 We're very happy with staff for where we got with
13 these. We got a reasonable set of provisions
14 moving forward. These are much more useful to the
15 Riverside and Orange County Copermittees. We have
16 very little time to work with applicants to
17 utilize them.

18 When I worked on this process, Board
19 Member Morales was there, and I think you'll
20 recall one of the things you said when we brought
21 up the issue of timing was you'd have staff look
22 into it. I think staff did will look into it, but
23 unfortunately we didn't come up with anything
24 other than the current schedule. It's not enough
25 to take advantage of these new grandfather

1 provisions. If we were provided the additional 90
2 days that are we're suggesting on top of what
3 staff is suggesting, we would be satisfied that's
4 enough to do that. I won't belabor that issue
5 except that was an outstanding issue for us.

6 CHAIRMAN ABARBANEL: Pardon me. I
7 have a question.

8 These changes to your ordinances and
9 the design manual must occur every time the MS4
10 permit changes?

11 MR. VAN RYAN: Yes.

12 CHAIRMAN ABARBANEL: The MS4 permit,
13 as we learned from executive officer, has been
14 issued since 1990. And this is the fifth. You've
15 done this four times before in the past?

16 MR. VAN RYAN: This is the second
17 time. The BMP design manual revision was called
18 Sue Sump and Lass [phonetic] manual, and why
19 bother spelling it out.

20 It was basically a change in title.
21 What the permit required this time because there
22 were significant changes in the land development
23 requirements you said you guys have a certain
24 period of time to update those after the board
25 accepts those updates, you have half a year to

1 implement them.

2 CHAIRMAN ABARBANEL: Under the
3 assumption that the 2018 MS4 permit will be less
4 of a big change from the previous permit --
5 present one, would you accept the fact that this
6 is a necessity only this time and not in the
7 future?

8 MR. VAN RYAN: If I agreed with that
9 assumption. We've assumed it every time the
10 permit has been reissued and we've been wrong.
11 I'm not sure that would be the case.

12 So, again, going back to where we are
13 right now with this particular iteration of the
14 land development requirements, you saw the things
15 that are changing. To go back to the slide you
16 saw a minute ago, the updates are relevant, so we
17 need at least the 90 days plus to get the
18 ordinance updates and all these other things that
19 need to be done.

20 In addition, there are other
21 outstanding issues that we haven't completed yet
22 at this point. I want to talk about critical
23 coarse sediment yield. These are requirements
24 that were in the 2013 permit when it was adopted.

25 They think we are hot and heavy into

1 really trying to come up with reasonable
2 guidelines for developers to implement. As it
3 turns out, they're much, much harder than what we
4 had anticipated. I know the first reaction to
5 this particular thing is, "you had two years."
6 But keep in mind for the first year of this
7 permit, we were doing something called the
8 Watershed Management Area Analysis, where we were
9 figuring out even how these things applied. We
10 didn't know until a year into it the gravity of
11 what these requirements were going to be imposing.

12 In addition to that, the second year,
13 we were doing things like starting to develop
14 offsite alternative compliance programs. We
15 updated our terms. We updated all of our
16 programs. There's a lot of stuff going on here.
17 The reality is this is where we are right now:
18 We're getting closer, but we're not there yet, and
19 if we don't extend the effective date on these,
20 we're going to be in a position of not having the
21 right requirements in place to be able to
22 implement them.

23 What I want to point out to you is,
24 we're committed and well into the process of
25 developing these requirements. The county and the

1 city of San Diego are working cooperatively right
2 now to develop guidance.

3 Keep in mind, this is not straight
4 engineering; this is environmental science. We're
5 being asked to do really new stuff and it's more
6 than you can simply rely on the applicants to turn
7 in a proposed design and review it to see if we
8 got it right.

9 The major issues on the left side of
10 this slide, these are the things we will have to
11 develop. I purposely blurred that diagram so it
12 wouldn't evoke any discussion. It's a flowchart
13 to illustrate what the process is applicants will
14 go through once we figure out how to guide them
15 through all these decision points.

16 We are making progress. I wanted you
17 to see that. It shows we've done something. What
18 we are committing to right now, what we've already
19 started to initiate, the city and county together
20 are taking the draft content that we developed so
21 far, we're are going to put it through a public
22 process. First, we're putting together a
23 technical advisory committee that will include
24 your staff, will include somebody from the
25 industry, NGOs. It will include secular people

1 that need to be okay with this stuff.

2 We're thinking two to three tack
3 meetings, and we're thinking a public workshop
4 sometime in April. This, I think, is a fairly
5 aggressive schedule, but we think that we can do
6 it. If we were to do that, we would basically be
7 final guidance by late May. What we asked for is
8 an extension of the effective date that would take
9 us a little bit into June. So with that, we feel
10 like we could be there. It's not going to be
11 perfect but realize what we need to do before we
12 start releasing guidelines and requirements on
13 developers is, we have to have methods that are
14 fully baked. They have to be basically
15 technically and legally defensible.

16 And to come back to Mr. Chiu's point
17 from earlier, they have to be able to support not
18 action-oriented implementation but
19 results-oriented implementation. And the danger
20 we run if we don't work out these methodologies
21 and they're not scientifically valid, is that all
22 we're doing is basically putting people through a
23 routine of generating results rather than what the
24 permit asked for, which is no-net impact to
25 receiving waters.

1 That's what we're asking for.

2 What we would prefer, in terms of how
3 to get the extension, would be that you just make
4 the amendments to the tentative order today. Just
5 put that date in there as we're asking for it. So
6 we provided the language so the staff doesn't have
7 to write it.

8 If you can't do that or disagree, but
9 you do agree that the effective date should be
10 extended to some date, whatever you agree with,
11 then please, as part of the public record for this
12 proceeding, direct your executive officer to make
13 that change so that we know in leaving this area
14 what we're working with.

15 That's all. Thank you.

16 CHAIRMAN ABARBANEL: San Diego has
17 six-and-a-half more minutes.

18 MS. WEBER: I do have a question.

19 CHAIRMAN ABARBANEL: Go ahead.

20 MS. WEBER: Thank you. I'm JoAnn
21 Weber, planning and project manager for the County
22 of San Diego, and I also speak on behalf the San
23 Diego's Copermittees.

24 The Copermittees, we appreciate the
25 Regional Board has included additional language to

1 have the ability to have this alternative
2 compliance option. We thank the staff for several
3 changes made in the errata sheet, which make it a
4 more implemental option. Despite these
5 (unintelligible), the San Diego Copermittees are
6 concerned that the specific requirements for
7 annual milestones will still be overly
8 constrictive and burdensome. Each Copermittee
9 could potentially need to establish and track
10 annual milestones for multiple goals within
11 multiple water bodies in each of their Watershed
12 Management areas which could result in dozens of
13 annual milestones.

14 The Copermittees recognize that
15 milestones would benefit accountability for
16 working toward their goals. These specific
17 milestones would be more meaningful if they would
18 focus on priority water quality conditions and
19 were actually based on a permit cycle, as they
20 currently are in our water quality statement plan,
21 so that would be one milestone per five-year
22 permit term, period, from each water body,
23 including combinations to be covered under the
24 alternative compliance pathway.

25 The San Diego Copermittees are

1 requesting the Regional Board to consider
2 modifications to the language to restructure this
3 annual milestone requirement to make it more
4 meaningful. And I have a draft errata sheet that
5 I can hand out to your staff, and it's exactly the
6 same thing that they proposed in our September 14
7 comment letter.

8 Thank you.

9 BOARD MEMBER OLSON: I just wanted to
10 ask a question.

11 So for your group, the interim
12 compliance is not an issue?

13 UNIDENTIFIED SPEAKER: We did not have
14 that option on the table when we did our water
15 quality improvement plans. That's just something
16 we're coming in now.

17 BOARD MEMBER OLSON: So you didn't
18 have any suits or -- I mean, that's what I kind of
19 understood you to say in relationship to the
20 Chair's question.

21 UNIDENTIFIED SPEAKER: That's correct.

22 BOARD MEMBER OLSON: You said, well,
23 you were out of compliance, or you --

24 UNIDENTIFIED SPEAKER: None that I
25 know of.

1 BOARD MEMBER OLSON: Okay. Thank you
2 very much.

3 MR. WILE: Good afternoon, Board
4 Chairman, Board member. My name is Clint Wile.
5 I'm with the City of San Diego Transportation and
6 Storm Water Department. I'm the program manager
7 for our Watershed Planning Group. We oversaw the
8 development and took over the lead for three of
9 the new water quality improvement plans here in
10 San Diego, and we participated in another three.
11 So the last two-and-a-half years I have the scars
12 to show putting these plans together. But I think
13 they're good plans.

14 Let me say for the record that the
15 city of San Diego, our overall goal is
16 improvements to water quality, and we think the
17 WQIPs are going to be our roadmap on how we are
18 collectively here going to get there down the
19 road.

20 I also want to speak here, generally,
21 in support of the permit amendment but offer a few
22 suggestions for some modifications that I think
23 and the City thinks will make implementation of
24 water quality plant more effective, more
25 achievable and will result in faster and better

1 improvements to water quality.

2 I'd also like to quickly thank Board
3 staff for their efforts in working with the
4 Copermittees over the past two years on the
5 development of the of Water Quality Improvement
6 Plans and through this entire permit amendment
7 process.

8 First, the City of San Diego supports
9 inclusion of the prior lawful approval definition
10 in the permit. Again, we want to acknowledge and
11 thank Board staff efforts in working with us, and
12 other stakeholders, through a public participation
13 workshop that led to developing this definition.

14 We support the San Diego program
15 chief's comments as presented by the County of San
16 Diego related to changing prohibition and
17 limitations compliance option in the annual
18 milestone requirement to one milestone per permit
19 term.

20 I wanted to further elaborate on what
21 JoAnn mentioned about why I think that's important
22 from a planner in a city that has to implement
23 these water quality improvement plans and I think
24 with the importance we can see here. The City
25 supports the concept of milestones. It's never

1 that we didn't agree with them, and we support
2 that for many reasons. They provide opportunity
3 to achieve the outcomes, and they also provide
4 accountability and transparency. They also help
5 me communicate to my management and city leaders
6 budget requests that we need more funding to
7 improve water quality. And so to have milestones
8 and numerical provides that accountability and
9 that justification for increased budget requests
10 that we all know we need to meet these challenging
11 water quality requirements.

12 However, the annual milestones do not
13 allow the City and the other Copermittees and the
14 MS4s in this room enough time to reprogram
15 activities and secure those necessary fundamental
16 resources that you make program adaptation. So
17 what I mean is, these active management process,
18 cities are just too big to be able to do that on
19 an annual basis. We do our budgeting process a
20 year in advance, so if we find that we don't make
21 annual milestone, it takes us a year to request
22 the necessary resources to make that correction.
23 And that's why during the permit workshops we had
24 advocated for a less frequent annual milestone
25 whether or not we were against milestones, an

1 annual is just not practical for how cities' --
2 their budget process works and how we reprogram
3 and implement.

4 CHAIRMAN ABARBANEL: City of San Diego
5 does not carry a reserve for unexpected expenses?

6 UNIDENTIFIED SPEAKER: We certainly
7 do. But as far as for the Water Quality
8 Improvement Plans and we're talking about the
9 compliance option that's on the table right, now
10 we are trying new BMPs all the time and we have
11 forecasted out what we think we need to do to meet
12 those numeric goals.

13 CHAIRMAN ABARBANEL: No, I understood
14 what you said, and I appreciate the answer to the
15 question.

16 MR. WILE: Okay. The City also
17 supports the San Diego Copermittees' comments
18 about the six-month extension for the effective
19 date of the BMPs design.

20 Now, as a followup to our written
21 comments, the City of San Diego requests that
22 Board staff amend the permit to allow for
23 individual jurisdictional compliance with TMDLs.
24 Let me elaborate that really quickly because I
25 only have a minute left.

1 Specifically, language and attachments
2 of the permit precludes any Copermittee from using
3 the WQIP implementation compliance pathway for
4 that TMDLs unless all Copermittees in that
5 watershed are effectively implementing their Water
6 Quality Improvement Plan commitments. This is
7 problematic for two reasons: One, individual
8 Copermittees, or MS4s, have no authority to compel
9 other Copermittees to comply with these
10 requirements.

11 And second, and more important in my
12 mind as an implementer, is in order to justify and
13 clearly defend requests for additional budget and
14 the resources necessary to implement these BMPs,
15 we, I, the City, Copermittees, need assurance that
16 our compliance is not going to be determined by
17 the actions or inactions of other agencies.

18 So in closing, I want to thank again
19 Board staff for working with us and the
20 stakeholders during this long process, and we, and
21 I particularly, look forward to transitioning from
22 Water Quality Improvement Plan planning to
23 implementation so that we can start to move toward
24 our collective goal of improving water quality.

25 Thank you.

1 CHAIRMAN ABARBANEL: So I note -- are
2 there any questions of Mr. Brown? I know -- this
3 is a question -- the City of the San Diego -- all
4 the San Diego Copermittees are now two and a bit,
5 almost two-and-a-half years into the process of
6 the WQIP's process.

7 I think this Board, and I think the
8 staff, were very pleased with the idea of Fiori,
9 that allowing the Copermittees to figure out how
10 to achieve the goals was a good one, rather than
11 our sitting up here and telling you what to do.
12 You've been through six out of the seven, 84
13 percent of the WQIPs. Is that happening? Were we
14 simply too optimistic? Are you and the other on
15 Copermittees happy that you get to decide how to
16 do it?

17 UNIDENTIFIED SPEAKER: I think it was
18 a -- at the end of the day, at the end of the two
19 years, it was a compromised approach. I think
20 most guys have issues that they can be happy with,
21 and then these plans are not perfect. And I think
22 Mr. Chiu talked about that earlier, about their
23 dynamic documents. We look to improve them and
24 work on the things that maybe didn't work so well
25 for the first two years, we're going to have an

1 opportunity to do that.

2 But to specifically answer your
3 question, I think the Copermittees appreciated the
4 flexibility to establish numeric goals, but we had
5 to work in tandem with our stakeholders and with
6 the Regional Board and they pushed back on us and
7 it was a collaborative process.

8 CHAIRMAN ABARBANEL: If in the future
9 we decide the plans must be perfect, these meeting
10 would be much shorter.

11 Okay. Mr. Brown, I think there's a
12 question for you.

13 BOARD MEMBER OLSON: Could you tell
14 me, then, since you're asking that the milestones
15 be changed, so you were happy you didn't have to
16 do them all up front, correct?

17 MR. BROWN: Yes. So I actually didn't
18 even acknowledge. I agreed with JoAnn's comment
19 that we do appreciate the change in the errata
20 sheet, that we don't have to extrapolate annual
21 milestones out 20, 25 years.

22 BOARD MEMBER OLSON: But you found it
23 burdensome that you have to do them?

24 MR. BROWN: My personal feeling, or
25 the City's, I don't know if I would use

1 "burdensome." The point I was trying to make is
2 simply if we don't attain an annual milestone, the
3 City's internal adaptive management approach --
4 we're not able to turn on a dime, and doing that
5 on an annual basis is difficult for a large city.
6 And so we were hoping that there could be a little
7 bit longer time between milestones with better
8 alignment with our internal budgeting process.

9 BOARD MEMBER OLSON: So meeting them
10 doesn't slow down the process, or it doesn't
11 coincide with your budget process, but overtime
12 would you --

13 MR. BROWN: If we don't meet an annual
14 milestone and we realize that we need to retool or
15 reprogram our storm water program to meet that
16 next annual milestone. We need a longer time to
17 do -- we need more time to do that. That that was
18 the point I was trying to make.

19 BOARD MEMBER OLSON: Or you need a
20 designated reserve to allow you to you meet those?

21 MR. BROWN: Yeah.

22 CHAIRMAN ABARBANEL: So if the City of
23 San Diego decided that they would form a five-year
24 budget and let the city council have four years of
25 vacation, would you be asking us for one milestone

1 every 25 years?

2 MR. BROWN: I don't know if I can
3 answer that question. I don't think the San Diego
4 city counsel can either.

5 CHAIRMAN ABARBANEL: Do you have a
6 question you wanted to ask?

7 BOARD MEMBER MORALES: I have a
8 question for staff, actually.

9 On the request that we push out a 180
10 days -- and I think originally, and correct me if
11 I'm wrong, we had said 30 days, and then there was
12 some back and forth, and currently what we've got
13 in the tentative order and recommendation is 90
14 days. I understand the argument 180 days gives
15 them opportunity to go through public process and
16 that takes set amount of time, 25 years, even the
17 best-case scenario. What does that do to the
18 grandfathering?

19 BOARD MEMBER MORALES: So we're
20 basically -- they're saying give the
21 grandfathering (intelligible) three more months?

22 UNIDENTIFIED SPEAKER: That would be
23 how the process would work out, yes.

24 CHAIRMAN ABARBANEL: Thank you very
25 much.

1 The next set of speakers are the
2 Building Association, 15 minutes. We understand
3 that there's been a request on the part of some of
4 the speakers in Group 9, the environmentalist
5 group, to speak earlier because of time. In
6 fairness, we set the schedule and we're going to
7 try to keep to it. So if you can please ask other
8 people to make their remarks, that would be
9 helpful.

10 MR. STRAWN: We can add your time to
11 the other speakers and make a record that you were
12 here, but we really prefer to not change the
13 schedule around.

14 MR. MCSWEENEY: Before we proceed,
15 Mr. Chairman, I need to be sworn.

16 CHAIRMAN ABARBANEL: Oh, my goodness.
17 Anybody else not yet sworn in?

18 Okay. Do you swear that the testimony
19 you will provide is true and correct? If so, say
20 "I do."

21 MR. MCSWEENEY: I do.

22 CHAIRMAN ABARBANEL: Thank you.

23 MR. MCSWEENEY: I'm Michael McSweeney.
24 I'm senior policy advisor to the BIA representing
25 the coalition --

1 CHAIRMAN ABARBANEL: Is the mic on? I
2 just want to make sure everybody hears you and the
3 record hears you.

4 MICHAEL MCSWEENEY: I'm Michael
5 McSweeney. I'm senior policy advisor to the BIA.
6 I'm representing the coalition.

7 Right off the bat I wanted to correct
8 one thing that my friend Wayne Chiu said. When
9 you pointed out about the watershed approach, that
10 is something we also bought into.

11 MR. CHIU: My omission. I apologize.

12 MICHAEL MCSWEENEY: Okay. So Board
13 members, I want to use a cultural reference as we
14 start. And I want you to join me, if you could
15 look at the slide. And we'll go back to
16 Mr. Peabody's way-back machine, and we'll go back
17 to 2007.

18 In 2007, the relationship between my
19 industry and the board was nonexistent. We really
20 didn't engage each other. We opposed the permit
21 in 2007. I didn't work for the BIA at that time,
22 but my understanding was we felt we were singled
23 out; most the requirements were on us. There
24 wasn't any dialogue. It was, "Here's the permit.
25 We're going to do this."

1 We felt it was unfair. We sued. We
2 spent a million and a half dollars. We lost.

3 I want to contrast that to what we've
4 done in this permit cycle. At the very beginning,
5 we overcame our fear and decided we wanted to
6 commit to collaborate with all the stakeholders.
7 We decided to help solve this problem by utilizing
8 the engineering skills of our members. We worked
9 collaboratively with the Copermittees, your staff,
10 and the environmentalists. That was a first. We
11 worked closely with Regional Board staff to make
12 specific changes to the plan, and we've spent over
13 a million dollars in hard cash and hours donated
14 to help try and make this permit better and
15 comply.

16 Well, I talked about the fear. The
17 next thing that comes up is trust. And the first
18 example I think you saw of that is our joint
19 letter with Coast Keeper. And if you look at No.
20 3, the point there, the one thing that I think
21 both our organizations feared. And you heard it
22 today from two sets of Copermittees that had one
23 watershed they were talking about. We were in
24 fear of doing eight of these plans simultaneously.
25 And why were we in fear of that? Because eight

1 WQIPs in 24 months -- I'm going to use "WQIPs"
2 because I only have so much time.

3 There's a limited pool of experts and
4 consultants. So it's hard enough to do one really
5 well, but if you've got a limited pool of
6 brainpower, to do eight simultaneously is a huge
7 challenge. This had never been done before, so
8 there was no template to follow. This was a
9 learn-as-you-went-along. The interesting thing
10 is, each component builds on the next. So in
11 building terms, the first thing is the foundation,
12 and then you set up the walls, and you set the
13 floor joints. That's how you build a building.
14 So each one of these had to be completed.

15 If there was any hiccup in that
16 schedule, then you're under that much more
17 pressure to try to get it done.

18 And as technical problems arose, it
19 took additional time to figure those out, and that
20 put already more demands on a tight timeframe.

21 We agree with your practical vision.
22 And I'm not going to read it to you because you
23 all memorized. So I want you to know that we
24 spent, as of yesterday, \$1,059,000. The first
25 line there is actual hard dollars spent on

1 consultant studies, reviews, policy work. The
2 rest is the people at work at the BIA, and the
3 other two are what our members have donated.
4 Basically, we've put our money on the table behind
5 what it is that your executive officer and your
6 Board is behind.

7 We're requesting 90 days beyond what
8 the staff had asked you to consider, to do some of
9 the following things:

10 The BMP Design Manuals, we spent a lot
11 of time on this. We're about 95 percent of the
12 way there. We need a little more time to work out
13 a few bugs, including how coarse sediment plays
14 into that.

15 The coarse sediment yield, we're
16 working on tools that will give us the ability to
17 practically comply with the requirements in the
18 permit.

19 The Water Quality Improvement Plans,
20 there's additional science data that is coming
21 online that hasn't been included in those plans,
22 and we want to see that included in those plans.

23 Public education. There are so many
24 misconceptions out there of when, who, and what
25 takes place where, so much so that I will

1 illustrate this. The City of Oceanside, we have
2 developers building houses, under construction,
3 and they're being told that if those houses aren't
4 done by the end of December, you're going to have
5 to comply with the new permits. That's completely
6 factually false. But there's so much that nobody
7 really knows what's happening, and so there needs
8 to be more time to educate through both the
9 industry and the city and, basically, all your
10 stakeholders to know when will things go live.

11 Finally, in 180 days we're not going
12 to get alternative compliance figured out, but we
13 need more time to get that up and running because
14 that's going to be, I feel -- I don't want to say
15 the "silver bullet," but that's what's going to
16 help get us to where we want to end up.

17 So when you look at the design manual,
18 we want to make sure -- and what we've been
19 working on -- is to make sure that it's easily
20 understood. This is the Bible, the how-to
21 document in each city of how you will comply, what
22 you have to do to comply, development staffs of
23 the cities.

24 Now, these aren't the storm water
25 managers. These are the people that actually

1 process plans. They need to understand and get
2 trained on what does all this mean. Because right
3 now they have something of an understanding, but
4 they don't know the specifics. Once complete, we
5 need to make sure that all the people on our side
6 of the table are trained and understand now
7 whatever is basically in cement, codified, going
8 forward.

9 Most of the work is 95 percent
10 complete, and we need -- and Wayne touched on this
11 in his presentation -- we need a clear procedure
12 so that when problems come up stakeholders and
13 Copermittees can get together with Regional board
14 staff and get it fixed, which brings us to coarse
15 sediment yield.

16 This area was not well-understood
17 going in. There's not much in the permit about
18 it; it talks about avoidance. Even after the
19 watershed mapping analysis was done, we really
20 didn't understand what that was. And in one of
21 the forums they passed around an
22 8-and-a-half-by-11 piece of paper with where we
23 think sediment is, and it all looked like it was
24 in east county and everybody figured out, "Ed,
25 we're not building there."

1 So once we understood where the
2 sediment is -- and if I could just show you, this
3 is the map that came out in June of this year.
4 It's a GIS map. So once we were able to actually
5 see it, it became nicknamed "The Rash Map" because
6 it looks like the county has a rash. So once you
7 started looking at it, it's hard to see -- you can
8 see all in east county, but even down in here
9 there's still pieces of red. So when we start to
10 blow this up -- now, here's a perfect example.
11 Can you see this is Fanita Ranch down here in
12 Otay. So how do you comply?

13 And so needless to say, when this map
14 came up and property owners and developers looked
15 at it and they honed in on where their red dot
16 was, it was an "Oh, my God" moment. You talk
17 about the anxiety level, my phone and my e-mail
18 blew up.

19 We have compliance challenges. How
20 are you, meaning an applicant or a Copermittee,
21 going to document the permit so that permit
22 requirements are met? There's practicality on
23 doing this.

24 So we're suggesting -- and I think
25 John talked about it -- we should have some sort

1 of a workshop similar to what they did for
2 Hydromodification in 2007 so everybody gets on the
3 same page and we all know what it means.

4 The other thing is drainage
5 boundaries. Sediment transport is based on
6 drainage boundaries not project boundaries. So
7 your project could be in the middle of something
8 and you gotta figure out on two pieces of
9 property, upstream and downstream of yours, how
10 are you going to get your sediment to the
11 tributary?

12 So why did this become an issue so
13 late in the process? Well, there was a lack of
14 transparency. And it's not anybody's fault, but
15 when there wasn't an understanding where they
16 talked about there was a small map that went
17 around. And you can see if you reduced that to an
18 8-and-a-half-by-11 slide, you couldn't see any of
19 those small mounds. All you saw was what looked
20 like the mountains.

21 The original link that was released,
22 if you had GIS software on your computer and you
23 tried to download the map, it crashed. It was so
24 large a file.

25 We asked, after three or four weeks of

1 the map being on the site, for the County to
2 figure out a better way to make it more
3 user-friendly, maybe put in Google Earth, so if
4 you had Google Earth then you could see it. The
5 public couldn't find it easily.

6 And so what did that do at our end?
7 As soon as we figured it out, my phone blew up.
8 People started to panic. Everybody assumed the
9 worst, which extremed the panic. And then
10 finally, once you factor in the permit timeline,
11 now it's maximum panic. And this is what happens:
12 The engineers freaked out. The hydrologists
13 started sweating profusely. The developers are
14 pulling their hair out, and even our children were
15 stressed because we became overstressed all of a
16 sudden.

17 So what do we do next? On the left is
18 pretty much what our industry looked like. We
19 freaked out. I called Laurie. Laurie put
20 together a meeting with Wayne and Christina. And
21 their message to us was, "Look, don't panic."

22 What we were looking for from the
23 permit -- and this is the benefit of the
24 collaboration. I will say right now, a year and a
25 half, two years ago, there was a lot of anxiety.

1 We've been working with your staff. Whenever we
2 have a question, they answer it. My boss meets
3 with the executive officer on a regular basis.
4 And so what they told us was, "Look, this is what
5 our intent was, was no net impact."

6 So then what we did was we went to
7 work. We had the meeting with them, then we
8 helped, and we were at other stakeholder meetings.
9 We met at Coastkeeper Inn. We met a couple times
10 with Copermittees. How are we going to get this
11 to work? One of our academics put together a
12 white paper on sediment yield. He developed a
13 dimensional index. I know that the County's
14 consultant was developing something. We went to
15 work. We freaked out, but we got some
16 clarification and we went to work because the time
17 is ticking. And we worked collaboratively because
18 at the end of the day what we want is, we want to
19 have the tools in the toolbox so that we can
20 comply with the permit.

21 So the Copermittees need additional
22 time to do the following things:

23 They've got to do public work
24 workshops to educate, solicit input on this
25 particular topic.

1 We need to coordinate the solutions
2 and then get them into the BMP Design Manuals.
3 Remember, each city has one of these.

4 Then we've got to review all available
5 sudden since that was not given during
6 consideration on the Water Quality Improvement
7 Plans and include that where applicable.

8 They've got to have time to schedule
9 counsel meeting and counsel approval, and then we
10 have to conduct concurrent training for
11 development industry staff, as well as the people
12 that work for the different Copermittees.

13 So how do we get to the goal? We
14 think by adding 180 days total -- the 90 that
15 staff said that they will give, plus an additional
16 90 -- starting up the December 24th due date, that
17 we can come together and agree on standards and
18 get the course sediment yield figured out,
19 codified, and into the BMP Design Manuals.

20 We also think that we can get some
21 additional work done on the Water Quality
22 Improvement Plans where they've been deficient.

23 We can incorporate a fully developed
24 workable model into all the manuals, and we can
25 allow the various jurisdictions to have the time

1 to adopt what they need to adopt. At the end of
2 the day, this is what we're looking for.

3 The staff agreed that with sediment
4 with no net impact there's not, like, one answer.
5 There can be other options proposed that
6 demonstrate no impact. We want to have as many of
7 those tools in our toolbox as possible. And it's
8 important and necessary for you as the Board to
9 understand that there is a need to have your staff
10 available to answer questions as we move forward,
11 not to play referee, but there are legitimate
12 questions. "Okay. How are we going to figure
13 this out?" Sometimes they come from us.
14 Sometimes they come from the Copermittee.
15 Sometimes they come from the environmental
16 community. Because at the end of the day, this is
17 what we want: We want a permit that works for
18 everybody. Not necessarily everybody is going to
19 be happy, but we want something that works for
20 everybody. And by doing that, at the end of the
21 day we want results.

22 Finally, I think that our Copermittees
23 in both Riverside and Orange County touched upon
24 CEQA, and I know that with doing eight of these
25 plans at the same time the City of San Diego

1 adopted an approach that they said they had a
2 mitigated negative declaration. But most of the
3 other Copermittees have it, and there are definite
4 CEQA requirements, and nobody calculated that into
5 their timeframes as well. So I just wanted to put
6 that out there.

7 But I appreciate your time. If you
8 have any questions, I'd answer them.

9 BOARD MEMBER MORALES: Mike, one very
10 quick question.

11 When you suggested that you would want
12 staff or it's necessary to have staff available to
13 answer questions, were you envisioning something
14 along the lines of the folks on your end designate
15 one person to contact staff? Or are you
16 suggesting that they take calls from everybody who
17 has a question?

18 No. Typically -- let's use the coarse
19 sediment as the example. That's exactly what
20 we've been doing.

21 As we've had problems, typically it
22 falls to me. People call me and then I usually
23 call Laurie or one of the staff members. And
24 that's what I do. I think I called you and said,
25 "Hey, we've got a problem with this. We need to

1 meet with you. How soon can we get in to talk?"

2 BOARD MEMBER MORALES: Okay. So
3 you're just asking to continue the --

4 MR. MCSWEENY: Collaborative
5 relationship.

6 BOARD MEMBER MORALES: -- working
7 relationship that we appear to have now, as
8 opposed to something more.

9 MR. MCSWEENY: Right, yeah. No, the
10 intent was never to have project applicants
11 calling them, saying "Can we do this? What about
12 this?" Not at all. Not at all. Not at all.

13 What we're really trying to do is work
14 and have them as a resource. Let's work with the
15 Copermittees to make sure that everybody's on the
16 same page, that we understand what's required in
17 the BMP Design Manual, and then we sell that and
18 educate our folks.

19 On the other hand, they've got a job
20 of making sure that everybody on their end knows
21 what does all this mean. And it is extremely --
22 coarse sediment is unbelievably technical. And so
23 at the end of the day when somebody is trying to
24 get a project processed at the City, if they don't
25 understand, they just kind of throw their hands

1 up, "No," or they go do a study and spend \$25,000,
2 which may or may not answer a question, and they
3 don't even know the right question to ask.

4 So that's why it's important to have
5 time to educate both groups of people.

6 BOARD MEMBER MORALES: Okay.

7 CHAIRMAN ABARBANEL: We will move on
8 to the next group.

9 Mr. O'Malley?

10 MR. O'MALLEY: Thank you. I also have
11 presentations I'd like to make.

12 CHAIRMAN ABARBANEL: And you organized
13 it in groups of people?

14 MR. O'MALLEY: Yeah, actually just one
15 other in our 30-minute time slot. And I'll
16 hopefully cover about 20 minutes.

17 CHAIRMAN ABARBANEL: You have 30
18 minutes. You have somebody who will be very
19 friendly until 29.9 minutes.

20 MR. O'MALLEY: Actually, I would
21 request that Board members shall perhaps give me
22 30 seconds to respond to Board Member Morales'
23 question up front before we begin.

24 CHAIRMAN ABARBANEL: Anytime you
25 respond to questions, I try to turn the clock off.

1 MR. MORALES: I asked a lot of
2 questions.

3 CHAIRMAN ABARBANEL: Go ahead.

4 MR. O'MALLEY: This is the -- Excuse
5 me. Matt O'Malley, legal and policy director of
6 San Diego Coastkeeper. First, thank you for
7 having me today.

8 I want to kind of respond because it
9 seemed like from staff and what you spoke to this
10 morning as far as the interpretation of the
11 State's Board and Order, I want to read the
12 language specific to that you talked about because
13 I interpret it as a very different sort of
14 instruction.

15 The idea, it seems like --

16 CHAIRMAN ABARBANEL: The State Board
17 and Order and Alternative Compliance?

18 MR. O'MALLEY: Correct, yes. And I
19 will be addressing just alternative compliance.

20 BOARD MEMBER STRAWN: May I ask you --
21 when you know you have a tendency --

22 MR. O'MALLEY: Okay. And I'm sorry.

23 BOARD MEMBER STRAWN: We have a
24 recorder, that if you get ahead of her --

25 MR. O'MALLEY: I have a tendency, and

1 I apologize. I have a lot to say, and I'm trying
2 to cover it all.

3 So the idea was that -- the thinking
4 was that the State Board says you should consider
5 this, but if you don't do it, we need you to
6 justify why.

7 And obviously, if you read the
8 language, it's pretty clear that that's not
9 exactly what they meant. So I think instead what
10 they're saying is -- and I can read it to you --
11 but they say, "We direct all Regional Water Boards
12 to consider our approach to receiving water
13 limitations compliance when issuing these permits.

14 "In doing so, we acknowledge that
15 reasonable differences may dictate a variation in
16 this approach but believe that such variations
17 must nevertheless be guided by a few principles.
18 We expect the Regional Boards to follow these
19 principles, unless a Regional Water Board makes a
20 specific showing that application of a given
21 principle is not appropriate for a region-
22 specific permit."

23 So instead of saying, "Do this or show
24 us why not," they're saying, "Follow these
25 principles, and if they're not applicable to your

1 region, then tell us why not."

2 That's, I think, a very different
3 interpretation. It's very much -- it's a
4 direction or tell us why you're not going to do
5 it. Or, "If you don't follow each these seven
6 principles, if you decide to do it, explain why
7 not," because they want you to follow those
8 principles. And I'll go through some of those
9 later in my presentation. But hopefully, that's
10 just a different take on what the State Board is
11 saying and how he interpreted it versus sort of
12 what I've heard thus far.

13 So again, I'm going to just cover the
14 alternative compliances. You know we called on
15 Safe Harbors, which is most of us, and our groups,
16 our lawyers, and we get that right from the Ninth
17 Circuit. But this general idea is that this is a
18 provision that gives some sort of out or, you
19 know, compliance of certain provisions or plans,
20 forgive noncompliance and discharge. And that's
21 essentially -- in fact, that's exactly what it
22 says, and that's why the Copermittees are
23 supportive of it. You know, once your compliance
24 has been processed, you're deemed as compliant.

25 I know that we are looking for

1 outcomes based permanently. In our opinion, this
2 very much goes back to the model-something plan,
3 get a plan approved and now you're in compliance.
4 It's sort of the opposite. It's sort of more of a
5 process-based approach.

6 But that's kind of just to sort of
7 give a start-out where I may intend to go here.

8 And I want to hit two main points in
9 the brief time I have here, but the first is that
10 -- for those of you who were here in 2013, we
11 discussed this, that we do believe that the Safe
12 Harbor approach violates anti-backsliding
13 requirements of the Clean Water Act and federal
14 regulations.

15 The second is that the tentative order
16 -- and this is something that L.A. didn't have to
17 go through -- the tentative order here, we
18 believe, is fairly inconsistent, if not very
19 inconsistent, with State Board's order and
20 directives. I want to hit each these sort of
21 together here.

22 The first, again, it goes back to
23 basically the idea of what is anti-backsliding?
24 I've thrown out a lot of language here, but the
25 idea is that federal regulations and Clean Water

1 Act prohibits backsliding, where we can have
2 permits from previous permits.

3 The way we look at the Safe Harbors is
4 -- because they no longer require an actual
5 meeting of water quality standards, they are less
6 stringent than existing permits and previous
7 permits, and in fact, they violent this.

8 Now, Reason 3 has actually spoken to
9 this, especially with time constraints when they
10 say backsliding is permitted, allowing additional
11 time to complete a task that was required in the
12 previous permit constitutes a less stringent
13 condition to violate the provision against
14 anti-backsliding.

15 So I don't want to go too far into the
16 legalities here because what the L.A. board order
17 did, as well as the San Diego board, what it's
18 saying is, "You know, we're not actually sure if
19 we're violating this or not. But even if we are,
20 there's an exception here and we're going to claim
21 the exception."

22 So they give this sort of
23 justification as to why they're not violating
24 anti-backsliding, "They do this in L.A., and we're
25 doing it here."

1 So I really want to talk about more of
2 what those claims exceptions are. I believe that
3 this issue is probably going to be dealt with in
4 court. I think it's already being petitioned up
5 to courts in L.A. on that very issue. And so I
6 really want to talk about the justifications here,
7 what we're claiming here in San Diego, and why, in
8 L.A., what worked in L.A., what's claimed in L.A.
9 is not applicable to us one way or the other.

10 There is two sort of ways it's not.
11 It's either what exists there on the ground
12 doesn't exist here and so we can't claim this is
13 this new information, or, of course, substantial
14 change, or we've already been doing these things
15 for a while so we can't claim they're new.

16 But essentially what they're saying is
17 the justification for backsliding there was this
18 new information for the previous permit. But you
19 can imagine they waited 11 years between permits.
20 Of course there's going to be plenty of new
21 information. So you're correct in assuming that,
22 oh, one or seven or 13 and several amendments in
23 between.

24 But the idea was that we have these
25 paradigm shifts that they want to treat storm

1 water as an asset rather than a liability. There
2 was a lot they've learned in TMDL. They have
3 something like I think totals about 40-something
4 plus in L.A. region, actual TMDL which serve as
5 sort of a backstop incorporated. So then as far
6 as permit, really will get at the gist of water
7 quality issues. Then the large sort of planning
8 of regional solutions which we've already
9 implemented, and LID benefits, which we've already
10 implemented.

11 So for a number of reasons, I don't
12 think those exceptions at all apply to San Diego.

13 The response to comments here
14 basically says, you know, the circumstances have
15 changed here materially substantially, so that
16 should allow us to get around the
17 anti-backsliding.

18 I would say very clearly the only
19 material change here is that we're adopting a safe
20 harbor. All the rest of the provisions have
21 already been in place, some of them since 2007.
22 And the main justification for what has been in
23 play -- and I'll go through those right now --
24 really don't apply here either. So I think
25 claiming this new information it just doesn't

1 apply.

2 And I'll say this numerous times: We
3 sort of copy and paste justifications sometimes,
4 but we didn't then look to see if those
5 justifications apply here, nor did we copy the
6 methods on the permits, and there are some
7 specifics things I'll address there.

8 So what are the main things that were
9 said, Look, we expect the L.A. orders TMDL
10 requirements, they're going to be the means to
11 achieve water quality standards for the majority.
12 They have -- I know some places state 33,
13 depending on how you look at it, over 40 I heard
14 the other day. The L.A. board said the exact same
15 thing. They said the majority of pollutants
16 concerned are addressed by 33 TMDLs that are
17 included in the permit. So the whole idea here of
18 part of the justification of doing this up there,
19 we have an enormous amount of TMDL. It wasn't
20 just the fact that they learned lessons from the
21 TMDLs, but that they have them as a backstop to
22 incorporate them. Just to contrast, we have five
23 of them here, right? And then more and more we're
24 looking toward alternatives to TMDLs here, and
25 some of those alternatives are expressly this MS4

1 permanent, like we're doing in Loma Alta slew and
2 up in Oceanside.

3 (Court reporter interrupts to slow down the
4 speaker.)

5 MR. O'MALLEY: So like we're doing in
6 Loma Alta slew, we're looking at the MS4 permits
7 as an implementation measure rather than the TMDL.
8 So we really need that rigorous accountability
9 that we were talking about earlier.

10 The second justification -- one of the
11 main justifications is, in terms of water supply
12 -- and we all would agree to this -- there's
13 really been this paradigm shift. Look to water as
14 a water supply as an asset rather than a
15 liability. But practically and legally there's a
16 couple of problems with part of that justification
17 here.

18 One, we just do not have underground
19 basins and recharge basins like we have up north.
20 I would love it if we do. I think we have some
21 great projects here. So it may be that we're
22 instead relying on more traditional storm water
23 measures to deal with storm water. They're saying
24 lack of availability of ground water recharge
25 storage capacity.

1 The legal problem with that is that
2 our MS4 permit -- and actually, the gentleman from
3 Riverside said this earlier -- it doesn't require
4 the analysis like L.A. permit does, to look into
5 the multi-benefit regional water supply for water
6 supply. There's actually provisions in the L.A.
7 permit that have that. We don't have that. Maybe
8 we should. I would argue we definitely should.
9 But again, that's a problem with copying the
10 justification but not actually having the means in
11 place to deal with that.

12 And the last two that I think were
13 major justification changes were for
14 anti-backsliding exceptions was that we should
15 adopt this watershed approach. And we also agreed
16 that that is the right approach. And we agreed,
17 actually, in 2007 and took that approach. And
18 this is language from the 2007 permit that says,
19 "The Copermittees within a watershed; there are
20 two developed watershed-based management
21 strategies."

22 So it was not new information, not
23 anything that's materially and substantially
24 changed here. We've actually been doing this
25 since 2007. And I would say to some degree we've

1 been doing it with LID, as well. And those really
2 were the main justifications for anti-backsliding.

3 So I think before I go on, I just want
4 to say, you know, you have -- I think this is the
5 example of where we're copying the justifications
6 from L.A., getting around anti-backsliding, if we
7 do agree that's a problem. And the permit
8 actually doesn't say it is or not. It admits it
9 may be a problem, but we're not actually moving
10 forward with the measures that either exists in
11 L.A. or were recommended in the State Board order.

12 And I'll get to those next.

13 So then we're asserting at this point
14 that this order as it stands -- and I'll go
15 through, really, three main ways that it is.

16 I'm going to go through what the RA
17 is. It's pretty important. It's actually sort of
18 the lynchpin of what the State Board agreed to in
19 the L.A. permit.

20 There is also, as I mentioned, none of
21 these regional multi-benefit capture and use
22 compliance provisions. We may see them with
23 alternative compliance. But as far as just
24 complying, out there they have an 86 percentile,
25 24-hour storm capture use and provision, which we

1 don't have.

2 And then because of these lack of
3 extensive standards, we want to be able to go back
4 and tweak it, amend it. That's kind of what we
5 have now, and now they're asking for protection of
6 that.

7 So I just want to go through -- again,
8 I'll reiterate this, that State Board really lays
9 out a very specific pathway to these safe harbors.
10 But what does is it bars the justification in ours
11 but not the approach and methodology, which is
12 RAA, and I'll talk about that moving forward.

13 It lays out the principles, which
14 you've heard. These are those seven principles
15 which I talked about that says if you're not going
16 to follow these, explain why you didn't, so more
17 specific. What it says is, these things have to
18 be ambitious, rigorous, transparent. Again, they
19 want to encourage multi-benefit water supply
20 projects, compliance projects. There must be
21 rigor and accountability, which I think we all
22 agree, and there really shouldn't deem good-faith
23 engagement from the process as compliance.

24 So what's the backbone of that whole
25 program is something called the "Reasonable

1 Assurance Analysis," or RAA. This is really a
2 point of contention in L.A., and in a very big way
3 for anybody following it. I've become much more
4 familiar with the L.A. permit process than I've
5 ever wanted to. My jurisdiction pretty much ends
6 in San Diego, but not anymore, I guess.

7 So what they -- the people who
8 approved it said, "Look. We need a well-defined
9 transparent way of moving forward."

10 And we actually heard earlier John van
11 Ryan saying, Look. We're critical. We need the
12 sort of time-tested -- we need ways of moving
13 forward.

14 All we're saying is the same thing
15 here. There is some groundwork laid for us in the
16 L.A. permit which we did not copy. And really the
17 State Board order gets it and says, Look. The
18 requirement for these things is really just to
19 show that when Copermittees choose a pathway, that
20 the way they site them, the way they design them,
21 their the BMPs, it's just going to work. We have
22 a really good idea that it's going to work that
23 way.

24 Besides that -- oh, and I will not
25 raise this, but I want you to know this is just

1 one section of the L.A. permit that talks about
2 what this safe harbor looks like out there. It
3 goes about which models are accessible, all data
4 collected the last 10 years. This is actually not
5 even the whole entire section, but it's very
6 specific in the permit itself saying, "If we're
7 going to accept this, this is the level of rigor
8 that we want to see, at the bare minimum."

9 On top of that, they have something
10 like 37 to 50 pages of guidelines that were
11 developed. "Now as you're moving forward, these
12 are the detailed, objective criteria that you need
13 to follow moving forward."

14 Again, this adds to this level of
15 rigor, transparency, and accountability that this
16 State Board order saying we need to see. I'll
17 just read from this section as well: "It must be
18 adequate to identify the required reduction of
19 each water body combination at each compliance
20 deadline and analyze the BMP scenario to achieve
21 that deadline."

22 So these are guidelines that are very
23 strict, very rigid in moving forward. We just
24 don't have something like that.

25 The guidelines here, again, this is

1 really just to show you. And the point of this
2 slide -- I'm not going to read it -- shows some of
3 the type of things that are considered in
4 developing these plans. But the idea is that with
5 this type of guidance anyone in this group,
6 whether it's myself or the consultant, or anyone
7 in this room, or your staff or even you, could
8 look at this stuff and say, "This is what is
9 expected of you. These are the objective,
10 rigorous transparent criteria. Move forward using
11 those," and then you might be okay. But we at
12 least have some sort of criteria with which to
13 gauge that compliance is on, not just "show us
14 what you got," which I'll contrast with our
15 language, "an analysis with clearly stated
16 assumption."

17 So we go from this, with something of
18 50 pages of guidance, to this. And I think it's,
19 by argument, very clearly this is not rigorous,
20 it's not transparent. We are trying to be
21 flexible, and I get that. But we're taking
22 flexibility and sacrificing transparency and
23 accountability. Because transparency doesn't just
24 mean at some point the public gets to look at this
25 plan. It means there are objective criteria up

1 front with which we can then review it together.
2 Your job and my job are not that dissimilar at
3 times, to see our water is safe and clean for
4 people.

5 The other lack of objective measure
6 here is if they're not in compliance -- the only
7 thing that won't -- I mean, they won't get kicked
8 out right away. They just need to give what's
9 called "acceptable rationale." I don't know what
10 that means. I've got staff that won't know what
11 that means. I don't know that you know what that
12 means, what that "acceptable rationale" would be.

13 So I think what's happening here is
14 because there's no RAA or guidance we just don't
15 have this objective criteria. We don't have this
16 rigor or transparency or accountability that the
17 State Board order saying we need to have if we're
18 going to do this.

19 Despite all the problems, at the very
20 least, we need some of these processes. Also,
21 because there is this sort of acceptable
22 rationale, how do we know, then, are we compliant
23 or are just in this inner loop?

24 I mean, I don't know at what point I
25 will then be able to come up here and say that's

1 not really acceptable. That's not really a
2 standard that I can point to. I can point to
3 standards in the CFR or Clean Water Act, but
4 "acceptable rationale" or an analysis without more
5 is difficult.

6 The EPA has actually spoke about this
7 specific issue, and they did so Monday. I know
8 Christina represented their letter earlier. But
9 what they said is, "Look. These proposed permit
10 modifications provide only limited direction
11 concerning specific technical, analytical, and
12 planning expectations. They didn't recommend
13 prompt development of guidance," since what I'm
14 also recommending, "built into the permit." And
15 they say, "It best serves everyone's interest if
16 there's clear understanding about the level of
17 technical rigor necessary to demonstrate
18 reasonable assurance."

19 And they go on to say, "Look. You
20 guys need to come up with a way -- we all need to
21 come up with a way in this permit, if we're taking
22 this approach -- despite this problem -- that has
23 this rigor and accountability, these guidelines
24 and guidance built in to moving forward."

25 So just to kind of recap what I very

1 quickly breezed through -- sorry. We see this as,
2 if not rigorous, transparent, or well-defined
3 without either RAA or upfront guidance built into
4 this permit that we can point to. You know, it
5 allows for non-achievement of PWLs based on what
6 I'm seeing as this nebulous, sensible rationale.
7 And as long as there's acceptable rationale, which
8 I don't know what that is, and I don't know
9 anybody in this room that can clearly tell me what
10 that is.

11 And then we see this not as ambitious.
12 I think we all agree. But let's put something in
13 the permit that actually is like L.A. that says,
14 "Look, we want to get towards them and so we want
15 to actually have that be part of the analysis.
16 Can you capture, infiltrate, or somehow or other
17 make this water supply as part of this permit?"

18 We'd love to see it. And I think the
19 gentleman from Riverside said earlier the same
20 thing; they'd love to see it. It might be
21 available in certain parts of north county, as
22 well.

23 Just the background again. Some of
24 the main justifications is where this has been
25 implemented there's numerous, numerous TMDLs as

1 backstops to ensure water supply standards will be
2 met. And they also have this much more rigorous
3 RAA requirement moving forward, and neither of
4 those exist here.

5 You know, this is something from
6 earlier this year -- and they sort of shared the
7 interpretation that I have. That Water Quality
8 Board directs all regional boards to consider the
9 approach but does not require its use. We believe
10 that it would be premature and inappropriate to
11 require the L.A. permit approach throughout the
12 state."

13 I am mimicking their language and
14 saying the exact same thing.

15 Now, I want to have a couple proposals
16 here for you. We can remove the safe harbor
17 language and come up with something like a time
18 schedule order and compliance list.

19 Now, as I understand it, earlier today
20 you guys adopted a time schedule order for the
21 Navy without any, you know, any discussion, kind
22 of went through it. And it's way that -- because
23 the Navy says, you know, "We can't comply with
24 this in this timeframe." You do have mechanisms
25 to deal with that.

1 You can actually have a couple come up
2 and say, "Look. Yes, we are not in compliance."
3 You can actually have one of them admit, "We are
4 not in compliance. We want to get into
5 compliance. Let's work this out. We have
6 protection from third party lawsuits," if that
7 really is the position that they're worried about,
8 is myself or someone else in this room coming
9 after them.

10 You can do it another way, and it
11 still lays out the same, you know, protections and
12 methodology forward, if that is what they want.

13 If you're dead-set on adopting this,
14 what I would say is, I know that the San Diego
15 Water Board are working on statewide guidance
16 issues on the RAA, essentially to say what really
17 is reasonable assurance, what are the basic
18 criteria, how do we calibrate these models.
19 They're working on it right now, and I expect it
20 will probably be done within a year or two.

21 Why don't we wait until someone
22 actually has developed all of the guidance and
23 methodology first. Or we can look at L.A. and
24 say, "Yes, that's the method we want to do moving
25 forward."

1 By then, you'll probably have the L.A.
2 lawsuits panned out to determine if this
3 backsliding data is important or not. But it
4 actually gives us a very clear way.

5 Lastly, and this is not a proposal;
6 this is just if you're going to move forward it's
7 sort of a "Look. Let's add in this RAA language
8 into the permit." We have this L.A. language we
9 can pretty much cut and paste, as we've done that
10 with the justification. And since the whole idea
11 that sort of annual milestones came up, partly in
12 the workshops because I asked for them, but what I
13 asked for, let's say they are not meeting two
14 years in a row, let's just bring them back to
15 status quo. They don't need protection anymore.
16 Well, that language wasn't excessive, for whatever
17 reason. But I'm just calling it the hard out.

18 If we're going to move forward without
19 guidance, if we're going to move forward giving us
20 protection in any sort of scheme, at least let's
21 have something that says, "But if you keep blowing
22 it, you're out." And it's now out of the permit,
23 it's just out to where we are today, which is not
24 such a bad place. We have these W2 MPs which are
25 moving forward. They are going to be implemented.

1 On top of that, I would just say, if we are going
2 to move forward that way, we should add the water
3 supply provisions, as well as ramp up some of our
4 allocations in TMDLs, if they really are the
5 backstop in L.A.

6 I knew that this issue would come up
7 so I just kind of let the EPA speak for myself and
8 my organization. We call this the grace period.
9 Essentially, they want the safe harbor to develop
10 a phase.

11 Establishing a safe harbor during this
12 phase is not warranted. That's from January this
13 year of Jay Smith, the head of NCDS permits up in
14 San Francisco. And two days ago, "There is
15 insufficient basis to conclude that permit fees
16 are or will be in compliance." I share those
17 sentiments. I echo them. I very certainly agree
18 with them. I just see no reason why, if we are --
19 you know, it's one of those things where the gift
20 horse is in front of us, seeing how we want to put
21 teeth whitening on it. It just doesn't make sense
22 at this point.

23 So where are we? We've seen the
24 WQIPs, and I've reviewed all of them on this, as
25 close as I can. You know, I think our permit is

1 pretty good, as far as laying out this path
2 forward. It had some good stuff there, but there
3 was differences in things on how it read. I think
4 we've seen -- and I think you heard recently, and
5 I think you probably heard from your own staff how
6 happy they were with the first draft and the
7 submitted draft of the water quality improvement
8 plan. Without the clear sort of strict guidelines
9 upfront, you're going to get woefully inadequate
10 plans, especially if you're giving people
11 protection. That becomes a main problem. I also
12 want to remind us since 2013 what you have done
13 and what your staff has done.

14 Since 2013, there have been multiple
15 MS enforcement actions against the City of San
16 Diego, multiple against the City of Escondido,
17 Carlsbad, Chula Vista and Lemon Grove. So now
18 we're talking about having protection when you're
19 still issuing them enforcement actions under MS4.

20 Since we're considering new
21 information since 2013, these are pictures I took
22 recreating in our water bodies two months ago, any
23 given day. I didn't even pick a special day.
24 This is what we're still looking at. These were
25 pictures sent to me -- on the left, Escondido

1 Creek Conservancy called me furious after their
2 water check looked this way. These are fish kills
3 up in Oceanside, I think, due to up to nutrient
4 pollution earlier this year in January.

5 So this is just to point out this is
6 still ongoing. This is since the 2013 permit has
7 been implemented. There's a huge gamble we're
8 taking if you pass this. These guys are going to
9 do everything they need to, and they're going to
10 do it with this level of protection, but they're
11 not going to have the strict guidance that they
12 need moving forward.

13 I think, you know -- I mentioned the
14 legal issues. We think they're very serious. We
15 don't think there's exceptions to backsliding that
16 apply here. But, also, we think the way moving
17 forward, we're going to copy the justifications,
18 we absolutely have to copy the kind of guidance
19 that's moving forward in L.A.

20 With that, I think I'm finished, other
21 than just to say, obviously, this tentative order,
22 we cannot and will not support it without at least
23 some of the changes made. I think regardless,
24 there are issues. If you are dead set on passing
25 this sort of alternative compliance, let's put it

1 off until 2018 when there is statewide guidance on
2 this.

3 Thank you. Appreciate it.

4 CHAIRMAN ABARBANEL: Questions?

5 BOARD MEMBER MORALES: I have just
6 one. You've seen the QWIPs that have been
7 prepared over the last several months here. Are
8 any of them woefully inadequate?

9 UNIDENTIFIED SPEAKER: I think upon
10 first submittal, yes. I don't know that staff --
11 I'm not going to point fingers, but I will say I
12 think some of them failed to meet even the minimum
13 requirements of the permit, absolutely.

14 I don't know that staff or even other
15 Copermittees would disagree with me. There was a
16 period to go back and do some adjustments. I've
17 started looking at those, as well. Some of them
18 are bad and some of them are a way moving forward.

19 MS. HAGAN: We really need to try not
20 to talk about the separate water qualities. It's
21 a little hard to divorce but there are separate
22 proceedings that are going to be coming before the
23 Board, in terms of the detail. The general
24 question --

25 CHAIRMAN ABARBANEL: What is that

1 procedure? Once a QWIP is submitted for
2 consideration by the staff, does it come back to
3 the Board to be approved?

4 MS. HAGAN: I believe the permit
5 language roughly reads that if "After a process
6 and they have been submitted, if there don't
7 appear to be significant unresolved issues, the
8 executive officer can go ahead and approve them.
9 If there appear to be significant unresolved
10 issues, in his determination, he'll schedule them
11 for a Board hearing.

12 CHAIRMAN ABARBANEL: Thank you.

13 MR. GONZALEZ: Mr. Chair, members of
14 the Board, Marco Gonzales of Coast Law Group on
15 behalf Coastal Environmental Rights Foundation.

16 I've been before this Board a lot over
17 the last 20 years on storm water. It's somewhat
18 interesting to see some of the same players making
19 the arguments that have evolved but come down to
20 the same thing "Don't make me do it or don't make
21 me do it right now."

22 I'm going to be talking about -- I
23 took the oath earlier. So I'm going to be talking
24 about prior lawful approval. This notion that an
25 applicant, a developer, has done something such

1 that these equities would result in us giving them
2 the ability to take advantage of the 2007 BMP
3 manual or the storm water control and not require
4 them to comply with the new BMP manual.

5 That notion of equity is interesting
6 because I heard John Van Ryan, one of those guys
7 who has been doing this as long as I have, come up
8 here and say, "I want even more time" I'm jumping
9 ahead on my comments. "I want more time because
10 we need time to work with the applicants to
11 utilize this."

12 That's not the point of the prior
13 lawful approval. It's not to say "Give us six
14 more months so we can jam as many people into the
15 pipeline and get them to that point of compliance
16 and get them out of having to comply with the 2013
17 permit."

18 Now, fundamentally, before we even
19 start talking about this, we ask ourselves "Why
20 are we doing this? Why are we doing a new permit?
21 Why are we amending our permit? Why did we
22 require, in 2013, the hydromodification changes
23 and new BMP handbook?" Because we said 2007
24 wasn't good enough.

25 We know that because we're not in

1 compliance with the Basin Plan. We haven't done
2 our TMDL. We're still violating water quality
3 standards every single day in every single
4 jurisdiction after 20 years of trying to regulate
5 storm water.

6 And so at the base, what Mr. Van Ryan
7 is up here saying, "Give us a chance to not have
8 to do more, to not have to do what we already know
9 is required to meet the basic standards."

10 If you read the language starting at
11 page 102 of the tentative order dealing with the
12 prior lawful approval, we could actually end up
13 five years down the road even more. So we're
14 talking 2007 to the summer of 2013 to the summer
15 of 2018. We're talking 2007 to 2018 before we
16 finally implement the 2013 BMP manual? You've got
17 to be kidding me.

18 Another interesting comment today,
19 when Wayne got up early on and did his
20 presentation, he said, "We think this is a great
21 change to the permit because it makes it clear and
22 easy to enforce."

23 Go back and read what the prior lawful
24 approval standard looks like now compared to what
25 it was before. When you look at the footnote in

1 the 2013 permit that talks about what qualifies as
2 a prior lawful approval, it tracks directly on
3 what the status of the law is.

4 There's one case that controls this.
5 It's very clear. It says you need two things:
6 You need a permit, and you need to break ground.
7 That's easy. There's nothing easier. As a matter
8 of fact, when I'm not up here representing
9 environmental groups, do you know who I represent?
10 Developers.

11 And for over a year now, those
12 developers have been asking me -- that's what they
13 do when they get these crazy regulations coming
14 down through the Board to the City. They come to
15 me and say, "What do I need to do?" Since January
16 of last year I've been saying, "You need to comply
17 with the 2013 manual. It's being devised. Here's
18 a draft of it. Design your project to comply with
19 that."

20 The manual was approved in June of
21 this year. Let's talk about -- anybody that
22 hasn't planned their project to comply with that
23 manual, the price should be paid by that applicant
24 not by the community, who should be able to rely
25 on these ratcheted-down standards that just bring

1 us to swimmable and fishable waters.

2 So these clients that I have, they
3 design their projects not knowing for sure when
4 they're going to get final grading approval. I'll
5 tell you what, we just finished a year-and-a-half
6 lawsuit on one of them. We got the ruling last
7 month. We can finally pull a grading permit, and
8 they're saying "Are we going to get our grading
9 permit by December 31st?"

10 I said, "Go back and look at your
11 engineering. We designed the project to comply
12 with the new manual. We don't even have to worry
13 about it." That's what a prudent, responsible
14 developer would have been doing for the last year
15 that we've been talking about this.

16 Instead, it's not just December 24th.
17 It's an additional 90 days, as per staff. And if
18 we give into the BIA and the County, we're talking
19 another 180 days so they can shoe-horn as many
20 development projects as possible into a standard
21 that we know doesn't protect water quality
22 standards.

23 Mr. McSweeny got up here and talked
24 about the BIA folks who call him up, who blow up
25 his phone, people up in Oceanside who don't know

1 what the standard is.

2 I'm sorry, but the developers I
3 represent aren't part of the BIA, and maybe we've
4 identified the problem. When they call me up, and
5 they say "What's the standard," I say, "Do you
6 have your grading permit? Have you broken
7 ground?"

8 Afco is a very clear legal standard.
9 It's a very bright-line standard that gives us all
10 certainty. The reality is, there are very few
11 projects, but they are very big, who really need
12 this prior lawful approval language.

13 During the workshops, we had a very
14 simple request from the environmental community.
15 We said, "You know what, you guys are the best to
16 tell us how many projects you have in the pipeline
17 who might potentially take advantage of the prior
18 lawful approval language." "Just give us a
19 database so that we can talk apples and oranges.
20 Big projects, small projects, 10 projects, 100
21 projects. Give us some answers."

22 How many months later are we still
23 saying we don't even know how many projects would
24 be affected by this. And per the County's
25 representation today, the next six months or

1 actually the next nine months -- seven, eight,
2 nine months, we're going to shoehorn as many
3 projects as we can in there. That is not what
4 this was intended to do. The notion of prior
5 lawful approval is to say, "If you've contributed
6 significant dollars and you have diligently
7 pursued your project, we're not going to pull the
8 rug out from under you."

9 But the fact that the 2013 permit had
10 such a huge tail to produce this BMP manual, and
11 we had so much time after approval in June of this
12 year to vet it and bring it to effective date in
13 December, I'm sorry but we have given you enough
14 time.

15 So I would leave you with the simple
16 notion that the easiest, most simple, most
17 legally-viable solution to this is to go back to
18 Afco and tell the world "If you've got your
19 grading permit, and if you've broken ground by
20 December, you can take advantage of the 2007
21 hydromod BMP requirements." "If not, it's on you.
22 Redesign your project."

23 We all went through the recession. My
24 clients did. A lot of the people who are trying
25 to take advantage of this, the law changes

1 sometimes. Planning changes and regulations
2 change.

3 This is not a circumstance where we're
4 can say we're protecting water quality standards
5 by allowing an untold number of applicants to take
6 advantage of a standard that, coming up on 10
7 years now, we've already decided isn't good
8 enough.

9 CHAIRMAN ABARBANEL: I've heard what
10 you said, and I'd like you, if you would, to
11 repeat your suggestion of what in the tentative
12 order, putting aside the typos and changes, do you
13 recommend that we do not approve?

14 MR. GONZALEZ: Section big E(3)e
15 1(a)12. It's entitled structural BMP approval
16 process under priority --

17 CHAIRMAN ABARBANEL: These are the two
18 items that Mr. Chiu recommended approval of, or
19 his staff did in addition to the time --

20 MR. GONZALEZ: It's the prior lawful
21 approval language. It's the generic, easy way to
22 describe it.

23 CHAIRMAN ABARBANEL: I have to say,
24 I've gotten a little bit of cross-talk between
25 prior lawful approval and the alternative

1 compliance.

2 Are you speaking to both of those?

3 MR. GONZALEZ: The alternative
4 compliance has to do with your development of an
5 alternative to meeting water quality standards.
6 That is the big picture. I'm talking about
7 individual projects being able to take advantage
8 of the old BMP manual.

9 CHAIRMAN ABARBANEL: Okay. Thank you.

10 Last but absolutely not least, we have
11 interested persons, and I would say tenacious
12 persons, having waited all this time. For each of
13 those persons who have submitted a card, we would
14 offer you three minutes to speak.

15 Unless there's a particular order
16 here, I was going to start with Ms. Hunter.

17 MR. MCSWEENY: I have a question. For
18 those of us that had a little bit of time left for
19 rebuttal, when would we be able to do that?

20 MS. HUNTER: Good late afternoon.

21 Laura Hunter representing Escondido Neighbors
22 United, and yes, I did take the oath. I have a
23 couple points I wanted to mention today.

24 I agree with my cohorts at Coast
25 Keeper and would urge you to adopt their

1 recommendation. First thing I want to touch on, I
2 want to offer a reality check on this really
3 ridiculous letter that you received about Safari
4 Highlands Ranch. It basically was a not-so-veiled
5 threat, completely inappropriate attempt to
6 intimidate you out of doing a lot of your job.

7 CHAIRMAN ABARBANEL: This is not on
8 the specific item that they're discussing?

9 MS. HAGAN: It refers to a comment
10 letter.

11 MS. HUNTER: Yeah, and I do think it's
12 instructive.

13 So first of all, they don't have a
14 project approved of 550 units. It doesn't have a
15 value of 500 million dollars, which they're
16 threatening you have to pay them back. They don't
17 have an annexation approval. They don't have an
18 environment document. They have nothing. They
19 have ink on a piece of paper, really. And they
20 own the land.

21 They don't even have the entitlement
22 for the 26 homes they could build under their
23 current zoning, which is the County's general
24 plan. They have a lot of fantasy based on pure
25 speculation. But I think it's very instructive

1 because if you want an example -- one of the
2 reasons you should abandon this whole safe harbor
3 situation, here's Exhibit A. This is how they
4 view it.

5 I want to say that, in this case,
6 anyway, a short leash with clear direction is the
7 way to deal with these kinds of entities. The
8 second thing I wanted to speak to is, I have been
9 a member of the San Diego River Water Quality
10 Improvement Consultation Committee, and I would
11 like to touch on a couple things.

12 Regional Board Member Olson, I would
13 like to speak to your request of "Do you think
14 people aren't serious about it?" I've got to tell
15 you, there's a whole lot of RBA, a lot of really
16 bad attitude about it. Up in Escondido, you need
17 to know a majority of the City Council directed
18 their staff to deliberately weaken their
19 recommendation for the water quality improvement
20 plan to make them the minimum to get by for
21 compliance.

22 One of them said, "Let's just not even
23 comply and see what happens." Another one of them
24 says "Mother nature will take care of it."
25 Bunches of name calling and that kind of thing.

1 Not everybody is serious about doing it, I'm
2 telling you.

3 More flexibility is not going to help
4 us get to where we need to go. We really have to
5 say focused on those water quality improvement
6 plans. We need to focus on that. This safe
7 harbor business is a distraction. It's confusing.
8 It betrays the promise of what we were trying to
9 get.

10 I've been around a long time, too, and
11 I think it's probably bad news, but the entities
12 are not innocent victims that are being
13 promulgated on. These are the entities with land
14 use authority. They make the decisions about
15 whether they should put these developments here,
16 should they issue business licenses again and
17 again to companies that don't comply. They have a
18 responsibility here, and it's not just, you know,
19 something that they're bystanders to.

20 Thank you very much and please remove
21 the safe harbor.

22 BOARD MEMBER STRAWN: Mark West. And
23 that will be followed with Jennifer Olm.

24 MS. SACKETT: Hi. My name is Mandy
25 Sackett. I'm here to speak on behalf of Mark

1 West. He fractured his C-4 and had to go get an
2 X-ray today. I also have a speaker card. I don't
3 know if you want to add my time here, as well, to
4 do my own. I'll start with Mark's comments here.
5 "Esteemed Board members, ladies and gentlemen of
6 the public, good afternoon. My name is Mark West.
7 I'm a retired naval officer, chair of Surfrider
8 San Diego and resident of Imperial Beach.

9 "I appreciate the opportunity to speak
10 with you today on behalf of SurfriderSan Diego.
11 Surfrider is dedicated to the protection and
12 enjoyment of oceans, waves and beaches through a
13 powerful activist network. When I say 'activist,'
14 I mean people who take the time off to miss work
15 and to miss time with their family to be here
16 today.

17 "Our membership is served by
18 volunteers who dedicate their free time to
19 continue to voice their approval of the 2014 MS4
20 storm water permit as it was originally designed.
21 Our members do not support an alterative
22 compliance without specific time limits and hard
23 outs. We need more guidance and we need it in the
24 permit. Clean water compliance, in our eyes and
25 through the eyes of water users throughout San

1 Diego, means water safe to swim, fish in and
2 recreate in and on.

3 "Our members are comitted to
4 preserving water in San Diego. Surfrider
5 encourages people to get involved with projects
6 like these because we believe in the promise of
7 the democratic process.

8 "The permit and inclusion of
9 alternative compliance which you are discussing
10 today is one that will receive taxpayer money and
11 the public input needs to be respected throughout
12 the process.

13 "In 2013, we passed a landmark permit.
14 Please do not allow us to backslide on it.
15 Surfrider San Diego enjoys our working
16 relationship with staff from the city and counties
17 associated with managing our coastline and
18 multitude of issues associated with clean water in
19 iconic the San Diego coastline.

20 "I've participated in conferences that
21 have attracted people from all over the world to
22 discuss items that threaten waves. One very
23 interesting topic that is continually discussed is
24 surfonomics. It's a funny word but a growing area
25 of study relating to economic impact surfing has

1 on surfing communities. Studies being conducted
2 worldwide found the industry associated with
3 surfing are the biggest on local economy.

4 "Do we want to jeopardize the water
5 quality of San Diego? I think not. Surfrider San
6 Diego objects to any situation where Copermittees
7 are allowed to come up with a plan, implement and
8 adopt it, and be deemed in compliance with water
9 quality standards. Clean water is clean water and
10 nothing less. We take protection of the ocean
11 waves and beaches seriously.

12 "Lastly, as a resident of IB, where
13 clean water is a constant battle, please do not
14 take the teeth out of this permit. Our waterways
15 are dirty, and they will get dirtier if we do not
16 hold Copermittees accountable. So thank you very
17 much and have a great day."

18 BOARD MEMBER STRAWN: Do you want to
19 take your time now?

20 MS. SACKETT: My name is Mandy
21 Sackett. I am a resident of the City of San
22 Diego. I live in Point Loma. I'm the chapter
23 manager at Surfrider San Diego and also an avid
24 and recreational of the coast -- should I start
25 over? I know the clock hasn't started?

1 I spend the vast majority of my free
2 time in the ocean. I spend all my time in the
3 water at Sunset Cliffs every possible chance that
4 I get. So I'm always very well aware of the water
5 quality at any given time, especially in Point
6 Loma. As someone with continual health problems.
7 I consider myself a canary in a coma. Because I'm
8 sick immediately. So thank you very much for your
9 time and for listening to me today.

10 I have four main points I want to make
11 here. I'd like to applaud the regional board for
12 their wisdom and prudent decision-making regarding
13 the 2013 storm water permit and the elimination of
14 safe harbor clause. If you do feel like the State
15 is mandating a means for alternative compliance, I
16 would also encourage you to stand firm and please
17 acknowledge the differences between San Diego and
18 the Los Angeles region. We don't have the same
19 level of TMDLs. Please make sure there are strong
20 limits and automatic outs in the alternative
21 compliance methods so applicants cannot hang out
22 in this interim process forever.

23 My second point is, we object to any
24 situation where simply coming up with a plan and
25 implementing and adopting it is deemed in

1 compliance with water quality compliance.
2 Compliance means water are safe and clean to
3 recreate in, period.

4 Copermittees continue to have the same
5 complaints they have had for the last permit
6 cycles. Including things like cost considerations
7 and difficulty yet we're still not in compliance
8 with the Clean Water Act. There's no room for
9 leeway and we do not see any real water quality
10 improvements. We, the public, are here demanding
11 protection and actual improvement of our water
12 quality.

13 As the agency is tasked with
14 protecting the use of our water, I urge you to
15 please hold the line in protecting water quality.
16 Lastly, as I mentioned, I rely quite heavily on
17 the coast. I surf, swim kayak, eat fish, and we
18 need strong controls to protect our water bodies
19 and to make sure the water quality standards are
20 (inaudible), not a plan in place to kick the can
21 further down the road.

22 Hold the line today and amend the
23 alternative compliance to make sure it's not a
24 safe harbor. We need strict guidance and hard
25 outs. Thank you very much.

1 BOARD MEMBER STRAWN: Jennifer Olm.

2 UNIDENTIFIED SPEAKER: I will read
3 Jennifer Olm's comments. Jennifer Olm is a
4 resident of Rancho Penasquitos, a Surfrider
5 volunteer, and also a mom. She was here to ask
6 that you make sure alternative compliance is not a
7 safe harbor, while a Surfrider volunteer, I am
8 first a mother. My family likes to swim at to
9 Torrey Pines, kayak in mission bay and care very
10 much about all of our beaches.

11 I congratulate the Board on developing
12 a watershed permit that allows for focus, time,
13 enforcement and education. We need to ensure that
14 any alternative means of compliance specific,
15 measurable and transparent. Trying isn't enough.
16 We are capable of rigorously ensuring our quality.
17 Don't take the back bone out of this permit.

18 She's also a volunteer who has read
19 her local water quality improvement plan in detail
20 and has comments for that. That's it for her.

21 BOARD MEMBER STRAWN: Next I think I
22 have Sam Blick.

23 MR. BLICK: My name is Sam Blick. I'm
24 the author of the letter Laura was referencing. I
25 didn't mean to offend you. I had about an hour to

1 get that letter in. The situation I was presented
2 with was "what happens if you can't build at all
3 on the property?" And my engineer was telling me
4 you can't build at all. It's not a matter of
5 complying with the law. That's what our rash map
6 look like on this property. You get nothing. I
7 think if someone told Laura she couldn't use her
8 house at all, she wouldn't like it. The law says
9 it's not fair if you take it all.

10 All right. I bought this property
11 with my partner, and our approach was simply
12 "We're going to comply with the law, whatever it
13 is." We're envisioning a house that might cost 5-
14 or \$600,000. We know if we comply with all the
15 provisions -- the house might cost a million; who
16 knows after it's all done. But that's all right.
17 We're going to comply with the law whatever it is.

18 We looked at the general plan, what
19 does it allow. We looked at the specific plan,
20 what does it allow. We're about three years into
21 our process with the City. Our tentative map and
22 our EIR process is being considered. It's not
23 approved; it's true. But the project is virtually
24 designed by the City, everything they want, every
25 curb, the way it's designed is what they want. We

1 did what they want. We took 70 percent of the
2 property and gave it to the public. We're left
3 with 30.

4 It's all right. We still get to build
5 the houses. People still get to buy those houses;
6 they're just going to cost more. That's how I've
7 approached it. That's the way we have to approach
8 it. So we run across this condition. We look at
9 this. I submitted a letter to you. That's the
10 rash map. That condition says if you abide by
11 those coarse sediment standards, you get to build
12 nothing. Nothing is very different than a
13 500,000-dollar house. We can live that. If the
14 conditions are so bad it doubles the price of the
15 house, we can deal with that. People will buy it.
16 They need the housing. If it's worth nothing, you
17 can't build. So I had to submit a letter. I'm
18 sorry it was so rough, but it's kind of a rough
19 statement because it's a rough result.

20 I know you don't want to do that.
21 I've been here all day. Nobody is thinking
22 anything but clear water. You're not thinking of
23 destroying property value. You're not thinking
24 anything along that line. You're doing your job.
25 That's how we designed it, too. I'll say, in

1 closing, we've contemplated all the water gets
2 reused, each house gets its own water recycling.
3 We've tried everything. It's expensive, but we've
4 done it all. We've done it with water quality in
5 mind. So I would urge you to consider that and
6 not deny any use of the property whatsoever.
7 That's not right. Thank you.

8 BOARD MEMBER STRAWN: Scott Graves.

9 MR. GRAVES: Thank you, Board members,
10 for allowing me to speak. I'm a resident that
11 lives in Sanpas Falls, speaking as a concerned
12 citizen who would like to respond to Mr. Blick's
13 late submission. I found it ironic he said he
14 only had an hour to compose his letter when there
15 was a 45-day comment period. I think that theme
16 of "too little, too late" or "I want more time.
17 Want more time" has been seen throughout the day.
18 In my opinion, the veiled threat of litigation has
19 no merit. Sifting through the data of looking up
20 parcel numbers and previous sales and assessor tax
21 information available to the public, Concordia
22 purchased over 1,000 acres for approximately \$7
23 million, based on the tax assessor's taxable
24 values.

25 When they purchased this property, and

1 as it currently stands, they're entitled to build
2 26 or 27 homes. The property has not been annexed
3 by the City of Escondido. The final EIR has not
4 been completed, so their claims of work based on
5 Safari Highlands Ranch completed value, in his
6 words, \$500 million are quite a stretch,
7 especially in the light of the exorbitant number
8 of exceptions in hopes of getting approval.

9 Mr. Blick said they're in compliance.
10 The City hasn't looked at their plans. The City's
11 regs are you can't build anything on a grade
12 steeper than 12 percent. They're asking to do it
13 on a 15-percent grade, which is extremely steep.
14 There's all sort of waivers they're asking for,
15 grading waivers. All the different ratios of
16 grading exceptions. I find it difficult to
17 believe this is in compliance.

18 The developers' gamble was especially
19 high risk similar development on this land was
20 previously looked at and the project was withdrawn
21 because they rejected the development and the
22 general plan. The general plan and the
23 development of the general plan cost the county
24 about \$18 million with significant public input.
25 Please don't let developers intimidate best

1 practice when it comes to water.

2 BOARD MEMBER STRAWN: Next I have
3 Rebecca Andrews.

4 MS. ANDREWS: Good afternoon, Chair,
5 members of the Board. I'm an attorney with the
6 law firm of Best, Best and Krieger. We represent
7 the San Diego Airport Authority, the cities of
8 National City and Chula Vista. The cities and the
9 Airport Authority have a pending petition before
10 the State Board regarding the 2013 permit, and its
11 lack of a compliance pathway.

12 So we submitted a green card today in
13 support of the amendment and would like to thank
14 the Board and Board staff for all the effort
15 that's gone into developing the compliance
16 pathway. We believe the compliance pathway will
17 enable the Copermittees to work together and
18 develop a prioritized approach to addressing water
19 quality challenges and to coordinate their efforts
20 towards improving water quality.

21 Thorough planning is essential to
22 developing an effective water quality improvement
23 plan. Developing an effective water quality
24 improvement plan takes time. The State Water
25 Board's recent order reflects an intent to include

1 that time to develop an effective plan within the
2 compliance pathway.

3 So as you can imagine, the cities of
4 National City and Chula Vista and the Airport
5 Authority are requesting what they call an
6 "interim compliance pathway," by one of the
7 environment groups has been called a "grace
8 period," as part of the safe harbor. Whatever we
9 call it, including that period of time within the
10 compliance pathway recognizes the importance of
11 the development of the WQIP.

12 The Airport Authority, Chula Vista and
13 National City, as part of the San Diego
14 Copermittees, join with Orange County and
15 Riverside County in requesting that this Board
16 extend the compliance pathway to cover the time
17 period where the WQIP is being developed.

18 BOARD MEMBER STRAWN: Thank you. I'm
19 sorry I didn't get you in with the Copermittees
20 earlier.

21 Mr. Penzick.

22 MR. PENZICK: Good afternoon, Board
23 members. My name is Jerome Penzick, 14245
24 Dalhousie Road, San Diego California. I'm also a
25 member of the Surfrider Foundation. I would like

1 to thank the Board for your work and allowing me
2 the opportunity to address you. I recently
3 retired from the federal aviation administration.
4 I have extensive experience with methods of
5 alternative compliance. In aviation, alternative
6 compliance is a very, very serious issue.
7 Typically, a certificate holder will request
8 something like an air-worthiness directive or
9 relief from a regulation. They have to go through
10 an extremely extensive and rigorous process based
11 on two important concepts: Is the alternative
12 method of compliance in the public interest? And
13 does the alternative method of compliance
14 establish an equivalent level of safety?

15 Now, trying to stress the
16 applicability, would the equivalent level of
17 alternate pathway provide for an equivalent level
18 that the original requirements would meet. That
19 would be the task before the Board and staff.

20 I would like to compliment Mr. Chiu in
21 his earlier remarks today; it shows he's focused
22 on the issue in the work he's already established.
23 Hard criteria must exist for realistic acceptance
24 of milestones; there's no way around that.
25 Alternative methods, in order to be successful,

1 milestones must be are meaningful. They must show
2 real progress. The end result is not reports.
3 The end result is not steps to get there. The end
4 result is clean water at the beach, things that we
5 can surf in.

6 What I would offer to you is what
7 would look like failure would be for San Diego to
8 turn into New York. I lived, for a while, in Long
9 Island for work. I can't describe how poor the
10 quality of water at the beaches are at someplace
11 like Rockaway Beach in Queens, Point Lookout in
12 Nassau. My son got contact dermatitis there. We
13 came back to California, and I fulfilled a
14 longtime dream to learn to surf with my boys. And
15 I can't describe to you how pleasant it was to
16 surf in Solana Beach at Beacons in clean water
17 with good friends. So these are the tasks before
18 you.

19 I thank you for your work and thank
20 you for the opportunity to speak today.

21 BOARD MEMBER STRAWN: Next, I think I
22 have a card from Summer -- maybe it's Smith. She
23 has ceded her time to Julie Chunher.

24 MS. CHUNHER: Good afternoon. I'm
25 Julie Chunher. I'm the policy manager for

1 Surfrider San Diego. Thank you for your time.
2 And I wanted to call your attention to our 10
3 members and volunteers who took time away from
4 work to be here and show their concern for this
5 important issue.

6 I'd also like to take a minute to
7 sincerely applaud your staff. This has been
8 time-consuming. They have been professional.
9 They have been very thorough, and I've been
10 thoroughly impressed. Whatever decision is made
11 today, they deserve a round of applause. And I
12 want to applaud you for your decision in 2013.
13 That was a hard decision to come to.

14 And instead of my talking points, I'd
15 like to respond to some of the things we've heard
16 today. We heard early that the purpose of
17 alternative compliance is to provide clarification
18 and structure to this interim process to figure
19 out when it starts and stops.

20 Unfortunately, as it's currently
21 written today, I don't think that happens. I
22 think it continues that iterative process. And,
23 you know, we heard a lot about the cost of
24 compliance. I think we should all be much more
25 concerned about the cost of noncompliance.

1 I said it in 2013, and I'll say it
2 again today. Where is the number of lawsuits that
3 everybody is so afraid of? These are meaningful
4 steps in the right direction, but at the same
5 time, we need to maintain accountability to
6 increase motivation to make hard and expensive
7 steps.

8 I'm a parent now, as well. I have a
9 14-month-old, and he's starting to learn to test
10 his limits. He likes to see what he can get away
11 with. It's better for him, his safety, and my
12 sanity to have certain limits with him, set clear
13 boundaries. And I see today we're hearing a
14 little bit of limit-testing. What can we get away
15 with? So I would encourage you to hold to those
16 limits; it's better for everyone.

17 You also heard in the comments today
18 that people need more time for plans. They want
19 compliance while they're planning, and they want
20 compliance if the plan doesn't work out. Where
21 does that leave the public?

22 History is the best indicator of
23 future behavior. For history, we have to look at
24 what's happened in the previous permit cycle. We
25 have to look at what happened in the WQIP process

1 recently, and we have the tendency, as city
2 council is saying, to do the bare minimum. So we
3 need to be able to keep everyone motivated.

4 We also heard today that it's going to
5 take years to come into compliance. Guess what?
6 It hasn't been in years. We need to maintain that
7 accountability. That's exactly why there was a
8 paradigm shift in 2013, so I hope we can maintain
9 that.

10 We also heard, "Hey, don't worry about
11 it. Water quality is important to us, too. We
12 will take care of it. But we also have lots of
13 priorities, whether its police cars or other
14 things."

15 I think that's exactly the point. You
16 guys are charged with maintaining water quality.
17 We're trying to make that more of a priority.
18 Decision-makers have to make hard and expensive
19 decisions, and not just to look at storm water and
20 "Oh, well whatever is left over, that's an
21 expensive problem we have to deal with."

22 If you look at it in a different
23 context away from storm water, when you're trying
24 to protect something, the regulations and laws
25 usually increase. For protecting children, we

1 have Megan's Law. I don't see how relaxing the
2 process is going to be make water cleaner.

3 At this point, there's not enough
4 guidance in the permit to do proper analysis. We
5 need that guidance in the permit and not after the
6 fact. I ask you to remove the safe harbor
7 alternative compliance today. Postpone it until
8 the EPA has done a reasonable assurance analysis,
9 and wait until 2018.

10 If you're going to do it, I suggest it
11 be really thorough and done right. That's our
12 request.

13 Thank you for your time and
14 consideration.

15 CHAIRMAN ABARBANEL: I believe there
16 are some speakers that have some additional time.
17 If anyone would like to speak, Gary will tell you
18 how much additional time you have, if you come up
19 and you request that.

20 County of Orange had a minute. I'll
21 extend that to a 1:10 just for you.

22 MS. SKORPANICH: So it's not 7:00 p.m.
23 that's a good thing. I just wanted to close up
24 and kind of wrap up a very brief period of time.
25 Harping back to 2013, 2011 when your staff

1 undertook the initial workshops to develop this
2 permit and what they've been saying all along, and
3 what I think they actually have achieved with this
4 permit is a permit that's aspirational. It's
5 something to inspire, to motivate, to incentivize
6 the permittees to do even more, to take on even
7 more than what the Clean Water Act requires of us.

8 Along with that was a desire on your
9 part as well as your staff to allow for a permit
10 that allows creativity and innovation, but most
11 importantly for the permittees, it allows
12 prioritization. I know we touched on this
13 earlier, but I don't know that we really drew a
14 fine point with prioritization.

15 If we have the interim compliance,
16 then we have the freedom to prioritize what those
17 really important water quality objectives are we
18 need to work on and focus on. Without that, we
19 really can't sort of leave the low priority, the
20 things that we know are above natural conditions
21 and so forth.

22 So I'd like to just draw that point
23 that it ties our hands considerably on being able
24 to do that prioritization process and focus on
25 those most important objectives. It's not unlike

1 what the State of California did, actually. Back
2 two governors ago, the state set up the Clean
3 Beaches Initiative. They said we know beaches are
4 a high-priority water body. They where are people
5 recreate the most. We want to put emphasis on
6 that. They directed grant programs there. To
7 this day, the beach water quality task force is
8 meeting today. It's made tremendous difference,
9 not only in Southern California but up and down
10 the coast of California. It shows you what you
11 can achieve if you are able to do that
12 prioritization.

13 The second point I would like to make
14 is that your staff is looking to have a credible,
15 durable and transparent water quality improvement
16 plan developed. This will not be a safe harbor,
17 if you will, a get out of jail free card. The
18 permit also establishes some meritocracy. How do
19 you earn interim compliance? The permittees, they
20 have proposed some enforceable milestones during
21 the development of the water quality improvement
22 plans, but I that addresses those concerns.

23 What we really all want is one of the
24 other issues that you and your staff set out on
25 this permit, which was to make it so we could have

1 collaboration. We want to work together and begin
2 to make more progress on water quality.

3 I thank you very much for your time
4 and consideration today.

5 MR. MCKIBBON: If I didn't say it in
6 my original comments, I want to thank the staff
7 again. It's been comforting to me as the point
8 person of my industry to know if we have concerns,
9 I can get on the phone or e-mail and get an answer
10 or get an appointment. I appreciate working with
11 you folks and your professionalism.

12 Matt O'Malley talked about the water
13 quality improvement plans. Just so each you know,
14 each one of those came in between 700 and 1200
15 pages each, so that's like Warren Peace times
16 eight. I know you've got a limited number of
17 folks in your organization, same thing with us.
18 To try to go through every one of those, it's time
19 consuming.

20 Both the Copermittees and myself, we
21 laid out for you a reasonable rationale for why we
22 needed more time, to get tools finished, put them
23 in the tool box, and get the job done right. For
24 us, it's more important to get it done right than
25 to just get it done.

1 As far as the need to time, we, like
2 the environmentalists, believe in the CEQA
3 process. The environmentalists know that for
4 CEQA, you have to adopt ordinances and those take
5 time.

6 I thought John Van Ryan did a very
7 good job of laying out exactly, in the perfect
8 scenario for them, how long it takes to do that.
9 Finally, the Afco decision was mentioned here, and
10 that decision was 40 years ago, and land use has
11 gotten significantly more complex since that time
12 with development groups and grandfathering
13 provisions.

14 Again, I appreciate your time.

15 CHAIRMAN ABARBANEL: Thank you very
16 much. We now have time for staff response,
17 closing remarks. For me, it would be helpful if
18 you could put up the slide with the very specific
19 indicated changes in the tentative order. You had
20 one that addressed alternative compliance, one
21 that addressed -- and then at the bottom was
22 errors, and these are things, if I understand, are
23 in addition to the main theme of the day, about
24 which we've heard very little, which is the
25 enrolling of the County of Riverside as part of

1 the regional MS4.

2 What was in the box.

3 MR. CHIU: So this was the summary.

4 CHAIRMAN ABARBANEL: I think we have
5 heard primarily about items in the box. Riverside
6 county didn't show up here and say "we don't want
7 to play." I didn't hear any objections. I
8 thought I heard somebody say you did it right.
9 You had very specific language for these two
10 items, if you could put that up.

11 MR. CHIU: I didn't really put any
12 language more than a kind of a summary of how we
13 responded. So I think you were looking at
14 somebody else's presentation. There were a lot of
15 more dense slides than mine. In this particular
16 situation, I think you heard from both sides on
17 this: What you heard today was actually very
18 similar to what we went through during the public
19 workshops. You heard a lot of lot of positions
20 being put forward, a lot of rationale for those
21 positions, a lot of justification for making
22 specific types of changes or incorporating certain
23 provisions into the permit. We did our best to
24 try to find the proper balance between the
25 different perspectives, and what we came up with

1 during or after the workshops or as a result of
2 the workshops or for the prior lawful approval
3 language, we felt that we had done our job right.

4 It's not exactly as the environmental
5 community would like. It's not exactly like the
6 way the development community and the Copermittees
7 would like. Obviously, the Copermittees are now
8 willing to accept it, but the environmental
9 community is still asking for some of the changes
10 that they requested. Even during those workshops,
11 I think our position is still and our
12 recommendation is still to maintain the language
13 that we've put forward for you to consider for
14 adoption today.

15 I'm going to take this opportunity to
16 kind of touch upon the BMP design manual issues
17 that have been raised by the County and the
18 development community, and it touches upon the
19 prior lawful approval language, as well.

20 The Copermittees are asking for
21 additional time to make changes, and I think they
22 provided a slide that shows the justification for
23 that is they will need all this time for their
24 process, the changes that they're going to need to
25 make are fairly significant. It's because we're

1 changing the definition of prior party development
2 process. We've changes the definition of
3 redevelopment and we added prior lawful approval
4 definition language in there.

5 We informed the Copermittees of this
6 upcoming language back in June. We issued a
7 letter to them informing them of the language that
8 we knew would be incorporated into the permit, and
9 it was also at their request that we move this
10 board meeting up sooner so they could have more
11 time to make changes to their BMP design manuals.

12 The redevelopment definition was not
13 changed; it was clarified. And the prior lawful
14 approval definition, that simply gives them the
15 parameters in which they would apply the fourth
16 term or 2007 MS4 requirements for developments
17 versus the regional MS4 permit requirements for
18 developments. So they're just basically trying to
19 delay, in our estimation, the effectiveness of
20 these new requirements. I think we're being very
21 reasonable when we said we would provide them an
22 additional 90 days to make those changes, and it's
23 90 days from the date of the adoption of the
24 permit changes, not 90 days from the December
25 expected effective date. It would make it

1 February 2016 by which they would have the
2 effective date of their BMP design manuals in San
3 Diego county.

4 So I understand that everybody wants
5 more time, but we have actually provided them
6 quite a bit of time to prepare and time to get
7 things in place in order to have this adopted. So
8 simply asking for more time is, I think, a default
9 position that many people take. I think you've
10 heard it throughout most of the requests today for
11 more time for everything.

12 I think in this situation we were very
13 reasonable. We plan on issuing a letter from RGO
14 directing the Copermitttees to push back their
15 effective date for the BMP design manual to
16 February 16, which is 90 days from today and that
17 should be sufficient time to make changes to the
18 definition of prior development project. I
19 counted the words that actually is or will be.
20 They have to add 20 words to the definitions. So
21 they're not going to have to have to do a song and
22 dance and go on a road show in order to tell
23 everybody exactly what it needs to be. It's 20
24 words.

25 The redevelopment definition, I think

1 we changed, like, six words. It's not a whole
2 lot. The prior lawful approval is really just
3 giving them some parameters now to work with.

4 So that is the prior lawful approval
5 language. Let's talk about the coarse sediment
6 yield issue. The coarse sediment yield issue has
7 come to light in recent months. As you've heard,
8 we've had several discussions with the development
9 community, with Copermittees on this issue. From
10 the compliance standpoint, their BMP design
11 manuals are in compliance with out permit
12 requirements. It includes all the language
13 necessary to allow prior redevelopment projects to
14 implement measures to address coarse sediment
15 yield areas, such that there is no net impact to
16 the receiving water. Avoidance is the first and
17 preferred method of providing no net impact to the
18 receiving water, but there are alternatives, and
19 they are currently developing those. There is one
20 being proposed for the City of San Diego's BMP
21 design manual that could be used as a model for
22 other jurisdictions.

23 That doesn't mean there aren't other
24 methods that can be developed. The guidance that
25 can be developed in future months or future years,

1 is simply going to be an addition or attachment to
2 the BMP design manuals. I don't think we need to
3 delay the effective date to allow for guidance to
4 be developed, but if they're looking for
5 additional clarity and they want to delay the BMP
6 design manual for clarity, we wouldn't recommend
7 that. We believe we need to have these BMP
8 performance standards and criteria in place as
9 soon as possible and implemented on development
10 projects as soon as possible in order to be
11 protective as possible for water quality going
12 forward.

13 I will move on to the alternative
14 compliance pathway option. Again, you've heard a
15 lot of things about this particular issue, both
16 sides, and, again, it's very similar to what we've
17 heard during the workshops. I think Board Member
18 Olson heard a lot of this. Board Member Morales
19 has heard a lot of it, and now the rest of the
20 Board has heard pretty much the same things,
21 couple tweaks here and there. And you know, I
22 think there's -- this is one of those issues where
23 the stakeholders are looking to us to provide the
24 leadership on this issue and looking to us to make
25 a decision on how to move forward on this

1 particular issue.

2 In listening to what we heard today
3 and during the workshops, I think I fully agree
4 with what the environmental community says. I
5 really do. But then I also agree with a lot of
6 what the Copermittees say, and so we're trying to
7 strike a balance, again, of what we could do as a
8 board to provide a middle ground, a pathway
9 forward that could be workable. And the language
10 that we came up with was what we thought was the
11 path forward. You may have heard annual
12 milestones, the environmental community ask for
13 that. We didn't have it there before. That was
14 to provide that additional level of accountability
15 but the way they would like to see it is those
16 milestones are essentially are your ticket out of
17 the program. If you don't meet a milestone, do it
18 for two years or three years or whatever, you're
19 automatically kicked out, and you have to figure a
20 way to get back in.

21 But we agreed there needed to be some
22 additional level of accountability and a way to
23 track progress that we as regulators are given the
24 awesome responsibility of trying to make sure that
25 our water quality is going to be protected,

1 preserved, restored, and enhanced. We needed to
2 figure out how to make sure that we could keep our
3 finger on the pulse, and those annual milestones
4 were our way of doing that. Giving in a little
5 bit to what the environmental community requested,
6 and, again, every time we give something to
7 someone, somebody else doesn't want it. Trying to
8 figure out what we could do. What we have given
9 to the Copermittees is the alternative compliance
10 pathway.

11 What we have added, which they don't
12 necessarily want, is additional milestone
13 requirements that creates that additional
14 transparency and rigor. I think we've struck the
15 balance. I hope you agree.

16 And that's the milestone issue, but I
17 also want to get to this being deemed in
18 compliance during preparation. Again, this is one
19 of those things where we try to find the balance.
20 On the one hand, we have the environmental
21 community saying "We don't want it at all. It's
22 not fair to us. You put this in there. We lost
23 all ability to drive the conversation."

24 On the other hand, Copermittees are
25 telling us "We are always at risk. We need to

1 figure out a way where we reduce that risk."

2 We agree. We know there's a lot of
3 risk. We agree there has to be a middle ground.
4 So we provided an alternative compliance pathway
5 as that middle ground. We thought it was a
6 balanced approach by providing compliance during
7 plan implementation but not during plan
8 development, and so that's where we came down on
9 that issue. We thought that was the right
10 approach. And while we have other examples of
11 alternative compliance pathway options in the
12 state, I like to think we lead rather than follow.

13 So I think we need to set the pace.
14 We need to figure out what we, as a board, believe
15 is the right course, not necessarily believing
16 that other boards should dictate our way of doing
17 things. The State Board order that does not
18 dispute the path that L.A. took does not say we
19 have to use L.A.'s approach. It simply says L.A.
20 can do it in the way they want. That doesn't say
21 all boards must do it this way. I just want to
22 make sure we understand that what we do here is
23 not what L.A. does.

24 And that kind of takes me to my other
25 point about the analysis portion of it. I know

1 there's a lot -- there is some concern as to the
2 lack of specifics as what L.A. had, but I think
3 our approach also provides a more flexible
4 approach that allows the public, then, to be part
5 of the process and part of the discussion, where
6 the L.A. approach doesn't quite lend itself to
7 that as much, because of the specifics that have
8 been incorporated and the very specific methods in
9 which they are allowed to do their analyses.

10 The other aspect of that is, these
11 particular analysis methods or these models are
12 really for fluid and water body. Our permit
13 actually aspires to more. We're not talking about
14 the chemical integrity of our waters. We're
15 talking about the physical, biological and
16 chemical integrity. These water quality models
17 don't lend themselves to restoring a beneficial
18 use. A beneficial use is not just chemical.
19 There could be a physical, biological or toxicity
20 component, which is partially related to chemical
21 constituents, but there are other aspects, as
22 well.

23 We believe having an analysis with
24 clearly stated assumptions is very clear guidance
25 in that we will not accept an analysis that is

1 just high in the sky. There has to be something
2 behind it. There has to be something where we can
3 understand how they came to a conclusion and the
4 public as well. The public is part of the
5 process. L.A. does not include that aspect in
6 their particular paradigm.

7 So, you know -- and you we're not
8 opposed to developing guidance. L.A. didn't have
9 guidance in their permit. They developed guidance
10 after the permit was issued. I think you heard
11 from us and our stakeholders here that we have
12 engaged with our constituents frequently. We
13 communicate with them often. We lend them our
14 expertise on the matter, our regulatory
15 perspective. And once we issue this permit, it's
16 not like we're going to hide in our offices and
17 not engage anymore. We will continue to have
18 these conversations and make sure there's a clear
19 understanding among everyone what our expectations
20 are.

21 So guidance can be forthcoming, and if
22 you would like to see very specific guidance, we
23 can do that. But if we want to give the
24 Copermittees some flexibility in terms of how they
25 want to approach water quality improvement -- if

1 they want to go after hydromodification
2 improvements, make sure those hydromodified
3 channels are restored, you can't do it with a
4 model. If you want to improve or increase the
5 amount of wetland area, you can map it but I don't
6 know how a model is going to get you there.

7 So that brings us to the question of
8 prioritization and I wasn't quite clear how being
9 deemed in compliance during preparation of the
10 pathway would lend itself to prioritizing your
11 water quality concerns. The whole idea of the
12 water quality improvement plan is to prioritize,
13 and the idea of the alternative compliance pathway
14 is to figure out how long is it going to take to
15 get there. You don't have to have the same
16 schedule for every single constituent. It would
17 be staggered schedules for constituents.

18 So I'm not sure if I should touch on
19 the backsliding. I think we already addressed it
20 through our comments.

21 MS. HAGAN: I think the response
22 comments addresses that adequately.

23 MR. CHIU: And then the last thing I
24 want to -- there were three other issues I wanted
25 to cover that I heard that I just wanted -- there

1 seemed to be some muddling of what permit
2 requirements are and how they're being applied to
3 the alternative compliance pathway.

4 First Laguna Beach and Dana Point,
5 they were bringing up that lawsuit that was
6 brought against the City of Laguna Beach. That
7 was a lawsuit specific to dry-weather discharges
8 going into their MS4, which is very different than
9 storm water discharges. The permit has a specific
10 requirement to effectively prohibit
11 non-storm-water discharges into the MS4.

12 Then there is a provision, an effluent
13 limitation. One is a prohibition; one is an
14 effluent limitation. Effluent limitation os
15 discharges from the MS4 shall -- the pollutants
16 shall be reduced to the maximum extent
17 practicable. Those are very different. The
18 alternative compliance pathway doesn't address
19 either one of those. The alternative compliance
20 pathway is for receiving water limitations. The
21 receiving water limitations state discharges from
22 the MS4 shall not cause or contribute to
23 exceedances in the receiving water.

24 So, you know, when I heard, I think it
25 was Mr. Baron, saying the Clean Water Act -- MS4s

1 aren't required to meet numeric effluent
2 limitations, that's true. And we don't have
3 numeric effluent limitations that need to be met.
4 We have a narrative of maximum extent practicable
5 standard. But the receiving water limitation is
6 different than a effluent limitations. The
7 receiving water limitation is a condition in the
8 water that needs to be protected or restored, such
9 that the beneficial use is supported.

10 That's the ultimate end goal that
11 we're trying to achieve. That is a numeric goal
12 that can be proposed as part of the water quality
13 improvement plan but they have the option of
14 proposing effluent limits of some sort that would
15 be self-imposed, and they're not in our permit.
16 We have nothing in our permit that actually
17 requires them to be in compliance with a numeric
18 effluent imitation.

19 I think, again, it was Mr. Baron who
20 said the permit is placing upon the Copermittees
21 the responsibility of -- placing on the
22 Copermittees responsibilities typically taken by
23 the regional Board, such as developing TMDLs or
24 time schedule orders and those types of things. I
25 would agree. I think we have placed a lot of

1 these things in their realm of responsibility if
2 they so choose. And we don't require them to
3 develop these things. This is an optional
4 pathway, but the benefit of it is that they get to
5 develop it. They get to develop the model. They
6 will get to develop the numeric goal. They will
7 get to propose it to us for us to buy into it. If
8 it was all us, it would be us doing the modeling.
9 It would be us going to them and trying to
10 convince them, and, typically, it was not an easy
11 convincing process. Trying to convince them this
12 was the best thing for water quality.

13 This allows them to tell us what is
14 best for water quality, and to avoid TMDLs, which
15 then hand cuffs everybody in the process because
16 then we have things in the basin plan we cannot
17 change easily. This process, it does place a
18 little bit more on the Copermittees, but it's up
19 to them if they want to take on that challenge,
20 and there are a lot of benefits to it. To realize
21 those benefits does take more time and a few more
22 resources.

23 I think that covers, hopefully, all
24 the comments we heard. Last one: The language
25 request for changing -- if the San Diego Water

1 Board finds to where a Copermit. I think we're
2 talking semantics at this time. I don't think
3 it's a necessary change. I will leave that to the
4 Board if they would like to see that change.

5 CHAIRMAN ABARBANEL: Final question?

6 BOARD MEMBER OLSON: I just have one
7 question. It goes back to what you said. So now
8 I'm confused. It's been referred to many times
9 today that the Copermittees are out of compliance.
10 Are they out of compliance or are they in
11 compliance? The receiving waters maybe out of
12 compliance.

13 MR. CHIU: So in every permit, there's
14 a set of discharge prohibitions, receiving water
15 limitations and effluent limitations. Effluent
16 limitations are in there, typically, to achieve
17 your discharge prohibitions. In storm water
18 permits, we have what's called a maximum extent
19 practicable standard. Every permit cycle, the
20 maximum extent practical was supposed to get
21 better and better and get to the point where it
22 actually achieves the receiving water limitations
23 and prohibitions, but we're not there.

24 There is this disconnect in MS4
25 permits, in particular, where the maximum extent

1 practicable standard, where they maybe in
2 compliance with that, does not mean they are in
3 compliance with receiving water limitations. I
4 think the Copermittees are in compliance with the
5 maximum extent practicable standard but they can't
6 say they're in compliance with the receiving water
7 limitations.

8 Any other questions?

9 BOARD MEMBER STRAWN: This one has to
10 do with the questions for extra time. One part of
11 that argument that the Copermittees made that
12 struck a note with me is the desirability of more
13 public input and having hearings, having more
14 reviews, opening it up more for the public.
15 Rather than this, giving them more time blankly,
16 if, hypothetically, one of the groups had
17 diligently had their WQIP all set for some
18 watershed and came to you and said, "We've drafted
19 this document. We think it's right, but we want
20 60 days to have three sets of public hearings over
21 a certain period of time," would our Board be in a
22 position to allow that extra time if they were
23 to -- if it was a specific request like that?

24 MR. CHIU: I don't think that we would
25 be precluded from doing that. Part of the process

1 is when they submit their water quality
2 improvement plan, before we accept it, we have to
3 review it. If there are things they propose to
4 improve, we can certainly give them more time if
5 it means that we wouldn't accept it. Part of the
6 acceptance means implementation. It kind of
7 starts the implementation process, so providing
8 more time is great if you want to --

9 BOARD MEMBER STRAWN I'm just looking
10 at an alternative. If you got a specific need for
11 something you think is going to add value, come
12 talk to us.

13 MR. CHIU: We can still accept
14 something, but give them the ability to obviously
15 improve, if they feel it's necessary.

16 BOARD MEMBER STRAWN: They can always
17 come to us and ask for that too.

18 MR. CHIU: Absolutely. I think this
19 board seems to be very receptive to our community.

20 CHAIRMAN ABARBANEL: Thank you very
21 much. We will close the hearing and open this up
22 to board discussion.

23 MS. HAGAN: Your acting executive
24 officer --

25 MR. SMITH: Thank you, Chair

1 Abarbanel. Jimmy Smith, acting executive officer.
2 I won't recap what Wayne said, but I do want to
3 offer a little perspective. I'll give way my
4 recommendation. I do support staff's
5 recommendation to move forward with the permit as
6 drafted with the errata they proposed. I saw that
7 not lightly. I remind the board this is largely
8 the same permit heard in 2013 and again earlier
9 this year, and I think it's a good sign we've come
10 down to a place with a lot fewer issues. I think
11 it's a sign we are working together with the
12 Copermittees, with the environmental groups, with
13 the USEPA, and some of the other developers that
14 are out there.

15 Staff has navigated a rather
16 conscientious pathway on these issues with public
17 input and input from Copermittees. What they put
18 forth, I think is reasonable as the water code
19 calls us to be. The big issue for them is more
20 time, and time is always something that is a
21 challenge for us as a board and for the public, as
22 well. As you saw the slides, and we all know, we
23 are not achieving fishable and swimable waters in
24 many areas in our region.

25 This pathway to compliance, this

1 alternative compliance pathway, that is a very
2 high bar that staff has set forth, and one that
3 can save the Copermittees time and money and not
4 have to worry about additional TMDLs coming down
5 on them every few years, to allow us as staff to
6 work with them and the public on actual
7 improvements and BMPs that will make water quality
8 better in our region.

9 With the time issue, the term that
10 comes to mind is don't let the perfect be the
11 enemy of the good. Where we are now is an
12 opportunity to be move forward. The permit is not
13 perfect. We sometimes joke that maybe we achieve
14 a good outcome when nobody likes what we're doing.
15 But in this case I don't think that's the case. I
16 think everybody likes where we're headed but
17 they're have issues with how we're headed there.

18 This permit will be back before the
19 Board, and we may be back here again for a lengthy
20 hearing, but in the interim, time will be better
21 spent with staff not reworking the permit but
22 getting out there working with staff to make
23 improvements to water quality. The only way that
24 can happen is if we get this permit adopted.

25 So I reaffirm my recommendation that

1 the Board adopt it as originally put forth.

2 CHAIRMAN ABARBANEL: Okay. I think
3 it's time for board discussion.

4 Tom, I know you have a deadline if
5 you'd like to start here are my thoughts.

6 BOARD MEMBER MORALES: I think
7 everybody here doesn't want much, you just want
8 more, but at some point we need to move on. It's
9 really only two issues that have been talked about
10 when it comes to this permit. The first is the
11 alternative compliance pathway. That seems to be
12 the biggest of the two. And back when we issued
13 our first MS4 in 2013, that applied to the San
14 Diego folks, we had a lot of the same discussion,
15 and then there was a lot of discussion about safe
16 harbor back then. We didn't give it to the San
17 Diego folks. It wasn't because personally I had
18 anything against them. It was quite the opposite.
19 I had great faith they would do what they need to
20 do in a fairly short order, and they have.
21 They've risen to the task.

22 If there is an instance where they'll
23 get a plan, it has to pass (unintelligible). If
24 it doesn't, that's going to be another discussion
25 that we have. So I hope that allays some of the

1 fears that people are going to submit poor plans.
2 I don't expect that will be the norm at all. It
3 seemed to work okay for the San Diego folks. I'm
4 not saying you've got all these great protections
5 and while you're working on this --I think it will
6 work as well the Riverside permittees.

7 And those of you working on these
8 plans, I know you are deep in the throws of
9 working on that, and I know you're working on
10 these things diligently. So I am comfortable with
11 that portion of the tentative order. With respect
12 to the grandfathering, again, that's no surprise.
13 If it were up to me I would say December 24th.
14 It's no secret. We've been talking about this for
15 years. I will support staff in their
16 recommendation to allow another 60 days, maybe 90
17 days from the date of adoption. I will, again,
18 support the order even though my personal
19 preference would be December. But as you all did
20 in your meetings, we'll make an accommodation, and
21 that is pretty much where I come down on this
22 stuff.

23 I'll end by saying when we came up
24 with this whole notion of an outcomes-based MS4,
25 we were trying to get out of the business of

1 micromanaging you all. I think this alternative
2 compliance pathway is very much in keeping with
3 that. You're all grown ups. You know what works
4 best for you. We're giving you that opportunity.

5 I have great faith, and when I am long
6 gone from this board, I hope to be able to look
7 back and say great waters we have in Southern
8 California are in a small part due to mostly in
9 large part to the role you all played.

10 BOARD MEMBER OLSON: I wasn't here in
11 2013, so I find that there's a lot of history on
12 every Board and every position that you take. I'd
13 like to start by commending the staff. I was on
14 the Board in February when we decided we would
15 look at the alternative pathway and try to pursue
16 it. I heard in my meeting, environmentalists
17 express a viewpoint but I have a very long history
18 of looking at water quality. And so if you look
19 back to where I came in at water quality, we saw
20 our rivers were burning and there were massive
21 fish kills, and thanks to the environmental
22 community and organizations like the regional
23 board and the state board, there have been massive
24 improvements. But I also, in working on a number
25 of standards, have seen taking a little more time

1 can sometimes reap benefits for everyone.

2 In this case, I tend to believe that
3 what's been put forward by the staff is probably
4 attainable. We hear this issue of milestones
5 arising from the one group that is working on
6 their water quality improvement plan, and
7 expresses concerns, and so my concern is, if those
8 -- if we now, a year from now or two years from
9 now, see all the agencies with these concerns, how
10 can this board respond?

11 What I really don't want to see in not
12 giving interim compliance is suits that will take
13 money away from the goals and objectives that
14 everyone in this room is trying to obtain. So I
15 was given assurance from the staff that if we see
16 anything coming forward that looks like extensive
17 legal action, there will be action or this will
18 come back to the Board. I just want to ask again,
19 is that feasible within the manner that the Board
20 operates? That's one of the my biggest concerns,
21 to see money go away from our water quality
22 objectives because people are changing the
23 timetable.

24 Is there an answer to that?

25 CHAIRMAN ABARBANEL: I think you're

1 asking Jimmy.

2 JIMMY: Yes, I think we can given the
3 option to reopen the permit at any time should the
4 Board direct us to or should staff make that
5 recommendation, we could come back and change the
6 provisions there to open it back up. 2018 isn't
7 that far away. That would be five years after San
8 Diego was first enrolled, so we would be starting
9 on that in 2017 anyway, and that's a little over a
10 year away.

11 BOARD MEMBER OLSON: One of the things
12 we're trying to get away with is to have people in
13 constant permit in changing and renewals. With
14 reservation, I'm going to support. I would like
15 to see interim compliance given, but I will
16 support the -- the action of the staff in this
17 case, and I would like to thank everyone. I know
18 everyone worked really hard and I really want to
19 stress I appreciate that.

20 BOARD MEMBER ANDERSEN: I'm very happy
21 that bringing Riverside was not that
22 controversial. It's a tribute to the staff, the
23 Copermittees and the stake holders involved in the
24 process here working together and working hard on
25 it. I'm going to agree with Jimmy's

1 recommendation and it's not that I didn't
2 consider, carefully, your input on all those paths
3 to alternative compliance. I agree with the EPAs
4 comment and Jimmy's recommendation that we should
5 commit to and follow-up guidance and that would be
6 a good thing. And my only other comment is on the
7 course sediment yield. That stuff should be dealt
8 with within the BMP manuals. It was great to have
9 the input on it, but I think the Copermittees can
10 probably work that out with everybody. So with
11 that, I'm supporting your recommendation.

12 BOARD MEMBER STRAWN: I'll try to be
13 quick. I want to thank everybody. The staff, the
14 Copermittees, the NGOs. I'm not even going to get
15 into the alternative compliance. It seems to me
16 the Copermittees are all good people, just leave
17 them alone, let them do their job. The
18 environmental groups are we don't need to keep
19 threatening to sue them I don't think anybody here
20 would believe that's true. That's certainly what
21 it sounds like when you get the bickering that
22 went on here today. I want to address one comment
23 and I know it's not even really part of this
24 because it's going to be in the BMP manuals but
25 the comment that we're trying to make somebody's

1 private property worthless is offensive to me. We
2 don't want to zero out anybody's property. We
3 also don't want what you do on your property to
4 effect the property below you or somebody above
5 you to do something that affects your property.
6 Are when you're dealing with water quality, you're
7 dealing with everybody in the watershed.

8 Everybody wants to say "my private
9 property." It affects everybody up and down and
10 we have to look at it from that big picture. I'm
11 sure the Copermittees, when you get into the
12 detail of the BMP manual, can work out something
13 that, in effect, takes care of the all of the
14 property owners and all the public in each given
15 watershed. With that, I'm done talking and I will
16 go along with Mr. Smiths recommendation.

17 CHAIRMAN ABARBANEL: I come from the
18 only city in California that instead of a general
19 plan, the community is taken into account on all
20 decisions, and I see that Gary Strawn is our
21 honorary member.

22 I was convinced by Mr. Gonzales that
23 prior lawful approval issue is a trivial one. I
24 see no reason to approve it. That isn't what it
25 sounds like is the consensus of my colleagues, and

1 that's okay. I have, as indicated in one of my
2 questions, I have a moral problem with the
3 alternative compliance pathway announcing as a
4 public agency that somebody is in compliance when
5 we know and they agree they are not. I think it
6 cuts into the moral stature of an agency that is
7 supposed to speak truth.

8 Do I think those things will make
9 major impediments in the achievement of water
10 quality improvement? I actually don't, but they
11 trouble me. I think what we really heard was the
12 idea the adoption of the methodology of water
13 quality improvement plans is a way to have the
14 Copermittees who join us in a goal tell us how
15 they want to achieve the goal. I thought that was
16 a great idea in 2013. Two and a half years later,
17 it may even be a greater idea. The city of San
18 Diego has done extremely well. Sounds like the
19 County of Orange is well on its way. Laguna Beach
20 and Dana Point and Laguna Niguel, all slightly
21 differently and that's fine. That's what we
22 wanted. The fact it puts more responsibilities on
23 the Copermittees is absolutely one of the goals.
24 So I will -- having said that, I will call for
25 motion. And I will see where I am. Is there a

1 motion?

2 BOARD MEMBER MORALES: I will move to
3 adopt Tentative Order No. R9-20150-0100 with the
4 proposed errata.

5 CHAIRMAN ABARBANEL: Is there a
6 second?

7 BOARD MEMBER ANDERSEN: I'll second.

8 CHAIRMAN ABARBANEL: Is there further
9 discussion?

10 Then I will say that I'm going to vote
11 against it, not because I don't want to include
12 Riverside County Copermittees as part of the
13 overall project, but for the reasons I mentioned.
14 I find them troubling because of that one
15 triviality Mr. Gonzalez has explained, that it's
16 very easy to get a lawful approval by doing what
17 the law says.

18 I'll call for a vote -- I'm sorry. I
19 can't call for that. I'll call for a roll call
20 vote.

21 MS. HAGAN: Ms. Olson?

22 BOARD MEMBER OLSON: Aye.

23 MS. HAGAN: Mr. Andersen?

24 BOARD MEMBER ANDERSEN: Aye.

25 MS. HAGAN: Mr. Strawn?

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BOARD MEMBER STRAWN: Aye.

MS. HAGAN: Chair Abarbanel?

CHAIRMAN ABARBANEL: No.

So let me point out that actually saves us having to send our executive officer, in the next six months, off to Sacramento to explain to the State Board why we hummed our nose at them because we didn't. There's no more business before us. We are adjourned.

(Proceedings concluded at 4:39 p.m.)

REPORTER'S CERTIFICATE

I, the undersigned, a Certified Shorthand Reporter of the State of California, do hereby certify:

That the foregoing proceedings were taken before me at the time and place herein set forth; that any witnesses in the foregoing proceedings, prior to testifying, were placed under oath; that a verbatim record of the proceedings was made by me using machine shorthand which was thereafter transcribed under my direction; further, that the foregoing is an accurate transcription thereof.

I further certify that I am neither financially interested in the action nor a relative or employee of any attorney of any of the parties.

IN WITNESS WHEREOF, I have this date subscribed my name.

Dated: _____

KASEY L. MOBLEY
CSR NO. 13407

ATTACHMENT

38

**California Regional Water Quality Control Board
San Diego Region**

**Waste Discharge Requirements for
Discharges of Runoff from the
Municipal Separate Storm Sewer Systems
(MS4s)**

**Draining the Watershed of the County of Orange,
The Incorporated Cities of Orange County, and
The Orange County Flood Control District
Within the San Diego Region**

**Order No. R9-2009-0002
NPDES NO. CAS0108740**

December 16, 2009

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

9174 Sky Park Court, Suite 100, San Diego, California 92123-4340

Phone • (858) 467-2952 • Fax (858) 571-6972

<http://www.waterboards.ca.gov/sandiego>

To request copies of the Orange County Municipal Storm Water Permit, please contact Ben Neill, Water Resources Control Engineer at (858) 467 – 2983, bneill@waterboards.ca.gov

Documents also are available at: <http://www.waterboards.ca.gov/sandiego>

**WASTE DISCHARGE REQUIREMENTS FOR
DISCHARGES OF RUNOFF FROM THE
MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s)
DRAINING THE WATERSHED OF
THE COUNTY OF ORANGE, THE INCORPORATED CITIES OF
ORANGE COUNTY, AND THE ORANGE COUNTY FLOOD
CONTROL DISTRICT WITHIN THE SAN DIEGO REGION**

Adopted by the
California Regional Water Quality Control Board
San Diego Region
on December 16, 2009

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
9174 Sky Park Court, Suite 100
San Diego, California 92123-4340
Telephone (858) 467-2952**

STATE OF CALIFORNIA
ARNOLD SCHWARZENEGGER, Governor
LINDA S. ADAMS, Agency Secretary, California Environmental Protection Agency



**California Regional Water Quality Control Board
San Diego Region**

David King	<i>Vice Chair</i>	Recreation / Wildlife
Eric Anderson		Irrigated Agriculture
Wayne Rayfield		Water Quality
Grant Destache		Industrial Water Use
George Loveland		Water Supply
Marc Luker		Undesignated (Public)

David W. Gibson, *Executive Officer*
Michael P. McCann, *Assistant Executive Officer*

This permit was prepared under the direction of

David T. Barker P.E., *Chief, Water Resource Protection Branch*

by

Jimmy G. Smith, *Senior Environmental Scientist*
Ben Neill, *Water Resource Control Engineer*
Chad Loflen, *Environmental Scientist*

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Attachment A – Basin Plan Prohibitions

Attachment B – Standard Provisions, Reporting Requirements, and Notifications

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Attachment E – Receiving Waters And MS4 Discharge Monitoring And Reporting
Program No. R9-2009-0002

Attachment F – Data

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Board), finds that:

A. BASIS FOR THE ORDER

1. This Order is based on the federal Clean Water Act (CWA), the Porter-Cologne Water Quality Control Act (Division 7 of the Water Code, commencing with Section 13000), applicable State and federal regulations, all applicable provisions of statewide Water Quality Control Plans and Policies adopted by the State Water Resources Control Board (State Board), the Water Quality Control Plan for the San Diego Basin adopted by the Regional Board, the California Toxics Rule, and the California Toxics Rule Implementation Plan.
2. This Order reissues National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0108740, which was first adopted by the Regional Board on July 16, 1990 (Order No. 90-38), and then reissued on August 8, 1996 (Order No. 96-03) and February 13, 2002 (Order No. R9-2002-01). On August 21, 2006, in accordance with Order No. R9-2002-01, the County of Orange, as the Principal Copermittee, submitted a Report of Waste Discharge (ROWD) for reissuance of the municipal separate storm sewer system (MS4) Permit.
3. This Order is consistent with the following precedential Orders adopted by the State Water Resources Control Board (State Board) addressing MS4 NPDES Permits: Order 99-05, Order WQ-2000-11, Order WQ 2001-15, Order WQO 2002-0014, and Order WQ-2009-0008 (*SWRCB/OCC FILE A-1780*).
4. The Fact Sheet / Technical Report for the Order No. R9-2009-0002, NPDES No. CAS0108740, Waste Discharge Requirements for Discharges of Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of Orange, the Incorporated Cities of Orange County, and the Orange County Flood Control District Within the San Diego Region includes cited regulatory and legal references and additional explanatory information and data in support of the requirements of this Permit. This information, including any supplements thereto, and any response to comments on the Tentative Orders, is hereby incorporated by reference into these findings.

B. REGULATED PARTIES

1. Each of the persons in Table 1 below, hereinafter called Copermittees or dischargers, owns or operates an MS4, through which it discharges runoff into waters of the United States within the San Diego Region. These MS4s fall into one or more of the following categories: (1) a medium or large MS4 that services a population of greater than 100,000 or 250,000 respectively; or (2) a small MS4 that is "interrelated" to a medium or large MS4; or (3) an MS4 which contributes to a

violation of a water quality standard; or (4) an MS4 which is a significant contributor of pollutants to waters of the United States (waters of the U.S).

Table 1. Municipal Copermitttees

1. City of Aliso Viejo	8. City of Mission Viejo
2. City of Dana Point	9. City of Rancho Santa Margarita
3. City of Laguna Beach	10. City of San Clemente
4. City of Laguna Hills	11. City of San Juan Capistrano
5. City of Laguna Niguel	12. County of Orange
6. City of Laguna Woods	13. Orange County Flood Control District
7. City of Lake Forest	

C. DISCHARGE CHARACTERISTICS

1. Runoff discharged from an MS4 contains waste, as defined in the California Water Code (CWC), and pollutants that adversely affect the quality of the waters of the State. The discharge of runoff from an MS4 is a “discharge of pollutants from a point source” into waters of the U.S. as defined in the CWA.
2. MS4 storm water and non-storm water discharges are likely to contain pollutants that cause or threaten to cause a violation of water quality standards, as outlined in the Regional Board’s Water Quality Control Plan for the San Diego Basin (Basin Plan). Storm water and non-storm water discharges from the MS4 are subject to the conditions and requirements established in the San Diego Basin Plan for point source discharges. These surface water quality standards must be complied with at all times, irrespective of the source and manner of discharge.
3. The most common categories of pollutants in runoff include total suspended solids, sediment, pathogens (e.g., bacteria, viruses, protozoa); heavy metals (e.g., copper, lead, zinc and cadmium); petroleum products and polynuclear aromatic hydrocarbons; synthetic organics (e.g., pesticides, herbicides, and PCBs); nutrients (e.g., nitrogen and phosphorus fertilizers); oxygen-demanding substances (decaying vegetation, animal waste); detergents; and trash.
4. The discharge of pollutants and/or increased flows from MS4s may cause or threaten to cause the concentration of pollutants to exceed applicable receiving water quality objectives and/or impair or threaten to impair designated beneficial uses resulting in a condition of pollution (i.e., unreasonable impairment of water quality for designated beneficial uses), contamination, or nuisance.
5. Pollutants in runoff can threaten and adversely affect human health. Human illnesses have been clearly linked to recreating near storm drains flowing to coastal waters. Also, runoff pollutants in receiving waters can bioaccumulate in the tissues of invertebrates and fish, which may be eventually consumed by humans.

6. Runoff discharges from MS4s often contain pollutants that cause toxicity to aquatic organisms (i.e., adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). Toxic pollutants impact the overall quality of aquatic systems and beneficial uses of receiving waters.
7. The Copermittees discharge runoff into lakes, drinking water reservoirs, rivers, streams, creeks, bays, estuaries, coastal lagoons, the Pacific Ocean, and tributaries thereto within one of the eleven hydrologic units (San Juan Hydrologic Unit) comprising the San Diego Region as shown in Tables 2a and 2b. Some of the receiving water bodies have been designated as impaired by the Regional Board and the United States Environmental Protection Agency (USEPA) in 2006 pursuant to CWA section 303(d). Also shown in the Tables are the watershed management areas (WMAs) as defined in the Regional Board report, Watershed Management Approach, January 2002.

Table 2a. Common Watersheds and CWA Section 303(d) Impaired Waters

Regional Board Watershed Management Area (WMA)	Hydrologic Area (HA) or Hydrologic Subarea (HSA) of the San Juan Hydrologic Unit	Major Receiving Water Bodies	303(d) Pollutant(s)/stressor or Water Quality Effect¹
Laguna Coastal Streams	Laguna HA, excluding Aliso HSA and Dana Point HSA	Laguna Canyon Creek, Pacific Ocean	Bacterial indicators Sediment toxicity
Aliso Creek	Aliso HSA	Aliso Creek, English Canyon, Pacific Ocean	Toxicity Phosphorus Bacterial indicators Benzo[b]fluoranthene Dieldrin Sediment Toxicity
Dana Point Coastal Streams	Dana Point HSA	Dana Point Harbor, Salt Creek, Pacific Ocean	Bacterial indicators
San Juan Creek	Mission Viejo HA	San Juan Creek, Trabuco Creek, Oso Creek, Canada Gobernadora, Bell Canyon, Verdugo Canyon, Pacific Ocean	Bacterial indicators DDE Chloride Sulfates Total dissolved solids

¹ The listed 303(d) pollutant(s) do not necessarily reflect impairment of the entire corresponding WMA or all corresponding major surface water bodies. The specific impaired portions of each WMA are listed in the State Water Resources Control Board's 2006 Section 303(d) List of Water Quality Limited Segments.

Table 2a. Common Watersheds and CWA Section 303(d) Impaired Waters

Regional Board Watershed Management Area (WMA)	Hydrologic Area (HA) or Hydrologic Subarea (HSA) of the San Juan Hydrologic Unit	Major Receiving Water Bodies	303(d) Pollutant(s)/stressor or Water Quality Effect ¹
San Clemente Coastal Streams	San Clemente HA	Prima Deshecha, Segunda Deshecha, Pacific Ocean	Bacterial indicators Phosphorus Turbidity
San Mateo Creek	San Mateo HA	San Mateo Creek, Christianitos Creek, Pacific Ocean	

Table 2b. Common Watersheds and Municipalities

Municipality	Laguna Coastal Streams	Aliso Creek	Dana Point Coastal Streams	San Juan Creek	San Clemente Coastal Streams	San Mateo Creek
Aliso Viejo	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
Dana Point			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Laguna Beach	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
Laguna Hills *		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
Laguna Niguel		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Laguna Woods *		<input checked="" type="checkbox"/>				
Lake Forest *		<input checked="" type="checkbox"/>				
Mission Viejo		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
Rancho Santa Margarita				<input checked="" type="checkbox"/>		
San Clemente					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
San Juan Capistrano				<input checked="" type="checkbox"/>		
County of Orange *	<input checked="" type="checkbox"/>					
Orange County Flood Control District *	<input checked="" type="checkbox"/>					

* Municipality also includes areas within watersheds of the Santa Ana Regional Board that are outside the scope of this Order

8. Trash is a persistent pollutant which can enter receiving waters from the MS4 resulting in accumulation and transport in receiving waters over time. Trash poses a serious threat to the Beneficial Uses of the receiving waters, including, but not limited to, human health, rare and endangered species, navigation and human recreation.
9. The Copermittees' water quality monitoring data submitted to date documents persistent violations of Basin Plan water quality objectives for various runoff-related pollutants (fecal coliform bacteria, total suspended solids, turbidity, metals, etc.) at

various watershed monitoring stations. Persistent toxicity has also been observed at some watershed monitoring stations. In addition, bioassessment data indicates that the majority of urbanized receiving waters have Poor to Very Poor Index of Biotic Integrity ratings. In sum, the above findings indicate that runoff discharges are causing or contributing to water quality impairments, and are a leading cause of such impairments in Orange County.

10. When natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops, and parking lots, the natural absorption and infiltration abilities of the land are lost. Therefore, runoff leaving a developed area is significantly greater in runoff volume, velocity, and peak flow rate than pre-development runoff from the same area. Runoff durations can also increase as a result of flood control and other efforts to control peak flow rates. Increased volume, velocity, rate, and duration of runoff, and decreased natural clean sediment loads, greatly accelerate the erosion of downstream natural channels. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as a 3-5 percent conversion from natural to impervious surfaces. The increased runoff characteristics from new development must be controlled to protect against increased erosion of channel beds and banks, sediment pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.
11. Development creates new pollution sources as human population density increases and brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc. which can either be washed or directly dumped into the MS4. As a result, the runoff leaving the developed urban area is significantly greater in pollutant load than the pre-development runoff from the same area. These increased pollutant loads must be controlled to protect downstream receiving water quality.
12. Development and urbanization especially threaten environmentally sensitive areas (ESAs), such as water bodies designated as supporting a RARE beneficial use (supporting rare, threatened or endangered species) and CWA 303(d)-impaired water bodies. Such areas have a much lower capacity to withstand pollutant shocks than might be acceptable in other areas. In essence, development that is ordinarily insignificant in its impact on the environment may become significant in a particularly sensitive environment. Therefore, additional control to reduce storm water pollutants from new and existing development may be necessary for areas adjacent to or discharging directly to an ESA.
13. Although dependent on several factors, the risks typically associated with properly managed infiltration of runoff (especially from residential land use areas) are not significant. The risks associated with infiltration can be managed by many techniques, including (1) designing landscape drainage features that promote infiltration of runoff, but do not "inject" runoff (injection bypasses the natural processes of filtering and transformation that occur in the soil); (2) taking reasonable

steps to prevent the illegal disposal of wastes; (3) protecting footings and foundations; (4) ensuring that each drainage feature is adequately maintained in perpetuity; and (5) pretreatment.

14. Non-storm water (dry weather) discharge from the MS4 is not considered a storm water (wet weather) discharge and therefore is not subject to regulation under the Maximum Extent Practicable (MEP) standard from CWA 402(p)(3)(B)(iii), which is explicitly for “Municipal ... *Stormwater Discharges* (emphasis added)” from the MS4. Non-storm water discharges, per CWA 402(p)(3)(B)(ii), are to be effectively prohibited. Such dry weather non-storm water discharges have been shown to contribute significant levels of pollutants and flow in arid, developed Southern California watersheds and are to be effectively prohibited under the Clean Water Act.
15. Non-storm water discharges to the MS4 granted an influent exception [i.e., which are exempt from the effective prohibition requirement set forth in CWA section 402(p)(3)(B)(ii)] under 40 CFR 122. 26 are included within this Order. Any exempted discharges identified by Copermittees as a source of pollutants are subsequently required to be *addressed* (emphasis added) as illicit discharges through prohibition and incorporation into existing IC/ID programs. The Copermittees have identified landscape irrigation, irrigation water and lawn water, previously exempted discharges, as a source of pollutants and conveyance of pollutants to waters of the United States.

D. RUNOFF MANAGEMENT PROGRAMS

1. General

- a. This Order specifies requirements necessary for the Copermittees to reduce the discharge of pollutants in storm water runoff to the maximum extent practicable (MEP). However, since MEP is a dynamic performance standard, which evolves over time as runoff management knowledge increases, the Copermittees’ runoff management programs must continually be assessed and modified to incorporate improved programs, control measures, best management practices (BMPs), etc. in order to achieve the evolving MEP standard. Absent evidence to the contrary, this continual assessment, revision, and improvement of runoff management program implementation is expected to ultimately achieve compliance with water quality standards in the Region.
- b. The Copermittees have generally been implementing the jurisdictional runoff management programs required pursuant to Order No. 2002-01 since February 13, 2003. Prior to that, the Copermittees were regulated by Order No. 96-03 since August 8, 1996. Runoff discharges, however, continue to cause or contribute to violations of water quality standards as evidenced by the Copermittees monitoring results.

- c. This Order contains new or modified requirements that are necessary to improve Copermittees' efforts to reduce the discharge of pollutants in storm water runoff to the MEP and achieve water quality standards. Some of the new or modified requirements, such as the revised Watershed Runoff Management Program section, are designed to specifically address high priority water quality problems. Other new or modified requirements address program deficiencies that have been noted during audits, report reviews, and other Regional Board compliance assessment activities.
- d. Updated Jurisdictional Runoff Management Plans (JRMPs) and Watershed Runoff Management Plans (WRMPs), which describe the Copermittees' runoff management programs in their entirety, are needed to guide the Copermittees' runoff management efforts and aid the Copermittees in tracking runoff management program implementation. It is practicable for the Copermittees to update the JRMPs and WRMPs within one year, since significant efforts to develop these programs have already occurred.
- e. Pollutants can be effectively reduced in storm water runoff by the application of a combination of pollution prevention, source control, and treatment control BMPs. Pollution prevention is the reduction or elimination of pollutant generation at its source and is the best "first line of defense." Source control BMPs (both structural and non-structural) minimize the contact between pollutants and flows (e.g., rerouting run-on around pollutant sources or keeping pollutants on-site and out of receiving waters). Treatment control BMPs remove pollutants that have been mobilized by wet-weather or dry-weather flows.
- f. Runoff needs to be addressed during the three major phases of urban development (planning, construction, and use) in order to reduce the discharge of pollutants from storm water to the MEP, effectively prohibit non-storm water discharges and protect receiving waters. Development which is not guided by water quality planning policies and principles can unnecessarily result in increased pollutant load discharges, flow rates, and flow durations which can negatively impact receiving water beneficial uses. Construction sites without adequate BMP implementation result in sediment runoff rates which greatly exceed natural erosion rates of undisturbed lands, causing siltation and impairment of receiving waters. Existing development generates substantial pollutant loads which are discharged in runoff to receiving waters.
- g. Annual reporting requirements included in this Order are necessary to meet federal requirements and to evaluate the effectiveness and compliance of the Copermittees' programs.
- h. This Order establishes Storm Water Action Levels (SALs) for selected pollutants based on USEPA Rain Zone 6 (arid southwest) Phase I MS4 monitoring data for pollutants in storm water. The SALs were computed as the 90th percentile of the data set, utilizing the statistical based population approach, one of three

approaches recommended by the California Water Board's Storm Water Panel in its report, 'The Feasibility of Numerical Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities (June 2006). SALs are identified in Section D of this Order. Copermitees shall implement a timely, comprehensive, cost-effective storm water pollution control program to reduce the discharge of pollutants in storm water from the permitted areas so as not to exceed the SALs. Exceedance of SALs may indicate inadequacy of programmatic measures and BMPs required in this Order.

2. Development Planning

- a. The Standard Storm Water Mitigation Plan (SSMP) requirements contained in this Order are consistent with Order WQ-2000-11 adopted by the State Water Resources Control Board (State Board) on October 5, 2000. In the precedential order, the State Board found that the design standards, which essentially require that runoff generated by 85 percent of storm events from specific development categories be infiltrated or treated, reflect the MEP standard. The order also found that the SSMP requirements are appropriately applied to the majority of the Priority Development Project categories contained in Section D.1 of this Order. The State Board also gave Regional Water Quality Control Boards the needed discretion to include additional categories and locations, such as retail gasoline outlets (RGOs), in SSMPs.
- b. Controlling runoff pollution by using a combination of onsite source control and site design BMPs augmented with treatment control BMPs before the runoff enters the MS4 is important for the following reasons: (1) Many end-of-pipe BMPs (such as diversion to the sanitary sewer) are typically ineffective during significant storm events. Whereas, onsite source control BMPs can be applied during all runoff conditions; (2) End-of-pipe BMPs are often incapable of capturing and treating the wide range of pollutants which can be generated on a sub-watershed scale; (3) End-of-pipe BMPs are more effective when used as polishing BMPs, rather than the sole BMP to be implemented; (4) End-of-pipe BMPs do not protect the quality or beneficial uses of receiving waters between the pollutant source and the BMP; and (5) Offsite end-of-pipe BMPs do not aid in the effort to educate the public regarding sources of pollution and their prevention.
- c. Use of Low-Impact Development (LID) site design BMPs at new development, redevelopment and retrofit projects can be an effective means for minimizing the impact of storm water runoff discharges from the development projects on receiving waters. LID is a site design strategy with a goal of maintaining or replicating the pre-development hydrologic regime through the use of design techniques. LID site design BMPs help preserve and restore the natural hydrologic cycle of the site, allowing for filtration and infiltration which can greatly reduce the volume, peak flow rate, velocity, and pollutant loads of storm water runoff. Current runoff management, knowledge, practices and technology have

resulted in the use of LID BMPs as an acceptable means of meeting the storm water MEP standard.

- d. Retail Gasoline Outlets (RGOs) are significant sources of pollutants in storm water runoff. RGOs are points of convergence for motor vehicles for automotive related services such as repair, refueling, tire inflation, and radiator fill-up and consequently produce significantly higher loadings of hydrocarbons and trace metals (including copper and zinc) than other developed areas.
- e. Industrial sites are significant sources of pollutants in runoff. Pollutant concentrations and loads in runoff from industrial sites are similar or exceed pollutant concentrations and loads in runoff from other land uses, such as commercial or residential land uses. As with other land uses, LID site design, source control, and treatment control BMPs are needed at industrial sites in order to meet the MEP standard. These BMPs are necessary where the industrial site is larger than 10,000 square feet. The 10,000 square feet threshold is appropriate, since it is consistent with requirements in other Phase I NPDES storm water regulations throughout California.
- f. If not properly designed or maintained, certain BMPs implemented or required by municipalities for runoff management may create a habitat for vectors (e.g. mosquitoes and rodents). Proper BMP design and maintenance to avoid standing water, however, can prevent the creation of vector habitat. Nuisances and public health impacts resulting from vector breeding can be prevented with close collaboration and cooperative effort between municipalities, the Orange County Vector Control District, and the California Department of Public Health during the development and implementation of runoff management programs.
- g. The increased volume, velocity, frequency and discharge duration of storm water runoff from developed areas has the potential to greatly accelerate downstream erosion, impair stream habitat in natural drainages, and negatively impact beneficial uses. Development and urbanization increase pollutant loads in storm water runoff and the volume of storm water runoff. Impervious surfaces can neither absorb water nor remove pollutants and thus lose the purification and infiltration provided by natural vegetated soil. Hydromodification measures for discharges to hardened channels are needed for the future restoration of the hardened channels to their natural state, thereby restoring the chemical, physical, and biological integrity and Beneficial Uses of local receiving waters.

3. Construction and Existing Development

- a. In accordance with federal NPDES regulations and to ensure the most effective oversight of industrial and construction site discharges, discharges of runoff from industrial and construction sites are subject to dual (State and local) storm water regulation. Under this dual system, each Copermitttee is responsible for enforcing its local permits, plans, and ordinances, and the Regional Board is

responsible for enforcing the General Construction Activities Storm Water Permit, State Board Order 99-08 DWQ, NPDES No. CAS000002 (General Construction Permit) and the General Industrial Activities Storm Water Permit, State Board Order 97-03 DWQ, NPDES No. CAS000001 (General Industrial Permit) and any reissuance of these permits. NPDES municipal regulations require that municipalities develop and implement measures to address runoff from industrial and construction activities. Those measures may require the implementation of additional BMPs than are required under the statewide general permits for activities subject to both State and local regulation.

- b. Identification of sources of pollutants in runoff (such as municipal areas and activities, industrial and commercial sites/sources, construction sites, and residential areas), development and implementation of BMPs to address those sources, and updating ordinances and approval processes are necessary for the Copermittees to ensure that discharges of pollutants from its MS4 in storm water are reduced to the MEP and that non-storm water discharges are not occurring. Inspections and other compliance verification methods are needed to ensure minimum BMPs are implemented. Inspections are especially important at high risk areas for pollutant discharges.
- c. Historic and current development makes use of natural drainage patterns and features as conveyances for runoff. Urban streams used in this manner are part of the municipalities MS4 regardless of whether they are natural, anthropogenic, or partially modified features. In these cases, the urban stream is both an MS4 and receiving water.
- d. As operators of the MS4s, the Copermittees cannot passively receive and discharge pollutants from third parties. By providing free and open access to an MS4 that conveys discharges to waters of the U.S., the operator essentially accepts responsibility for discharges into the MS4 that it does not prohibit or control. These discharges may cause or contribute to a condition of contamination or a violation of water quality standards.
- e. Waste and pollutants which are deposited and accumulate in MS4 drainage structures will be discharged from these structures to waters of the U.S. unless they are removed. These discharges may cause or contribute to, or threaten to cause or contribute to, a condition of pollution in receiving waters. For this reason, pollutant discharges from storm water into MS4s must be reduced using a combination of management measures, including source control, and an effective MS4 maintenance program must be implemented by each Copermittee.
- f. Enforcement of local runoff related ordinances, permits, and plans is an essential component of every runoff management program and is specifically required in the federal storm water regulations and this Order. Each Copermittee is individually responsible for adoption and enforcement of ordinances and/or policies, implementation of identified control measures/BMPs needed to prevent

or reduce pollutants in storm water runoff, and for the allocation of funds for the capital, operation and maintenance, administrative, and enforcement expenditures necessary to implement and enforce such control measures/BMPs under its jurisdiction. Education is an important aspect of every effective runoff management program and the basis for changes in behavior at a societal level. Education of municipal planning, inspection, and maintenance department staffs is especially critical to ensure that in-house staffs understand how their activities impact water quality, how to accomplish their jobs while protecting water quality, and their specific roles and responsibilities for compliance with this Order. Public education, designed to target various urban land users and other audiences, is also essential to inform the public of how individual actions affect receiving water quality and how adverse effects can be minimized.

- g. Public participation during the development of runoff management programs is necessary to ensure that all stakeholder interests and a variety of creative solutions are considered.
- h. Retrofitting existing development with storm water treatment controls, including LID, is necessary to address storm water discharges from existing development that may cause or contribute to a condition of pollution or a violation of water quality standards. Although SSMP BMPs are required for redevelopment, the current rate of redevelopment will not address water quality problems in a timely manner. Cooperation with private landowners is necessary to effectively identify, implement and maintain retrofit projects for the preservation, restoration, and enhancement of water quality.

4. Watershed Runoff Management

- a. Since runoff within a watershed can flow from and through multiple land uses and political jurisdictions, watershed-based runoff management can greatly enhance the protection of receiving waters. Such management provides a means to focus on the most important water quality problems in each watershed. By focusing on the most important water quality problems, watershed efforts can maximize protection of beneficial use in an efficient manner. Effective watershed-based runoff management actively reduces pollutant discharges and abates pollutant sources causing or contributing to watershed water quality problems. Watershed-based runoff management that does not actively reduce pollutant discharges and abate pollutant sources causing or contributing to watershed water quality problems can necessitate implementation of the iterative process outlined in section A.3 of the Tentative Order. Watershed management of runoff does not require Copermittees to expend resources outside of their jurisdictions. Watershed management requires the Copermittees within a watershed to develop a watershed-based management strategy, which can then be implemented on a jurisdictional basis.

- b. Some runoff issues, such as general education and training, can be effectively addressed on a regional basis. Regional approaches to runoff management can improve program consistency and promote sharing of resources, which can result in implementation of more efficient programs.
- c. It is important for the Copermittes to coordinate their water quality protection and land use planning activities to achieve the greatest protection of receiving water bodies. Copermittie coordination with other watershed stakeholders, especially the State of California Department of Transportation, the United States Department of Defense, and water and sewer districts, is also important.

E. STATUTE AND REGULATORY CONSIDERATIONS

1. The Receiving Water Limitations (RWL) language specified in this Order is consistent with language recommended by the USEPA and established in State Board Water Quality Order 99-05, *Own Motion Review of the Petition of Environmental Health Coalition to Review Waste Discharge Requirements Order No. 96-03, NPDES Permit No. CAS0108740*, adopted by the State Board on June 17, 1999. The RWL in this Order require compliance with water quality standards, which for storm water discharges is to be achieved through an iterative approach requiring the implementation of improved and better-tailored BMPs over time. Compliance with receiving water limits based on applicable water quality standards is necessary to ensure that MS4 discharges will not cause or contribute to violations of water quality standards and the creation of conditions of pollution.
2. The Water Quality Control Plan for the San Diego Basin (Basin Plan), identifies the following beneficial uses for surface waters in Orange County: Municipal and Domestic Supply (MUN)², Agricultural Supply (AGR), Industrial Process Supply (PROC), Industrial Service Supply (IND), Ground Water Recharge (GWR), Contact Water Recreation (REC1), Non-contact Water Recreation (REC2), Warm Freshwater Habitat (WARM), Cold Freshwater Habitat (COLD), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRSH), Hydropower Generation (POW), and Preservation of Biological Habitats of Special Significance (BIOL). The following additional beneficial uses are identified for coastal waters of Orange County: Navigation (NAV), Commercial and Sport Fishing (COMM), Estuarine Habitat (EST), Marine Habitat (MAR), Aquaculture (AQUA), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), and Shellfish Harvesting (SHELL).
3. This Order is in conformance with State Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality Waters in California*, and the federal Antidegradation Policy described in 40 CFR 131.12.

² Subject to exceptions under the "Sources of Drinking Waters" Policy (Resolution No. 89-33)

4. Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) requires coastal states with approved coastal zone management programs to address non-point pollution impacting or threatening coastal water quality. CZARA addresses five sources of non-point pollution: agriculture, silviculture, urban, marinas, and hydromodification. This NPDES permit addresses the management measures required for the urban category, with the exception of septic systems. The adoption and implementation of this NPDES permit relieves the Copermittee from developing a non-point source plan, for the urban category, under CZARA. The Regional Board addresses septic systems through the administration of other programs.
5. Section 303(d)(1)(A) of the CWA requires that “Each state must identify those waters within its boundaries for which the effluent limitations...are not stringent enough to implement any water quality standard (WQS) applicable to such waters.” The CWA also requires states to establish a priority ranking of impaired water bodies known as Water Quality Limited Segments and to establish Total Maximum Daily Loads (TMDLs) for such waters. This priority list of impaired water bodies is called the Section 303(d) List. The current Section 303(d) List was approved by the State Board on October 25, 2006. On June 28, 2007 the 2006 303(d) list for California was given final approval by the United States Environmental Protection Agency (USEPA).
6. This Order does not constitute an unfunded local government mandate subject to subvention under Article XIII B, Section (6) of the California Constitution for several reasons, including, but not limited to, the following. First, this Order implements federally mandated requirements under federal Clean Water Act section 402. (33 U.S.C. § 1342(p)(3)(B).) Second, the local agency Copermittees’ obligations under this Order are similar to, and in many respects less stringent than, the obligations of non-governmental and new dischargers who are issued NPDES permits for storm water and non-storm water discharges. Third, the local agency Copermittees have the authority to levy service charges, fees, or assessments sufficient to pay for compliance with this Order. Fourth, the Copermittees have requested permit coverage in lieu of compliance with the complete prohibition against the discharge of pollutants contained in federal Clean Water Act section 301, subdivision (a) (33 U.S.C. § 1311(a)) and in lieu of numeric restrictions on their storm water discharges. Fifth, the local agencies’ responsibility for preventing discharges of waste that can create conditions of pollution or nuisance from conveyances that are within their ownership or control under State law predates the enactment of Article XIII B, Section (6) of the California Constitution. Likewise, the provisions of this Order to implement total maximum daily loads (TMDLs) are federal mandates. The federal Clean Water Act requires TMDLs to be developed for water bodies that do not meet federal water quality standards. (33 U.S.C. sec. 1313(d).) Once the U.S. Environmental Protection Agency or a state develops a TMDL, federal law requires that permits must contain effluent limitations consistent with the assumptions of any applicable wasteload allocation. (40 C.F.R. sec. 122.44(d)(1)(vii)(B).)

7. Runoff treatment and/or mitigation must occur prior to the discharge of runoff into receiving waters. Treatment BMPs must not be constructed in waters of the U.S. or State unless the runoff flows are sufficiently pretreated to protect the values and functions of the water body. Federal regulations at 40 CFR 131.10(a) state that in no case shall a state adopt waste transport or waste assimilation as a designated use for any waters of the U.S. Authorizing the construction of an runoff treatment facility within a water of the U.S., or using the water body itself as a treatment system or for conveyance to a treatment system, would be tantamount to accepting waste assimilation as an appropriate use for that water body. Furthermore, the construction, operation, and maintenance of a pollution control facility in a water body can negatively impact the physical, chemical, and biological integrity, as well as the beneficial uses, of the water body. Without federal authorization (e.g., pursuant to Clean Water Act Section 404), waters of the U.S. may not be converted into, or used as, waste treatment or conveyance facilities. Similarly, waste discharge requirements pursuant to California Water Code Section 13260 are required for the conversion or use of waters of the State as waste treatment or conveyance facilities. Diversion from waters of the U.S./State to treatment facilities and subsequent return to waters of the U.S. is allowable, provided that the effluent complies with applicable NPDES requirements.
8. The issuance of waste discharge requirements and an NPDES permit for the discharge of runoff from MS4s to waters of the U.S. is exempt from the requirement for preparation of environmental documents under the California Environmental Quality Act (CEQA) (Public Resources Code, Division 13, Chapter 3, section 21000 et seq.) in accordance with the CWC section 13389.
9. Multiple water bodies in Orange County have been identified as impaired and placed on the 303(d) list. In 2004, Bacteria Impaired Waters TMDL Project II included six bacteria impaired shorelines in Dana Point Harbor and San Diego Bay: Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park, B Street, G Street Pier, Tidelands Park, and Chula Vista Marina in San Diego Bay. Since then, only Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay can be confirmed as still impaired by indicator bacteria. On June 11, 2008 the Regional Board adopted a Basin Plan amendment to incorporate *Bacteria Impaired Waters TMDL Project II for San Diego Bay and Dana Point Harbor Shorelines*. On June 16, 2009, the State Board approved the Basin Plan amendment. This action meets requirements of section 303(d) of the Clean Water Act (CWA). The Basin Plan amendment process is authorized under section 13240 of the Water Code. The State's Office of Administrative Law (OAL) approved the TMDLs on September 15, 2009. The effective date of the TMDLs is the date of OAL approval. USEPA approved the TMDLs on October 26, 2009.
10. Storm water discharges from developed and developing areas in Orange County are significant sources of certain pollutants that cause, may be causing, threatening to cause or contributing to water quality impairment in the waters of Orange County.

Furthermore, as delineated in the CWA section 303(d) list in Table 3, the Regional Board has found that there is a reasonable potential that municipal storm water and non-storm water discharges from MS4s cause or may cause or contribute to an excursion above water quality standards for the following pollutants: Indicator Bacteria, Phosphorous, Toxicity and Turbidity. In accordance with CWA section 303(d), the Regional Board is required to establish Total Maximum Daily Loads (TMDLs) for these pollutants to these waters to eliminate impairment and attain water quality standards. Therefore, certain early pollutant control actions and further pollutant impact assessments by the Copermitttees are warranted and required pursuant to this Order.

Table 3. 2006 Section 303(d) Listed Waterbodies in So. Orange County

Waterbody	Pollutant
Aliso Creek	Indicator Bacteria, Phosphorus, Toxicity
Aliso Creek Mouth	Indicator Bacteria
Dana Point Harbor	Indicator Bacteria
English Canyon Creek	Benzo[b]fluoranthene, Dieldrin, Sediment Toxicity
Laguna Canyon Channel	Sediment Toxicity
Oso Creek (at Mission Viejo Golf Course)	Chloride, Sulfates, Total Dissolved Solids
Pacific Ocean Shoreline, Aliso HSA	Indicator Bacteria
Pacific Ocean Shoreline, Dana Point HSA	Indicator Bacteria
Pacific Ocean Shoreline, Laguna Beach HSA	Indicator Bacteria
Pacific Ocean Shoreline, Lower San Juan HSA	Indicator Bacteria
Pacific Ocean Shoreline, San Clemente HA	Indicator Bacteria
Pacific Ocean Shoreline, San Joaquin Hills HSA	Indicator Bacteria
Prima Deshecha Creek	Phosphorus, Turbidity
San Juan Creek	DDE, Indicator Bacteria
San Juan Creek (mouth)	Indicator Bacteria
Segunda Deshecha Creek	Phosphorus, Turbidity

11. This Order incorporates only those MS4 Waste Load Allocations (WLAs) developed in TMDLs that have been adopted by the Regional Water Board and have been approved by the State Board, Office of Administrative Law and U.S. EPA. Approved TMDL WLAs are to be addressed using water quality-based effluent limitations (WQBELs) calculated as numeric limitations (either in the receiving waters and/or at the point of MS4 discharge) and/or as BMPs. In most cases, the numeric limitation must be achieved to ensure the adequacy of the BMP program. Waste load

allocations for storm water and non-storm water discharges have been included within this Order only if the TMDL has received all necessary approvals. This Order establishes WQBELs and conditions consistent with the requirements and assumptions of the WLAs in the TMDLs as required by 40 CFR 122.44(d)(1)(vii)(B).

A TMDL is the total amount of a particular pollutant that a water body can receive and still meet Water Quality Standards (WQSs), which are comprised of Water Quality Objectives (WQOs), Beneficial Uses and the States Policy on Maintaining High Quality Waters³. The WQOs serve as the primary basis for protecting the associated Beneficial Use. The Numeric Target of a TMDL interprets and applies the numeric and/or narrative WQOs of the WQSs as the basis for the WLAs. This Order addresses TMDLs through Water Quality Based Effluent Limitations (WQBELs) that must be consistent with the assumptions and requirements of the WLA⁴. Federal guidance⁵ states that when adequate information exists, storm water permits are to incorporate numeric water quality based effluent limitations. In most cases, the numeric target(s) of a TMDL are a component of the WQBELs. When the numeric target is based on one or more numeric WQOs, the numeric WQOs and underlying assumptions and requirements will be used in the WQBELs as numeric effluent limitations by the end of the TMDL compliance schedule, unless additional information is required. When the numeric target interprets one or more narrative WQOs, the numeric target may assess the efficacy and progress of the BMPs in meeting the WLAs and restoring the Beneficial Uses by the end of the TMDL compliance schedule.

This Order fulfills a component of the TMDL Implementation Plan adopted by this Regional Board on June 11, 2008 for indicator bacteria in Baby Beach by establishing WQBELs expressed as both BMPs to achieve the WLAs and as numeric limitations⁶ for the City of Dana Point and the County of Orange. The establishment of WQBELs expressed as BMPs should be sufficient to achieve the WLA specified in the TMDL. The Waste Load Allocations (WLAs) and Numeric Targets are the necessary metrics to ensure that the BMPs achieve appropriate concentrations of bacterial indicators in the receiving waters.

³ State Water Resources Control Board, Resolution No. 68-16

⁴ 40 CFR 122.44(d)(1)(vii)(B)

⁵ USEPA, *Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits*, 61 FR 43761, August 26, 1996

⁶ The Waste Load Allocations are defined in Resolution No. R9-2008-0027, A Resolution to Adopt an Amendment to the *Water Quality Control Plan for the San Diego Basin (9)* to Incorporate Total Maximum Daily Loads for Indicator Bacteria, Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay.

12. This Order requires each Copermitttee to effectively prohibit all types of unauthorized discharges of non-storm water into its MS4. However, historically pollutants have been identified as present in dry weather non-storm water discharges from the MS4s through 303(d) listings, monitoring conducted by the Copermitttees under Order No. R9-2002-0001, and there are others expected to be present in dry weather non-storm water discharges because of the nature of these discharges. This Order includes action levels for pollutants in non-storm water, dry weather, discharges from the MS4 designed to ensure that the requirement to effectively prohibit all types of unauthorized discharges of non-storm water in the MS4 is being complied with. Action levels in the Order are based upon numeric or narrative water quality objectives and criteria as defined in the Basin Plan, the Water Quality Control Plan for Ocean Waters of California (Ocean Plan), and the State Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). An exceedance of an action level requires specified responsive action by the Copermitttees. This Order describes what actions the Copermitttees must take when an exceedance of an action level is observed. Exceedances of non-storm water action levels do not alone constitute a violation of this Order but could indicate non-compliance with the requirement to effectively prohibit all types of unauthorized non-storm water discharges into the MS4 or other prohibitions established in this Order. Failure to undertake required source investigation and elimination action following an exceedance of 2a non-storm water action level (NAL or action level) is a violation of this Order. The Regional Board recognizes that use of action levels will not necessarily result in detection of all unauthorized sources of non-storm water discharges because there may be some discharges in which pollutants do not exceed established action levels. However, establishing NALs at levels appropriate to protect water quality standards is expected to lead to the identification of significant sources of pollutants in dry weather non-storm water discharges.
13. In addition to federal regulations cited in the Fact Sheet / Technical Report for the Order NO. R9-2009-0002, monitoring and reporting required under Order No. R9-2009-0002 is required pursuant to authority under CWC section 13383.

F. PUBLIC PROCESS

1. The Regional Board has notified the Copermitttees, all known interested parties, and the public of its intent to consider adoption of an Order prescribing waste discharge requirements that would serve to renew an NPDES permit for the existing discharge of runoff.
2. The Regional Board has held public hearings on April 11, 2007, February 13, 2008, July 1, 2009, and November 18, 2009 and heard and considered all comments pertaining to the terms and conditions of this Order.

IT IS HEREBY ORDERED that the Copermittees, in order to meet the provisions contained in Division 7 of the California Water Code (CWC) and regulations adopted thereunder, and the provisions of the Clean Water Act (CWA) and regulations adopted thereunder, must each comply with the following:

A. PROHIBITIONS AND RECEIVING WATER LIMITATIONS

1. Discharges into and from municipal separate storm sewer systems (MS4s) in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance (as defined in CWC section 13050), in waters of the state are prohibited.
2. Storm water discharges from MS4s containing pollutants which have not been reduced to the maximum extent practicable (MEP) are prohibited.⁷
3. Discharges from MS4s that cause or contribute to the violation of water quality standards (designated beneficial uses, water quality objectives developed to protect beneficial uses, and the State policy with respect to maintaining high quality waters) are prohibited.
 - a. Each Copermittee must comply with section A.3 and section A.4 as it applies to Prohibition 5 in Attachment A of this Order through timely implementation of control measures and other actions to reduce pollutants in storm water discharges in accordance with this Order, including any modifications. If exceedance(s) of water quality standards persist notwithstanding implementation of this Order, the Copermittee must assure compliance with section A.3 and section A.4 as it applies to Prohibition 5 in Attachment A of this Order by complying with the following procedure:
 - (1) Upon a determination by either the Copermittee or the Regional Board that storm water MS4 discharges are causing or contributing to an exceedance of an applicable water quality standard, the Copermittee must notify the Regional Board within 30 days and thereafter submit a report to the Regional Board that describes best management practices (BMPs) that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of water quality standards. The report may be incorporated in the Annual Report unless the Regional Board directs an earlier submittal. The report must include an implementation schedule. The Regional Board may require modifications to the report;

⁷ This prohibition does not apply to MS4 discharges which receive subsequent treatment to reduce pollutants to the MEP prior to entering receiving waters (e.g., low flow diversions to the sanitary sewer).

- (2) Submit any modifications to the report required by the Regional Board within 30 days of notification;
 - (3) Within 30 days following approval of the report described above by the Regional Board, the Copermittee must revise its Jurisdictional Runoff Management Program and monitoring program to incorporate the approved modified BMPs that have been and will be implemented, the implementation schedule, and any additional monitoring required; and
 - (4) Implement the revised Jurisdictional Runoff Management Program and monitoring program in accordance with the approved schedule.
- b. The Copermittee must repeat the procedure set forth above to comply with the receiving water limitations for continuing or recurring exceedances of the same water quality standard(s) unless directed to do otherwise by the Regional Board Executive Officer.
 - c. Nothing in section A.3 must prevent the Regional Board from enforcing any provision of this Order while the Copermittee prepares and implements the above report.
4. In addition to the above prohibitions, discharges from MS4s are subject to all Basin Plan prohibitions cited in Attachment A to this Order.

B. NON-STORM WATER DISCHARGES

1. Each Copermittee must effectively prohibit all types of non-storm water discharges into its MS4 unless such discharges are either authorized by a separate National Pollutant Discharge Elimination System (NPDES) permit; or not prohibited in accordance with sections B.2 and B.3 below.
2. The following categories of non-storm water discharges are not prohibited unless a Copermittee or the Regional Board identifies the discharge category as a source of pollutants to waters of the U.S. Where the Copermittee(s) have identified a category as a source of pollutants, the category shall be addressed as an illicit discharge and prohibited through ordinance, order or similar means. The Regional Board may identify categories of discharge that either requires prohibition or other controls. For such a discharge category, the Copermittee, under direction of the Regional Board, must either prohibit the discharge category or develop and implement appropriate control measures to prevent the discharge of pollutants to the MS4 and report to the Regional Board pursuant to Section K.1 and K.3 of this Order.
 - a. Diverted stream flows;
 - b. Rising ground waters;
 - c. Uncontaminated ground water infiltration [as defined at 40 CFR 35.2005(20)] to

- MS4s;
- d. Uncontaminated pumped ground water⁸;
 - e. Foundation drains⁸;
 - f. Springs;
 - g. Water from crawl space pumps⁸;
 - h. Footing drains⁸;
 - i. Air conditioning condensation;
 - j. Flows from riparian habitats and wetlands;
 - k. Water line flushing^{9,10};
 - l. Discharges from potable water sources not subject to NPDES Permit No. CAG679001, other than water main breaks;
 - m. Individual residential car washing; and
 - n. Dechlorinated swimming pool discharges¹¹.
3. Emergency fire fighting flows (i.e., flows necessary for the protection of life or property) do not require BMPs and need not be prohibited. As part of the Jurisdictional Runoff Management Plan (JRMP), each Copermittee must develop and implement a program to address pollutants from non-emergency fire fighting flows (i.e., flows from controlled or practice blazes and maintenance activities) identified by the Copermittee to be significant sources of pollutants to waters of the United States.
- a. Building fire suppression system maintenance discharges (e.g. sprinkler line flushing) contain waste. Therefore, such discharges are to be prohibited by the Copermittees as illicit discharges through ordinance, order, or similar means.
4. Each Copermittee must examine all dry weather effluent analytical monitoring results collected in accordance with section F.4 of this Order and Receiving Waters and MS4 Discharge Monitoring and Reporting Program No. R9-2009-0002 to identify water quality problems which may be the result of any non-prohibited discharge category(ies) identified above in section B.2. Follow-up investigations must be conducted as necessary to identify and control, pursuant to section B.2, any non-prohibited discharge category(ies) listed above.

⁸ Requires enrollment under Order R9-2008-002. Discharges into the MS4 require authorization from the owner and operator of the MS4 system.

⁹ This exemption does not include fire suppression sprinkler system maintenance and testing discharges. Those discharges may be regulated under Section B.3.

¹⁰ Requires enrollment under Order R9-2002-0020.

¹¹ Including saline swimming pool discharges directly to a saline water body.

C. NON-STORM WATER DRY WEATHER ACTION LEVELS

1. Each Copermittee, beginning no later than May 1, 2011, shall implement the non-storm water dry weather action level (NAL) monitoring as described in Attachment E of this Order.
2. In response to an exceedance of an NAL, each Copermittee must investigate and identify the source of the exceedance in a timely manner. However, if any Copermittee identifies exceedances of NALs that prevent them from adequately conducting source investigations in a timely manner, then the Copermittees may submit a prioritization plan and timeline that identifies the timeframe and planned actions to investigate and report their findings on all of the exceedances. Following the source investigation and identification, the Copermittees must submit an action report dependant on the source of the pollutant exceedance as follows:
 - a. If the Copermittee identifies the source of the exceedance as natural (non-anthropogenically influenced) in origin and in conveyance into the MS4; then the Copermittee shall report their findings and documentation of their source investigation to the Regional Board within fourteen days of the source identification.
 - b. If the Copermittee identifies the source of the exceedance as an illicit discharge or connection, then the Copermittees must eliminate the discharge to their MS4 and report the findings, including any enforcement action(s) taken, and documentation of the source investigation to the Regional Board within fourteen days of the source identification. If the Copermittee is unable to eliminate the source of discharge within fourteen days, then the Copermittee must submit, as part of their action report, their plan and timeframe to eliminate the source of the exceedance. Those dischargers seeking to continue such a discharge must become subject to a separate NPDES permit prior to continuing any such discharge.
 - c. If the Copermittee identifies the source of the exceedance as an exempted category of non-storm water discharge, then the Copermittees must determine if this is an isolated circumstance or if the category of discharges must be addressed through the prevention or prohibition of that category of discharge as an illicit discharge. The Copermittee must submit their findings in including a description of the steps taken to address the discharge and the category of discharge, to the Regional Board for review with the next subsequent annual report. Such description shall include relevant updates to or new ordinances, orders, or other legal means of addressing the category of discharge. The Copermittees must also submit a summary of their findings with the Report of Waste Discharge.
 - d. If the Copermittee identifies the source of the exceedance as a non-storm water discharge in violation or potential violation of an existing separate NPDES permit

- (e.g. the groundwater dewatering permit), then the Copermittee must report, within three business days, the findings to the Regional Board including all pertinent information regarding the discharger and discharge characteristics.
- e. If the Copermittee is unable to identify the source of the exceedance after taking and documenting reasonable steps to do so, then the Copermittee must identify the pollutant as a high priority pollutant of concern in the tributary subwatershed, perform additional focused sampling and update their programs within a year to reflect this priority. The Copermittee's annual report shall include these updates to their programs including, where applicable, updates to their watershed workplans (Section G.2), retrofitting consideration (Section F.3.d) and program effectiveness work plans (Section J.4).
 - f. The Copermittees or any interested party, may evaluate existing NALs and propose revised NALs for future Board consideration.
3. An exceedance of an NAL does not alone constitute a violation of the provisions of this Order, but an exceedance of an NAL may indicate lack of compliance with the requirement that Copermittees effectively prohibit all types of unauthorized non-storm water discharges into the MS4 or other prohibitions set forth in Sections A and B of this Order. Failure to timely implement required actions specified in this Order following an exceedance of an NAL constitutes a violation of this Order. However, neither compliance with NALs nor compliance with required actions following observed exceedances, excuses any non-compliance with the requirement to effectively prohibit all types of unauthorized non-storm water discharges into the MS4s or any non-compliance with the prohibitions in Sections A and B of this Order. NALs provide an assessment of the effectiveness of the prohibition of non-storm water discharges and of the appropriateness of exempted non-storm water discharges. During any annual reporting period in which one or more exceedances of NALs have been documented the Copermittee must submit with their next scheduled annual report, a report describing whether and how the observed exceedances did or did not result in a discharge from the MS4 that caused, or threatened to cause or contribute to a condition of pollution, contamination, or nuisance in the receiving waters.
4. Monitoring of effluent will occur at the end-of-pipe prior to discharge into the receiving waters, with a focus on Major Outfalls, as defined in 40 CFR 122.26(B 5-6) and Attachment E of this Order. The Copermittees must develop their monitoring plans to sample a representative percentage of major outfalls and identified stations within each hydrologic subarea. At a minimum, outfalls that exceed any NALs once during any year must be monitored in the subsequent year. Any station that does not exceed an NAL for 3 years may be replaced with a different station.

5. Each Copermittee shall monitor for the non-storm water dry weather action levels, which are incorporated into this Order as follows:

a. Action levels for discharges to inland surface waters:

Table 4.a.1: General Constituents

Parameter	Units	AMAL	MDAL	Instantaneous Maximum	Basis
Fecal Coliform	MPN/ 100 ml	200 ^A 400 ^B	-		BPO
Enterococci	MPN/ 100 ml	33	-	104 ^C	BPO/OP
Turbidity	NTU	-	20		BPO
pH	Units	Within limit of 6.5 to 8.5 at all times			BPO
Dissolved Oxygen	mg/L	Not less than 5.0 in WARM waters and not less than 6.0 in COLD waters			BPO
Total Nitrogen	mg/L	-	1.0	See MDEL	BPO
Total Phosphorus	mg/L	-	0.1	See MDEL	BPO
Methylene Blue Active Substances	mg/L	-	0.5	See MDEL	BPO

A – Based on a minimum of not less than five samples for any 30-day period

B – No more than 10 percent of total samples may exceed 400 per 100 ml during any 30 day period

C – This Value has been set to Ocean Plan Criteria for Designated Beach Areas

BPO – Basin Plan Objective

OP – Ocean Plan

MDAL – Maximum Daily Action Level

AMAL – Average Monthly Action Level

Table 4.a.2: Priority Pollutants

Parameter	Units	Freshwater (CTR)		Saltwater (CTR)	
		MDAL	AMAL	MDAL	AMAL
Cadmium	ug/L	*	*	16	8
Copper	ug/L	*	*	5.8	2.9
Chromium III	ug/L	*	*	-	-
Chromium VI (hexavalent)	ug/L	16	8.1	83	41
Lead	ug/L	*	*	14	2.9
Nickel	ug/L	*	*	14	6.8
Silver	ug/L	*	*	2.2	1.1
Zinc	ug/L	*	*	95	47

CTR – California Toxic Rule

* - Action Levels developed on a case-by-case basis (see below)

The NALs for Cadmium, Copper, Chromium (III), Lead, Nickel, Silver and Zinc will be developed on a case-by-case basis because the freshwater criteria are based on site-specific water quality data (receiving water hardness). For these priority pollutants, the following equations (40 CFR 131.38.b.2) will be required:

$$\begin{aligned}
 \text{Cadmium (Total Recoverable)} &= \exp(0.7852[\ln(\text{hardness})] - 2.715) \\
 \text{Chromium III (Total Recoverable)} &= \exp(0.8190[\ln(\text{hardness})] + .6848) \\
 \text{Copper (Total Recoverable)} &= \exp(0.8545[\ln(\text{hardness})] - 1.702) \\
 \text{Lead (Total Recoverable)} &= \exp(1.273[\ln(\text{hardness})] - 4.705)
 \end{aligned}$$

$$\begin{aligned} \text{Nickel (Total Recoverable)} &= \exp(.8460[\ln(\text{hardness})] + 0.0584) \\ \text{Silver (Total Recoverable)} &= \exp(1.72[\ln(\text{hardness})] - 6.52) \\ \text{Zinc (Total Recoverable)} &= \exp(0.8473[\ln(\text{hardness})] + 0.884) \end{aligned}$$

b. Action levels for discharges to bays, harbors and lagoons/estuaries:

Table 4.b: General Constituents

Parameter	Units	AMAL	MDAL	Instantaneous Maximum	Basis
Total Coliform	MPN/100 ml	1,000	-	10,000	BPO
Fecal Coliform	MPN/100 ml	200 ^A , 400 ^B	-		BPO
Enterococci	MPN/100 ml	35	-	104 ^C	BPO
Turbidity	NTU	75	-	225	OP
pH	Units	Within limit of 6.0 to 9.0 at all times			OP
Priority Pollutants	ug/L	See limitations in Table 4.a.2			

A – Based on a minimum of not less than five samples for any 30-day period

B – No more than 10 percent of total samples may exceed 400 per 100 ml during any 30 day period

C – Designated Beach Areas

OP – California Ocean Plan 2005

BPO – Basin Plan Objective

MDAL – Maximum Daily Action Level

AMAL – Average Monthly Action Level

c. Action levels for discharges to the surf zone:

Table 4.c: General Constituents

Parameter	Units	AMAL	MDAL	Instantaneous Maximum	Basis
Total Coliform	MPN/100 ml	1,000	-	10,000 1,000 ^A	OP
Fecal Coliform	MPN/100 ml	200 ^B	-	400	OP
Enterococci	MPN/100 ml	35	-	104 ^C	OP

A – Total coliform density shall not exceed 1,000 per 100 ml when the ratio of fecal/total coliform exceeds 0.1

B – During any 30 day period

C – Designated Beach Areas

OP – California Ocean Plan 2005

D. STORM WATER ACTION LEVELS

1. Beginning Year 3 after Order adoption date, a running average of twenty percent or greater of exceedances of any discharge of storm water from the MS4 to waters of the United States that exceed the Storm Water Action Levels (SALs) for the pollutants listed in Table 5 (below) will require each Copermitttee to affirmatively augment and implement all necessary storm water controls and measures to reduce the discharge of the associated class of pollutant(s) to the MEP standard. The Copermitttees must utilize the exceedance information when adjusting and executing annual work plans, as required by this Order. Copermitttees shall take the magnitude, frequency, and number of constituents exceeding the SAL(s), in addition to receiving water quality data and other information, into consideration when reacting to SAL exceedances in an iterative manner. Failure to appropriately consider and react to SAL exceedances in an iterative manner creates a presumption that the Copermitttee(s) have not complied with the MEP standard.

Table 5. Storm Water Action Levels

Pollutant	Action Level
Turbidity (NTU)	126
Nitrate & Nitrite total (mg/L)	2.6
P total (mg/L)	1.46
Cd total (µg/L)	3.0
Cu total (µg/L)	127
Pb total (µg/L)	250
Ni total (µg/L)	54
Zn total (µg/L)	976

2. The end-of-pipe assessment points for the determination of SAL compliance are all major outfalls, as defined in 40 CFR 122.26(b)(5) and (b)(6). The Copermitttees must develop their monitoring plans to sample a representative percent of the major outfalls within each hydrologic subarea. At a minimum, outfalls that exceed SALs must be monitored in the subsequent year. Any station that does not exceed an SAL for 3 years may be replaced with a different station. SAL samples must be 24 hour time weighted composites.
3. The absence of SAL exceedances does not relieve the Copermitttees from implementing all other required elements of this Permit.
4. This Permit does not regulate natural sources and conveyances of constituents listed in Table 5. To be relieved of the requirements to prioritize pollutant/watershed combinations for BMP updates and to continue monitoring a station, the Copermitttee must demonstrate that the likely and expected cause of the SAL exceedance is not anthropogenic in nature.
5. The SALs will be reviewed and updated at the end of every permit cycle. The data collected pursuant to D.2 above can be used to create SALs based upon local data.

It is the goal of the SALs, through the iterative and MEP process, to have outfall storm water discharges meet all applicable water quality standards.

E. LEGAL AUTHORITY

- 1.** Each Copermittee must establish, maintain, and enforce adequate legal authority to control pollutant discharges into and from its MS4 through ordinance, statute, permit, contract or similar means. Nothing herein shall authorize a Co-Permittee or other discharger regulated under the terms of this order to divert, store or otherwise impound water if such action is reasonably anticipated to harm downstream water right holders in the exercise of their water rights. This legal authority must, at a minimum, authorize the Copermittee to:
 - a.** Control the contribution of pollutants in discharges of runoff associated with industrial and construction activity to its MS4 and control the quality of runoff from industrial and construction sites. This requirement applies both to industrial and construction sites which have coverage under the statewide general industrial or construction storm water permits, as well as to those sites which do not. Grading ordinances must be updated and enforced as necessary to comply with this Order;
 - b.** Prohibit all identified illicit discharges not otherwise allowed pursuant to section B.2;
 - c.** Prohibit and eliminate illicit connections to the MS4;
 - d.** Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4;
 - e.** Require compliance with conditions in Copermittee ordinances, permits, contracts or orders (i.e., hold dischargers to its MS4 accountable for their contributions of pollutants and flows);
 - f.** Utilize enforcement mechanisms to require compliance with Copermittee storm water ordinances, permits, contracts, or orders;
 - g.** Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees. Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation, the United States Department of Defense, or Native American Tribes is encouraged;
 - h.** Carry out all inspections, surveillance, and monitoring necessary to determine compliance and noncompliance with local ordinances and permits and with this Order, including the prohibition on illicit discharges to the MS4. This means the Copermittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from industrial facilities discharging into its MS4, including construction sites;
 - i.** Require the use of BMPs to prevent or reduce the discharge of pollutants into MS4s from storm water to the MEP; and

F. JURISDICTIONAL RUNOFF MANAGEMENT PROGRAM (JRMP)

Each Copermittee must implement all requirements of section F of this Order no later than 365 days after adoption of the Order, unless otherwise specified in this Order.

Prior to 365 days after adoption of the Order, each Copermittee must at a minimum implement its Jurisdictional RMP document, as the document was developed and amended to comply with the requirements of Order No. R9-2002-001.

Each Copermittee must develop and implement an updated JRMP for its jurisdiction.

Each updated JRMP must meet the requirements of section F of this Order, reduce the discharge of storm water pollutants from the MS4 to the MEP, and prevent runoff discharges from the MS4 from causing or contributing to a violation of water quality standards.

1. DEVELOPMENT PLANNING COMPONENT

Each Copermittee must implement a program which meets the requirements of this section and (1) reduces Development Project discharges of storm water pollutants from the MS4 to the MEP; (2) prevents Development Project discharges from the MS4 from causing or contributing to a violation of water quality standards; (3) prevents illicit discharges into the MS4; and (4) manages increases in runoff discharge rates and durations from Development Projects that are likely to cause increased erosion of stream beds and banks, silt pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.

a. GENERAL PLAN

Each Copermittee must revise as needed its General Plan or equivalent plan (e.g., Comprehensive, Master, or Community Plan) for the purpose of providing effective water quality and watershed protection principles and policies that direct land-use decisions and require implementation of consistent water quality protection measures for all development and redevelopment projects.

b. ENVIRONMENTAL REVIEW PROCESS

Each Copermittee must revise as needed its current environmental review processes to accurately evaluate water quality impacts and cumulative impacts and identify appropriate measures to avoid, minimize and mitigate those impacts for all Development Projects.

c. APPROVAL PROCESS CRITERIA AND REQUIREMENTS FOR ALL DEVELOPMENT PROJECTS

For all proposed Development Projects, each Copermittee during the planning process, and prior to project approval and issuance of local permits, must prescribe the necessary requirements so that Development Project discharges of storm water pollutants from the MS4 will be reduced to the MEP, will not cause or

contribute to a violation of water quality standards, and will comply with Copermittee's ordinances, permits, plans, and requirements, and with this Order. Performance Criteria: Discharges from each approved development project must be subject to the following management measures:

- (1) Source control BMPs that reduce storm water pollutants of concern in runoff, including prevention of illicit discharges into the MS4; prevention of irrigation runoff; storm drain system stenciling or signage; properly designed outdoor material storage areas; properly designed outdoor work areas; and properly designed trash storage areas;
- (2) The following LID BMPs listed below shall be implemented at all Development Projects where applicable and feasible.
 - (a) Conserve natural areas, including existing trees, other vegetation, and soils.
 - (b) Construct streets, sidewalks, or parking lot aisles to the minimum widths necessary, provided that public safety is not compromised.
 - (c) Minimize the impervious footprint of the project.
 - (d) Minimize soil compaction to landscaped areas.
 - (e) Minimize disturbances to natural drainages (e.g., natural swales, topographic depressions, etc.)
 - (f) Disconnect impervious surfaces through distributed pervious areas.
- (3) Buffer zones for natural water bodies, where feasible. Where buffer zones are infeasible, require project proponent to implement other buffers such as trees, access restrictions, etc;
- (4) Measures necessary so that grading or other construction activities meet the provisions specified in section F.2 of this Order; and
- (5) Submittal of proof of a mechanism under which ongoing long-term maintenance of all structural post-construction BMPs will be conducted.
- (6) Infiltration and Groundwater Protection

To protect groundwater quality, each Copermittee must apply restrictions to the use of treatment control BMPs that are designed to primarily function as centralized infiltration devices (such as large infiltration trenches and infiltration basins). Such restrictions must be designed so that the use of such infiltration treatment control BMPs must not cause or contribute to an exceedance of groundwater quality objectives. At a minimum, each treatment control BMP designed to primarily function as a centralized infiltration device must meet the restrictions below, unless it is demonstrated that a restriction is not necessary to protect groundwater quality. The Copermittees may collectively or individually develop alternative restrictions on the use of

- treatment control BMPs which are designed to primarily function as centralized infiltration devices. Alternative restrictions developed by the Copermittees can partially or wholly replace the restrictions listed below. The restrictions are not intended to be applied to small infiltration systems dispersed throughout a development project.
- (a) Runoff must undergo pretreatment such as sedimentation or filtration prior to infiltration;
 - (b) All dry weather flows containing significant pollutant loads must be diverted from infiltration devices and treated through other BMPs;
 - (c) Pollution prevention and source control BMPs must be implemented at a level appropriate to protect groundwater quality at sites where infiltration treatment control BMPs are to be used;
 - (d) Infiltration treatment control BMPs must be adequately maintained so that they remove storm water pollutants to the MEP;
 - (e) The vertical distance from the base of any infiltration treatment control BMP to the seasonal high groundwater mark must be at least 10 feet. Where groundwater basins do not support beneficial uses, this vertical distance criteria may be reduced, provided groundwater quality is maintained;
 - (f) The soil through which infiltration is to occur must have physical and chemical characteristics (such as appropriate cation exchange capacity, organic content, clay content, and infiltration rate) which are adequate for proper infiltration durations and treatment of runoff for the protection of groundwater beneficial uses;
 - (g) Infiltration treatment control BMPs must not be used for areas of industrial or light industrial activity; areas subject to high vehicular traffic (25,000 or greater average daily traffic on main roadway or 15,000 or more average daily traffic on any intersecting roadway); automotive repair shops; car washes; fleet storage areas (bus, truck, etc.); nurseries; and other high threat to water quality land uses and activities as designated by each Copermittee unless first treated or filtered to remove pollutants prior to infiltration and a comprehensive site-specific evaluation has been conducted; and
 - (h) Infiltration treatment control BMPs must be located a minimum of 100 feet horizontally from any water supply wells.
- (7) Where feasible, landscaping with native or low water species shall be preferred in areas that drain to the MS4 or to waters of the United States.

**d. STANDARD STORM WATER MITIGATION PLANS (SSMPs) – APPROVAL PROCESS
CRITERIA AND REQUIREMENTS FOR PRIORITY DEVELOPMENT PROJECTS**

Within two years of adoption of this Order, the Copermittees must submit an updated model SSMP, to the Regional Board's Executive Officer for a 30 day public review and comment period. The Regional Board's Executive Officer has the discretion to determine the necessity of a public hearing. Within 180 days of determination that the Model SSMP is in compliance with this Permit's provisions, each Copermittee must update their own local SSMP, and amended ordinances consistent with the model SSMP, and shall submit both (local SSMP and amended ordinances) to the Regional Board. The model SSMP must meet the requirements of section F.1.d of this Order to (1) reduce Priority Development Project discharges of storm water pollutants from the MS4 to the MEP, and (2) prevent Priority Development Project runoff discharges from the MS4 from causing or contributing to a violation of water quality standards.¹²

(1) Definition of Priority Development Project (PDP):

Priority Development Projects are:

- (a) All new Development Projects that fall under the project categories or locations listed in section F.1.d.(2), and
- (b) Those redevelopment projects that create, add, or replace at least 5,000 square feet of impervious surfaces on an already developed site and the existing development and/or the redevelopment project falls under the project categories or locations listed in section F.1.d.(2). Where redevelopment results in an increase of less than fifty percent of the impervious surfaces of a previously existing development, and the existing development was not subject to SSMP requirements, the numeric sizing criteria discussed in section F.1.d.(6) applies only to the addition or replacement, and not to the entire development. Where redevelopment results in an increase of more than fifty percent of the impervious surfaces of a previously existing development, the numeric sizing criteria applies to

¹² Updated SSMP and hydromodification requirements must apply to all priority projects or phases of priority projects which have not yet begun grading or construction activities at the time any updated SSMP or hydromodification requirement commences. If lawful prior approval of a project exists, whereby application of an updated SSMP or hydromodification requirement to the project is illegal, the updated SSMP or hydromodification requirement need not apply to the project. Updated Development Planning requirements set forth in Sections F.1. (a) through (h) of this Order must apply to all projects or phases of projects, unless, at the time any updated Development Planning requirement commences, the projects or project phases meet any one of the following conditions: (i) the project or phase has begun grading or construction activities; or (ii) a Copermittee determines that lawful prior approval rights for a project or project phase exist, whereby application of the Updated Development Planning requirement to the project is legally infeasible. Where feasible, the Permittees must utilize the SSMP and hydromodification update periods to ensure that projects undergoing approval processes include application of the updated SSMP and hydromodification requirements in their plans.

the entire development.

- (c) One acre threshold: In addition to the Priority Development Project Categories identified in section F.1.d.(2), Priority Development Projects must also include all other pollutant-generating Development Projects that result in the disturbance of one acre or more of land within three years of adoption of this Order.¹³ As an alternative to this one-acre threshold, the Copermittees may collectively identify a different threshold, provided the Copermittees' threshold is at least as inclusive of Development Projects as the one-acre threshold.

(2) Priority Development Project Categories

Where a new Development Project feature, such as a parking lot, falls into a Priority Development Project Category, the entire project footprint is subject to SSMP requirements.

- (a) New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site) including commercial, industrial, residential, mixed-use, and public projects. This category includes development projects on public or private land which fall under the planning and building authority of the Copermittees.
- (b) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 7532-7534, or 7536-7539.
- (c) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812), where the land area for development is greater than 5,000 square feet. Restaurants where land development is less than 5,000 square feet must meet all SSMP requirements except for structural treatment BMP and numeric sizing criteria requirement F.1.d.(6) and hydromodification requirement F.1.h.
- (d) All hillside development greater than 5,000 square feet. This category is defined as any development which creates 5,000 square feet of impervious surface which is located in an area with known erosive soil conditions, where the development will grade on any natural slope that is twenty-five percent or greater.
- (e) Environmentally Sensitive Areas (ESAs). All development located within or directly adjacent to or discharging directly to an ESA (where discharges

¹³ Pollutant generating Development Projects are those projects that generate pollutants at levels greater than natural background levels.

from the development or redevelopment will enter receiving waters within the ESA), which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10 percent or more of its naturally occurring condition. "Directly adjacent" means situated within 200 feet of the ESA. "Discharging directly to" means outflow from a drainage conveyance system that is composed entirely of flows from the subject development or redevelopment site, and not commingled with flows from adjacent lands.

- (f) Parking lots 5,000 square feet or more or with 15 or more parking spaces and potentially exposed to runoff. Parking lot is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce.
- (g) Street, roads, highways, and freeways. This category includes any paved surface that is 5,000 square feet or greater used for the transportation of automobiles, trucks, motorcycles, and other vehicles.
- (h) Retail Gasoline Outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.

(3) Pollutants of Concern

As part of its local SSMP, each Copermittee must implement an updated procedure for identifying pollutants of concern for each Priority Development Project. The procedure must address, at a minimum: (1) Receiving water quality (including pollutants for which receiving waters are listed as impaired under CWA section 303(d)); (2) Land-use type of the Development Project and pollutants associated with that land use type; and (3) Pollutants expected to be present on site.

(4) Low Impact Development BMP Requirements

Each Copermittee must require each Priority Development Project to implement LID BMPs which will collectively minimize directly connected impervious areas, limit loss of existing infiltration capacity, and protect areas that provide important water quality benefits necessary to maintain riparian and aquatic biota, and/or are particularly susceptible to erosion and sediment loss.

- (a) The following LID BMPs must be implemented:
 - (i) Each Copermittee must require LID BMPs or make a finding of infeasibility for each Priority Development Project in accordance with the LID waiver program in Section F.1.d.(8);

- (ii) Each Copermittee must incorporate formalized consideration, such as thorough checklists, ordinances, and/or other means, of LID BMPs into the plan review process for Priority Development Projects;
 - (iii) The review of each Priority Development Project must include an assessment of potential collection of storm water for on-site or off-site reuse opportunities;
 - (iv) The review of each Priority Development Project must include an assessment of techniques to infiltrate, filter, store, evaporate, or retain runoff close to the source of runoff; and
 - (v) Within 2 years after adoption of this Order, each Copermittee must review its local codes, policies, and ordinances and identify barriers therein to implementation of LID BMPs. Following the identification of these barriers to LID implementation, where feasible, the Copermittee must take, by the end of the permit cycle, appropriate actions to remove such barriers.
- (b) The following LID BMPs must be implemented at all Priority Development Projects where technically feasible as required below:
- (i) Maintain or restore natural storage reservoirs and drainage corridors (including depressions, areas of permeable soils, swales, and ephemeral and intermittent streams.
 - (ii) Projects with landscaped or other pervious areas must, where feasible, drain runoff from impervious areas (rooftops, parking lots, sidewalks, walkways, patios, etc) into pervious areas prior to discharge to the MS4. The amount of runoff from impervious areas that is to drain to pervious areas shall not exceed the total capacity of the project's pervious areas to infiltrate or treat runoff, taking into consideration the pervious areas' geologic and soil conditions, slope, and other pertinent factors.
 - (iii) Projects with landscaped or other pervious areas must, where feasible, properly design and construct the pervious areas to effectively receive and infiltrate or treat runoff from impervious areas, prior to discharge to the MS4. Soil compaction for these areas shall be minimized. The amount of the impervious areas that are to drain to pervious areas must be based upon the total size, soil conditions, slope, and other pertinent factors.
 - (iv) Projects with low traffic areas and appropriate soil conditions must construct walkways, trails, overflow parking lots, alleys, or other low-traffic areas with permeable surfaces, such as pervious concrete, porous asphalt, unit pavers, and granular materials.
- (c) To protect ground water resources any infiltration LID BMPs must comply with Section F.1.(c)(6).

(d) LID BMPs sizing criteria:

- (i) LID BMPs shall be sized and designed to ensure onsite retention without runoff, of the volume of runoff produced from a 24-hour 85th percentile storm event, as determined from the County of Orange's 85th Percentile Precipitation Map¹⁴ ("design capture volume");
- (ii) If onsite retention LID BMPs are technically infeasible per section F.1.d.(7)(b), LID biofiltration BMPs may treat any volume that is not retained onsite by the LID BMPs. The LID biofiltration BMPs must be designed for an appropriate surface loading rate to prevent erosion, scour and channeling within the BMP. Due to the flow through design of biofiltration BMPs, the total volume of the BMP, including pore spaces and prefilter detention volume, must be sized to hold at least 0.75 times the design storm volume that is not retained onsite by LID retention BMPs;
- (iii) If it is shown to be technically infeasible to treat the remaining volume up to and including the design capture volume using LID BMPs (retention or biofiltration), the project must implement conventional treatment control BMPs in accordance with Section F.1.d.(6) below and must participate in the LID waiver program in Section F.1.d.(7).

- (e) All LID BMPs shall be designed and implemented with measures to avoid the creation of nuisance or pollution associated with vectors, such as mosquitoes, rodents, and flies.

(5) Source Control BMP Requirements

Each Copermittee must require each Priority Development Project to implement source control BMPs. The source control BMPs to be required must:

- (a) Prevent illicit discharges into the MS4;
- (b) Minimize storm water pollutants of concern in runoff;
- (c) Eliminate irrigation runoff;
- (d) Include storm drain system stenciling or signage;
- (e) Include properly designed outdoor material storage areas;
- (f) Include properly designed outdoor work areas;
- (g) Include properly designed trash storage areas;
- (h) Include water quality requirements applicable to individual priority project categories.

¹⁴ The isopluvial map is available from the County of Orange. The map can also be found as Figure A-1 Exhibit 7.II in the Model WQMP (September 2003), page 5 of 57 at http://www.ocwatersheds.com/documents/2003_DAMP_Exhibit_7_II_Model_WQMP_Attachments.pdf

(6) Treatment Control BMP Requirements¹⁵

Each Copermittee must require each Priority Development Project to implement treatment control BMPs that meet the following requirements:

- (a) All treatment control BMPs for a single Priority Development Project must collectively be sized to comply with the following numeric sizing criteria:
 - (i) Volume-based treatment control BMPs must be designed to mitigate (infiltrate, filter, or treat) the volume of runoff produced from a 24-hour 85th percentile storm event, as determined from the County of Orange's 85th Percentile Precipitation Isopluvial Map¹⁶; or
 - (ii) Flow-based treatment control BMPs must be designed to mitigate (infiltrate, filter, or treat) either: a) the maximum flow rate of runoff produced from a rainfall intensity of 0.2 inch of rainfall per hour, for each hour of a storm event; or b) the maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity (for each hour of a storm event), as determined from the local historical rainfall record, multiplied by a factor of two.
- (b) Treatment control BMPs for all Priority Development Projects must mitigate (treat through infiltration, settling, filtration or other unit processes) the required volume or flow of runoff from all developed portions of the project, including landscaped areas.
- (c) All treatment control BMPs must be located so as to remove pollutants from runoff prior to its discharge to any waters of the U.S. Multiple Priority Development Projects may use shared treatment control BMPs as long as construction of any shared treatment control BMP is completed prior to the use or occupation of any Priority Development Project from which the treatment control BMP will receive runoff.
- (d) All treatment control BMPs for Priority Development Projects must, at a minimum:
 - (i) Be ranked with high or medium pollutant removal efficiency for the project's most significant pollutants of concern, as the pollutant removal efficiencies are identified in the Copermittees' Model

¹⁵ This section only applies to those PDPs not implementing LID capable of meeting the design storm criteria for the entire site and meeting technical infeasibility eligibility. Low-Impact Development (LID) and other site design BMPs that are correctly designed to effectively remove pollutants from runoff are considered treatment control BMPs.

¹⁶ The isopluvial map is available from the County of Orange. The map can also be found as Figure A-1 Exhibit 7.II in the Model WQMP (September 2003), page 105 of 157 at http://www.ocwatersheds.com/StormWater/PDFs/2003_DAMP/2003_DAMP_Section_7_New_Development_Significant_Redevelopment.pdf.

SSMP. Treatment control BMPs with a low removal efficiency ranking must only be approved by a Copermittee when a feasibility analysis has been conducted which exhibits that implementation of treatment control BMPs with high or medium removal efficiency rankings are infeasible for a Priority Development Project or portion of a Priority Development Project.

- (ii) Be correctly sized and designed so as to remove storm water pollutants to the MEP.
- (e) Target removal of pollutants of concern from runoff.
- (f) Be implemented close to pollutant sources, and prior to discharging into waters of the U.S.
- (g) Not be constructed within a waters of the U.S. or waters of the State.
- (h) Include proof of a mechanism under which ongoing long-term maintenance will be conducted to ensure proper maintenance for the life of the project. The mechanisms may be provided by the project proponent or Copermittee.
- (i) Be designed and implemented with measures to avoid the creation of nuisance or pollution associated with vectors, such as mosquitoes, rodents, and flies.

(7) Low Impact Development (LID) BMP Waiver Program

The Copermittees must develop, collectively or individually, a LID waiver program for incorporation into local SSMPs, which would allow a Priority Development Project to substitute implementation of all or a portion of required LID BMPs in section F.1.d(4) with implementation of treatment control BMPs and a mitigation project, payment into an in-lieu funding program, and/or watershed equivalent BMP(s) consistent with Section F.1.d.(11). The Copermittees shall submit the LID waiver program as part of their updated model SSMP. At a minimum, the program must meet the requirements below:

- (a) Prior to implementation, the LID waiver program must clearly exhibit that it will not allow PDPs to result in a net impact (after consideration of any mitigation and in-lieu payments) from pollutant loadings over and above the impact caused by projects meeting LID requirements;
- (b) For each PDP participating, a technical feasibility analysis must be included demonstrating that it is technically infeasible to implement LID BMPs that comply with the requirements of Section F.1.(d)(4). The

Copermittee(s) must develop criteria for the technical feasibility analysis including a cost benefit analysis, examination of LID BMPs considered and alternatives chosen. Each PDP participating must demonstrate that LID BMPs were implemented as much as feasible given the site's unique conditions. Analysis must be made of the pollutant loading for each project participating in the LID substitution program. The estimated impacts from not implementing the required LID BMPs in section F.1.d.(4) must be fully mitigated. Technical infeasibility may result from conditions including, but not limited to:

- (i) Locations that cannot meet the infiltration and groundwater protection requirements in section F.1.c.(6). Where infiltration is technically infeasible, the project must still examine the feasibility of other onsite retention LID BMPs;
 - (ii) Smart growth and infill or redevelopment locations where the density and/or nature of the project would create significant difficulty for compliance with the onsite volume retention requirements; and
 - (iii) Other site, geologic, soil or implementation constraints identified in the Copermittees updated local SSMP document.
- (c) The LID waiver program must include mechanisms to verify that each Priority Development Project participating in the program is in compliance with all applicable SSMP requirements;
- (d) The LID waiver program must develop and implement a review process verifying that the BMPs to be implemented meet the designated design criteria. The review process must also verify that each Priority Development Project participating in the program is in compliance with all applicable SSMP requirements.
- (e) The LID waiver program must include performance standards for treatment control BMPs specified in compliance with section F.1.(d)(6).
- (f) Each PDP that participates in the LID waiver program must mitigate for the pollutant loads expected to be discharged due to not implementing the LID BMPs in section F.1.d.(4). Mitigation projects must be implemented within the same hydrologic subarea as the PDP. Mitigation projects outside of the hydrologic subarea but within the same hydrologic unit may be approved provided that the project proponent demonstrates that mitigation projects within the same hydrologic subarea are infeasible and that the mitigation project will address similar beneficial use impacts as expected from the PDPs pollutant load types and amount. Offsite mitigation projects may include green streets projects, existing development retrofit projects, retrofit incentive programs, regional BMPs and stream restoration. Project applicants seeking to utilize these

alternative compliance provisions may propose other offsite mitigation projects, which the Copermittees may approve if they meet the requirements of this subpart.

- (g) A Copermittee may choose to implement a pollutant credit system as part of the LID waiver program provided that such a credit system clearly exhibits that it will not allow PDPs to result in a net impact from pollutant loadings over and above the impact caused by projects meeting LID requirements. Any credit system that a Copermittee chooses to implement must be submitted to the Executive Officer for review and approval as part of the waiver program.
- (h) The LID waiver program shall include a storm water mitigation fund developed by the Copermittee(s) to be used for water quality improvement projects which may serve in lieu of the PDP's required mitigation in section F.1.d.(8)(e). The LID waiver program's storm water mitigation fund shall, at a minimum, identify;
 - (i) The entity or entities that will manage the storm water mitigation fund (i.e., assume full responsibility);
 - (ii) The range and types of acceptable projects for which storm water mitigation funds may be expended;
 - (iii) The entity or entities that will assume full responsibility for each water quality improvement project, including its successful completion; and
 - (iv) How the dollar amount of storm water mitigation fund contributions will be determined. In-lieu payments must be proportional to the additional pollutant load discharged by not fully implementing LID.
- (i) Each Copermittee must notify the Regional Board in their annual report of each PDP choosing to participate in the LID waiver program. The annual report must include the following information:
 - (i) Name of the developer of the participating PDP;
 - (ii) Site location;
 - (iii) Reason for LID waiver including technical feasibility analysis;
 - (iv) Description of BMPs implemented;
 - (v) Total amount deposited, if any, into the storm water mitigation fund described in section F.1.d.(8)(f);
 - (vi) Water quality improvement project(s) proposed to be funded; and
 - (vii) Timeframe for implementation of water quality improvement projects.

(8) Site Design and Treatment Control BMP Design Standards

As part of its local SSMP, each Copermittee must develop and require Priority

Development Projects to implement siting, design, and maintenance criteria for each site design and treatment control BMP listed in its local SSMP to determine feasibility and applicability and so that implemented site design and treatment control BMPs are constructed correctly and are effective at pollutant removal, runoff control, and vector minimization. LID techniques, such as soil amendments, must be incorporated into the criteria for appropriate treatment control BMPs. Development of BMP design worksheets which can be used by project proponents is encouraged.

(9) Implementation Process

As part of its local SSMP, each Copermittee must implement a process to verify compliance with SSMP requirements. The process must identify at what point in the planning process Priority Development Projects will be required to meet SSMP requirements and at a minimum, the Priority Development Project must implement the required post-construction BMPs prior to occupancy and/or the intended use of any portion of that project. The process must also include identification of the roles and responsibilities of various municipal departments in implementing the SSMP requirements, as well as any other measures necessary for the implementation of SSMP requirements.

(10) Treatment BMP Review

- (a) The Copermittees must review and update the BMPs that are listed in their local SSMPs as options for treatment control during the third year of implementation of this Order. At a minimum, the update must include removal of obsolete or ineffective BMPs and addition of LID BMPs that can be used for treatment, such as bioretention cells, bioretention swales, etc. The update must also add appropriate LID BMPs to any tables or discussions in the local SSMPs addressing pollutant removal efficiencies of treatment control BMPs. In addition, the update must include review and revision where necessary of treatment control BMP pollutant removal efficiencies.
 - (b) The update must incorporate findings from BMP effectiveness studies conducted by the Copermittees for projects funded wholly or in part by the State Board or Regional Board.
 - (c) Each Copermittee must implement a mechanism for annually incorporating findings from local treatment BMP effectiveness studies (e.g., ones conducted by, or on-behalf of, public agencies in Orange County) into SSMP project reviews and permitting
- (11) Where a development project, greater than 100 acres in total project size or smaller than 100 acres in size yet part of a larger common plan of

development that is over 100 acres, has been prepared using watershed and/or sub-watershed based water quality, hydrologic, and fluvial geomorphologic planning principles that implement regional LID BMPs in accordance with the sizing and location criteria of this Order and acceptable to the Regional Board, such standards shall govern review of projects with respect to Section F.1 of this Order and shall be deemed to satisfy this Order's requirements for LID site design, buffer zone, infiltration and groundwater protection standards, source control, treatment control, and hydromodification control standards. Regional BMPs must clearly exhibit that they will not result in a net impact from pollutant loadings over and above the impact caused by capture and retention of the design storm. Regional BMPs may be used provided that the BMPs capture and retain the volume of runoff produced from the 24-hour 85th percentile storm event as defined in section F.1.d.(6)(a)(i) and that such controls are located upstream of receiving waters. Any volume that is not retained by the LID BMPs, up to the design capture volume, must be treated using LID biofiltration. Where regional LID implementation has been shown to be technically infeasible (per section F.1.d.7.b) any volume up to and including the design capture volume, not retained by LID BMPs, nor treated by LID biofiltration, must be treated using conventional treatment control BMPs in accordance with Section F.1.d.(6) and participation in the LID waiver program in Section F.1.d.(7).

e. BMP CONSTRUCTION VERIFICATION

Prior to occupancy and/or intended use of any portion of the Priority Development Project subject to SSMP requirements, each Copermittee must inspect the constructed site design, source control, and treatment control BMPs to verify that they have been constructed and are operating in compliance with all specifications, plans, permits, ordinances, and this Order.

f. BMP MAINTENANCE TRACKING

- (1) Each Copermittee must develop and maintain a watershed-based database to track and inventory all approved post-construction BMPs and BMP maintenance within its jurisdiction since July 2001. LID BMPs implemented on a lot by lot basis at a single family residential home, such as rainbarrels, are not required to be tracked or inventoried. At a minimum, the database must include information on BMP type, location, watershed, date of construction, party responsible for maintenance, maintenance certifications or verifications, inspections, inspection findings, and corrective actions, including whether the site was referred to the Vector Control District.
- (2) Each Copermittee must establish a mechanism not only to track post-construction BMPs, but also to ensure that appropriate easements and ownerships are properly recorded in public records and the information is

conveyed to all appropriate parties when there is a change in project or site ownership.

- (3) Each Copermittee must verify that approved post-construction BMPs are operating effectively and have been adequately maintained by implementing the following measures:
 - (a) An annual inventory of all approved BMPs within the Copermittee's jurisdiction. LID BMPs implemented on a lot by lot basis at a single family residential home, such as rainbarrels, are not required to be tracked or inventoried. The inventory must also include all BMPs approved for Priority Development Projects since July 2001;
 - (b) The designation of high priority BMPs. High-priority designation must include consideration of BMP size, recommended maintenance frequency, likelihood of operational and maintenance issues, location, receiving water quality, and other pertinent factors;
 - (c) Verify implementation, operation, and maintenance of BMPs by inspection, self-certification, surveys, or other equally effective approaches with the following conditions:
 - (i) The implementation, operation, and maintenance of at least 90 percent of approved and inventoried final project public and private SSMPs (a.k.a. WQMPs) must be verified annually. All post-construction BMPs shall be verified within every four year period;
 - (ii) Operation and maintenance verifications must be required prior to each rainy season;
 - (iii) All (100 percent) projects with BMPs that are high priority must be inspected by the Copermittee annually prior to each rainy season;
 - (iv) All (100 percent) public agency projects with BMPs must be inspected by the Copermittee annually;
 - (v) At least 50 percent of projects with drainage insert treatment control BMPs must be inspected by the Copermittee annually;
 - (vi) Appropriate follow-up measures (including re-inspections, enforcement, maintenance, etc.) must be conducted to ensure the treatment BMPs continue to reduce storm water pollutants as originally designed;
 - (vii) All inspections must verify effective operation and maintenance of the treatment control BMPs, as well as compliance with all ordinances, permits, and this Order; and
 - (viii) Inspections must note observations of vector conditions, such as mosquitoes. Where conditions are identified as contributing to mosquito production, the Copermittee must notify the Orange County Vector Control District.

g. ENFORCEMENT OF DEVELOPMENT SITES

Each Copermittee must enforce its storm water ordinance for all Development Projects and at all development sites as necessary to maintain compliance with this Order. Copermittee ordinances or other regulatory mechanisms must include appropriate sanctions to achieve compliance. Sanctions must include the following or their equivalent: Non-monetary penalties, fines, bonding requirements, and/or permit or occupancy denials for non-compliance.

h. HYDROMODIFICATION – LIMITATIONS ON INCREASES OF RUNOFF DISCHARGE RATES AND DURATIONS¹⁷

Each Copermittee shall collaborate with the other Copermittees to develop and implement a Hydromodification Management Plan (HMP) to manage increases in runoff discharge rates and durations from all Priority Development Projects. The HMP shall be incorporated into the local SSMP and implemented by each Copermittee so that estimated post-project runoff discharge rates and durations shall not exceed pre-development discharge rates and durations. Where the proposed project is located on an already developed site, the pre-project discharge rate and duration shall be that of the pre-developed, naturally occurring condition. The HMP shall be submitted to the Executive Officer within 2 years of permit adoption. The HMP will be made available for public review and comment and the Executive Officer will determine the need for a public hearing.

(1) The HMP must:

- (a) Identify a method for assessing susceptibility of channel segments which receive runoff discharges from Priority Development Projects. The geomorphic stability within the channel shall be assessed. A performance standard shall be created that ensures that the geomorphic stability within the channel not be compromised as a result of receiving runoff discharges from Priority Development Projects.
- (b) Utilize continuous simulation of the entire rainfall record (or other analytical method proposed by the Copermittees and deemed acceptable

¹⁷ Updated SSMP and hydromodification requirements shall apply to all priority projects or phases of priority projects which have not yet begun grading or construction activities at the time any updates SSMP or hydromodification requirement commences. If a Copermittee determines that lawful prior approval of a project exists, whereby application of an updated SSMP or hydromodification requirement to the project is legally infeasible, the updated SSMP or hydromodification requirement need not apply to the project. The Copermittees shall utilize the SSMP and hydromodification update periods to ensure that projects undergoing approval processes include application of the updated SSMP and hydromodification requirements in their plans.

by the Regional Board) to identify a range of runoff flows¹⁸ for which priority Development Project post-project runoff flow rates and durations shall not exceed pre-development (naturally occurring) runoff flow rates and durations by more than 10 percent, where the increased flow rates and durations will result in increased potential for erosion or other significant adverse impacts to beneficial uses. In addition, the identified range of runoff flow rates and durations must compensate for the loss of sediment supply due to the development. The lower boundary of the range of runoff flows identified shall correspond with the critical channel flow that produces the critical shear stress that initiates channel bed movement or that erodes the toe of channel banks. The identified range of runoff flows may be different for specific watersheds, channels, or channel reaches. In the case of an artificially hardened (concrete lined, rip rap, etc.) channel, the lower boundary of the range of runoff flows identified shall correspond with the critical channel flow that produces the critical shear stress that initiates channel bed movement or that erodes the toe of channel banks of a comparable soft-bottomed channel.

- (c) Require Priority Development Projects to implement hydrologic control measures so that Priority Development Projects' post-project runoff flow rates and durations (1) do not exceed pre-project (naturally occurring) runoff flow rates and durations by more than 10 percent for the range of runoff flows identified under section F.1.h.(1)(b), where the increased flow rates and durations will result in increased potential for erosion or other significant adverse impacts to beneficial uses; (2) do not result in channel conditions which do not meet the channel standard developed under section F.1.h.(1)(a) for channel segments downstream of Priority Development Project discharge points; and (3) compensate for the loss of sediment supply due to development.
- (d) Include other performance criteria (numeric or otherwise) for Priority Development Projects as necessary to prevent runoff from the projects from increasing and/or continuing unnatural rates of erosion of channel beds and banks, silt pollutants generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.
- (e) Include a review of pertinent literature.
- (f) Identify areas within the San Juan Hydrologic Unit where historic hydromodification has resulted in a negative impact to benthic macroinvertebrate and benthic periphyton by identifying areas with low or very low Index of Biotic Integrity (IBI) scores.

¹⁸ The identified range of runoff flows to be controlled should be expressed in terms of peak flow rates of rainfall events, such as "10% of the pre-development 2-year runoff event up to the pre-project 10-year runoff event."

- (g) Include a protocol to evaluate potential hydrograph change impacts to downstream watercourses from Priority Development Projects. This protocol must include the use of the IBI score as a metric for assessing impacts and improvements to downstream watercourses.
 - (h) Include a description of how the Copermitttees will incorporate the HMP requirements into their local approval processes.
 - (i) Include criteria on selection and design of management practices and measures (such as detention, retention, and infiltration) to control flow rates and durations and address potential hydromodification impacts.
 - (j) Include technical information supporting any standards and criteria proposed.
 - (k) Include a description of inspections and maintenance to be conducted for management practices and measures to control flow rates and durations and address potential hydromodification impacts.
 - (l) Include a description of pre- and post-project monitoring and other program evaluation, including IBI score, to be conducted to assess the effectiveness of implementation of the HMP.
 - (m) Include mechanisms for assessing and addressing cumulative impacts within a watershed on channel morphology.
 - (n) Include information on evaluation of channel form and condition, including slope, discharge, vegetation, underlying geology, and other information, as appropriate.
- (2) In addition to the hydrologic control measures that must be implemented per section F.1.h.(1)(c), the HMP must include a suite of management measures to be used on Priority Development Projects to protect and restore downstream beneficial uses and prevent or further prevent adverse physical changes to downstream channels. The measures must be based on a prioritized consideration of the following elements in this order:
- (a) Hydrologic control measures;
 - (b) On-site management controls;
 - (c) Regional controls located upstream of receiving waters; and
 - (d) In-stream controls.

Where stream channels are adjacent to, or are to be modified as part of a Priority Development Project, management measures must include buffer zones and setbacks. Under no circumstances will in-stream controls include the use of non-naturally occurring hardscape materials such as concrete,

riprap, gabions, etc. The suite of management measures shall also include stream restoration as a viable option to achieve the channel standard in section F.1.h.(1)(a).

(3) Each individual Copermitee has the discretion to not require Section F.1.h. at Priority Development Projects where the project:

- (a) Discharges storm water runoff into underground storm drains discharging directly to bays or the ocean; or
- (b) Discharges storm water runoff into conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to ocean waters, enclosed bays, estuaries, or water storage reservoirs and lakes.

(4) HMP Reporting and Implementation

- (a) Within 2 years of adoption of the Order, the Copermitees shall submit to the Regional Board a draft HMP that has been reviewed by the public, including the analysis that identifies the appropriate limiting range of flow rates per section F.1.h.(1)(b).
- (b) Within 180 days of receiving Regional Board comments on the draft HMP, the Copermitees shall submit a final HMP that addressed the Regional Board's comments.
- (c) Within 90 days of receiving a finding of adequacy from the Executive Officer, each Copermitee shall incorporate and implement the HMP for all Priority Development Projects.
- (d) Prior to approval of the HMP by the Regional Board, the early implementation measures likely to be included in the HMP shall be encouraged by the Copermitees.

(5) Interim Hydromodification Criteria

Within one year of adoption of this Order, each Copermitee must ensure that all Priority Development Projects are implementing the following criteria by comparing the pre-development (naturally occurring) and post-project flow rates and durations using a continuous simulation hydrologic model such as US EPA's Hydrograph Simulation Program-Fortran (HSPF):

- (a) For flow rates from 10 percent of the 2-year storm event to the 5 year storm event, the post-project peak flows shall not exceed pre-development (naturally occurring) peak flows.
- (b) For flow rates from the 5 year storm event to the 10 year storm event the post-project peak flows may exceed pre-development (naturally

occurring) flows by up to 10 percent for a 1-year frequency interval.

The interim hydromodification criteria do not apply to Priority Development Projects where the project discharges (1) storm water runoff into underground storm drains discharging directly to bays or the ocean, or (2) storm water runoff into conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to ocean waters, enclosed bays, estuaries, or water storage reservoirs and lakes.

Within one year of adoption of this Order, each Copermittee must submit a signed, certification statement to the Regional Board verifying implementation of the interim hydromodification criteria.

- (6) No part of section F.1.h shall alleviate the Copermittees responsibilities for implementing Low Impact Development BMPs as required under section F.1.d.(4).

i. TRAINING AND EDUCATION

(1) Municipal Departments and Personnel Education

Municipal Development Planning: Each Copermittee must implement an education program so that its planning and development review staffs and contractors (and Planning Boards and Elected Officials, if applicable) have an understanding of:

- (a) Federal, State, and local water quality laws and regulations applicable to Development Projects;
- (b) The connection between land use decisions and short and long-term water quality impacts (i.e., impacts from land development and urbanization); and
- (c) Methods of minimizing impacts to receiving water quality resulting from development, including:
 - (i) Storm water management plan development and review;
 - (ii) Local sensitive water bodies, including 303(d)-impairments and ESAs;
 - (iii) Methods to control downstream erosion impacts;
 - (iv) Identification of pollutants of concern;
 - (v) Site design BMP techniques;
 - (vi) Source control BMPs;
 - (vii) Selection of the most effective treatment control BMPs for the pollutants of concern; and
 - (viii) Public health concerns related to storm water management infrastructure.

(2) Project Applicants, Developers, Contractors, Property Owners, and other Responsible Parties

- (a) Each Copermittee must implement a New Development / Redevelopment education program using all media as appropriate to:
- (i) Measurably increase the knowledge of the target communities regarding MS4s, impacts of runoff on receiving waters, and potential BMP solutions for the target audience; and
 - (ii) To measurably change the behavior of target communities and thereby reduce pollutant releases to MS4s and the environment.
- (b) Each Copermittee must educate each target community on the following topics where appropriate:
- (i) The importance of educating all construction workers in the field about storm water issues and BMPs through formal or informal training;
 - (ii) Federal, State, and local water quality laws and regulations applicable to new development and redevelopment activities;
 - (iii) Site design, source control, pollution prevention, and treatment BMPs;
 - (iv) General runoff concepts; and
 - (v) Other topics of local importance, including local water quality conditions, impaired waterbodies and environmentally sensitive areas.

2. CONSTRUCTION COMPONENT

Each Copermittee must implement a construction program which meets the requirements of this section, prevents illicit discharges into the MS4, implements and maintains structural and non-structural BMPs to reduce pollutants in storm water runoff from construction sites to the MS4, reduces construction site discharges of storm water pollutants from the MS4 to the MEP, and prevents construction site discharges from the MS4 from causing or contributing to a violation of water quality standards.

a. ORDINANCE UPDATE

Within 365 days of adoption of this Order, each Copermittee must review and update its grading ordinances and other ordinances as necessary to achieve full compliance with this Order, including requirements for the implementation of all designated BMPs and other measures.

b. SOURCE IDENTIFICATION

Each Copermittee must maintain an updated watershed based inventory of all construction sites within its jurisdiction. The use of an automated database system, such as Geographical Information Systems (GIS) is required.

c. SITE PLANNING AND PROJECT APPROVAL PROCESS

Each Copermittee must incorporate consideration of potential water quality impacts prior to approval and issuance of construction and grading permits.

- (1) Each construction and grading permit must require proposed construction sites to implement designated BMPs and other measures so that illicit discharges into the MS4 are prevented and storm water pollutants discharged from the site will be reduced to the maximum extent practicable and will not cause or contribute to a violation of water quality standards.
- (2) Prior to permit issuance, the project proponent's runoff management plan (or equivalent construction BMP plan) must be required to comply, and reviewed to verify compliance, with the local grading ordinance, other applicable local ordinances, and this Order.
- (3) Prior to permit issuance, each Copermittee must verify that project proponents subject to California's statewide General NPDES Permit for Storm Water Discharges Associated With Construction Activities, (hereinafter General Construction Permit), have existing coverage under the General Construction Permit.

d. BMP IMPLEMENTATION

- (1) Designate BMPs: Each Copermittee must designate a minimum set of BMPs and other measures to be implemented at all construction sites. The designated minimum set of BMPs must include:
 - (a) Management Measures:
 - (i) Pollution prevention, where appropriate;
 - (ii) Development and implementation of a site-specific runoff management plan;
 - (iii) Minimization of areas that are cleared and graded to only the portion of the site that is necessary for construction;
 - (iv) Minimization of exposure time of disturbed soil areas;
 - (v) Minimization of grading during the wet season and correlation of grading with seasonal dry weather periods to the extent feasible;
 - (vi) Limitation of grading to a maximum disturbed area as determined by each Copermittee before either temporary or permanent erosion controls are implemented to prevent storm water pollution. The Copermittee has the option of temporarily increasing the size of

disturbed soil areas by a set amount beyond the maximum, if the individual site is in compliance with applicable storm water regulations and the site has adequate control practices implemented to prevent storm water pollution;

- (vii) Temporary stabilization and reseeded of disturbed soil areas as rapidly as feasible;
- (viii) Wind erosion controls;
- (ix) Tracking controls;
- (x) Non-stormwater management measures to prevent illicit discharges and control storm water pollution sources;
- (xi) Waste management measures;
- (xii) Preservation of natural hydrologic features where feasible;
- (xiii) Preservation of riparian buffers and corridors where feasible;
- (xiv) Evaluation and maintenance of all BMPs, until removed; and
- (xv) Retention, reduction, and proper management of all storm water pollutant discharges on site to the MEP standard.

(b) Erosion and Sediment Controls:

- (i) Erosion prevention. Erosion prevention is to be used as the most important measure for keeping sediment on site during construction;
- (ii) Sediment controls. Sediment controls are to be used as a supplement to erosion prevention for keeping sediment on-site during construction;
- (iii) Slope stabilization must be used on all active slopes during rain events regardless of the season and on all inactive slopes during the rainy season and during rain events in the dry season; and
- (iv) Permanent revegetation or landscaping as early as feasible.

(c) Designate enhanced BMPs¹⁹ for 303(d) impairments and ESAs: Each Copermitttee must implement, or require implementation of, enhanced measures to address the exceptional threat to water quality posed by all construction sites tributary to CWA section 303(d) water body segments impaired for sediment or turbidity. Each Copermitttee must also implement, or require implementation of, enhanced, site-specific measures for construction sites within or adjacent to or discharging directly to coastal lagoons, the ocean, or other receiving waters within environmentally sensitive areas (as defined in Attachment C of this Order).

- (i) Active Sediment Treatment (AST): Each Copermitttee must require implementation of advanced treatment for sediment at construction

¹⁹ Enhanced BMPs are control actions specifically targeted to the pollutant or condition of concern and of higher quality and effectiveness than the minimum control measures otherwise required. Enhanced in this Order means better, not simply more, BMPs.

sites (or portions thereof) that are determined by the Copermittee to be an exceptional threat to water quality. In evaluating the threat to water quality, the following factors must be considered by the Copermittee:

- [a] Soil erosion potential or soil type;
- [b] The site's slopes;
- [c] Project size and type;
- [d] Sensitivity of receiving water bodies;
- [e] Proximity to receiving water bodies;
- [f] Non-storm water discharges;
- [g] Ineffectiveness of other BMPs;
- [h] Proximity and sensitivity of aquatic threatened and endangered species of concern;
- [i] Known effects of AST chemicals; and
- [j] Any other relevant factors.

- (d) Implement BMPs: Each Copermittee must implement, or require the implementation of, the designated minimum BMPs and any additional measures necessary to comply with this Order at each construction site within its jurisdiction year round. BMP implementation requirements, however, can vary based on wet and dry seasons. Dry season BMP implementation must plan for and address unseasonal rain events that may occur during the dry season (May 1 through September 30).

e. INSPECTION OF CONSTRUCTION SITES

Each Copermittee must conduct construction site inspections for compliance with its ordinances (grading, storm water, etc.), permits (construction, grading, etc.), and this Order. Priorities for inspecting sites must consider the nature and size of the construction activity, topography, and the characteristics of soils and receiving water quality.

- (1) During the wet season, each Copermittee must inspect at least biweekly (every two weeks), all construction sites within its jurisdiction meeting any of the following criteria:
- (a) All sites 30 acres or more in size with rough grading or active slopes occurring during the wet season;
 - (b) All sites one acre or more, and tributary to a CWA section 303(d) water body segment impaired for sediment or within or directly adjacent to, or discharging directly to, the ocean or a receiving water within an ESA; and
 - (c) Other sites determined by the Copermittees or the Regional Board as a significant threat to water quality. In evaluating threat to water quality, the following factors must be considered: (1) soil erosion potential; (2) site

slope; (3) project size and type; (4) sensitivity of receiving water bodies; (5) proximity to receiving water bodies; (6) non-storm water discharges; (7) past record of non-compliance by the operators of the construction site; and (8) any other relevant factors.

- (2) During the wet season, each Copermittee must inspect at least monthly, all construction sites with one acre or more of soil disturbance not meeting the criteria specified above in section F.2.e.(1).
- (3) During the wet season, each Copermittee must inspect construction sites less than one acre in size as needed to ensure compliance with its ordinances and this Order.
- (4) Each Copermittee must inspect all construction sites as needed during the dry season. Sites meeting the criteria in section F.2.e.(1) must be inspected at least once in August or September each year.
- (5) Re-inspections: Based upon site inspection findings, each Copermittee must implement all follow-up actions (i.e., re-inspection, enforcement) necessary to comply with this Order. Reinspection frequencies must be determined by each Copermittee based upon the severity of deficiencies, the nature of the construction activity, and the characteristics of soils and receiving water quality.
- (6) Inspections of construction sites must include, but not be limited to:
 - (a) Check for coverage under the General Construction Permit (Notice of Intent (NOI) and/or Waste Discharge Identification No.) during initial inspections;
 - (b) Assessment of compliance with Copermittee ordinances and permits related to runoff, including the implementation and maintenance of designated minimum BMPs;
 - (c) Assessment of BMP effectiveness;
 - (d) Visual observations for non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff;
 - (e) Education and outreach on storm water pollution prevention, as needed; and
 - (f) Creation of a written or electronic inspection report.
- (7) The Copermittees must track the number of inspections for each inventoried construction site throughout the reporting period to verify that each site is inspected at the minimum frequencies required.

f. ENFORCEMENT OF CONSTRUCTION SITES

- (1) Each Copermittee must develop and implement an escalating enforcement

process that achieves prompt corrective actions at construction sites for violations of the Copermittee's water quality protection permit requirements and ordinances. This enforcement process must include authorizing the Copermittee's construction site inspectors to take immediate enforcement actions when appropriate and necessary. The enforcement process must include appropriate sanctions such as stop work orders, non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance.

- (2) Each Copermittee must be able to respond to complaints received from third-parties and to ensure the Regional Board that corrective actions have been implemented.

g. REPORTING OF NON-COMPLIANT SITES

- (1) In addition to the notification requirements in Attachment B, each Copermittee must notify the Regional Board when the Copermittee issues a stop work order or other high level enforcement to a construction site in its jurisdiction as a result of storm water violations.
- (2) Each Copermittee shall annually notify the Regional Board, prior to the commencement of the wet season, of all construction sites with alleged violations. Information may be provided as part of the JRMP annual report if submitted prior to the rainy season. Information provided shall include, but not be limited to, the following:
 - (a) WDID number if enrolled under the General Construction Permit
 - (b) Site Location, including address
 - (c) Current violations or suspected violations

h. TRAINING AND EDUCATION

- (1) Municipal Staff and Contractors: Requirements for municipal staff and contractors are described in the Municipal Component section of this Order.
- (2) Construction Site Owner / Operator Responsibilities:

As early in the planning and development process as possible and all through the permitting and construction process, each Copermittee must implement a program to educate project applicants, developers, contractors, property owners, and other responsible parties. The education program must provide an understanding of the topics listed below, as appropriate for the audience being educated.

- (a) The importance of educating all construction workers in the field about storm water issues and BMPs through formal or informal training;

- (b) Federal, State, and local water quality laws and regulations applicable to construction and grading activities;
- (c) Site design, source control, pollution prevention, and treatment BMPs;
- (d) General runoff concepts; and
- (e) Other topics of local importance, including local water quality conditions, impaired waterbodies and environmentally sensitive areas.

3. EXISTING DEVELOPMENT COMPONENT

a. MUNICIPAL

Each Copermittee must implement a municipal program which meets the requirements of this section, prevents illicit discharges into the MS4, reduces municipal discharges of storm water pollutants from the MS4 to the MEP, and prevents municipal discharges from the MS4 from causing or contributing to a violation of water quality standards.

(1) Source Identification / Inventory

Each Copermittee must maintain an updated watershed-based inventory of municipal areas and activities. The inventory must include the name, address (if applicable), and a description of the area/activity; which pollutants are potentially generated by the area/activity; whether the area/activity is adjacent to an ESA; and identification of whether the area/activity is tributary to a CWA section 303(d) water body segment and generates pollutants for which the water body segment is impaired. The use of an automated database system, such as Geographical Information Systems (GIS) is required when applicable.

(2) General BMP Implementation

- (a) Pollution Prevention: Each Copermittee must implement pollution prevention methods in its municipal program and must require their use by appropriate municipal departments, personnel, and contractors, where appropriate.
- (b) Designate Minimum BMPs: Each Copermittee must designate a minimum set of BMPs for all municipal areas and activities. The designated minimum BMPs for municipal areas and activities must be area or activity specific as appropriate. BMPs must be designated for special events that are expected to generate significant trash and litter.
- (c) Designate BMPs for ESAs and 303(d) Impairments: Each Copermittee must designate enhanced measures for municipal areas and activities tributary to CWA section 303(d) impaired water body segments when an area or activity generates pollutants for which the water body segment is

impaired. Each Copermittee must also designate additional controls for municipal areas and activities within or directly adjacent to or discharging directly to coastal lagoons, the ocean, or other receiving waters within environmentally sensitive areas (as defined in Attachment C of this Order).

- (d) Implement BMPs: Each Copermittee must implement, or require the implementation of, the designated minimum and enhanced BMPs and any additional measures necessary based on its inventory to comply with this Order for each municipal area or activity within its jurisdiction.

(3) BMP Implementation for Management of Pesticides, Herbicides, and Fertilizers

Each Copermittee must implement BMPs to reduce the contribution of storm water pollutants associated with the application, storage, and disposal of pesticides, herbicides and fertilizers from municipal areas and activities to MS4s and receiving waters. Such BMPs must include, at a minimum:

- (a) Educational activities, permits, certifications and other measures for municipal applicators and distributors;
- (b) Integrated Pest Management (IPM) measures that rely on non-chemical solutions;
- (c) The use of native vegetation;
- (d) Schedules for irrigation and chemical application; and
- (e) The collection and proper disposal of unused pesticides, herbicides, and fertilizers.

(4) BMP implementation for Flood Control Structures

- (a) Each Copermittee must implement procedures to assure that flood management projects assess the impacts on the water quality of receiving water bodies.
- (b) Each Copermittee must include water quality protection measures, where feasible, when retrofitting existing flood control structural devices.
- (c) Each Copermittee must evaluate its existing flood control devices, identify devices causing or contributing to a condition of pollution, identify measures to reduce or eliminate the structure's effect on pollution, and evaluate the feasibility of retrofitting the structural flood control device. The inventory and evaluation must be completed by and submitted to the Regional Board in the 2nd year JRMP Annual Report.

(5) BMP Implementation for Sweeping of Municipal Areas

Where municipal area sweeping is implemented as an MS4 BMP for municipal roads, streets, highways, and parking facilities, each Copermittee must design and implement the program based on the following criteria:

- (a) Optimize pickup of trash and debris based on land uses, trash collection schedules, seasonal factors (e.g., special events, tourism, etc.) and inspections of municipal areas/activities.

(6) Operation and Maintenance of Municipal Separate Storm Sewer System (MS4) and Structural Controls

- (a) Treatment Controls: Each Copermittee must implement a schedule of inspection and maintenance activities to verify proper operation of all municipal structural treatment controls designed to reduce storm water pollutant discharges to or from its MS4s and related drainage structures.
- (b) MS4 and Facilities: Each Copermittee must implement a schedule of maintenance activities for the MS4 and MS4 facilities (catch basins, storm drain inlets, open channels, etc). The maintenance activities must, at a minimum, include:
 - (i) Inspection and removal of accumulated waste at least once a year between May 1 and September 30 of each year for all MS4 facilities;
 - (ii) Additional cleaning as necessary between October 1 and April 30 of each year for facilities that receive or collect high volumes of trash and debris;
 - (iii) Following two years of inspections, any MS4 facility that requires inspection and cleaning less than annually may be inspected as needed, but not less than every other year;
 - (iv) Open channels must be cleaned of observed anthropogenic litter in a timely manner;
 - (v) Record keeping of the maintenance and cleaning activities including the overall quantity of waste removed;
 - (vi) Proper disposal of waste removed pursuant to applicable laws; and
 - (vii) Measures to eliminate waste discharges during MS4 maintenance and cleaning activities.

(7) Infiltration From Sanitary Sewer to MS4/Provide Preventive Maintenance of Both

- (a) Each Copermittee must implement controls and measures to prevent and eliminate infiltration of seepage from municipal sanitary sewers to MS4s through thorough, routine preventive maintenance of the MS4. Each Copermittee that operates both a municipal sanitary sewer system and a MS4 must implement controls and measures to prevent and eliminate infiltration of seepage from the municipal sanitary sewers to the MS4s that must include overall sanitary sewer and MS4 surveys and thorough, routine preventive maintenance of both.

(b) Each Copermittee must implement controls to limit infiltration of seepage from municipal sanitary sewers to municipal separate storm sewer systems where necessary. Such controls must include:

- (i) Adequate plan checking for construction and new development,
- (ii) Incident response training for municipal employees that identify sanitary sewer spills;
- (iii) Code enforcement inspections;
- (iv) MS4 maintenance and inspections;
- (v) Interagency coordination with sewer agencies; and
- (vi) Proper education of municipal staff and contractors conducting field operations on the MS4 or municipal sanitary sewer (if applicable).

(8) Inspection of Municipal Areas and Activities

(a) At a minimum, each Copermittee must inspect the following high priority municipal areas and activities annually:

- (i) Roads, Streets, Highways, and Parking Facilities;
- (ii) Flood Management Projects and Flood Control Devices;
- (iii) Areas and activities tributary to a CWA section 303(d) impaired water body segment, where an area or activity generates pollutants for which the water body segment is impaired.
- (iv) Areas and activities within or adjacent to or discharging directly to coastal lagoons, the ocean, or other receiving waters within environmentally sensitive areas (as defined in Attachment C of this Order);
- (v) Municipal Facilities:
 - [a] Active or closed municipal landfills;
 - [b] Publicly owned treatment works (including water and wastewater treatment plants) and sanitary sewage collection systems;
 - [c] Solid waste transfer facilities;
 - [d] Land application sites;
 - [e] Corporate yards including maintenance and storage yards for materials, waste, equipment and vehicles; and
 - [f] Household hazardous waste collection facilities.
- (vi) Municipal airfields;
- (vii) Parks and recreation facilities;
- (viii) Special event venues following special events (festivals, sporting events, etc.);
- (ix) Power washing; and
- (x) Other municipal areas and activities that the Copermittee determines may contribute a significant pollutant load to the MS4.

(b) Other municipal areas and activities must be inspected as needed and in response to water quality data, valid public complaints, and findings from

municipal or contract staff.

- (c) Based upon site inspection findings, each Copermittee must implement all follow-up actions necessary to comply with this Order.

(9) Enforcement of Municipal Areas and Activities

Each Copermittee must enforce its storm water ordinance for all municipal areas and activities as necessary to maintain compliance with this Order.

(10) Training and Education

Each Copermittee must ensure that all municipal personnel and contractors that have responsibilities for selecting, implementing, and evaluating BMPs for municipal areas and activities are adequately trained and educated to perform such tasks.

(a) Municipal Departments and Personnel Education

- (i) Municipal Construction Activities: Each Copermittee must implement an education program that includes annual training prior to the rainy season so that its construction, building, code enforcement, and grading review staffs, inspectors, and other responsible construction staff have, at a minimum, an understanding of the following topics, as appropriate for the target audience:
- [a] Federal, State, and local water quality laws and regulations applicable to construction and grading activities;
 - [b] The connection between construction activities and water quality impacts (i.e., impacts from land development and urbanization and impacts from construction material such as sediment);
 - [c] Proper implementation of erosion and sediment control and other BMPs to minimize the impacts to receiving water quality resulting from construction activities;
 - [d] The Copermittee's inspection, plan review, and enforcement policies and procedures to verify consistent application;
 - [e] Current advancements in BMP technologies;
 - [f] SSMP Requirements including treatment options, site design, source control, and applicable tracking mechanisms; and
 - [g] Other topics of local importance, including local water quality conditions, impaired water bodies, environmentally sensitive areas, and public health and disease vector issues associated with runoff.
- (ii) Municipal Industrial/Commercial Activities: Each Copermittee must train staff responsible for conducting storm water compliance inspections and enforcement of industrial and commercial facilities at

least once a year. Training must cover inspection and enforcement procedures, BMP implementation, and review of monitoring data

- (iii) Municipal Other Activities: Each Copermittee must implement an education program so that municipal personnel and contractors performing activities which generate pollutants have an understanding of the activity specific BMPs for each activity to be performed.

b. COMMERCIAL / INDUSTRIAL

Each Copermittee must implement a commercial / industrial program that meets the requirements of this section, prevents illicit discharges into the MS4, reduces commercial / industrial discharges of storm water pollutants from the MS4 to the MEP, and prevents commercial / industrial discharges from the MS4 from causing or contributing to a violation of water quality standards.

(1) Source Identification

- (a) Each Copermittee must maintain an updated watershed-based inventory of all industrial and commercial sites/sources within its jurisdiction (regardless of ownership) that could contribute a significant pollutant load to the MS4. The inventory must include the following minimum information for each industrial and commercial site/source: name; address; pollutants potentially generated by the site/source; and identification of whether the site/source is tributary to a Clean Water Act section 303(d) water body segment and generates pollutants for which the water body segment is impaired; and a narrative description including SIC codes which best reflects the principal products or services provided by each facility.

At a minimum, the following sites/sources must be included in the inventory:

- (i) Commercial Sites/Sources:
 - [a] Automobile repair, maintenance, fueling, or cleaning;
 - [b] Airplane repair, maintenance, fueling, or cleaning;
 - [c] Boat repair, maintenance, fueling, or cleaning;
 - [d] Equipment repair, maintenance, fueling, or cleaning;
 - [e] Automobile and other vehicle body repair or painting;
 - [f] Mobile automobile or other vehicle washing;
 - [g] Automobile (or other vehicle) parking lots and storage facilities;
 - [h] Retail or wholesale fueling;
 - [i] Pest control services;
 - [j] Eating or drinking establishments, including food markets;

- [k] Mobile carpet, drape or furniture cleaning;
- [l] Cement mixing or cutting;
- [m] Masonry;
- [n] Painting and coating;
- [o] Botanical or zoological gardens and exhibits;
- [p] Landscaping;
- [q] Nurseries and greenhouses;
- [r] Golf courses, parks and other recreational areas/facilities;
- [s] Cemeteries;
- [t] Pool and fountain cleaning;
- [u] Marinas;
- [v] Portable sanitary services;
- [w] Building material retailers and storage;
- [x] Animal facilities;
- [y] Mobile pet services;
- [z] Power washing services; and
- [aa] Other sites and sources with a history of un-authorized discharges to the MS4.

(ii) Industrial Sites/Sources:

- [a] Industrial Facilities, as defined at 40 CFR § 122.26(b)(14), including those subject to the General Industrial Permit or other individual NPDES permit;
- [b] Operating and closed landfills;
- [c] Facilities subject to SARA Title III; and
- [d] Hazardous waste treatment, disposal, storage and recovery facilities.

(iii) ESAs and 303(d) Listed Waterbodies: All other commercial or industrial sites/sources tributary to a CWA Section 303(d) impaired water body segment, where the site/source generates pollutants for which the water body segment is impaired. All other commercial or industrial sites/sources within or directly adjacent to or discharging directly to coastal lagoons, the ocean, or other receiving waters within environmentally sensitive areas (as defined in Attachment C of this Order).

(iv) All other commercial or industrial sites/sources that the Copermitttee determines may contribute a significant pollutant load to the MS4.

(2) General BMP Implementation

(a) Pollution Prevention: Each Copermitttee must require the use of pollution prevention methods by industrial and commercial sites/sources.

- (b) Designate / Update Minimum BMPs: Each Copermittee must designate a minimum set of BMPs for all industrial and commercial sites/sources. Where BMPs have already been designated, each Copermittee must review its existing BMPs for adequacy. The designated minimum BMPs must be specific to facility types and pollutant-generating activities, as appropriate.
- (c) Designate Enhanced BMPs for ESAs and 303(d) Impairments: Each Copermittee must designate enhanced measures for industrial and commercial sites/sources tributary to CWA section 303(d) impaired water body segments (where a site/source generates pollutants for which the water body segment is impaired). Each Copermittee must also designate additional controls for industrial and commercial sites/sources within or directly adjacent to or discharging directly to coastal lagoons, the ocean, or other receiving waters within environmentally sensitive areas (as defined in Attachment C of this Order).
- (d) Implement BMPs: Each Copermittee must implement, or require the implementation of, the designated minimum and enhanced BMPs and any additional measures necessary based on inspections, incident responses, and water quality data to comply with this Order at each industrial and commercial site/source within its jurisdiction.

(3) BMP Implementation for Mobile Businesses

- (a) Each Copermittee must develop and implement a program to reduce the discharge of storm water pollutants from mobile businesses to the MEP and to prohibit non-storm water discharges pursuant to Section B of this Order. Each Copermittee must keep as part of their commercial source inventory a listing of mobile businesses known to operate within its jurisdiction. The program must include:
 - (i) Development and implementation of minimum standards and BMPs to be required for each of the various types of mobile businesses;
 - (ii) Development and implementation of an enforcement strategy which specifically addresses the unique characteristics of mobile businesses;
 - (iii) Notification of those mobile businesses known to operate within the Copermittee's jurisdiction of the minimum standards and BMP requirements and local ordinances;
 - (iv) Development and implementation of an outreach and education strategy; and
 - (v) Inspection of mobile businesses as needed to implement the program.
- (b) If they choose to, the Copermittees may cooperate in developing and implementing their programs for mobile businesses, including sharing of mobile business inventories, BMP requirements, enforcement action

information, and education.

(4) Inspection of Industrial and Commercial Sites/Sources

Each Copermittee must conduct industrial and commercial site inspections for compliance with its ordinances, permits, and this Order.

(a) Inspection Procedures: Inspections must include but not be limited to:

- (i) Review of BMP implementation plans, if the site uses or is required to use such a plan;
- (ii) Review of facility monitoring data, if the site monitors its runoff;
- (iii) Check for coverage under the General Industrial Permit (Notice of Intent (NOI) and/or Waste Discharge Identification Number), if applicable;
- (iv) Assessment of compliance with Copermittee ordinances and permits related to runoff;
- (v) Assessment of BMP implementation, maintenance and effectiveness;
- (vi) Visual observations for non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff; and
- (vii) Education and training on storm water pollution prevention, as conditions warrant.

(b) Each Copermittee shall annually notify the Regional Board, prior to the commencement of the wet season, of all Industrial Sites and Industrial Facilities subject to the General Industrial Permit or other individual NPDES permit with alleged violations. Information may be provided as part of the JRMP annual report if submitted prior to the rainy season. Information provided shall include, but not be limited to, the following:

- (i) WDID number if enrolled under the General Industrial Permit;
- (ii) Site Location, including address;
- (iii) Current violations or suspected violations; and
- (iv) Past Violation history.

(c) Frequencies: At a minimum, 20 percent of the sites inventoried as required in section F.3.b.(1) above (excluding mobile sources and food facilities) must be inspected each year. Mobile businesses must be

inspected pursuant to the enforcement strategy developed pursuant to section F.3.b.(3). Other inspection frequencies must be based upon findings of the Copermittee's existing program and the following factors:

- (i) Type of activity (SIC code);
 - (ii) Materials used at the facility;
 - (iii) Wastes generated;
 - (iv) Pollutant discharge potential;
 - (v) Non-storm water discharges;
 - (vi) Size of facility;
 - (vii) Proximity to receiving water bodies;
 - (viii) Sensitivity of receiving water bodies;
 - (ix) Whether the facility is subject to the General Industrial Permit or an individual NPDES permit;
 - (x) Whether the facility has filed a No Exposure Certification/Notice of Non-Applicability;
 - (xi) Facility design;
 - (xii) Total area of the site, area of the site where industrial or commercial activities occur, and area of the site exposed to rainfall and runoff;
 - (xiii) The facility's compliance history; and
 - (xiv) Any other relevant factors.
- (d) Food Facilities: Each food facility must be inspected annually for compliance with the Copermittee's water quality ordinances and this Order. Each inspection of a food facility must, at a minimum, address the following concerns:
- (i) Trash storage and disposal;
 - (ii) Grease storage and disposal;
 - (iii) Washwater discharges to the MS4 (e.g., from floor mats, driveways, sidewalks, etc.);
 - (iv) Identification of outdoor sewer and MS4 connections; and
 - (v) Education of property managers when grease and/or trash facilities are shared by multiple facilities.
- (e) Third-Party Inspections: Each Copermittee may develop and implement a third party inspection program for verifying industrial and commercial site/source compliance with its ordinances, permits, and this Order. To the extent that third party inspections are conducted to fulfill the requirements of this Order, the Copermittee will be responsible for conducting and documenting quality assurance and quality control of the third-party inspections.
- (i) Each inspection conducted by a third-party must, at a minimum, result in the following:

- [a] Photo documentation of potential storm water violations identified during the third party inspection;
 - [b] Reporting to the Copermittee of identified significant potential violations, including imminent or observed illegal discharges, within 24 hours of the third party inspection;
 - [c] Reporting to the Copermittee of all inspection findings within one week of the inspection being conducted; and
 - [d] Copermittee follow-up and/or enforcement actions for identified potential storm water violations within two business days of the inspection or potential violation report receipt.
- (f) Based upon site inspection findings, each Copermittee must implement all follow-up actions and enforcement necessary to comply with this Order.
- (g) To the extent that the Regional Board has conducted an inspection of an industrial site during a particular year, the requirement for the responsible Copermittee to inspect this facility during the same year will be satisfied.
- (h) The Copermittees must track the number of inspections for the inventoried industrial and commercial sites/sources throughout the reporting period to verify that the sites/sources are inspected at the minimum frequencies listed in this Order.

(5) Enforcement of Industrial and Commercial Sites/Sources

Each Copermittee must enforce its storm water ordinance for all industrial and commercial sites/sources as necessary to maintain compliance with this Order. Copermittee ordinances or other regulatory mechanisms must include appropriate sanctions to achieve compliance. Sanctions must include the following or their equivalent: Non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance.

(6) Training and Education for Owners and Operators of Commercial and Industrial Activities

- (a) Each Copermittee must implement an education program using all media as appropriate to (1) measurably increase the knowledge of owners and operators of commercial and industrial activities regarding MS4s, impacts of runoff on receiving waters, and potential BMP solutions for the target audience; and (2) to measurably change the behavior of target communities and thereby reduce storm water pollutant releases and eliminate prohibited non-storm water discharges to MS4s and the environment. At a minimum, the education program must meet the requirements of this section and address the following issues:
- (i) Laws, regulations, permits, & requirements;

- (ii) Best management practices;
- (iii) General runoff concepts; and
- (iv) Other topics, including public reporting mechanisms, water conservation, low-impact development techniques.

(b) BMP Notification: At least twice during the five-year period of this Order, each Copermittee must notify the owner/operator of each inventoried industrial and commercial site/source of the BMP requirements applicable to the site/source.

c. RESIDENTIAL

Each Copermittee must implement a residential program which meets the requirements of this section, prevents illicit discharges into the MS4, reduces residential discharges of storm water pollutants from the MS4 to the MEP, and prevents residential discharges from the MS4 from causing or contributing to a violation of water quality standards.

(1) Threat to Water Quality Prioritization

Each Copermittee must identify residential areas and activities that pose a high threat to water quality. At a minimum, these must include:

- (a) Automobile repair, maintenance, washing, and parking;
- (b) Home and garden care activities and product use (pesticides, herbicides, and fertilizers);
- (c) Disposal of trash, pet waste, green waste, and household hazardous waste (e.g., paints, cleaning products);
- (d) Any other residential source that the Copermittee determines may contribute a significant pollutant load to the MS4;
- (e) Any residential areas tributary to a CWA section 303(d) impaired water body, where the residence generates pollutants for which the water body is impaired; and
- (f) Any residential areas within or directly adjacent to or discharging directly to a coastal lagoon, the ocean, or other receiving waters within an environmentally sensitive area (as defined in Attachment C of this Order).

(2) BMP Implementation

- (a) Pollution Prevention: Each Copermittee must actively encourage the use of pollution prevention methods by residents.
- (b) Designate BMPs: Each Copermittee must designate minimum BMPs for high-threat-to-water quality residential areas and activities. The designated minimum BMPs for high-threat-to-water quality residential

areas and activities must be area or activity specific.

- (c) Hazardous Waste BMPs: Each Copermittee must facilitate the proper management and disposal of used oil, toxic materials, and other household hazardous wastes. Such facilitation must include educational activities, public information activities, and establishment of collection sites operated by the Copermittee or a private entity. Curbside collection of household hazardous wastes is encouraged.
- (d) Implement BMPs: Each Copermittee must implement, or require implementation of, the designated minimum BMPs and any additional measures necessary to comply with Sections A and B of this Order.
- (e) Each Copermittee must implement, or require implementation of, BMPs for residential areas and activities that have not been designated a high threat to water quality, as necessary.

(3) Enforcement of Residential Areas and Activities

Each Copermittee must enforce its storm water ordinance for all residential areas and activities as necessary to maintain compliance with this Order.

(4) Evaluation of Oversight of Residential Areas and Activities

Each Copermittee must annually review the effectiveness of efforts to reduce residential discharges of storm water pollutants from the MS4 and eliminate illicit residential discharges into the MS4. The evaluation must consider findings from monitoring data, municipal employee comments, inspections, complaints, and other appropriate sources.

(5) Common Interest Areas (CIA) / Home Owner Association (HOA) Areas

Each Copermittee must implement measures specifically to ensure that runoff within common interest developments, including areas managed by associations, meets the objectives of this section and Order.

- (a) BMP Implementation: Each Copermittee must implement management measures based on a review of pertinent factors, including:
 - (i) Current maintenance duties and procedures used by CIA/HOA maintenance associations within its jurisdiction;
 - (ii) Whether streets and storm drains are publicly or privately owned within the CIA/HOA;
 - (iii) Whether the CIA/HOA area has been identified as a high priority residential area;
 - (iv) Proximity to 303(d)-listed waterbodies, the ocean, environmentally

- sensitive areas;
- (v) Evaluation of water quality monitoring data;
- (vi) Evaluation of existing illegal discharge/illicit connection activities;
- (vii) Other activities conducted or authorized by the HOA that may pose a significant risk to inland or coastal receiving waters.

- (b) Legal Authority and Enforcement: Within one year of adoption of this Order, each Copermittee must review its Municipal Code to determine the most appropriate method to implement and enforce runoff management measures within CIA/HOA areas.

(6) Residential Education Program

- (a) Each Copermittee must implement a Residential Education Program using all media as appropriate to (1) measurably increase the knowledge regarding MS4s, impacts of runoff on receiving waters, and potential BMP solutions for the target audience; and (2) to measurably change the behavior of target communities and thereby reduce storm water and eliminate prohibited non-storm water pollutant releases to MS4s and the environment.
- (b) Copermittee educational programs must emphasize underserved target audiences, residents and managers of CIA/HOA areas, high-risk behaviors, and “allowable” behaviors and discharges. At a minimum, the education program must meet the requirements of this section and address the following issues:
 - (i) Laws, regulations, permits, and requirements;
 - (ii) Best management practices;
 - (iii) General runoff concepts;
 - (iv) Existing water quality, including local water quality conditions, impaired waterbodies and environmentally sensitive areas; and
 - (v) Other topics, including public reporting mechanisms, water conservation, low-impact development techniques, and public health and disease vector issues associated with runoff.

d. Retrofitting Existing Development

Each Copermittee must develop and implement a retrofitting program which meets the requirements of this section. The goals of the existing development retrofitting program are to reduce impacts from hydromodification, promote LID, support riparian and aquatic habitat restoration, reduce the discharges of storm water pollutants from the MS4 to the MEP, and prevent discharges from the MS4 from causing or contributing to a violation of water quality standards. Where feasible, at the discretion of the Copermittee, the existing development retrofitting program may be coordinated with flood control projects and infrastructure

improvement programs.

(1) Source Identification

The Copermittee must identify and inventory existing developments (i.e. municipal, industrial, commercial, residential) as candidates for retrofitting. Potential retrofitting candidates must include but are not limited to:

- (a) Development that contributes pollutants of concern to a TMDL or a ESA;
- (b) Receiving waters channelized or otherwise hardened;
- (c) Development tributary to receiving waters that are channelized or otherwise hardened;
- (d) Developments tributary to receiving waters that are significantly eroded;
- (e) Developments tributary to an ASBS or SWQPA; and
- (f) Development that causes hydraulic constriction.

(2) Each Copermittee shall evaluate and rank the inventoried existing developments to prioritize retrofitting. Criteria for evaluation must include but is not limited to:

- (a) Feasibility;
- (b) Cost effectiveness;
- (c) Pollutant removal effectiveness;
- (d) Impervious area potentially treated;
- (e) Maintenance requirements;
- (f) Landowner cooperation;
- (g) Neighborhood acceptance;
- (h) Aesthetic qualities; and
- (i) Efficacy at addressing concern.

(3) Each Copermittee must consider the results of the evaluation in prioritizing work plans for the following year. Highly feasible projects expected to benefit water quality should be given a high priority to implement source control and treatment control BMPs. Where feasible, the retrofit projects should be designed in accordance with the SSMP requirements within sections F.1.d.(3) through F.1.d.(8). In addition, the Copermittee shall encourage retrofit projects to implement where feasible the Hydromodification requirements in Section F.1.h.

(4) When requiring retrofitting on existing development, the Copermittees will cooperate with private landowners to encourage retrofitting projects. The Copermittee may consider the following practices in cooperating and encouraging private landowners to retrofit their existing development:

- (a) Demonstration retrofit projects;
- (b) Retrofits on public land and easements;

- (c) Education and outreach;
 - (d) Subsidies for retrofit projects;
 - (e) Requiring retrofit projects as mitigation or ordinance compliance;
 - (f) Public and private partnerships; and
 - (g) Fees for existing discharges to the MS4.
- (5) The completed retrofit BMPs shall be tracked and inspected in accordance with section F.1.f.
- (6) Where constraints on retrofitting preclude effective BMP deployment on existing developments at locations critical to protect receiving waters, a Copermittee may propose a regional mitigation project to improve water quality. Such regional projects may include but are not limited to:
- (a) Regional water quality treatment BMPs;
 - (b) Urban creek or wetlands restoration and preservation;
 - (c) Daylighting and restoring underground creeks;
 - (d) Localized rainfall storage and reuse to the extent such projects are fully protective of downstream water rights;
 - (e) Hydromodification project; and
 - (f) Removal of invasive plant species.
- (7) A retrofit project or regional mitigation project may qualify as a Watershed Water Quality Activity provided it meets the requirements in section G. Watershed Runoff Management Program.

4. ILLICIT DISCHARGE DETECTION AND ELIMINATION

Each Copermittee must implement a program which meets the requirements of this section to actively detect and eliminate illicit discharges and disposal into the MS4. The program must address all types of illicit discharges and connections excluding those non-storm water discharges not prohibited by the Copermittee in accordance with section B of this Order.

a. PREVENT AND DETECT ILLICIT DISCHARGES AND CONNECTIONS

Each Copermittee must implement measures to prevent and detect illicit discharges to the MS4.

- (1) Legal Authority: Each Copermittee must retain legal authority to prevent and eliminate illicit discharges and connections to the MS4.
- (2) Inspections: Each Copermittee must include use of appropriate municipal personnel and contractors to assist in identifying illicit discharges and connections during their daily activities.

- (a) Inspections for illegal discharges and connections must be conducted during routine maintenance of all MS4 facilities.
- (b) Municipal staff and contractors conducting non-MS4 field operations must be trained to report suspected illegal discharges and connections to proper municipal staff.

b. MAINTAIN MS4 MAP

Each Copermittee must maintain an updated map of its entire MS4 and the corresponding drainage areas within its jurisdiction. The use of GIS is required. The accuracy of the MS4 map must be confirmed during dry weather field screening and analytical monitoring and must be updated at least annually. The GIS layers of the MS4 map must be submitted with the updated Jurisdictional Runoff Management Plan within 365 days after adoption of this Order.

c. FACILITATE PUBLIC REPORTING OF ILLICIT DISCHARGES AND CONNECTIONS - PUBLIC HOTLINE

Each Copermittee must promote, publicize and facilitate public reporting of illicit discharges or water quality impacts associated with discharges into or from MS4s. Each Copermittee must facilitate public reporting through development and operation of a public hotline. Public hotlines can be Copermittee-specific or shared by Copermittees. All storm water hotlines must be capable of receiving reports in both English and Spanish 24 hours per day and seven days per week.

d. DRY WEATHER FIELD SCREENING AND ANALYTICAL MONITORING

Each Copermittee must conduct dry weather field screening and analytical monitoring of MS4 outfalls and other portions of its MS4 within its jurisdiction to detect illicit discharges and connections in accordance with Receiving Waters and MS4 Discharge Monitoring and Reporting Program No. R9-2009-0002 in Attachment E of this Order.

e. INVESTIGATION / INSPECTION AND FOLLOW-UP

Each Copermittee must implement procedures to investigate and inspect portions of the MS4 that, based on the results of field screening, analytical monitoring, or other appropriate information, indicate a reasonable potential of containing illicit discharges, illicit connections, or other sources of pollutants in non-storm water.

- (1) Develop response criteria for data: Each Copermittee must develop, update, and use numeric criteria action levels (or other actions level criteria where appropriate) to determine when follow-up investigations will be performed in response to water quality monitoring. The criteria must include required

non-storm water action levels (see Section C) and a consideration of 303(d)-listed waterbodies and environmentally sensitive areas (ESAs) as defined in Attachment C.

- (2) Respond to data: Each Copermittee must investigate portions of the MS4 for which water quality data or conditions indicates a potential illegal discharge or connection.
 - (a) Obvious illicit discharges (i.e. color, odor, or significant exceedances of action levels) must be investigated immediately.
 - (b) Field screen data: Within two business days of receiving dry weather field screening results that exceed action levels, the Copermittees must either initiate an investigation to identify the source of the discharge or document the rationale for why the discharge does not pose a threat to water quality and does not need further investigation. This documentation shall be included in the Annual Report.
 - (c) Analytical data: Within five business days of receiving analytical laboratory results that exceed action levels, the Copermittees must either initiate an investigation to identify the source of the discharge or document the rationale for why the discharge does not pose a threat to water quality and does not need further investigation. This documentation shall be included in the Annual Report.
- (3) Respond to notifications: Each Copermittee must respond to and resolve each reported incident (e.g., public hotline, staff notification, etc.) in a timely manner. Criteria may be developed to assess the validity of, and prioritize the response to, each report.

f. ELIMINATION OF ILLICIT DISCHARGES AND CONNECTIONS

Each Copermittee must take immediate action to initiate steps necessary to eliminate all detected illicit discharges, illicit discharge sources, and illicit connections after detection. Elimination measures may include an escalating series of enforcement actions for those illicit discharges that are not a serious threat to public health or the environment. Illicit discharges that pose a serious threat to the public's health or the environment must be eliminated immediately.

g. ENFORCE ORDINANCES

Each Copermittee must implement and enforce its ordinances, orders, or other legal authority to prevent illicit discharges and connections to its MS4 and to eliminate detected illicit discharges and connections to its MS4.

h. PREVENT AND RESPOND TO SEWAGE SPILLS (INCLUDING FROM PRIVATE LATERALS AND FAILING SEPTIC SYSTEMS) AND OTHER SPILLS

(1) Each Copermittee must implement management measures and procedures to prevent, respond to, contain and clean up all sewage (see below) and other spills that may discharge into its MS4 from any source (including private laterals and failing septic systems). Copermittees must coordinate with spill response teams to prevent entry of spills into the MS4 and contamination of surface water, ground water and soil. Each Copermittee must coordinate spill prevention, containment and response activities throughout all appropriate departments, programs and agencies so that maximum water quality protection is available at all times.

(2) Each Copermittee must develop and implement a mechanism whereby it is notified of all sewage spills from private laterals and failing septic systems into its MS4. Each Copermittee must implement management measures and procedures to prevent, respond to, and coordinate a response to contain and clean up sewage from any such notification.

i. EDUCATION AND TRAINING

Each Copermittee must implement educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials.

5. PUBLIC PARTICIPATION COMPONENT

Each Copermittee must incorporate a mechanism for public participation in the updating, development, and implementation of the Jurisdictional Runoff Management Program.

G. WATERSHED RUNOFF MANAGEMENT PROGRAM

1. Lead Watershed Copermittee Identification

Watershed Copermittees shall identify the Lead Watershed Copermittee for their Watershed Management Area (WMA). The Lead Watershed Copermittees shall serve as liaisons between the Permittees and Regional Board, where appropriate.

2. Watershed Water Quality Workplan (Watershed Workplan)

The Watershed Workplan shall describe the Permittees' development and implementation of a collective watershed strategy to assess and prioritize the water quality problems within the watershed's receiving waters, identify and model sources of the highest priority water quality problem(s), develop a watershed-wide BMP implementation strategy to abate highest priority water quality problems, and a monitoring strategy to evaluate BMP effectiveness and changing water quality prioritization in the WMA.

The work plan shall, at a minimum:

- a.** Characterize the receiving water quality in the WMA. Characterization shall include use of regularly collected water quality data, reports, monitoring and analysis generated in accordance with the requirements of the Receiving Waters Monitoring and Reporting Program, as well as applicable information available from other public and private organizations.
- b.** Identify the highest priority water quality problem(s), in terms of constituents by location, in the WMA's receiving waters. Identified water quality problem(s) shall, at a minimum, give consideration to; TMDLs, receiving waters listed on the CWA section 303(d) list, waters with persistent violations of water quality standards, toxicity, or impacts to beneficial uses, and other pertinent conditions.
- c.** Identify the sources of the highest water quality problem(s) within the WMA. Efforts to determine such sources shall include, but not be limited to: use of information from the construction, industrial/commercial, municipal, and residential source identification programs required within the Jurisdictional Runoff Program (JRMP) of this Order; specific actions to model pollutant transport to receiving waters for the sake of identifying the source(s) point(s) of origin; water quality monitoring data collected as part of the Receiving Water Monitoring and Reporting Program required by this Order, and additional focused water quality monitoring to identify specific sources within the watershed.
- d.** Develop a watershed BMP implementation strategy to attain receiving water quality objectives in the identified highest priority water quality problem(s). The BMP implementation strategy shall include a schedule for implementation of the BMP projects to abate specific receiving water quality problems. BMPs not

contributing to measured pollutant reductions or improvements to water quality must be removed and replaced with alternative BMPs. Identified watershed water quality problems may be the result of jurisdictional discharges that will need to be addressed with BMPs applied in a specific jurisdiction in order to generate a benefit to the watershed.

- e. Develop a strategy to model and monitor improvements in receiving water quality directly resulting from implementation of the BMPs described in the Watershed Workplan. The modeling and monitoring strategy shall generate the necessary data to report on the measured pollutant reduction that results from proper BMP implementation. Monitoring shall, at a minimum, be conducted in the receiving water to demonstrate reduction in pollutant concentrations and progression towards attainment of receiving water quality objectives.
 - f. Establish a schedule for development and implementation of the Watershed strategy outlined in the Workplan. The schedule shall, at a minimum, include forecasted dates of planned actions to address Provisions E.2(a) through E.2(e) and dates for watershed review meetings through the remaining portion of this Permit cycle. Annual watershed workplan review meetings must be open to the public and appropriately publically noticed such that interested parties may come and provide comments on the watershed program.
- 3. Watershed Workplan Implementation** – Watershed Copermittee’s shall begin implementing the Watershed Workplan within 60-days of acceptance by the Regional Board Executive Officer. If within 30 days of submittal, the Regional Board has not taken an action, the Workplan shall be deemed acceptable.
- 4. Copermittee Collaboration** – Watershed Copermittees shall collaborate to develop and implement the Watershed Workplan. Watershed Copermittee collaboration shall include frequent regularly scheduled meetings.
- 5. Public Participation** – Watershed Copermittees shall implement a watershed-specific public participation mechanism within each watershed. A required component of the watershed-specific public participation shall be a minimum 30-day public review of the Watershed Workplan prior to submittal for acceptance by the Regional Board Executive Officer. Opportunity for the public to review and comment on the Watershed Workplan must occur before the workplan is implemented.
- 6. Watershed Workplan Review and Updates** – Watershed Copermittees shall review and update the Watershed Workplan annually to identify needed changes to the prioritized water quality problem(s) listed in the workplan. All updates to the Watershed Workplan shall be presented during an Annual Watershed Review Meeting. Annual Watershed Review Meetings shall occur once every calendar year and be conducted by the Watershed Copermittees. Annual Watershed Review Meetings shall be open to the public and adequately noticed. Individual Watershed Copermittees shall also review and modify their jurisdictional programs and JRMP

Annual Reports, as necessary, so that they are consistent with the updated Watershed Workplan.

7. Aliso Creek Watershed Runoff Management Plan (WRMP) Provisions

The following provisions apply to the Aliso Creek WRMP. Requirements in this subsection must supersede requirements prescribed by the Regional Board on October 18, 2005.²⁰

- a. Each Copermittee within the Aliso Creek Watershed must implement the monitoring and reporting program described in *Aliso Creek 13325 Directive, Revised Monitoring Program Design – Integration with NPDES Program*, December 2004 (Revised Aliso Creek Program).
- b. Each Copermittee must provide annual reports by March 1 of each year beginning in 2011 for the preceding annual period of January through December. The annual reports must contain the following information:
 - (1) Water quality data and assessment from the Revised Aliso Creek Program. Each municipality must implement the monitoring and reporting program described in the Revised Aliso Creek Program. All information submitted in the report must conform to a SWAMP-Compatible Quality Assurance Project Plan²¹. The report must contain an assessment of compliance with applicable water quality standards for each monitoring station. The report must include data in tabular and graphical form, and electronic data must be submitted to the Regional Board.
 - (2) Program Assessment. A description and assessment of each municipality's program implemented within the high-priority storm drain locations (as identified Revised Aliso Creek Program) to reduce discharges of indicator fecal bacteria/pathogens. Monitoring alone is not sufficient to assess progress of the municipal programs. Municipalities must demonstrate each year that their programs are effective and resulting in a reduction of bacteria sources.
 - (i) For structural and nonstructural management practices implemented, the assessment must contain a description of the

²⁰ On October 12, 2005, the Regional Board accepted proposed changes to the bacteria monitoring program that had been conducted since spring 2001 pursuant to an Investigative Order from the Regional Board's executive officer. The October 18, 2005, letter from the Regional Board's executive officer revised the Investigative Order and instituted the new monitoring and reporting requirements.

²¹ The State Water Resource Control Board (State Board) has prepared an electronic template for Quality Assurance Project Plans (QAPP) to assist in QAPP development, to provide a common format that will allow for review to be expedited, and to provide information on Surface Water Ambient Monitoring (SWAMP) consistency. Additional information and the template are available on-line at <http://www.waterboards.ca.gov/swamp/qapp.html>.

practice, capital and maintenance costs, expectations for effectiveness, date implemented, and any observed results.

(ii) For structural and nonstructural management practices evaluated, the assessment must contain a description of the practice(s), conclusions from the evaluation, and whether and when the practice is planned for implementation by the municipality or group of municipalities.

(3) Status Reports. Updates on high-priority storm drain areas. Status reports must be provided by each municipality that discuss the causes of impairment and subsequent management activities implemented within the reporting period in the high priority areas and the planned activities for the next reporting period.

(4) Certification Statement. The technical reports submitted to the Regional Board must include the following certification statement signed by either the principal executive officer, ranking elected official, or duly authorized representative of that person:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

- c. The annual reports must be submitted until the Regional Board determines they are no longer warranted. If requested by a municipality, the monitoring program may be modified or reduced by the Regional Board. The monitoring program and annual reporting may be modified in response to adopted TMDLs and additional Clean Water Act 303(d) listings for impairment.
- d. Municipalities must continue meeting on a quarterly basis to discuss efforts to reduce bacteria in the Aliso Creek watershed.

H. FISCAL ANALYSIS

- 1. Secure Resources:** Each Copermittee must secure the resources necessary to meet all requirements of this Order.
- 2. Annual Analysis:** Each Copermittee must conduct an annual fiscal analysis of the necessary capital and operation and maintenance expenditures necessary to accomplish the activities of the programs required by this Order. The analysis must include estimated expenditures for the reporting period, the preceding period, and the next reporting period.
 - a.** Each analysis must include a description of the source of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds.
 - b.** Each analysis must include a narrative description of circumstances resulting in a 25 percent or greater annual change for any budget line items.
- 3. Annual Reporting:** Each Copermittee must submit its annual fiscal analysis with the annual JRMP report.

I. TOTAL MAXIMUM DAILY LOADS

The waste load allocations (WLAs) of fully approved and adopted TMDLs are incorporated as Water Quality Based Effluent Limitations on a pollutant by pollutant, watershed by watershed basis. Early TMDL requirements, including monitoring, may be required and inserted into this Order pursuant to Finding E.10

1. Baby Beach Bacterial Indicator TMDL Water Quality Based Effluent Limitations

- a. The Copermitees in the Baby Beach watershed shall implement BMPs capable of achieving the interim and final Bacterial Indicator Waste Load Allocations (WLAs) in discharges to Baby Beach as described in Table 6.

Table 6: TMDL Waste Load Reduction Milestones

<u>Action</u>	<u>Date</u>
Meet 50% wasteload reductions	3 years after effective date for dry weather
	7 years after effective date for wet weather
Meet 100% wasteload reductions	5 years after effective date for dry weather
	10 years after effective date for wet weather

- b. The Copermitees shall conduct necessary monitoring, as described in Attachment A to Resolution No. R9-2008-0027, and submit annual progress reports as part of their yearly reports.
- c. The following WLAs (Table 7) are to be met in Baby Beach receiving water by the end of the year 2019 for wet weather and 2014 for dry weather:

Table 7: Final Bacterial Indicator Waste Load Allocations for Baby Beach

<u>Bacterial Indicator</u>	<u>Waste Load Allocation</u>	
	Dry Weather (Billion MPN / Day)	Wet Weather (Billion MPN / 30 Days)
Total Coliform	0.86	3,254
Fecal Coliform	0.17	112
<i>Enterococcus</i>	0.03	114

MPN: Most Probable Number

- d. The Copermitees must meet the following Numeric Targets (Table 8) in Baby Beach receiving waters in order to meet the underlying assumptions of the TMDL. The Numeric Targets are to be met once 100 percent of the WLA reductions have been achieved (see Table 7 above).

Table 8: Final Bacterial Indicator Numeric Targets for Baby Beach

<u>Bacterial Indicator</u>	30-day geo mean (MPN / 100mL)	Single Sample Max (MPN / 100mL)
	Dry Weather only	Dry and Wet Weather
Total Coliform	1,000	10,000
Fecal Coliform	200	400
<i>Enterococcus</i>	35	104

MPN: Most Probable Number

J. PROGRAM EFFECTIVENESS ASSESSMENT AND REPORTING

1. Jurisdictional Program Effectiveness Assessments

a. OBJECTIVES OF EFFECTIVENESS ASSESSMENTS

Beginning with the Annual Report due in 2011, each Copermittee must annually assess the effectiveness of its Jurisdictional Runoff Management Program (JRMP) implementation at meeting the following objectives:

- (1) Objective for 303(d) Waterbodies: Reduce storm water pollutant loadings.
 - (a) Each Copermittee must establish annual assessment measures or methods specifically for reducing discharges of storm water pollutants from its MS4 into each downstream 303(d)-listed water body for which that waterbody is impaired. Assessment measures must be developed for each of the six outcome levels described by CASQA.²²
 - (b) Each Copermittee must annually conduct each established assessment measure or method and evaluate the outcome. Each outcome must then be used to assess the effectiveness of implemented management measures toward reducing MS4 discharges of the specific pollutants causing or contributing to conditions of impairment.
 - (c) The assessment measures must target both water quality outcomes and the results of municipal enforcement activities.
- (2) Objective for Environmentally-Sensitive Areas: Prevent storm water MS4 discharges from causing or contributing to conditions of pollution, nuisance, or contamination.
 - (a) Each Copermittee must establish annual measures or methods specifically for assessing the effectiveness of its management measures for protecting downstream ESAs from adverse effects caused by discharges from its MS4. Assessment measures must be developed for each of the six outcome levels described by CASQA.
 - (b) Each Copermittee must annually implement each established assessment measure or method and evaluate the outcome. Each outcome must be used to assess the effectiveness of implemented management measures toward reducing MS4 discharges of the specific pollutants causing or contributing to conditions of impairment.
 - (c) The assessment measures must target both water quality outcomes and the results of municipal enforcement activities.
- (3) Objectives for major program component outcomes: Determined by Each

²² Effectiveness assessment outcome levels as defined by CASQA are defined in Attachment C of this Order. See "*Municipal Stormwater Program Effectiveness Assessment Guidance*" (CASQA, May 2007) for guidance for assessing program activities at the various outcome levels.

Copermittee.

- (a) Each Copermittee must annually develop objectives for each program component in Section F and the overall JRMP. The objectives must be established as appropriate in response to program implementation and evaluation of water quality and management practices.
 - (b) Assessment approaches for program implementation must include a mix of specific activities, general program components, and water quality data.
 - (c) The assessment measures must target both water quality outcomes and the results of municipal enforcement activities.
- (4) Objectives for actions taken to protect receiving water limitations in accordance with this Order.
- (a) Each Copermittee must develop and implement an effectiveness assessment strategy for each measure conducted in response to a determination to implement the “iterative” approach to prevent or reduce any storm water pollutants that are causing or contributing to the exceedance of water quality standards as outlined in this Order

b. ASSESSMENT REVIEW

- (1) Based on the results of the effectiveness assessments, each Copermittee must annually review its jurisdictional activities and BMPs to identify modifications and improvements needed to maximize JRMP effectiveness, as necessary to achieve compliance with this Order.
- (2) Each Copermittee must develop and annually conduct an Integrated Assessment²³ of each effectiveness assessment objective above (Section J.1.a) and the overall JRMP using a combination of outcomes as appropriate to the objectives.²⁴

2. Program Modifications

- a. Each Copermittee must develop and implement a plan and schedule to address program modifications and improvements identified during annual effectiveness assessments.
- b. Jurisdictional activities/BMPs that are ineffective or less effective than other comparable jurisdictional activities/BMPs must be replaced or improved upon by implementation of more effective jurisdictional activities/BMPs. Where monitoring data exhibits persistent water quality problems that are caused or

²³ Integrated assessment is defined in Attachment C. It is the process of evaluating whether program implementation is resulting in the protection or improvement of water quality. Integrated assessment combines assessments of program implementation and water quality.

²⁴ Not all program components need be addressed at each of the six outcome levels.

contributed to by MS4 discharges, jurisdictional activities or BMPs applicable to the water quality problems must be modified and improved to correct the water quality problems.

3. Effectiveness Assessment and Program Response Reporting

- a. Each Copermittee must include a description and summary of its annual and long-term effectiveness assessments within each Annual Report. Beginning with the Annual Report due in 2011, the Program Effectiveness reporting must include:
- (1) 303(d) waterbodies: A description and results of the annual assessment measures or methods specifically for reducing discharges of storm water pollutants from its MS4 into each 303(d)-listed waterbody;
 - (2) ESAs: A description and results of the annual assessment measures or methods specifically for managing discharges of pollutants from its MS4 into each downstream ESA;
 - (3) Other Program Components: A description of the objectives and corresponding assessment measures and results used to evaluate the effectiveness of each general program component. The results must include findings from both program implementation and water quality assessment where applicable;
 - (4) Receiving water protection: A description and results of the annual assessment measures or methods employed specifically for actions taken to protect receiving water limitations in accordance with Section A.3 of this Order;
 - (5) A description of the steps taken to use dry-weather and wet-weather monitoring data to assess the effectiveness of the programs for 303(d) impairments, ESAs, and general program components;
 - (6) A description of activities conducted in response to investigations of illicit discharge and illicit connection activities, including how each investigation was resolved and the pollutant(s) involved;
 - (7) Responses to effectiveness assessments: A description of each program modification, made in response to the results of effectiveness assessments conducted pursuant to Section J.1.a, and the basis for determining (pursuant to Section J.2.b.) that each modified activity and/or BMP represents an improvement with respect to reducing the discharge of storm water pollutants from the MS4.
 - (8) A description of the steps that will be taken to improve the Copermittee's ability to assess program effectiveness using measurable targeted outcomes, assessment measures, assessment methods, and outcome levels 1-6. Include a time schedule for when improvement will occur; and
 - (9) A description of the steps that will be taken to identify aspects of the Copermittee's Jurisdictional Runoff Management Program that will be changed based on the results of the effectiveness assessment.

4. Work Plan

Each Copermittee must develop a work plan to address their high priority water quality problems in an iterative manner over the life of the permit. The goal of the work plan is to demonstrate a responsive and adaptive approach for the judicious and effective use of available resources to attack the highest priority problems. The work plan shall include, at a minimum, the following:

- a.** The problems and priorities identified during the assessment;
- b.** A list of priority pollutants and known or suspected sources;
- c.** A brief description of the strategy employed to reduce, eliminate or mitigate the negative impacts;
- d.** A description and schedule for new and/or modified BMPs. The schedule is to include dates for significant milestones;
- e.** A description of how the selected activities will address an identified high priority problem. This will include a description of the expected effectiveness and benefits of the new and/or modified BMPs;
- f.** A description of implementation effectiveness metrics;
- g.** A description of how efficacy results will be used to modify priorities and implementation; and
- h.** A review of past activities implemented, progress in meeting water quality standards, and planned program adjustments.

The Copermittee shall submit the work plan to the Regional Board within 365 days of adoption of the Order. Annual updates are also required and shall be included with the annual JRMP report. The Regional Board will assess the work plan for compliance with the specific and overall requirements of the Order. To increase effectiveness and efficiencies, Copermittees may combine their implementation efforts and work plans within a hydrologic area or sub area. Each Copermittee, however, maintains individual responsibility for developing and implementing an acceptable work plan.

K. REPORTING

The Copermittees may propose alternate reporting criteria and schedules, as part of their updated JRMP, for the Executive Officer's acceptance. The Copermittees shall submit the updated JRMP within 365 days after adoption of this Order.

1. Runoff Management Plans**a. JURISDICTIONAL RUNOFF MANAGEMENT PLANS**

- (1) Copermittees: The written account of the overall program to be conducted by each Copermittee to meet the jurisdictional requirements of section F of this Order is referred to as the Jurisdictional Runoff Management Plan (JRMP). Each Copermittee must revise and update its existing JRMP so that it describes all activities the Copermittee will undertake to implement the requirements of this Order. Each Copermittee must submit its updated and revised JRMP to the Regional Board 365 days after adoption of this Order.
- (2) At a minimum, each Copermittee's JRMP must be updated and revised to demonstrate compliance with each applicable section of this Order.

b. WATERSHED WORKPLANS

- (1) Copermittees: The written account of the program conducted by each watershed group of Copermittees is referred to as the Watershed Workplan. Copermittees within each watershed shall be responsible for updating and revising each Watershed Workplan. Each Watershed Workplan shall be updated and revised to describe any changes in water quality problems or priorities in the WMAs, and any necessary change to actions Copermittees will take to implement jurisdictional or watershed BMPs to address those identified.
- (2) Lead Watershed Copermittee: Each Lead Watershed Permittee shall be responsible for coordinating the production of the Watershed Workplan, as well as coordinating Annual Watershed Review Meetings and public participation/public noticing in accordance with the requirements of this Order. The Lead Watershed Permittee shall submit the Watershed Workplan to the Principal.
- (3) Principal Copermittee: The Principal Permittee shall assemble and submit the Watershed Workplan to the Regional Board no later than 365 days after adoption of this Order, and shall be prepared to implement the workplan within 60 days of the Regional Board Executive Officer deeming the workplan acceptable.

- (4) Each Watershed Workplan shall, at a minimum, include:
- (a) Identification of the Lead Watershed Permittee for the watershed.
 - (b) An updated watershed map.
 - (c) Identification and description of all applicable water quality data, reports, analyses, and other information to be used to assess receiving water quality.
 - (d) Assessment and analysis of the watershed's water quality data, reports, analyses, and other information, used during identification and prioritization of the watershed's water quality problems.
 - (e) A prioritized list of water quality problems within the WMA including rationale explaining the method/logic used to determine prioritization.
 - (f) Identification of the likely sources, pollutant discharges, and/or other factors causing the high priority water quality problems within the WMA.
 - (g) A description of the strategy to be used to guide Copermittee implementation of BMPs either jurisdictionally or on a watershed-wide basis to abate the highest water quality problems
 - (h) A list of criteria used to evaluate BMP effectiveness and how it was applied.
 - (i) A GIS map of BMPs implemented and BMPs scheduled for implementation.
 - (j) A description of the public participation mechanisms to be used and the parties anticipated to be involved during the development and implementation of the Watershed Workplan.
 - (k) A description of Copermittee collaboration to accomplish development of the Watershed Workplan, including a schedule for Watershed meetings.
 - (l) A description of how TMDLs and 303(d)-listed water bodies were considered during prioritization of watershed water quality problems
 - (m) A description of the strategy to model and monitor improvement in receiving water quality directly resulting from implementation of the BMPs described in the Watershed Workplan.
 - (n) A scheduled annual Watershed Workplan Review Meeting once every calendar year. This meeting shall be open to the public.

2. Other Required Reports and Plans

a. SSMP UPDATES

- (1) Copermittees must submit their updated model SSMP in accordance with the applicable requirements of section F.1 with the JRMP two years after adoption of this Order.
- (2) Within 180 days of determination that the Model SSMP is in compliance with this Permit's provisions, each Copermittee must update their own local SSMP, and amended ordinances consistent with the model SSMP, and shall submit both (local SSMP and amended ordinances) to the Regional Board.
- (3) For SSMP-related requirements of Section F.1 with subsequent

implementation due dates, updated SSMPs must be submitted with the JRMP annual report covering the applicable reporting period.

b. REPORT OF WASTE DISCHARGE

The Principal Copermittee must submit to the Regional Board, no later than 210 days in advance of the expiration date of this Order, a Report of Waste Discharge (ROWD) as an application for issuance of new waste discharge requirements. The fourth annual report for this Order may serve as the ROWD, provided it contains the minimum information below.

At a minimum, the ROWD must include the following: (1) Proposed changes to the Copermittees' runoff management programs; (2) Proposed changes to monitoring programs; (3) Justification for proposed changes; (4) Name and mailing addresses of the Copermittees; (5) Names and titles of primary contacts of the Copermittees; and (6) Any other information necessary for the reissuance of this Order.

3. Annual Reports

a. JURISDICTIONAL RUNOFF MANAGEMENT PROGRAM (JRMP) ANNUAL REPORTS

- (1) Copermittees: Each Copermittee must generate individual JRMP Annual Reports which cover implementation of its jurisdictional activities during the past annual reporting period. Each Annual Report must verify and document compliance with this Order as directed in this section. Each Copermittee must retain records through 2015, available for review, that document compliance with each requirement of this Order. Each Copermittee must submit to the Principal Copermittee its individual JRMP Annual Report by the date specified by the Principal Copermittee. The reporting period for these annual reports must be the previous fiscal year. For example, the report submitted September 30, 2010 must cover the reporting period July 1, 2009 to June 30, 2010.
- (2) Principal Copermittee: The Principal Copermittee is responsible for collecting and assembling each Copermittee's individual JRMP Annual Report. The Principal Copermittee must submit Unified JRMP Annual Reports to the Regional Board by September 30 of each year, beginning on September 30, 2011. The Unified JRMP Annual Report must contain the 13 individual JRMP Annual Reports.
- (3) Each JRMP Annual Report must contain, at a minimum, the following information:
 - (a) Information required to be reported annually in Section H (Fiscal Analysis) of this Order;

- (b) Information required to be reported annually in Section J (Program Effectiveness) of this Order;
- (c) The completed Reporting Checklist found in Attachment D, and
- (d) Information for each program component by watershed as described in the following Table 9:

Table 9. Annual Reporting Requirements

Program Component	Reporting Requirement
New Development	1. Updated relevant sections of the General Plan and environmental review process and a description of planned updates within the next annual reporting period, if applicable
	2. Revisions to the local SSMP, including where applicable: <ul style="list-style-type: none"> (a) Identification and summary of where the SSMP fails to meet the requirements of this Order; (b) Updated procedures for identifying pollutants of concern for each Priority Development Project; (c) Updated treatment BMP ranking matrix; and (d) Updated site design and treatment control BMP design standards;
	3. Verification that site design, source control, and treatment BMPs were required on all applicable Priority Development Projects;
	4. Description of the application of LID and site design BMPs in the planning and approval process;
	5. Description of projects subject to the local waiver provision for numeric sizing of treatment control BMP requirements;
	6. Description and summary of the LID site design BMP substitution program, if applicable;
	7. Description and summary of the process to verify compliance with SSMP requirements;
	8. Updates to the BMPs that are listed in the local SSMP as options for treatment control;
	9. Description of the treatment control maintenance tracking process and verification that the requirements of this Order were met during the reporting period; <ul style="list-style-type: none"> (a) Updated watershed-based database of approved treatment control BMPs and treatment control BMP maintenance within its jurisdiction, including updates to the list of high-priority treatment BMPs;
	10. Description of the process for identifying and evaluating hydrologic conditions of concern and requiring a suite of management measures within all Priority Development Projects to protect downstream beneficial uses and prevent adverse physical changes to downstream stream channels;
	11. Description of enforcement activities applicable to the new development and redevelopment component and a summary of the effectiveness of those activities;

Program Component	Reporting Requirement
Construction	1. Updated relevant ordinances and description of planned ordinance updates within the next annual reporting period, if applicable;
	2. A description of procedures used for identifying priorities for inspecting sites and enforcing control measures which consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality;
	3. Designated minimum and enhanced BMPs;
	4. Summary of the inspection program, including the following information: (a) Number and date of inspections conducted at each facility, including the facility address; (b) Number of facilities lacking adequate BMPs; (c) The BMP violations identified during the inspection by facility; (d) Number, date, and types of enforcement actions by facility; (e) Narrative description of inspection findings and follow-up activities for each facility;
Municipal	1. Updated source inventory;
	2. Changes to the designated municipal BMPs;
	3. Descriptions of procedures to assure that flood management projects assess the impacts on the water quality of receiving water bodies;
	4. Summary and assessment of BMPs implemented at retrofitted flood control structures, including: (a) List of projects with BMP retrofits; and (b) List and description of structures retrofitted without BMPs;
	5. Description and assessment of the municipal structural treatment control operations and maintenance activities, including: (a) Number of inspections and types of facilities; and (b) Summary of findings;
	6. Description of the municipal areas/facilities operations and maintenance activities, including: (a) Number and types of facilities maintained; (b) Amount of material removed and how that material was disposed; and (c) List of facilities planned for bi-annual inspections and the justification;
	7. Description of the municipal areas/programs inspection activities, including: (a) Number and date of inspections conducted at each facility; (b) Number of facilities lacking adequate BMPs; (c) The BMP violations identified during the inspection by facility; (d) Number, date and types of enforcement actions by facility; (e) Narrative description of inspection findings and follow-up activities for each facility;

Program Component	Reporting Requirement
	8. Description of activities implemented to address sewage infiltration into the MS4;
Commercial / Industrial	1. Annual inventory of commercial / industrial sources; 2. Summary of the inspection program, including the following information: (a) Number and date of inspections conducted at each facility including the facility address; (b) Number of facilities lacking adequate BMPs; (c) The BMP violations identified during the inspection by facility; (d) Number, date, and types of enforcement actions by facility; (e) Narrative description of inspection findings and follow-up activities for each facility; 3. Changes to designated minimum and enhanced BMPs; 4. A list of industrial sites, including each name, address, and SIC code, that the Copermittee suspects may require coverage under the General Industrial Permit, but has not submitted an NOI;
Residential	1. Updated minimum BMPs required for residential areas and activities;
	2. Quantification and summary of applicable runoff and storm water enforcement actions within residential areas and activities;
	3. Description of efforts to manage runoff and storm water pollution in common interest areas;
Illicit Discharge Detection and Elimination	1. Changes to the legal authority to implement Illicit Discharge Detection and Elimination activities; 2. Changes to the established investigation procedures; 3. Public reporting mechanisms, including phone numbers and web pages; 4. All data and assessments from the Dry Weather Effluent Analytical Monitoring activities; 5. Response criteria developed for water quality data and notifications; 6. Summaries of illicit discharges (including spills and water quality data events) and how each significant case was resolved; 7. A description of instances when field screening and analytical data exceeded action levels, but for which no investigation was conducted; 8. A description of enforcement actions taken in response to investigations of illicit discharges and a description of the effectiveness of those enforcement measures; 9. A description of controls to prevent infiltration of seepage from municipal sanitary sewers to municipal separate storm sewer systems;
Work Plan	Priorities, strategy, implementation schedule and effectiveness evaluation;

(4) Each JRMP Annual Report must also include the following information

regarding non-storm water discharges (see Section B.2. of this Order):

- (a) Identification of non-storm water discharge categories identified as a source of pollutants to waters of the U.S;
- (b) A description of ordinances, orders, or similar means to prohibit non-storm water discharge categories identified under section B.2 above ;
- (c) Identification of any control measures to be required and implemented for non-storm water discharge categories identified as needing said controls by the Regional Board; and
- (d) A description of a program to address pollutants from non-emergency fire fighting flows identified by the Copermittee to be significant sources of pollutants.

4. Interim Reporting Requirements

For the July 2009-June 2010 reporting period, the Jurisdictional RMP must be submitted on January 31, 2011. Each Jurisdictional RMP Annual Report submitted for this reporting period must, at a minimum, include comprehensive descriptions of all activities conducted to fully implement the Copermittees' Jurisdictional RMP documents, as those documents were developed to comply with the requirements of Order No. 2002-01. The Principal Copermittee must submit these documents in a unified manner, consistent with the unified reporting requirements of Order No. 2002-01.

5. Universal Reporting Requirements

All submittals must include an executive summary, introduction, conclusion, recommendations, and signed certified statement. Each Copermittee must submit a signed certified statement covering its responsibilities for each applicable submittal. The Principal Copermittee must submit a signed certified statement covering its responsibilities for each applicable submittal and the sections of the submittals for which it is responsible.

L. MODIFICATION OF PROGRAMS

Modifications of Jurisdictional Runoff Management Programs and/or Watershed Runoff Management Programs may be initiated by the Executive Officer of the Regional Board or by the Copermittees. Requests by Copermittees must be made to the Executive Officer, and must be submitted during the annual review process. Requests for modifications should be incorporated, as appropriate, into the Annual Reports or other deliverables required or allowed under this Order.

1. Minor Modifications: Minor modifications to Jurisdictional Runoff Management Programs, and/or Watershed Runoff Management Programs, may be accepted by the Executive Officer where the Executive Officer finds the proposed modification complies with all discharge prohibitions, receiving water limitations, and other requirements of this Order.
2. Modifications Requiring an Amendment to this Order: Proposed modifications that are not minor require amendment of this Order in accordance with this Order's rules, policies, and procedures.

M. PRINCIPAL COPERMITTEE RESPONSIBILITIES

Within 180 days of adoption of this Order, the Copermittees must designate the Principal Copermittee and notify the Regional Board of the name of the Principal Copermittee. The Principal Copermittee must, at a minimum:

1. Serve as liaison between the Copermittees and the Regional Board on general permit issues, and when necessary and appropriate, represent the Copermittees before the Regional Board.
2. Coordinate permit activities among the Copermittees and facilitate collaboration on the development and implementation of programs required under this Order.
3. Integrate individual Copermittee documents and reports into single unified documents and reports for submittal to the Regional Board as required under this Order.
4. Produce and submit documents and reports as required by section K of this Order and Receiving Waters and MS4 Discharge Monitoring and Reporting Program No. R9-2009-0002 in Attachment E of this Order.

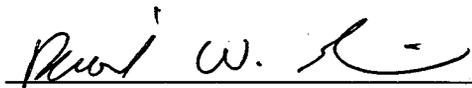
N. RECEIVING WATERS AND MS4 DISCHARGE MONITORING AND REPORTING PROGRAM

Pursuant to CWC section 13267, the Copermittees must comply with all the requirements contained in Receiving Waters and MS4 Discharge Monitoring and Reporting Program No. R9-2009-0002 in Attachment E of this Order.

O. STANDARD PROVISIONS, REPORTING REQUIREMENTS, AND NOTIFICATIONS

1. Each Copermittee must comply with Standard Provisions, Reporting Requirements, and Notifications contained in Attachment B of this Order. This includes 24 hour/5 day reporting requirements for any instance of non-compliance with this Order as described in section 5.e of Attachment B.
2. All plans, reports and subsequent amendments submitted in compliance with this Order must be implemented immediately (or as otherwise specified). All submittals by Copermittees must be adequate to implement the requirements of this Order.

I, David W. Gibson, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Diego Region, on December 16, 2009.



David W. Gibson
Executive Officer

ATTACHMENT A**BASIN PLAN PROHIBITIONS**

California Water Code Section 13243 provides that a Regional Board, in a water quality control plan, may specify certain conditions or areas where the discharge of waste or certain types of waste is not permitted. The following discharge prohibitions are applicable to any person, as defined by Section 13050(c) of the California Water Code, who is a citizen, domiciliary, or political agency or entity of California whose activities in California could affect the quality of waters of the state within the boundaries of the San Diego Region.

1. The discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in California Water Code Section 13050, is prohibited.
2. The discharge of waste to land, except as authorized by waste discharge requirements or the terms described in California Water Code Section 13264 is prohibited.
3. The discharge of pollutants or dredged or fill material to waters of the United States except as authorized by a NPDES permit or a dredged or fill material permit (subject to the exemption described in California Water Code Section 13376) is prohibited.
4. Discharges of recycled water to lakes or reservoirs used for municipal water supply or to inland surface water tributaries thereto are prohibited, unless this Regional Board issues a NPDES permit authorizing such a discharge; the proposed discharge has been approved by the State Department of Health Services and the operating agency of the impacted reservoir; and the discharger has an approved fail-safe long-term disposal alternative.
5. The discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives, is prohibited. Allowances for dilution may be made at the discretion of the Regional Board. Consideration would include streamflow data, the degree of treatment provided and safety measures to ensure reliability of facility performance. As an example, discharge of secondary effluent would probably be permitted if streamflow provided 100:1 dilution capability.
6. The discharge of waste in a manner causing flow, ponding, or surfacing on lands not owned or under the control of the discharger is prohibited, unless the discharge is authorized by the Regional Board.
7. The dumping, deposition, or discharge of waste directly into waters of the state, or adjacent to such waters in any manner which may permit its being transported into the waters, is prohibited unless authorized by the Regional Board.
8. Any discharge to a storm water conveyance system that is not composed entirely of "storm water" is prohibited unless authorized by the Regional Board. [The federal regulations, 40 CFR 122.26(b)(13), define storm water as storm water

- runoff, snow melt runoff, and surface runoff and drainage. 40 CFR 122.26(b)(2) defines an illicit discharge as any discharge to a storm water conveyance system that is not composed entirely of storm water except discharges pursuant to a NPDES permit and discharges resulting from fire fighting activities. [§122.26 amended at 56 FR 56553, November 5, 1991; 57 FR 11412, April 2, 1992].
9. The unauthorized discharge of treated or untreated sewage to waters of the state or to a storm water conveyance system is prohibited.
 10. The discharge of industrial wastes to conventional septic tank/subsurface disposal systems, except as authorized by the terms described in California Water Code Section 13264, is prohibited.
 11. The discharge of radioactive wastes amenable to alternative methods of disposal into the waters of the state is prohibited.
 12. The discharge of any radiological, chemical, or biological warfare agent into waters of the state is prohibited.
 13. The discharge of waste into a natural or excavated site below historic water levels is prohibited unless the discharge is authorized by the Regional Board.
 14. The discharge of sand, silt, clay, or other earthen materials from any activity, including land grading and construction, in quantities which cause deleterious bottom deposits, turbidity or discoloration in waters of the state or which unreasonably affect, or threaten to affect, beneficial uses of such waters is prohibited.
 15. The discharge of treated or untreated sewage from vessels to Mission Bay, Oceanside Harbor, Dana Point Harbor, or other small boat harbors is prohibited.

ATTACHMENT B**STANDARD PROVISIONS, REPORTING REQUIREMENTS, AND NOTIFICATIONS****1. STANDARD PROVISIONS – PERMIT COMPLIANCE [40 CFR 122.41]****(a) *Duty to comply* [40 CFR 122.41(a)].**

- (1) The Copermitttee must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.
- (2) The Copermitttee shall comply with effluent standards or prohibitions established under section 307(a) of the CWA toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the Order has not yet been modified to incorporate the requirement.

(b) *Need to halt or reduce activity not a defense* [40 CFR 122.41(c)]. It shall not be a defense for the Copermitttee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order.**(c) *Duty to mitigate* [40 CFR 122.41(d)].** The Copermitttee shall take all reasonable steps to minimize or prevent any discharge or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment.**(d) *Proper operation and maintenance* [40 CFR 122.41(e)].** The Copermitttee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Copermitttee to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Copermitttee only when necessary to achieve compliance with the conditions of this Order.**(e) *Property rights* [40 CFR 122.41(g)].**

- (1) This Order does not convey any property rights of any sort or any exclusive privilege.
- (2) The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations.

(f) *Inspection and entry* [40 CFR 122.41(i)]. The Copermitttee shall allow the Regional Water Quality Control Board, San Diego Region (Regional Board), State Water

Resources Control Board (SWRCB), United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon presentation of credentials and other documents as may be required by law, to:

- (1) Enter upon the Copermittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;
- (2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;
- (3) Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
- (4) Sample or monitor, at reasonable times, for the purpose of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location.

(g) *Bypass* [40 CFR 122.41(m)]

(1) Definitions:

- i) "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
 - ii) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
- (2) Bypass not exceeding limitations - The Copermittee may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance (g)(3), (g)(4) and (g)(5) below.
- (3) Prohibition of Bypass - Bypass is prohibited, and the Regional Board may take enforcement action against a Copermittee for bypass, unless:
- i) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - ii) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - iii) The Copermittee submitted notice as required under Standard Provisions – Permit Compliance (g)(3) above.

(4) Notice

- i) Anticipated bypass. If the Copermittee knows in advance of the need for a bypass, it shall submit a notice, if possible at least ten days before the date of the bypass.
 - ii) Unanticipated bypass. The Copermittee shall submit notice of an unanticipated bypass as required in Standard Provisions 5(e) below (24-hour notice).
- (h) *Upset* [40 CFR 122.41(n)] Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based effluent limitations because of factors beyond the reasonable control of the Copermittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- (1) Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance (h)(2) below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
- (2) Conditions necessary for a demonstration of upset. A Copermittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
- i) An upset occurred and that the Copermittee can identify the cause(s) of the upset;
 - ii) The permitted facility was at the time being properly operated;
 - iii) The Copermittee submitted notice of the upset as required in Standard Provisions – Permit Compliance (5)(e)(ii)(B) below (24-hour notice); and
 - iv) The Copermittee complied with any remedial measures required under Standard Provisions – Permit Compliance 1(c) above.
- (3) Burden of Proof. In any enforcement proceeding, the Copermittee seeking to establish the occurrence of an upset has the burden of proof.

2. STANDARD PROVISIONS – PERMIT ACTION

- (a) *General* [40 CFR 122.41(f)] This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Copermittee for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition.
- (b) *Duty to reapply* [40 CFR 122.41(b)]. If the Copermittee wishes to continue an activity regulated by this Order after the expiration date of this Order, the Copermittee must apply for and obtain new permit.

- (c) *Transfers*. This Order is not transferable to any person except after notice to the Regional Board. The Regional Board may require modification or revocation and reissuance of the Order to change the name of the Copermittee and incorporate such other requirements as may be necessary under the CWA and the CWC.

3. STANDARD PROVISIONS – MONITORING

- (a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. [40 CFR Section 122.41 (j) (1)]
- (b) Monitoring results must be conducted according to test procedures under 40 CFR Part 136, or in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503 unless other test procedures have been specified in this Order [40 CFR Section 122.41(j)(4)][40 CFR Section 122.44(i)(1)(iv)].

4. STANDARD PROVISIONS – RECORDS

- (a) Except for records of monitoring information required by this Order related to the Copermittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the Copermittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application, This period may be extended by request of the Regional Water Board Executive Officer at any time [40 CFR Section 122.41(j)(2)].
- (b) *Records of monitoring information* [40 CFR 122.41(j) (3)] shall include:
- (1) The date, exact place, and time of sampling or measurements;
 - (2) The individual(s) who performed the sampling or measurements;
 - (3) The date(s) analyses were performed;
 - (4) The individual(s) who performed the analyses;
 - (5) The analytical techniques or methods used; and
 - (6) The results of such analyses.
- (c) *Claims of confidentiality* [40 CFR Section 122.7(b)] of the following information will be denied:
- (1) The name and address of any permit applicant or Copermittee; and
 - (2) Permit applications and attachments, permits and effluent data.

5. STANDARD PROVISIONS – REPORTING

- (a) *Duty to provide information* [40 CFR 122.41(h)]. The Copermittee shall furnish to the Regional Board, SWRCB, or USEPA within a reasonable time, any information which

the Regional Board, SWRCB, or USPEA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Copermitttee shall also furnish to the Regional Board, SWRCB, or USEPA, copies of records required to be kept by this Order.

(b) *Signatory and Certification Requirements* [40 CFR 122.41(k)]

- (1) All applications, reports, or information submitted to the Regional Board, SWRCB, or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting 5(b)ii), 5(b)iii), 5(b)iv), and 5(b) (see 40 CFR 122.22)
- (2) *Applications* [40 CFR 122.22(a)(3)] All permit applications shall be signed by either a principal executive officer or ranking elected official.
- (3) *Reports* [40 CFR 122.22(b)]. All reports required by this Order, and other information requested by the Regional Board, SWRCB, or USEPA shall be signed by a person described in Standard Provisions – Reporting 5(b)(2) above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - i) The authorization is made in writing by a person described in Standard Provisions-Reporting 5(b)(2) above;
 - ii) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and,
 - iii) The written authorization is submitted to the Regional Water Board and State Water Board.
- (4) *Changes to authorization* [40 CFR Section 122.22(c)] If an authorization under Standard Provisions – Reporting 5(b)(3) of this reporting requirement is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting 5(b)(3) above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications to be signed by an authorized representative.
- (5) *Certification* [40 CFR Section 122.22(d)] Any person signing a document under Standard Provisions – Reporting 5(b)(2), or 5(b)(3) above shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who

manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

(c) *Monitoring reports.* [40 CFR 122.41(l)(4)]

- (1) Monitoring results shall be reported at the intervals specified in the Receiving Waters and Runoff Monitoring and Reporting Program No. R9-2009-0002.
- (2) Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Board or SWRCB for reporting results of monitoring of sludge use or disposal practices.
- (3) If the Copermittee monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Board.
- (4) Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order.

(d) *Compliance schedules.* [40 CFR Section 122.41(l)(5)] Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order shall be submitted no later than 14 days following each schedule date.

(e) *Twenty-four hour reporting* [40 CFR Section 122.41(l)(6)]

- (1) The Copermittee shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Copermittee becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Copermittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
- (2) The following shall be included as information, which must be reported within 24 hours under this paragraph:
 - i) Any unanticipated bypass that exceeds any effluent limitation in the Order (See 40 CFR 122.41(g)).
 - ii) Any upset which exceeds any effluent limitation in this Order.
- (3) The Regional Board may waive the above-required written report under this

provision on a case-by-case basis if the oral report has been received within 24 hours.

- (f) *Planned changes.* [40 CFR Section 122.41(l)(1)] The Copermittee shall give notice to the Regional Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when:
- (1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
 - (2) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants, which are not subject to effluent limitations in this Order.
 - (3) The alteration or addition results in a significant change in the Copermittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing Order, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.
- (g) *Anticipated noncompliance.* [40 CFR Section 122.41(l)(7)] The Copermittee shall give advance notice to the Regional Board or SWRCB of any planned changes in the permitted facility or activity, which may result in noncompliance with Order requirements.
- (h) *Other noncompliance* [40 CFR Section 122.41(l) 7)] The Copermittee shall report all instances of noncompliance not reported under Standard Provisions 5(c), 5(d), and 5(e) above, at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting 5(e) above.
- (i) *Other information* [40 CFR Section 122.41(l)(8)] When the Copermittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Board, SWRCB, or USEPA, the Copermittee shall promptly submit such facts or information.

6. STANDARD PROVISIONS – ENFORCEMENT

- (a) The Regional Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, Sections 13385, 13386, and 13387.

7. ADDITIONAL STANDARD PROVISIONS

- (a) *Municipal separate storm sewer systems* [40 CFR 122.42(c)]. The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer that has been designated by the Director under 40 CFR 122.26(a)(1)(v) must submit an annual report by the anniversary of the date of the issuance of the

permit for such system. The report shall include:

- (1) The status of implementing the components of the storm water management program that are established as permit conditions;
 - (2) Proposed changes to the storm water management programs that are established as permit conditions. Such proposed changes shall be consistent with 40 CFR 122.26(d)(2)(iii); and
 - (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under 40 CFR 122.26(d)(2)(iv) and 40 CFR 122.26(d)(2)(v);
 - (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year;
 - (5) Annual expenditures and budget for year following each annual report;
 - (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; and
 - (7) Identification of water quality improvements or degradation.
- (b) *Storm water discharges* [40 CFR 122.42(d)]. The initial permits for discharges composed entirely of storm water issued pursuant to 40 CFR 122.26(e)(7) shall require compliance with the conditions of the permit as expeditiously as practicable, but in no event later than three years after the date of issuance of the permit.
- (c) *Other Effluent Limitations and Standards* [40 CFR 122.44(b)(1)]. If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the CWA for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this Order, the Regional Board may institute proceedings under these regulations to modify or revoke and reissue the Order to conform to the toxic effluent standard or prohibition.
- (d) *Discharge is a privilege* [CWC section 13263(g)]. No discharge of waste into the waters of the State, whether or not such discharge is made pursuant to waste discharge requirements, shall create a vested right to continue such discharge. All discharges of waste into waters of the State are privileges, not rights.
- (e) *Review and revision of Order* [CWC section 13263(e)]. Upon application by any affected person, or on its own motion, the Regional Board may review and revise this permit.
- (f) *Termination or modification of Order* [CWC section 13381]. This permit may be terminated or modified for causes, including, but not limited to, all of the following:
- (1) Violation of any condition contained in this Order.
 - (2) Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts.
 - (3) A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

- (g) *Transfers*. When this Order is transferred to a new owner or operator, such requirements as may be necessary under the CWC may be incorporated into this Order.
- (h) *Conditions not stayed*. The filing of a request by the Copermittee for modification, revocation and reissuance, or termination of this Order, or a notification of planned change in or anticipated noncompliance with this Order does not stay any condition of this Order.
- (i) *Availability*. A copy of this Order shall be kept at a readily accessible location and shall be available to on-site personnel at all times.
- (j) *Duty to minimize or correct adverse impacts*. The Copermittees shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Order, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncompliance.
- (k) *Interim Effluent Limitations*. The Copermittee shall comply with any interim effluent limitations as established by addendum, enforcement action, or revised waste discharge requirements which have been, or may be, adopted by this Regional Board.
- (l) *Responsibilities, liabilities, legal action, penalties* [CWC sections 13385 and 13387]. The Porter-Cologne Water Quality Control Act provides for civil and criminal penalties comparable to, and in some cases greater than, those provided for under the CWA.

Nothing in this Order shall be construed to protect the Copermittee from its liabilities under federal, state, or local laws.

Except as provided for in 40CFR 122.41(m) and (n), nothing in this Order shall be construed to relieve the Copermittee from civil or criminal penalties for noncompliance.

Nothing in this Order shall be construed to preclude the institution of any legal action or relieve the Copermittee from any responsibilities, liabilities, or penalties to which the Copermittee is or may be subject to under Section 311 of the CWA.

Nothing in this Order shall be construed to preclude institution of any legal action or relieve the Copermittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authoring preserved by Section 510 of the CWA.

- (m) *Noncompliance*. Any noncompliance with this Order constitutes violation of the CWC and is grounds for denial of an application for modification of the Order (also see 40 CFR 122.41(a)).
- (n) *Director*. For purposes of this Order, the term "Director" used in parts of 40 CFR

incorporated into this Order by reference and/or applicable to this Order shall have the same meaning as the term "Regional Board" used elsewhere in this Order, except that in 40 CFR 122.41(h) and (l), "Director" shall mean "Regional Board, SWRCB, and USEPA."

- (o) The Regional Board has, in prior years, issued a limited number of individual NPDES permits for non-storm water discharges to MS4s. The Regional Board or SWRCB may in the future, upon prior notice to the Copermittee(s), issue an NPDES permit for any non-storm water discharge (or class of non-storm water discharges) to a MS4. Copermittees may prohibit any non-storm water discharge (or class of non-storm water discharges) to a MS4 that is authorized under such separate NPDES permits.
- (p) *Effective date.* This Order shall become effective on the date of its adoption provided the USEPA has no objection. If the USEPA objects to its issuance, this Order shall not become effective until such objection is withdrawn. This Order supersedes Order No. 2001-01 upon the effective date of this Order.
- (q) *Expiration.* This Order expires five years after adoption.
- (r) *Continuation of expired order* [23 CCR 2235.4]. After this Order expires, the terms and conditions of this Order are automatically continued pending issuance of a new permit if all requirements of the federal NPDES regulations on the continuation of expired permits (40 CFR 122.6) are complied with.
- (s) *Applications.* Any application submitted by a Copermittee for reissuance or modification of this Order shall satisfy all applicable requirements specified in federal regulations as well as any additional requirements for submittal of a Report of Waste Discharge specified in the CWC and the California Code of Regulations.
- (t) *Confidentiality.* Except as provided for in 40 CFR 122.7, no information or documents submitted in accordance with or in application for this Order will be considered confidential, and all such information and documents shall be available for review by the public at the Regional Board office.
- (u) *Severability.* The provisions of this Order are severable, and if any provision of this Order, or the application of any provisions of this Order to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this Order shall not be affected thereby.
- (v) *Report submittal.* The Copermittee shall submit reports and provide notifications as required by this Order to the following:

NORTHERN WATERSHED UNIT
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
9174 SKY PARK COURT, SUITE 100
SAN DIEGO CA 92123-4340
Telephone: (858) 467-2952 Fax: (858) 571-6972

EUGENE BROMLEY
US ENVIRONMENTAL PROTECTION AGENCY
REGION IX
PERMITS ISSUANCE SECTION (W-5-1)
75 HAWTHORNE STREET
SAN FRANCISCO CA 94105

Unless otherwise directed, the Copermittee shall submit one hard copy for the official record and one electronic copy of each report required under this Order to the Regional Board and one electronic copy to the EPA.

ATTACHMENT C**ACRONYMS AND ABBREVIATIONS**

ADT	Average Daily Traffic
AMAL	Average Monthly Action Level
ASBS	Area of Special Biological Significance
AST	Active Sediment Treatment
BMP	Best Management Practice
Basin Plan	Water Quality Control Plan for the San Diego Basin
BU	Beneficial Use
CASQA	California Stormwater Quality Association
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
CWC	California Water Code
CZARA	Coastal Zone Act Reauthorization Amendments of 1990
DAMP	Drainage Area Management Plan
DNQ	Detected, but not Quantified
EIA	Effective Impervious Area
ESAs	Environmentally Sensitive Areas
GIS	Geographic Information System
HMP	Hydromodification Management Plan
IBI	Index of Biotic Integrity
JRMP	Jurisdictional Runoff Management Plan
LID	Low Impact Development
MDAL	Maximum Daily Action Level
MEP	Maximum Extent Practicable
ML	Minimum Level
MS4	Municipal Separate Storm Sewer System
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
OCVCD	Orange County Vector Control District
Copermittees	County of Orange, the 11 incorporated cities within the County of Orange in the San Diego Region, and the Orange County Flood Control District
Regional Board	California Regional Water Quality Control Board, San Diego Region
RGOs	Retail Gasoline Outlets
ROWD	Orange County Copermittees' Report of Waste Discharge (application for NPDES reissuance)
RWLs	Receiving Water Limitations
SAL	Storm Water Action Level
SIC	Standard Industrial Classification Code
SSMP	Standard Urban Storm Water Mitigation Plan
State Board	State Water Resources Control Board
SWQPA	State Water Quality Protected Area
TMDL	Total Maximum Daily Load

USEPA	United States Environmental Protection Agency
WLA	Waste Load Allocation
WQMP	Water Quality Management Plan
WRMP	Watershed Runoff Management Plan

DEFINITIONS

Active Sediment Treatment - Using mechanical or chemical means to flocculate and remove suspended sediment from runoff from construction sites prior to discharge.

Anthropogenic Litter – Trash generated from human activities, not including sediment.

Average Monthly Action Level – the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Basin Plan – Water Quality Control Plan, San Diego Basin, Region 9, and amendments, developed by the Regional Board.

Beneficial Uses - The uses of water necessary for the survival or well being of man, plants, and wildlife. These uses of water serve to promote tangible and intangible economic, social, and environmental goals. “Beneficial Uses” of the waters of the State that may be protected include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. Existing beneficial uses are uses that were attained in the surface or ground water on or after November 28, 1975; and potential beneficial uses are uses that would probably develop in future years through the implementation of various control measures. “Beneficial Uses” are equivalent to “Designated Uses” under federal law. [California Water Code Section 13050(f)].

Best Management Practices (BMPs) - Defined in 40 CFR 122.2 as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. In the case of municipal storm water permits, BMPs are typically used in place of numeric effluent limits.

Bioassessment - The use of biological community information to evaluate the biological integrity of a water body and its watershed. With respect to aquatic ecosystems, bioassessment is the collection and analysis of samples of the benthic macroinvertebrate community together with physical/habitat quality measurements associated with the sampling site and the watershed to evaluate the biological condition (i.e. biological integrity) of a water body.

Biocriteria - Under the CWA, numerical values or narrative expressions that define a desired biological condition for a water body that are legally enforceable. The USEPA defines biocriteria as: “numerical values or narrative expressions that describe the

reference biological integrity of aquatic communities inhabiting waters of a given designated aquatic life use... (that)...describe the characteristics of water body segments least impaired by human activities.”

Biofiltration - refers to practices that use vegetation and amended soils to detain and treat runoff from impervious areas. Treatment is through filtration, infiltration, adsorption, ion exchange, and biological uptake of pollutants.

Biological Integrity - Defined in Karr J.R. and D.R. Dudley. 1981. Ecological perspective on water quality goals. Environmental Management 5:55-68 as: “A balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of natural habitat of the region.” Also referred to as ecosystem health.

Clean Water Act Section 402(p) [33 USC 1342(p)] - The federal statute requiring municipal and industrial dischargers to obtain NPDES permits for their discharges of storm water.

Clean Water Act Section 303(d) Water Body - An impaired water body in which water quality does not meet applicable water quality standards and/or is not expected to meet water quality standards, even after the application of technology based pollution controls required by the CWA. The discharge of runoff to these water bodies by the Copermitees is significant because these discharges can cause or contribute to violations of applicable water quality standards.

Construction Site – Any project, including projects requiring coverage under the General Construction Permit, that involves soil disturbing activities including, but not limited to, clearing, grading, disturbances to ground such as stockpiling, and excavation.

Contamination - As defined in the Porter-Cologne Water Quality Control Act, contamination is “an impairment of the quality of waters of the State by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease. ‘Contamination’ includes any equivalent effect resulting from the disposal of waste whether or not waters of the State are affected.”

Critical Channel Flow (Qc) – The channel flow that produces the critical shear stress that initiates bed movement or that erodes the toe of channel banks. When measuring Qc, it should be based on the weakest boundary material – either bed or bank.

CWA – Federal Clean Water Act

CWC – California Water Code

Daily Discharge – Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day or any 24 hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g. concentration.)

The Daily Discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day, or other 24 hour period other than a day), or by the arithmetic mean of analytical results from one or more grab samples taken over the course of a day.

Detected, but not Quantified – those sample results less than the reporting level, but greater than or equal to the laboratory's Method of Detection Limit (MDL.)

Development Projects - New development or redevelopment with land disturbing activities; structural development, including construction or installation of a building or structure, the creation of impervious surfaces, public agency projects, and land subdivision.

Dilution Credit – the amount of dilution granted to a discharger in the calculation of a WQBEL, based on the allowance of a specific mixing zone. It is calculated from the dilution ratio, or determined through conducting of a mixing zone study, or modeling of the discharge and receiving water.

Dry Season – May 1 through September 30 of each year.

Dry Weather – weather is considered dry if the preceding 72 hours has been without precipitation.

Effectiveness Assessment Outcome Level 1 - Compliance with Activity-based Permit Requirements – Level 1 outcomes are those directly related to the implementation of specific activities prescribed by this Order or established pursuant to it.

Effectiveness Assessment Outcome Level 2 - Changes in Attitudes, Knowledge, and Awareness – Level 2 outcomes are measured as increases in knowledge and awareness among target audiences such as residents, businesses, and municipal employees.

Effectiveness Assessment Outcome Level 3 - Behavioral Change and BMP Implementation – Level 3 outcomes measure the effectiveness of activities in affecting behavioral change and BMP implementation.

Effectiveness Assessment Outcome Level 4 - Load Reductions – Level 4 outcomes measure load reductions which quantify changes in the amounts of pollutants associated with specific sources before and after a BMP or other control measure is employed.

Effectiveness Assessment Outcome Level 5 - Changes in Runoff and Discharge Quality – Level 5 outcomes are measured as changes in one or more specific constituents or stressors in discharges into or from MS4s.

Effectiveness Assessment Outcome Level 6 - Changes in Receiving Water Quality – Level 6 outcomes measure changes to receiving water quality resulting from discharges into and from MS4s, and may be expressed through a variety of means such as compliance with water quality objectives or other regulatory benchmarks, protection of biological integrity, or beneficial use attainment.

Enclosed Bays – Enclosed bays are indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost bay works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays do not include inland surface waters or ocean waters.

Erosion – When land is diminished or worn away due to wind, water, or glacial ice. Often the eroded debris (silt or sediment) becomes a pollutant via storm water runoff. Erosion occurs naturally but can be intensified by land clearing activities such as farming, development, road building, and timber harvesting.

Environmentally Sensitive Areas (ESAs) - Areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Resources Control Board (Water Quality Control Plan for the San Diego Basin (1994) and amendments); State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Resources Control Board (Water Quality Control Plan for the San Diego Basin (1994) and amendments); areas designated as preserves or their equivalent under the Natural Communities Conservation Program within the Cities and County of Orange; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees.

Estuaries – waters, including coastal lagoons, located at the mouth of streams that serve as areas of mixing fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and ocean water. Estuaries do not include inland surface waters or ocean waters.

Feasibility Analysis – Detailed description of the selection process for the treatment control BMPs for a Priority Development Project, including justification of why one BMP is selected over another. For a Priority Development Project where a treatment control BMP with a low removal efficiency ranking (as identified by the Model SUSMP) is proposed, the analysis shall include a detailed and adequate justification exhibiting the reasons implementation of a treatment control BMP with a higher removal efficiency is infeasible for the Priority Development Project or portion of the Priority Development Project.

Flow Duration – The long-term period of time that flows occur above a threshold that causes significant sediment transport and may cause excessive erosion damage to creeks and streams (not a single storm event duration). The simplest way to visualize this is to consider a histogram of pre- and post-project flows using long-term records of hourly data. To maintain pre-project flow duration means that the total number of hours (counts) within each range of flows in a flow-duration histogram cannot increase between the pre- and post-project condition. Flow duration within the range of geomorphologically significant flows is important for managing erosion.

GIS – Geographic Information System

Grading - The cutting and/or filling of the land surface to a desired slope or elevation.

Hazardous Material – Any substance that poses a threat to human health or the environment due to its toxicity, corrosiveness, ignitability, explosive nature or chemical reactivity. These also include materials named by the USEPA in 40 CFR 116 to be reported if a designated quantity of the material is spilled into the waters of the U.S. or emitted into the environment.

Hazardous Waste - Hazardous waste is defined as “any waste which, under Section 600 of Title 22 of this code, is required to be managed according to Chapter 30 of Division 4.5 of Title 22 of this code” [CCR Title 22, Division 4.5, Chapter 11, Article 1].

Household Hazardous Waste – Paints, cleaning products, and other wastes generated during home improvement or maintenance activities.

Hydromodification – The change in the natural watershed hydrologic processes and runoff characteristics (i.e., interception, infiltration, overland flow, interflow and groundwater flow) caused by urbanization or other land use changes that result in increased stream flows and sediment transport. In addition, alteration of stream and river channels, installation of dams and water impoundments, and excessive streambank and shoreline erosion are also considered hydromodification, due to their disruption of natural watershed hydrologic processes.

Illicit Connection – Any connection to the MS4 that conveys an illicit discharge.

Illicit Discharge - Any discharge to the MS4 that is not composed entirely of storm water except discharges pursuant to a NPDES permit and discharges resulting from fire fighting activities [40 CFR 122.26(b)(2)].

Implementation Assessment – Assessment conducted to determine the effectiveness of Copermittee programs and activities in achieving measurable targeted outcomes, and in determining whether priority sources of water quality problems are being effectively addressed.

Inactive Slopes – Slopes on which no grading or other soil disturbing activities are conducted for 10 or more days.

Inland Surface Waters – all surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Integrated Assessment – Assessment to be conducted to evaluate whether program implementation is properly targeted to and resulting in the protection and improvement of water quality.

Jurisdictional Runoff Management Plan (JRMP) – A written description of the specific jurisdictional runoff management measures and programs that each Copermittee will implement to comply with this Order and ensure that storm water pollutant discharges in runoff are reduced to the MEP and do not cause or contribute to a violation of water quality standards.

Low Impact Development (LID) – A storm water management and land development strategy that emphasizes conservation and the use of on-site natural features integrated

with engineered, small-scale hydrologic controls to more closely reflect pre-development hydrologic functions.

Maximum Daily Action Level (MDAL) – is the highest allowable daily discharge of a pollutant, over a calendar day (or 24 hour period). For pollutants with action levels expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with action levels expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Maximum Extent Practicable (MEP) – The technology-based standard established by Congress in CWA section 402(p)(3)(B)(iii) for storm water that operators of MS4s must meet. Technology-based standards establish the level of pollutant reductions that dischargers must achieve, typically by treatment or by a combination of source control and treatment control BMPs. MEP generally emphasizes pollution prevention and source control BMPs primarily (as the first line of defense) in combination with treatment methods serving as a backup (additional line of defense). MEP considers economics and is generally, but not necessarily, less stringent than BAT. A definition for MEP is not provided either in the statute or in the regulations. Instead the definition of MEP is dynamic and will be defined by the following process over time: municipalities propose their definition of MEP by way of their runoff management programs. Their total collective and individual activities conducted pursuant to the runoff management programs becomes their proposal for MEP as it applies both to their overall effort, as well as to specific activities (e.g., MEP for street sweeping, or MEP for MS4 maintenance). In the absence of a proposal acceptable to the Regional Board, the Regional Board defines MEP.

In a memo dated February 11, 1993, entitled "Definition of Maximum Extent Practicable," Elizabeth Jennings, Senior Staff Counsel, SWRCB addressed the achievement of the MEP standard as follows:

"To achieve the MEP standard, municipalities must employ whatever Best Management Practices (BMPs) are technically feasible (i.e., are likely to be effective) and are not cost prohibitive. The major emphasis is on technical feasibility. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the cost would be prohibitive. In selecting BMPs to achieve the MEP standard, the following factors may be useful to consider:

- a. *Effectiveness: Will the BMPs address a pollutant (or pollutant source) of concern?*
- b. *Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?*
- c. *Public Acceptance: Does the BMP have public support?*
- d. *Cost: Will the cost of implementing the BMP have a reasonable relationship to the pollution control benefits to be achieved?*
- e. *Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc?*

The final determination regarding whether a municipality has reduced pollutants

to the maximum extent practicable can only be made by the Regional or State Water Boards, and not by the municipal discharger. If a municipality reviews a lengthy menu of BMPs and chooses to select only a few of the least expensive, it is likely that MEP has not been met. On the other hand, if a municipal discharger employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost would exceed any benefit derived, it would have met the standard. Where a choice may be made between two BMPs that should provide generally comparable effectiveness, the discharger may choose the least expensive alternative and exclude the more expensive BMP. However, it would not be acceptable either to reject all BMPs that would address a pollutant source, or to pick a BMP base solely on cost, which would be clearly less effective. In selecting BMPs the municipality must make a serious attempt to comply and practical solutions may not be lightly rejected. In any case, the burden would be on the municipal discharger to show compliance with its permit. After selecting a menu of BMPs, it is the responsibility of the discharger to ensure that all BMPs are implemented.”

Minimum Level – the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method sample weights, volumes and processing steps have been followed.

Municipal Separate Storm Sewer System (MS4) – A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) Designated or used for collecting or conveying storm water; (iii) Which is not a combined sewer; (iv) Which is not part of the Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.26.

National Pollutant Discharge Elimination System (NPDES) - The national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of the CWA.

NOI – Notice of Intent

Non-Storm Water - All discharges to and from a MS4 that do not originate from precipitation events (i.e., all discharges from a MS4 other than storm water). Non-storm water includes illicit discharges, non-prohibited discharges, and NPDES permitted discharges.

Nuisance - As defined in the Porter-Cologne Water Quality Control Act a nuisance is “anything which meets all of the following requirements: 1) Is injurious to health, or is indecent, or offensive to the senses, or an obstruction to the free use of property, so as

to interfere with the comfortable enjoyment of life or property. 2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. 3) Occurs during, or as a result of, the treatment or disposal of wastes.”

Ocean Waters – the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Board’s California Ocean Plan.

Order – Order No. R9-2009-0002 (NPDES No. CAS0108740)

Person - A person is defined as an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof [40 CFR 122.2].

Point Source - Any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operations, landfill leachate collection systems, vessel, or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Pollutant - Any agent that may cause or contribute to the degradation of water quality such that a condition of pollution or contamination is created or aggravated.

Pollution - As defined in the Porter-Cologne Water Quality Control Act: “the alteration of the quality of the waters of the State by waste, to a degree that unreasonably affects the either of the following: 1) The waters for beneficial uses; or 2) Facilities that serve these beneficial uses.” Pollution may include contamination.

Pollutants of Concern – Pollutants for which water bodies are listed as impaired under CWA section 303(d), pollutants associated with the land use type of a development, and/or pollutants commonly associated with runoff. Pollutants commonly associated with runoff include total suspended solids; sediment; pathogens (e.g., bacteria, viruses, protozoa); heavy metals (e.g., copper, lead, zinc, and cadmium); petroleum products and polynuclear aromatic hydrocarbons; synthetic organics (e.g., pesticides, herbicides, and PCBs); nutrients (e.g., nitrogen and phosphorus fertilizers); oxygen-demanding substances (decaying vegetation, animal waste, and anthropogenic litter).

Pollution Prevention - Pollution prevention is defined as practices and processes that reduce or eliminate the generation of pollutants, in contrast to source control BMPs, treatment control BMPs, or disposal.

Post-Construction BMPs - A subset of BMPs including structural and non-structural controls which detain, retain, filter, or educate to prevent the release of pollutants to surface waters during the final functional life of developments.

Pre-Project or Pre-Development Runoff Conditions (Discharge Rates, Durations, Etc.) – Runoff conditions that exist onsite immediately before the planned development activities occur. This definition is not intended to be interpreted as that period before any human-induced land activities occurred. This definition pertains to redevelopment as well as initial development.

Principal Copermittee – County of Orange

Priority Development Projects - New development and redevelopment project categories listed in Section F.1.d(2) of Order No. R9-2009-0002.

Receiving Waters – Waters of the United States.

Receiving Water Limitations (RWLs) - Waste discharge requirements issued by the Regional Board typically include both: (1) “Effluent Limitations” (or “Discharge Limitations”) that specify the technology-based or water-quality-based effluent limitations; and (2) “Receiving Water Limitations” that specify the water quality objectives in the Basin Plan as well as any other limitations necessary to attain those objectives. In summary, the “Receiving Water Limitations” provision is the provision used to implement the requirement of CWA section 301(b)(1)(C) that NPDES permits must include any more stringent limitations necessary to meet water quality standards.

Redevelopment - The creation, addition, and or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition to or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Redevelopment does not include trenching and resurfacing associated with utility work; resurfacing existing roadways; new sidewalk construction, pedestrian ramps, or bikelane on existing roads; and routine replacement of damaged pavement, such as pothole repair.

Retain – to keep or hold in a particular place, condition, or position without discharge to surface waters.

Runoff - All flows in a storm water conveyance system that consists of the following components: (1) storm water (wet weather flows) and (2) non-storm water including dry weather flows.

Sediment - Soil, sand, and minerals washed from land into water. Sediment resulting from anthropogenic sources (i.e. human induced land disturbance activities) is considered a pollutant. This Order regulates only the discharges of sediment from anthropogenic sources and does not regulate naturally occurring sources of sediment. Sediment can destroy fish-nesting areas, clog animal habitats, and cloud waters so that sunlight does not reach aquatic plants.

Shared Treatment Control BMP - BMPs used by multiple developments to infiltrate, filter, or treat the required volume or flow prior to discharge to a receiving water. This could include, for example, a treatment BMP at the end of an enclosed storm drain that collects runoff from several commercial developments.

Source Control BMP – Land use or site planning practices, or structural or nonstructural measures that aim to prevent runoff pollution by reducing the potential for contamination at the source of pollution. Source control BMPs minimize the contact between pollutants and runoff.

State Water Quality Protection Area – A nonterrestrial marine or estuarine area designated to protect marine species or biological communities from an undesirable alteration in natural water quality, including, but not limited to, areas of special biological significance that have been designated by the State Water Resources Control Board through its water quality control planning process. Areas of special biological significance are a subset of State Water Quality Protection Areas, and require special protection as determined by the State Water Resources Control Board pursuant to the California Ocean Plan adopted and reviewed pursuant to Article 4 (commencing with Section 13160) of Chapter 3 of Division 7 of the California Water Code and pursuant to the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (California Thermal Plan) adopted by the state board.

Storm Water – Per 40 CFR 122.26(b)(13), means storm water runoff, snowmelt runoff and surface runoff and drainage. Surface runoff and drainage pertains to runoff and drainage resulting from precipitation events.

Standard Storm Water Mitigation Plan (SSMP) – A plan developed to mitigate the impacts of runoff from Priority Development Projects.

Third Party Inspectors - Industrial and commercial facility inspectors who are not contracted or employed by a regulatory agency or group of regulatory agencies, such as the Regional Board or Copermittees. The third party inspector is not a regular facility employee self-inspecting their own facility. The third party inspector could be a contractor or consultant employed by a facility or group of businesses to conduct inspections.

Total Maximum Daily Load (TMDL) - The maximum amount of a pollutant that can be discharged into a water body from all sources (point and non-point) and still maintain water quality standards. Under CWA section 303(d), TMDLs must be developed for all water bodies that do not meet water quality standards after application of technology-based controls.

Toxicity - Adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). The water quality objectives for toxicity provided in the Water Quality Control Plan, San Diego Basin, Region 9, (Basin Plan), state in part...“All waters shall be free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life....The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge”.

Treatment Control BMP – Any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media absorption or any other physical, biological, or chemical process.

Waste - As defined in CWC Section 13050(d), "waste includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal."

Article 2 of CCR Title 23, Chapter 15 (Chapter 15) contains a waste classification system that applies to solid and semi-solid waste, which cannot be discharged directly or indirectly to water of the state and which therefore must be discharged to land for treatment, storage, or disposal in accordance with Chapter 15. There are four classifications of waste (listed in order of highest to lowest threat to water quality): hazardous waste, designated waste, non-hazardous solid waste, and inert waste.

Water Quality Assessment – Assessment conducted to evaluate the condition of non-storm water and storm water discharges, and the water bodies which receive these discharges.

Water Quality Objective - Numerical or narrative limits on constituents or characteristics of water designated to protect designated beneficial uses of the water. [California Water Code Section 13050 (h)]. California's water quality objectives are established by the State and Regional Water Boards in the Water Quality Control Plans. Numeric or narrative limits for pollutants or characteristics of water designed to protect the beneficial uses of the water. In other words, a water quality objective is the maximum concentration of a pollutant that can exist in a receiving water and still generally ensure that the beneficial uses of the receiving water remain protected (i.e., not impaired). Since water quality objectives are designed specifically to protect the beneficial uses, when the objectives are violated the beneficial uses are, by definition, no longer protected and become impaired. This is a fundamental concept under the Porter Cologne Act. Equally fundamental is Porter Cologne's definition of pollution. A condition of pollution exists when the water quality needed to support designated beneficial uses has become unreasonably affected or impaired; in other words, when the water quality objectives have been violated. These underlying definitions (regarding beneficial use protection) are the reason why all waste discharge requirements implementing the federal NPDES regulations require compliance with water quality objectives. (Water quality objectives are also called water quality criteria in the CWA.)

Water Quality Standards - The beneficial uses (e.g., swimming, fishing, municipal drinking water supply, etc.) of water and the water quality objectives necessary to protect those uses.

Waters of the State - Any water, surface or underground, including saline waters within the boundaries of the State [CWC section 13050 (e)]. The definition of the Waters of the State is broader than that for the Waters of the United States in that all water in the State is considered to be a Waters of the State regardless of circumstances or condition. Under this definition, a MS4 is always considered to be a Waters of the State.

Waters of the United States - As defined in the 40 CFR 122.2, the Waters of the U.S. are defined as: "(a) All waters, which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (b) All interstate waters, including interstate "wetlands;" (c) All other waters such as intrastate lakes, rivers, streams (including

intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation or destruction of which would affect or could affect interstate or foreign commerce including any such waters: (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) Which are used or could be used for industrial purposes by industries in interstate commerce; (d) All impoundments of waters otherwise defined as waters of the United States under this definition; (e) Tributaries of waters identified in paragraphs (a) through (d) of this definition; (f) The territorial seas; and (g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA."

Watershed - That geographical area which drains to a specified point on a water course, usually a confluence of streams or rivers (also known as drainage area, catchment, or river basin).

Watershed Runoff Management Plan (WRMP) – A written description of the specific watershed runoff management measures and programs that each watershed group of Copermittees will implement to comply with this Order and ensure that storm water pollutant discharges in runoff are reduced to the MEP and do not cause or contribute to a violation of water quality standards.

WDRs – Waste Discharge Requirements

Wet Season – October 1 through April 30 of each year.

ATTACHMENT D**SCHEDULED SUBMITTALS SUMMARY**

Submittal	Permit Section	Completion Date	Frequency
Prohibitions on dry-weather discharges listed in Section B.2	B.2	365 days after adoption and in annual reports	Annual
Submit Certified Statement of Adequate Legal Authority	E.2	365 days after adoption of the Order	One time
Flood Control Structure BMP Inventory and Evaluation	F.3.a.(4)	2 nd year JRMP Annual Report	One time
Fiscal Analysis	H.3	With annual JRMP report	Annual
Updated Jurisdictional Runoff Management Plans	K.1.a	365 days after adoption of the Order	One time
Updated Watershed Workplans	K.1.b	365 days after adoption of the Order	One time
Updated model SSMP	F.1.d, K.2.a	Two years after adoption of the Order	One time
Updated local SSMPs and amended ordinances and certified statement of adequate legal authority to implement LID and hydromodification requirements	E.2, F.1.d, K.2.a	180 days after RB determination that Model SSMP is in compliance	One time
Identify and remove barriers to LID implementation	F.1.d.(4)(a)(v)	2 nd year JRMP Annual Report	One time
Report of Waste Discharge	K.2.b	At least 210 days prior to expiration of this Order	One time
Submit to Principal Copermittee(s) individual JRMP Annual Reports	K.3.a.(1)	Prior to September 30, 2011 and annually thereafter (Principal Copermittee specifies date of submittal)	Annual
Principal Copermittee submits JRMP Annual Reports to Regional Board	K.3.a.(2)	September 30, 2011 and annually thereafter	Annual
Principal Copermittee submits Notification of Principal Copermittee	M	180 days after adoption of the Order	One Time
Principal Copermittee submits description of Receiving Waters Monitoring Program	Monitoring and Reporting Program (M&R Program), III.A.1	September 1, 2010 and annually thereafter	Annual
Receiving Waters and Runoff Monitoring Annual Reports	M&R Program, III.A.2	October 1, 2011 and annually thereafter	Annual
Principal Copermittee submits interim Receiving Waters Monitoring Program Annual Report	M&R Program, III.B	January 31, 2011	One Time
Hydromodification Management Plan	F.1.h.4	Draft within 2 years of adoption of the Order	One Time for Draft
Trash and Litter Impairment Special Study	M&R Program II.D.5	Draft Monitoring Protocol and Locations within 365 days of Order adoption	One Time

Jurisdictional Runoff Management Program Annual Report Checklist

In the JRMP Annual Report each Copermitttee shall provide an Annual Report Checklist. The Annual Report Checklist must be no longer than 2 pages, be current as of the 1st day of the rainy season of that year, and include a signed certification statement. The Annual Report Summary Checklist must provide the following information:

Order Requirements

Were All Requirements of this Order Met?

Construction

Number of Active Sites
Number of Inactive Sites
Number of Sites Inspected
Number of Inspections
Number of Violations
Number of Construction Enforcement Actions Taken

New Development

Number of Development Plan Reviews
Number of Grading Permits Issued
Number of Projects Exempted from Interim/Final Hydromodification Requirements

Post Construction Development

Number of Priority Development Projects
Number of SUSMP Required Post-Construction BMP Inspections
Number of SUSMP Required Post-Construction BMP Violations
Number of SUSMP Required Post-Construction BMP Enforcement Actions Taken

Illicit Discharges and Connections

Number of IC/ID Inspections
Number of IC/ID Detections by Staff
Number of IC/ID Detections from the Public
Number of IC/ID Eliminations
Number of IC/ID Violations
Number of IC/ID Enforcement Actions Taken

MS4 Maintenance

Number of Inspections Conducted
Amount of Waste Removed
Total Miles of MS4 Inspected

Municipal/Commercial/Industrial

Number of Facilities
Number of Inspections Conducted
Number of Facilities Inspected
Number of Violations
Number of Enforcement Actions Taken

Attachment E

**RECEIVING WATERS AND MS4 DISCHARGE MONITORING AND
REPORTING PROGRAM NO. R9-2009-0002**

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I. PURPOSE

- A. This Receiving Waters and MS4 Discharge Monitoring and Reporting Program is intended to meet the following goals:
1. Assess compliance with Order No. R9-2009-002;
 2. Measure and improve the effectiveness of the Copermittees' runoff management programs;
 3. Assess the chemical, physical, and biological impacts to receiving waters resulting from MS4 discharges;
 4. Characterize storm water discharges;
 5. Identify sources of specific pollutants;
 6. Prioritize drainage and sub-drainage areas that need management actions;
 7. Detect and eliminate illicit discharges and illicit connections to the MS4; and
 8. Assess the overall health of receiving waters.
 9. Provide information to implement required BMP improvements
- B. In addition, this Receiving Waters and MS4 Discharges Monitoring and Reporting Program is designed to answer the following core management questions¹:
1. Are conditions in receiving waters protective, or likely to be protective, of beneficial uses?
 2. What is the extent and magnitude of the current or potential receiving water problems?
 3. What is the relative MS4 discharge contribution to the receiving water problem(s)?
 4. What are the sources of MS4 discharge that contribute to receiving water problem(s)?
 5. Are conditions in receiving waters getting better or worse?

II. MONITORING PROGRAM

A. Receiving Waters Monitoring Program

Each Copermittee must collaborate with the other Copermittees to develop, conduct, and report on a year-round watershed based Receiving Waters Monitoring Program. The monitoring program design, implementation, analysis, assessment, and reporting must be conducted

¹ Core management questions from "Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California: A report from the Stormwater Monitoring Coalition's Model Monitoring Technical Committee." Technical Report No. 419. August 2004.

on a watershed basis for each of the watershed management areas. The monitoring program must be designed to meet the goals and answer the questions listed in section I above. The monitoring program must include the following components:

1. MASS LOADING STATION (MLS) MONITORING

- a. Locations: The following existing mass loading stations must continue to be monitored: Laguna Canyon, Aliso Creek, San Juan Creek, Trabuco Creek, Prima Deshecha Channel, and Segunda Deshecha Channel.
- b. Frequency: Each mass loading station to be monitored in a given year must be monitored twice during wet weather events and twice during dry weather flow conditions.
- c. Timing: Each mass loading station must be monitored for the first wet weather event of the season which meets the USEPA's criteria as described in 40 CFR 122.21(g)(7). Monitoring of the second wet weather event must be conducted after February 1. Dry weather mass loading monitoring events must be sampled at least three months apart between May and October. If flows are not evident in September or October for the second event, then sampling must be conducted during non-rain events in the wet weather season.
- d. Protocols: Protocols for mass loading sampling and analysis must be SWAMP comparable. At a minimum, analytical methods, target reporting limits, and data reporting formats should be SWAMP comparable. If the mass loading sampling and analysis are determined to be impracticable with the SWAMP standards, the Copermitees must provide explanation and discussion to this effect in the Receiving Waters and MS4 Discharge Monitoring Annual Report. Wet weather samples may be time-weighted composites, collected for the duration of the entire runoff event, where practical, consistent with methods used by the Copermitees during for the Receiving Waters Monitoring Program conducted for Regional Board Order No. R9-2002-01. Where such monitoring is not practical, such as for large watersheds with significant groundwater recharge flows, composites must be collected at a minimum during the first 3 hours of flow. Dry weather event sampling may be time-weighted composites composed of 24 discrete hourly samples, whereby the mass loads of pollutants are calculated as the product of the composite sample concentration and the total volume of water discharged past the monitoring point during the time of

sample collection.

- (1) Automatic samplers must be used to collect samples from mass loading stations.
 - (2) Grab samples must be analyzed for temperature, pH, specific conductance, biochemical oxygen demand, oil and grease, total coliform, fecal coliform, enterococcus and for total petroleum hydrocarbons whenever a sheen is observed.
- e. Copermittees must measure or estimate flow rates and volumes for each mass loading station sampling event in order to determine mass loadings of pollutants. Data from nearby USGS gauging stations may be utilized, or flow rates may be estimated in accordance with the USEPA Storm Water Sampling Guidance Document (EPA-833-B-92-001), Section 3.2.1.
- f. In the event that the required number of events is not sampled during one monitoring year at any given station, the Copermittees must submit, with the subsequent Receiving Waters Monitoring Annual Report, a written explanation for a lack of sampling data, including streamflow data from the nearest USGS gauging station.
- g. The following constituents must be analyzed for each monitoring event at each station:

Table 1. Analytical Testing for Mass Loading, Urban Stream Bioassessment (excluding bacteriological), and Ambient Coastal Receiving Waters Stations

Conventionals, Nutrients, Hydrocarbons	Pesticides	Metals (Total and Dissolved)	Bacteriological
<ul style="list-style-type: none"> • Total Dissolved Solids • Total Suspended Solids • Turbidity • Total Hardness • pH • Specific Conductance • Temperature • Dissolved Oxygen • Total Phosphorus • Dissolved Phosphorus • Nitrite ° • Nitrate ° • Total Kjeldahl Nitrogen • Ammonia 	<ul style="list-style-type: none"> Diazinon Chlorpyrifos <i>Malathion</i> <i>Carbamates*</i> <i>Pyrethroids*</i> 	<ul style="list-style-type: none"> Arsenic Cadmium Chromium Copper Lead Nickel Selenium Zinc 	<ul style="list-style-type: none"> Total Coliform Fecal Coliform Enterococcus

<ul style="list-style-type: none"> • Biological Oxygen Demand, 5-day • Chemical Oxygen Demand • Total Organic Carbon • Dissolved Organic Carbon • Methylene Blue Active Substances • Oil and Grease 			
<p>° Nitrate and nitrite may be combined and reported as nitrate + nitrite. * Carbamate and Pyrethroid pesticides must initially be monitored in Prima Deshecha and Segunda Deshecha watersheds. If carbamate and/or pyrethroid pesticides are found to correlate with observed acute or chronic toxicity, then that pesticide must be added to all stations displaying toxicity.</p>			

h. Toxicity testing must be conducted for each monitoring event at each station according to the following Table 2:

Table 2. Toxicity Testing for Mass Loading, Urban Stream Bioassessment, and Ambient Coastal Receiving Waters Stations

Program Component	Dry Weather Flows		Storm Water Flows	
	Freshwater Organisms	Estuarine & Marine Organisms	Freshwater Organisms	Estuarine & Marine Organisms
Mass Loading	2 chronic 2 acute	1 chronic**	2 acute	2 chronic 1 acute
Urban Stream Bioassessment	2 chronic* 2 acute*	n/a	n/a	n/a
Ambient Coastal Receiving Waters	n/a	2 chronic 1 acute	n/a	2 chronic 1 acute
Sediment Toxicity Special Study	1 chronic 1 acute 1	n/a	n/a	n/a
<p>Table Notes * Urban Stream Bioassessment on Aliso Creek must also include use of <i>Pimephales promelas</i> (fathead minnow) for chronic and acute toxicity testing. ** Dry weather toxicity monitoring at a mass loading station may be omitted if either (a) the channel flows are diverted year-round in dry weather conditions to the sanitary sewer for treatment; or (b) dry weather toxicity with marine species is occurring at an Ambient Coastal Waters Receiving station where that channel reaches the Pacific Ocean.</p> <p>Species Notes: 1. Freshwater acute toxicity testing must include <i>Hyalella azteca</i>.</p>				

2. Acute toxicity may be determined during the course of chronic toxicity monitoring per U.S. EPA protocols.
3. *Americamysis bahia* may be used as a marine test organism if *Holmesimysis costata* cannot reasonably be obtained. The use of, and justification for, of *A. bahia* must be clearly reported in each Monitoring Report.

- i. The presence of acute toxicity must be determined in accordance with USEPA protocol (EPA-821-R-02-012). The presence of chronic freshwater toxicity must be determined in accordance with USEPA protocol (EPA-821-R-02-013). The presence of chronic marine toxicity must be determined in accordance with USEPA guidance EPA 600/R95/136, except for chronic mysid tests that must be conducted in accordance with USEPA protocol EPA-821-R-02-014.

2. Urban Stream Bioassessment (BA) Monitoring

Copermittees must conduct Urban Stream Bioassessment Monitoring using a triad of indicators to assess the condition of biological communities in freshwater, urban receiving waters.

- a. Locations: At a minimum, the program shall consist of station identification, sampling, monitoring, and analysis of data for six bioassessment stations in order to determine the biological and physical integrity of urban streams within the County of Orange. At least one urban bioassessment station shall be located within each watershed management area. In addition to the urban stream bioassessment stations, three reference bioassessment stations shall be identified, sampled, monitored, and analyzed. Locations of reference stations must be identified according to protocols outlined in "A Quantitative Tool for Assessing the Integrity of Southern Coastal California Streams," by Ode, et al. 2005.²
- b. Frequency: Bioassessment stations which have year round flow conditions must be monitored in May or June (to represent the influence of wet weather on the communities) or September or October (to represent the influence of dry weather flows on the communities). Copermittees shall determine when the annual sampling for stations with year round flow will occur in accordance with the purposes of sampling, as outlined in Section I of

² Ode, et al. 2005. "A Quantitative Tool for Assessing the Integrity of Southern Coastal California Streams." Environmental Management. Vol. 35, No. 1, pp. 1-13.

Attachment E. Those stations that do not have year round flow shall continue to be monitored twice per year. The timing of monitoring of bioassessment stations must coincide with dry weather monitoring of mass loading stations and Inland Aquatic Habitat stations.

- c. Parameters / Methods: The triad of indicators for urban stream bioassessment monitoring must include bioassessment, aquatic chemistry, and aqueous toxicity.
- (1) Aquatic chemistry and aqueous toxicity must be conducted using the same parameters and methods as the mass loading station monitoring, with the addition of pyrethroid pesticides.
 - (2) Bioassessment analysis procedures must include calculation of the Index of Biotic Integrity (IBI) for benthic macroinvertebrates for all bioassessment stations, as outlined in "A Quantitative Tool for Assessing the Integrity of Southern Coastal California Streams," by Ode, et al. 2005.
 - (3) Monitoring of bioassessment stations must be conducted according to bioassessment procedures developed by the Surface Water Ambient Monitoring Program (SWAMP), as amended.³
 - (4) Monitoring of bioassessment stations must incorporate assessment of algae in addition to macroinvertebrates, using the USEPA's 1999 Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers⁴ and SWAMP's Incorporating bioassessment using freshwater algae into California's Surface Water Ambient Monitoring Program (SWAMP)⁵. Assessment of freshwater algae must include algal taxonomic composition (diatoms and soft algae) and algal biomass. Future bioassessment shall incorporate algal IBI scores, when developed.

³ Ode, P.R.. 2007. Standard operating procedures for collecting macroinvertebrate samples and associated physical and chemical data for ambient bioassessments in California. California State Water Resources Control Board Surface Water Ambient Monitoring Program (SWAMP) Bioassessment SOP 001.

⁴ USEPA, 1999. *Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers*. EPA-841-B-99-002.

⁵ Fetscher, E. A., and K. McLaughlin. 2008. Incorporating bioassessment using freshwater algae into California's Surface Water Ambient Monitoring Program (SWAMP). Southern California Coastal Water Research Project. Costa Mesa, CA

- d. A qualified professional environmental laboratory must perform all sampling, laboratory, quality assurance, and analytical procedures.

3. FOLLOW-UP ANALYSIS AND ACTIONS

When results from the required monitoring indicate MS4 discharge induced degradation at a mass loading station, bioassessment, or dry weather discharge station, Copermittees within the watershed must evaluate the extent and causes of MS4 discharge pollution in receiving waters and prioritize and implement management actions to eliminate or reduce sources. Toxicity Identification Evaluations (TIEs) must be conducted to determine the cause of toxicity as outlined in Table 3 below. Other follow-up activities, which must be conducted by the Copermittees, are also identified in Table 3. Once the cause of toxicity has been identified by a TIE, the Copermittees must perform source identification projects as needed and implement the measures necessary to reduce or eliminate the pollutant discharges and abate the sources causing the toxicity.

Table 3. Triad Approach to Determining Follow-Up Actions⁶

Chemistry	Toxicity	Benthic Alteration	Example Conclusions	Possible Actions or Decisions
1. Exceedance of water quality objectives	Evidence of toxicity	Indications of alteration	Strong evidence of pollution-induced degradation	Use TIE to identify contaminants of concern, based on TIE metric Initiate upstream source identification as a high priority
2. No persistent exceedances of water quality objectives	No evidence of toxicity	No indications of alteration	No evidence of current pollution-induced degradation Potentially harmful pollutants not yet concentrated enough to cause visible impact	No immediate action necessary Conduct periodic broad scans for new and/or potentially harmful pollutants
3. Exceedance of water quality objectives	No evidence of toxicity	No indications of alteration	Contaminants are not bioavailable Test organisms not sensitive to problem pollutants	TIE would not provide useful information with no evidence of toxicity Continue monitoring for toxic and benthic impacts Initiate upstream source identification as a low priority Consider whether different or additional test organisms should be evaluated
4. No persistent exceedances of water quality objectives	Evidence of toxicity	No indications of alteration	Unmeasured contaminant(s) or conditions have the potential to cause degradation Pollutant causing toxicity at very low levels	Recheck chemical analyses; verify toxicity test results Consider additional advanced chemical analyses Use TIE to identify contaminants of concern, based on TIE metric Initiate upstream source identification as a medium priority
5. No persistent exceedances of water quality objectives	No evidence of toxicity	Indications of alteration	Alteration may not be due to toxic contamination Test organisms not sensitive to problem pollutants	No action necessary due to toxic chemicals Initiate upstream source identification (for physical sources) as a high priority Consider whether different or additional test organisms should be evaluated
6. Exceedance of water quality objectives	Evidence of toxicity	No indications of alteration	Toxic contaminants are bioavailable, but in situ effects are not demonstrable Benthic analysis not sensitive enough to detect impact Potentially harmful pollutants not yet concentrated enough to change community	Determine if chemical and toxicity tests indicate persistent degradation Recheck benthic analyses; consider additional data analyses If recheck indicates benthic alteration, perform TIE to identify contaminants of concern, based on TIE metric Initiate upstream source identification as a high priority If recheck shows no effect, use TIE to identify contaminants of concern, based on TIE metric Initiate upstream source identification as a medium priority
7. No persistent exceedances of water quality objectives	Evidence of toxicity	Indications of alteration	Unmeasured toxic contaminants are causing degradation Pollutant causing toxicity at very low levels Benthic impact due to habitat disturbance, not toxicity	Recheck chemical analyses and consider additional advanced analyses Use TIE to identify contaminants of concern, based on TIE metric Initiate upstream source identification as a high priority Consider potential role of physical habitat disturbance
8. Exceedance of water quality objectives	No evidence of toxicity	Indications of alteration	Test organisms not sensitive to problem pollutants Benthic impact due to habitat disturbance, not toxicity	TIE would not provide useful information with no evidence of toxicity Initiate upstream source identification as a high priority Consider whether different or additional test organisms should be evaluated Consider potential role of physical habitat disturbance

4. AMBIENT COASTAL RECEIVING WATERS MONITORING (ACRW)

Copermittees must continue to conduct the Ambient Coastal Receiving Waters Monitoring (ACRW) program to assess the impact of MS4 discharge to ecologically-sensitive coastal areas by analyzing water chemistry and aqueous toxicity in both dry and wet weather and the magnitude of storm water discharge plumes to these areas. Copermittees must prioritize locations for further study and conduct special investigations.

⁶ Orange County Storm Water Program, 2006. Report of Waste Discharge (San Diego Region), Section 11.

- a. Locations: Copermittees must assess the existing Ambient Coastal Receiving Waters Monitoring (ACRW) stations to determine whether all ecologically-sensitive areas are represented. Stations must be established within all Areas of Special Biological Significance (ASBS) and Marine Life Refuges that receive significant MS4 discharges.
 - (1) Dana Point Harbor must continue to be monitored. ACRW monitoring in Dana Point Harbor may be suspended as long as the Harbor is being monitored pursuant to the Regional Harbor Monitoring Program⁷ and follow-up investigations are conducted when appropriate based on guidance from the Storm Water Monitoring Coalition.
- b. Parameters: Aquatic chemistry and aqueous toxicity must be conducted using the same parameters and methods as the mass loading station monitoring.
- c. ACRW monitoring must be concurrent with the mass loading station monitoring whenever feasible.
- d. Special investigations Ambient Coastal Receiving Waters: Special investigations must be designed and conducted to most effectively answer each of questions 1-5 of section I.B above, with an emphasis on answering question 4.

5. REGIONAL MONITORING PROGRAMS

a. Regional Bacteria Monitoring

The Copermittees shall participate in the development and implementation of monitoring for the collaborative regional bacteria monitoring program. It is expected that the regional monitoring will allow for a more effective and efficient bacteria monitoring program. The regional monitoring plan must be submitted to the Executive Officer for review and approval. Documentation of participation and monitoring shall be included in the annual report.

⁷ On July 24, 2003, the Regional Board required the County of Orange to participate in an Investigative Order to comprehensively assess the receiving water conditions of Dana Point Harbor. The Regional Harbor Monitoring Program is described in the *Regional Technical Report: Harbor Monitoring Program for San Diego Region San Diego Bay, Mission Bay, Oceanside Harbor, and Dana Point Harbor*, MEC Analytical Systems and Brock Bernstein, February 2004.

b. Regional Monitoring Programs

The Regional Board recognizes the importance and advantages of participation by Copermittees in Regional Monitoring Programs. As such, the Copermittees may propose participation in additional regional monitoring programs to supplement and/or replace existing monitoring requirements. The regional monitoring plan must be submitted to the Executive Officer for review and approval. Documentation of participation and monitoring shall be included in the annual report.

B. Wet Weather MS4 Discharge Monitoring

Each Copermittee must collaborate with the other Copermittees to develop, conduct, and report on a year-round watershed based Wet Weather MS4 Discharge Monitoring Program. The monitoring program design, implementation, analysis, assessment, and reporting must be conducted on a watershed basis for each of the hydrologic units. The monitoring program must be designed to meet the goals and answer the questions listed in section I above. The monitoring program must include the following components;

1. MS4 OUTFALL MONITORING

The Copermittees must collaborate to develop and implement a monitoring program to characterize pollutant discharges from MS4 outfalls in each watershed during wet weather. The program must include rationale and criteria for selection of outfalls to be monitored. The program must, at a minimum, include collection of samples for those pollutants causing or contributing to violations of water quality standards within the watershed. This monitoring program must be implemented within each watershed and must begin no later than the 2010-2011 monitoring year.

a. The program must comply with Section D of the Order for Storm Water Action Levels (SALs). Samples must be collected during the first 24 hours of the storm water discharge or for the entire storm water discharge if it is less than 24 hours.

1. Grab samples may be utilized only for pH, indicator bacteria, DO, temperature and hardness.

2. All other constituents must be sampled using 24 hour composite samples or for the entire storm water discharge if the storm event is less than 24 hours.
- b. Sampling to compare MS4 outfall discharges with total metal SALs must include a measurement of receiving water hardness at each outfall. If a total metal concentration exceeds a SAL, that concentration must be compared to the California Toxic Rule criteria and the USEPA 1 hour maximum concentration for the detected level of receiving water hardness associated with that sample. If it is determined that the sample's total metal concentration for that specific pollutant exceeds the SAL but does not exceed the applicable 1 hour criteria for the measured level of hardness, then the SAL shall be considered not exceeded for that measurement.

2. SOURCE IDENTIFICATION MONITORING

The Copermittees must collaborate to develop and implement a monitoring program to identify sources of pollutants causing the priority water quality problems within each watershed. The monitoring program must include focused monitoring which moves upstream into each watershed as necessary to identify sources. This monitoring program must be implemented within each watershed and must begin no later than the 2010-2011 monitoring year.

C. Non-Storm Water Dry Weather Action Levels

Each Copermittee must collaborate with the other Copermittees to conduct, and report on a year-round watershed based Dry Weather Non-storm Water MS4 Discharge Monitoring Program. The monitoring program implementation, analysis, assessment, and reporting must be conducted on a watershed basis for each of the hydrologic units. The monitoring program must be designed to assess compliance with non-storm water dry weather action levels in section C of this Order, adopted dry weather Total Maximum Daily Loads Waste Load Allocations and assessment of the contribution of dry weather flows to 303(d) listed impairments. The monitoring program must include the following components;

Each Copermittee's program must be designed to determine levels of pollutants in effluent discharges from the MS4 into receiving waters. Each Copermittee must conduct the following dry weather field screening and analytical monitoring tasks:

a. Dry Weather Non-storm Water Effluent Analytical Monitoring Stations

- (1) Stations must be major outfalls. Major outfalls chosen must include outfalls discharging to inland surface waters; to bays, harbors and lagoons/estuaries; and to the surf zone. Other outfall points (or any other point of access such as manholes) identified by the Copermittees as potential high risk sources of polluted effluent or as identified under Section C.3.e shall be sampled.
- (2) Each Copermittee must clearly identify each dry weather effluent analytical monitoring station on its MS4 Map as either a separate GIS layer or a map overlay hereafter referred to as a Dry Weather Non-storm Water Effluent Analytical Stations Map.

b. Develop Dry Weather Non-storm Water Effluent Analytical Monitoring Procedures

Each Copermittee must develop and/or update written procedures for effluent analytical monitoring (these procedures must be consistent with 40 CFR part 136), including field observations, monitoring, and analyses to be conducted. At a minimum, the procedures must meet the following guidelines and criteria:

- (1) Determining Sampling Frequency: Effluent analytical monitoring must be conducted at major outfalls and identified stations. The Copermittees must sample a representative number of major outfalls and identified stations. The sampling must be done to assess compliance with dry weather non-storm water action levels pursuant to section C of this Order. All monitoring conducted must be preceded by a minimum of 72 hours of dry weather.
- (2) If ponded MS4 discharge is observed at a monitoring station, make observations and collect at least one (1) grab sample. If flow is evident a 1 hour composite sample may be taken. Record flow estimation (i.e., width of water surface, approximate depth of water, approximate flow velocity, flow rate).

- (3) Effluent samples shall undergo analytical laboratory analysis for constituents in: *Table 1. Analytical Testing for Mass Loading, Urban Stream Bioassessment, and Ambient Coastal Receiving Waters Stations* and for those constituents with action levels under Section C of this Order. Effluent samples must also undergo analysis for Chloride, Sulfate and Total Dissolved Solids.
 - (4) If the station is dry (no flowing or ponded MS4 discharge), make and record all applicable observations.
 - (5) Develop and/or update criteria for dry weather non-storm water effluent analytical monitoring results:
 - (a) Criteria must include action levels in Section C of this Order.
 - (b) Criteria must include evaluation of LC₅₀ levels for toxicity to appropriate test organisms
 - (6) Develop and/or update procedures for source identification follow up investigations in the event of exceedance of dry weather non-storm water effluent analytical monitoring result criteria. These procedures must be consistent with procedures required in section F.4.d and F.4.e. of this Order.
 - (7) Develop and/or update procedures to eliminate detected illicit discharges and connections. These procedures must be consistent with the non-storm water dry weather action levels in Section C and with each Copermittees' Illicit Discharge and Elimination component of its Jurisdictional Runoff Management Plan as discussed in section F.4 and F.4.e. of this Order.
- c. Conduct Dry Weather Non-storm Water Effluent Analytical Monitoring

The Copermittees must commence implementation of dry weather effluent analytical monitoring under the requirements of this Order no later than May 1, 2011. If monitoring indicates an illicit connection or illegal discharge, conduct the follow-up investigation and elimination activities as described in submitted dry weather field screening and analytical monitoring procedures and found in sections C, F.4.d and F.4.e of Order No. R9-2009-0002.

- (a) Until the dry weather non-storm water effluent analytical monitoring program is implemented under the requirements of this Order, each Copermittee must continue to implement dry weather field screening and analytical monitoring as it was most recently implemented pursuant to Order No. 2002-01.

D. Special Studies

1. Aliso Creek bacteria investigation: Each Copermittee within the Aliso Creek watershed must implement the Aliso Creek 13225 Directive Revised Monitoring Program Design – Integration with NPDES Program⁸ (December 2004). The Copermittees must include that monitoring program into the overall monitoring and reporting program.
2. The Copermittees must conduct special studies, including any monitoring required for TMDL development and implementation, as directed by the Executive Officer. A TMDL Monitoring Plan must be developed to comply with TMDL Resolution No. R9-2008-0027. The monitoring plan must be submitted within 365 days of Order adoption.
3. Stormwater Monitoring Coalition Regional Monitoring of Southern California's Coastal Watersheds:

The Copermittees must implement the monitoring program developed by the Stormwater Monitoring Coalition for Regional Monitoring of the Southern California's Coastal Watersheds within the San Juan Hydrologic Unit. Each Copermittee must evaluate the results of the monitoring program within and downstream of its jurisdiction and integrate the results into program assessments and modifications.

4. Sediment Toxicity Study

Copermittees must develop, submit to the Regional Board for review, and implement an approved special study which will investigate the toxicity of sediment in urban streams. The Study must be submitted within 24 months of adoption of Order R9-2009-0002. After Regional

⁸ On October 12, 2005, the Regional Board accepted the revised Aliso Creek watershed bacteria monitoring plan proposal from the MS4 Copermittees. The Regional Board concluded that the scope of the current bacteria monitoring in the watershed was no longer warranted and that the proposed changes would constitute an effective interim program until adoption in the future of a Total Maximum Daily Load, requiring a bacteria reduction and assessment program for the watershed. In addition, the Regional Board recognized that as a result of reduced monitoring costs, the municipalities expect to direct additional resources toward implementation of management practices to reduce indicator bacteria and pathogens.

Board review, the Sediment Toxicity Study must be implemented in conjunction with the Urban Stream Bioassessment Monitoring and, at a minimum, contain the following:

- a. Locations: At a minimum, 4 bioassessment locations must be sampled, including 1 reference site.
- b. Frequency: At a minimum, sampling must occur once per year at each site for at least 2 years. Sampling must be done in conjunction with the bioassessment sampling required under Section II.A.2 of the Monitoring and Reporting Program of this Order.
- c. Parameters/Methods: At a minimum, sediment toxicity analysis shall include the measurement of metals, pyrethroids and organochlorine pesticides. Analysis must include estimates of bioavailability based upon sediment grain size, organic carbon and receiving water temperature. Acute and chronic toxicity testing must be done using *Hyalella azteca* in accordance with Table 2.
- d. Results: Results and a Discussion shall be included in the Monitoring Annual Report. The Discussion must include an assessment of the relationship between observed IBI scores under Section II.A.2 and all variables measured.

5. Trash and Litter Impairment Investigation

Copermittees must develop and implement a special investigation beginning no later than 2 years following the adoption of this Order to assess trash (including litter) as a pollutant within receiving waters on a watershed based scale. Litter is defined in California Government Code 68055.1g as "litter means all improperly discarded waste material, including, but not limited to, convenience food, beverage, and other product packages or container constructed of steel, aluminum, glass, paper, plastic and other natural and synthetic materials, thrown or deposited on lands and waters of the state, but not including the properly discarded waste of the primary processing of agriculture, mining, logging, sawmilling, or manufacturing." A lead Copermittee may be selected for each watershed, and will be responsible for the following:

- a. Locations: The lead Copermittee will identify suitable sampling locations within each watershed.

- b. Frequency: Trash at each location shall be monitored a minimum of twice during the wet season following a qualified monitoring storm event (minimum of 0.1 inches preceded by 72 hours of dry weather) and twice during the dry season.
- c. Protocol: The lead Copermittee for each watershed shall use the Final Monitoring Workplan for the Assessment of Trash in San Diego County Watersheds and A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region to develop a monitoring protocol for each Watershed. The draft monitoring protocol, including sampling locations and frequency, shall be submitted to the Regional Board for review no later than 365 days following the adoption of this Order. Although sampling must occur on a watershed basis, a County-wide protocol may be developed that incorporates each individual watershed.
- d. Results and Discussion from the Trash and Litter Impairment Study shall be included in the Monitoring Annual Report.

E. Monitoring Provisions

All monitoring activities must meet the following requirements:

1. Where procedures are not otherwise specified in this Receiving Waters Monitoring and Reporting Program, sampling, analysis and quality assurance/quality control must be conducted in accordance with the Quality Assurance Management Plan (QAMP) for the State of California's Surface Water Ambient Monitoring Program (SWAMP), adopted by the State Water Resources Control Board (SWRCB).
2. Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity [40 CFR 122.41(j)(1)].
3. The Copermittees must retain records of all monitoring information, including all calibration and maintenance of monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the Report of Waste Discharge and application for this Order, for a period of at least five (5) years from the date of the sample, measurement, report, or application. This period may be extended by request of the Regional Board or USEPA at any time and must be extended during the course of any unresolved litigation regarding this discharge. [40 CFR 122.41(j)(2), CWC section 13383(a)]

4. Records of monitoring information must include [40 CFR 122.41(j)(3)]:
 - a. The date, exact place, and time of sampling or measurements;
 - b. The individual(s) who performed the sampling or measurements;
 - c. The date(s) analyses were performed;
 - d. The individual(s) who performed the analyses;
 - e. The analytical techniques or methods used; and
 - f. The results of such analyses.
5. All sampling, sample preservation, and analyses must be conducted according to test procedures approved under 40 CFR part 136, unless other test procedures have been specified in this Receiving Waters Monitoring and Reporting Program or approved by the Executive Officer [40 CFR 122.41(j)(4)].
6. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Order must, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than four years, or both. [40 CFR 122.41(j)(5)]
7. Calculations for all limitations which require averaging of measurements must utilize an arithmetic mean unless otherwise specified in this Receiving Waters Monitoring and Reporting Program. [40 CFR 122.41(l)(4)(iii)]
8. All chemical, bacteriological, and toxicity analyses must be conducted at a laboratory certified for such analyses by the California Department of Health Services or a laboratory approved by the Executive Officer.
9. For priority toxic pollutants that are identified in the California Toxics Rule (CTR) (65 Fed. Reg. 31682), the Copermittees must instruct its laboratories to establish calibration standards that are equivalent to or lower than the Minimum Levels (MLs) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP). If a Copermittee can demonstrate that a particular ML is not attainable, in accordance with procedures set forth in 40 CFR 136, the lowest quantifiable concentration of the lowest calibration standard analyzed by a specific analytical procedure (assuming that all the method

specified sample weights, volumes, and processing steps have been followed) may be used instead of the ML listed in Appendix 4 of the SIP. The Copermittee must submit documentation from the laboratory to the Regional Board for approval prior to raising the ML for any priority toxic pollutant.

10. The Regional Board Executive Officer or the Regional Board may make revisions to this Receiving Waters and MS4 Discharge Monitoring and Reporting Program at any time during the term of Order No. R9-2009-002 and may include a reduction or increase in the number of parameters to be monitored, locations monitored, the frequency of monitoring, or the number and size of samples collected.
11. The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance must, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both. [40 CFR 122.41(k)(2)]
12. Monitoring must be conducted according the USEPA test procedures approved under 40 CFR 136, "Guidelines Establishing Test Procedures for Analysis of Pollutants under the Clean Water Act" as amended, unless other test procedures have been specified in this Receiving Waters and MS4 Discharge Monitoring and Reporting Program, in Order No. R9-2009-002, or by the Executive Officer.
13. If the discharger monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR part 136, unless otherwise specified in the Order, the results of this monitoring must be included in the calculation and reporting of the data submitted in the reports requested by the Regional Board. [40 CFR 122.41(l)(4)(ii)]

III. REPORTING PROGRAM

A. Monitoring Reporting

1. Planned Monitoring Program: The Principal Copermittee must submit a description of the Receiving Waters and MS4 Discharge Monitoring Program to be implemented for every monitoring year. The submittals must begin on September 1, 2010, and continue every year thereafter.

The submittals must describe all monitoring to be conducted during the upcoming monitoring year. For example, the September 1, 2010. submittal must describe the monitoring to be conducted from October 1, 2010 through September 30, 2011.

2. Monitoring Annual Report: The Principal Copermittee must submit the Receiving Waters and MS4 Discharge Monitoring Annual Report to the Regional Board on October 1 of each year, beginning on October 1, 2011. Receiving Waters and MS4 Discharge Monitoring Annual Reports must meet the following requirements:
 - a. Annual monitoring reports must include the data/results, methods of evaluating the data, graphical summaries of the data, and an explanation/discussion of the data for each monitoring program component.
 - b. Annual monitoring reports must include a watershed-based analysis of the findings of each monitoring program component. Each watershed-based analysis must include:
 - (1) Identification and prioritization of water quality problems within each watershed.
 - (2) Identification and description of the nature and magnitude of potential sources of the water quality problems within each watershed.
 - (3) Exhibition of pollutant load and concentration increases or decreases at each mass loading and temporary watershed assessment station.
 - (4) Evaluation of pollutant loads and concentrations at mass loading and temporary watershed assessment stations with respect to land use, population, sources, and other characteristics of watersheds using tools such as multiple linear regression, factor analysis, and cluster analysis.
 - (5) Identification of links between source activities/conditions and observed receiving water impacts.
 - (6) Identification of recommended future monitoring to identify and address sources of water quality problems.
 - (7) Results and discussion of any TIE conducted, together with actions that will be implemented to reduce the discharge of pollutants and abate the sources causing the toxicity.
 - c. Aliso Creek Bacteria Investigation: Annual monitoring reports for the Aliso Creek Bacteria Investigation must contain the following information:

- (1) Water quality data and assessment. The report must contain all data collected and an assessment of compliance with applicable water quality standards for each monitoring station;
- (2) Program Assessment. A description and assessment of each municipality's program implemented within the high-priority storm drain locations to reduce storm water discharges of indicator fecal bacteria/pathogens. Water quality monitoring alone is not sufficient to assess progress of the municipal programs. Municipalities must demonstrate each year that their programs are effective and resulting in a reduction of bacteria sources.
 - (a) For structural and nonstructural management practices implemented, the assessment must contain a description of the practice, capital and maintenance costs, expectations for effectiveness, date implemented, and any observed results.
 - (b) For structural and nonstructural management practices implemented, the assessment must contain a description of the practice, capital and maintenance costs, expectations for effectiveness, date implemented, and any observed results
- d. Annual monitoring reports must include discussions for each watershed which answer each of the management questions listed in section I.B of this Receiving Waters Monitoring and Reporting Program.
- e. Annual monitoring reports must identify how each of the goals listed in section I.A of this Receiving Waters Monitoring and Reporting Program has been addressed by the Copermittees' monitoring.
- f. Annual monitoring reports must include identification and analysis of any long-term trends in storm water or receiving water quality. Trend analysis must use nonparametric approaches, such as the Mann-Kendall test, including exogenous variables in a multiple regression model, and/or using a seasonal nonparametric trend model, where applicable.
- g. Annual monitoring reports must provide an estimation of total pollutant loads (wet weather loads plus dry weather loads) due to MS4 Discharge for each of the watersheds specified in Table 3 of Order No. R9-2009-0002.

- h. Annual monitoring reports must, for each monitoring program component listed above, include an assessment of compliance with applicable water quality standards.
 - i. Annual monitoring reports must describe monitoring station locations by latitude and longitude coordinates, frequency of sampling, quality assurance/quality control procedures, and sampling and analysis protocols.
 - j. Annual monitoring reports must use a standard report format and must include the following:
 - (1) A stand alone comprehensive executive summary addressing all sections of the monitoring report;
 - (2) Comprehensive interpretations and conclusions; and
 - (3) Recommendations for future actions.
 - k. All monitoring reports submitted to the Principal Copermittee or the Regional Board must contain the certified perjury statement described in Attachment B of this Order No. R9-2009-0002.
 - l. Annual monitoring reports must be reviewed prior to submittal to the Regional Board by a committee of the Copermittees (consisting of no less than three members).
 - m. Annual monitoring reports must be submitted in both electronic and paper formats. Electronic formats must be CEDEN or SWAMP-uploadable.⁹
3. The Principal Copermittee must submit by July 1, 2010, a detailed description of the monitoring programs to be implemented under requirement II.B.1 of Receiving Waters and MS4 Discharge Monitoring and Reporting Program No. R9-2009-002. The description must identify and provide the rationale for the constituents monitored, locations of monitoring, frequency of monitoring, and analyses to be conducted with the data generated.
4. Monitoring programs and reports must comply with section II.D of Receiving Waters and MS4 Discharge Monitoring and Reporting Program No. R9-2009-002 and Attachment B of Order No. R9-2009-002.

⁹ For updates to the SWAMP templates and formats, see <http://www.waterboards.ca.gov/swamp>.

5. Following completion of an annual cycle of monitoring in October, the Copermittees must make the monitoring data and results available to the Regional Board at the Regional Board's request.

B. Interim Reporting Requirements

For the October 2009 to October 2010 monitoring period, the Principal Copermittee must submit the Receiving Waters Monitoring Annual Report by January 31, 2011. The Receiving Waters Monitoring Annual Report must address the monitoring conducted to comply with the requirements of Order No. 2002-001.

Attachment F

SOURCE DATA

I. STORM WATER ACTION LEVELS.....2

II. NON-STORM WATER NUMERIC ACTION LEVELS9

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I. STORM WATER ACTION LEVELS

N02+N03 (mg/l)	Phosphorous Total (mg/l)	Cadmium Total (ug/l)	Copper Total (ug/l)	Lead Total (ug/l)	Nickel Total (ug/l)	Zinc Total (ug/l)	Turbidity (NTU)
4.70	7.90	9.80	800.00	660.00	120.00	22500.00	10
4.20	7.19	6.00	340.00	620.00	110.00	18000.00	15
3.90	4.96	6.00	320.00	540.00	100.00	11000.00	15
3.90	4.50	6.00	270.00	520.00	100.00	9970.00	16
3.60	4.40	6.00	244.00	460.00	95.00	9100.00	22
3.60	4.24	6.00	230.00	450.00	89.00	8800.00	23
3.60	2.59	5.30	220.00	450.00	87.00	6500.00	23
3.50	2.59	5.00	220.00	440.00	84.00	5500.00	24
3.30	2.50	4.10	210.00	430.00	81.00	5000.00	24
3.30	2.50	4.00	210.00	400.00	75.00	4900.00	30
3.10	2.50	4.00	209.00	380.00	71.00	4600.00	31
3.00	2.27	4.00	209.00	360.00	69.00	4300.00	33
2.96	2.00	4.00	200.00	350.00	68.00	3800.00	36
2.90	2.00	4.00	200.00	330.00	68.00	3800.00	36
2.70	2.00	4.00	200.00	320.00	64.00	3400.00	39
2.70	2.00	3.90	200.00	320.00	63.00	3390.00	40
2.60	1.90	3.80	200.00	320.00	60.00	3100.00	45
2.60	1.90	3.40	180.00	310.00	60.00	2500.00	50
2.60	1.80	3.40	180.00	310.00	59.00	2200.00	50
2.50	1.80	3.20	166.00	310.00	59.00	2100.00	60
2.50	1.70	3.10	163.00	310.00	58.00	1829.00	61
2.32	1.70	3.00	160.00	300.00	54.00	1700.00	62
2.30	1.70	3.00	150.00	290.00	54.00	1500.00	65
2.20	1.60	3.00	140.00	280.00	54.00	1400.00	65
2.20	1.60	3.00	140.00	270.00	54.00	1300.00	66
2.10	1.60	3.00	140.00	270.00	53.00	1300.00	69
2.10	1.53	3.00	140.00	270.00	53.00	1285.00	70
2.10	1.50	3.00	140.00	270.00	52.00	1200.00	72
2.10	1.50	3.00	130.00	260.00	52.00	1100.00	80
2.00	1.47	3.00	130.00	260.00	47.00	1054.00	84
2.00	1.46	3.00	128.00	250.00	47.00	1000.00	97
2.00	1.40	3.00	120.00	250.00	45.00	980.00	111
2.00	1.40	3.00	120.00	250.00	44.00	960.00	140
1.90	1.40	3.00	120.00	245.00	44.00	850.00	151
1.90	1.30	2.90	120.00	230.00	42.00	850.00	157
1.90	1.30	2.80	120.00	230.00	42.00	850.00	590
1.90	1.30	2.70	111.00	225.00	40.00	850.00	
1.90	1.30	2.60	111.00	220.00	39.00	840.00	
1.80	1.30	2.50	110.00	220.00	36.00	780.00	
1.80	1.30	2.40	110.00	210.00	35.00	768.00	
1.70	1.24	2.40	110.00	210.00	35.00	760.00	
1.70	1.20	2.30	110.00	200.00	34.00	750.00	

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1.70	1.20	2.20	110.00	200.00	33.00	740.00	
1.70	1.20	2.10	110.00	190.00	33.00	740.00	
1.70	1.20	2.00	100.00	190.00	33.00	730.00	
1.70	1.10	2.00	100.00	190.00	33.00	720.00	
1.70	1.10	2.00	100.00	190.00	32.00	710.00	
1.60	1.10	2.00	100.00	170.00	32.00	710.00	
1.60	1.10	2.00	100.00	170.00	32.00	700.00	
1.60	1.06	2.00	100.00	170.00	32.00	700.00	
1.60	1.00	2.00	99.00	160.00	32.00	690.00	
1.60	0.96	2.00	94.00	160.00	30.00	690.00	
1.60	0.96	2.00	91.00	150.00	29.00	680.00	
1.60	0.94	2.00	91.00	150.00	28.00	680.00	
1.53	0.94	2.00	90.00	150.00	27.00	670.00	
1.50	0.92	2.00	90.00	150.00	27.00	660.00	
1.50	0.91	2.00	89.00	150.00	27.00	660.00	
1.50	0.85	2.00	87.00	140.00	27.00	660.00	
1.50	0.85	2.00	87.00	140.00	27.00	650.00	
1.50	0.85	2.00	84.00	140.00	26.00	630.00	
1.50	0.83	2.00	83.00	130.00	26.00	610.00	
1.40	0.83	2.00	82.00	130.00	25.00	610.00	
1.40	0.83	2.00	81.00	130.00	24.50	597.00	
1.40	0.81	2.00	81.00	130.00	24.00	590.00	
1.40	0.81	2.00	77.00	130.00	24.00	590.00	
1.40	0.81	2.00	77.00	123.00	24.00	576.00	
1.40	0.80	2.00	76.00	120.00	24.00	570.00	
1.40	0.80	2.00	74.00	120.00	23.00	570.00	
1.32	0.78	2.00	72.00	120.00	23.00	560.00	
1.30	0.78	1.90	72.00	120.00	23.00	560.00	
1.30	0.77	1.90	72.00	120.00	23.00	540.00	
1.30	0.77	1.90	72.00	115.00	23.00	540.00	
1.30	0.76	1.80	72.00	110.00	23.00	520.00	
1.30	0.76	1.80	71.00	110.00	22.00	520.00	
1.30	0.75	1.80	70.00	110.00	22.00	520.00	
1.30	0.75	1.70	70.00	110.00	22.00	510.00	
1.29	0.75	1.60	67.00	102.00	22.00	500.00	
1.20	0.74	1.60	66.00	100.00	21.00	500.00	
1.20	0.73	1.60	66.00	100.00	21.00	490.00	
1.20	0.72	1.60	66.00	100.00	21.00	480.00	
1.20	0.72	1.60	65.00	100.00	21.00	475.00	
1.20	0.72	1.60	65.00	100.00	21.00	470.00	
1.20	0.71	1.50	63.00	99.00	20.00	470.00	
1.20	0.71	1.50	63.00	97.00	20.00	462.00	
1.20	0.69	1.40	62.00	97.00	20.00	460.00	
1.20	0.68	1.30	62.00	97.00	19.00	460.00	
1.20	0.68	1.30	60.00	95.00	19.00	450.00	
1.20	0.68	1.20	60.00	91.00	19.00	440.00	
1.10	0.68	1.20	59.00	90.00	19.00	440.00	
1.10	0.68	1.20	56.59	90.00	19.00	440.00	

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1.10	0.67	1.20	55.00	87.00	19.00	430.00	
1.10	0.66	1.10	55.00	86.00	19.00	430.00	
1.10	0.66	1.10	54.00	86.00	19.00	430.00	
1.10	0.65	1.10	54.00	84.00	18.40	420.00	
1.10	0.65	1.10	54.00	82.00	18.00	420.00	
1.10	0.65	1.10	53.00	82.00	18.00	410.00	
1.10	0.65	1.00	53.00	81.00	18.00	409.00	
1.00	0.63	1.00	52.00	78.00	18.00	400.00	
1.00	0.62	1.00	51.00	78.00	18.00	400.00	
1.00	0.61	1.00	50.00	78.00	17.00	400.00	
1.00	0.60	1.00	50.00	77.00	16.00	390.00	
1.00	0.60	1.00	50.00	76.00	16.00	390.00	
1.00	0.59	1.00	50.00	76.00	15.40	390.00	
0.99	0.57	1.00	50.00	69.00	15.00	390.00	
0.99	0.57	1.00	50.00	69.00	15.00	390.00	
0.98	0.56	1.00	50.00	67.00	15.00	370.00	
0.97	0.56	1.00	50.00	66.00	15.00	370.00	
0.96	0.55	1.00	49.00	66.00	14.00	370.00	
0.96	0.55	1.00	49.00	66.00	14.00	360.00	
0.95	0.55	1.00	49.00	65.00	14.00	360.00	
0.95	0.53	1.00	48.00	64.00	14.00	360.00	
0.93	0.53	1.00	48.00	61.00	14.00	360.00	
0.93	0.53	1.00	47.00	57.00	14.00	350.00	
0.93	0.52	1.00	46.08	57.00	14.00	350.00	
0.93	0.52	1.00	46.00	56.00	14.00	350.00	
0.92	0.52	1.00	46.00	56.00	13.00	340.00	
0.90	0.52	1.00	44.25	53.00	13.00	340.00	
0.88	0.51	1.00	44.00	53.00	13.00	340.00	
0.87	0.51	1.00	44.00	52.60	13.00	340.00	
0.86	0.50	1.00	44.00	52.00	13.00	340.00	
0.85	0.49	1.00	44.00	51.00	13.00	340.00	
0.84	0.49	1.00	43.00	51.00	13.00	334.00	
0.83	0.48	1.00	43.00	50.00	13.00	330.00	
0.81	0.48	1.00	43.00	50.00	13.00	330.00	
0.81	0.48	1.00	42.00	50.00	12.02	330.00	
0.80	0.47	1.00	42.00	50.00	12.00	330.00	
0.80	0.47	1.00	42.00	50.00	12.00	330.00	
0.78	0.47	1.00	41.00	50.00	12.00	330.00	
0.78	0.46	1.00	40.00	50.00	12.00	330.00	
0.77	0.46	1.00	40.00	50.00	12.00	320.00	
0.77	0.46	1.00	40.00	50.00	12.00	320.00	
0.77	0.45	1.00	40.00	50.00	11.40	320.00	
0.74	0.45	1.00	40.00	50.00	11.00	320.00	
0.73	0.44	1.00	39.00	49.00	11.00	310.00	
0.72	0.44	1.00	39.00	47.00	11.00	310.00	
0.69	0.44	1.00	39.00	46.00	11.00	310.00	
0.69	0.44	1.00	39.00	46.00	11.00	308.00	
0.69	0.44	1.00	39.00	44.00	11.00	300.00	

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0.67	0.44	1.00	39.00	44.00	11.00	300.00	
0.67	0.44	1.00	37.00	43.00	11.00	300.00	
0.66	0.43	1.00	37.00	42.00	11.00	300.00	
0.66	0.42	1.00	37.00	41.00	10.50	290.00	
0.65	0.42	1.00	37.00	41.00	10.20	285.00	
0.63	0.41	1.00	37.00	41.00	10.20	280.00	
0.62	0.41	1.00	36.00	41.00	10.10	280.00	
0.62	0.41	1.00	36.00	41.00	10.00	280.00	
0.62	0.40	1.00	36.00	40.10	10.00	280.00	
0.60	0.40	1.00	36.00	40.00	10.00	280.00	
0.59	0.40	1.00	35.00	39.30	10.00	280.00	
0.59	0.40	1.00	35.00	39.00	10.00	280.00	
0.58	0.40	1.00	34.00	39.00	10.00	280.00	
0.57	0.40	1.00	34.00	39.00	10.00	280.00	
0.57	0.40	1.00	33.40	38.00	10.00	270.00	
0.55	0.40	1.00	33.00	38.00	10.00	270.00	
0.52	0.40	1.00	33.00	38.00	10.00	270.00	
0.50	0.40	1.00	33.00	37.00	9.70	270.00	
0.50	0.39	1.00	33.00	36.00	9.30	270.00	
0.46	0.39	1.00	33.00	36.00	9.20	270.00	
0.42	0.39	1.00	32.26	36.00	9.03	260.00	
0.42	0.38	1.00	32.01	36.00	9.00	260.00	
0.35	0.38	1.00	32.00	35.00	9.00	260.00	
0.10	0.38	1.00	32.00	34.00	9.00	260.00	
0.06	0.37	1.00	32.00	34.00	9.00	260.00	
	0.36	1.00	32.00	33.00	9.00	250.00	
	0.36	1.00	32.00	33.00	8.90	250.00	
	0.36	1.00	32.00	33.00	8.79	250.00	
	0.36	1.00	31.00	33.00	8.60	250.00	
	0.35	1.00	31.00	32.00	8.50	247.00	
	0.35	1.00	31.00	32.00	8.50	242.13	
	0.35	1.00	31.00	31.94	8.47	240.00	
	0.35	1.00	30.00	30.00	8.26	240.00	
	0.34	1.00	30.00	30.00	8.00	240.00	
	0.34	1.00	30.00	30.00	8.00	240.00	
	0.34	1.00	30.00	30.00	8.00	240.00	
	0.34	1.00	30.00	30.00	8.00	230.00	
	0.34	1.00	29.00	30.00	8.00	230.00	
	0.34	1.00	29.00	30.00	8.00	220.00	
	0.33	1.00	28.00	29.00	8.00	220.00	
	0.33	1.00	28.00	29.00	8.00	220.00	
	0.33	0.98	28.00	29.00	8.00	210.00	
	0.33	0.94	28.00	29.00	8.00	210.00	
	0.33	0.94	27.19	28.00	8.00	210.00	
	0.33	0.92	27.00	28.00	7.80	210.00	
	0.32	0.90	27.00	28.00	7.70	210.00	
	0.32	0.90	27.00	27.00	7.60	210.00	
	0.32	0.86	26.00	27.00	7.60	210.00	

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	0.32	0.80	26.00	26.31	7.42	205.00	
	0.32	0.80	26.00	26.00	7.40	202.79	
	0.31	0.71	25.00	26.00	7.31	202.00	
	0.31	0.70	25.00	25.00	7.20	200.00	
	0.30	0.70	25.00	25.00	7.10	200.00	
	0.30	0.60	24.00	25.00	7.00	200.00	
	0.30	0.60	24.00	24.60	7.00	200.00	
	0.30	0.59	23.00	24.00	6.90	200.00	
	0.30	0.59	23.00	24.00	6.70	200.00	
	0.30	0.52	23.00	24.00	6.00	200.00	
	0.30	0.50	23.00	24.00	6.00	194.49	
	0.29	0.50	23.00	23.00	6.00	190.00	
	0.29	0.50	22.00	23.00	6.00	190.00	
	0.29	0.50	22.00	23.00	6.00	190.00	
	0.29	0.50	21.00	23.00	6.00	190.00	
	0.29	0.50	21.00	23.00	6.00	184.13	
	0.29	0.50	21.00	23.00	6.00	180.00	
	0.28	0.50	21.00	22.20	6.00	180.00	
	0.28	0.50	20.36	22.00	5.92	180.00	
	0.28	0.50	20.00	22.00	5.90	180.00	
	0.27	0.50	20.00	22.00	5.40	180.00	
	0.27	0.50	20.00	22.00	5.13	180.00	
	0.27	0.50	20.00	21.20	5.10	180.00	
	0.26	0.50	20.00	21.10	5.00	170.00	
	0.26	0.40	19.00	21.00	5.00	170.00	
	0.26	0.40	19.00	20.00	5.00	170.00	
	0.26	0.40	18.00	19.10	5.00	170.00	
	0.25	0.30	18.00	19.00	5.00	160.00	
	0.25	0.30	18.00	19.00	5.00	160.00	
	0.25	0.30	18.00	19.00	5.00	160.00	
	0.25	0.30	18.00	19.00	5.00	160.00	
	0.25	0.30	17.00	18.50	5.00	160.00	
	0.25	0.30	17.00	18.00	5.00	160.00	
	0.24	0.20	17.00	18.00	5.00	160.00	
	0.24	0.20	17.00	18.00	5.00	160.00	
	0.24	0.20	17.00	18.00	5.00	160.00	
	0.23	0.04	17.00	17.00	4.80	160.00	
	0.23		17.00	17.00	4.74	150.00	
	0.23		17.00	17.00	4.70	150.00	
	0.23		17.00	17.00	4.60	150.00	
	0.22		16.00	17.00	4.55	150.00	
	0.22		16.00	17.00	4.38	150.00	
	0.22		16.00	17.00	4.16	146.00	
	0.22		16.00	17.00	4.00	145.00	
	0.22		16.00	17.00	4.00	140.00	
	0.22		15.00	16.90	4.00	140.00	
	0.22		15.00	16.00	3.64	140.00	
	0.21		15.00	15.00	3.60	140.00	

	0.21		15.00	15.00	3.50	140.00	
	0.21		15.00	15.00	3.00	140.00	
	0.21		14.50	15.00	3.00	140.00	
	0.21		14.00	15.00	2.80	140.00	
	0.21		14.00	14.00	2.00	140.00	
	0.20		14.00	14.00	1.00	140.00	
	0.20		14.00	14.00	1.00	136.55	
	0.20		14.00	13.00		135.60	
	0.20		14.00	13.00		130.00	
	0.20		13.00	13.00		130.00	
	0.20		13.00	13.00		130.00	
	0.20		13.00	13.00		130.00	
	0.20		13.00	12.00		130.00	
	0.20		13.00	12.00		130.00	
	0.19		13.00	12.00		130.00	
	0.19		12.00	12.00		127.00	
	0.19		12.00	12.00		124.00	
	0.19		12.00	12.00		122.05	
	0.19		12.00	11.00		120.00	
	0.19		11.00	11.00		120.00	
	0.19		11.00	11.00		120.00	
	0.18		10.00	10.00		120.00	
	0.18		10.00	10.00		112.11	
	0.18		10.00	10.00		110.00	
	0.18		10.00	10.00		110.00	
	0.18		9.60	10.00		110.00	
	0.18		9.60	10.00		110.00	
	0.17		9.10	10.00		110.00	
	0.17		9.10	10.00		110.00	
	0.17		9.00	10.00		110.00	
	0.17		8.30	9.60		110.00	
	0.17		8.20	9.40		110.00	
	0.16		8.00	9.10		108.00	
	0.15		8.00	9.00		100.00	
	0.15		7.70	9.00		100.00	
	0.15		7.70	9.00		100.00	
	0.15		7.00	9.00		100.00	
	0.15		7.00	8.00		100.00	
	0.15		6.80	8.00		100.00	
	0.14		6.80	8.00		99.00	
	0.14		6.80	8.00		98.00	
	0.14		6.50	8.00		97.00	
	0.14		6.50	8.00		93.40	
	0.14		6.30	8.00		92.00	
	0.14		6.30	7.60		92.00	
	0.14		6.10	7.50		90.00	
	0.13		5.60	7.00		90.00	
	0.13		5.40	7.00		90.00	

	0.13		5.20	6.00		86.00	
	0.13		5.00	6.00		83.00	
	0.13		4.90	6.00		81.00	
	0.12		4.50	5.90		81.00	
	0.12		4.10	5.80		80.00	
	0.12		4.10	5.40		80.00	
	0.11		3.90	5.00		80.00	
	0.11		3.40	5.00		80.00	
	0.11		2.60	5.00		80.00	
	0.11		2.60	5.00		79.00	
	0.10		2.60	5.00		73.00	
	0.10		2.30	5.00		72.00	
	0.10		2.00	4.80		70.00	
	0.10		2.00	4.80		70.00	
	0.09		1.70	4.70		70.00	
	0.08		1.50	4.60		70.00	
	0.06		1.50	4.00		64.00	
	0.03		1.50	4.00		63.00	
			1.40	3.80		61.00	
			1.40	3.00		60.00	
				3.00		56.00	
				2.30		44.00	
				2.00		40.00	
				1.60		37.00	
						35.00	
						30.00	
						26.00	
						24.00	
						20.00	
						10.00	
						5.00	

II. NON-STORM WATER ACTION LEVELS

Site	Chromium	Nickel	Copper	Zinc	Silver	Cadmium	Lead	Total Coliform	Fecal Coliform	Enterococcus	Dissolved Oxygen	pH	Turbidity	Nitrate as N	Surfactants (MBAS)	Reactive Phosphorus
	µg/L							CFU/100mL			mg/L		NTU	mg/L		
AVJ01P26	<8.00	4.7	7.3	230	<2.00	<1.00	<2.00	41,000	21,000	5,100	7.92	7.5	12.2	3.9	0.4	2.88
AVJ01P26	<8.00	5.4	11	22	<2.00	<1.00	<2.00	30,000	21,000	45,000	9.73	7.52	2.79	8.3	0.3	2.98
AVJ01P26	<8.00	<4.00	13	45	<2.00	<1.00	<2.00	10,300	8,200	8,400	4.3	8.3	2.8	2.8		1.11
AVJ01P26	<8.00	5.6	8.3	44	<2.00	<1.00	<2.00	44,000	19,400	18,400	8.04	7.91	6.02	2.9		2.55
AVJ01P26	<8.00	32	39	140	<2.00	1.4	7.5	67,000	46,000	32,000	7.76	7.72	9.24	2.7		1.88
AVJ01P26	1.1	6.7	8	28	<0.50	0.51	<0.50	330,000	22,000	24,000	6.48	8.17	2.53	3.9	0.1	1.72
AVJ01P26	2.3	8.3	7.3	25	0.79	2	1.6	410,000	20,000	16,000	7.85	7.82	6.03	5.6	<0.05	2.87
AVJ01P26	<0.50	4.2	2.5	9.6	<0.50	<0.50	<0.50	130,000	21,000	6,000	7.8	7.85	2.5	4.1	<0.04	1.96
AVJ01P26	0.89	7	8.5	28	<0.50	<0.50	<0.50	NR	NR	NR	7.76	7.78	4.26	8.6	0.17	3.87
AVJ01P26	<0.50	5.3	5.1	21	<0.50	<0.50	<0.50	160,000	38,000	11,000	5.83	7.55	2.36	4.4	0.14	4.33
AVJ01P26	<0.50	4.3	7.8	11	<0.50	<0.50	<0.50	25,000	6,000	22,000	7.15	8	40.4	3.6	0.11	1.98
AVJ01P26	0.66	3.2	6.7	14	<0.50	<0.50	<0.50	28,000	3,100	760	9.51	8.07	3.91	5.4	0.05	2.79
AVJ01P26	<0.50	3.9	6.3	23	<0.50	1.2	<0.50	57,000	3,000	3,600	6.45	8.03	3.31	5.6	0.07	3.26
AVJ01P26	<0.50	4.1	3.6	17	<0.50	<0.50	<0.50	150,000	11,000	11,000	6.59	8.07	6.06	6.7	0.1	3.3
AVJ01P26	<0.50	3	4.3	25	<0.50	<0.50	<0.50	>24,000	220	2,500	8.48	7.95	3.25	5.3	0.23	1.67
AVJ01P26	0.54	3.4	23	15	<0.50	<0.50	<0.50	44,000	7,100	14,700	8.85	8.01	3.02	4.1	0.11	1.82
AVJ01P26	<0.50	4.6	4.4	12	<0.50	<0.50	<0.50	>45,000	10,000	30,000	11.45	7.87	4.36	5.9	0.1	2.7
AVJ01P26	0.57	4.9	3.3	16	<0.50	<0.50	<0.50	56,000	4,100	10,800	8.55	8.03	3.09	11.3	0.1	3.67
AVJ01P27	<8.00	8.5	7.4	55	<2.00	1.8	<2.00				10.67	7.85	23.7	7.6	0.3	4.03
AVJ01P27	<8.00	6.2	14	50	<2.00	1.8	<2.00	89,000	67,000	36,000	8.55	8.08	12.4	6	0.1	3.15
AVJ01P27	<8.00	6	7.7	46	<2.00	1.5	<2.00	88,000	31,000	71,000	7.38	6.97	7.72	8.5	0.15	3.14

AVJ01P27	<8.00	6.9	8.5	44	<2.00	1.5	<2.00	107,000	48,000	8,600	8.65	7.68	14.3	1.5	0.12	0.58
AVJ01P27	<8.00	7	10	130	<2.00	1.5	<2.00	80,000	31,000	33,000	4.73	7.66	11.5	1.9	3.34	2.5
AVJ01P27	<40.00	<20.00	27	91	<10.00	<5.00	<10.00	147,000	104,000	128,000	7.6	7.7	10.8	0.6		<0.06
AVJ01P27	<8.00	19	40	130	<2.00	2.1	<2.00	>200,000	>200,000	50,000	6.88	7.55	11.2	5.6		2.12
AVJ01P27	<8.00	5.2	7.9	47	<2.00	<1.00	<2.00	54,000	44,000	31,000	6.94	7.51	18.7	8.8		3.87
AVJ01P27	<8.00	29	39	130	<2.00	1.5	5.3	53,000	36,000	12,600	12.2	7.5	10.6	5.1		1.31
AVJ01P27	<8.00	28	38	74	<2.00	<1.00	<2.00	148,000	69,000	13,200	7.05	8.27	7.03	5.8	<0.05	2.34
AVJ01P27	2	18	5.6	18	<0.50	1.8	<0.50	350,000	9,000	23,000	5.9	7.9	3.77	6.6	0.2	1.78
AVJ01P27	1.1	11	6	24	<0.50	0.83	<0.50	430,000	>120,000	13,000	8	7.27	4.22	6.2	0.06	2.22
AVJ01P27	2.2	15	16	42	<0.50	2.3	2.8	410,000	120,000	59,000	7.3	7.43	18.9	5.1	0.06	5.3
AVJ01P27	0.94	9.2	4.7	21	<0.50	0.72	<0.50	250,000	58,000	22,000	7.89	7.6	4.33	7.9	<0.05	2.75
AVJ01P27	<0.50	8.5	3.4	23	<0.50	0.77	<0.50	120,000	82,000	20,000	6.68	7.72	3.5	8.2	<0.05	4.27
AVJ01P27	1.6	13	7.1	26	<0.50	1.2	<0.50	73,000	47,000	4,600	9.42	7.61	3.15	7.2	0.06	2.44
AVJ01P27	0.65	8.4	7.6	27	<0.50	0.82	<0.50	150,000	600	6,800	9.1	7.7	5.48	4.8	0.15	2.36
AVJ01P27	0.63	11	4.9	32	<0.50	0.86	<0.50	160,000	70,000	28,000	6.89	7.47	4.47	6.8	0.13	3.85
AVJ01P27	0.97	8.9	5.5	46	<0.50	0.71	<0.50	46,000	11,000	7,000	6.88	7.49	7.25	7.4	0.12	7.55
AVJ01P27	<0.50	5.7	2.6	10	<0.50	<0.50	<0.50	60,000	27,000	19,000	0	7.94	19.6	5.7	0.35	3.04
AVJ01P27	1	8.1	7.1	26	<0.50	1.5	<0.50	86,000	32,000	6,700	8.63	7.62	16.1	8.6	0.08	4.81
AVJ01P27	0.9	6	5.5	19	<0.50	0.84	<0.50	64,000	3,200	1,000	8.15	7.91	6.64	7.6	0.07	3.49
AVJ01P27	0.85	7.2	6.3	51	<0.50	0.87	<0.50	730,000	120,000	230,000	6.03	7.78	15.4	4.9	0.75	3.29
AVJ01P27	0.5	4.1	1.9	4.6	<0.50	<0.50	<0.50	34,000	5,800	5,500	6.17	7.79	7.1	3.5	0.05	1.78
AVJ01P27	<0.50	4.6	1.8	5.7	<0.50	<0.50	<0.50	190,000	7,600	7,000	0	8.25	5.35	4	0.05	2.39
AVJ01P27	1.1	7.3	3.5	15	<0.50	0.87	<0.50	90,000	20,000	10,700	9.61	7.76	4.79	7.2	1.05	2.17
AVJ01P27	1.1	11	5.4	20	<0.50	1.1	<0.50	>96,000	5,200	6,800	8.16	7.91	4.77	11.5	0.1	3.15
AVJ01P27	0.71	7.4	2.9	16	<0.50	0.56	<0.50	>84,000	11,000	29,000	6.09	7.89	5.25	7.9	0.1	2.78
AVJ01P27	0.87	8.8	3.1	8.4	<0.50	0.51	<0.50	>50,000	9,000	7,400	5.36	7.51	4.24	6.1	0.12	3.03
AVJ01P27	0.73	6.9	3	8.2	<0.50	<0.50	<0.50	70,000	3,800	9,100	5.94	7.85	7.92	7.8	0.1	2.18
AVJ01P27	0.72	7.4	4.7	16	<0.50	0.69	<0.50	72,000	6,800	16,700	8.63	7.76	5.53	8	0.1	3.92
AVJ01P27											8.66	7.71	6.33	11.7	0.1	4.03
AVJ01P28	<8.00	9.1	9.8	79	<2.00	<1.00	<2.00				5.14	7.89	22.3	4.6	0.6	3.54
AVJ01P28	<8.00	7.7	19	78	<2.00	<1.00	<2.00	83,000	26,000	6,600	7.22	7.97	7.98	6.5	0.5	4.3

AVJ01P28	<8.00	6.8	8.8	44	<2.00	<1.00	<2.00	94,000	44,000	52,000	8.1	7.11	9.69	8.4	0.35	3.81
AVJ01P28	<8.00	9.5	13	54	<2.00	<1.00	<2.00	119,000	31,000	23,000	10.7	7.89	24.2	2	0.26	0.87
AVJ01P28	<8.00	7.8	9.5	49	<2.00	<1.00	<2.00	101,000	33,000	26,000	4.76	7.98	15.3	2.2	0.5	1.12
AVJ01P28																
AVJ01P28	<8.00	11	12	140	<2.00	<1.00	<2.00	181,000	104,000	48,000	3.06	7.37		5.8	0.65	3.29
AVJ01P28	<8.00	8.9	10	95	<2.00	<1.00	<2.00	>200,000	>200,000	36,000	3.95	7.56	11.1	5.4	0.4	5.34
AVJ01P28																
AVJ01P28	<8.00	10	6.5	55	<2.00	<1.00	<2.00	<200,000	76,000	<200,000	8.63	7.78	20.7	7.4	0.07	5.16
AVJ01P28	<8.00	23	58	98	<2.00	<1.00	<2.00	<200,000	<200,000	44,000	7.05	8.15	67.6	6	0.2	3.44
AVJ01P28	<8.00	9.9	17	52	<2.00	<1.00	<2.00	<200,000	<200,000	54,000	5.09	8.32	27	7.3	0.26	4.84
AVJ01P28	0.52	9.1	11	34	<0.50	0.59	<0.50	>1,200,000	>120,000	15,000	4.58	7.6	4.8	5.4	1	4.91
AVJ01P28	<0.50	11	25	34	<0.50	<0.50	<0.50	840,000	>120,000	8,000	4.51	7.19	5.4	6.3	0.1	4.07
AVJ01P28	0.57	15	6.7	30	<0.50	3.1	0.92	660,000	60,000	13,000	4.91	7.49	5.54	6.6	0.06	4.92
AVJ01P28	<0.50	8.8	6.2	24	<0.50	<0.50	<0.50	>120,000	330,000	29,000	3.62	7.52	8.71	7.2	0.17	5.73
AVJ01P28	<0.50	9.3	8	50	<0.50	0.64	<0.50	770,000	260,000	250,000	7.03	7.75	18.1	8.4	0.12	4.5
AVJ01P28	0.59	13	9.8	47	<0.50	0.83	<0.50	1,010,000	530,000	3,800	4.61	7.63	9.01	5.6	0.4	4.98
AVJ01P28	<0.50	13	8.8	45	<0.50	0.83	<0.50	1,300,000	10,000	19,000	3.55	7.5	9.76	7.2	0.4	5.6
AVJ01P28	0.92	13	9.9	56	<0.50	0.67	<0.50	1,040,000	330,000	63,000	5.6	7.45	12.9	7.8	0.13	7.75
AVJ01P28	0.71	9.2	8.9	39	<0.50	0.57	<0.50	>1,200,000	290,000	8,000	3.13	7.6	10.2	4.8	0.17	5.36
AVJ01P28	<0.50	9	7.7	26	<0.50	0.86	<0.50	770,000	76,000	15,000	0	7.72	9.8	8.9	0.25	5.03
AVJ01P28	<0.50	8.8	11	44	<0.50	0.71	<0.50	530,000	21,000	8,200	5.9	7.62	14.5	9.3	0.45	6.58
AVJ01P28	1.5	11	16	34	<0.50	0.98	<0.50	320,000	11,000	1,700	8.35	7.97	5.96	10.8	3.6	4.26
AVJ01P28	0.51	14	8.6	27	<0.50	1	<0.50	800,000	30,000	16,000	8.01	7.98	11.9	9.2	0.45	3.19
AVJ01P28	<0.50	6.8	4.1	17	<0.50	<0.50	<0.50	310,000	7,000	2,500	7.19	7.87	23.1	7.4	0.15	3.89
AVJ01P28	<0.50	8.1	4.8	20	<0.50	<0.50	<0.50	910,000	38,000	6,000	0	7.87	63.3	9.4	0.3	4.2
AVJ01P28	1.1	11	22	22	<0.50	<0.50	<0.50	2,700,000	23,000	5,800	9.39	8.03	3.86	10.1	0.4	2.19
AVJ01P28	0.84	12	7.9	31	<0.50	0.72	<0.50	280,000	19,000	10,500	8.59	7.78	29.3	7.6	0.42	4.31
AVJ01P28	<0.50	8	5.9	18	<0.50	<0.50	<0.50	930,000	37,000	2,800	8.21	7.97	2.09	6.9	0.1	2.82
AVJ01P28	<0.50	2.7	2.1	7.6	<0.50	<0.50	<0.50	1,230,000	34,000	3,400	8.28	7.82	9.43	2.1	0.22	1.13
AVJ01P28	<0.50	7.8	5.1	20	<0.50	<0.50	<0.50	1,000,000	27,000	6,200	8.59	7.85	7.45	10	0.25	3.85
AVJ01P28								180,000	20,000	5,200	7.25	7.75	18.7	10	0.21	5.8
AVJ01P28											8	7.86	11.5	8.2	0.17	3.98

AVJ01P33	<8.00	6.1	3	15	<2.00	<1.00	<2.00	11,000	3,000	6,100	10.3	7.97	1.49	2.4	<0.05	2
AVJ01P33	<8.00	14	11	39	<2.00	1.5	<2.00	151,000	71,000	72,000	7.17	7.48	260	4.4	<0.05	9.84
AVJ01P33	<8.00	4.2	3.3	17	<2.00	<1.00	<2.00	37,000	14,600	9,700	8.65	7.33	1.81	3.8	<0.05	1.86
AVJ01P33	<8.00	9.1	6.8	69	<2.00	<1.00	<2.00	7,900	1,240	1,630	10.2	7.7	7.34	2.6		1.97
AVJ01P33	<8.00	9.2	15	160	<2.00	<1.00	2.4	199,000	177,000	29,000	8.22	8.38	17.2	8.3	1.4	2.59
AVJ01P33	<8.00	11	8	27	<2.00	<1.00	<2.00	86,000	67,000	123,000	10.23	8.47	1.85	2.3		2.17
AVJ01P33	<0.50	9.4	2.3	10	<0.50	<0.50	<0.50	43,000	3,800	7,000	9.34	7.84	4.75	3.8	0.08	1.91
AVJ01P33	1.7	6.3	15	8.9	<0.50	<0.50	<0.50	110,000	12,000	38,000	8.82	8.34	3.39	2.3	<0.05	2.53
AVJ01P33	<0.50	12	1.2	7.2	<0.50	<0.50	<0.50	19,000	4,300	600	9.36	8.24	0.7	3.3	<0.02	1.77
AVJ01P33	0.65	20	10	52	<0.50	1.2	<0.50	NR	NR	NR	8.65	7.89	6.01	10.3	0.1	13.35
AVJ01P33	<0.50	15	12	21	<0.50	1.1	<0.50	210,000	88,000	29,000	7.46	7.81	376	6.5	0.08	5.16
AVJ01P33	1.1	16	1.7	6.4	<0.50	0.92	<0.50	210,000	5,000	7,000	8.64	8.07	0.79	5.9	0.1	1.43
AVJ01P33	0.95	6.3	4.3	4.4	<0.50	<0.50	<0.50	2,200	400	4,300	10.19	8.3	2.7	4.9	0.07	1.48
AVJ01P33	0.64	14	2.3	6.8	<0.50	0.81	<0.50	33,000	2,700	6,500	7.32	8.21	1.01	5.4	0.05	1.93
AVJ01P33	<0.50	11	1.6	3.3	<0.50	<0.50	<0.50	12,000	1,700	900	8.64	8.19	0.47	5.6	0.05	1.59
AVJ01P33	0.58	4.8	3.5	12	<0.50	<0.50	<0.50	>4,800	160	1,000	10.02	8.16	3.76	3.9	0.1	1.42
AVJ01P33	1	7.5	2.4	11	<0.50	<0.50	<0.50	26,000	700	2,500	11.67	8.09	0.47	4	0.1	1.39
AVJ01P33	0.51	9.2	6	24	<0.50	3	<0.50	>135,000	36,000	7,400	11.04	7.66	2.48	4.7	0.1	6.15
AVJ01P33	0.68	5.8	3.8	7.1	<0.50	<0.50	<0.50	47,000	320	1,170	9.86	8.13	4.23	5.9	0.1	2.17
AVJ02P05	<8.00	6.2	50	120	<2.00	<1.00	3.4	17,650	6,850	20,600	9.21	8.17	3.35	2.1	0.15	0.96
AVJ02P05	<8.00	5.6	11	42	<2.00	<1.00	<2.00	82,000	17,000	33,000	9.2	7.57	15.7	9.1	<0.05	4.2
AVJ02P05	<8.00	<4.00	22	21	<2.00	<1.00	<2.00	92,000	31,000	38,000	9.22	7.54	9.45	4.2	0.65	1.17
AVJ02P05	<8.00	9.9	13	53	<2.00	<1.00	<2.00	38,000	15,800	12,800	9.18	8.23	2.49	7.2	<0.05	1.64
AVJ02P05	<8.00	8.8	14	67	<2.00	1	<2.00	>200,000	124,000	166,000	8.52	8.2	28.2	7.8	0.2	3.75
AVJ02P05	<8.00	12	8.6	40	<2.00	<1.00	<2.00	<200,000	<200,000	164,000	9.02	7.92	6.46	10.6	0.08	4.82
AVJ02P05	1	9.7	9.4	41	<0.50	<0.50	<0.50	50,000	9,000	9,000	9.8	7.85	1.25	4.4	0.06	0.61
AVJ02P05	0.65	8.8	9.1	32	<0.50	<0.50	<0.50	280,000	60,000	11,000	8.8	7.99	4.93	7.8	0.08	3.3
AVJ02P05	1.1	8.5	9	38	<0.50	<0.50	<0.50	22,000	20,000	6,300	8.9	7.9	0.9	5.5	<0.05	0.94
AVJ02P05	0.7	10	6.8	33	<0.50	<0.50	<0.50	NR	NR	NR	9.75	8.06	1.28	5.1	<0.05	0.95
AVJ02P05	0.6	6.3	9.1	29	<0.50	<0.50	<0.50	41,000	7,300	6,600	9.14	8.06	1.28	3.7	<0.05	3.06

AVJ02P05	1.3	3.4	5.9	29	<0.50	<0.50	<0.50	34,000	15,000	6,000	0	7.71	1.34	6.7	<0.01	1.04
AVJ02P05	1.1	8.7	9.4	96	<0.50	1.8	<0.50	9,300	1,300	11,000	9.66	8.04	3.44	7	0.05	3.59
AVJ02P05	1.5	5.8	9.6	36	<0.50	<0.50	<0.50	26,000	4,000	500	6.67	8.09	173	8.4	0.1	2.31
AVJ02P05	0.84	6.9	5.2	19	<0.50	1.2	<0.50	200,000	410,000	48,000	9.07	8.06	5.42	9.7	0.05	3.62
AVJ02P05	0.99	5.7	3.4	30	<0.50	<0.50	<0.50	>2,600	40	160	9.44	8.22	1.41	5.2	0.11	0.99
AVJ02P05	1.4	7.8	7.6	31	<0.50	0.57	<0.50	20,000	340	1,190	11.7	8.25	3.52	10	0.21	1.92
AVJ02P05	1.3	6.4	4.4	9.8	<0.50	0.84	<0.50	>43,000	430	6,200	12.63	7.68	33.8	10.8	0.22	2.03
AVJ02P05	1	5.7	14	28	<0.50	0.63	<0.50	47,000	4,100	15,000	9.87	8.07	6.34	5.1	0.1	0.9
COL02P50	<8.00	<4.00	2.8	55	<2.00	<1.00	<2.00	4,350	3,100	2,400	8.86	7.91	2.66	0.9	<0.05	2.24
COL02P50	<8.00	<4.00	<2.00	18	<2.00	<1.00	<2.00	620	130	280	6.92	7.5	2.24	1.1	<0.05	2.22
COL02P50	<8.00	<4.00	4.8	27	<2.00	<1.00	<2.00	1,490	130	870	6.93	7.07	7.38	1.2	<0.05	2.54
COL02P50	<8.00	5	<2.00	71	<2.00	<1.00	<2.00	530	380	590	8.84	7.55	1.02	1.1	0.13	1.48
COL02P50	<8.00	280	8.9	120	<2.00	88	<2.00	16,400	6,300	11,100	8.5	7.82	10.6	4	0.1	1.24
COL02P50																
COL02P50	<8.00	8.4	<2.00	38	<2.00	<1.00	<2.00	6,300	4,200	3,100	8.91	7.31	0.89	1.1		2.76
COL02P50	<0.50	12	0.97	6.6	<0.50	<0.50	<0.50	6,000	40	50	9.1	7.16	0.45	1.5	<0.05	0.89
COL02P50	<0.50	7.9	0.54	4.8	<0.50	<0.50	<0.50	4,500	20	90	8.39	7.31	0.63	1.9	<0.05	1.76
COL02P50	<0.50	7.5	0.59	4.7	<0.50	<0.50	<0.50	30	20	<10	8.87	7.27	0.4	1.2	<0.05	1.27
COL02P50	<0.50	12	0.8	7.4	<0.50	<0.50	<0.50	3,000	210	80	8.8	7.48	0.67	2.3	0.08	1.6
COL02P50	<0.50	11	<0.50	5.6	<0.50	<0.50	<0.50	190	60	140	10.14	7.19	1.51	1.4	0.1	2.55
COL02P50	<0.50	7.1	1.1	5.8	<0.50	<0.50	<0.50	8,000	600	400	8.52	7.7	0.78	1	0.13	1.48
COL02P50	<0.50	5.8	0.76	12	<0.50	<0.50	<0.50	280	10	<10	9.18	7.54	1.41	1.1	0.05	1.32
COL02P50	<0.50	5.7	1.2	8.6	<0.50	<0.50	<0.50	570	<10	200	8.3	7.67	1.01	1.4	0.05	1.39
COL02P50	<0.50	6	1	6.8	<0.50	<0.50	<0.50	2,300	200	500	8.23	7.65	0.78	1.3	0.05	1.61
COL02P50	<0.50	9.6	3.9	15	<0.50	0.83	<0.50	33,000	50	2,300	8.22	7.41	3.21	3.8	0.1	1.56
COL02P50	<0.50	7.1	2.2	8	<0.50	0.6	<0.50	>6,300	>380	840	9.22	8.04	0.92	2.5	0.12	1.3
COL02P50	<0.50	7.8	1.6	7	<0.50	<0.50	<0.50	>6,600	640	690	7.11	7.75	1.36	3.6	0.1	1.29
COL02P50	<0.50	5.7	1.9	9.2	<0.50	<0.50	<0.50	6,900	60	140	9.1	7.47	1.25	2.5	0.1	1.01
COL02P50											9.73	7.47	0.86	2.4	0.1	1.33
COL02P55	<8.00	61	4.1	33	<2.00	16	<2.00	27,000	18,000	13,000	7.38	8.09	3.98	1.7	<0.05	0.86

COL02P55	<8.00	230	5.9	75	<2.00	75	<2.00	18,700	3,600	5,800	6.86	8.2	8.05	5.2	<0.05	1.15
COL02P55	<8.00	290	4.3	87	<2.00	110	<2.00	6,800	4,100	5,400	7.52	7.42	4.92	6	<0.05	0.4
COL02P55	<8.00	210	5.2	120	<2.00	68	<2.00	16,800	3,900	10,400	9.59	7.95	15.9	3.9	<0.05	2.13
COL02P55	<8.00	6.6	3.2	35	<2.00	<1.00	<2.00	1,140	630	620	8.36	7.6	0.91	0.5	0.08	1.43
COL02P55																
COL02P55	0.61	210	4.8	73	<0.50	49	<0.50	470,000	43,000	113,000	6.83	7.65	15.6	3.8	0.12	1.84
COL02P55	<0.50	75	3.9	18	<0.50	18	<0.50	440,000	200,000	28,000	8.19	7.63	13.6	4	<0.05	2.01
COL02P55	<0.50	61	3.7	22	<0.50	12	<0.50	180,000	80,000	37,000	8.4	7.27	18.8	4.1	0.06	2.62
COL02P55	0.96	220	8.9	66	<0.50	61	<0.50	550,000	110,000	9,000	8.55	7.85	8.43	6.5	0.1	1.99
COL02P55	<0.50	88	6.5	39	<0.50	11	<0.50	640,000	26,000	47,000	6	7.5	8.57	4.6	0.18	2.74
COL02P55	0.63	71	5.1	30	<0.50	5.2	<0.50	67,000	27,000	16,000	7	7.8	5.46	4.5	0.18	2.43
COL02P55	0.51	140	8.1	59	<0.50	34	<0.50	260,000	16,000	11,000	6.24	7.62	7.73	3.8	0.14	1.6
COL02P55	<0.50	100	5.6	35	<0.50	13	<0.50	63,000	28,000	7,200	6.65	7.92	18.9	6.6	0.11	1.94
COL02P55	<0.50	69	4.5	24	<0.50	3.6	<0.50	80,000	30,000	26,000	6.01	8	12.2	4.2	0.05	2.28
COL02P55	<0.50	65	7.8	34	<0.50	4.6	<0.50	>143,000	3,000	23,000	7.2	7.57	14.2	5.1	0.12	2.7
COL02P55	<0.50	93	5	36	<0.50	8.6	<0.50	>86,000	2,100	10,700	6.62	8.04	5.16	5.3	0.12	0.91
COL02P55	<0.50	71	4.5	37	<0.50	3.9	<0.50	370,000	22,000	54,000	4.88	7.73	17.2	6.6	0.23	1.72
COL02P55	<0.50	100	4.8	53	<0.50	6.2	<0.50	76,000	>2,100	5,600	5.52	7.66	7.53	7.9	0.24	0.9
COL02P55											8.78	7.78	19.5	3.9	0.1	0.94
DPK01P04								>200,000	>200,000	35,000	9	7.93	6.91	3.3		0.95
DPK01P04	<8.00	98	7.4	58	<2.00	4.7	<2.00	86,000	16,000	89,000	9.01	7.85	6.57	3.2	0.1	1.65
DPK01P04	<0.50	100	45	35	<0.50	9.3	<0.50	240,000	74,000	11,600	5.91	7.96	8.74	3.5	0.07	1.43
DPK01P04	0.57	79	7.5	28	<0.50	4.5	<0.50	22,000	3,200	3,200	9.04	7.8	19.7	5.1	0.1	1.87
DPK01P04	<0.50	82	5.1	29	<0.50	3.7	<0.50	100,000	19,000	17,000	8.71	7.89	4.79	3.8	0.12	1.85
DPK01P04	3.8	59	7.2	45	<0.50	5.1	<0.50	420,000	690	5,000	8.43	7.83	4.74	24.3	0.11	3.06
DPK01P04	<0.50	93	8.6	32	<0.50	7.1	<0.50	1,200	270	150	9.47	7.53	4.24	3.8	0.14	3.12
DPK01P04	<0.50	90	9.1	26	<0.50	8.9	<0.50	30,000	6,900	9,000	8.45	7.79	6.2	4.2	0.08	1.65
DPK01P04	<0.50	140	5	130	<0.50	12	<0.50	34,000	14,000	5,800	9.39	7.92	5.55	3.4	0.12	1.45
DPK01P04	<0.50	88	9.1	36	<0.50	6.6	<0.50	49,000	11,000	17,000	8.89	7.89	3.47	3.5	0.1	1.76
DPK01P04	0.56	72	6.7	38	<0.50	3.3	<0.50	720,000	28,000	58,000	8.68	7.93	15.3	3.7	0.15	2.03
DPK01P04	0.5	86	7.5	33	<0.50	8.6	<0.50	>22,000	3,300	6,300	8.63	7.85	17.8	3.9	0.12	2.15

DPK01P04	<0.50	93	5.7	20	<0.50	1.4	<0.50	>28,000	1,800	3,300	9.66	8.21	5.2	4.1	0.1	1.06
DPK01P04	<0.50	83	4.6	15	<0.50	1.2	<0.50	86,000	7,400	20,000	8.24	7.94	7.69	4.5	0.1	0.93
DPK01P04											10.23	7.87	4.82	4.1	0.1	1.46
DPL01S02	<8.00	180	4.6	90	<2.00	13	<2.00	69,000	18,000	8,100	7.87	7.8	3.63	4.1	0.33	0.49
DPL01S02	<8.00	170	3	66	<2.00	20	<2.00	21,000	16,000	28,000	11.17	7.27	6.9	2.1	<0.05	<0.06
DPL01S02	<8.00	140	5	71	<2.00	6.5	<2.00	126,000	57,000	8,600	8.97	7.48	4.46	4.3	<0.05	0.24
DPL01S02	<8.00	140	4.7	63	<2.00	5.3	<2.00	46,000	23,000	33,000	4.59	7.58	3.74	1.5	0.18	0.08
DPL01S02	<8.00	170	3.2	100	<2.00	13	<2.00	73,000	22,000	47,000	9.02	7.55	3.63	4.1	0.3	0.29
DPL01S02	12	190	8.4	110	<2.00	12	4.5	10,600	6,300	4,300	13.36	7.75	2.32	4.7	0.08	0.34
DPL01S02	<8.00	150	5.5	92	<2.00	8.1	<2.00	28,000	20,000	12,400	8.08	7.77	2.94	3.8		0.44
DPL01S02	<8.00	160	10	56	<2.00	9.2	<2.00	2,900	2,200	810	11.34	7.66	2.82	4.7		0.28
DPL01S02	<8.00	250	3.7	68	<2.00	26	<2.00	4,600	3,300	4,100	14.7	7.8	2.1	5		0.4
DPL01S02	<8.00	220	2.9	88	<2.00	16	<2.00	76,000	44,000	66,000	13.1	7.9	2.7	5.4	0.1	0.45
DPL01S02	0.66	400	3.8	200	<0.50	48	<0.50	49,000	5,200	1,900	8.6	7.96	1.73	8	0.25	0.33
DPL01S02	0.71	510	6.4	220	<0.50	54	<0.50	120,000	20,000	1,400	8.54	8.27	2.26	9.9	0.09	0.39
DPL01S02	1.1	460	21	230	<0.50	54	<0.50	25,000	5,000	3,200	8.05	7.59	1.36	10.5	0.06	0.37
DPL01S02	0.74	410	4.2	160	<0.50	43	<0.50	33,000	17,000	2,600	8.47	7.75	1.88	9.4	0.1	0.31
DPL01S02	1.1	480	5.6	150	<0.50	34	<0.50	190,000	74,000	7,400	8.59	7.79	2	10.1	0.1	0.24
DPL01S02	0.64	470	4.4	210	<0.50	57	<0.50	3,200	1,190	560	10.27	7.66	1.06	9	0.07	0.27
DPL01S02	0.53	340	4.5	140	<0.50	34	<0.50	33,000	10,000	9,200	8.6	7.83	3.81	7.8	0.2	0.55
DPL01S02	0.75	260	3.9	84	<0.50	23	<0.50	32,000	40	2,300	7.98	7.9	1.46	6.3	0.07	0.45
DPL01S02	0.55	230	4.4	62	<0.50	19	<0.50	33,000	4,200	3,400	9.24	7.49	0.99	7.6	0.07	0.4
DPL01S02	0.66	360	6.7	110	<0.50	35	<0.50	>1,200,000	210,000	48,000	8.81	7.61	2.24	10.3	0.13	0.39
DPL01S02	0.73	300	4.4	140	<0.50	37	<0.50	77,000	5,500	600	9	7.87	1.38	8.8	0.15	0.51
DPL01S02	0.53	280	3.9	98	<0.50	33	<0.50	3,800	300	1,200	9.26	7.81	0.87	7.9	0.06	0.4
DPL01S02	0.51	230	3.1	71	<0.50	30	<0.50	7,500	500	1,400	8.89	7.42	1.33	7.2	0.1	0.32
DPL01S02	0.6	260	3	71	<0.50	35	<0.50	32,000	5,600	3,700	10.81	7.72	3.65	9.9	0.1	0.3
DPL01S02	0.62	320	3	98	<0.50	39	<0.50	42,000	5,200	1,900	8	7.81	1.17	11.1	0.05	0.42
DPL01S02	0.59	320	9.1	130	<0.50	40	<0.50	163,000	3,600	1,110	9.28	7.72	3.02	9.7	0.12	0.23
DPL01S02	0.56	340	3.4	140	<0.50	41	<0.50	36,000	490	860	6.63	8.03	2.77	8.8	0.1	0.3
DPL01S02	0.72	400	4.1	100	<0.50	14	<0.50	49,000	5,300	8,500	7.74	7.85	2.02	8.1	0.09	0.17

DPL01S02	<1.00	250	3	55	<1.00	5.7	<1.00	136,000	3,100	3,500	8.45	8.09	3	7.1	0.12	0.3
DPL01S02	0.52	210	3.7	60	<0.50	11	<0.50	78,000	4,100	3,700	8.09	8.31	2.77	7.8	0.1	0.3
DPL01S02	<1.00	310	5	130	<1.00	24	<1.00	31,000	4,400	3,100	7.96	7.75	2.25	8	0.11	0.3
DPL01S02	0.54	260	5.4	93	<1.00	30	<1.00	>7,500	220	470	9.44	7.73	2.52	7.3	0.1	0.32
DPL01S03	<8.00	5	5	82	<2.00	<1.00	<2.00	61,000	14,300	1,130	11.38	8.02	2.63	7.8	0.15	0.66
DPL01S03	<8.00	8.1	7.1	23	<2.00	<1.00	<2.00	30,000	22,000	42,000	7.93	8.22	3.37	6.1	<0.05	0.62
DPL01S03	<8.00	4.5	9.4	38	<2.00	<1.00	<2.00	19,900	10,500	14,900	1.13	8.25	4.29	2.1	0.19	0.11
DPL01S03	<8.00	5.9	3.4	17	<2.00	<1.00	<2.00	44,000	14,400	14,200	9.87	8.3	4.46	8.6	0.07	0.24
DPL01S03	<8.00	9.9	7.9	35	<2.00	<1.00	2.9	1,590	860	460	7.6	8.1	0.56	8.5	0.1	0.42
DPL01S03	<8.00	11	6.5	31	<2.00	<1.00	<2.00	21,400	16,000	6,300	8.37	8.19	1.79	7.8	<0.05	0.45
DPL01S03	<8.00	11	6.7	20	<2.00	<1.00	<2.00	6,300	4,400	1,670	11.33	7.95	2.84	7.6	0.1	0.2
DPL01S03	<8.00	13	3.3	<10.00	<2.00	<1.00	<2.00	14,200	11,000	5,500	15.2	8.4	2.9	7		0.47
DPL01S03	<8.00	14	4.2	22	<2.00	<1.00	<2.00	46,000	38,000	9,950	15.9	8.55	1.41	7.1	0.2	0.4
DPL01S03	1.2	24	3.1	7.5	<0.50	<0.50	1.6	27,000	6,300	2,100	8.69	8.23	0.66	13.3	<0.05	0.55
DPL01S03	<0.50	29	3.8	4.9	<0.50	<0.50	<0.50	20,000	10,000	3,000	9.41	7.65	1.03	12.7	0.1	0.28
DPL01S03	<0.50	26	4	12	<0.50	<0.50	<0.50	22,000	9,000	3,000	9.46	7.95	2.83	12.1	<0.05	0.47
DPL01S03	<0.50	13	7.6	12	<0.50	<0.50	<0.50	19,000	14,000	5,400	8.52	8.18	4.06	12.1	0.3	0.48
DPL01S03																
DPL01S03	<0.50	13	6.5	2.3	<0.50	<0.50	<0.50	4,000	3,200	480	8.94	8.13	0.8	13.1	<0.05	0.25
DPL01S03	<0.50	23	3.1	7.4	<0.50	<0.50	<0.50	8,400	5,300	560	9.4	8.07	3.53	11.4	<0.05	0.28
DPL01S03	<0.50	15	4.3	5	<0.50	<0.50	<0.50	8,600	6,000	2,300	9.95	8.07	1.67	8.5	<0.05	0.35
DPL01S03	<0.50	19	4	4.4	<0.50	<0.50	<0.50	21,000	100	360	7.72	7.98	1.4	11.8	0.13	0.4
DPL01S03	<0.50	4.7	3.5	2	<0.50	<0.50	<0.50	9,000	7,200	1,400	9.2	7.86	1.22	12.9	0.07	0.46
DPL01S03	0.94	17	9.4	5.2	<0.50	<0.50	<0.50	13,000	10,300	5,300	9.65	7.98	0.93	5.9	<0.05	0.39
DPL01S03	<0.50	8.5	3.2	5.6	<0.50	<0.50	<0.50	8,600	3,500	2,700	9.22	8.17	1.24	12.6	0.06	0.59
DPL01S03	<0.50	5.8	3.8	4.1	<0.50	<0.50	<0.50	9,000	6,100	690	9.25	8.19	4.41	12	0.07	0.61
DPL01S03	<0.50	5	3.7	4	<0.50	<0.50	<0.50	38,000	6,300	1,300	8.52	7.93	6.85	11.1	0.08	0.46
DPL01S03	<0.50	16	4.8	7.5	<0.50	<0.50	<0.50	56,000	23,000	5,400	10.55	8.15	7.51	10.7	0.1	0.44
DPL01S03	<0.50	5.9	2.1	2.2	<0.50	<0.50	<0.50	20,000	12,000	4,300	7.1	8.06	2.76	11.3	0.05	0.22
DPL01S03	<0.50	8.6	6.6	8.1	<0.50	<0.50	<0.50	48,000	8,400	3,300	9.9	8.23	1.61	12.5	0.12	0.49
DPL01S03	<0.50	6.9	3.8	2.9	<0.50	<0.50	<0.50	29,000	4,400	4,400	8.36	8.21	0.69	10.4	0.1	0.3

DPL01S03	0.82	8.5	8.3	6.8	<0.50	<0.50	<0.50	22,000	3,900	2,200	8.7	8.26	1.23	9.4	0.16	0.49
DPL01S03	<1.00	8	4.3	4.3	<1.00	<1.00	<1.00	>930,000	22,000	3,200	9.8	8.19	0.81	10.4	0.33	0.2
DPL01S03	<0.50	4.7	4.3	5.6	<0.50	<0.50	<0.50	32,000	7,000	4,900	9	8.12	3.02	14.3	0.1	0.59
DPL01S03	<0.50	4.3	6.1	6.6	<0.50	<0.50	<1.00	21,000	3,600	740	10.36	8.2	3.76	18.3	0.1	0.32
DPL01S03	<0.50	3.8	7.4	8.2	<0.50	<0.50	<1.00	5,200	350	220	11.73	8.08	2.88	8.3	0.1	0.38
DPL01SCWD	<0.50	130	5.1	28	<0.50	9.8	<0.50	550,000	>120,000	58,000	5.59	7.14	3.14	4.8	0.15	1.33
DPL01SCWD	<0.50	97	3.8	13	<0.50	12	<0.50	42,000	13,000	1,500	5.24	7.27	2.25	2.2	<0.05	0.93
DPL01SCWD	0.64	47	5.8	10	<0.50	3.7	<0.50	2,500	2,100	560	16.96	9.42	3.33	0.9	<0.05	0.08
DPL01SCWD	<0.50	59	6.5	8	<0.50	3.8	<0.50	22,000	9,000	2,700	7.8	7.79	6.46	4.6	0.06	2.73
DPL01SCWD	<0.50	63	4.9	13	<0.50	6.4	<0.50	260,000	113,000	7,200	6.3	8.31	3.6	2.8	<0.05	0.99
DPL01SCWD	0.53	230	4.4	39	<0.50	24	<0.50	25,000	14,000	450	6.75	7.55	2.18	3.7	0.07	0.6
DPL01SCWD	16	130	6.6	22	<0.50	16	<0.50	25,000	40	1,000	4.8	7.59	3.15	5.1	<0.05	0.94
DPL01SCWD	0.83	64	6.6	16	<0.50	5.6	<0.50	360,000	4,200	1,500	14.31	8.42	3.31	1.8	0.17	1.04
DPL01SCWD	<0.50	57	4.5	14	<0.50	2.7	<0.50	210,000	50,000	38,000		7.35	11.4	1.9	0.08	0.92
DPL01SCWD	<0.50	41	3.8	14	<0.50	2.6	<0.50	130,000	28,000	8,000	9.61	7.98	7.7	2.2	<0.05	0.85
DPL01SCWD	<0.50	96	4.4	25	<0.50	12	<0.50	29,000	2,700	3,600	3.03	7.93	2.01	3.9	1	0.69
DPL01SCWD	<0.50	87	3	20	<0.50	7.5	<0.50	31,000	1,200	3,100	7.85	7.85	2.76	2	0.07	0.95
DPL01SCWD	<0.50	85	3.1	17	<0.50	7.6	<0.50	160,000	6,100	16,000	0.2	7.87	1.92	2.8	0.06	1.62
DPL01SCWD	0.5	94	1.9	9.5	<0.50	1.6	<0.50	4,600	900	600	8.5	7.87	1.03	2.8	0.05	1.14
DPL01SCWD	<0.50	79	3.1	25	<0.50	6.8	<0.50	40,000	5,200	2,700	5.02	8	3.83	3.6	0.05	1.12
DPL01SCWD	<0.50	68	4.1	16	<0.50	6.5	<0.50	220,000	5,800	7,900	10.38	8.2	3.22	2.3	0.1	0.63
DPL01SCWD	0.56	89	4.5	24	<0.50	7.6	<0.50	89,000	8,000	5,600	13.23	8.18	4.39	2.6	0.22	0.84
DPL01SCWD	<0.50	76	5.2	12	<0.50	6.9	<0.50	>74,000	7,000	150	13.49	8.11	2.82	2.6	0.1	0.91
DPL01SCWD	<1.00	100	7.4	20	<0.50	8	<0.50	750,000	78,000	32,000	9.86	7.79	2.19	3.7	0.1	1.31
DPL01SCWD	<1.00	130	4.6	40	<1.00	20	<0.50	36,000	5,800	7,600	11.63	8.05	1.95	2.7	0.1	0.92
DPL01SCWD	<0.50	51	6.1	9.2	<0.50	3.6	<0.50	>183,000	>910	1,600	13.14	8.33	2.18	2	0.1	0.84
DPL01SCWD	<0.50	68	4.2	11	<0.50	8.1	<1.00	31,000	910	4,600	11.57	8.11	2.89	3.2	0.1	0.62
DPL01SCWD											9.81	8.07	1.41	2.3	0.1	0.76
DPM00P01	<8.00	130	12	79	<2.00	14	<2.00	14,000	12,400	11,400	9.46	7.71	56.5	3	0.17	2.74
DPM00P01	<8.00	160	14	84	<2.00	16	<2.00	12,200	2,350	6,100	9.53	7.76	10.2	3.1	<0.05	0.51

DPM00P01	<8.00	120	13	57	<2.00	14	<2.00	3,500	2,800	3,900	10.96	7.73	3.57	1.9	0.3	0.4
DPM00P01	<8.00	160	9.4	86	<2.00	15	<2.00	7,300	5,200	7,200	10.34	8.03	6.68	3	0.22	0.61
DPM00P01	<8.00	130	5.5	62	<2.00	12	<2.00	48,000	26,000	26,000	8.71	7.85	5.01	2.5	0.08	1.04
DPM00P01	<8.00	110	12	51	<2.00	9	<2.00	42,000	35,000	9,700	10.26	8.01	9.42	1.9		0.99
DPM00P01	<0.50	120	7.8	41	<0.50	11	<0.50	200,000	17,000	1,600	9.15	7.43	2.6	3.8	<0.05	0.62
DPM00P01	<0.50	110	5.3	31	<0.50	8.3	<0.50	12,100	6,000	1,300	9.35	7.82	3.61	6.1	<0.04	0.86
DPM00P01	<0.50	130	5.4	40	<0.50	13	<0.50	14,000	11,000	900	9.55	7.82	3.3	5.1	<0.05	0.64
DPM00P01	<0.50	130	6.7	42	<0.50	11	<0.50	110,000	2,200	6,000	10.51	7.8	11.3	3.6	0.2	0.84
DPM00P01	<0.50	100	6.7	34	<0.50	8.3	<0.50	50,000	2,300	7,000	9.24	7.67	5.41	4.5	0.12	0.82
DPM00P01	<0.50	120	6.8	34	<0.50	9.5	<0.50	21,000	9,300	9,100	9.5	7.86	5.26	3.2	0.06	0.7
DPM00P01	<0.50	100	7.7	41	<0.50	11	<0.50	3,600	1,100	1,400	9.41	7.94	204	3.8	0.07	0.92
DPM00P01	<0.50	140	5.3	50	<0.50	15	<0.50	53,000	4,400	9,400	7.17	7.78	13.6	5.1	0.08	1.11
DPM00P01	<0.50	79	5.1	29	<0.50	8.4	<0.50	380,000	89,000	>120,000	9.69	7.98	9.93	5	0.05	0.79
DPM00P01	<1.00	73	7.6	31	<0.50	5.2	<0.50	41,000	1,300	2,400	10.36	8.01	5.42	2.4	0.12	0.06
DPM00P01	<0.50	72	5.9	32	<1.00	6.8	<1.00	58,000	12,700	30,000	8.45	7.83	8.25	4.8	0.11	1.12
DPM00P01	<0.50	77	5.2	26	<0.50	6.1	<0.50	>85,000	17,000	24,000	20.19	7.77	7.37	3.1	0.18	0.59
DPM00P01											9.55	7.87	7.11	2.2	0.1	0.4
DPM00P05	<8.00	20	11	32	<2.00	<1.00	<2.00	1,700	265	2,500	23.65	9.01	3.14	0.3	0.14	0.21
DPM00P05	<8.00	15	8.7	51	<2.00	<1.00	<2.00	6,550	1,300	1,400	8.56	8.64	4.37	2.8	<0.05	0.44
DPM00P05	<8.00	10	9.3	13	<2.00	<1.00	<2.00	17,000	14,000	2,900		9.07	2.34	1.8	0.2	<0.06
DPM00P05																
DPM00P05	<8.00	18	3.7	42	<2.00	<1.00	<2.00	9,100	7,800	3,500	7.98	7.41	7.05	1.6	0.12	0.89
DPM00P05																
DPM00P05	<0.50	19	6.6	7.4	<0.50	<0.50	<0.50	17,000	600	1,600	16.82	8.22	1.67	1.6	0.09	0.29
DPM00P05	<0.50	21	6.1	8.1	<0.50	<0.50	<0.50	57,000	7,400	1,000	11.38	7.9	2.2	1.2	<0.03	0.39
DPM00P05	<0.50	19	2.7	7.4	<0.50	<0.50	<0.50	14,000	6,000	700	10.68	8.02	3.27	1.2	<0.05	0.59
DPM00P05	<0.50	25	4.9	11	<0.50	<0.50	<0.50	3,000	110	100	6.86	7.8	1.08	1.3	<0.05	0.27
DPM00P05	<0.50	20	3.8	5.4	<0.50	<0.50	<0.50	640	10	60	8.96	7.45	0.96	1	0.2	0.32
DPM00P05	<0.50	16	3.7	5.1	<0.50	<0.50	<0.50	6,300	3,700	1,800	9.74	7.8	0.56	1.4	0.14	0.29
DPM00P05	<0.50	12	11	5.1	<0.50	<0.50	<0.50	3,200	600	400	11.74	8.41	1.22	1.9	0.08	0.23
DPM00P05	<0.50	8.3	8.7	2.8	<0.50	<0.50	<0.50	6,000	<10	320	5.78	8.76	1.17	3.9	0.07	0.3

LFJ01P01	<0.50	8.4	3.7	8.1	<0.50	<0.50	<0.50	140,000	10,000	7,400	8.53	7.5	0.58	8.7	<0.05	1.07
LFJ01P01	<0.50	15	3.7	14	<0.50	<0.50	<0.50	23,000	11,000	2,200	8.34	7.44	0.84	10.3	0.1	1.2
LFJ01P01	<0.50	8.5	2.2	6.2	<0.50	<0.50	<0.50	57,000	22,000	9,800	7.31	7.8	1.18	11.5	<0.05	1.08
LFJ01P01	<0.50	7.6	1.6	5.3	<0.50	<0.50	<0.50	86,000	16,000	7,900	6.16	7.76	2	10.1	<0.05	1.29
LFJ01P01	1.2	12	22	65	<0.50	<0.50	<0.50	110,000	12,000	11,000	5.26	8.01	5.1	11.9	0.16	1.14
LFJ01P01	<0.50	13	3.8	13	<0.50	<0.50	<0.50	6,700	3,300	2,500	12.35	7.86	3.64	9.7	<0.05	0.98
LFJ01P01	<0.50	3.5	2.6	12	<0.50	<0.50	<0.50	30,000	13,000	2,700	8.5	7.89	0.9	9.8	<0.05	1.2
LFJ01P01	<0.50	11	3.2	15	<0.50	<0.50	<0.50	49,000	44,000	7,000	7.65	7.68	1.49	8.1	<0.05	1.19
LFJ01P01	<0.50	2.7	4	15	<0.50	<0.50	<0.50	53,000	25,000	7,700	8.84	7.73	1.23	8	<0.05	0.9
LFJ01P01	<0.50	4.2	4.2	9.1	<0.50	<0.50	<0.50	97,000	33,000	39,000	7.14	7.98	5.94	8.5	0.08	1.21
LFJ01P01	0.64	2.3	6.3	8.2	<0.50	<0.50	<0.50	24,000	3,200	3,700	8.13	7.99	2.09	9.5	0.05	1.33
LFJ01P01	<0.50	2.1	1.6	6.3	<0.50	<0.50	<0.50	49,000	10,000	10,800	6.9	7.91	1.16	9.2	0.05	1.31
LFJ01P01	0.64	2.5	2.5	10	<0.50	<0.50	<0.50	50,000	13,000	7,000	7.67	7.89	1.46	9.1	0.37	1.97
LFJ01P01	<0.50	2.9	2.1	2.9	<0.50	<0.50	<0.50	39,000	16,000	20,000	7.39	8.01	2.85	8.1	0.05	1.37
LFJ01P01	<0.50	2.4	1.1	5.6	<0.50	<0.50	<0.50	41,000	63,000	3,800	6.29	7.8	2.95	10	0.1	2.16
LFJ01P01	0.53	4.2	3.1	10	<0.50	<0.50	<0.50	>30,000	10,000	44,000	9.04	8.11	2.57	11.6	0.1	2.15
LFJ01P01	<0.50	3.2	4.8	6.3	<0.50	<0.50	<0.50	34,000	7,400	4,600	8.26	8.09	0.96	9.2	0.11	1.02
LFJ01P01	<0.50	4	1.4	6.4	<0.50	<0.50	<0.50	19,000	6,700	3,400	8.17	8.02	1.31	8.1	0.1	1.23
LFJ01P01	<0.50	4.2	2.1	5.1	<0.50	<0.50	<0.50	27,000	12,000	6,300	7.48	7.74	1.41	7.8	0.1	1.38
LFJ01P01	<0.50	2.1	0.95	3.5	<0.50	<0.50	<0.50	61,000	14,000	4,100	8.01	7.7	0.94	10.1	0.1	1.37
LFJ01P01	<0.50	2	3.1	7.7	<0.50	<0.50	<0.50	>9,400	6,700	3,600	8.84	8.02	1.74	9.1	0.1	1.42
LFJ01P01	<0.50	1.7	1.8	5.8	<0.50	<0.50	<0.50	23,000	420	1,900	8.64	7.97	3.5	9.4	0.1	1.84
LFJ01P05	<8.00	9.2	23	65	<2.00	<1.00	2				7.83	8.25	12.2	0.5	1.3	4.47
LFJ01P05	<8.00	7.2	7.9	57	<2.00	<1.00	<2.00	3,600	1,800	5,400	9.13	7.31	14.6	0.4	1.6	3.98
LFJ01P05	<8.00	5.1	8	39	<2.00	<1.00	<2.00	34,000	21,000	110	8.39	7.61	5.47	1.1	0.25	3.24
LFJ01P05	<8.00	9.6	12	64	<2.00	<1.00	<2.00	46,000	5,000	470	8.83	8.11	10.4	0.9	0.35	1.41
LFJ01P05	<8.00	<4.00	4.5	34	<2.00	<1.00	<2.00	7,800	810	880	3.07	8.23	4.24	3.1	0.18	1.83
LFJ01P05																
LFJ01P05	<8.00	8.7	13	72	<2.00	<1.00	2.1	7,900	6,200	2,500	8	8.3	14.8	2.9	0.5	2.62
LFJ01P05																
LFJ01P05	<8.00	6.3	8.8	44	<2.00	<1.00	<2.00	59,000	44,000	5,900	8.27	8.15	8.2	1.7	0.2	2.33

LFJ01P05																
LFJ01P05	0.58	9.6	11	42	<0.50	<0.50	0.51	220,000	32,000	6,600	9.25	7.51	7.43	1.6	0.15	2.01
LFJ01P05	<0.50	5.8	5.9	47	<0.50	<0.50	0.56	410,000	140,000	14,000	8.1	8.03	1.91	1.9	0.22	1.87
LFJ01P05	<0.50	2.8	5.1	27	<0.50	<0.50	1.5	62,000	18,000	560	7.8	8.31	9.4	2.4	<0.05	0.63
LFJ01P05	0.52	5.4	11	45	<0.50	<0.50	0.79	830,000	42,000	19,000	13.79	8.01	8.77	2.7	<0.05	3.89
LFJ01P05	<0.50	12	3.5	15	<0.50	<0.50	<0.50	67,000	16,000	4,100	9.09	8.32	2.95	2	0.15	0.47
LFJ01P05	<0.50	4.6	5.4	41	<0.50	<0.50	0.52	>1,200,000	520,000	12,000	8.07	8.11	3.72	0.8	0.1	0.64
LFJ01P05	1.9	16	44	180	<0.50	<0.50	1.3	60,000	50,000	3,000	7.86	7.81	83.2	2.1	2.72	1.48
LFJ01P05	1.3	4.6	18	24	<0.50	<0.50	<0.50	380,000	52,000	10,200	8.93	8.35	4.56	1.3	0.15	3.33
LFJ01P05	0.84	4.2	17	52	<0.50	<0.50	1.6	240,000	22,000	29,000	8.75	8.36	5.9	1.3	0.1	11.68
LFJ01P05	9.1	8.9	27	50	<0.50	<0.50	1.2	420,000	10,000	120,000	7.46	8.12	6.99	1.7	0.36	2.74
LFJ01P05	0.79	4.2	15	120	<0.50	<0.50	3.1	840,000	44,000	17,000	8.62	8.29	7.13	2	0.15	4.18
LFJ01P05	1.2	12	13	80	<0.50	<0.50	0.82	>1,200,000	81,000	23,000	8.46	8.08	13.9	1.8	0.05	3.95
LFJ01P05	0.55	5.4	8	38	<0.50	<0.50	<0.50	46,000	22,000	2,600	9.25	8.13	5.34	3	0.15	2.16
LFJ01P05	0.82	6.3	10	42	<0.50	<0.50	0.62	64,000	1,320	3,600	9.45	8.33	3.65	2	0.45	1.29
LFJ01P05	0.67	5.1	15	84	<0.50	<0.50	0.7	340,000	35,000	47,000	9.83	8.24	7.88	2	0.1	3.23
LFJ01P05	0.82	5.2	12	55	<0.50	<0.50	0.69	>640,000	41,000	14,400	9.26	8.15	8.02	2	0.1	1.84
LFJ01P05	1.1	8.8	21	220	<0.50	0.63	4	>10,000,000	82,000	540,000	8.64	7.96	7.63	2	0.35	6.58
LFJ01P05	<0.50	2.8	4	18	<0.50	<0.50	<0.50	780,000	29,000	26,000	8.93	7.48	4.45	4	0.25	1.81
LFJ01P05	0.62	2.8	9.7	27	<0.50	<0.50	<0.50	3,900,000	80,000	11,100	8.61	8.13	15	2.6	0.16	1.47
LFJ01P05	<0.50	3	8.7	40	<0.50	<0.50	<0.50	8,000	130	2,500	11.51	8.3	4.96	2	0.16	0.9
LFJ01P05@RR	<0.50	5.4	3.3	13	<0.50	<0.50	<0.50	2,100,000	14,000	28,000	9.71	8.17	9.06	2	6.5	0.85
LFJ01P05@RR	<0.50	5.8	10	32	<0.50	<0.50	2	320,000	3,100	13,000	9.64	8.23	3.76	2	6	1.55
LFJ01P05@RR	<0.50	2.6	3.1	15	<0.50	<0.50	<0.50	>7,300	2,500	2,600	8.95	8.63	9.74	2	0.33	0.5
LFJ01P05@RR																
LFJ01P05@RR																
LFJ01P05@RR																
LFJ01P05@RR																
LFJ01P05@RR																
LFJ01P08	<8.00	8.6	15	78	<2.00	3.3	<2.00	39,000	16,000	36,750	7.7	8.1	5.68	2.6	0.15	5.42

LFJ01P08	<8.00	6.2	8.9	29	<2.00	2.9	<2.00	38,000	16,000	55,000	6.3	6.65	3.1	2	0.1	1.29
LFJ01P08	<8.00	6.2	6.7	30	<2.00	3.3	<2.00	88,000	14,000	1,540	8.89	7.43	3.81	1.9	<0.05	1.83
LFJ01P08	<8.00	4	6.8	44	<2.00	2.3	<2.00	NR	NR	NR	8.88	8	3.18	2	0.43	1.49
LFJ01P08	<8.00	5.4	8.2	29	<2.00	1.3	<2.00	65,000	56,000	43,000	8.99	8	5.73	1.4	1.7	1.19
LFJ01P08	<8.00	7.6	7	34	<2.00	1.8	<2.00	101,000	38,000	79,000	7.63	7.91	13.6	2.2	0.1	1.5
LFJ01P08	<0.50	12	6.2	8.9	<0.50	3.6	<0.50	100,000	29,000	4,500	9.47	7.61	1.14	1.6	0.09	0.78
LFJ01P08																
LFJ01P08	1.2	9.1	7	14	<0.50	1.8	<0.50	160,000	37,000	24,000	8.97	8.22	5.33	0.9	0.13	1.41
LFJ01P08	<0.50	12	5.7	24	<0.50	1.8	<0.50	300,000	90,000	>120,000	7.76	7.97	4.13	3.9	0.13	1.65
LFJ01P08	<0.50	8.8	3.8	5.6	<0.50	0.86	<0.50	210,000	26,000	21,000	6.94	8.02	6.3	1.4	0.07	1.21
LFJ01P08	<0.50	12	3.8	11	<0.50	2.1	<0.50	190,000	21,000	10,000	7.71	7.96	2.2	1.5	<0.05	0.96
LFJ01P08	43	12	10	3.6	<0.50	0.98	<0.50	340,000	60,000	52,000	8.52	9.02	10.7	0.9	0.13	0.36
LFJ01P08	1.3	6.3	8.6	14	<0.50	1.6	<0.50	69,000	68,000	11,000	7.73	7.83	1.81	1.7	0.8	1.03
LFJ01P08	0.75	11	5	8.3	<0.50	1.4	<0.50	44,000	25,000	8,000	7.63	7.76	2.27	1.6	0.11	2.37
LFJ01P08	0.61	4.7	8.3	9.3	<0.50	1.4	<0.50	30,000	29,000	13,000	8.53	8.09	7.1	1	0.1	1.5
LFJ01P08	0.61	4.6	6.3	20	<0.50	1.2	<0.50	160,000	32,000	25,000	7.86	8.01	10.5	0.9	0.4	1.08
LFJ01P08	<0.50	3.8	3.6	8.3	<0.50	0.69	<0.50	37,000	6,400	3,100	9.37	8.15	5.01	2	0.1	1.58
LFJ01P08	0.74	6.4	12	26	<0.50	1.4	<0.50	190,000	>44,000	8,700	8.42	8.14	4.04	2.9	0.45	2.21
LFJ01P08	<0.50	7.5	4.3	8.1	<0.50	0.75	<0.50	>91,000	18,000	10,600	8.47	8.07	4.21	2.8	0.1	0.87
LFJ01P08	0.67	5.7	2.7	7.9	<0.50	1.1	<0.50	800,000	61,000	9,500	12.11	8.09	3.11	2.3	0.3	1.23
LFJ01P08											9.47	8.17	2.79	2	0.12	1.09
LHJ04P04	<8.00	5.4	4.8	32	<2.00	<1.00	<2.00	8,500	1,800	6,900	8.79	7.76	2.51	1.7	0.1	0.91
LHJ04P04	<8.00	<4.00	6.7	16	<2.00	<1.00	<2.00	129,000	21,000	6,400	6.33	7.56	12.3	2.2	0.08	2.69
LHJ04P04	<8.00	<4.00	5.6	23	<2.00	<1.00	<2.00	43,000	21,000	32,000	7.82	7.21	4.07	2.2	<0.05	1.73
LHJ04P04	<8.00	9.4	6.2	45	<2.00	<1.00	<2.00	41,000	12,400	12,200	8.14	7.77	2.58	1.8	0.09	0.82
LHJ04P04	<8.00	7.7	5.2	51	<2.00	<1.00	4.9	59,000	27,000	9,250	7.54	7.8	3.77	2.8	0.1	1.21
LHJ04P04	<8.00	11	6	17	<2.00	<1.00	<2.00	59,000	45,000	26,000	8.45	7.35	15.3	2.5	0.09	1.19
LHJ04P04	1.2	15	4.1	6.9	<0.50	2.7	<0.50	22,000	900	5,400	10.96	7.61	1.93	2.6	0	0.96
LHJ04P04	<0.50	20	9.2	11	<0.50	<0.50	<0.50	690,000	83,000	22,000	8.85	7.31	3.58	1.6	0.08	0.93
LHJ04P04	1	18	6.2	15	<0.50	0.63	<0.50	190,000	29,000	11,000	8.49	7.56	6.28	2.8	0.07	1.17
LHJ04P04	<0.50	14	4.2	9.6	<0.50	<0.50	<0.50	230,000	140,000	15,000	8.31	7.82	2.48	2.3	0.08	1.24

LHJ04P04	<0.50	18	4	9.3	<0.50	<0.50	<0.50	130,000	68,000	7,400	8.3	7.5	2.1	2.3	<0.05	0.97
LHJ04P04	<0.50	18	3	11	<0.50	<0.50	<0.50	42,000	7,800	5,600	12.04	7.67	2.87	2.8	<0.05	1.39
LHJ04P04	0.72	9.9	14	48	<0.50	<0.50	2.6	400,000	20,000	16,000	8.9	7.68	14.4	2.3	0.2	1.09
LHJ04P04	0.66	5.9	11	26	<0.50	<0.50	<0.50	210,000	17,000	15,000	8.24	7.74	7.62	3.4	0.15	1.23
LHJ04P04	<0.50	3.9	4.9	8.2	<0.50	<0.50	<0.50	240,000	95,000	19,000	7.3	6.83	4.27	2.6	0.07	1.16
LHJ04P04	<0.50	8.2	3.7	7.4	<0.50	0.57	<0.50	260,000	100,000	8,100	11.98	7.65	3.77	3.2	0.12	1.48
LHJ04P04	<0.50	4.1	3.8	12	<0.50	0.64	<0.50	4,400	900	320	9.23	7.88	1.39	2.7	0.1	0.72
LHJ04P04	<0.50	5.3	4	6.4	<0.50	0.5	<0.50	33,000	5,700	8,900	8.7	7.78	1.77	2.8	0.06	1.14
LHJ04P04	<0.50	3.8	3.5	6.1	<0.50	<0.50	<0.50	47,000	16,000	13,000	8.19	7.91	3.05	2.7	0.05	1.82
LHJ04P04	<0.50	3.9	3.4	4.2	<0.50	<0.50	<0.50	31,000	26,000	15,000	8.35	7.83	3.5	2.2	0.15	1.2
LHJ04P04	<0.50	3.2	3.1	5.6	<0.50	<0.50	<0.50	200,000	37,000	45,000	8.85	7.86	4.35	1.2	0.05	1
LHJ04P04	<0.50	5.4	4.2	8.2	<0.50	<0.50	<0.50	>41,000	3,800	14,400	9.08	7.85	5.03	3.5	0.12	1.21
LHJ04P04	<0.50	5.1	3.4	6.6	<0.50	<0.50	<0.50	31,000	2,000	10,200			3.85	2.1	0.1	0.97
LHJ04P04	<0.50	5.6	3.7	9.5	<0.50	<0.50	<0.50	60,000	24,000	5,700	7.94	7.82	4.48	2	0.18	0.97
LHJ04P04	<0.50	5.2	3.7	5.5	<0.50	<0.50	<0.50	>55,000	18,000	28,000	9.9	7.92	2.21	2.6	0.1	0.76
LHJ04P04	<0.50	3	3	6.8	<0.50	<0.50	<0.50	78,000	28,000	25,000	8.22	7.73	10.1	2.6	0.1	1.31
LHJ04P04	<0.50	6.2	2.7	3.9	<0.50	<0.50	<0.50	23,000	2,900	4,800	9.55	7.87	6.3	2.5	0.1	0.78
LHJ04P04											9.93	7.84	10.8	2	0.1	0.85
LHJ05P01	<0.50	180	3.7	19	<0.50	17	<0.50	2,200	2,000	2,200	6.53	7.04	5.94	3.9	0.14	1.07
LHJ05P01	<0.50	180	3.9	16	<0.50	7.5	<0.50	180,000	7,000	7,000	5.89	7.22	5.52	3.9	0.18	1.93
LHJ05P01	<0.50	89	3.4	27	<0.50	3.5	<0.50	130,000	90,000	44,000	3.58	6.81	6.85	4.5	0.08	2.06
LHJ05P01	<0.50	120	2.8	15	<0.50	5.1	<0.50	310,000	110,000	1,130,000	6.78	6.81	2.9	2.3	0.11	2.14
LHJ05P01	<0.50	120	4.6	14	<0.50	3.8	<0.50	330,000	70,000	86,000	4.5	7.66	3.97	3.7	0.06	2.45
LHJ05P01	<0.50	170	2.8	7.5	<0.50	4.9	<0.50	14,000	6,000	15,000	4.8	6.88	0.36	3	0.05	0.78
LHJ05P01	<0.50	94	5.1	23	<0.50	7	<0.50	>1,200,000	>1,200,000	20,000	5.76	7.26	3.85	4.1	0.12	6.78
LHJ05P01	<0.50	87	2.7	12	<0.50	3.6	<0.50	170,000	50,000	10,700	5.73	7.2	4.55	3	0.2	2.27
LHJ05P01	<0.50	55	2.6	8.1	<0.50	2.5	<0.50	40,000	10,000	10,800	4.71	6.97	3.05	1.9	0.07	1.42
LHJ05P01	<0.50	88	2.5	13	<0.50	3.5	<0.50	230,000	28,000	28,000	3.83	7.58	5.62	4	0.12	2.62
LHJ05P01	<0.50	91	7.5	20	<0.50	7	<0.50	150,000	12,600	66,000	7.2	7.25	3.77	3.88	0.1	5.49
LHJ05P01	<0.50	140	1.8	4.8	<0.50	3.5	<0.50	53,000	800	42,000	2.36	7.14	3.37	2.5	0.1	0.87
LHJ05P01	<0.50	55	2.5	6	<0.50	2	<0.50	>93,000	16,000	41,000	4.82	7.54	2.19	2	0.1	1.54

LHJ05P01	<0.50	97	1.4	5.1	<0.50	2.3	<0.50	>55,000	5,800	10,800	4.93	7.65	5.04	3	0.1	0.99
LHJ05P01	<0.50	80	2	8.4	<0.50	3.3	<0.50	>107,000	18,000	24,000	4.82	6.82	4.28	3.1	0.1	1.66
LHJ05P01	<1.00	150	2.3	40	<1.00	3.9	<1.00	>11,900	690	2,600	4.29	6.93	1.81	2.8	0.1	0.61
LHJ05P01	<0.50	150	3	4.8	<0.50	6.3	<0.50	6,500	120	2,300	6.27	6.9	0.53	2	0.1	0.59
LHL04TBN1	<0.50	5.4	4.3	34	<0.50	<0.50	<0.50	12,000	5,000	1,000	8.7	7.65	1.7	1.6	0.06	0.94
LHL04TBN1	1.1	14	19	1200	<0.50	1.8	7.1	200,000	23,000	8,500	9.16	7.68	3.19	1.6	0.35	10.85
LHL04TBN1	<0.50	3	3	23	<0.50	<0.50	0.75	39,000	17,000	1,600	9.52	8.01	2.17	1.5	0.1	1.28
LHL04TBN1	<0.50	2.7	2.4	17	<0.50	<0.50	<0.50	90,000	88,000	2,700	8.59	8.01	1.2	0.9	<0.05	1.32
LHL04TBN1	<0.50	3	2.1	14	<0.50	<0.50	<0.50	83,000	69,000	1,300	9.24	8.32	1.2	1	<0.05	1.15
LHL04TBN1	<0.50	7.5	12	85	<0.50	<0.50	<0.50	51,000	9,000	410	12.33	8.14	4.88	3	<0.05	0.97
LHL04TBN1	<0.50	5.8	14	41	<0.50	<0.50	<0.50	21,000	4,200	90	9.54	8.06	3.74	3	0.24	1.12
LHL04TBN1	<0.50	4.9	5.6	39	<0.50	<0.50	<0.50	8,400	3,400	460	8.51	8.2	1.37	2.3	0.14	1.12
LHL04TBN1	<0.50	2.7	7.3	37	<0.50	<0.50	<0.50	3,800	2,400	260	8.85	7.02	2.51	1.8	0.23	0.83
LHL04TBN1	<0.50	2.2	4.8	21	<0.50	<0.50	<0.50	860,000	42,000	3,000	8.22	8.41	2.28	1.3	0.65	0.95
LHL04TBN1	1.1	3	12	23	<0.50	<0.50	<0.50	20,000	800	130	12.2	8.92	5.19	3.4	0.1	0.81
LHL04TBN1	<0.50	1.9	4.7	14	<0.50	<0.50	<0.50	7,800	280	300	9.42	8.24	4.26	2.6	0.09	0.78
LHL04TBN1	7.3	5.2	34	44	<0.50	<0.50	1.4	29,000	2,000	3,900	10.13	8.33	3.95	4.9	0.32	1.19
LHL04TBN1	<0.50	4.5	8.2	56	<0.50	<0.50	0.98	27,000	14,000	700	8.06	8.2	5.61	1.8	0.65	1.63
LHL04TBN1	1.2	4.1	12	35	<0.50	<0.50	0.89	36,000	10,000	2,800	8.5	8.2	5.01	2.2	0.15	1.42
LHL04TBN1	<0.50	3.3	9.5	51	<0.50	<0.50	<0.50	540,000	11,800	5,400	10.05	8.37	3.08	2.4	0.3	0.67
LHL04TBN1	<0.50	2.9	6.3	32	<0.50	<0.50	<0.50	113,000	3,400	3,300			1.99	2.9	0.15	1.07
LHL04TBN1	<0.50	3.5	6.8	44	<0.50	<0.50	<0.50	>36,000	7,000	3,400	8.45	8.13	2.38	2	0.25	0.74
LHL04TBN1	6.4	8.4	8.3	24	<0.50	<0.50	<0.50	>10,500	2,000	1,300	9.21	7.89	1.62	16.7	0.13	2.23
LHL04TBN1	<0.50	2	2.8	16	<0.50	<0.50	<0.50	42,000	8,600	3,900	8.02	7.98	4.72	2	0.15	0.92
LHL04TBN1	<0.50	3	7.2	33	<0.50	<0.50	<0.50	8,900	140	1,000	10.34	8.35	3.53	2.4	0.12	0.52
LHL04TBN1											9.68	8.3	3.84	2	0.11	0.68
LNJ03P01	<8.00	26	4.6	52	<2.00	3	<2.00	149,000	77,000	416,000	9.35	7.82	5.41	2.8	0.08	0.96
LNJ03P01	<8.00	20	21	38	<2.00	2.4	<2.00	12,250	3,950	8,300	8.15	7.62	3.96	2.5	0.15	2
LNJ03P01	<8.00	18	6.1	52	<2.00	3.2	<2.00	2,900	2,600	3,700	9.49	7.56	2.7	1.3	<0.05	0.3
LNJ03P01	<8.00	28	12	58	<2.00	3	<2.00	9,900	6,200	8,450		7.79	4.38	3.8		1.59

LNJ03P01	<8.00	25	9.4	32	<2.00	2.4	<2.00	133,000	106,000	13,000	7.7	7.61	4.09	2	0.28	1.39
LNJ03P01	<8.00	39	520	190	<2.00	16	<2.00	39,000	26,000	7,900	7.36	7.35	6.9	3.4		1.26
LNJ03P01	0.64	52	4.3	29	<0.50	5.9	<0.50	60,000	1,800	1,800	8.23	7.62	1.17	4	<0.05	0.69
LNJ03P01	0.95	42	4.9	26	<0.50	3.8	<0.50	17,000	33,000	2,500	8.21	7.45	2.31	4	0.07	1.7
LNJ03P01	<0.50	32	3.9	17	<0.50	2.6	<0.50	150,000	23,000	6,000	8.1	7.64	3.12	3.6	<0.05	1.31
LNJ03P01	0.53	39	5.4	23	<0.50	4.1	<0.50	54,000	11,200	8,800	8.1	7.36	1.86	3.8	0.07	1.36
LNJ03P01	0.52	25	3.1	16	<0.50	1.1	<0.50	55,000	27,000	7,900	6.93	7.27	3.18	5.2	0.07	2.93
LNJ03P01	0.52	22	2.8	8	<0.50	0.93	<0.50	14,000	8,200	2,200	8.15	7.73	1.23	2.7	<0.05	1.19
LNJ03P01	0.59	21	4.9	19	<0.50	3.2	<0.50	50,000	1,700	1,800	8.8	7.58	1.4	2.9	0.1	1.14
LNJ03P01	0.5	26	3	20	<0.50	1.7	<0.50	34,000	14,000	7,900	8.51	7.65	2.88	4.5	0.05	2.92
LNJ03P01	<0.50	35	3.1	25	<0.50	3.8	<0.50	40,000	3,000	7,300	10.47	7.59	1.6	3.9	0.05	1.19
LNJ03P01	<0.50	20	2.6	14	<0.50	1.7	<0.50	>9,400	3,300	3,700	8.21	7.72	1.75	3.2	0.1	1.21
LNJ03P01	<0.50	23	2.4	13	<0.50	2.1	<0.50	28,000	800	2,100	7.95	7.79	2.08	3.6	0.1	1.02
LNJ03P01	<0.50	21	1.9	19	<0.50	2	<0.50	26,000	360	800	13.54	7.66	2.08	4	0.1	1.47
LNJ03P01											11.29	7.92	5.85	2.6	0.33	0.74
LNJ03P04	<0.50	120	9.3	40	<0.50	14	<0.50	63,000	20,000	8,100	12.17	7.67	8.78	4.2	0.75	1.59
LNJ03P04	<0.50	130	5.1	79	<0.50	12	<0.50	720,000	460,000	43,000	6.45	6.62	4.95	4.8	0.19	1.74
LNJ03P04	0.8	19	6.1	16	<0.50	1.1	<0.50	220,000	68,000	33,000	8.69	7.44	5.67	6.2	<0.05	3.58
LNJ03P04	<0.50	65	4	11	<0.50	2.2	<0.50	98,000	71,000	35,000	7.66	7.69	3.52	2.3	0.08	1.3
LNJ03P04	<0.50	32	4.1	13	<0.50	1.5	<0.50	160,000	120,000	73,000	7	7.73	5	14.7	<0.05	2.93
LNJ03P04	0.63	80	19	79	<0.50	11	<0.50	83,000	19,000	105,000	8.52	7.56	10.8	6.2	0.05	2.59
LNJ03P04	<0.50	60	5.4	20	<0.50	2.2	<0.50	63,000	8,700	17,000	8.46	7.75	7.09	5	0.08	2.18
LNJ03P04	<0.50	43	4.4	15	<0.50	2.2	<0.50	150,000	57,000	23,000	7.72	7.88	7.03	2.3	0.18	2.61
LNJ03P04	<0.50	39	8	22	<0.50	4	<0.50	280,000	160,000	40,000	6.8	7.7	8.63	3.4	2.8	2.81
LNJ03P04	<0.50	34	3	13	<0.50	1.2	<0.50	42,000	13,000	5,000	7.56	7.94	8.97	4.6	0.07	3.59
LNJ03P04	<0.50	58	3.6	13	<0.50	2	<0.50	>940,000	12,700	7,000	8.26	7.83	8.1	3.4	0.12	1.4
LNJ03P04	<0.50	20	5.1	15	<0.50	2.2	<0.50	33,000	1,200	5,200	12.58	7.79	3.79	3.2	0.11	1.72
LNJ03P04	<0.50	41	3.7	9.9	<0.50	1	<0.50	>84,000	23,000	21,000	7.62	8.11	5.33	2.3	0.12	0.89
LNJ03P04	<0.50	25	3.3	6.3	<0.50	1.1	<0.50	>90,000	21,000	29,000	7.83	7.98	3.82	2.9	0.38	1.18
LNJ03P04	0.51	130	3.8	8.8	<0.50	0.79	<0.50	200,000	27,000	13,100	7.99	8.07	14.8	3.7	0.11	0.3
LNJ03P04	<0.50	49	5.8	17	<0.50	2	<0.50	>77,000	10,000	49,000	9.7	7.89	5.69	3	0.11	0.83

LNJ03P04	<0.50	77	3.7	9.9	<0.50	1.3	<0.50	68,000	7,800	62,000	9.3	7.81	4.56	3.9	0.1	0.84
LNJ03P05	<0.50	53	8.5	25	<0.50	3.7	<0.50	23,000	7,000	2,100	13.5	7.88	8.91	3.3	<0.05	0.67
LNJ03P05	<0.50	130	8.3	62	<0.50	6.9	<0.50	43,000	13,000	3,600	9.12	7.7	3.71	4	0.85	1.13
LNJ03P05	<0.50	78	6.5	26	<0.50	3.3	<0.50	68,000	67,000	25,000	9.41	7.8	3.07	3.3	0.08	0.92
LNJ03P05	0.58	73	7.8	34	<0.50	6	<0.50	330,000	140,000	45,000	7.88	7.7	4.01	2.2	0.1	1.1
LNJ03P05	<0.50	81	11	29	<0.50	4.1	<0.50	56,000	42,000	6,000	7.34	7.57	3.16	4.1	0.25	1.48
LNJ03P05	<0.50	97	7.9	54	<0.50	8.3	<0.50	43,000	13,000	10,000	9.92	7.86	8.3	1.6	0.05	0.9
LNJ03P05	<0.50	49	6.8	27	<0.50	2.9	<0.50	220,000	37,000	16,000	8.02	7.46	8.08	6.4	0.09	3.96
LNJ03P05	<0.50	41	4.6	17	<0.50	1.7	<0.50	63,000	4,900	11,000	8.02	7.84	13.7	2.9	0.05	1.31
LNJ03P05	<0.50	39	7	16	<0.50	2	<0.50	380,000	200,000	68,000	8.19	7.98	2.8	1.8	0.28	1.76
LNJ03P05	<0.50	40	4.3	15	<0.50	2	<0.50	49,000	8,000	8,000	8.07	7.52	2.56	2.6	0.05	2.05
LNJ03P05	<0.50	130	4.4	20	<0.50	1.2	<0.50	>32,000	5,300	5,600	9.37	7.31	8.23	4.2	0.17	0.46
LNJ03P05	<0.50	46	6.2	23	<0.50	2.9	<0.50	300,000	14,000	23,000	13.82	7.59	4.13	2.8	0.15	0.86
LNJ03P05	<0.50	38	9.3	15	<0.50	1.8	<0.50	33,000	7,200	22,000	8.2	7.77	15.4	2	0.72	0.89
LNJ03P05	<0.50	55	5.8	14	<0.50	1.7	<0.50	24,000	5,800	5,000	9.48	8.08	3.66	2	0.1	0.77
LNJ03P05	<0.50	81	7.1	20	<0.50	0.81	<0.50	37,000	10,000	9,800	8.93	8.06	5.38	2.6	0.18	0.66
LNJ03P05	<0.50	130	4.5	40	<0.50	8.1	<0.50	28,000	3,400	14,200	9.7	7.93	3.23	3.4	0.1	0.45
LNJ03P05	<0.50	170	4.1	53	<0.50	0.7	<0.50	22,000	1,700	8,400	10.33	7.82	14.4	3.7	0.11	0.33
LNJ03P13	<0.50	390	3.6	190	<0.50	47	<0.50	15,000	3,100	340	7.95	7.44	0.47	4.7	0.06	0.24
LNJ03P13	<0.50	260	2.8	120	<0.50	18	<0.50	34,000	3,400	1,500	6.69	7.11	0.49	6.7	<0.05	0.48
LNJ03P13	<0.50	180	2.9	63	<0.50	4.6	<0.50	19,000	12,000	4,700	7.69	7.25	1.1	5.3	<0.05	0.65
LNJ03P13	0.55	220	3	76	<0.50	7.5	<0.50	43,000	7,900	5,600	8.54	7.33	1.11	6.4	0.06	0.46
LNJ03P13	<0.50	160	3.2	57	<0.50	5.3	<0.50	36,000	13,000	2,000	6.01	7.62	0.71	5.5	0.1	0.35
LNJ03P13	<0.50	180	2.8	110	<0.50	13	<0.50	14,000	610	230	8.35	7.07	0.35	3.2	0.05	0.46
LNJ03P13	<0.50	170	3.1	97	<0.50	12	<0.50	8,200	220	2,800	6.58	7.37	0.71	6.1	0.05	0.48
LNJ03P13	<0.50	120	2.6	57	<0.50	12	<0.50	29,000	3,500	8,800	5.82	7.45	1.83	4.8	0.06	0.68
LNJ03P13	<0.50	120	2.5	52	<0.50	8	<0.50	24,000	9,000	11,000	6.27	7.58	1.26	4.9	0.1	0.66
LNJ03P13	<0.50	86	1.9	35	<0.50	4.4	<0.50	24,000	1,100	800	7.08	7.75	0.33	5	0.05	0.3
LNJ03P13	0.56	160	3.3	82	<0.50	17	<0.50	>158,000	>46,000	860	6.32	7.52	1.04	5.7	0.11	0.24
LNJ03P13	<0.50	120	2.3	63	<0.50	13	<0.50	30,000	460	2,900	8.18	7.32	0.86	5.1	0.12	0.45

LNJ03P13	<0.50	110	2.5	45	<0.50	9	<0.50	4,900	1,330	910	6.02	7.88	0.6	4.3	0.1	0.3
LNJ03P13	<0.50	100	2.7	37	<0.50	7.7	<0.50	15,000	420	1,320	7.26	7.74	0.6	3.1	0.1	0.32
LNJ03P13	<0.50	81	3.1	43	<0.50	7.7	<0.50	5,800	510	950	7.14	8.05	0.96	6.6	0.1	0.3
LNJ03P13	0.56	120	2.9	52	<0.50	9.5	<0.50				8.09	7.5	0.4	3.4	0.1	0.3
LNJ03P13								22,000	390	550	9.73	7.65	0.54	4.6	0.1	0.38
LNJ04@LPAZ	0.51	100	2.3	23	<0.50	1.6	<0.50	>40,000	8,400	5,700	8.42	7.51	6	4	0.1	0.57
LNJ04@LPAZ								37,000	5,100	5,500	5.74	7.19	5.02	4.2	0.1	0.83
LNJ04DSRP	<0.50	57	6.2	35	<0.50	9.4	<0.50	170	<9	50	5.83	7.42	5.74	4.9	0.1	5.55
LNJ04DSRP								32,000	1,000	2,300	6.83	7.66	3.61	4.5	0.1	0.8
LNK01P07	<8.00	5.4	9.1	33	<2.00	<1.00	<2.00	24,000	16,000	8,200	8.85	8.39	8.83	2.4	<0.05	1.67
LNK01P07	<8.00	7.7	12	36	<2.00	<1.00	<2.00	18,600	5,000	3,900	8.99	6.89	2.48	4	0.1	2.37
LNK01P07	<8.00	6	13	29	<2.00	<1.00	<2.00	25,000	16,300	54,000	8.33	7.23	6.17	3	<0.05	2.03
LNK01P07	<8.00	5.5	13	35	<2.00	<1.00	<2.00	54,000	30,000	16,100	8.52	7.8	5.07	3	0.13	1.77
LNK01P07	<8.00	6.8	12	70	<2.00	<1.00	<2.00	12,600	6,900	11,800	8.29	8.2	2.2	2.9	0.08	1.79
LNK01P07	<8.00	8.8	18	39	<2.00	<1.00	<2.00	67,000	52,000	7,700	7	7.8	15.5	3.4		2.78
LNK01P07	<0.50	7.8	11	15	<0.50	<0.50	<0.50	410,000	116,000	143,000	8.33	7.3	2.62	4.6	0.16	2.24
LNK01P07	<0.50	9.5	7.6	25	<0.50	<0.50	<0.50	440,000	>120,000	86,000	8.6	7.68	6.68	3.3	<0.05	4.8
LNK01P07	<0.50	8.4	6	11	<0.50	<0.50	<0.50	330,000	100,000	280,000	8.67	7.91	5.32	4.3	<0.05	2.5
LNK01P07	<0.50	9.8	6.9	21	<0.50	<0.50	<0.50	570,000	117,000	11,000	8.8	7.9	3.19	4.5	0.06	2.83
LNK01P07	<0.50	12	8.7	31	<0.50	<0.50	<0.50	110,000	14,000	23,000	8.73	7.61	6.88	5.3	0.08	3.84
LNK01P07	<0.50	18	5.7	16	<0.50	<0.50	<0.50	91,000	66,000	36,000	8.34	7.59	6.57	3.2	0.1	2.92
LNK01P07	<0.50	5.2	6.6	16	<0.50	<0.50	<0.50	32,000	21,000	7,400	9.31	7.9	5.85	6.3	0.06	3.56
LNK01P07	<0.50	6.2	6.1	10	<0.50	<0.50	<0.50	107,000	17,000	22,000	9.2	8.1	1.99	3.5	0.05	1.76
LNK01P07	<0.50	4.2	13	13	<0.50	<0.50	<0.50	160,000	50,000	29,000	8.24	8.04	5.92	2.9	0.05	2.49
LNK01P07	<0.50	5.3	5.8	13	<0.50	<0.50	<0.50	510,000	22,000	7,400	10.65	7.94	5.73	4.8	0.1	1.86
LNK01P07	<0.50	5.6	6.7	17	<0.50	<0.50	<0.50	190,000	22,000	28,000	8.36	7.98	2.7	3.8	0.11	2.12
LNK01P07	<0.50	5.7	13	17	<0.50	<0.50	0.93	135,000	>4,600	30,000	14.45	8.64	14	2.7	0.18	1.9
LNK01P07	<0.50	3.6	5.2	11	<0.50	<0.50	<0.50	>29,000	>450	6,500	10.11	7.94	5.09	3.7	0.1	1.61
LNK01P07											9.87	8.12	5.82	4.2	0.1	1.98

LNK01P08	<8.00	6	10	31	<2.00	<1.00	<2.00	69,000	5,000	4,500	9.2	8.25	6.47	2.3	<0.05	1.45
LNK01P08	<8.00	4.1	12	40	<2.00	<1.00	<2.00	129,000	940	102,000	8.91	6.97	2.02	5.5	<0.05	3.87
LNK01P08	<8.00	<4.00	10	23	<2.00	<1.00	<2.00	35,000	4,300	46,000	8.71	7.4	2.71	2.9	<0.05	1.15
LNK01P08	<8.00	6.6	10	39	<2.00	<1.00	<2.00	88,000	42,000	17,700	8.5	7.9	3.44	2.4	0.9	1.86
LNK01P08	<8.00	9.1	15	63	<2.00	<1.00	<2.00	20,450	12,200	5,600	7.98	8.13	2.36	2.9	0.13	1.51
LNK01P08	<8.00	11	7.8	27	<2.00	<1.00	<2.00	10,000	7,300	6,500	8	7.9	4.44	2.6		2.02
LNK01P08	<0.50	12	6.4	12	<0.50	<0.50	<0.50	540,000	63,000	22,000	9.16	7.64	3.62	2.8	0.19	1.16
LNK01P08	<0.50	13	10	23	<0.50	<0.50	0.78	300,000	>120,000	109,000	8.87	7.88	6.07	3.2	0.22	2.27
LNK01P08	<0.50	7.9	4.3	7.6	<0.50	<0.50	<0.50	200,000	130,000	20,000	8.91	8.02	3.93	2.8	<0.05	1.44
LNK01P08	<0.50	14	7.7	13	<0.50	<0.50	<0.50	370,000	63,000	12,000	8.95	7.96	3.13	2.8	0.19	1.36
LNK01P08	<0.50	14	5.2	7.9	<0.50	<0.50	<0.50	54,000	9,500	19,000	9.28	8	3.13	2.2	0.15	1.76
LNK01P08	0.7	15	13	22	<0.50	0.58	1.3	390,000	250,000	22,000	8.45	7.66	29.7	2.8	0.08	1.26
LNK01P08	<0.50	4.8	11	12	<0.50	<0.50	<0.50	18,000	11,500	6,200	9.63	8.01	2.72	4.1	0.06	2.58
LNK01P08	<0.50	5.2	5.8	11	<0.50	<0.50	<0.50	48,000	6,700	13,000	8.95	8.16	3.06	2.7	0.1	1.53
LNK01P08	<0.50	3.9	3.2	9.1	<0.50	<0.50	<0.50	50,000	19,000	11,000	8.7	8.07	2.83	2.5	0.05	1.73
LNK01P08	<0.50	4.9	3.4	9.5	<0.50	<0.50	<0.50	>34,000	4,800	11,900	11.57	8.09	3.7	4.4	0.1	1.25
LNK01P08	<0.50	4.6	5.1	7.7	<0.50	<0.50	<0.50	>79,000	16,000	24,000	8.96	8.07	2.2	2.6	0.1	1.02
LNK01P08	<0.50	4.8	4.1	7	<0.50	<0.50	<0.50	56,000	3,600	9,900	13.86	8.24	4	2	0.23	1.11
LNK01P08	<0.50	4.3	3.3	8.9	<0.50	<0.50	<0.50	>48,000	>900	8,400	10.32	8.03	2.36	3.1	0.1	1.24
LNK01P08											9.9	8.14	5.96	3.8	0.1	2.13
LNK01P09	<8.00	6.3	6.3	47	<2.00	<1.00	<2.00	740	<10	1,400	10.26	8.16	22.7	2.9	<0.05	1.37
LNK01P09	<8.00	4.1	7	34	<2.00	<1.00	<2.00	<10	<10	1,550	10.28	6.45	7.1	3.1	0.08	1.99
LNK01P09	<8.00	<4.00	10	33	<2.00	<1.00	<2.00	39,000	29,000	37,000	9.93	7.31	17.8	4.2	<0.05	2.02
LNK01P09	<8.00	7.5	5.4	41	<2.00	<1.00	<2.00	510	350	610	11	8	3.99	2.8	0.15	1.71
LNK01P09	<8.00	9.1	6.1	63	<2.00	<1.00	<2.00	610	510	460	8.77	8.08	3.88	1.4		1.56
LNK01P09	<8.00	8.5	14	32	<2.00	<1.00	<2.00	70,000	57,000	35,000	3.4	7	3.33	3.4	0.1	2.14
LNK01P09	<0.50	19	6.3	11	<0.50	<0.50	<0.50	33,000	200	420	9.42	7.53	1.67	4.5	0.08	1.63
LNK01P09	<0.50	13	4.1	13	<0.50	<0.50	<0.50	16,000	9,000	700	9.31	7.84	1.23	3.4	<0.05	1.41
LNK01P09	<0.50	15	4.7	12	<0.50	<0.50	<0.50	50,000	30,000	590	9.45	7.85	0.73	5.2	<0.05	2.36
LNK01P09	<0.50	24	3.7	11	<0.50	<0.50	<0.50	4,700	1,500	410	9.38	7.83	0.8	3.7	<0.05	1.62

LNK01P09	<0.50	23	4.1	12	<0.50	<0.50	<0.50	6,300	100	9,200	9.84	7.87	1.55	2.3	0.18	1.85
LNK01P09	<0.50	24	5.7	15	<0.50	1.1	<0.50	5,200	1,400	800	8.77	7.62	0.47	3.1	0.1	2.24
LNK01P09	<0.50	5	3.7	12	<0.50	<0.50	<0.50	1,300	180	500	9.94	7.83	0.6	3.4	0.06	2.19
LNK01P09	<0.50	4.8	2.8	8.3	<0.50	<0.50	<0.50	520	110	80	9.69	8	1.09	3.1	0.1	1.98
LNK01P09	<0.50	4.3	1.9	9.1	<0.50	<0.50	<0.50	700	400	700	10.06	7.98	0.52	2	0.05	2.39
LNK01P09	<0.50	6	2	6.7	<0.50	<0.50	<0.50	>480	<9	240	11.74	7.95	0.58	2	0.1	2.27
LNK01P09	<0.50	6.3	5.5	8.4	<0.50	<0.50	<0.50	2,100	60	320	9.69	7.94	0.71	2.2	0.1	2.19
LNK01P09	<0.50	6.6	1.7	6.8	<0.50	<0.50	<0.50	590	<9	230	15.81	8.06	1	2	0.11	1.98
LNK01P09	<0.50	4.7	3.3	8.5	<0.50	<0.50	<0.50	2,800	200	370	11.09	7.91	0.66	3	0.1	2.3
LNK01P09											10.32	7.97	0.59	2.7	0.1	2.95
LNL03P03	0.81	9.6	4.6	34	<0.50	<0.50	<0.50	80,000	10,000	2,900	7.56	7.55	1.19	2.4	0.17	<0.06
LNL03P03	<0.50	12	3.8	34	<0.50	<0.50	<0.50	38,000	8,000	4,700	9.21	7.6	1.76	3.7	<0.05	1.38
LNL03P03	<0.50	7.1	4.4	32	<0.50	<0.50	<0.50	200,000	38,000	13,000	7.73	7.94	2.93	1.8	0.12	1.47
LNL03P03	<0.50	12	2.8	26	<0.50	<0.50	<0.50	1,180,000	1,090,000	27,000	7.5	7.9	2.9	2.5	<0.05	1.25
LNL03P03	<0.50	19	4.6	49	<0.50	0.58	<0.50	460,000	74,000	40,000	8.6	7.95	4.5	6.7	0.23	4.01
LNL03P03	0.91	9.5	7	51	<0.50	<0.50	<0.50	19,000	1,600	720	9.67	7.92	4.03	4.5	0.07	4.89
LNL03P03	<0.50	8.5	6.8	50	<0.50	<0.50	<0.50	1,000	<10	90	8.3	7.67	4.3	5.7	0.11	14.5
LNL03P03	<0.50	9.9	4.6	53	<0.50	0.55	0.52	76,000	140	14,000	7.29	7.7	1.79	8.1	0.13	4.38
LNL03P03	<0.50	6.4	5.7	54	<0.50	0.56	<0.50	58,000	40,000	28,000	7.72	7.57	4.29	7	0.15	3.63
LNL03P03	<0.50	6.6	3.1	22	<0.50	<0.50	<0.50	59,000	20,000	13,000	0	7.95	5.4	5.3	0.1	2.78
LNL03P03	<0.50	8.3	11	76	<0.50	1.1	1.1	230,000	45,000	520	8.12	7.82	2.8	12	0.35	3.33
LNL03P03	0.72	8.4	12	88	<0.50	0.74	0.78	6,500	1,900	1,200	8.53	8.07	5.49	10	0.19	3.54
LNL03P03	<0.50	6.5	3.6	39	<0.50	<0.50	0.66	37,000	3,600	6,800	6.15	7.98	1.45	4.5	0.06	3.5
LNL03P03	<0.50	6.6	3.4	44	<0.50	<0.50	1	90,000	29,000	6,700	7.85	7.76	2.82	7.4	0.1	2.57
LNL03P03	<0.50	7.7	3.1	38	<0.50	<0.50	0.56	7,700	2,000	2,100	6.45	7.87	1.55	7	0.05	4.4
LNL03P03	<0.50	4.6	3.5	41	<0.50	<0.50	<0.50	>21,000	2,200	5,200	6.6	7.86	2.12	2.2	0.1	1.44
LNL03P03	<0.50	5.4	4.1	31	<0.50	<0.50	<0.50	>19,500	>380	2,800	10.15	7.94	4.25	2	0.11	0.93
LNL03P03	<0.50	4.8	2.4	12	<0.50	2.3	<0.50	122,000	10,000	3,200	12.13	8.13	3.78	2	0.12	1.49
LNL03P03	<0.50	15	3.3	14	<0.50	4.1	<0.50	56,000	25,000	31,000	4.76	7.87	1.98	4.5	0.1	3.19
LNL03P03	<0.50	8.8	4	21	<0.50	1.9	<0.50	58,000	9,400	10,400	8.06	8.2	2.14	6	0.1	5.21
LNL03P03	<0.50	7.9	5.3	48	<0.50	<0.50	<0.50	76,000	8,200	5,800	8.43	8.12	4.62	12.9	0.1	6.83

LNL03P03	<0.50	2.8	3.7	23	<0.50	<0.50	<0.50	42,000	1,700	4,300	10.27	8.1	3.66	5.1	0.1	2.29
LNL03P04	<8.00	8.1	4.6	21	<2.00	<1.00	<2.00	<10	<10	<10	11.87	8.06	0.87	1.3	<0.05	0.66
LNL03P04	<8.00	7.8	5.6	43	<2.00	<1.00	<2.00	8,600	3,100	860	13.99	7.46	1.77	<0.20	<0.05	1.39
LNL03P04	<8.00	6.3	6.4	23	<2.00	<1.00	<2.00	3,800	3,100	760	11.4	8.11	1.24	1.1	0.5	0.42
LNL03P04	<8.00	13	7.9	51	<2.00	<1.00	<2.00	4,000	2,100	1,610	9.24	8.09	1.28	1.9	<0.05	0.85
LNL03P04	<8.00	13	5.9	24	<2.00	<1.00	<2.00	450	260	1,200	10.99	8.39	1.77	2.1		1
LNL03P04	<8.00	15	5.2	31	<2.00	<1.00	<2.00	300	110	1,130	7.97	7.75	1.53	1.1		1.69
LNL03P04	<0.50	31	4.5	19	<0.50	1.3	<0.50	140,000	50,000	6,500	11.45	8.1	1.95	3.7	0.09	0.49
LNL03P04																
LNL03P04	<0.50	29	3.4	19	<0.50	1	<0.50	22,000	2,500	810	8.2	7.86	1.32	3.5	0.08	1.32
LNL03P04	<0.50	20	2.7	15	<0.50	0.63	<0.50	100,000	30,000	3,600	9.73	7.98	1.88	2.5	<0.05	1.64
LNL03P04	<0.50	31	3.5	20	<0.50	<0.50	<0.50	30,000	6,900	3,500	9.22	7.62	2.22	4.7	0.13	1.56
LNL03P04	<0.50	25	2.6	13	<0.50	0.54	<0.50	9,500	690	1,200	5.69	7.5	2.01	4.3	0.15	0.92
LNL03P04	<0.50	13	3.6	13	<0.50	<0.50	<0.50	9,000	1,300	1,000	6.03	7.61	2.18	3	0.07	1.35
LNL03P04	<0.50	12	4.7	26	<0.50	1.5	<0.50	6,100	320	870	9.64	7.93	1.91	5.4	0.09	3.45
LNL03P04	<0.50	13	6.2	20	<0.50	0.9	<0.50	400	<10	100	5.23	7.77	0.61	3.6	0.07	1.38
LNL03P04	<0.50	31	2	22	<0.50	0.77	<0.50	8,000	900	1,900	6.08	7.78	1.41	3.7	0.06	1.79
LNL03P04	<0.50	16	2.6	18	<0.50	<0.50	<0.50	74,000	380	5,200	5.38	7.49	6.62	3.2	0.11	1.31
LNL03P04	<0.50	10	2.6	9.4	<0.50	<0.50	<0.50	>21,000	640	2,000	7.15	7.93	2.46	2.8	0.1	1.11
LNL03P04	<0.50	10	3.6	7.3	<0.50	<0.50	<0.50	>10,700	830	4,100	6.82	8	14.4	2	0.12	0.78
LNL03P04	<0.50	15	7.8	69	<0.50	0.84	<0.50	>1,300	70	190	8.15	7.86	0.85	2.9	0.1	0.45
LNL03P06	<8.00	38	15	41	<2.00	2.6	<2.00	1,900	1,400	1,100	8.77	7.38	1.35	7.3	<0.05	1.27
LNL03P06	<8.00	42	19	51	<2.00	2.3	<2.00	9,300	6,300	2,600	8.95	6.99	2.04	6.9	0.1	1.53
LNL03P06	<8.00	19	6.4	17	<2.00	4.3	<2.00	62,000	28,000	22,000	8.48	8.14	4.36	0.7	<0.05	0.45
LNL03P06	<8.00	11	7.4	42	<2.00	<1.00	<2.00	1,210	440	450	7.52	7.52	1000	1.4	0.1	0.27
LNL03P06	<8.00	42	36	43	<2.00	3.2	<2.00	38,000	13,200	42,000	1.11	8.03	8.89	7.9	0.21	1.86
LNL03P06	<8.00	33	18	91	<2.00	2.4	<2.00	78,000	45,000	18,800	7.54	7.95	24.3		0.18	2.71
LNL03P06	<8.00	41	29	86	<2.00	4.2	<2.00	26,000	8,050	10,300	8.26	7.79	7.23	4.5		1.73
LNL03P06	<8.00	31	22	11	<2.00	<1.00	<2.00	36,000	26,000	6,500	8.33	7.4	3.43	4.7		1.43
LNL03P06	<8.00	18	11	27	<2.00	<1.00	<2.00	65,000	34,000	11,900	13.39	8.05	81.7	2.6	0.2	2.24

LNL03P06	<8.00	24	21	68	<2.00	1.2	<2.00	<200,000	<200,000	<200,000	12.85	8.19	15	7.3	1.3	4.79
LNL03P06	<0.50	110	8.1	72	<0.50	8.2	<0.50	30,000	310	5,400	8.66	7.85	3.48	6	<0.05	0.83
LNL03P06	<0.50	80	9.6	41	<0.50	5.2	<0.50	90,000	3,400	3,900	9.12	7.56	2.26	7.8	0.1	1.31
LNL03P06	3.1	16	6.1	80	0.98	3.9	2.9	9,000	3,100	430	9.15	8	616	3.1	0.15	0.45
LNL03P06	<0.50	44	7.1	26	<0.50	2.1	<0.50	120,000	80,000	11,000	8.4	8	3.27	7.5	0.07	1.58
LNL03P06	0.59	200	7.5	49	<0.50	4.9	<0.50	45,000	33,000	3,700	8.4	7.81	2.3	5.8	0.08	1.16
LNL03P06	<0.50	24	13	45	<0.50	1.9	<0.50	43,000	10,000	880	7.04	7.29	3.42	5.3	0.11	5.39
LNL03P06	1	34	21	190	<0.50	5.8	0.66	45,000	130	250	7.51	7.47	10.3	5.9	1.6	6.65
LNL03P06	<0.50	28	7.9	32	<0.50	2.3	<0.50	23,000	<10	320	6.5	7.42	3.06	8	<0.05	5.43
LNL03P06	1.6	16	9.2	45	<0.50	2.5	<0.50	4,200	160	800	7.4	7.56	3.34	9.4	0.11	5.08
LNL03P06	<0.50	24	6.3	26	<0.50	2.7	<0.50	23,000	<10	<10	0	7.8	1.39	5.9	<0.04	3.64
LNL03P06	<0.50	48	15	38	<0.50	3.1	<0.50	37,000	780	700	8.59	7.75	3.19	8.9	0.12	3.25
LNL03P06	<0.50	25	13	26	<0.50	1.7	<0.50	25,000	900	6,100	8.98	7.92	1.51	8.7	0.12	2.02
LNL03P06	<0.50	23	13	20	<0.50	0.87	<0.50	140,000	55,000	13,000	7.38	7.96	1.67	6.9	0.05	2.3
LNL03P06	<0.50	12	4.7	20	<0.50	0.79	<0.50	50,000	23,000	47,000	7.96	7.75	1.63	6.2	0.05	2.48
LNL03P06	<0.50	13	9	27	<0.50	0.94	<0.50	320,000	19,000	6,000	6.3	7.8	3.99	4.3	0.11	3.22
LNL03P06	<0.50	16	7.1	21	<0.50	1.1	<0.50	35,000	3,700	5,200	8.93	7.96	4.3	6.6	0.1	1.19
LNL03P06	<0.50	16	4.5	20	<0.50	1.3	<0.50	27,000	3,300	2,300	10.88	8.18	1.87	4.2	0.08	0.65
LNL03P06	<0.50	24	4.8	13	<0.50	0.74	<0.50	13,000	>3,300	2,200	12.36	8.12	2.41	3.2	0.1	0.83
LNL03P06	<0.50	84	4.7	20	<0.50	3.1	<0.50	>124,000	46,000	23,000	8.68	7.72	38	14.3	0.1	5.31
LNL03P06	<0.50	30	6.3	21	<0.50	1.8	<0.50	84,000	18,400	8,400	10.87	8.04	3.99	8.3	0.15	2.74
LNL03P06	<0.50	84	8.2	38	<0.50	3.7	<0.50	>64,000	3,300	12,500	8.45	7.92	2.87	13.8	0.1	1.32
LNL03P06	<0.50	110	7.8	64	<0.50	2	<0.50	34,000	1,800	3,300	10.29	7.98	2.42	13.5	0.1	1.92
LWI02P18	<0.50	2.1	5.6	7.7	<0.50	<0.50	<0.50	31,000	4,400	3,900	9.6	7.7	4.67	1.9	0.08	0.75
LWI02P18	<0.50	1.9	1.4	<2.00	<0.50	<0.50	<0.50	18,000	990	2,800	7.84	7.76	835	1.1	0.09	0.57
LWI02P18	<0.50	4	3.5	6.6	<0.50	<0.50	<0.50	40,000	6,000	4,900	0	7.88	9.22	1.2	0.08	1.52
LWI02P18	<0.50	3.7	2.5	3.2	<0.50	<0.50	<0.50	7,100	700	1,300	8.2	7.67	23.3	1.8	0.06	1.85
LWI02P18	<0.50	4.9	2.1	6.2	<0.50	<0.50	<0.50	36,000	8,300	6,500	5.84	7.87	25.9	1.3	0.12	1.6
LWI02P18	<0.50	3.9	4.2	9.5	<0.50	<0.50	<0.50	>9,500	140	8,000	9.87	7.82	3.73	2.3	0.15	0.36
LWI02P18	<0.50	3.8	1.4	5.6	<0.50	<0.50	<0.50	36,000	24,000	5,700	12.27	7.85	12.9	2	0.11	0.3
LWI02P18	<0.50	4.4	1.8	6.2	<0.50	<0.50	<0.50	9,700	860	3,700	7.06	7.88	13.7	2	0.1	0.34

LWI02P18	<0.50	5.1	3.5	8.9	<0.50	<0.50	<0.50	16,000	2,500	8,200	7.31	7.35	21	2	0.25	0.45
LWI02P18	<0.50	3.7	1	3.6	<0.50	<0.50	<0.50	26,000	620	3,200	11.8	7.66	22.8	2	0.1	0.41
LWI02P18	<0.50	2.9	3.9	5	<0.50	<0.50	<0.50	2,300	210	500	9.41	7.61	14.1	2	0.1	0.3
LWI02P18	<0.50	2.9	6.6	6.7	<0.50	<0.50	<0.50	21,000	1,600	5,700	10.2	7.76	17.9	2	0.21	0.3
LWJ01ASVM	<0.50	100	2.4	27	<0.50	32	<0.50	9,000	3,500	130	8.94	7.34	0.31	1	0.1	1.08
LWJ01ASVM																
LWJ01ASVM	<0.50	110	2.6	29	<0.50	14	<0.50	3,100	330	200	9.42	7.75	0.26	1.1	<0.05	0.99
LWJ01ASVM	<0.50	97	2.1	20	<0.50	15	<0.50	16,000	13,000	240	8.62	7.61	0.37	3.5	<0.05	1.15
LWJ01ASVM	<0.50	90	2.2	16	<0.50	11	<0.50	17,000	3,700	740	8.16	7.55	0.4	1.6	<0.05	1.19
LWJ01ASVM	<0.50	100	2.7	55	<0.50	16	<0.50	27,000	2,000	1,900	8.12	7.72	0.6	1.9	<0.05	1.08
LWJ01ASVM	<0.50	120	2.4	26	<0.50	23	<0.50	2,600	1,100	490	13.4	7.6	0.96	1.9	0.06	1.18
LWJ01ASVM	<0.50	110	2.3	18	<0.50	17	<0.50	2,600	130	460	9.26	7.72	0.44	1.5	0.08	1.53
LWJ01ASVM	<0.50	100	2.1	18	<0.50	17	<0.50	3,700	540	220	8.72	7.7	0.56	0.9	0.09	1.4
LWJ01ASVM	<0.50	100	2	17	<0.50	11	<0.50	8,200	2,800	170	9.75	7.33	0.33	1.7	<0.05	1.27
LWJ01ASVM	<0.50	85	2.9	11	<0.50	23	<0.50	5,000	<10	<10	8.72	7.76	0.29	1.4	<0.05	1.15
LWJ01ASVM	<0.50	67	3.4	16	<0.50	12	<0.50	1,600	200	140	13.37	7.92	0.27	1.3	0.12	1.2
LWJ01ASVM	<0.50	68	3	18	<0.50	10	<0.50	3,100	1,700	1,100	9.21	7.95	0.31	0.8	0.05	1.14
LWJ01ASVM	<0.50	56	0.98	13	<0.50	6.2	<0.50	5,600	2,000	1,300	8.09	7.78	0.66	0.7	0.05	1.3
LWJ01ASVM	<0.50	57	2.6	15	<0.50	2.4	<0.50	17,000	6,900	4,100	8.05	7.86	2.79	0.4	0.5	1.32
LWJ01ASVM	<0.50	54	0.95	7	<0.50	0.68	<0.50	2,800	400	300	8.5	7.84	0.76	0.6	0.05	1.24
LWJ01ASVM	<0.50	83	1.8	18	<0.50	5.9	<0.50	>21,000	900	14,400	9.47	7.94	3.68	2	0.1	1.22
LWJ01ASVM	<0.50	78	0.93	14	<0.50	2.2	<0.50	>940	<9	200	8.72	7.68	0.56	2	0.1	0.96
LWJ01ASVM	<0.50	77	2.1	16	<0.50	11	<0.50	>10,400	1,800	1,130	7.83	7.84	1.68	2	0.12	1.39
LWJ01ASVM	<0.50	83	1.7	10	<0.50	6.8	<0.50	>900	210	60	10.06	7.71	1.83	1	0.1	1.12
LWJ01ASVM	<0.50	68	2	17	<0.50	10	<0.50	4,100	440	520	7.63	7.75	0.69	2	0.1	1.25
LWJ01ASVM	<1.00	76	2.6	19	<1.00	6.3	<1.00	>1,220	250	540	10.04	7.84	0.64	2	0.1	0.83
LWJ01ASVM								2,200	240	280	11.95	7.87	0.77	2	0.1	0.98
MVJ01P03	<8.00	5.5	19	70	<2.00	<1.00	2.1	27,000	12,000	40,400	7.28	7.93	5.44	1	0.19	1.13
MVJ01P03	<8.00	<4.00	6.1	37	<2.00	<1.00	<2.00	25,000	6,000	15,400	9.5	7.21	1.68	0.9	0.14	1.77
MVJ01P03	<8.00	4	12	35	<2.00	<1.00	<2.00	60,000	43,000	16,100	1.35	7.86	1.66	1.1	0.33	0.48

MVJ01P03	<8.00	4.6	16	40	<2.00	<1.00	<2.00	18,600	5,200	70	6.57	7.35	3.66	1.5	0.1	1.45
MVJ01P03	<8.00	<4.00	17	34	<2.00	<1.00	<2.00	34,000	7,600	15,800	2.17	7.62	4.65	1.6	0.3	1.36
MVJ01P03	<8.00	4.5	6.6	45	<2.00	<1.00	<2.00	25,000	15,200	7,000	11.1	7.89	2.85	1.5	0.1	1.37
MVJ01P03	<8.00	6.6	9.7	47	<2.00	<1.00	<2.00	85,000	70,000	23,000	7.8	7.7	2.3	1.5	0.25	7.82
MVJ01P03	<8.00	7.9	39	53	<2.00	<1.00	<2.00	28,000	13,000	49,000	7.79	7.57	3.72	1.9		1.82
MVJ01P03	<8.00	13	38	40	<2.00	<1.00	<2.00	106,000	71,000	18,400	6.8	7.7	3.6	1.8	0.2	2.04
MVJ01P03	<8.00	7	16	30	<2.00	<1.00	<2.00	47,000	30,000	34,000	7.9	7.52	4.13	2.1	0.4	2.33
MVJ01P03	2.4	9.4	72	35	<0.50	<0.50	<0.50	77,000	21,000	27,000	11.4	7.46	36.1	2.6	0.02	1.11
MVJ01P03	<0.50	13	11	19	<0.50	<0.50	<0.50	320,000	56,000	19,000	7.79	7.01	1.47	1.9	0.27	1.38
MVJ01P03	1.7	15	14	27	<0.50	<0.50	<0.50	200,000	11,000	3,900	8.75	7.43	1.34	3.1	<0.05	1.4
MVJ01P03	<0.50	9.8	4.2	14	<0.50	<0.50	<0.50	80,000	62,000	19,000	7.57	7.52	1.66	2.1	0.07	1.37
MVJ01P03	<0.50	7.5	3.4	9.9	<0.50	<0.50	<0.50	54,000	33,000	5,900	7.24	7.44	24.7	2.1	0.18	1.45
MVJ01P03	1.1	16	7.8	21	<0.50	<0.50	<0.50	53,000	29,000	3,000	9.6	7.4	1.96	2.7	<0.05	1.02
MVJ01P03	<0.50	<0.50	<0.50	<2.00	<0.50	<0.50	<0.50	1,050,000	130,000	3,900	8.02	7.52	3.79	2.6	0.12	0.91
MVJ01P03	0.65	5.9	12	27	<0.50	<0.50	<0.50	230,000	13,000	37,000	7.27	7.47	2.29	1.9	0.14	1.37
MVJ01P03	0.52	4.9	9	15	<0.50	<0.50	<0.50	41,000	33,000	4,900	7.62	7.16	1.69	1.7	0.13	1.33
MVJ01P03	<0.50	11	7.5	17	<0.50	<0.50	<0.50	310,000	25,000	7,200	11.9	7.61	1.49	1.5	<0.05	1.29
MVJ01P03	0.53	4.4	17	22	<0.50	<0.50	<0.50	350,000	11,000	16,000	8.73	7.75	2.38	2	0.11	0.71
MVJ01P03	1.2	4.9	8.7	16	<0.50	<0.50	<0.50	5,800	1,000	15,000	8.11	7.6	2.15	1.8	0.13	1.22
MVJ01P03	<0.50	5.5	3.6	13	<0.50	<0.50	<0.50	>1,200,000	18,000	>120,000	5.79	7.77	675	1.9	0.32	1.38
MVJ01P03	<0.50	4.3	7.3	13	<0.50	<0.50	<0.50	110,000	18,000	11,000	7.67	7.74	1.95	2.1	0.37	1.48
MVJ01P03	<0.50	4.6	13	13	<0.50	<0.50	<0.50	50,000	28,000	7,700	7.59	7.73	1.95	1.6	0.12	1.38
MVJ01P03	<0.50	4.9	6.9	15	<0.50	<0.50	<0.50	32,000	3,800	4,200	8.78	7.52	1.66	2.7	0.43	2
MVJ01P03	<0.50	5.2	6.3	18	<0.50	<0.50	<0.50	>40,000	2,200	12,200	9.46	7.81	1.56	1.5	0.1	1.1
MVJ01P03	<0.50	5.8	4	15	<0.50	<0.50	<0.50	48,000	7,500	3,300	7.24	7.95	1.61	0.2	0.12	1.29
MVJ01P03	<0.50	6	6.2	25	<0.50	<0.50	<0.50	>121,000	29,000	13,700	8.68	7.41	5.29	2.5	0.27	1.43
MVJ01P03	<0.50	4.1	4.8	20	<0.50	<0.50	<0.50	102,000	15,000	10,000	10.78	8.15	3.86	2	0.14	1.29
MVJ01P03	0.56	5	6.7	17	<0.50	<0.50	<0.50	39,000	320	2,600	7.94	7.69	1.86	2	0.34	0.74
MVJ01P03	0.52	7.1	5.5	22	<0.50	<0.50	<0.50	29,000	870	7,400	8.77	7.5	1.72	2.1	0.1	1.6
MVJ01P03											8.78	7.94	1.7	2.2	0.33	1.4
MVJ07P02	<8.00	8	18	50	<2.00	<1.00	<2.00	2,180	1,260	750	12.66	7.9	195	2.1	<0.05	1.87

MVJ07P02	<8.00	12	6.7	57	<2.00	1.5	<2.00	52,000	27,000	48,000	6.12	7.73	12.5	1.7	<0.05	0.94
MVJ07P02	<8.00	4.9	8.9	50	<2.00	1.3	<2.00	10,500	8,700	9,500	8.35	7.97	11.3	0.7	0.32	0.74
MVJ07P02	<8.00	6.9	13	52	<2.00	<1.00	<2.00	13,600	2,400	6,200	11.84	8.13	3.38	3.3		2.05
MVJ07P02	<8.00	<4.00	12	34	<2.00	<1.00	<2.00	123,000	81,000	18,600	7.96	8.31	5.66	2.8	0.22	1.31
MVJ07P02	<8.00	13	79	380	<2.00	2	3.3	159,000	95,000	197,000	9.21	8.03	7.37	3.1	0.25	3.81
MVJ07P02	<0.50	6.9	6.8	15	<0.50	<0.50	<0.50	270,000	>120,000	5,900	8.91	7.74	1.86	3.7	0.13	1.44
MVJ07P02	<0.50	5.9	9	13	<0.50	<0.50	<0.50	20,000	9,000	11,000	8.7	7.89	1.75	2.2	<0.05	1.66
MVJ07P02	<0.50	7.6	4.9	54	<0.50	<0.50	<0.50	240,000	140,000	10,400	7.77	7.96	7.4	3	0.09	1.81
MVJ07P02	<0.50	4.5	9.4	23	<0.50	<0.50	<0.50	170,000	5,300	4,000	8.3	8.22	2.23	1.6	0.18	1.01
MVJ07P02	0.53	3.7	9.8	17	<0.50	<0.50	<0.50	46,000	30,000	8,200	8.36	7.94	8.31	1.4	0.08	1.35
MVJ07P02	0.64	5.8	14	19	<0.50	<0.50	<0.50	190,000	32,000	7,100	8.05	8.02	2.06	0.9	0.1	1.98
MVJ07P02	<0.50	5.3	8.9	15	<0.50	<0.50	<0.50	140,000	4,000	6,000	9.61	8.33	1.69	1.6	0.19	1.67
MVJ07P02	<0.50	5.3	8.6	35	<0.50	<0.50	<0.50	38,000	25,000	13,000	8.6	8.07	3.52	2.3	0.15	1.49
MVJ07P02	<0.50	6.3	8.4	27	<0.50	<0.50	<0.50	160,000	6,000	7,300	10.58	8.17	2.32	3.1	0.1	1.62
MVJ07P02	<0.50	3.8	7.6	11	<0.50	<0.50	<0.50	>72,000	22,000	9,600	5.77	8.1	2.17	2.2	0.16	1.44
MVJ07P02	<0.50	6.4	10	30	<0.50	<0.50	<0.50	52,000	21,000	9,500	7.41	8.17	4	2.1	0.28	1.1
MVJ07P02	<0.50	4.6	4.5	8.9	<0.50	<0.50	<0.50	>10,600	2,100	1,590	13.66	8.39	1.6	2.8	0.1	1.61
MVJ07P02											9.66	8.29	4.47	3.6	0.1	1.65
MVL02P14	<0.50	13	6.6	14	<0.50	1.4	<0.50	270,000	270,000	21,000	4.69	7.63	3.16	5.1	0.14	1.35
MVL02P14	<0.50	11	7.4	13	<0.50	1.9	<0.50	390,000	20,000	31,000	8.97	7.86	3.38	2.1	0.2	1.42
MVL02P14	<0.50	12	11	35	<0.50	1.3	<0.50	420,000	170,000	33,000	7.42	7.62	5.94	2.2	0.14	1.17
MVL02P14	<0.50	7.8	13	10	<0.50	1.6	<0.50	230,000	9,000	51,000		7.72	5.34	1.6	0.11	1.44
MVL02P14	<0.50	7.7	9	13	<0.50	1.1	<0.50	170,000	40,000	15,000	11.32	8.02	2.54	12.8	<0.05	1.22
MVL02P14	<0.50	4.2	6.9	8.5	<0.50	<0.50	<0.50	10,700	9,100	8,800	9.57	8.05	3.6	2.1	0.1	1.36
MVL02P14	<0.50	3.3	6.4	9.1	<0.50	<0.50	<0.50	270,000	4,500	21,000	8.85	8.05	2.97	1.5	0.09	1.52
MVL02P14	<0.50	3.5	5.6	7.1	<0.50	<0.50	<0.50	65,000	14,000	17,000	8.22	8.35	4.01	1.4	0.11	1.59
MVL02P14	<0.50	4	8.4	7.6	<0.50	<0.50	<0.50	190,000	16,000	28,000	8.27	8.21	4.75	1.7	0.1	1.81
MVL02P14	<0.50	3.4	4.8	7.6	<0.50	<0.50	<0.50	270,000	54,000	48,000	7.93	8.01	5.38	1.2	0.05	1.88
MVL02P14	<0.50	4.2	5.2	10	<0.50	0.57	<0.50	>64,000	11,500	7,000	9.3	8.2	6.53	2.3	0.08	1.05
MVL02P14	<0.50	3.7	4.7	8	<0.50	<0.50	<0.50	>35,000	5,300	12,900	5.19	8.08	2.76	2.1	0.11	0.81
MVL02P14	<0.50	3.8	5.4	7.6	<0.50	<0.50	<0.50	>84,000	32,000	10,000	8.86	8.37	3.92	2	0.12	1.02

MVL02P14	<0.50	5.3	4.6	6	<0.50	0.53	<0.50	>124,000	38,000	14,100	9.75	8.16	2.38	2.3	0.1	1.04
MVL02P14	<0.50	4.1	4.3	7.1	<0.50	<0.50	<0.50	150,000	84,000	71,000	11.64	8.02	90.7	2	0.15	1.2
MVL02P14	<0.50	4.3	6.8	9	<0.50	<0.50	<0.50	34,000	5,800	11,100	10.29	8.29	3.74	2.5	0.1	1.48
MVL02P14											9.38	8.13	3.09	1.9	0.1	1.05
MVL02P20	<8.00	<4.00	9	20	<2.00	<1.00	<2.00	400	155	190	10.73	8.57	9.64	1.8	0.06	1.21
MVL02P20	<8.00	<4.00	7.8	27	<2.00	<1.00	<2.00	8,100	3,400	6,600	9.79	7.37	3.45	1.3	0.07	1.4
MVL02P20	<8.00	4.3	15	27	<2.00	<1.00	<2.00	75,000	42,000	53,000	8.92	7.98	1.9	1	0.2	0.65
MVL02P20																
MVL02P20	<8.00	8.7	16	77	<2.00	<1.00	<2.00	52,000	28,000	42,000	9.12	8.24	6.94	0.9	0.4	1.31
MVL02P20	<8.00	4	9.1	35	<2.00	<1.00	<2.00	36,000	28,000	10,600	8.66	8.41	2.37	1.5	0.16	1.82
MVL02P20	<8.00	5.1	7.6	29	<2.00	<1.00	<2.00	88,000	58,000	9,850	9.13	8.14	4.95	1.7	0.1	1.7
MVL02P20	1.1	7.1	22	48	<0.50	0.5	0.8	280,000	>120,000	33,000	8.78	7.74	26.6	2.5	38.8	1.36
MVL02P20	<0.50	6.1	5	11	<0.50	<0.50	<0.50	340,000	47,000	12,000	8.63	8.23	1.72	3.5	<0.05	1.44
MVL02P20	<0.50	4.6	8.7	10	<0.50	<0.50	<0.50	120,000	75,000	21,000	8.89	7.89	2.5	2	<0.05	2.54
MVL02P20	0.62	5.3	9.7	15	<0.50	<0.50	<0.50	240,000	16,000	10,000	4.94	7.74	2.83	1.9	0.15	21.35
MVL02P20	<0.50	4	10	9.1	<0.50	<0.50	<0.50	40,000	5,700	7,600	9.7	7.99	2.8	2	0.12	1.25
MVL02P20	<0.50	3.7	6.7	9.3	<0.50	<0.50	<0.50	270,000	170,000	65,000		7.82	4.48	1	0.21	1.64
MVL02P20	<0.50	2	4.6	6.2	<0.50	<0.50	<0.50	5,800	3,700	8,800	10.91	8.27	2.86	2.2	0.06	1.06
MVL02P20	<0.50	2.3	7.9	11	<0.50	<0.50	<0.50	47,000	7,000	48,000	8.5	8.18	4.87	1.8	0.07	1.53
MVL02P20	<0.50	3	6.6	21	<0.50	<0.50	<0.50	250,000	10,000	11,200	9.48	8.38	3.36	1.3	0.25	1.26
MVL02P20	<0.50	3.7	7.9	32	<0.50	<0.50	<0.50	>45,000	4,100	12,000	9.28	8.22	2.7	2.6	0.22	1.27
MVL02P20	<0.50	2.7	8.1	15	<0.50	<0.50	<0.50	>98,000	49,000	23,000	9.27	8.24	2.71	3.5	0.1	2.11
MVL02P20	<0.50	2.7	6.7	8.5	<0.50	<0.50	<0.50	61,000	12,000	12,300	8.86	8.21	4.38	3	0.1	1.15
MVL02P20	<0.50	2.2	5.9	9.4	<0.50	<0.50	<0.50	3,100,000	8,000	102,000	9.78	8.19	3.43	2.1	0.13	0.92
MVL02P20											9.49	8.09	5.34	2.8	0.14	4.87
MVL03P09	<0.50	71	3.6	29	<0.50	18	<0.50	25,000	2,300	1,300	8.17	6.67	7.42	1.3	<0.05	1.07
MVL03P09	0.73	82	5.1	36	<0.50	19	<0.50	33,000	2,000	2,800	7.83	6.5	2.01	2.6	<0.05	1.17
MVL03P09	<0.50	130	4.8	45	<0.50	33	<0.50	28,000	16,000	700	7.48	6.82	1.96	<0.20	<0.05	0.79
MVL03P09	<0.50	97	3.3	40	<0.50	15	<0.50	47,000	35,000	5,400	6.91	6.74	5	2.4	<0.05	1.44
MVL03P09	<0.50	110	4.2	37	<0.50	29	<0.50	41,000	20,000	980	7.27	7.09	4.1	2.3	0.06	0.73

MVL03P09	<0.50	110	6	41	<0.50	26	<0.50	50,000	6,000	300	8.47	6.8	1.75	3.2	<0.05	0.86
MVL03P09	<0.50	87	5.2	49	<0.50	18	<0.50	170,000	30,000	26,000	8.07	6.97	12.3	2.9	<0.05	1.23
MVL03P09	<0.50	79	4.8	40	<0.50	24	<0.50	43,000	20,000	8,000	7.35	7.2	15.7	2.1	0.11	1.13
MVL03P09	0.68	62	11	31	<0.50	15	<0.50	80,000	40,000	12,000	6.98	6.59	15.8	3.2	0.09	1.62
MVL03P09	<0.50	98	3.9	37	<0.50	24	<0.50	41,000	29,000	4,200	13.68	7.43	3.71	3.3	0.12	0.93
MVL03P09	<0.50	100	5.1	45	<0.50	26	<0.50	55,000	1,900	1,070	7.37	6.8	3.93	2	0.05	1.28
MVL03P09	0.91	87	5	38	<0.50	23	<0.50	25,000	10,000	4,600	7.63	6.97	9.01	2.4	0.08	1.24
MVL03P09	<0.50	100	4.5	40	<0.50	26	<0.50	37,000	7,600	1,500	7.24	7.36	2.16	2.2	0.05	0.84
MVL03P09	<0.50	67	6.2	30	<0.50	16	<0.50	110,000	28,000	21,000	7.21	7.11	5.1	1.7	0.1	1.02
MVL03P09	<0.50	60	4.1	28	<0.50	16	<0.50	220,000	42,000	9,000	8.02	7.25	2.38	1.9	0.06	1.34
MVL03P09	<0.50	65	4.1	26	<0.50	17	<0.50	21,000	890	860	8.72	7.02	3.33	3.2	0.1	0.82
MVL03P09	<0.50	89	4.6	33	<0.50	22	<0.50	>4,600	370	1,900	8.67	6.98	2.83	2.8	0.11	0.65
MVL03P09	<0.50	28	2.1	16	<0.50	4.3	<0.50	>8,000	5,300	1,070	7.93	7.82	6.26	2.1	0.1	1.01
MVL03P09	<0.50	66	4.8	27	<0.50	15	<0.50	>116,000	54,000	11,000	8.75	6.98	3.67	2.8	0.1	0.85
MVL03P09	<0.50	64	3.5	32	<0.50	18	<0.50	20,000	3,000	4,100	12.38	7.4	3.44	2.2	0.1	0.77
MVL03P09	<0.50	99	4.5	35	<0.50	21	<0.50	>38,000	1,400	3,100	7.3	7.11	3.17	2.2	0.13	0.62
MVL03P09	<0.50	69	5.5	30	<0.50	15	<0.50	>55,000	2,900	6,600	8.21	7.13	9.75	2.6	0.1	1.04
MVL03P09											8.85	7.3	4.04	2.2	0.1	0.62
MVL03P11	<8.00	8.4	7.3	18	<2.00	1.1	<2.00	40	<10	<10	11.16	7.96	7.5	2.4	0.15	2.5
MVL03P11	<8.00	8.1	5.2	26	<2.00	1.6	<2.00	28,000	12,200	2,800	9.72	7.21	1.14	2.1	<0.05	1.23
MVL03P11	<8.00	6	9.4	23	<2.00	1.5	<2.00	62,000	48,000	7,800	3.05	8.26	1.11	0.5	0.28	0.28
MVL03P11	<8.00	10	7.7	41	<2.00	<1.00	<2.00	15,300	8,800	6,700	8.08	8.2	2.18	2	1.1	0.08
MVL03P11	<8.00	13	7.5	22	<2.00	1.1	<2.00	29,000	15,600	6,000	8.33	8.18	1.87	2.7	0.15	0.85
MVL03P11	<8.00	12	6.9	22	<2.00	1.1	<2.00	52,000	32,000	19,600	9.28	8.17	3.28	1.7	0.1	0.96
MVL03P11	<0.50	19	4	8.5	<0.50	0.71	<0.50	69,000	10,700	87,000	8.93	7.64	11.1	3.2	0.09	1.58
MVL03P11	<0.50	20	6.7	18	<0.50	1.3	<0.50	18,000	8,000	3,400	8.13	7.83	1.9	2.5	0.92	1.52
MVL03P11	<0.50	14	5.6	25	<0.50	0.76	0.5	330,000	150,000	>120,000	8.32	8.12	2.18	2.9	<0.05	1.67
MVL03P11	<0.50	28	18	33	<0.50	2.2	0.6	30,000	12,000	1,300	5.68	7.92	3.84	3.1	0.11	1.34
MVL03P11	<0.50	24	4.2	7.8	<0.50	0.94	<0.50	46,000	3,300	3,600	9.37	7.88	1.31	2.9	0.1	0.94
MVL03P11	<0.50	9.5	5.7	7.9	<0.50	0.69	<0.50	70,000	16,000	17,000	8.83	7.86	4.18	1.8	0.06	1.38
MVL03P11	<0.50	6.6	4.7	9.4	<0.50	0.58	<0.50	7,600	4,000	18,000	9.5	8.19	2.35	3.6	0.05	1.28

MVL03P11	2.8	5.3	5.8	6.9	<0.50	0.71	<0.50	23,000	2,100	4,400	8.41	8.14	3.33	2.4	0.1	1.02
MVL03P11	0.89	7.3	5.1	8.2	<0.50	<0.50	<0.50	56,000	11,000	3,500	9.03	8.19	12	1.8	0.05	0.99
MVL03P11	<0.50	9	5.6	14	<0.50	0.74	<0.50	>20,000	5,400	5,900	9.54	8.16	4.79	2.4	0.2	1.2
MVL03P11	<0.50	6	3.7	4.8	<0.50	0.66	<0.50	56,000	8,400	5,600	8.21	8.18	1.78	2	0.11	1.11
MVL03P11	<0.50	4.4	3.6	5.3	<0.50	<0.50	<0.50	46,000	6,600	10,100	11.65	8.6	2	2.2	0.1	0.93
MVL03P11											9.55	7.93	0.78	2.6	0.1	0.91
RSML02@AP	<0.50	3.7	1.9	7.2	<0.50	<0.50	<0.50	>68,000	4,800	10,000	9.01	8.02	1.59	2	0.1	1.59
RSML02@AP	<0.50	2.1	1.8	4.4	<0.50	<0.50	<0.50	27,000	2,000	9,400	9.77	8.09	5.85	2	0.1	0.61
RSML02@AP	<0.50	2.3	2.6	5.2	<0.50	<0.50	<0.50	>76,000	24,000	5,200	9.28	8.06	1.63	2	0.45	0.3
RSML02@AP	<0.50	4.5	2.9	14	<0.50	<0.50	<0.50	6,400,000	2,200,000	1,490,000	9.77	7.81	11.3	2.3	0.12	1.03
RSML02@AP	<0.50	6.8	2.4	5.6	<0.50	<0.50	<0.50	64,000	14,000	7,500	12.62	7.9	2.76	2	0.2	0.85
RSML02@AP	<0.50	5.7	2.3	5.7	<0.50	<0.50	<0.50	38,000	390	5,000	10.25	7.98	1.86	2	0.11	1.12
RSML02@AP											9.54	7.86	2.11	2	0.1	0.99
RSML02P25	<8.00	<4.00	9.3	27	<2.00	<1.00	<2.00	8,200	4,700	7,050	8.94	8.19	2.7	1.5	0.2	1.42
RSML02P25	<8.00	<4.00	3.3	35	<2.00	<1.00	<2.00	37,000	7,850	1,900	9.29	7.28	6.87	1.9	<0.05	1.31
RSML02P25	<8.00	<4.00	4.5	23	<2.00	<1.00	<2.00	36,000	22,000	66,000	9.57	7.95	3.47	1.4	0.07	0.35
RSML02P25	<8.00	<4.00	4.2	43	<2.00	<1.00	<2.00	34,000	27,000	11,000	9.26	8	2.98		<0.05	0.55
RSML02P25	<8.00	5.2	6.5	32	<2.00	<1.00	<2.00	42,000	19,800	21,000	9.51	7.94	2.89	1.5		1.43
RSML02P25	<8.00	4.8	3.2	25	<2.00	<1.00	<2.00	31,000	21,000	10,600	8.38	7.93	1.75	0.9		0.74
RSML02P25	<0.50	6.9	2.6	7.9	<0.50	<0.50	<0.50	45,000	15,000	3,800	9.67	7.5	1.62	2.3	<0.05	0.65
RSML02P25	<0.50	5.9	2.7	9.2	<0.50	<0.50	<0.50	41,000	8,000	6,300	8.89	8.02	2.92	3.1	<0.05	1.25
RSML02P25	<0.50	6.9	2.5	6.9	<0.50	<0.50	<0.50	130,000	23,000	5,000	8.75	7.96	1.6	2	<0.05	0.96
RSML02P25	<0.50	10	3.2	9.9	<0.50	<0.50	<0.50	50,000	12,000	530	8.86	7.87	1.28	2.5	0.07	0.79
RSML02P25	<0.50	9.6	3.6	16	<0.50	<0.50	<0.50	44,000	7,000	25,000	9.14	7.82	2.4	2	<0.05	1.56
RSML02P25	<0.50	2.2	4	7.7	<0.50	<0.50	<0.50	36,000	26,000	17,000	8.62	7.7	2.41	1.3	0.07	0.92
RSML02P25	<0.50	2.3	2.8	5	<0.50	<0.50	<0.50	48,000	17,000	5,800	9.81	7.9	1.64	2.1	0.05	1
RSML02P25	<0.50	2.3	3.3	4.8	<0.50	<0.50	<0.50	63,000	22,000	7,300	7.2	8.1	2.44	1.4	0.05	0.99
RSML02P25	<0.50	2.3	2.1	4.6	<0.50	<0.50	<0.50	51,000	32,000	10,000	8.81	8.01	2.11	4.1	0.05	1.93
RSML02P25	<0.50	3.3	3.7	7.1	<0.50	<0.50	<0.50	>9,000	1,700	3,100	9.37	7.97	1.25	2.1	0.1	0.83
RSML02P25	<0.50	2.6	2.8	4	<0.50	<0.50	<0.50	21,000	8,500	6,200	9.78	8.55	1.95	2	0.12	0.74

RSML02P25	<0.50	2.3	2.3	3.9	<0.50	<0.50	<0.50	>7,900	3,900	5,100	12.81	8.23	0.99	2	0.12	0.69
RSML02P25	<0.50	4.8	4	4	<0.50	<0.50	<0.50	>7,100	1,200	2,000	11.12	8.08	1.09	2	0.1	0.76
RSML02P28	<8.00	17	19	75	<2.00	<1.00	<2.00	10,000	5,600	5,150	8.55	8.23	25.8	1.1	0.3	0.85
RSML02P28	<8.00	17	19	75	<2.00	<1.00	<2.00	4,200	1,450	1,850	9.33	6.77	10.2	1.8	0.22	0.17
RSML02P28	<8.00	4.1	16	61	<2.00	<1.00	<2.00	37,000	2,800	7,600	8.81	7.85	5.22	1	0.45	0.23
RSML02P28	<8.00	6.1	15	63	<2.00	<1.00	<2.00	11,200	7,200	6,800	14	8.3	5.59	1.4	0.55	1.13
RSML02P28	<8.00	7.4	6.4	63	<2.00	<1.00	<2.00	6,400	1,460	3,400	9	7.96	42.8	1.8		0.97
RSML02P28																
RSML02P28	0.88	7.4	19	50	<0.50	<0.50	0.6	340,000	800	970	9.91	7.84	5.99	1.4	0.6	1.57
RSML02P28	<0.50	6	7.5	20	<0.50	<0.50	<0.50	31,000	21,000	1,500	9.08	8.05	2.3	2.1	0.08	1.38
RSML02P28	<0.50	4.1	2.6	13	<0.50	<0.50	<0.50	20,000	1,190	1,900	8.52	8.2	3.1	2	<0.05	0.55
RSML02P28	<0.50	3.3	2.4	17	<0.50	<0.50	<0.50	5,100	3,200	150	9.45	8.4	0.98	2	0.08	0.41
RSML02P28	0.52	8.9	21	120	<0.50	<0.50	<0.50	420,000	68,000	4,300	9.26	8.11	4.21	2.1	0.35	1.03
RSML02P28	3.8	1	6.6	4.7	<0.50	<0.50	<0.50	5,600	3,100	200	8.69	8.22	25.9	1.4	0.06	0.62
RSML02P28	<0.50	2	9.4	20	<0.50	<0.50	<0.50	400,000	27,000	52,000	9.97	8.97	5.18	2.7	0.06	1.76
RSML02P28	<0.50	1.5	7.1	12	<0.50	<0.50	<0.50	460,000	66,000	4,400	7.21	8.32	2.3	1.7	0.05	0.74
RSML02P28	<0.50	2.2	5.1	15	<0.50	<0.50	<0.50	16,000	3,000	1,400	9.04	8.4	1.09	2.3	0.05	0.94
RSML02P28	5.1	15	25	410	<0.50	<0.50	0.71	>38,000	4,400	6,400	9.83	8.46	8.75	2.4	0.42	6.3
RSML02P28	2	6.4	6.9	470	<0.50	<0.50	<0.50	>9,100,000	>8,400	240,000	8.63	8.29	11.9	3.6	0.43	0.54
RSML02P28																
RSML02P28	<0.50	3.7	6	15	<0.50	<0.50	<0.50	>11,800	1,100	2,100	11.6	8.45	1.78	2.7	0.1	0.72
RSML02P32	<8.00	<4.00	23	41	<2.00	<1.00	<2.00	29,000	18,000	24,800	6.91	7.98	5.89	3.6	<0.05	1.15
RSML02P32	<8.00	<4.00	22	34	<2.00	<1.00	<2.00	4,950	1,800	3,300	9.34	7.01	11.6	2.4	0.22	1.34
RSML02P32	<8.00	<4.00	11	24	<2.00	<1.00	<2.00	8,900	6,200	8,000	7.93	7.71	3.16	1.2	0.15	0.39
RSML02P32	<8.00	<4.00	6.7	70	<2.00	<1.00	<2.00	16,100	8,950	10,000	8.41	8.1	4.9	3.9	0.13	1.21
RSML02P32	<8.00	4.8	12	41	<2.00	<1.00	<2.00	31,000	24,000	50,000	9.21	8.02	1.93	3		1.68
RSML02P32	<8.00	5.4	9.4	31	<2.00	<1.00	<2.00	45,000	35,000	9,450	8.71	7.77	2.88	2.9		1.34
RSML02P32	<0.50	4.7	24	12	<0.50	<0.50	<0.50	52,000	40,000	1,900	9.44	7.36	2.82	4.6	0.07	0.96
RSML02P32	<0.50	3.9	5.3	21	<0.50	<0.50	<0.50	33,000	8,000	7,000	8.37	8.02	6.59	3.4	0.08	1.4
RSML02P32	<0.50	4.4	5.2	11	<0.50	<0.50	<0.50	20,000	8,600	6,500	8.42	7.92	1.6	3.1	<0.05	1.48

RSML02P32	0.59	5.9	9.9	18	<0.50	<0.50	<0.50	190,000	150,000	53,000	8.98	7.87	8.05	3.4	<0.05	0.97
RSML02P32	<0.50	5.6	15	20	<0.50	<0.50	<0.50	19,000	4,100	17,000	9.2	7.84	1.95	3.4	0.48	2.3
RSML02P32	<0.50	1.9	7.5	11	<0.50	<0.50	<0.50	58,000	25,000	43,000	8.57	7.79	2.85	2.7	0.1	29.9
RSML02P32	0.64	1.2	3.3	9.2	<0.50	<0.50	<0.50	6,100	4,400	1,220	9.65	8.16	0.61	2.9	0.08	0.8
RSML02P32	0.53	1.9	6.7	11	<0.50	<0.50	<0.50	680,000	580,000	86,000	6.98	8.07	6.56	1	0.06	3.77
RSML02P32	<0.50	1.3	3.8	10	<0.50	<0.50	<0.50	57,000	28,000	16,000	8.8	8.17	1.6	2.1	0.23	1.29
RSML02P32	2.1	2.2	3.6	15	<0.50	<0.50	<0.50	>12,600	4,400	5,800	10.23	8.23	1.98	3.2	0.1	0.89
RSML02P32	0.54	2.5	4.6	10	<0.50	<0.50	<0.50	28,000	8,800	8,600	8.79	8.11	1.59	3	0.1	0.83
RSML02P32	<0.50	2	4.4	6.1	<0.50	<0.50	<0.50	49,000	11,000	15,400	12.75	7.94	2.39	3.4	0.1	0.9
RSML02P32	<0.50	1.4	4.8	7.8	<0.50	<0.50	<0.50	27,000	3,000	11,000	9.65	8.19	1.85	2	0.1	0.76
RSML02P32											9.72	8.14	0.86	2.5	0.1	0.97
RSML02P45	<8.00	<4.00	10	36	<2.00	<1.00	<2.00	9,550	8,300	5,500	7.74	8.26	7.81	3.5	<0.05	1.33
RSML02P45	<8.00	<4.00	4.2	22	<2.00	<1.00	<2.00	2,900	2,700	6,550	7.18	6.9	4.17	4.5	<0.05	0.36
RSML02P45	<8.00	<4.00	4.9	27	<2.00	<1.00	<2.00	26,000	14,600	8,100	7.84	8.1	2.85	1	0.1	0.33
RSML02P45	<8.00	<4.00	4.3	34	<2.00	<1.00	<2.00	30,000	23,000	10,600	7.17	7.9	1.74	1.7		0.96
RSML02P45	<8.00	6.1	7.3	37	<2.00	<1.00	<2.00	7,800	6,300	6,600	9.15	8.13	3.56	2.9	<0.05	1.72
RSML02P45	<8.00	<4.00	3.6	26	<2.00	<1.00	<2.00	10,600	7,300	5,600	9.53	7.97	2.91	2.7		1.28
RSML02P45	<0.50	5.8	4.7	5.5	<0.50	<0.50	<0.50	41,000	9,300	10,000	7.57	7.88	10.4	2.6	0.13	0.77
RSML02P45	<0.50	4.5	9	14	<0.50	<0.50	<0.50	17,000	11,000	5,200	8.89	7.94	1.35	2.5	<0.05	1.47
RSML02P45	<0.50	4.6	3.5	7.7	<0.50	<0.50	<0.50	43,000	7,500	4,900	21.82	8.03	1.3	2.9	<0.05	1.14
RSML02P45	<0.50	5.5	4.7	9.6	<0.50	<0.50	<0.50	120,000	17,000	1,200	8.84	8.01	3.82	2.8	0.08	1.07
RSML02P45	<0.50	4.8	4.1	6.5	<0.50	<0.50	<0.50	40,000	15,000	5,400	9.17	8.08	2.81	2.9	0.11	1.35
RSML02P45	0.65	8	7.4	5.7	<0.50	<0.50	<0.50	39,000	8,000	12,000	8.1	7.85	3.57	1.5	0.7	2.38
RSML02P45	<0.50	1.3	2.5	7.2	<0.50	<0.50	<0.50	40,000	5,100	8,100	10.71	8.28	1.23	2.5	0.1	1
RSML02P45	<0.50	1.3	3	7.8	<0.50	<0.50	<0.50	61,000	5,200	3,900	9.43	8.22	1.98	2.1	0.1	0.96
RSML02P45	<0.50	1.4	2.4	4.3	<0.50	<0.50	<0.50	39,000	8,000	7,200			1.64	2	0.1	0.79
RSML02P45	<0.50	1.9	4.8	9.5	<0.50	<0.50	<0.50	>52,000	38,000	88,000	11.34	8.33	3.56	2.4	0.2	1.01
RSML02P45	0.67	2.6	7.7	17	<0.50	<0.50	<0.50	>39,000	17,000	7,200	8.65	8.19	4.74	4.6	0.7	1.5
RSML02P45	<0.50	2.4	3.3	4.4	<0.50	<0.50	<0.50	>57,000	5,000	60,000	12.84	8.05	1.82	2.4	0.1	1.15
RSML02P45	<0.50	1.2	3.6	5.7	<0.50	<0.50	<0.50	46,000	2,700	9,300	9.82	8.22	1.73	2	0.1	0.45
RSML02P45											9.92	8.13	3.36	2.3	0.1	0.57

RSML11P02	<8.00	<4.00	26	58	<2.00	<1.00	<2.00	26,400	10,600	11,300	10.53	7.96	8.8	2.4	0.9	1.44
RSML11P02	<8.00	<4.00	9	42	<2.00	<1.00	<2.00	16,300	7,400	9,900	8.1	8.5	3.59	<0.20	<0.05	2.65
RSML11P02	<8.00	<4.00	8.2	22	<2.00	<1.00	<2.00	41,000	25,000	33,000	19.01	8.24	8.75	2	<0.05	1.73
RSML11P02	<8.00	<4.00	9.3	35	<2.00	<1.00	<2.00				8.36	8.23	2.13	2.9	0.08	1.44
RSML11P02	<8.00	<4.00	7.1	26	<2.00	<1.00	<2.00	42,000	7,900	28,000	8.37	8.04	5.22	2.8	0.15	1.4
RSML11P02	<8.00	5.5	7.6	39	<2.00	<1.00	<2.00	114,000	45,000	116,000	12	7.8	5.4	2.2	0.1	1.59
RSML11P02	0.59	6.1	17	19	<0.50	<0.50	<0.50	800,000	6,700	2,300	7.6	7.98	2.65	1.5	0.45	1.63
RSML11P02	<0.50	4.3	4.9	11	<0.50	<0.50	<0.50	240,000	210,000	44,000	9.4	7.94	4.17	2.2	<0.05	1.93
RSML11P02	<0.50	4	6.7	17	<0.50	<0.50	<0.50	300,000	130,000	34,000	9.03	8.15	4.6	2.2	0.1	1.56
RSML11P02	0.64	10	36	180	<0.50	<0.50	<0.50	330,000	65,000	42,000	8.63	7.94	8.49	3	<0.05	2.08
RSML11P02	<0.50	5.1	9.1	15	<0.50	<0.50	<0.50	360,000	120,000	20,000	9.13	8.09	5.54	1.9	0.25	1.89
RSML11P02	<0.50	6	4.6	12	<0.50	<0.50	<0.50	150,000	90,000	23,000	8.64	7.91	4.34	1.5	0.1	1.71
RSML11P02	<0.50	2.4	12	12	<0.50	<0.50	<0.50	38,000	4,300	8,300	9.43	8.2	11	2.9	0.13	1.13
RSML11P02	<0.50	1.9	5.5	11	<0.50	<0.50	<0.50	190,000	22,000	23,000	9.32	8.16	3.46	2.3	0.09	1.27
RSML11P02	<0.50	2.6	4.5	8.5	<0.50	<0.50	<0.50	70,000	26,000	32,000			3.98	2.7	0.25	1.91
RSML11P02	<0.50	2.6	5.6	17	<0.50	<0.50	<0.50	34,000	5,900	13,200	11.03	8.32	3.73	2.4	0.18	0.87
RSML11P02	<0.50	2.8	8.6	13	<0.50	<0.50	<0.50	380,000	110,000	500,000	8.61	8.2	3.14	2.4	0.11	1.21
RSML11P02	<0.50	2.5	3.1	7.4	<0.50	<0.50	<0.50	680,000	38,000	42,000	12.92	7.93	3.8	2.2	0.12	1.31
RSML11P02	<0.50	1.8	6.5	8.4	<0.50	<0.50	<0.50	33,000	2,400	23,000	9.74	8.2	3.21	2.1	0.1	0.87
RSML11P02											9.77	8.2	8.14	2	0.1	0.74
SCBS@M02	<8.00	41	62	220	<2.00	3.2	4.3	78,000	37,000	58,000	5.23	7.89	18.8	2.6	2.6	12.76
SCBS@M02	<8.00	18	3.9	30	<2.00	1.9	<2.00	62,000	14,000	4,300	5.32	7.32	8.13	3.2	0.12	1.26
SCBS@M02	<8.00	18	7.1	44	<2.00	<1.00	<2.00	<10	<10	<10	5.23	8	10.2	1.8	0.3	0.27
SCBS@M02	<8.00	21	9.1	27	<2.00	<1.00	<2.00	14,500	27,000	78,000	1.69	8.04	5	0.9	0.55	0.22
SCBS@M02	<8.00	19	18	52	<2.00	2.2	<2.00	166,000	46,000	119,000	1.75	8.01	10.6	0.8	1.35	0.86
SCBS@M02																
SCBS@M02	<8.00	21	8.4	62	<2.00	<1.00	<2.00	10,400	8,850	12,700	7.66	8.19	7.48	4.4	0.38	2.02
SCBS@M02	<8.00	20	9	39	<2.00	<1.00	<2.00	64,000	37,000	11,200	8.85	8.18	7.82	4.7	0.13	1.27
SCBS@M02	<8.00	26	13	97	<2.00	<1.00	<2.00	<200,000	<200,000	129,000	7.98	8.13	6.5	3	0.45	1.69
SCBS@M02	<8.00	29	10	15	<2.00	<1.00	<2.00	28,000	20,222	49,000	14.4	8.3	6.7	4.4	0.15	1.04

SCBS@M02	<8.00	31	5.2	16	<2.00	<1.00	<2.00	7,900	4,800	2,100	14	8.3	33.7	2.32	0.2	1.36
SCBS@M02	<0.50	71	5.9	28	<0.50	4.5	<0.50	38,000	30,000	3,000	7.73	8.03	2.03	3	<0.05	0.52
SCBS@M02	<0.50	86	4.6	11	<0.50	1.4	<0.50	370,000	47,000	9,400	8.9	7.53	1.7	5.1	0.14	0.55
SCBS@M02	0.89	36	7	4.2	<0.50	1.6	<0.50	200,000	150,000	4,200	9.05	8.03	1.52	2.9	0.29	0.51
SCBS@M02	<0.50	67	6.1	11	<0.50	2	<0.50	720,000	190,000	240	8.8	8.02	1.8	3.3	<0.05	0.43
SCBS@M02	<0.50	54	9.2	3	<0.50	1.3	<0.50	310,000	45,000	1,700	8.88	8.05	1.2	5	<0.05	0.44
SCBS@M02	<0.50	45	5.8	16	<0.50	1.9	<0.50	200,000	58,000	730	8.43	8.04	1.22	5.1	0.44	0.35
SCBS@M02	<0.50	39	4.4	9.6	<0.50	1.6	<0.50	76,000	42,000	2,200	9.03	7.97	1.44	3.9	0.12	0.62
SCBS@M02	1.3	49	17	20	<0.50	1.6	<0.50	160,000	10	18,300	7.44	8.08	5.91	3.5	0.32	1.01
SCBS@M02	<0.50	34	9.3	14	<0.50	1.4	<0.50	1,190,000	480,000	4,100	7.92	7.87	1.71	3.3	0.5	0.73
SCBS@M02	<0.50	37	5.8	4.8	<0.50	0.53	<0.50	87,000	12,000	9,600	9.98	7.81	3.75	2.2	0.15	0.5
SCBS@M02	0.53	14	18	17	<0.50	1.5	<0.50	>1,200,000	>1,200,000	640	7.94	8.12	6.12	5.8	0.65	2.32
SCBS@M02	1.1	30	67	130	<0.50	1.2	1.1	270,000	6,300	62,000	8.1	8.19	113	4.5	5.2	2.92
SCBS@M02	<0.50	13	5.4	6.2	<0.50	<0.50	<0.50	36,000	7,700	5,500	9.5	8.06	5.26	3.4	0.05	0.83
SCBS@M02	<0.50	16	4.6	7.8	<0.50	<0.50	<0.50	30,000	1,700	4,900	9.48	8.16	4.19	4	0.05	0.97
SCBS@M02	0.73	14	5.8	23	<0.50	<0.50	<0.50	240,000	2,900	3,800	6.65	8.05	4	4.2	0.15	0.43
SCBS@M02	<0.50	17	5.2	9.4	<0.50	0.92	<0.50	390,000	6,100	3,100	9.72	8.21	4.65	2.3	0.23	0.56
SCBS@M02	<0.50	8.8	3.4	4.4	<0.50	<0.50	<0.50	51,000	2,800	3,900	8.92	8.28	2.98	2.8	0.11	0.54
SCBS@M02	<2.50	11	4	<10.00	<2.50	<2.50	<2.50	9,600,000	43,000	7,800	9.16	8.03	20.5	5.1	1.05	0.74
SCBS@M02	<0.50	10	3.9	8.6	<0.50	<0.50	<1.00	31,000	2,700	1,140	12.22	8.06	2.6	5.7	0.33	0.69
SCBS@M02	<1.00	11	13	8.8	<1.00	<1.00	<0.50	640,000	46,000	84,000	13.94	8.16	21.9	4.7	0.15	0.95
SCBS@M02	<1.00	13	4.5	9.1	<1.00	<1.00	<2.50	116,000	>99	8,400	10.85	8.21	1.45	2.8	0.24	0.45
SCBS@M02	<0.50	9.9	7.8	23	<2.50	<2.50	<2.50	95,000	2,200	42,000	15.85	8.21	3.15	4.9	0.19	0.51
SCM00P03	<8.00	15	12	62	<2.00	<1.00	<2.00	89,000	42,000	10,800	13.6	8.19	2.77	0.4	0.65	0.27
SCM00P03																
SCM00P03	<8.00	18	6.5	39	<2.00	<1.00	<2.00				8.07	7.75		2.4	0.35	0.69
SCM00P03	<8.00	19	8.2	36	<2.00	<1.00	<2.00	27,000	17,800	1,400	4.18	7.58	1.6	2.1	0.15	0.74
SCM00P03	0.53	24	13	81	<0.50	0.54	<0.50	370,000	4,600	13,000	9.08	7.65	3.35	2.9	0.18	1.4
SCM00P03	0.58	39	8.6	6.2	<0.50	1.1	<0.50	15,000	2,400	800	12.17	8.27	2.01	0.4	<0.03	0.6
SCM00P03	0.85	18	23	66	<0.50	0.78	1.1	37,000	31,000	2,500	9.52	8.14	4.43	4.4	1.02	2.95
SCM00P03	0.79	38	11	20	<0.50	0.85	<0.50	3,200	600	2,000	13.92	8.27	16.1	1.3	0.08	0.67

SCM00P03	1	9.9	14	500	<0.50	<0.50	<0.50	>1,200,000	5,100	7,400	9.08	8.25	22.9	1.8	4.3	1.49
SCM00P03	1.8	15	8.9	77	<0.50	<0.50	<0.50	160,000	21,000	11,000	9.73	8.22	4.49	1.9	0.7	1.37
SCM00P03	<0.50	10	6.7	47	<0.50	0.63	<0.50	2,800	1,200	1,100	9.94	8.28	2.66	2.5	0.09	1.48
SCM00P03	<0.50	14	6.6	62	<0.50	3.5	<0.50	3,800	500	600	5.79	8.21	4.85	2.1	0.05	1.26
SCM00P03																
SCM00P03	<0.50	19	5.8	52	<0.50	0.73	<0.50	>2,400	110	590	10.85	8.14	0.33	2	0.11	0.53
SCM00P03	0.51	14	4.6	48	<1.00	<1.00	<1.00	49,000	>130	8,200	8.71	8.01	4.8	2.2	0.1	0.83
SCM00P03	<2.00	16	5.7	15	<0.50	<0.50	<0.50	27,000	240	3,400	13.51	7.66	15.6	3.6	0.12	0.76
SCM00P03											9.8	8.06	7	2	0.1	1.26
SCM02XXX	<8.00	760	<2.00	130	<2.00	54	<2.00	16,000	2,850	12,650	10.54	7.89	7.82	6.7	<0.05	0.3
SCM02XXX	120	9.8	9.6	50	<2.00	<1.00	<2.00	3,800	3,100	1,760	8.87	8.1	403	1.3	0.45	0.18
SCM02XXX	<8.00	14	7.4	160	<2.00	<1.00	<2.00	12,000	6,100	3,900	9.33	8.27	13.5	0.7	0.1	1.56
SCM02XXX	<8.00	25	13	54	<2.00	5.4	<2.00	77,000	67,000	4,700	7.02	7.38	3.44	3.1	1.5	2.49
SCM02XXX																
SCM02XXX	<8.00	12	7.8	<10.00	<2.00	<1.00	<2.00	111,000	85,000	17,200	9.14	8.1	62.1	1.5		2.33
SCM02XXX	0.82	22	6.1	4.5	<0.50	0.52	<0.50	22,000	5,200	13,000	7.23	8.3	7.13	3.5	<0.05	1.5
SCM02XXX	0.54	29	5.2	4.1	<0.50	<0.50	<0.50	65,000	27,000	5,700	9.75	8.05	46.9	1.7	<0.05	1.28
SCM02XXX	0.58	24	4	3.3	<0.50	0.52	<0.50	25,000	12,000	4,800	9.6	8.13	3.1	1.8	0.06	1.51
SCM02XXX	0.64	11	5.3	7.6	<0.50	<0.50	<0.50	5,900	3,600	530	9.49	8.14	16.9	1.8	0.35	0.79
SCM02XXX	<0.50	7.6	6.9	11	<0.50	<0.50	<0.50	630	270	400	9.26	8.14	16.1	1.9	0.08	1.64
SCM02XXX	<0.50	12	5.9	75	<0.50	<0.50	<0.50	52,000	2,900	3,000	8.34	8.02	16.1	4	0.06	1.67
SCM02XXX	0.55	16	4.6	6.8	<0.50	0.53	<0.50	15,000	9,000	4,900	10.34	8.26	5.17	2.8	0.09	1.23
SCM02XXX	0.69	14	4.9	7.9	<0.50	0.56	<0.50	37,000	930	2,000	7.45	8.19	3.95	3.1	0.05	1.39
SCM02XXX	<0.50	7.8	3.7	18	<0.50	<0.50	<0.50	150,000	22,000	39,000	6.5	7.8	3.51	11.2	0.07	2.35
SCM02XXX																
SCM02XXX	0.52	12	6.4	9.9	<0.50	0.57	<0.50	32,000	2,600	2,400	11.26	8.08	676	4	0.11	1.1
SCM02XXX	<0.50	9.9	5.4	15	<0.50	0.62	<0.50	>44,000	28,000	51,000	11.48	8.16	6.2	3.1	0.12	3.11
SCM02XXX	<0.50	11	4.2	8	<0.50	0.52	<0.50	33,000	5,300	9,200	15.27	8.23	6.93	4.1	0.1	1.77
SCM02XXX											11.16	7.92	2.36	2.8	0.1	1.64
SCM03P01	<8.00	22	8	35	<2.00	3.3	<2.00	94,000	56,000	2,950	7.86	7.44	17.6	2	<0.05	0.53

SCM03P01	<8.00	17	8.4	19	<2.00	2	<2.00	59,000	5,000	3,200	7.08	7.8	4.88	3.2	0.15	1.98
SCM03P01	<8.00	26	9.2	53	<2.00	4.3	<2.00	4,500	3,200	5,900	7.83	7.47	6.94	1.1	0.1	0.41
SCM03P01	<8.00	37	9.3	63	<2.00	8.8	<2.00	8,000	2,800	6,000	7.67	7.34	3.07	2.6		1.24
SCM03P01	<8.00	14	7	21	<2.00	<1.00	<2.00	84,000	49,000	58,000	9.34	8.3	4.79	1.5	0.1	1.24
SCM03P01	<8.00	30	9	54	<2.00	5.9	<2.00	3,200	1,400	1,080	6.53	7.33	1.59	2.5	0.1	1.53
SCM03P01	0.5	42	5.8	22	<0.50	6.6	<0.50	36,000	30,000	8,000	5.02	7.3	2.03	3.4	<0.05	1.14
SCM03P01	<0.50	42	6.9	26	<0.50	7.9	<0.50	180,000	190,000	13,800	6.56	7.17	2.13	3.2	<0.05	1.12
SCM03P01	<0.50	35	5.5	19	<0.50	6.6	<0.50	48,000	16,000	6,200	7.55	7.48	2.5	2.9	<0.05	1.36
SCM03P01	0.58	66	5.3	40	<0.50	15	<0.50	28,000	2,400	800	7.56	7.4	0.85	5.3	<0.03	1.02
SCM03P01	<0.50	59	6.7	46	<0.50	13	<0.50	1,080,000	570,000	>1,200,000	7.59	7.57	2.57	3.6	0.28	2.06
SCM03P01	<0.50	57	6.1	37	<0.50	12	<0.50	450,000	50,000	86,000	4.8	7.71	2.56	4.8	0.18	1.94
SCM03P01	<0.50	60	5.3	32	<0.50	13	<0.50	4,600	50,000	500	6.24	7.44	1.12	5	0.1	0.99
SCM03P01	<0.50	73	7	45	<0.50	16	<0.50	290,000	27,000	20,000	4.81	7.63	1.4	5.4	0.07	1.19
SCM03P01	<0.50	81	4.5	54	<0.50	21	<0.50	5,000	3,000	500	6.47	7.43	1.82	5.6	0.05	1.27
SCM03P01	<0.50	11	5.3	13	<0.50	1.3	<0.50	>35,000	6,400	10,800	8.96	7.65	2.35	5.2	0.17	1.17
SCM03P01	<0.50	26	3.9	15	<0.50	3.5	<0.50	20,000	3,600	3,100	8.57	7.96	2.12	3.7	0.1	1.61
SCM03P01	<0.50	24	2.1	21	<0.50	2.4	<0.50	>8,000	2,700	7,400	10.67	8.2	2.53	4.7	0.1	1.21
SCM03P01											7.54	6.96	5.1	5.6	0.14	1.35
SJCL01@CC	<8.00	<4.00	5	56	<2.00	<1.00	<2.00	2,070	725	580	10.88	8.41	2.4	0.8	<0.05	0.82
SJCL01@CC	<8.00	6.9	13	370	<2.00	<1.00	6.1	39,000	960	1,030	10.2	7.62	5.43	6.4	<0.05	1.22
SJCL01@CC	<8.00	<4.00	3.5	17	<2.00	<1.00	<2.00	1,130	980	960	8.69	7.82	1.14	1.7	<0.05	0.44
SJCL01@CC	<8.00	<4.00	12	42	<2.00	<1.00	<2.00	8,200	4,300	6,100	7.6	8.21	6.72	0.8	0.18	0.16
SJCL01@CC	<8.00	<4.00	2.2	15	<2.00	<1.00	<2.00	8,700	3,300	3,900	9.7	8.29	0.88	0.9	<0.05	0.17
SJCL01@CC	<8.00	5.3	12	80	<2.00	<1.00	2.2	79,000	72,000	2,800	10.23	8.51	3.05	1.2	0.24	1.43
SJCL01@CC	<8.00	6.2	10	88	<2.00	<1.00	<2.00	4,700	3,300	1,290	4.24	7.84	10.9	1.3	0.15	1.68
SJCL01@CC	<8.00	5.1	7.2	40	<2.00	<1.00	<2.00	11,400	8,900	1,210	9.51	8.36	1.95	0.8	0.15	1.03
SJCL01@CC	<8.00	23	9.2	37	<2.00	<1.00	<2.00	73,000	58,000	87,000	14.6	8.2	6.4		0.1	3.85
SJCL01@CC	<8.00	7.1	10	150	<2.00	<1.00	<2.00	62,000	50,000	53,000	13.8	8.6	15.9		0.9	3.87
SJCL01@CC	<0.50	4.4	5.5	28	<0.50	<0.50	<0.50	30,000	400	3,000	8.11	8.26	1.97	2.7	0.08	0.77
SJCL01@CC	<0.50	10	15	460	<0.50	0.62	3.7	820,000	>100,000	103,000	8.2	7.53	2.4	1.4	0.45	5.02
SJCL01@CC	1.5	5.1	3.6	60	0.72	1.1	1.4	>1,200,000	>120,000	>120,000	7.36	7.87	2.11	0.9	0.6	1.15

SJCL01@CC	<0.50	4.4	3.5	25	<0.50	<0.50	<0.50	40,000	18,000	6,000	8.41	8.28	1.08	4.7	0.11	1.83
SJCL01@CC	<0.50	5	4.5	55	<0.50	<0.50	<0.50	24,000	7,900	1,500	8.29	8.08	2.1	2.8	0.14	1.82
SJCL01@CC	<0.50	8.2	8.6	49	<0.50	<0.50	<0.50	600,000	110,000	3,400	10.25	8.08	1.93	3.3	0.5	1.14
SJCL01@CC	<0.50	5.5	7.8	39	<0.50	<0.50	<0.50	710,000	9,200	3,000	8.75	8.07	4.3	1.4	0.22	1.61
SJCL01@CC	<0.50	6.1	6.9	45	<0.50	<0.50	<0.50	39,000	<10	7,700	9.09	8.21	1.6	1.5	0.15	1.56
SJCL01@CC	<0.50	1.9	6	31	<0.50	<0.50	<0.50	24,000	5,000	4,300	9.1	7.88	1.58	1.7	0.22	1.45
SJCL01@CC	<0.50	1.3	4.1	14	<0.50	0.64	<0.50	<10	<10	<10	0	8.34	0.34	1.6	0.12	0.23
SJCL01@CC	1.1	2.4	8.2	35	<0.50	<0.50	<0.50	30,000	3,000	1,000	9.06	8.12	6.51	2.1	0.18	0.74
SJCL01@CC	<0.50	5.9	13	500	<0.50	0.67	5.2	14,000	1,500	6,200	8.81	8.14	1.22	0.8	0.48	2.71
SJCL01@CC	<0.50	3.2	10	47	<0.50	<0.50	0.53	22,000	4,200	15,000	7.5	8.37	1.61		0.27	1.33
SJCL01@CC	<0.50	3.2	5.4	43	<0.50	<0.50	<0.50	540,000	220,000	84,000	8.99	8.03	1.58	1.8	0.3	2
SJCL01@CC	1.3	4.4	7.3	43	<0.50	<0.50	3	800,000	210,000	18,000	8.04	8.17	13.3	1.2	0.45	2.19
SJCL01@CC	<0.50	4.1	6.1	39	<0.50	<0.50	<0.50	6,400	5,600	2,400	9.74	8.3	4.51	2.3	0.3	1.46
SJCL01@CC	<0.50	2.9	5.6	41	<0.50	<0.50	<0.50	40,000	8,600	7,400	10.67	8.33	2.74	0.2	0.25	1.04
SJCL01@CC	<0.50	5.9	7.9	250	<0.50	<0.50	2	166,000	98,000	145,000	12.7	8.2	2.8	2.4	0.83	1.9
SJCL01@CC	<0.50	3.5	4.8	41	<0.50	<0.50	<0.50	>7,800	3,100	4,000	11.05	8.29	2.81	2	0.12	0.73
SJCL01@CC	<0.50	4.3	6.8	44	<0.50	<0.50	<0.50	410,000	48,000	13,100	8.95	8.33	5.48	2.5	0.18	1.16
SJCL01@CC	<0.50	3.2	5.1	30	<0.50	<0.50	<0.50	79,000	25,000	51,000	9.66	8.25	2.95	2	0.14	1.09
SJCL01@CC	<0.50	6	8	100	<0.50	<0.50	<0.50	7,900,000	24,000	58,000	10.59	8.22	3.81	2	0.36	0.52
SJCL01P03	<8.00	<4.00	15	19	<2.00	<1.00	<2.00	29,000	17,000	13,750	8.62	8.28	3.96	6	<0.05	0.63
SJCL01P03	<8.00	<4.00	6.2	96	<2.00	<1.00	<2.00	24,000	6,550	5,450	8.23	8.02	9.74	2.8	<0.05	0.61
SJCL01P03	<8.00	<4.00	4.1	19	<2.00	<1.00	<2.00	7,100	6,200	6,500	8.47	8.33	2.43	7	<0.05	0.88
SJCL01P03	<8.00	8.2	5.8	44	<2.00	<1.00	<2.00	12,400	9,750	5,200	9.72	8.36	3.6	2.5	0.08	1.02
SJCL01P03	<8.00	6.6	7.5	75	<2.00	<1.00	<2.00	52,000	44,000	10,000	7.57	8.23	3.17	5.6	<0.05	1.03
SJCL01P03	<8.00	5.7	12	25	<2.00	<1.00	<2.00	15,200	11,600	17,000	10.32	8.01	7.03	5.6		1
SJCL01P03	<0.50	13	3.8	13	<0.50	0.9	<0.50	100,000	2,800	5,400	8.4	7.69	2.65	5.9	<0.05	0.63
SJCL01P03	<0.50	9.5	3.3	10	<0.50	<0.50	<0.50	53,000	17,000	17,000	8.17	8.05	7.92	4.6	<0.05	4.36
SJCL01P03								270,000	48,000	30,000	8.01	8.22	16.7	2.9	0.07	3.01
SJCL01P03	0.52	11	2.8	9.1	<0.50	<0.50	<0.50	66,000	11,700	3,400	8.68	8.18	1.7	4.3	0.08	<0.06
SJCL01P03	<0.50	8.5	4.6	9.2	<0.50	<0.50	<0.50	85,000	1,400	34,000	7.65	7.98	64.3	4.2	0.13	2.09
SJCL01P03	0.56	3.7	11	25	<0.50	<0.50	1.2	140,000	18,000	17,000	6.71	8.21	227	3.5	0.25	1.74

SJCL01P03	<0.50	2.3	3	10	<0.50	<0.50	<0.50	19,000	5,900	6,100	8.72	8.18	3.4	4	0.08	0.95
SJCL01P03	<0.50	3.6	2.2	6	<0.50	<0.50	<0.50	30,000	3,400	8,900	8.11	8.3	2.97	4.4	0.1	1.36
SJCL01P03	<0.50	3.2	3.4	13	<0.50	<0.50	<0.50	47,000	5,400	7,600	7.5	8.05	52.3	3.3	0.35	1.34
SJCL01P03	<0.50	3.5	6.2	11	<0.50	<0.50	<0.50	>34,000	3,500	7,600	8.14	8.12	2.24	4	0.12	0.69
SJCL01P03	<0.50	2.5	2.6	2.9	<0.50	<0.50	<0.50	41,000	5,600	6,400	8.18	8.54	3.24	2	0.1	0.47
SJCL01P03	0.5	4.8	2.9	5.6	<0.50	<0.50	<0.50	32,000	3,600	8,100	13.68	8.33	0.66	3.3	0.1	0.68
SJCL01P03											8.82	8.2	3.71	2	0.1	1.21
SJCL01S01	<0.50	5.3	3.6	7.7	<0.50	<0.50	<0.50	31,000	3,800	3,300	9.61	8.14	1.92	3.1	0.12	0.61
SJCL01S01	0.53	5.8	5.6	14	<0.50	1.3	<0.50	>5,100	220	780	9.29	8.09	3.06	3.9	0.12	0.87
SJCL01S01	<0.50	1.6	2.2	16	<0.50	<0.50	<0.50	3,700	210	9,400	11.06	7.98	1.94	2	0.1	0.3
SJCL01S01	<0.50	7.3	4	13	<0.50	<0.50	<0.50	>39,000	13,000	10,900	9.85	8.07	9.53	4.1	0.1	1.17
SJCL01S01	<0.50	6.4	2.9	4.8	<0.50	<0.50	<0.50	21,000	3,400	8,800	9.47	8.06	1.67	3.6	0.1	0.86
SJCL01S01	<0.50	6.9	4.2	5.1	<0.50	<0.50	<0.50	>5,900	100	600	10.29	8.24	2.23	3.2	0.1	0.92
SJCL01S01	<0.50	3.1	4.4	5.8	<0.50	<0.50	<1.00	38,000	330	1,860	13.2	8.12	2.95	4.2	0.1	1.61
SJCL01S01											10.32	8.06	3.16	3.7	0.1	0.99
SJCL01TBN1	<0.50	4.3	12	9.5	<0.50	<0.50	<0.50	100,000	8,000	4,000	7.78	9.07	7.38	1.9	0.2	1.23
SJCL01TBN1	<0.50	5.2	11	11	<0.50	<0.50	<0.50	220,000	14,000	26,000	8.49	7.71	6.12	2.6	0.2	2.38
SJCL01TBN1	0.76	4.6	15	11	<0.50	<0.50	<0.50	140,000	38,000	16,000	8.94	7.99	10	2	0.08	1.86
SJCL01TBN1	93	92	23	87	<0.50	25	26	NR	NR	NR	8.02	8.1	6.1	1	0.1	1.2
SJCL01TBN1	0.59	6.8	4.1	18	<0.50	<0.50	<0.50	62,000	38,000	38,000	8.86	8.04	3.3	1.6	0.35	1.9
SJCL01TBN1	0.54	5	11	8.5	<0.50	<0.50	<0.50	23,000	8,000	3,900	9.51	8	3.23	3.6	0.18	1.51
SJCL01TBN1	0.85	4.8	13	8	<0.50	<0.50	<0.50	280,000	480	56,000	10.75	8.46	4.86	5.1	0.1	3.43
SJCL01TBN1	0.63	6.4	16	19	<0.50	<0.50	<0.50	24,000	3,200	10,000	11.27	8.5	3.46	3.9	0.25	2.73
SJCL01TBN1	<0.50	2.1	13	8.8	<0.50	<0.50	<0.50	470,000	54,000	57,000	9.99	8.17	4.65	3.3	0.18	3.65
SJCL01TBN1	<0.50	2.9	8.1	5.7	<0.50	<0.50	<0.50	210,000	22,000	12,000	12.3	8.1	2.41	1.8	<0.05	1.3
SJCL01TBN1	0.61	3.1	20	13	<0.50	<0.50	<0.50	102,000	20,000	15,000	3.94	8.21	3.63	6.3	0.8	2.94
SJCL01TBN1	<0.50	1.4	20	5.1	<0.50	<0.50	<0.50	6,300	790	5,100	9.28	8.17	1.32	2.7	0.11	3.77
SJCL01TBN1	<0.50	2.1	9.6	5.5	<0.50	<0.50	<0.50	36,000	13,000	56,000	0.2	8.16	2.2	3.1	0.05	3.51
SJCL01TBN1	<0.50	1.7	8.4	4.4	<0.50	<0.50	<0.50	32,000	1,600	4,100	8.51	8.11	5.2	2.2	0.1	1.37
SJCL01TBN1	<0.50	2.4	7.9	9	<0.50	<0.50	<0.50	63,000	15,000	4,000	6.4	8.18	3.46	2.9	0.25	3.26

SJCL01TBN1																
SJCL01TBN1	<0.50	2.7	9.9	9.9	<0.50	<0.50	<0.50	28,000	2,400	9,700	8.84	8.04	1.63	3.2	0.1	1.03
SJCL01TBN1	<0.50	2.9	8.2	12	<0.50	<0.50	<0.50	>75,000	3,800	11,100	11.95	8.06	3.33	4.3	0.3	2.44
SJCL01TBN1																
SJCL01TBN1	<0.50	2.9	6	4.2	<0.50	<0.50	<0.50	163,000	9,700	6,700	7.01	8.13	6.43	2.3	0.1	1.37
SJCL01TBN1	<0.50	3.9	9.3	12	<0.50	<0.50	<0.50	>24,000	>230	20,000	7.86	7.98	4.69	3	0.33	1.6
SJCL01TBN1	0.88	2.3	8.9	11	<0.50	<0.50	<0.50	>69,000	4,300	14,500	9.68	8.04	4.53	2	0.56	2.41
SJCL01TBN1																
SJCL02P02	<8.00	4.9	8.5	36	<2.00	<1.00	<2.00	87,000	42,000	50,660	7.08	7.99	6.31	0.9	0.2	2.9
SJCL02P02	24	35	77	2900	<2.00	3.2	16	98,000	41,000	3,450	4.61	7.46	19.4	2.1	<0.05	2.01
SJCL02P02	<8.00	4.3	11	41	<2.00	<1.00	<2.00	81,000	36,000	66,000	7.46	7.5	3.76	2.9	0.17	1.43
SJCL02P02	<8.00	6.9	22	190	<2.00	<1.00	<2.00	18,500	12,600	8,450	7.27	7.95	2.89	1.3	0.16	1.81
SJCL02P02	<8.00	6.4	10	84	<2.00	<1.00	6.2	>200,000	110,000	76,000	6.56	8.05	3.96	0.8	0.33	2.25
SJCL02P02	<8.00	7.9	5.9	69	<2.00	<1.00	<2.00	<200,000	58,000	170,000	5.26	7.55	12.4	0.9	0.6	2.97
SJCL02P02	<0.50	10	7.6	17	<0.50	<0.50	<0.50	180,000	6,000	3,800	6.63	7.44	1.46	1.4	0.08	1.52
SJCL02P02																
SJCL02P02	<0.50	4.4	2.2	6	<0.50	<0.50	<0.50	200,000	47,000	7,900	7.07	8.02	16.7	1.8	<0.05	1.56
SJCL02P02	<0.50	6.4	5.9	9.8	<0.50	<0.50	<0.50	40,000	4,800	3,800	10.46	8.1	2.02	0.7	0.06	<0.06
SJCL02P02	<0.50	6.9	6.4	18	<0.50	<0.50	<0.50	45,000	720	6,900	6.72	7.99	1.78	3.7	0.17	2.11
SJCL02P02	<0.50	4.5	4.1	10	<0.50	<0.50	<0.50	53,000	10,000	11,000	6.22	8.04	6.2	0.9	0.4	1.53
SJCL02P02	<0.50	7	7.7	27	<0.50	<0.50	<0.50	160,000	80,000	48,000	9.3	8.03	4.65	1.2	0.15	2.58
SJCL02P02	0.86	5.6	13	29	<0.50	<0.50	0.5	43,000	1,100	5,900	6.43	8.03	5.66	4.7	0.32	3
SJCL02P02	<0.50	2.6	4.2	8.9	<0.50	<0.50	<0.50	170,000	48,000	30,000	6.88	8.1	4.78	3	0.8	1.85
SJCL02P02	<0.50	3.9	8	19	<0.50	<0.50	<0.50	>41,000	2,500	2,800	12.8	8.61	2.31	1.8	0.42	1.25
SJCL02P02	0.86	7.3	14	85	<0.50	<0.50	1.4	480,000	80,000	44,000	5.57	8.04	17.2	1.1	1.15	1.82
SJCL02P02	<0.50	2.8	1.8	11	<0.50	<0.50	<0.50	99,000	11,900	30,000	12.09	8.2	3.18	2	0.2	1.44
SJCL02P02											12.35	8.29	6.8	2	0.78	1.92

ATTACHMENT

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**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

FACT SHEET / TECHNICAL REPORT

FOR

**ORDER NO. R9-2009-0002
NPDES NO. CAS0108740**

WASTE DISCHARGE REQUIREMENTS

FOR

**DISCHARGES OF RUNOFF FROM
THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s)
DRAINING THE WATERSHEDS OF THE
COUNTY OF ORANGE,
THE INCORPORATED CITIES OF ORANGE COUNTY,
AND THE ORANGE COUNTY FLOOD CONTROL DISTRICT
WITHIN THE SAN DIEGO REGION**

December 16, 2009

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LIST OF ACRONYMS AND ABBREVIATIONS

ADT - Average Daily Traffic
ASBS - Area of Special Biological Significance
AST - Active Sediment Treatment
BAT - Best Available Technology
BIA - Building Industry Association of San Diego County
BMP - Best Management Practice
Basin Plan - Water Quality Control Plan for the San Diego Basin
BU - Beneficial Uses
CASQA - California Stormwater Quality Association
CCC - California Coastal Commission
CDFG - California Department of Fish and Game
CEQA - California Environmental Quality Act
CFR - Code of Federal Regulations
Copermittees - County of Orange, the 11 incorporated cities within the County of Orange in the San Diego Region, and the Orange County Flood Control District
CWA - Clean Water Act
CWC - California Water Code
CZARA - Coastal Zone Act Reauthorization Amendments of 1990
DAMP - Drainage Area Management Plan
ESAs - Environmentally Sensitive Areas
FR - Federal Register
GIS - Geographic Information System
HMP - Hydromodification Management Plan
IBI - Index of Biotic Integrity
IC/ID - Illicit Connections and Illicit Discharges
JRMP - Jurisdictional Runoff Management Plan
LARWQCB - California Regional Water Quality Control Board, Los Angeles Region
LID - Low Impact Development
MEP - Maximum Extent Practicable
MRP - Receiving Waters Monitoring and Reporting Program
MS4 - Municipal Separate Storm Sewer System
NOI - Notice of Intent
NPDES - National Pollutant Discharge Elimination System
NRDC - Natural Resources Defense Council
NURP - Nationwide Urban Runoff Program
OCVCD - Orange County Vector Control District
Regional Board - California Regional Water Quality Control Board, San Diego Region
RGOs - Retail Gasoline Outlets
ROWD - Orange County Copermittees' Report of Waste Discharge (application for NPDES reissuance)
RWLs - Receiving Water Limitations
SAL - Storm Water Action Level
SIC - Standard Industrial Classification Code
SSMP - Standard Storm Water Mitigation Plan
State Board - State Water Resources Control Board
SWMP - Storm Water Management Plan
SWPPP - Storm Water Pollution Prevention Plan
SWQPA - State Water Quality Protected Area
TAC - State Water Resources Control Board Urban Runoff Technical Advisory Committee
TIE - Toxicity Identification Evaluation
TMDL - Total Maximum Daily Load
USEPA - United States Environmental Protection Agency

USACE – United States Army Corps of Engineers
WDRs - Waste Discharge Requirements
WLA - Waste Load Allocation
WQC - Water Quality Criteria
WQBEL - Water Quality Based Effluent Limitations
WQMP – Water Quality Management Plan
WSPA - Western States Petroleum Association
WRMP - Watershed Runoff Management Plan

I. FACT SHEET FORMAT

This Fact Sheet briefly sets forth the principle facts and the significant factual, legal, methodological, and policy questions that the California Regional Water Quality Control Board, San Diego Region (Regional Board) considered in preparing Order No. R9-2009-0002. In accordance with the Code of Federal Regulations (CFR) title 40 parts 124.8 and 124.56, this Fact Sheet includes, but is not limited to, the following information:

- A. Contact information
- B. Public process and notification procedures
- C. Background information
- D. Permitting approach
- E. Economic issues
- F. Legal authority
- G. Findings
- H. Directives

Tentative Order No. R9-2008-0001 was distributed for review on February 9, 2007. A public hearing was subsequently held on April 11, 2007 in the City of Mission Viejo to receive oral comments from interested persons, and the Regional Board accepted written comments on the Tentative Order until April 25, 2007. Following review of the comments, a Revised Tentative Order was distributed on July 6, 2007 with a Response to Comments document (RTC 1). A second set of written comments were received on the revisions until August 23, 2007. Following review of the second round of written comments, the Regional Board further revised specific sections of the Order and distributed a second Response to Comments document (RTC 2). Tentative Order No. R9-2008-0001 was submitted to the Board for adoption on February 13, 2008. Upon review and comment, the Board chose not to adopt Tentative Order No. R9-2008-0001 and sent the Order back to staff with comments for changes. Tentative Order No. R9-2009-0002 was distributed for review on March 13, 2009. Written comments received on the tentative Order prior to June 19, 2009 were provided to Regional Board members for a public hearing regarding the Tentative Order held on July 1, 2009. On August 12, 2009, the sixth version of the Tentative Order was distributed for review. On November 18, 2009 an adoption hearing was held on the Tentative Order. The Regional Board directed staff to make specific changes and bring the Tentative Order back for consideration.

The Regional Board's files applicable to the issuance of Order No. R9-2009-0002 are incorporated into the administrative record in support of the findings and requirements of Order No. R9-2009-0002.

II. CONTACT INFORMATION

Regional Board

James Smith
Senior Environmental Scientist
9174 Sky Park Court, Suite 100
San Diego, CA 92123
858-467-2732
858-571-6972 (fax)
email: jsmith@waterboards.ca.gov

Benjamin Neill,
Water Resource Control Engineer
9174 Sky Park Court, Suite 100
San Diego, CA 92123
858-467-2983
858-571-6972 (fax)
email: bneill@waterboards.ca.gov

The Order and other related documents can be downloaded from the Regional Board website at http://www.waterboards.ca.gov/sandiego/programs/oc_stormwater.html.

All documents referenced in this Fact Sheet and in Order No. R9-2009-0002 are available for public review at the Regional Board office, located at the address listed above. Public records are available for inspection during regular business hours, from 8:00 am to 5:00 pm Monday through Friday. To schedule an appointment to inspect public records, contact Sylvia Wellnitz at 858-637-5593 or DiAnne Broussard at 858-492-1763.

Copermittees

County of Orange	City of Laguna Woods
Orange County Flood Control District	City of Lake Forest
City of Aliso Viejo	City of Mission Viejo
City of Dana Point	City of Rancho Santa Margarita
City of Laguna Beach	City of San Clemente
City of Laguna Hills	City of San Juan Capistrano
City of Laguna Niguel	

III. PUBLIC PROCESS AND NOTIFICATION PROCEDURES

The Regional Board followed the schedule listed below for the preparation of Order No. R9-2009-0002:

- A. In April 2006 and July 2006, the Northern Watershed Unit of the Regional Board met with the Copermitees to discuss the Report of Waste Discharge (ROWD) and potential changes to the permit based on the annual reports and the tentative permit for San Diego County.
- B. On August 18, 2006, the Regional Board received the ROWD for the permit renewal.
- C. On October 20, 2006 the Regional Board provided written comments on the ROWD to the Copermitees.
- D. On November 15, 2006, the Regional Board received the 2005-06 annual reports from the Copermitees for the existing permit.
- E. On January 11, 2007, the Regional Board notified all known interested parties that an electronic email listserv had been established to provide information and notices on the reissuance of the municipal storm water NPDES permit for southern Orange County.
- F. On February 9, 2007, the Regional Board released the tentative Order and notified interested parties of a planned workshop. Written comments were accepted until April 25, 2007.
- G. A public workshop was held on March 12, 2007.
- H. A public hearing of the tentative Order was conducted on April 11, 2007.
- I. A revised tentative Order was released on July 6, 2007. Written comments were accepted until August 23, 2007.
- J. A second revised tentative Order was released on December 12, 2007.
- K. A public hearing was conducted on February 13, 2008. The Regional Board chose not to adopt the tentative Order, and sent it back to staff for revision.
- L. On March 13, 2009 the Regional Board released a fourth version of the revised tentative Order and notified interested parties of a planned workshop.
- M. On April 03, 2009 and May 06, 2009 the Regional Board held public workshops.
- N. A public hearing of the tentative Order was held on July 01, 2009.
- O. On August 12, 2009 the Regional Board released an additional version of the revised tentative Order for public review. Written comments were accepted until September 28, 2009.
- P. An adoption hearing of the tentative Order was conducted on November 18, 2009. The Regional Board chose not to adopt the tentative Order and directed staff to make specific changes.

IV. BACKGROUND

Tentative Order No. R9-2009-0002 is the fourth iteration of the storm water permit for the municipal separate storm sewer systems (MS4s) in the Orange County portion of the San Diego region. The first permit was adopted in 1990, and the permit was reissued in 1996 and 2002.

Municipal Storm Water Permits are required by the Federal Clean Water Act 1987 Amendments. The federal Clean Water Act (CWA) was amended in 1987 to address storm water runoff from municipal and industrial dischargers. One requirement of the amendment was that many municipalities throughout the United States were obligated for the first time to obtain National Pollutant Discharge Elimination System (NPDES) permits for discharges of storm water runoff from their MS4s. In response to the CWA amendment (and the pending federal NPDES regulations which would implement the amendment), the Regional Board issued a municipal storm water permit, Order No. 90-38, in July 1990 to the Copermittees for their MS4 discharges.¹

The First and Second Term Permits, Order Nos. 90-38 and 96-03, provided maximum flexibility. Order No. 90-38 contained the “essentials” of the 1990 regulations, but the requirements were written in very broad, generic terms. This was done in order to provide the maximum amount of flexibility to the Copermittees in implementing the new requirements (flexibility was, in fact, the stated reason for issuing the permit in advance of the final regulations). This lack of specificity was reflected in the Drainage Area Management Plan (DAMP) implemented under this First Term Permit in 1993 and renewed under the Second Term Permit in 1996. From staff’s perspective however, this same lack of specificity, combined with the lack of funding and political will, also provided the Copermittees with ample reasons to take few substantive steps towards permit compliance. The situation was exacerbated by the Regional Board’s own lack of storm water resources.

By 2000 the Regional Board and Copermittees recognized the importance of an improved storm water program. Although renewed in 1996 as Order No. 96-03, the 1993 DAMP implemented by the Copermittees was not significantly updated until 2000. The 2000 DAMP submitted to the Regional Board for the Third-Term Permit renewal was improved over the earlier DAMP. Regional Board staff concluded, however, that it reflected only the basic requirements of the 1990 Federal Regulations and in most cases did not represent significant improvement over the 1993 DAMP. Continued implementation of the DAMP without amendment would not have adequately addressed the impacts to receiving waters resulting from the discharge of storm water runoff and would not have achieved the maximum extent practicable standard (MEP) as defined in the Order.

¹ The 1990 permit was issued to the County of Orange, the Orange County Flood Control District, and six incorporated cities. Additional municipalities have been added to the MS4 NPDES permit as they have incorporated.

In order to provide the Copermittees with the minimum requirements to meet the MEP standard for storm water of the Regional Board, a more detailed Order was adopted (Order No. R9-2002-01) that emphasized the strong jurisdictional level programs developed by the Copermittees during the First and Second Term Permits as well as the watershed-level approach embodied in the proposed DAMP.

The Third-Term Permit introduced specific requirements. The regulatory approach incorporated into Order No. R9-2002-01 was a significant departure from the regulatory approach of the First and Second-Term Permits. Where Order Nos. 90-38 and 96-03 included broad, nonspecific requirements in order to provide the Copermittees with the maximum amount of flexibility in developing their programs, Order No. R9-2002-01 used detailed, specific requirements which outlined the minimum level of implementation required for the Copermittees' programs. The shift in permitting approaches resulted from the Regional Board's conclusion that the lack of specificity in earlier Orders resulted in frequently unenforceable permit requirements, which in turn allowed some Copermittees to only make limited progress in implementing their programs.

The Third-Term Permit followed the San Diego County permit template. The shift in regulatory approaches for MS4 permits was first manifested in the 2001 MS4 permit to the owners and operators of San Diego County MS4s (Order No. R9-2001-01). The Third-Term Orange County Permit included similar requirements as the 2001 San Diego County Permit. Both the San Diego and Orange County Permits were appealed to the State Water Resources Control Board (State Board).² Minor modifications of each were made by the State Board, but the vast majority of the requirements were upheld. The San Diego County permit was also challenged in the Superior Court of the State of California and the Court of Appeal, Fourth Appellate District. Further litigation on the Orange County permit was held pending the precedential decisions on the San Diego Permit. The San Diego Permit was largely upheld in the Superior and Appellate Courts. The State of California Supreme Court declined to hear a final appeal from the Building Industry Association in March 2005. Thus, the Third-Term Orange County permit requirements remained as slightly modified by the State Board.

² Seven petitions were filed with the State Board over the Third-Term Orange County Permit. Six were placed in abeyance. Three of the petitioners sought stays. One stay request was dismissed and one was withdrawn. The active petition and stays were addressed by the State Board in Order No. WQO 2002-0014. That Order stayed provision F.5.f regarding sewage spills and modified Finding No. 26 regarding chronic toxicity.

The Third-Term Permit was adopted following substantial public participation.

Public participation was extensive during the adoption process of the Third-Term Permit. The draft permit was released for public review and comment on July 2, 2001, and revised in response to comments and State Board Order WQ 2001-15 on the petition to review the San Diego Municipal Storm Water Permit. Because the proposed requirements for Orange County were similar to those that had recently been adopted and contested in San Diego County, much of the public participation dialogue echoed the discussions held during the San Diego renewal. Approximately 684 comments were received and responded to during two public workshops and a written comment period on the Tentative Order for the Third-Term Orange County permit. Following the extensive public participation process, the Regional Board adopted Order No. R9-2002-01 on February 13, 2002.

Storm water programs have improved under the Third-Term Permit. Since adoption of Order No. R9-2002-01, the Copermittees' storm water programs have expanded dramatically. Audits of the Copermittees' programs and reviews of annual reports exhibit that the Copermittees' jurisdictional programs are largely in compliance with the Order. Some of the efforts currently being conducted on a regular basis by the Copermittees that were not conducted on a widespread basis prior to adoption of Order No. R9-2002-01, include: construction site storm water inspections, industrial and commercial facility storm water inspections, municipal facility storm water inspections, management of storm water quality from new development, development of BMP requirements for existing development, interdepartmental coordination, comprehensive water quality monitoring, and assessment of storm water program effectiveness.

Significant challenges remain. When viewed relative to the magnitude of the storm water runoff problem, enormous challenges remain, particularly regarding the management of storm water runoff on a watershed scale. Today, storm and non-storm water discharges from the MS4 continue to be the leading cause of water quality impairment in the San Diego Region.³ The Copermittees' monitoring data exhibits persistent exceedances of water quality objectives in most watersheds.⁴ Many watersheds also have conditions that are frequently toxic to aquatic life. Bioassessment data from the watersheds further reflects these conditions, finding that macroinvertebrate communities in creeks have widespread Poor to Very Poor Index of Biotic Integrity ratings. Finally, the now too familiar "health advisory" or "beach closure" signs, which often result from high levels of bacteria in storm and non-storm water, exhibit the continued threat to public health by such discharges.

³ The potential sources of impairments are identified on the CWA section 303(d) list of impaired water bodies for the San Diego Region.

⁴ Data is provided in annual reports to the Regional Board. A summary of data collected during the third-term permit is provided in the Copermittees' application for permit reissuance. That summary is available on-line at: http://www.ocwatersheds.com/StormWater/documents_ROWd.asp

V. PERMITTING APPROACH (PROGRAM INTEGRATION, FLEXIBILITY, AND DETAIL)

The Order contains an increased emphasis on storm water discharge management on a watershed basis. This shift towards increased watershed management is consistent with planning efforts conducted by the Regional Board regarding reissuance of the San Diego Permit (Order No. R9-2007-0001), and it is also consistent with the Copermittees' most recent Report of Waste Discharge (ROWD).⁵ This shift reflects recognition of the maturity of the storm water programs since they began implementing the Third-Term Permit. Addressing storm water discharge management on a watershed basis is only possible if effective jurisdictional programs have been established, and maintaining effective jurisdictional programs is crucial to the success of watershed-focused management.

There are several reasons for this shift in emphasis. First, the Copermittees are generally doing an effective job at implementing their jurisdictional programs; while on the other hand, an emphasis on watersheds is necessary to shift the focus of the Copermittees from program development and implementation to water quality results. After over 15 years of Copermittee program implementation, it is critical that the Copermittees link their efforts with positive impacts on water quality. Addressing storm water on a watershed scale focuses on water quality results by emphasizing the receiving waters within the watershed. The conditions of the receiving waters drive management actions, which in turn focus on the water quality problems in each watershed.

Focusing on watershed implementation does not mean that the Copermittees must expend funds outside of their jurisdictions. Rather, the Copermittees within each watershed are expected to collaborate to develop a watershed strategy to address the high priority water quality problems within each watershed. They have the option of implementing the strategy in the manner they find to be most effective. Each Copermittee can implement the strategy individually within its jurisdiction, or the Copermittees can group together to implement the strategy throughout the watershed.

While the Order includes a new emphasis on addressing storm water discharges on a watershed basis, the Order includes recognition of the importance of continued program implementation on jurisdictional and countywide levels. The Order also acknowledges that jurisdictional, watershed, and countywide efforts are not always mutually exclusive. For this reason, an attempt has been made to allow for the Copermittees' jurisdictional, watershed, and countywide programs to integrate.

⁵ The Report of Waste Discharge (ROWD) was submitted to the Regional Board on August 18, 2006 by the Principal Permittee (County of Orange) on behalf of all Copermittees.

In the Order, the watershed requirements serve as the mechanism for this program integration. Since jurisdictional and countywide activities can also serve watershed purposes, such activities can be integrated into the Copermitees' watershed programs, provided the activities meet certain criteria. In this manner, the Copermitees' activities do not always need to distinguish between jurisdictional, watershed, and countywide levels of implementation. Instead, they can be integrated on multiple levels.

Such opportunities for program integration inherently provide flexibility to the Copermitees in implementing their programs. Program integration can be expanded or minimized as the Copermitees see fit. For example, there is flexibility provided in determining the activities to be integrated and implemented in the watershed programs – watershed-based efforts, countywide efforts, enhanced jurisdictional efforts, or a mixture of the three. Significant flexibility is also provided throughout other portions of the Order.

Copermitees can choose the best management practices (BMPs) to be implemented, or required to be implemented, for development, construction, and existing development areas. Flexibility to determine which industrial or commercial sites are to be inspected is also provided to the Copermitees. Educational approaches are also to be determined by the Copermitees under the Order. Implementation of certain efforts on a countywide basis is largely optional for the Copermitees as well. Significant leeway is also provided to the Copermitees in using methods to assess the effectiveness of their various runoff management programs. This flexibility is further extended to the monitoring program requirements, which allow the Copermitees to develop monitoring approaches to several aspects of the monitoring program.

The challenge in drafting the Order is to provide the flexibility described above while ensuring that the Order is still enforceable. To achieve this, the Order frequently prescribes minimum measurable outcomes, while providing the Copermitees with flexibility in the approaches they use to meet those outcomes. Enforceability has been found to be a critical aspect of the Order. For example, the watershed requirements of Order No. R9-2002-01 were some of the Order's most flexible requirements. This lack of specificity in the watershed requirements resulted in inefficient watershed compliance efforts. This situation reflects a common outcome of flexible permit language. Such language can be unclear and unenforceable, and it can lead to implementation of inadequate programs.

To avoid these types of situations, a balance between flexibility and enforceability has been crafted into the Order. Minimum measurable outcomes are utilized to ensure the Order is enforceable, while the Copermitees are provided flexibility in deciding how they will implement their programs to meet the minimum measurable outcomes.

GENERAL CRITERIA

Non-storm water discharges may contain pollutants which result from various activities that occur within areas draining into the MS4. This includes, but is not limited to, illicit discharges and connections, exempted categories of discharge not a source of pollutants (40 CFR 122.26(d)), and discharges into the MS4 covered under a separate NPDES permit. As such, existing and proposed discharges of non-storm water from MS4s:

- a) Result from similar activities through the MS4 system;
- b) Are the same type of water;
- c) Require similar effluent limitations for the protection of the Beneficial Uses of the receiving waters;
- d) Require similar monitoring;
- e) Are under the control of the owner and operator of the MS4 system;
and
- f) Are more appropriately regulated under a general permit than individual permits.

VI. ECONOMIC ISSUES

Economic discussions of storm and non-storm water management programs tend to focus on the significant costs incurred by municipalities in developing and implementing the programs. However, when considering the cost of implementing the programs, it is also important to consider the alternative costs incurred by not fully implementing the programs, as well as the benefits which result from program implementation. For instance, unhealthful coastal water quality conditions negatively affect residents, tourists, and related portions of the Orange County economy.⁶

⁶ Orange County 2006 Community Indicators Project. 2006. Sponsored by the County of Orange, the Orange County Business Council, and the Children and Families Commission of Orange County. Available on-line at www.oc.ca.gov/ceocommunity.asp

It is very difficult to ascertain the true cost of implementation of the Copermittees' management programs because of inconsistencies in reporting by the Copermittees. Reported costs of compliance for the same program element can vary widely from city to city, often by a very wide margin that is not easily explained.⁷ Despite these problems, efforts have been made to identify management program costs, which can be helpful in understanding the costs of program implementation. The Orange County Municipalities plan to prepare a common fiscal reporting strategy to better define the expenditure and budget line items included in annual reports.⁸

Estimates of Phase I Storm Water Program Costs.

The United States Environmental Protection Agency (USEPA), the California Regional Water Quality Control Boards, and the State Board have attempted to evaluate the costs of implementing municipal storm water programs. The assessments demonstrate that true costs are difficult to ascertain and reported costs vary widely. Nonetheless, they provide a useful context for considering the costs of requirements within Tentative Order No. R9-2008-0001. In addition, reported fiscal analyses tend to neglect the costs incurred to municipalities when storm water runoff is not effectively managed. Such costs result from pollution, contamination, nuisance, and damage to ecosystems, property, and human health.

In 1999 USEPA reported on multiple studies it conducted to determine the cost of management programs. A study of Phase II municipalities determined that the annual cost of the Phase II program was expected to be \$9.16 per household. USEPA also studied 35 Phase I municipalities, finding costs to be \$9.08 per household annually, similar to those anticipated for Phase II municipalities.⁹ The USEPA cost estimate for Phase I municipalities is valuable because it considers municipalities in Orange County.

A study on program cost was also conducted by the California Regional Water Quality Control Board, Los Angeles Region (LARWQCB), where program costs reported in the municipalities' annual reports were assessed. The LARWQCB estimated that average per household cost to implement the MS4 program in Los Angeles County was \$12.50.¹⁰ Since the Los Angeles County permit is very similar to Order No. R9-2002-01, this estimate is also useful in assessing general program costs in Orange County.

⁷ LARWQCB, 2003. Review and Analysis of Budget Data Submitted by the Permittees for Fiscal Years 2000-2003. P. 2.

⁸ Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region)

⁹ Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68791-68792.

¹⁰ LARWQCB, 2003. Review and Analysis of Budget Data Submitted by the Permittees for Fiscal Years 2000-2003. P. 2.

The State Board also recently commissioned a study by the California State University, Sacramento to assess costs of the Phase I MS4 program. This study includes an assessment of costs incurred by Phase I MS4s throughout the State to implement their programs. Annual cost per household in the study ranged from \$18-46, with the City of Encinitas in San Diego County representing the upper end of the range.¹¹ Although no Orange County municipalities were assessed, the cost of the City of Encinitas' program may be somewhat representative of the upper range of Orange County MS4 programs. Encinitas shares similarities with southern Orange County, including the similarity of the San Diego MS4 permit to the Orange County MS4 permit, the city's coastal location, and its reliance on tourism. However, the City's program cost can be considered as the high end of the spectrum for management program costs because the City has a consent decree with environmental groups regarding its program, and City of Encinitas has received recognition for implementing a superior program.

It is important to note that reported program costs are not all attributable to compliance with MS4 permits. Many program components, and their associated costs, existed before any MS4 permits were ever issued. For example, street sweeping and trash collection costs cannot be solely or even principally attributable to MS4 permit compliance, since these practices have long been implemented by municipalities. Therefore, true program cost resulting from MS4 permit requirements is some fraction of reported costs. The California State University, Sacramento study found that only 38 percent of program costs are new costs fully attributable to MS4 permits. The remainder of the program costs were either pre-existing or resulted from enhancement of pre-existing programs.¹² In 2000, the County of Orange found that even lesser amounts of program costs are solely attributable to MS4 permit compliance, reporting that the amount attributable to implement the Drainage Area Management Plan (DAMP), was less than 20 percent of the total budget. The remaining 80 percent was attributable to pre-existing programs.¹³

Estimating Costs of Reissued Storm Water Permits

The vast majority of costs that will be incurred as a result of implementing Order No. R9-2009-0002 are not new. Storm water management programs have been in place in Orange County for over 15 years. Any increase in cost to the Copermitttees will be incremental in nature. Moreover, since Order No. R9-2009-0002 "fine tunes" the requirements of Order No. R9-2002-01, these cost increases are expected to be modest.

¹¹ State Water Board, 2005. NPDES Stormwater Cost Survey. P. ii.

¹² Ibid. P. 58.

¹³ County of Orange, 2000. A NPDES Annual Progress Report. P. 60. More current data from the County of Orange is not used in this discussion because the County of Orange no longer reports such information.

The anticipated costs of program changes are difficult to estimate because of the flexibility inherent within the Permit and the recognition that program modifications will vary among the municipalities in response to the specific needs of the local and watershed programs. In other words, the Permit is intended to allow each Permittee to de-emphasize some program components and strengthen others based on the experience of the jurisdictional programs.

The changes in Order No. R9-2009-0002 reflect the iterative process of BMP implementation and the necessarily adaptive nature of storm water management that is expected by the USEPA. In 1996, USEPA recognized that changes to MS4 programs would occur during the reapplication period based on new information on the relative magnitude of a problem, new data on water quality impacts of the storm water discharges, and experience gained under the prior permit.¹⁴ Some program changes have been proposed by the Copermittees in the permit reapplication package, and others have been included because the Regional Board considers those measures necessary and feasible to protect water quality from the effects of MS4 discharges.

Other Economic Considerations.

Economic considerations of management programs cannot be limited only to program costs. Evaluation of programs requires information on the implementation costs and information on the benefits derived from environmental protection and improvement.¹⁵ Attention is often focused on program costs, but the programs must also be viewed in terms of their value to the public.

For example, household willingness to pay for improvements in fresh water quality for fishing and boating has been estimated by USEPA to be \$158-210.¹⁶ This estimate can be considered conservative, since it does not include important considerations such as marine waters benefits, wildlife benefits, or flood control benefits. The California State University, Sacramento study corroborates USEPA's estimates, reporting annual household willingness to pay for statewide clean water to be \$180.¹⁷ When viewed in comparison to household costs of existing management programs, household willingness to pay estimates exhibit that per household costs incurred by Copermittees to implement their management programs remain reasonable.

¹⁴ Federal Register / Vol. 61, No. 155 / Friday, August 9, 1996 / Rules and Regulations. Interpretive policy memorandum on reapplication requirements for MS4s.

¹⁵ Ribardo M.O. and D. Heelerstein. 1992, *Estimating Water Quality Benefits: Theoretical and Methodological Issues*. U.S. Department of Agriculture. Technical Bulletin No. 1808.

¹⁶ Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68793.

¹⁷ State Board, 2005. NPDES Stormwater Cost Survey. P. iv.

The effect of storm and non-storm water discharges on receiving waters can also influence the value of real estate in southern Orange County. For instance, recent marketing of new developments in the region prominently features access or proximity to the ocean.¹⁸ This demonstrates the added value of healthy aquatic environments to property values. The real estate industry recognizes that home buyers are willing to pay for access to clean water environments. The ability to market water-based recreational activities is dependent on healthy water quality conditions.

Municipalities and business groups in Orange County recognize the value of programs to prevent and treat storm water pollution in Orange County. For instance, both coastal and inland Orange County cities positively promote their access to the Pacific Ocean as a valuable quality of life feature.¹⁹ In addition, the South Orange County Regional Chamber of Commerce's legislative policy for infrastructure includes the support of programs and solutions for non-point source storm water runoff. This demonstrates that the business community realizes the negative economic effects that result from polluted storm water.

Another important way to consider management program costs is to consider implementation in terms of costs incurred by not improving the programs. Storm and non-storm water discharges from MS4s in southern California has been found to cause illness in people bathing near storm drains.²⁰ A study of south Huntington Beach and north Newport Beach (both located in northern Orange County) found that an illness rate of about 0.8 percent among bathers at those beaches resulted in about \$3 million annually in health-related expenses.²¹ Extrapolation of such numbers to the wide range of beaches of Orange County could result in huge public expenses.

¹⁸ Examples include the "Marblehead Coastal" project in San Clemente (<http://www.marbleheadonthecoast.com>), the "Pacifica San Juan" project in San Juan Capistrano (<http://pacificasanjuan.com>), and "The Strand at Headlands" in Dana Point (<http://strandoc.com>).

¹⁹ For a coastal city, see Laguna Beach Overview at <http://www.lagunabeachcity.net/about/overview>. For an inland city, see the Lake Forest 2005 Economic Profile at <http://www.theharbor.info/pdf/2005%20Economic%20Profile.pdf>.

²⁰ Haile, R.W., et al, 1996. An Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay. Santa Monica Bay Restoration Project.

²¹ Dwight, R.H., et al., 2005. Estimating the Economic Burden From Illnesses Associated With Recreational Coastal Water Pollution – A Case Study in Orange County, California. *Journal of Enviro. Management* Vol.76. No.2 p.95-103. Also reported in: Los Angeles Times, May 2, 2005. Here's What Ocean Germs Cost You: A UC Irvine Study Tallies the Cost of Treatment and Lost Wages for Beachgoers Who Get Sick.

Storm and non-storm water MS4 discharges, and their impact on receiving waters also affect tourism. In past years, Orange County was featured in the national press for its water quality problems. Such news is likely to have a negative impact on tourism, since polluted beaches are generally not attractive to tourists. According to the Orange County Community Indicators Project, the County's visitors spent an average of \$107.70 per day in 2004.²² The experience of Huntington Beach provides an example of the potential economic impact of poor water quality. Approximately eight miles of Huntington Beach were closed for two months in the middle of summer of 1999, severely impacting beach visitation. When considered with the number of visitors and their average expenditure, the negative effects to the local economy are obvious.

Coastal tourism is an important industry in Orange County and is dependent upon effective management of storm water pollution and the prevention of non-storm water pollution. The following examples reflect that relationship.

DANA POINT: In response to a Grand Jury finding (1999-2000 Rainy Season's First Flush Hits the Harbors of Orange County), the city of Dana Point notes the interrelationship between the clean coastal water and the economic health of the city. Dana Point reports receiving \$5.2 million in transit occupancy tax funds in FY 1999-2000 "due in large part because of proximity to the beach. Without clean beaches, Dana Point risks losing its major revenue source."²³ More recently, the City budget report estimates that transit occupancy taxes comprise 35 percent of general fund revenues for the 2006 fiscal year.

LAGUNA BEACH: Tourism is one of the primary components of the Laguna Beach economy, and the beach is one of the main tourist attractions in the city. In 1999, hotel/motel bed tax revenue was approximately \$3 million, representing 13 percent of the City's general fund revenue.²⁴ In 2006, the City expects transit occupancy taxes to represent about 11 percent of general fund revenue.²⁵ The proportional decrease is due to an increase in property taxes, which is also affected in part by the quality of coastal waters. The City Council recognizes the value of the beaches to tourists, and the local population and has funded several low-flow non-storm water diversion systems in an attempt to prevent beach pollution and beach closures.

²² Orange County 2006 Community Indicators Project. 2006. Sponsored by the County of Orange, the Orange County Business Council, and the Children and Families Commission of Orange County. Available on-line at www.oc.ca.gov/ceocommunity.asp

²³ Orange County Grand Jury. 1999-2000 Rainy Season's First Flush Hits the Harbors of Orange County.

²⁴ Laguna Beach at a Glance. May 2000. Prepared by Moore Iacofano Goltsman, Inc.

²⁵ City of Laguna Beach, adopted budget 2006-2007. Available on-line at: <http://www.lagunabeachcity.net/government/reference/budget07>

DOHENY STATE BEACH: In 1997, the U.S. Army Corps of Engineers (USACE) prepared an economic analysis as part of the San Juan Creek and Aliso Creek Watershed Study. Recreational value for Doheny State Beach, based on annual visitation of 670,545 people in 1995, was calculated at \$2,850,000. Furthermore, the USACE notes that lifeguards reported that beach attendance falls dramatically when there are unhealthy conditions in the ocean. In 1999, the USACE prepared an updated economic study as part of the Feasibility Phase of the San Juan Creek Watershed Management Study. The 1999 study reports that average beach attendance from 1996 to 1998 increased to 918,735. The USACE places a recreation value per visitor at \$5.76, which implies the annual recreational value of Doheny State Beach for 1996 to 1998 was \$5,291,914.

ALISO BEACH: In 1997, the USACE prepared an economic analysis as part of the San Juan Creek and Aliso Creek Watershed Study. Recreational value for Aliso Beach, based on annual visitation of 3,477,369 people in 1995, was calculated at \$14,779,000. In the 1999 Draft Feasibility Report for the Aliso Creek Watershed Management Study, the USACE noted that the average beach attendance from 1996 to 1998 decreased to 1,148,374. The recreation value per visitor was calculated at \$4.50 and the average annual impact from water quality-related beach closures at Aliso Beach Park was estimated to be \$468,392. This number is comparable to an economic analysis conducted as part of the Aliso Creek Watershed 205(j) study that estimated the annual average recreational value impact of beach closures at Aliso Beach Park to be \$468,400.

Finally, it is important to consider the benefits of management programs in conjunction with their costs. A recent study conducted by the University of Southern California and University of California, Los Angeles assessed the costs and benefits of implementing various approaches for achieving compliance with the MS4 permits in the Los Angeles Region. The study found that non-structural systems would cost \$2.8 billion but provide \$5.6 billion in benefit. If structural systems were determined to be needed, the study found that total costs would be \$5.7 to \$7.4 billion, while benefits could reach \$18 billion.²⁶ Costs are anticipated to be borne over many years – probably ten years at least. As can be seen, the benefits of the programs are expected to considerably exceed their costs. Such findings are corroborated by USEPA, which found that the benefits of implementation of its Phase II storm water rule would also outweigh the costs.²⁷

Additional discussion of economic issues can be found at section 3 of the Fact Sheet/Technical Report for Regional Board Order No. R9-2002-01, available at:

http://www.waterboards.ca.gov/sandiego/programs/oc_stormwater.html.

²⁶ LARWQCB, 2004. Alternative Approaches to Stormwater Control.

²⁷ Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68791.

VII. LEGAL AUTHORITY

The following statutes, regulations, and Water Quality Control Plans provide the basis for the requirements of Order No. R9-2009-0002: Clean Water Act (CWA), California Water Code (CWC), 40 CFR Parts 122, 123, 124 (National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges, Final Rule), Part II of 40 CFR Parts 9, 122, 123, and 124 (National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule), Water Quality Control Plan – Ocean Waters of California (California Ocean Plan), Water Quality Control Plan for the San Diego Basin (Basin Plan), 40 CFR 131 Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; Rule (California Toxics Rule), and the California Toxics Rule Implementation Plan.

The legal authority citations below generally apply to directives in Order No. R9-2009-0002, and provide the Regional Board with ample underlying authority to require each of the directives of Order No. R9-2009-0002. Legal authority citations are also provided with each permit section discussion in section IX of this Fact Sheet/Technical Report.

CWA 402(p)(3)(B)(ii) – The CWA requires in section 402(p)(3)(B)(ii) that permits for discharges from municipal storm sewers “shall include a requirement to effectively prohibit non-storm water discharges into the storm sewers.”

CWA 402(p)(3)(B)(iii) – The CWA requires in section 402(p)(3)(B)(iii) that permits for discharges from municipal storm sewers “shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.”

40 CFR 122.26(d)(2)(i)(B,C,E, and F) – Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) provide that each Copermitee’s permit application “shall consist of: (i) Adequate legal authority. A demonstration that the applicant can operate pursuant to legal authority established by statute, ordinance or series of contracts which authorizes or enables the applicant at a minimum to: [...] (B) Prohibit through ordinance, order or similar means, illicit discharges to the municipal separate storm sewer; (C) Control through ordinance, order or similar means the discharge to a municipal separate storm sewer of spills, dumping or disposal of materials other than storm water; [...] (E) Require compliance with condition in ordinances, permits, contracts or orders; and (F) Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer.”

40 CFR 122.26(d)(2)(iv) – Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) provides that the Copermitttee shall develop and implement a proposed management program which “shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate. The program shall also include a description of staff and equipment available to implement the program. [...] Proposed programs may impose controls on a system wide basis, a watershed basis, a jurisdiction basis, or on individual outfalls. [...] Proposed management programs shall describe priorities for implementing controls.”

40 CFR 122.26(d)(2)(iv)(A - D) – Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in storm water runoff from new development and significant redevelopment, construction, and commercial, residential, industrial, and municipal land uses or activities. Prevention of illicit discharges is also required.

CWC 13377 – CWC section 13377 provides that “Notwithstanding any other provision of this division, the State Board or the regional boards shall, as required or authorized by the CWA, as amended, issue waste discharge requirements and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with anymore stringent effluent standards or limitation necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance.”

Order No. R9-2009-0002 is an essential mechanism for achieving the water quality objectives that have been established for protecting the beneficial uses of the water resources in the San Diego Regional Board’s portion of Orange County. Federal NPDES regulation 40 CFR 122.44(d)(1) requires MS4 permits to include any requirements necessary to “achieve water quality standards established under CWA section 303, including State narrative criteria for water quality.” The term “water quality standards” in this context refers to a water body’s beneficial uses and the water quality objectives necessary to protect those beneficial uses as established in the Basin Plan and antidegradation policies.

VIII. FINDINGS

The findings of the Order have been modified to reduce repetition in their discussions and address new requirements. Each finding of the Order is provided and discussed below. Additional discussion relative to the findings can be found in section IX of the Fact Sheet, which provides discussions of the Order's directives.

A. Basis For the Order

Finding A.1. This Order is based on the federal Clean Water Act (CWA), the Porter-Cologne Water Quality Control Act (Division 7 of the Water Code, commencing with Section 13000), applicable state and federal regulations, all applicable provisions of statewide Water Quality Control Plans and Policies adopted by the State Water Resources Control Board (State Board), the Water Quality Control Plan for the San Diego Basin adopted by the Regional Board, the California Toxics Rule, and the California Toxics Rule Implementation Plan.

Discussion of Finding A.1. In 1987, Congress established CWA Amendments to create requirements for storm water discharges under the NPDES program, which provides for permit systems to regulate the discharge of pollutants. Under the Porter-Cologne Water Quality Control Act, the State Board and the nine Regional Water Quality Control Boards have primary responsibility for the coordination and control of water quality, including the authority to implement the CWA. Porter-Cologne (section 13240) directs the Regional Water Quality Control Boards to set water quality objectives via adoption of Basin Plans that conform to all State policies for water quality control.

As a means for achieving those water quality objectives, Porter-Cologne (section 13243) further authorizes the Regional Water Quality Control Boards to establish waste discharge requirements (WDRs) to prohibit waste discharges in certain conditions or areas. Since 1990, the San Diego Regional Board has issued area-wide MS4 NPDES permits. The Order will renew Order No. R9-2002-01 to comply with the CWA and attain water quality objectives in the Basin Plan by limiting the contributions of pollutants conveyed by storm water and by including numeric action levels for dry weather non-storm water discharges designed to ensure that the Copermittees comply with the requirement to effectively prohibit all types of unauthorized non-storm water discharges into their MS4. Further discussions of the legal authority associated with the prohibitions and directives of the Order are provided in section VII this document.

Finding A.2. This Order renews National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0108740, which was first issued on July 16, 1990 (Order No. 90-38), and then renewed on August 8, 1996 (Order No. 96-03) and February 13, 2002 (Order No. R9-2002-01). On August 21, 2006, in accordance with Order No. R9-2002-01, the County of Orange, as the Principal Permittee, submitted a Report of Waste Discharge (ROWD) for renewal of the MS4 Permit.

Discussion of Finding A.2. This Order renews National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0108740, which was first issued on July 16, 1990 (Order No. 90-38), and then renewed on August 8, 1996 (Order No. 96-03) and February 13, 2002 (Order No. R9-2002-01). On August 21, 2006, in accordance with Order No. R9-2002-01, the County of Orange, as the Principal Permittee, submitted a Report of Waste Discharge (ROWD) for renewal of the MS4 Permit. Supporting information discussing the topic of this finding can be found in section V of this document.

Finding A.3. This Order is consistent with the following precedential Orders adopted by the State Water Resources Control Board (State Board) addressing municipal storm water NPDES Permits: Order 99-05, Order WQ-2000-11, Order WQ 2001-15, Order WQO 2002-0014, and Order WQ-2009-0008 (*SWRCB/OCC FILE A-1780*).

Discussion of Finding A.3. In recent years the State Board has considered several appeals of MS4 permits issued by the Regional Boards. In Order 99-05, the State Board established language for Receiving Water Limitation Language for MS4 permits. In Order No. WQ-2000-11, the State Board addressed design standards for Standard Urban Storm Water Mitigation Plan (SUSMP) requirements. Order WQ 2001-15 addressed Petitions of the San Diego County MS4 Permit issued by the Regional Board in 2001 (Order No. R9-2001-01). Order WQO 2002-0014 addresses Petitions of the Orange County MS4 Permit issued by the Regional Board in 2002 (Order No. R9-2002-01).

B. Regulated Parties

Finding B.1. Each of the persons in Table 1 of the Order, hereinafter called Copermittees or dischargers, owns or operates a municipal separate storm sewer system (MS4), through which it discharges storm water and non-storm water into waters of the United States within the San Diego Region. These MS4s fall into one or more of the following categories: (1) a medium or large MS4 that services a population of greater than 100,000 or 250,000 respectively; or (2) a small MS4 that is “interrelated” to a medium or large MS4; or (3) an MS4 which contributes to a violation of a water quality standard; or (4) an MS4 which is a significant contributor of pollutants to waters of the United States.

Discussion of Finding B.1. Section 402 of the CWA prohibits the discharge of any pollutant to waters of the United States from a point source, unless that discharge is authorized by a NPDES permit. Though storm water and non-storm water may come from a diffuse source, it is discharged through MS4s, which are point sources under the CWA. Federal NPDES regulation 40 CFR 122.26(a) (iii) and (iv) provide that discharges from MS4s, which service medium or large populations greater than 100,000 or 250,000 respectively, shall be required to obtain a NPDES permit. Federal NPDES regulation 40 CFR 122.26(a)(v) also provides that a NPDES permit is required for “A [storm water] discharge which the Director, or in states with approved NPDES programs, either the Director or the USEPA Regional Administrator, determines to contribute to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.” Such sources are then designated into the program.

Other small MS4s, such as those serving universities and military installations, also exist within the watersheds of Orange County in the San Diego Region. While these MS4s are not subject to this Order, they are subject to the Phase II NPDES storm water regulations. Over time, these MS4s will be designated for coverage under the State Board’s statewide general storm water permit for small MS4s.

C. Discharge Characteristics

Finding C.1. Runoff discharged from an MS4 contains waste, as defined in the California Water Code (CWC), and pollutants that adversely affect the quality of the waters of the State. The discharge of runoff from an MS4 is a “discharge of pollutants from a point source” into waters of the U.S. as defined in the CWA.

Discussion of Finding C.1. Section 13050(d) of the CWC defines “waste” as “sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal.” 40 CFR 122.2 defines “point source” as “any discernable, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.” 40 CFR 122.2 defines “discharge of a pollutant” as “Any addition of any pollutant or combination of pollutants to waters of the U.S. from any point source.” Also, the justification for control of pollution into waters of the state can be found at CWC section 13260(a)(1). State Board Order WQ 2001-15 verifies that discharges from the MS4 contain waste.²⁸

The term urban runoff has been removed throughout Tentative Order R9-2009-0002 and replaced with storm water (wet weather) or non-storm water (dry weather) runoff. This clarification is necessary to prevent the misunderstanding that regulation under this permit is subject only to urbanized areas. The term “urban runoff” is not defined in the Code of Federal Regulations or Federal Register in the regulation of phase 1 MS4 discharges.

The discharge of runoff from an MS4 is a “discharge of pollutants from a point source” into waters of the U.S. as defined in the Clean Water Act (CWA). The Permit defines runoff as all flows in a storm water conveyance system (MS4 defined below) and consists of the following components:

- (1) storm water (wet weather flows) and
- (2) non-storm water discharges (dry weather flows).

The Permit defines an MS4 as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

²⁸ State Board, 2001. Order WQ 2001-15. In the Matter of Petitions of Building Industry Association of San Diego County and Western States Petroleum Association: For Review of Waster Discharge Requirements Order No. 2001-01 for Urban Runoff from San Diego County [NPDES No. CAS0108758] Issued by the Regional Board.

- (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;
- (ii) Designated or used for collecting or conveying storm water;
- (iii) Which is not a combined sewer;
- (iv) Which is not part of the Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.26.

Permit finding D.3.c. includes natural streams that convey runoff as part of the MS4. The presence of an MS4 system is not limited to areas considered to be “urban” in nature. Though the term urban is often referred to specifically as pertaining to cities, runoff means all flows in a storm water conveyance system, regardless of the location of the conveyance system. A conveyance system owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law), may be located in a setting (e.g. unincorporated area, low density residential) that is not considered by the public to be “urban” in nature. These areas are contributing pollutants to the MS4 system that must be addressed. The term runoff applies to all flows in an MS4 system, no matter where the MS4 may be located in regards to incorporated or unincorporated property.

The Code of Federal Regulations (CFR) at 40 CFR 122.26 requires that large and medium MS4s obtain a permit for all discharges from their systems. Appendix I to 40 CFR 122 designates Orange County as having a large and medium MS4 requiring a permit. The regulations do not differentiate discharges from urban or rural MS4 systems. Rather, the regulations require the permit for all discharges from their systems. In the Final Rule establishing the Phase 1 storm water regulations, the USEPA clarified that all discharges are subject to a permit. On page 48041 of the Final Rule, the USEPA states:

“EPA recognizes that some of the counties addressed by today’s rule have, in addition to areas with high unincorporated urbanized populations, areas that are essentially rural or uninhabited and may not be the subject of planned development. While permits issued for these municipal systems **will cover** (*emphasis added*) **municipal systems discharges in unincorporated portions of the county** (*emphasis added*), it is the intent of EPA that management plans

and other components of the programs focus on the urbanized and developing areas of the county.”

So, while the Permit covers all MS4 discharges regardless if that discharge is in an urban or unincorporated area; the Copermittees management program should focus on urbanized areas. Due to the Permit’s requirements, the Copermittees management programs will naturally focus on urbanized areas. Urbanized areas have more industry, construction, pollution and MS4s that require more inspection, maintenance, monitoring, enforcement and complaint follow-up.

USEPA further clarified on page 48041 that all MS4 discharges require permit coverage when addressing highway MS4 systems:

“[The regulations] will result in discharges from separate storm sewer systems serving State highways and other highways through storm sewers ... in unincorporated portions of specified unincorporated portions of specified counties being included as part of the large or medium municipal separate storm sewer systems, since all municipal separate storm sewers within the boundaries of these political entities are included.”

In their summary on page 48043, the USEPA states:

“The definition [of MS4] provides that all systems within a geographical area including highways and flood controls will be covered, thereby avoiding fragmented and ill-coordinated programs;”

Neither the State Board’s storm water permit for Caltrans (Order No. 99-06-DWQ) nor the Los Angeles Regional Board’s draft MS4 permit for Ventura County include the term “urban runoff” in a significant regulatory capacity. The Caltrans permit has one reference to “urban runoff” where the term is used interchangeably with “storm water.” The draft Ventura permit uses the term “urban runoff” when referring to titles of reference documents, previously adopted management plans and municipal ordinances that may contain the phrase.

Understandably, the Copermittees have expressed concern regarding the regulation of pollutants from natural, undeveloped areas that enter the MS4 in an unincorporated area. The MS4 collection could change a natural sheet flow discharge to a concentrated point discharge. The MS4 does not provide natural infiltration or other pollutant remediation that these flows would receive in an otherwise natural drainage system. The MS4 may concentrate these natural pollutants and flows. In some cases, the MS4 may ultimately discharge the elevated concentrations of natural pollutants and flow rates to waters of the US far from the natural pollutant and flow source, causing a condition of pollution or a violation of water quality standards.

Finding C.2. MS4 storm water and non-storm water discharges are likely to contain pollutants that cause or threaten to cause a violation of surface water quality standards, as outlined in the Regional Board's Water Quality Control Plan for the San Diego Basin (Basin Plan). Storm water and non-storm water discharges from the MS4 are subject to the conditions and requirements established in the San Diego Basin Plan for point source discharges. These water quality standards must be complied with at all times, irrespective of the source and manner of discharge.

Discussion of Finding C.2. This finding is a clarification regarding the potential for discharges of storm water and non-storm water to impact the Beneficial Uses as described in the Basin Plan. As such these point source discharges require Waste Discharge Requirements (WDRs) to ensure that water quality standards are met. Furthermore, since point source discharges require WDRs, the discharges are subject to the prohibitions, conditions and requirements of the Basin Plan.

In addition, municipal discharges have been split into storm water and non-storm water discharges to represent the differing regulations applicable to storm water and non-storm water, though both types of discharges are likely to contain pollutants.

Finding C.3. The most common categories of pollutants in runoff include total suspended solids, sediment (due to anthropogenic activities); pathogens (e.g., bacteria, viruses, protozoa); heavy metals (e.g., copper, lead, zinc and cadmium); petroleum products and polynuclear aromatic hydrocarbons; synthetic organics (e.g., pesticides, herbicides, and PCBs); nutrients (e.g., nitrogen and phosphorus fertilizers); oxygen-demanding substances (decaying vegetation, animal waste); detergents; and trash.

Discussion of Finding C.3. The National Urban Runoff Program (NURP) study showed that heavy metals, organics, coliform bacteria, nutrients, oxygen demanding substances (e.g., decaying vegetation), and total suspended solids are found at relatively high levels in storm water and non-storm water discharges.²⁹ It also found that MS4 discharges draining residential, commercial, and light industrial areas contain significant loadings of total suspended solids and other pollutants. The Basin Plan goes on to identify runoff pollutants to include lawn and garden chemicals, household and automotive care products dumped or drained on streets, and sediment that erodes from construction sites.³⁰ In addition, the State Board Urban Runoff Technical Advisory Committee (TAC) finds that urban runoff pollutants include sediments, nutrients, oxygen-demanding substances, heavy metals, petroleum hydrocarbons, pathogenic bacteria, viruses, and pesticides.³¹ Runoff that flows over streets, parking lots, construction sites, and industrial, commercial, residential, and municipal areas carries these untreated pollutants through storm drain networks directly to the receiving waters of the San Diego Region.

Finding C.4. The discharge of pollutants and/or increased flows from MS4s may cause or threaten to cause the concentration of pollutants to exceed applicable receiving water quality objectives and impair or threaten to impair designated beneficial uses resulting in a condition of pollution (i.e., unreasonable impairment of water quality for designated beneficial uses), contamination, or nuisance.

Discussion of Finding C.4. The 1992, 1994, and 1996 National Water Quality Inventory Reports to Congress prepared by USEPA showed a trend of impairment in the nation's waters from contaminated storm and non-storm water runoff.³² The 1998 National Water Quality Inventory Report showed that runoff discharges affect 11 percent of rivers, 12 percent of lakes, and 28 percent of estuaries. The report states that ocean shoreline impairment due to runoff increased from 55 percent in 1996 to 63 percent in 1998. The report notes that runoff discharges are the leading source of pollution and the main factor in the degradation of surface water quality in California's coastal waters, rivers, and streams. Furthermore, the NURP study found that pollutant levels from illicit non-storm water discharges were high enough to significantly degrade receiving water quality, and threaten aquatic life, wildlife, and human health.³³

²⁹ Ibid.

³⁰ Regional Board, 1994. Water Quality Control Plan, San Diego Basin, Region 9. San Diego.

³¹ State Board, 1994. Urban Runoff Technical Advisory Committee Report and Recommendations. Nonpoint Source Management Program.

³² USEPA, 2000. Quality of Our Nation's Waters: Summary of the National Water Quality Inventory 1998 Report to Congress – USEPA 841-S-00-001; Water Quality Conditions in the United States: Profile from the 1998 National Water Quality Inventory Report to Congress – USEPA 841-F-00-006.

³³ USEPA, 1993. Results of the Nationwide Urban Runoff Program, Volume 1 – Final Report.

In addition, the Region's CWA section 303(d) list, which identifies water bodies with impaired beneficial uses within the region, also indicates that the impacts of storm water and non-storm water runoff on receiving waters are significant. Many of the impaired water bodies on the 303(d) list are impaired by constituents that have been found at high levels within storm water and non-storm water runoff by the County of Orange storm water monitoring program.³⁴ Examples of constituents frequently responsible for beneficial use impairment include indicator fecal bacteria, heavy metals, and sediment; these constituents have been found at high levels in runoff both regionally and nationwide.^{35,36} In addition, impairments may be caused by synergistic effects of multiple contaminants or by pollutants not currently monitored by storm water programs³⁷.

Finding C.5. Pollutants in runoff can threaten and adversely affect human health. Human illnesses have been clearly linked to recreating near storm drains flowing to coastal waters. Also, runoff pollutants in receiving waters can bioaccumulate in the tissues of invertebrates and fish, which may be eventually consumed by humans.

³⁴ County of Orange, 2006. Orange County Municipal Copermittees 2005-2006 Annual Storm Water Program Report, Section 11.

³⁵ Ibid.

³⁶ USEPA, 1983. Results of the Nationwide Urban Runoff Program, Volume 1 – Final Report.

³⁷ County of Orange, 2006. Orange County Municipal Copermittees 2005-2006 Annual Storm Water Program Report, Section 11.

Discussion of Finding C.5. A landmark study, conducted by the Santa Monica Bay Restoration Project, found that there was an increased occurrence of illness in people that swam in proximity to a flowing storm drain.³⁸ A study of south Huntington Beach and north Newport Beach (both located in northern Orange County) found that an illness rate of about 0.8 percent among bathers at those beaches resulted in about \$3 million annually in health-related expenses.³⁹ Furthermore, runoff pollutants in receiving waters can bioaccumulate in the tissues of invertebrates and fish, which may eventually be consumed by humans. Pollutants such as heavy metals and pesticides, which are commonly found in MS4 runoff, have been found to bioaccumulate and biomagnify in long-lived organisms at the higher trophic levels.⁴⁰ Since many aquatic species are utilized for human consumption, toxic substances accumulated in species' tissues can pose a significant threat to public health. USEPA supports this finding when it states, "As runoff flows over areas altered by development, it picks up harmful sediment and chemicals such as oil and grease, pesticides, heavy metals, and nutrients (e.g., nitrogen and phosphorus). These pollutants often become suspended in runoff and are carried to receiving waters, such as lakes, ponds, and streams. Once deposited, these pollutants can enter the food chain through small aquatic life, eventually entering the tissues of fish and humans."⁴¹

Finding C.6. Runoff discharges from MS4s often contain pollutants that cause toxicity to aquatic organisms (i.e., adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). Toxic pollutants impact the overall quality of aquatic systems and beneficial uses of receiving waters.

³⁸ Haile, R.W., et al., 1996. An Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay. Santa Monica Bay Restoration Project.

³⁹ Dwight, R.H., et al., 2005. Estimating the Economic Burden From Illnesses Associated With Recreational Coastal Water Pollution – A Case Study in Orange County, California. *Journal of Environ. Management* Vol.76. No.2 p.95-103. Also reported in: Los Angeles Times, May 2, 2005. Here's What Ocean Germs Cost You: A UC Irvine Study Tallies the Cost of Treatment and Lost Wages for Beachgoers Who Get Sick.

⁴⁰ Abel, P.D., 1996. *Water Pollution Biology*.

⁴¹ USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. Washington D.C. EPA 833-R-00-002.

Discussion of Finding C.6. The Copermittees' monitoring data exhibits frequent toxic conditions in runoff during storm events and dry weather. Toxicity is observed in both fresh and marine receiving waters, but varies significantly within and among sites and over time. However, according to the County of Orange, toxicity in both dry and wet weather appears concentrated along the coast. This supports the conclusion that toxicity is associated with anthropogenic activities and is caused by pollutants that flow downstream and become concentrated near the bottom of developed watersheds. Physical channel modification and hydromodification are also greatest near the coast and likely contribute to findings of toxicity. The cause of toxicity may vary between locations, dates, and indicator organisms. The actual cause may be influenced by various factors such as development, runoff management, habitat modification, hydromodification, and native aquatic environment. Toxicity identification evaluations (TIEs) have failed to confirm initial findings of toxicity. Follow-up studies by the County of Orange implicate both pollutants and physical stream habitat degradation (e.g. channel modification and hydromodification) as factors related to toxicity findings.⁴²

Finding C.7. The Copermittees discharge runoff into lakes, drinking water reservoirs, rivers, streams, creeks, bays, estuaries, coastal lagoons, the Pacific Ocean, and tributaries thereto within one of the eleven hydrologic units (San Juan Hydrologic Unit) comprising the San Diego Region as shown in Tables 2a and 2b. Some of the receiving water bodies have been designated as impaired by the Regional Board and the United States Environmental Protection Agency (USEPA) in 2006 pursuant to CWA section 303(d). Also shown in the Tables are the watershed management areas (WMAs) as defined in the Regional Board report, Watershed Management Approach, January 2002.

Discussion of Finding C.7. This finding identifies the Copermittees responsible for MS4 discharges in each watershed management area. The list is identical to Order No. R9-2002-0001. The CWA Section 303(d) List of Impaired Waters, 2006 Update has been approved by the Regional Board, State Board, and USEPA.⁴³ This 303(d) list identifies waters that do not meet water quality standards after applying certain required technology-based effluent limits ("impaired" water bodies). As part of this listing process, states are required to prioritize waters/watersheds for future development of Total Maximum Daily Loads (TMDLs). The listed 303(d) pollutant(s) of concern do not necessarily reflect impairment of the entire corresponding WMA or all corresponding major surface water bodies. The specific impaired portions of each WMA are listed in the State Board's 2006 Section 303(d) List of Water Quality Limited Segments.

⁴² County of Orange, 2006. Orange County Municipal Copermittees 2005-2006 Annual Storm Water Program Report, Section 11.

⁴³ The approved 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments is on-line at: http://www.waterboards.ca.gov/tmdl/303d_lists2006.html

Finding C.8. Trash is a persistent pollutant which can enter receiving waters from the MS4 resulting in accumulation and transport in receiving waters over time. Trash poses a serious threat to the Beneficial Uses of the receiving waters, including, but not limited to, human health, rare and endangered species, navigation and human recreation.

Discussion of Finding C.8. The Copermittees to date have documented high volumes of trash coming from the MS4 system and in receiving waters.⁴⁴

The Basin Plan specifies the following narrative Water Quality Objective (WQO) for Floating Material:

“Waters shall not contain floating material, including solids, liquids, foams, and scum in concentrations which cause nuisance or adversely affect beneficial uses.”

The Basin Plan specifies the following narrative WQO for Suspended and Settleable Solids: Material:

“Waters shall not contain suspended and settleable solids in concentrations of solids that cause nuisance or adversely affect beneficial uses.”

Additionally, high density urban areas in Southern California have been shown to be responsible for up to 60 percent of the trash that enters receiving waters from the MS4.⁴⁵ The retrofitting of existing MS4 systems, such as catch basins, in targeted high trash areas can result in significant reductions in the amount of trash entering receiving waters from the MS4.

Trash, as litter in both solid and liquid form, is consistently found on and adjacent to roadways. A California Department of Transportation Litter Management Pilot Study found that of roadway trash, plastics and Styrofoam accounted for 33 percent of trash by weight, and 43 percent by volume. Further, the study found that approximately 80 percent of the litter associated with roadways was floatable, indicating that, without capture, this litter would enter Waters of the State after a storm event, resulting in the impairment of Beneficial Uses.⁴⁶ The study, however, relied upon a mesh capture size of 0.25 inches (6.35 millimeters). This size is too large to effectively capture plastic pre-production pellets (aka “nurdles”), which are roughly 3 mm in size, and likely underestimated the total contribution of plastics. Plastics, including pre-production pellets, have been found to be the dominant pollutant on beaches in the County of Orange.⁴⁷ Furthermore, pre-production plastic pellets, which are small enough to be easily digested, have been found to carry persistent organic pollutants, including PCBs

⁴⁴ Aliso Creek Watershed 27th, 28th, 29th and 30th Quarterly Progress Reports. 2007-2008.

⁴⁵ The City of Los Angeles Meets Trash TMDLs Compliance with CB Inserts and Opening Covers. August 06, 2008.

⁴⁶ California Department of Transportation District 7 Litter Management Pilot Study. June 26, 2000.

⁴⁷ Moore, S.L., Gregorio, D., Carreon, M., Weisberg, S.B. and M. K. Leecaster. 1998. Composition and Distribution of Beach Debris in Orange County, California. *Marine Pollution Bulletin*. Vol. 42

and DDT.⁴⁸

Finding C.9. The Copermittees' water quality monitoring data submitted to date documents persistent violations of Basin Plan water quality objectives for various runoff-related pollutants (fecal coliform bacteria, total suspended solids, turbidity, metals, etc.) at various watershed monitoring stations. Persistent toxicity has also been observed at some watershed monitoring stations. In addition, bioassessment data indicates that the majority of urbanized receiving waters have Poor to Very Poor Index of Biotic Integrity ratings. In sum, the above findings indicate that runoff discharges are causing or contributing to water quality impairments, and are a leading cause of such impairments in Orange County.

Discussion of Finding C.9. The Copermittees have produced data that demonstrates water quality objectives are frequently not met during dry and wet weather. The 2006 Report of Waste Discharge and the 2005-06 Annual Reports document that receiving water monitoring stations often fail to meet water quality objectives established in the Basin Plan. Similar conclusions are found in monitoring reported to the Regional Board pursuant to Investigative Orders issued between 2001 and 2006 for Aliso Creek, Salt Creek⁴⁹, Prima Deshecha⁵⁰, and North Creek at Doheny Beach⁵¹. Monitoring reported to the State Board pursuant to funding grant agreements also demonstrates that discharges from MS4s routinely exceed water quality objectives.^{52,53, 54, 55, 56}

⁴⁸ Rios, L.M., Moore, C. and Patrick R. Jones. 2007. Persistent organic pollutants carried by synthetic polymers in the ocean environment. *Marine Pollution Bulletin*. Vol. 54.

⁴⁹ An Investigative Order was issued on March 6, 2003 to the City of Dana Point for water quality conditions of Salt Creek near Monarch Beach.

⁵⁰ An Investigative Order was issued on July 3, 2002 to the City of San Clemente and the County of Orange for water quality conditions of Prima Deshecha Canada (including Poche Beach).

⁵¹ Investigative Order No. R9-2006-0039 was issued on April 4, 2006 to the City of Dana Point and Quantum Ozone, Inc. for an assessment of water quality conditions at North Creek, Doheny Beach.

⁵² City of Dana Point. 2005. *Final Report for the Del Obispo Storm Drain Project*. Prepared for the State Water Resources Control Board Agreement No. 02-216-550-0.

⁵³ City of Dana Point. 2004. *Final Report For The Alipaz Storm Drain Treatment And Low Flow Diversion Project* by the City of Dana Point. Prepared for State Water Resources Control Board Agreement Number: 01-068-550-0.

⁵⁴ James Volz. 2005. *Final Report for Poche Beach Urban Runoff Ultraviolet Light Bacteria Disinfection Project*. Prepared by the County of Orange for State Water Resources Control Board Agreement No. 01-236-550-1.

⁵⁵ Max Anderson. 2005. *Final Report: Aliso Beach Clean Beach Initiatives, J01P28 Interim Water Quality Improvement Package Plant Best Management Practices*. Prepared by the County of Orange for State Water Resources Control Board Agreement No. 01-227-550-0.

⁵⁶ City of Laguna Niguel and CH2MHILL. 2004. *Final Report: Wetland Capture and Treatment (WetCAT) Network*. Prepared for State Water Resources Control Board Agreement No. 01-122-259-0.

Water quality in receiving waters downstream of MS4 discharges fail to meet Ocean Plan standards⁵⁷, California Toxics Rule standards⁵⁸, and Basin Plan objectives. Data submitted in the MS4 Annual Reports indicate that at various times chemical, bacteria, pesticide, and metal concentrations may exceed water quality objectives in marine and fresh water receiving waters in both wet and dry weather conditions. Although wet weather MS4 effluent data is not generally reported, dry-weather non-storm water MS4 effluent data demonstrates that the effluent contains concentrations of pollutants that would exceed receiving water quality objectives.

In most of these watersheds, there are no other significant NPDES permits discharging to the creeks. For instance, there are no live-stream discharges of treated waste water in south Orange County. The few NPDES permits in the watersheds are mainly for recycled water which only discharges occasionally during the rainy season. Because the water quality monitoring indicates exceedances of water quality standards and MS4 discharges are the main source of pollutants in the watersheds, it can be inferred that the MS4 discharges are causing or contributing to water quality impairments, and are a leading cause of such impairments in Orange County.

Finding C.10. When natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops, and parking lots, the natural absorption and infiltration abilities of the land are lost. Therefore, runoff leaving a developed area is significantly greater in runoff volume, velocity, and peak flow rate than pre-development runoff from the same area. Runoff durations can also increase as a result of flood control and other efforts to control peak flow rates. Increased volume, velocity, rate, and duration of runoff greatly accelerate the erosion of downstream natural channels. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as a 3-5 percent conversion from natural to impervious surfaces. The increased runoff characteristics from new development must be controlled to protect against increased erosion of channel beds and banks, sediment pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.

Finding C.11. Development creates new pollution sources as human population density increases and brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc. which can either be washed or directly dumped into the MS4. As a result, the runoff leaving the developed area is significantly greater in pollutant load than the pre-development runoff from the same area. These increased pollutant loads must be controlled to protect downstream receiving water quality.

⁵⁷ The Basin Plan incorporates terms and conditions of the State Board's *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan) as a water quality objective for Ocean Waters in the San Diego Region.

⁵⁸ The California Toxics Rule criteria promulgated by the USEPA are directly applicable water quality standards for certain priority toxic pollutants in inland surface waters and enclosed bays and estuaries in California.

Discussion of Findings C.10 and C.11.

The Natural Resources Defense Council (NRDC) 1999 Report, "*Stormwater Strategies, Community Responses to Runoff Pollution*" identifies two main causes of the storm water pollution problem in developed areas. Both causes are directly related to development:

1. Increased volume and velocity of surface runoff. There are three types of human-made impervious covers that increase the volume and velocity of runoff: (i) rooftop, (ii) transportation imperviousness, and (iii) non-porous (impervious) surfaces. As these impervious surfaces increase, infiltration will decrease, forcing more water to run off the surface, picking up speed and pollutants.
2. The concentration of pollutants in the runoff. Certain industrial, commercial, residential and construction activities are large contributors of pollutant concentrations in storm water runoff. As human population density increases, it brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc.

As a result of these two causes, runoff leaving developed areas is significantly greater in volume, velocity, and pollutant load than pre-development runoff from the same area.

By accommodating the traditional approach to storm water management, development has also altered the flow regime (rate, magnitude, frequency, timing, and flashiness of runoff) that supports aquatic and riparian habitats. These hydrologic changes are driven by the loss of water storage capacity in the watersheds,⁵⁹ and exacerbated by physical alterations of the stream channel network.⁶⁰ This relationship between development and stream channel integrity has been documented nationally and in southern California.

⁵⁹ Konrad, Christopher P. and Derek K. Booth, 2005. *Hydrologic Changes in Urban Streams and Their Ecological Significance*. American Fisheries Society Symposium Vol.47 pp.157-177.

⁶⁰ Poff, N.L. et al. 1997. The Natural Flow Regime: A paradigm for river conservation and restoration. *Bioscience* Vol. 47, No. 11, pp.769-784.

Hydrologic changes from development also directly and indirectly adversely affect wetlands. Natural wetlands support many beneficial uses and provide important water-quality related ecological services, including pollutant removal, flood attenuation, and groundwater recharge.⁶¹ The Center for Watershed Protection recently provided USEPA with a synthesis of more than 100 scientific studies on the direct and indirect impacts of development, particularly urbanization, on wetlands and the role wetlands play in watershed quality. The report found that the three changes from land development with the most potential to impact wetlands include: Increased storm water runoff; decreased groundwater recharge; and flow constriction.⁶² Each of these changes can often be avoided or minimized by implementing LID and hydromodification BMPs.

When Order No. R9-2002-01 was adopted, studies had shown that the level of imperviousness in an area strongly correlates with the quality of nearby receiving waters.⁶³ One comprehensive study, which looked at numerous areas, variables, and methods, revealed that stream degradation occurs at levels of imperviousness as low as 10 – 20 percent.⁶⁴ Stream degradation is a decline in the biological integrity and physical habitat conditions that are necessary to support natural biological diversity. For instance, few urban streams can support diverse benthic communities with imperviousness greater than or equal to 25 percent.⁶⁵ To provide some perspective, a medium density, single-family home area can be from 25 percent to 60 percent impervious (variation due to street and parking design).⁶⁶

More recently, a report on the effects of impervious in southern California streams found that local ephemeral and intermittent streams are more sensitive to such effects than streams in other parts of the country. This study, by the Southern California Coastal Water Research Program, estimated a threshold of response at a two to three percent change in percent of impervious cover in a watershed.⁶⁷ This threshold is lower than the previously reported estimates by the USEPA that were cited in the Fact Sheet for Order No. R9-2002-01.

⁶¹ Wright, Tiffany, et al. 2006. "Direct and Indirect Impacts of Urbanization on Wetland Quality." Prepared by the Center for Watershed Protection. Available at: <http://www.cwp.org>. 81p.

⁶² Ibid p.26

⁶³ USEPA, 1999. Part II. 40 CFR Parts 9, 122, 123, and 124. National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. Federal Register.

⁶⁴ Ibid.

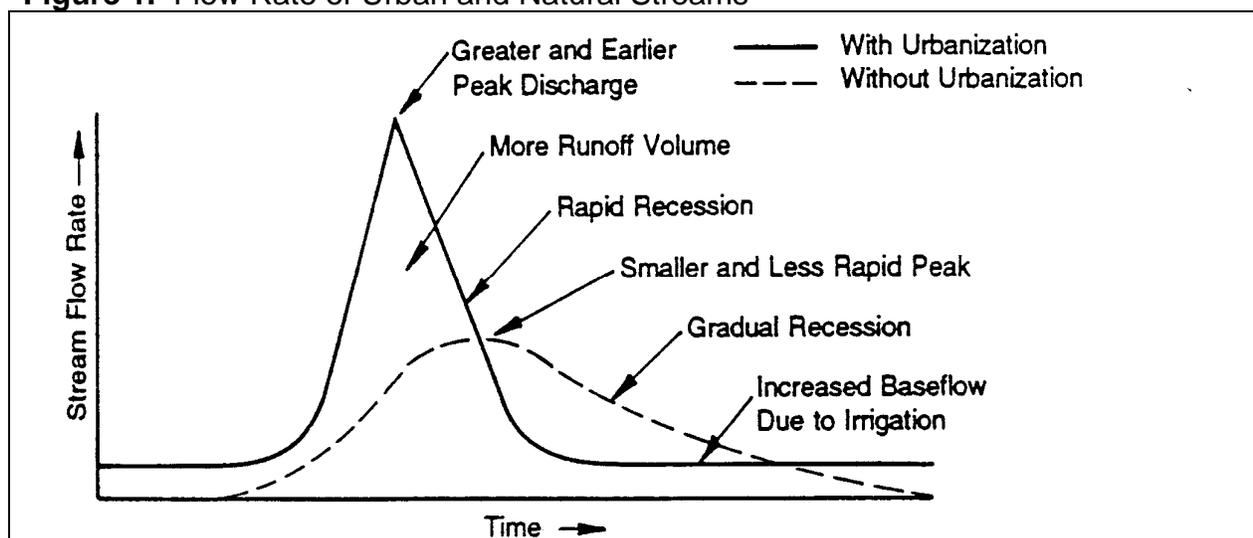
⁶⁵ Ibid.

⁶⁶ Schueler, T.R., 1994. The Importance of Imperviousness. Watershed Protection Techniques. As cited in 64 Fed. Reg. 68725.

⁶⁷ Coleman, Derrick, et al. 2005. *Effect of Increases in Peak Flows and Imperviousness on the Morphology of Southern California Streams*. Technical Report No. 450 of the Southern California Coastal Water Research Project.

To demonstrate the principle of increased volume and velocity of runoff from urbanization, Figure 1 shows the flow rate of an urban vs. a natural stream. What the figure demonstrates is that urban stream flows have greater peaks and volumes, as well as shorter retention times than natural stream flows. The greater peak flows and volumes result in stream degradation through increased erosion of stream banks and damage to aquatic habitat. The shorter retention times result in less time for sediments and other pollutants to settle before being carried out to the ocean. This sediment, and the associated pollutants it carries, can be a significant cause of water quality degradation.

Figure 1. Flow Rate of Urban and Natural Streams⁶⁸



Increased volume and velocity of runoff adversely impacts receiving waters and their beneficial uses in many ways. According to the Urban Runoff TAC report,⁶⁹ increases in population density and imperviousness result in changes to stream hydrology including:

1. Increased peak discharges compared to pre-development levels;
2. Increased volume of storm water runoff with each storm compared to pre-development levels;
3. Decreased travel time to reach receiving water; increased frequency and severity of floods;
4. Reduced stream flow during prolonged periods of dry weather due to reduced levels of infiltration;
5. Increased runoff velocity during storms due to a combination of effects of higher discharge peaks, rapid time of concentration, and smoother hydraulic surfaces from channelization; and

⁶⁸ Adapted from Schueler, T.R., 1987. Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs. Metropolitan Washington Council of Governments.

⁶⁹ State Board, 1994. Urban Runoff Technical Advisory Committee Report and Recommendations. Nonpoint Source Management Program.

6. Decreased infiltration and diminished ground water recharge.

Even though the rainfall depths in arid watersheds are lower, watershed development can greatly increase peak discharge rates during rare flood events.⁷⁰ A study conducted in arid watersheds around Riverside, CA showed that, over two decades, impervious cover increased from 9 percent to 22 percent, which resulted in an increase of more than 100 percent in the peak flow rate for the two-year storm event. The study also showed that the average annual storm water runoff volume had increased by 115 percent to 130 percent over the same time span.⁷¹

Prior hydromodification studies in California have shown that the increase in impervious cover, and thus change in runoff volume, velocity, rate, and duration, results in a shift in the range of storms that produce geomorphically significant flows within receiving waters (see above discussion). Additionally, studies in California have determined that ninety percent of the geomorphic “work” done within channels receiving flows from developed areas now occurs from flows below the 10 year peak flow event.⁷²

This increased volume, velocity, rate, and duration of runoff greatly accelerates the erosion of the beds and banks within downstream receiving waters. Additionally, storm water flows which runoff directly from impervious surfaces into the MS4 and thus receiving waters prevent the associated runoff of natural sediments which would occur in pre-project conditions. This combined alteration of the physical condition of storm water runoff results in accelerated downstream erosion of receiving water bed and banks. The excessive erosion of stream beds and banks releases pollutants found in soils into receiving waters, degrades macroinvertebrate habitat (see D.2.c), eliminates spawning habitat, reduces associated wetland and riparian habitat, and threatens existing infrastructure adjacent to receiving waters. Bank sloughing within creeks and streams increases the pollutant loading to those receiving waters, particularly for turbidity and phosphorous.⁷³ In arid environments, accelerated channel erosion has been shown to have synergistic impacts within watersheds. Increased channel erosion within Las Vegas wash has resulted in the loss of over 1,000 acres of wetland and riparian habitat, released additional pollutants into downstream receiving waters, and eliminated in-stream habitat and water quality conditions required for existing threatened and endangered species.⁷⁴

⁷⁰ Schueler and Holland, 2000. Storm Water Strategies for Arid and Semi-Arid Watersheds (Article 66). The Practice of Watershed Protection. P. 695-706.

⁷¹ Ibid.

⁷² Santa Clara Valley Hydromodification Management Plan. April 21, 2005.

⁷³ Sekely, A.C., Mulla, D.J. and D.W. Bauer. 2002. Streambank slumping and its contribution to the phosphorus and suspended sediment loads of the Blue Earth River, Minnesota. *Journal of Soil and Water Conservation*. September 2002 vol. 57 no. 5 243-250.

⁷⁴ Tuttle, P.L. and E.L. Orsak. 2002. Las Vegas Wash Water Quality and Implications to Fish and Wildlife. U.S.

Regarding the impact of development on storm water runoff pollutant loads, the Regional Board's Basin Plan states:

Nonpoint source pollution is primarily the result of man's uses of land such as urbanization, roads and highways, vehicles, agriculture, construction, industry, mineral extraction, physical habitat alteration (dredging/filling), hydromodification (diversion, impoundment, channelization), silviculture (logging), and other activities which disturb land.⁷⁵ As a result, when rain falls on and drains through urban freeways, industries, construction sites, and neighborhoods it picks up a multitude of pollutants. The pollutants can be dissolved in the runoff and quickly transported by gravity flow through a vast network of concrete channels and underground pipes referred to as storm water conveyance systems. Such systems ultimately discharge the polluted runoff, without treatment, into the nation's creeks, rivers, estuaries, bays, and oceans.⁷⁶

According to the Center for Watershed Protection, urbanization strongly shapes the quality of both surface and ground water in arid and semi-arid regions of the southwest. Since rain events are so rare, pollutants have more time to build up on impervious surfaces compared to humid regions. Therefore, the pollutant concentrations of storm water runoff from arid watersheds tends to be higher than that of humid watersheds.⁷⁷ The effect of antecedent rainfall events is demonstrated in a recent report from the California Department of Transportation (Caltrans) that found the concept of a seasonal first flush is applicable to the southern California climate.⁷⁸

Finding C.12. Development and urbanization especially threaten environmentally sensitive areas (ESAs), such as water bodies designated as supporting a RARE beneficial use (supporting rare, threatened or endangered species) and CWA 303(d)-impaired water bodies. Such areas have a much lower capacity to withstand pollutant shocks than might be acceptable in other areas. In essence, development that is ordinarily insignificant in its impact on the environment may become significant in a particularly sensitive environment. Therefore, additional control to reduce storm water pollutants from new and existing development may be necessary for areas adjacent to or discharging directly to an ESA.

Fish and Wildlife Service.

⁷⁵ Regional Board, 1994. Water Quality Control Plan for the San Diego Basin. P. 4-66.

⁷⁶ Ibid. P. 4-69 - 4-70.

⁷⁷ Schueler and Holland, 2000. Storm Water Strategies for Arid and Semi-Arid Watersheds (Article 66). The Practice of Watershed Protection. P. 695-706.

⁷⁸ Stenstrom, Michael and Masoud Kayhanian, 2005. *First Flush Phenomenon Characterization*. Prepared for Caltrans. Report No. CTSW-RT-05-73-02.6 Study jointly performed by UCLA and UCD. Most of the data presented was collected from three highly urbanized highway sites in west Los Angeles. Much effort went into developing a quantitative way of defining the mass first flush. Other aspects include: variability of water quality during storm events, litter characteristics, correlation among constituents, first flush of organics and particle size distribution, new methods for measuring oil and grease, and grab and composite sampling strategies. The report is available on-line at: <http://www.dot.ca.gov/hq/env/stormwater/special/newsetup/>

Discussion of Finding C.12. ESAs are defined in the Order as “Areas that include but are not limited to all CWA Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the Basin Plan ; water bodies designated with the RARE beneficial use by the Basin Plan; areas designated as preserves or their equivalent under the Natural Communities Conservation Program within the Cities and County of Orange; and any other equivalent environmentally sensitive areas which have been identified by the Copermitees.”

Areas that meet this definition are inherently sensitive habitats containing unique, rare, threatened, or endangered species, or are not achieving their designated beneficial uses. As discussed above, runoff is known to contain a wide range of pollutants and has demonstrated toxicity to plants and animals. Therefore, it is necessary to apply additional storm water controls for developments within, adjacent to, or directly discharging to ESAs. This need for additional storm water controls is addressed within each component of the Order. USEPA supports the requirement for additional storm water controls, stating “For construction sites that discharge to receiving waters that do not support their designated use or other waters of special concern, additional construction site controls are probably warranted and should be strongly considered.”⁷⁹ Further support for requiring additional controls to reduce pollutants in storm water discharges to ESAs can be found in *Mitigation of Storm Water Impacts From New Developments in Environmentally Sensitive Areas*, a technical report written by the LARWQCB.⁸⁰

ESAs within the area subject to this Order are expected to be substantially similar to the previous Order. Additions may be necessary once the South County Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) is formally adopted. Other modifications may reflect updated descriptions or findings of threatened or endangered aquatic species.

Finding C.13. Although dependent on several factors, the risks typically associated with properly managed infiltration of runoff (especially from residential land use areas) are not significant. The risks associated with infiltration can be managed by many techniques, including (1) designing landscape drainage features that promote infiltration of runoff, but do not “inject” runoff (injection bypasses the natural processes of filtering and transformation that occur in the soil); (2) taking reasonable steps to prevent the illegal disposal of wastes; (3) protecting footings and foundations; (4) ensuring that each drainage feature is adequately maintained in perpetuity; and (5) pretreatment.

⁷⁹ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. Washington D.C. EPA/833-B-92-002.

⁸⁰ LARWQCB, 2001. Mitigation of Storm Water Impacts From New Developments In Environmentally Sensitive Areas.

Discussion of Finding C.13. Infiltration is an effective means for managing runoff. However, measures must be taken to protect groundwater quality when infiltration of runoff is implemented. USEPA supports runoff infiltration and provides guidance for protection of groundwater: “With a reasonable degree of site-specific design considerations to compensate for soil characteristics, infiltration may be very effective in controlling both urban runoff quality and quantity problems. This strategy encourages infiltration of urban runoff to replace the natural infiltration capacity lost through urbanization and to use the natural filtering and sorption capacity of soils to remove pollutants; however, the potential for some types of urban runoff to contaminate groundwater through infiltration requires some restrictions.”⁸¹ The restrictions placed on runoff infiltration in this Order are based on recommendations provided by the USEPA Risk Reduction Engineering Laboratory. The State Board found in Order WQ 2000-11 on the appeal of the LARWQCB’s Standard Urban Storm Water Mitigation Plan (SUSMP) requirements that the guidance provided in the above referenced document by the USEPA Risk Reduction Engineering Laboratory is sufficient for the protection of groundwater quality from runoff infiltration. To further protect groundwater quality, the Order also includes guidance from the LARWQCB,⁸² the State of Washington,⁸³ and the State of Maryland.⁸⁴ Subsequently, the California Storm Water Quality Association (CASQA) has produced technical guidance for post-construction treatment BMPs to protect ground water quality⁸⁵.

Finding C.14. Non-storm water (dry weather) discharge from the MS4 is not considered a storm water (wet weather) discharge and therefore is not subject to regulation under the Maximum Extent Practicable (MEP) standard from CWA 402(p)(3)(B)(iii), which is explicitly for “Municipal ... *Stormwater Discharges* (emphasis added)” from the MS4. Non-storm water discharges, per CWA 402(p)(3)(B)(ii), are to be effectively prohibited. Such dry weather non-storm water discharges have been shown to contribute significant levels of pollutants and flow in arid, developed Southern California watersheds and are not to be effectively prohibited under the Clean Water Act.

Discussion of Finding C.14.

Permitting Framework

The Clean Water Act (CWA) employs the strategy of prohibiting the discharge of any pollutant from a point source into waters of the United States unless the discharger of the pollutant(s) obtains a NPDES permit pursuant to Section 402 of the Clean Water

⁸¹ USEPA, 1994. Potential Groundwater Contamination from Intentional and Nonintentional Stormwater Infiltration. EPA 600 SR-94 051.

⁸² LARWQCB, 2000. Standard Urban Storm Water Mitigation Plan for Los Angeles County and Cities in Los Angeles County.

⁸³ Washington State Department of Ecology, 1999. Draft Stormwater Management in Washington State. Volume V – Runoff Treatment BMPs. Pub. No. 99-15.

⁸⁴ Maryland Department of the Environment, 1999. 2000 Maryland Stormwater Design Manual. Volume I.

⁸⁵ CASQA. The New Development and Redevelopment Handbook, 2003. Available on-line at <http://www.cabmphandbooks.org/Development.asp>

Act. The discharge of storm water and/or non-storm water from an MS4 system is considered a discharge from a point source. As discussed below, however, the Clean Water Act regulates storm water and non-storm water discharges under different standards.

In 1987 the CWA was amended to include provisions that specifically concerned NPDES permitting requirements for storm water discharges from MS4 systems. Section 402(p) of the CWA regulates the discharge of storm water from a point source, the municipal separate storm sewers. Such discharges of storm water are subject to the maximum extent practicable (MEP) storm water standard and the related iterative process. The MEP standard for storm water discharges reflects Congress' recognition that the variability of flow and intensity of storm events render difficult strict compliance with water quality standards by MS4s. However, this standard was not considered applicable to non-storm water discharges, which under 402(p) are required to be effectively prohibited from entering the MS4. Clearly, if non-storm water discharges must be effectively prohibited from entering the MS4, the very next requirement (402(p)(3)(B)(iii)) requiring discharges from the MS4 be reduced to the MEP intends that the discharge of pollutants be limited to storm water. Unless exempt or authorized under a separate NPDES permit, non-storm water discharges are not authorized to enter the MS4 in the first instance and are considered to be illicit discharges.

The Federal Register further clarifies that such discharges through an MS4 are not authorized under the CWA (55 Fed. Reg. 47995):

“Today’s rule defines the term “illicit discharge” to describe any discharge through a municipal separate storm sewer system that is not composed entirely of storm water and that is not covered by an NPDES permit. Such illicit discharges are not authorized under the Clean Water Act. Section 402(p)(3)(B) requires that permits for discharges from municipal separate storm sewers require the municipality to “effectively prohibit” non-storm water discharges from the municipal separate storm sewer...Ultimately, such non-storm water discharges through a municipal separate storm sewer must either be removed from the system or become subject to an NPDES permit.”

The federal regulations (40 Code of Federal Regulations (CFR) 122.26(d)(vi)(2)(B)) require that the municipal separate storm sewer discharger prohibit “through ordinance, order or similar means, illicit discharges to the municipal separate storm sewer.” As owners and operators of the MS4, Copermittees cannot passively receive discharges from third parties (Federal Register 68766) and thus are responsible for the discharge of any non-storm water from their MS4.

The State Water Board’s recent precedential order (Order WQ-2009-0008) affirming a Los Angeles County MS4 permit modification, consistent with USEPA’s prior interpretations, recognizes that “[n]either the Clean Water Act nor the federal storm water regulations define ‘non-storm water.’ ‘Illicit discharge’ is defined as any discharge to an MS4 ‘not composed entirely of storm water.’[fn]. Thus, ‘illicit

discharge' is the most nearly applicable definition of 'non-storm water' found in federal law and is often used interchangeably with that term."⁸⁶

Storm Water and Non-storm Water Definitions

By definition non-storm water is not precipitation related. 40 CFR 122.26(b)(13) states that: "Storm water means storm water runoff, snowmelt runoff, and surface runoff and drainage." While "surface runoff and drainage" is not defined in federal law, it is related to precipitation events such as rain and/or snowmelt (see 55 Fed Reg 47995-96). The Federal Register (55, page 47995) includes an entire section on the definition of storm water and non-storm water. The term "surface runoff and drainage" does not include all incidental flows in the MS4 system, but consists of flows relating to precipitation events as clarified by the Federal Register, USEPA's documents and permitting, and other Regional Board Orders.

The Federal Register (55 Fed Reg 47995-47996) provides clarification on the distinction between storm water and non-storm water discharges, including their regulation:

"In response to the comments which requested EPA to define the term storm water broadly to include a number of classes of discharges **which are not in any way related to precipitation events, EPA believes that this rulemaking is not an appropriate forum for addressing the appropriate regulation of such non-storm water discharges**, even though some classes of non-storm water discharges may typically contain only minimal amounts of pollutants. Congress did not intend that the term storm water be used to describe any discharge that has a de minimis amount of pollutants, not did it intend for section 402(p) to be used to provide a moratorium from permitting other non-storm water discharges."

As recently recognized by the State Water Board in a precedential decision upholding an MS4 permit modification adopted by the Los Angeles Regional Water Board, "U.S. EPA has previously rejected the notion that 'storm water,' as defined at 40 Code of Federal Regulations section 122.26(b)(13), includes dry weather flows. In U.S. EPA's preamble to the storm water regulations, U.S. EPA rejected an attempt to define storm water to include categories of discharges 'not in any way related to precipitation events.'[fn]."⁸⁷ Thus, USEPA has made it clear that it deems discharges unrelated to precipitation events to be non-storm water discharges. 40 CFR 122.26(d)(iv)(B) itself provides specific examples of non-storm water discharges:

"...the following category of non-storm water discharges or flows shall only be addressed where such discharges are identified by the municipality as sources of pollutants to the United States: water line flushing, landscape irrigation,

⁸⁶ State Water Board Order WQ-2009-0008 (*In the Matter of the Petition of County of Los Angeles and Los Angeles County Flood Control District*, adopted August 4, 2009), p. 4.

⁸⁷ State Water Board Order WQ-2009-0008 (*In the Matter of the Petition of County of Los Angeles and Los Angeles County Flood Control District*, adopted August 4, 2009), p. 7.

diverted stream flows, rising ground waters, uncontaminated groundwater infiltration (as defined at 40 CFR 35.2005(20) to separate storm sewers, uncontaminated pumped groundwater,..."

USEPA also removed street wash waters from the definition of storm water, as USEPA specifically identified this discharge as being non-storm water (55 Fed. Reg. page 47996). Additionally, section 1.2.2.2. of USEPA's Multi-Sector General Permit for Industrial Activities (MSGP-2000) considers fire hydrant flushings, irrigation drainage, landscape watering, and foundation or footing drains to be non-storm water discharges. USEPA's September 1999 Storm Water Management Fact Sheet for Non-Storm Water Discharges to Storm Sewers states that non-storm water discharges can include discharges of process water, air conditioning condensate, non-contact cooling water, vehicle wash water, or sanitary wastes.

While these types of non-storm water discharges (or illicit discharges) may be regulated under storm water permits because as a practical matter they can enter and be discharged from the MS4 systems, they are not regulated as storm water discharges under the Clean Water Act because they are unrelated to precipitation events. As indicated above, the State Water Resources Control Board recent discussion of this issue supports the conclusion that non-storm water discharges are unrelated to precipitation events. In its Order affirming amendments to the Los Angeles County MS4 permit to implement a TMDL to control bacteria in dry weather flows, the State Water Board rejected petitioners County of Los Angeles and the Los Angeles County Flood Control District implied assertion that the definition of "storm water" contained in the federal regulations (defined as "surface run-off and drainage") includes the run-off and drainage from non-storm events. The State Water Board notes that the challenged permit provisions do not apply to storm water flows in that they apply only during dry weather conditions as defined in the permit. In upholding the challenged order, the State Water Board notes that the Los Angeles Water Board's permit language followed USEPA's approach, referring to USEPA's rejection of attempts to define storm water to include categories of discharges "not in any way related to precipitation events."⁸⁸

Lastly, the Regional Board and State Board have issued multiple permits for non-storm water discharges, including, but not limited to, R9-2008-0002 (extracted groundwater), R9-2002-0020 (hydrostatic discharge) and 2006-008 DWQ (utility vaults), pursuant to section 402 of the CWA.

Permitting Non-storm Water Discharges

The U.S. EPA's approach (and the Regional Board's under its approved program) for non-storm water discharges from MS4s is to regulate these discharges under the existing 402 NPDES framework (Fed Reg 47995 and 48037 see below) for discharges

⁸⁸ State Water Board Order WQ-2009-0008 (*In the Matter of the Petition of County of Los Angeles and Los Angeles County Flood Control District*, adopted August 4, 2009), p. 7 (quoting 55 Fed. Reg. 47990. 47995).

to surface waters. The NPDES program (40 CFR 122.44(d)) utilizes discharge prohibitions and effluent limitations as regulatory mechanisms to regulate non-storm water discharges, including the use of technology and water quality-based effluent limitations. Non-numerical effluent limitations, such as BMPs for non-storm water discharges may only be authorized where numerical effluent limits are infeasible or where the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA (40 CFR 122.44(k) see below).

The Federal Register (55, page 48037) provides clarification that non-storm water discharges from the MS4 are to be regulated under section 402, not 402(p):

“Conveyances which continue to accept other “non-storm water” discharges (e.g. discharges without an NPDES permit) with the exceptions noted above (*exempted discharges that are not a source of pollutants*) do not meet the definition of municipal separate storm sewer and are not subject to 402(p)(3)(B) of the CWA unless such discharges are issued separate NPDES permits. Instead, conveyances which continue to accept non-storm water discharges which have not been issued separate NPDES permits are subject to sections 301 and 402 of the CWA.”

This regulatory approach is consistent with the approach recently upheld by the State Water Board in a precedential order adopted on August 4, 2009. In this Order, the State Water Board rejected a challenge to amendments to the Los Angeles County MS4 permit that require compliance with receiving water limitations and discharge prohibitions for dry weather, non-storm water discharges. Petitioners there argued that the receiving water limits and discharge prohibitions for dry weather dischargers were inappropriate and that the Los Angeles Water Board should instead have regulated the discharges with the maximum extent practicable standard, through an iterative process. The State Water Board concludes that dry weather discharges, as defined in the permit and in the underlying TMDL, “are more appropriately regarded as non-storm water discharges, which the Clean Water Act requires to be effectively prohibited.”⁸⁹

As stated above, for NPDES permits under 402 of the CWA, the Code of Federal Regulations (122.44(k)) clarify that a discharger may utilize BMPs to control or abate the discharge of pollutants when:

- “(1) Authorized under section 304(e) of the CWA for the control of toxic pollutants and hazardous substances from ancillary industrial activities;
- (2) Authorized under section 402(p) of the CWA for the control of storm water discharges;
- (3) Numeric limits are infeasible; or
- (4) The practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.”

⁸⁹ State Water Board Order WQ-2009-0008 (*In the Matter of the Petition of County of Los Angeles and Los Angeles County Flood Control District*, adopted August 4, 2009), p. 8

For the last 19 years, Southern Orange County NPDES permits for discharges of storm water have regulated non-storm water discharges from the MS4. These permits required Copermittees (dischargers) to prohibit non-storm water discharges into (thus through and from) their MS4 systems, implement a program to prevent illicit discharges, and monitor to identify illicit discharges and exempted discharges that are a source of pollution. These measures are considered Best Management Practices (BMPs), are required to be included in NPDES permits issued under Section 402(p) of the CWA, and are considered by USEPA to be an interim approach to permitting non-storm water discharges from the MS4 in accordance with section 402 of the CWA and CFR 122.44(k).

As explained in the discussion of Finding C.15., below, the Copermittees' reliance on BMPs for the past 19 years has not resulted in compliance with applicable water quality standards. The Regional Board has evaluated (in accordance with 40 CFR 122.44(d)(1)) past and existing controls (BMPs), non-storm water effluent monitoring results, the sensitivity of the species in receiving waters (e.g. endangered species), and the potential for effluent dilution, and has determined that existing BMPs to control pollutants in storm water discharges are not sufficient to protect water quality standards in receiving waters and the existing requirement that Copermittees effectively prohibit all types of unauthorized non-storm water discharges into the MS4 historically results in the discharge of pollutants to the receiving waters. Thus, numeric action levels for non-storm water, dry weather, discharges from the MS4 and required actions following observed exceedances of numeric action levels have been established. For further discussion regarding the development of action levels please see Finding E.12 and discussion.

Dry weather action levels are applicable to non-storm water discharges of effluent from the MS4 system. Non-storm water effluent discharges from the MS4 are those which occur during dry weather conditions. These action levels are not applied to storm water discharges, as defined within the Order. Storm water discharges regulated by the Order are required to meet the MEP standard and related iterative process and have separate action levels.

Dry weather action levels are applicable to non-storm water discharges from the MS4 system into receiving waters. Non-storm water discharges are already required to be prohibited unless specifically exempted or covered under a separate NPDES permit. Dry weather action levels apply to non-storm water discharges of effluent from a point source into receiving waters. The MS4 is not a receiving water. Should a discharger wish to discharge a non-exempt category to the MS4 system, such discharges require a separate NPDES permit pursuant to sections 402 and 301 of the CWA. It is also infeasible to monitor and sample every discharge into the MS4, as such discharges are diffuse by nature and may vary spatially and temporally.

Finding C.15. Non-storm water discharges to the MS4 granted an influent exception (i.e., which are exempt from the effective prohibition requirement set forth in CWA section 402(p)(3)(B)(ii)) under 40 CFR 122.26 are included within this Order. Any exempted discharges identified by Copermittees as a source of pollutants are subsequently required to be *addressed* (emphasis added) as illicit discharges through prohibition and incorporation into existing IC/ID programs. The Copermittees have identified landscape irrigation, irrigation water and lawn water, previously exempted discharges, as a source of pollutants and conveyance of pollutants to waters of the United States.

Discussion of Finding C.15. The Federal Register (55, page 48037) and 40 CFR 122.26(d)(iv)(B) clarify that certain components and categories of non-storm water discharges into the MS4 are not required to be prohibited. The Code of Federal Regulations requires the discharger have:

“...a program, including inspections, to implement through ordinance, orders or similar means to prevent illicit discharges to the municipal separate storm sewer system; this program shall address all types of illicit discharges, however, the following category of non-storm water discharges or flows shall only be addressed where such discharges are identified by the municipality as sources of pollutants to the United States: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated groundwater infiltration (as defined at 40 CFR 35.2005(20) to separate storm sewers, uncontaminated pumped groundwater...”

As such, the identification of any of these categories as a source of pollutants requires them to be addressed as illicit discharges, which are not authorized under the CWA, and are required to be “effectively prohibited” as illicit discharges via ordinance, order or similar means. The prohibition of previously exempted discharges of non-storm water to waters of the United States from entering, and necessarily being discharged from an MS4, conforms with CWA requirements for standards and enforcement for effluent limitations to necessary to meet water quality standards (33 U.S.C. 1311(b)(1)(C)).

To date the Copermittees have identified overspray and drainage from potable and reclaimed water landscape irrigation as a substantial source and conveyance mechanism for pollutants into waters of the United States. Irrigation runoff into the MS4, as identified by the Copermittees, is a source of pollutants to waters of the United States, and is required to be *addressed* (emphasis added) as an illicit discharge per 40 CFR 122.26(d)(2)(iv)(B)(1) by prohibition through implementing and enforcing an ordinance, order or similar means. The Copermittees have identified irrigation water as a source of pollutants and conveyance of pollutants to waters of the United States, when applied improperly in excess and thereafter entering the MS4, in the following documents:

- Per requirements of 401 Water Quality Certification 02C-055, the County of Orange conducted a **Drainage Area Reconnaissance and Urban Runoff**

Characterization study. From the reconnaissance and characterization, the County of Orange determined that:

- “...water quality results provided two important findings.”* First, *“analytical data strongly indicates that irrigation overspray and drainage constitutes a very substantial source and conveyance mechanism for fecal indicator bacteria into Aliso Creek, and suggests that reduction measures for this source of urban runoff could provide meaningful reduction in bacteria loading to the stream.”*
- Aliso Creek, currently 303(d) listed as impaired for Indicator Bacteria, is included in the Bacteria Project I TMDL adopted by the Regional Board on December 12, 2007. Secondly, reclaimed water high in electrical conductivity and Nitrate was indicated as:
“...the source water at three of the excessive runoff locations (P1,P2,J01). These dissolved nitrogen concentration and flow rates create relatively high nitrogen loadings, which have the potential to contribute to undesirable levels of periphytic algal growth in Aliso Creek.”
 - On November 15, 2007 the **Unified Annual Progress Report Program Effectiveness Assessment** for the 2006-2007 reporting period was submitted by the Copermittees. Within the report, the Copermittees demonstrate that a *“wide range of constituents exceeded the tolerance interval bounds”*, including orthophosphate. Tolerance interval bounds are pollutant levels set by the Copermittees that represent when a problem may be occurring. These tolerance levels sometimes equate with Basin Plan Objectives (BPOs) and California Toxic Rules (CTR) and USEPA Criteria. The report states that *“high levels of orthophosphate concentration are most likely the result of fertilizer runoff or reclaimed water runoff”*. Aliso Creek is currently 303(d) listed as impaired for phosphorous.
 - On November 15, 2007 the **Watershed Action Plan Annual Report(s)** for the 2006-2007 reporting period was submitted by the County of Orange, Orange County Flood Control District and Copermittees within the San Juan Creek, Laguna Coastal Streams, Aliso Creek, and Dana Point Coastal Streams Watersheds. San Juan Creek, Laguna Coastal Streams, Aliso Creek and Dana Point Coastal Streams are all currently 303(d) listed as impaired for Indicator Bacteria within their watersheds and/or in the Pacific Ocean at the discharge points of their watersheds. These locations are included in the Bacteria Project I TMDL adopted by the Regional Board on December 12, 2007. The Copermittees, within their Watershed Action Strategy Table for Fecal Indicator Bacteria
“Support programs to reduce or eliminate the discharge of anthropogenic dry weather nuisance flow throughout the [...] watershed. Dry weather flow is the transport medium for bacteria and other 303(d) constituents of

concern". Additionally, they state that "conditions in the MS4 contribute to high seasonal bacteria propagation in-pipe during warm weather. Landscape irrigation is a major contributor to dry weather flow, both as surface runoff due to over-irrigation and overspray onto pavements; and as subsurface seepage that finds its way into the MS4."

- In 2006, the State Water Quality Control Board (State Board) allocated Grant funding to the **SmartTimer/Edgescape Evaluation Program (SEEP)**. Project partners include the following Copermittees: the Cities of Aliso Viejo, Dana Point, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, Mission Viejo, Rancho Santa Margarita and San Juan Capistrano. Also included in the study were the Metropolitan Water District of Southern California, the Department of Agriculture and ten south Orange County water districts. The project targets irrigation runoff by retrofitting existing development and documenting the conservation and runoff improvements. The Grant Application states that:

"Irrigation runoff contributes flow & pollutant loads to creeks and beaches that are 303(d) listed for bacteria indicators."

Furthermore, the grant application states:

"Regional program managers agree that the reduction and/or elimination of irrigation-related urban flows and associated pollutant loads may be key to successful attainment of water quality and beneficial use goals as outlined in the San Diego Basin Plan and Bacteria TMDL over the long term."

This is reinforced in the project descriptions and objectives:

"Elevated dry-weather storm drain flows, composed primarily in the South Orange County Region of landscape irrigation water wasted as runoff, carry pollutants that impair recreational use and aquatic habitats all along Southern California's urbanized coastline. Storm drain systems carry the wasted water, along with landscape derived pollutants such as bacteria, nutrients and pesticides, to local creeks and the ocean. Given the local Mediterranean climate, excessive perennial dry season stream flows are an unnatural hydrologic pattern, causing species shifts in local riparian communities and warm, unseasonal contaminated freshwater plumes in the near-shore marine environment".

The basis of this grant project, conducted by the Copermittees and additional water use partners, is that over-irrigation (landscape irrigation, irrigation water and lawn watering) into the MS4 is a source and conveyance of pollutants. In addition, they indicate that this alteration of natural flows is impacting the Beneficial Uses of Waters of the State and U.S.

D. Runoff Management Programs

Finding D.1.a. This Order specifies requirements necessary for the Copermittees to reduce the discharge of pollutants in storm water runoff to the maximum extent practicable (MEP). However, since MEP is a dynamic performance standard, which evolves over time as runoff management knowledge increases, the Copermittees' runoff management programs must continually be assessed and modified to incorporate improved programs, control measures, best management practices (BMPs), etc. in order to achieve the evolving MEP standard. Absent evidence to the contrary, this continual assessment, revision, and improvement of runoff management program implementation is expected to ultimately achieve compliance with water quality standards in the Region.

Discussion of Finding D.1.a. Under CWA section 402(p), municipalities are required to reduce the discharge of storm water pollutants from their MS4s to the maximum extent practicable (MEP). MEP is the critical technology-based performance standard that municipalities must attain. The MEP standard is an ever-evolving, flexible, and advancing concept, which considers technical and economic feasibility. As knowledge about controlling storm water runoff continues to evolve, so does that which constitutes MEP. Reducing the discharge of storm water pollutants to the MEP requires Copermittees to assess each program component and revise activities, control measures, best management practices (BMPs), and measurable goals, as necessary to meet MEP.

To achieve the MEP standard, municipalities must employ whatever BMPs are technically feasible (i.e., are likely to be effective) and are not cost prohibitive. The major emphasis is on technical feasibility. Reducing storm water pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the cost would be prohibitive. In selecting BMPs to achieve the MEP standard, the following factors may be useful to consider:

1. Effectiveness: Will the BMPs address a pollutant (or pollutant source) of concern?
2. Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?
3. Public Acceptance: Does the BMP have public support?
4. Cost: Will the cost of implementing the BMP have a reasonable relationship to the pollution control benefits to be achieved?
5. Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc?

If a municipality reviews a lengthy menu of BMPs and chooses to select only a few of the least expensive BMPs, it is likely that MEP has not been met. On the other hand, if a municipal discharger employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost is prohibitive, it would have met the standard. Where a choice may be made between two BMPs that should provide generally comparable effectiveness, the discharger may choose the least expensive alternative and exclude the more expensive BMP. However, it would not be acceptable either to reject all BMPs that would address a pollutant source, or to pick a BMP based solely on cost, which would be clearly less effective. In selecting BMPs the municipality must make a serious attempt to comply and practical solutions may not be easily dismissed. In any case, the burden is on the municipal discharger to show compliance with its permit. After selecting BMPs, it is the responsibility of the discharger to ensure that all BMPs are implemented.⁹⁰

A definition of MEP is not provided in either the federal statute or in the federal regulations. The final determination regarding whether a municipality has reduced storm water pollutants to the MEP can only be made by the Regional Board or the State Board, and not by the municipal discharger. While the Regional Board or the State Board ultimately define MEP, it is the responsibility of the Copermittees to initially propose actions that implement BMPs to reduce storm water pollution to the MEP. In other words, the Copermittees' runoff management programs to be developed under the Order are the Copermittees' proposals of MEP. Their total collective and individual activities conducted pursuant to their runoff management programs become their proposal for MEP as it applies both to their overall effort, as well as to specific activities. The Order provides a minimum framework to guide the Copermittees in meeting the MEP standard for storm water.

It is the Regional Board's responsibility to evaluate the proposed programs and specific BMPs to determine what constitutes MEP, using the above guidance and the court's 1994 decision in NRDC v. California Department of Transportation, Federal District Court, Central District of California. The federal court stated that a Copermittee must evaluate and implement BMPs except where (1) other effective BMPs will achieve greater or substantially similar pollution control benefits; (2) the BMP is not technically feasible; or (3) the cost of BMP implementation greatly outweighs the pollution control benefits. In the absence of a proposal acceptable to the Regional Board, the Regional Board will define MEP by requiring implementation of additional measures by the Copermittees.

⁹⁰ State Water Resources Control Board, 1993. Memo Entitled Definition of Maximum Extent Practicable.

The Copermittees' continual evolution in meeting the MEP standard is expected to achieve compliance with water quality standards. USEPA has consistently supported this expectation. In its Interim Permitting Approach for Water Quality-Based Effluent Limitations (WQBELs) in Storm Water Permits, USEPA states "the interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for attainment of water quality standards."⁹¹ USEPA reiterated its position in 1999, when it stated regarding the Phase II municipal storm water regulations that "successive iterations of the mix of BMPs and measurable goals will be driven by the objective of assuring maintenance of water quality standards" and "EPA anticipates that a permit for a regulated small MS4 operator implementing BMPs to satisfy the six minimum control measures will be sufficiently stringent to protect water quality, including water quality standards [...]."⁹²

The requirements of the Order are expected to achieve compliance with receiving water quality standards. The approach to be used is the continual assessment, revision, and improvement of Copermittee best management practice implementation. This approach is consistent with the Clean Water Act and State Board guidance. In *Defenders of Wildlife v. Browner* (1999, 197 F. 3d 1035), the United States Court of Appeals for the Ninth Circuit states: "Under 33 U.S.C. section 1342 (p)(3)(B)(iii), the EPA's choice to include either management practices or numeric limitations in the permits was within its discretion." In addition, the approach is consistent with State Board Order WQ 99-05, which outlines an iterative approach for achieving compliance with water quality standards.

Finding D.1.b. The Copermittees have generally been implementing the jurisdictional runoff management programs required pursuant to Order No. R9-2002-01 since February 13, 2003. Prior to that, the Copermittees were regulated by Order No. 96-03 since August 8, 1996. Runoff discharges, however, continue to cause or contribute to violations of water quality standards as evidenced by the Copermittees monitoring results.⁹³

⁹¹ Federal Register / Vol. 61, No. 166 / August 26, 1996 / P. 43761.

⁹² Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68753-68754.

⁹³ Orange County Storm Water Program, 2006. Unified Annual Progress Report, Program Effectiveness Assessment (San Diego Region).

Discussion of Finding D.1.b. In response to Order No. R9-2002-01, the Copermittees have improved their runoff management programs. For instance, comprehensive runoff management plans have been developed. In order to implement the plans, the Copermittees have, among other things, developed BMP requirements, improved inter- and intra-governmental coordination, improved training programs, improved illicit discharge detection procedures, and improved their monitoring efforts. Although the programmatic improvements have led to better implementation of BMPs, the Copermittees' monitoring data demonstrate that additional or revised BMPs are necessary to prevent discharges from MS4s from causing and contributing to violations of water quality standards. A discussion of data collected by the Copermittees is included in the discussion for Finding C.9.

Finding D.1.c. This Order contains new or modified requirements that are necessary to improve Copermittees' efforts to reduce the discharge of storm water pollutants in runoff to the MEP and achieve water quality standards. Some of the new or modified requirements, such as the revised Watershed Runoff Management Program section, are designed to specifically address these high priority water quality problems. Other new or modified requirements address program deficiencies that have been noted during audits, report reviews, and other Regional Board compliance assessment activities.

Discussion of Finding D.1.c. The Copermittees are required to update and expand their runoff management programs on jurisdictional and watershed levels in order to improve their efforts to reduce the contribution of storm water pollutants in runoff to the MEP and meet water quality standards. Changes to Order No. R9-2002-01's requirements have been made to help ensure these two standards are achieved by the Copermittees.

The Orders' jurisdictional requirements have changed based on findings by the Regional Board during typical compliance assurance activities or receipt of complaints.⁹⁴ The Regional Board performed full jurisdictional program audits of 8 of the 13 Copermittees during the Order No. R9-2002-01 permit term. Where the audits found common implementation problems, requirements have been altered to better ensure compliance. In addition, the Regional Board conducted detailed reviews of every jurisdictional annual report submitted by the Copermittees. Updates to the Copermittees' programs are also based on recommendations found in the Copermittees' ROWD.⁹⁵ In many instances, the Copermittees and the Regional Board have identified similar issues that merit program modifications.

⁹⁴ Audit reports, report reviews, and inspection reports are available for review at the Regional Board office.

⁹⁵ All significant changes made to the Order's requirements are described and explained in detail in Fact Sheet section X.

To better focus on attainment of water quality standards, the Order's watershed requirements have been improved. The conditions of the receiving waters now drive management actions, which in turn focus diminishing resources on the highest priority water quality problems within the receiving waters in each watershed. Improvements to watershed requirements were also made to facilitate a mutually clear understanding of the requirements between the Regional Board and Copermittees.

Finding D.1.d. Updated Jurisdictional Runoff Management Plans (JRMPs) and Watershed Runoff Management Plans (WRMPs), which describe the Copermittees' runoff management programs in their entirety, are needed to guide the Copermittees' runoff management efforts and aid the Copermittees in tracking runoff management program implementation. It is practicable for the Copermittees to update the JRMPs and WRMPs within one year, since significant efforts to develop these programs have already occurred.

Discussion of Finding D.1.d. Development of runoff management plans is a crucial runoff management measure and should be considered a BMP. The plans help organize and focus the Copermittees' programs and guide their implementation. In its statewide assessment report to USEPA Region IX and the State Board, Tetra Tech, Inc. concluded that the lack of a master storm water planning document must be considered a serious program deficiency⁹⁶. When submitted to the Regional Board, the plans provide useful correspondence between the Copermittees and the Regional Board. The Plans also become available for review by the public, and thus facilitate public participation in runoff management decisions. Finally, while development and submittal of runoff management plans are not necessary to ensure compliance of the Copermittees' runoff management programs with the Order, the Regional Board is provided with a means to track Copermittee implementation.

The focus of the Order is on development and implementation of storm water programs which meet MEP, rather than creation of Copermittee plans which exhibit MEP. While the Order does not rely upon the plans to ensure MEP and other standards are achieved, the plans still serve a useful purpose. As stated above, the plans serve to organize the Copermittees' efforts to address runoff. As a practical matter, any program of the size required by the Order should be documented in writing. This serves to guide implementation of the program by the numerous individuals responsible for program implementation.

⁹⁶ Tetra Tech, Inc. 2006. *Assessment Report on Tetra Tech's Support of California's MS4 Stormwater Program*. Produced for USEPA Region IX and the California State and Regional Water Quality Control Boards.

Runoff management plans are not necessary for ensuring compliance with the Order because the Order itself contains sufficient detailed requirements to ensure that compliance with discharge prohibitions, receiving water limitations, and the narrative standard of MEP for storm water are achieved. Implementation by the Copermittees of programs in compliance with the Order's requirements, prohibitions, and receiving water limitations is the pertinent compliance standard to be used under the Order, as opposed to assessing compliance by reviewing the Copermittees' implementation of their plans alone. The Regional Board ensures compliance with the Order by reviewing annual reports, conducting inspections, performing audits, and through other general program oversight.

Runoff management plans are particularly important and useful for municipalities when program implementation is spread across several departments and/or when municipalities experience staff turnover.⁹⁷ Each Copermittee relies on multiple employees or contractors for program implementation, but the spread of responsibility varies among Copermittees.⁹⁸ Written jurisdictional plans ensure appropriate coordination within each municipality.

Copermittees' runoff management plans are simply descriptions of their runoff management programs required under the Order. These plans serve as procedural correspondence which guides program implementation and aids the Copermittees and Regional Board in tracking implementation of the programs. In this manner, the plans are not functional equivalents of the Order. For these reasons, the Copermittees' runoff management plans need not be an enforceable part of the Order.

The Copermittees' plans and programs can be updated within one year because much of their plans and programs are already in existence. In fact, many parts of their plans and programs have been in place for 15 years. Moreover, the adoption of Order No. R9-2002-01 required a larger scale reorganization of the Copermittees' programs than Tentative Order No. R9-2009-0002, but also allowed one year for program updates. The Copermittees were generally able to meet the time schedule required under Order No. R9-2002-01.

Finding D.1.e. Pollutants can be effectively reduced in storm water runoff by the application of a combination of pollution prevention, source control, and treatment control BMPs. Pollution prevention is the reduction or elimination of pollutant generation at its source and is the best "first line of defense". Source control BMPs (both structural and non-structural) minimize the contact between pollutants and flows (e.g., rerouting run-on around pollutant sources or keeping pollutants on-site and out of receiving waters). Treatment control BMPs remove pollutants that have been mobilized by wet-weather or dry-weather flows.

⁹⁷ Tetra Tech, Inc. 2005. Program Evaluation Report. Orange County Storm Water Program: Cities of Laguna Beach, Laguna Hills, Lake Forest, and Rancho Santa Margarita.

⁹⁸ Responsible departments and employees are described in the 2005-06 Annual Reports for the MS4 programs.

Discussion of Finding D.1.e. The State Board finds in its Order No. WQ 98-01 that BMPs are effective in reducing pollutants in storm water runoff, stating that “implementation of BMPs [is] generally the most appropriate form of effluent limitations when designed to satisfy technology requirements, including reduction of pollutants to the maximum extent practicable.” A State Board TAC further supports this finding by recommending “that nonpoint source pollution control can be accomplished most effectively by giving priority to [BMPs] in the following order:

1. Pollution Prevention – implementation of practices that use or promote pollution free alternatives;
2. Source Control – implementation of control measures that focus on preventing or minimizing urban runoff from contacting pollution sources;
3. Treatment Control – implementation of practices that require treatment of polluted runoff either onsite or offsite.”⁹⁹

Pollution prevention, the reduction or elimination of pollutant generation at its source, is an essential aspect of BMP implementation. Fewer pollutants are available to be washed from developed areas when the generation of pollutants by activities is limited. Thus, pollutant loads in storm water discharges are reduced from these areas. In addition, there is no need to control or treat pollutants that are never generated.¹⁰⁰ Furthermore, pollution prevention BMPs are generally more cost effective than removal of pollutants by treatment facilities or cleanup of contaminated media.^{101,102}

In the Pollution Prevention Act of 1990, Congress established a national policy that emphasizes pollution prevention over control and treatment. CWC section 13263.3(a) also supports pollution prevention, stating “The Legislature finds and declares that pollution prevention should be the first step in a hierarchy for reducing pollution and managing wastes, and to achieve environmental stewardship for society. The Legislature also finds and declares that pollution prevention is necessary to support the federal goal of zero discharge of pollutants into navigable waters.” Finally, the Basin Plan also supports this finding by stating “To eliminate pollutants in storm water, one can either clean it up by removing pollutants or prevent it from becoming polluted in the first place. Because of the overwhelming volume of storm water and the enormous costs associated with pollutant removal, pollution prevention is the only approach that makes sense.”¹⁰³

⁹⁹ State Board, 1994. Urban Runoff Technical Advisory Committee Report and Recommendations. Nonpoint Source Management Program.

¹⁰⁰ Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region).

¹⁰¹ Deviny, J.S. et al. 2004. *Alternative Approaches to Stormwater Quality Control*. Prepared for the Los Angeles Regional Water Quality Control Board. Found as Appendix H to *NPDES Stormwater Cost Survey*. Prepared for the California State Water Resources Control Board by the Office of Water Programs California State University, Sacramento. Available on-line at: <http://www.owp.csus.edu/research/npdes/>

¹⁰² Schueler, T.R., 2000. Center for Watershed Protection. Assessing the Potential for Urban Watershed Restoration, Article 142.

¹⁰³ Regional Board, 1994. Water Quality Control Plan, San Diego Basin, Region 9.

USEPA also supports the utilization of a combination of BMPs to address pollutants in runoff. For example, USEPA has found there has been success in addressing illicit discharge related problems through BMP initiatives like storm drain stenciling and recycling programs, including household hazardous waste special collection days.¹⁰⁴ Structural BMP performance data has also been compiled and summarized by USEPA.¹⁰⁵

The summary provides the performance ranges of various types of structural BMPs for removing suspended solids, nutrients, pathogens, and metals from storm water flows. These pollutants are generally a concern in storm water in the San Diego Region and Orange County.¹⁰⁶ For suspended solids, the least effective structural BMP type was found to remove 30-65 percent of the pollutant load, while the most effective was found to remove 65-100 percent of the pollutant load. For nutrients, the least effective structural BMP type was found to remove 15-45 percent of the pollutant load, while the most effective was found to remove 65-100 percent of the pollutant load. For pathogens, the least effective structural BMP type was found to remove <30 percent of the pollutant load, while the most effective was found to remove 65-100 percent of the pollutant load. For metals, the least effective structural BMP type was found to remove 15-45 percent of the pollutant load, while the most effective was found to remove 65-100 percent of the pollutant load.

Several studies conducted in the last few years have measured the effectiveness of treatment BMPs in southern Orange County. Studies have been conducted on both dry weather and wet weather flows. Each demonstrates that treatment control BMPs can, to varying degrees, remove pollutants from runoff, but that pollution prevention and source control BMPs are necessary to reduce storm water pollutant discharges to the point of supporting water quality objectives in the receiving waters. A partial list of such studies includes:

1. "Assessment of Best Management Practice (BMP) Effectiveness" by the Southern California Coastal Water Research Project (SCCWRP).¹⁰⁷ This project assesses the effectiveness of BMPs in southern California for improving water quality related to toxicity.
2. "Final Report for the Del Obispo Storm Drain Project" by the City of Dana Point.¹⁰⁸ This report assesses the implementation of a solids removal unit and low-flow diversion project.

¹⁰⁴ USEPA, 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System-Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges. 64 FR 68728.

¹⁰⁵ USEPA, 1999. Preliminary Data Summary of Urban Storm Water Best Management Practices. EPA 821-R-99-012.

¹⁰⁶ Orange County Stormwater Program, Appendix E1 BMP Effectiveness and Applicability for Orange County (updated June 2005).

¹⁰⁷ Jeffrey S. Brown and Steven M. Bay 2005. *Assessment of Best Management Practice (BMP) Effectiveness*. SCCWRP Technical Report 461.

¹⁰⁸ City of Dana Point. 2005. *Final Report for the Del Obispo Storm Drain Project*. Prepared for the State Water Resources Control Board Agreement No. 02-216-550-0.

3. "Final Report for the Alipaz Storm Drain Treatment and Low Flow Diversion Project" by the City of Dana Point.¹⁰⁹ This report assesses the implementation of a solids removal unit and low-flow diversion project.
4. "Final Report for Poche Beach Urban Runoff Ultraviolet Light Bacteria Disinfection Project" by the County of Orange.¹¹⁰ This report assesses the implementation of an ultraviolet system within a box culvert.
5. Final Report for J01P28 Interim Water Quality Improvement Package Plant Best Management Practices.¹¹¹ This report assesses the implementation of an ultraviolet treatment system at an inland waters storm drain outfall.
6. "Final Report for Wetland Capture and Treatment (WetCAT) Network" by the City of Laguna Niguel.¹¹² This report assesses the implementation of constructed wetlands.

Results of these recent studies demonstrate that treatment at the MS4 outfalls for pollutants that have already been discharged *into* the MS4 is generally unlikely to reduce pollutant concentrations to levels that would support water quality objectives. It also demonstrates that non-storm water discharges are occurring into the MS4 that are illicit discharges, exempted discharges that are a source of pollutants and/or discharges under a separate NPDES permit that are in violation of that permit.

It is important to note that the Clean Water Act and NPDES federal regulations clearly require control of discharges into the MS4. Section 402(p)(3)(B)(ii) of the Clean Water Act states that MS4 permits must "prohibit non-storm water discharges into the storm sewers." 40 CFR 122.26(d)(2)(iv)(B) requires Copermittees to "detect and remove [...] illicit discharges and improper disposal into the storm sewer." See Finding C.14 and Discussion.

¹⁰⁹ City of Dana Point. 2004. *Final Report For The Alipaz Storm Drain Treatment And Low Flow Diversion Project* by the City of Dana Point. Prepared for State Water Resources Control Board Agreement Number: 01-068-550-0.

¹¹⁰ Volz, James. 2005. *Final Report for Poche Beach Urban Runoff Ultraviolet Light Bacteria Disinfection Project*. Prepared by the County of Orange for State Water Resources Control Board Agreement No. 01-236-550-1.

¹¹¹ Anderson, Max. 2005. Final Report: Aliso Beach Clean Beach Initiatives, J01P28 Interim Water Quality Improvement Package Plant Best Management Practices. Prepared by the County of Orange for State Water Resources Control Board Agreement No. 01-227-550-0.

¹¹² City of Laguna Niguel and CH2MHILL. 2004. *Final Report: Wetland Capture and Treatment (WetCAT) Network*. Prepared for State Water Resources Control Board Agreement No. 01-122-259-0.

The Order's approach to regulating discharges into and from the MS4 is in accordance with State Board Order WQ 2001-15. In that order, the State Board reviewed the San Diego County permit (Order No. 2001-01) requirements and made one change to one prohibition.¹¹³ The Order upheld all other requirements of the current permit. Order No. R9-2009-0002 incorporates the one change made by the State Board, and continues the approach of Order No. 2001-01 (the basis for the current permit), as it was upheld by the State Board in Order WQ 2001-15. State Board Order WQ 2001-15 supports such requirements, stating: "It is important to emphasize that dischargers into MS4s continue to be required to implement a full range of BMPs, including source control."

The Court of Appeals, Fourth Appellate District, found that the current permit's approach to regulation of discharges into the MS4 was appropriate. Since the Tentative Order utilizes the same approach, the court decision supports the Tentative Order's requirements.

Finding D.1.f. Runoff needs to be addressed during the three major phases of urban development (planning, construction, and use) in order to reduce the discharge of storm water pollutants to the MEP, effectively prohibit non-storm water discharges and protect receiving waters. Development which is not guided by water quality planning policies and principles can unnecessarily result in increased pollutant load discharges, flow rates, and flow durations which can impact receiving water beneficial uses. Construction sites without adequate BMP implementation result in sediment runoff rates which greatly exceed natural erosion rates of undisturbed lands, causing siltation and impairment of receiving waters. Existing development generates substantial pollutant loads which are discharged in runoff to receiving waters.

Discussion of Finding D.1.f. MS4 permits are issued to municipalities because of their land use authority. The ultimate responsibility for the pollutant discharges, increased runoff, and inevitable long-term water quality degradation that results from development lies with local governments. This responsibility is based on the fact that it is the local governments that have authorized the development (i.e., conversion of natural pervious ground cover to impervious surfaces) and the land uses that generate the pollutants and runoff. Furthermore, the MS4 through which the pollutants and increased flows are conveyed, and ultimately discharged into natural receiving waters, are owned and operated by the same local governments. In summary, the Copermitees under the Order are responsible for discharges into and out of their MS4s because (1) they own and operate the MS4; and (2) they have the legal authority that authorizes the very development and land uses with generate the pollutants and increased flows in the first place.

¹¹³ The State Board removed the prohibition of discharges *into* the MS4 that cause or contribute to exceedances of water quality objectives. The revision allows for treatment of storm water flows once the pollutants have entered the MS4. It does not affect the effective prohibition on certain dry-weather flows into the MS4 that is required by the Clean Water Act.

For example, since grading cannot commence prior to the issuance of a local grading permit, the Copermittees have a built-in mechanism to ensure that all grading activities are protective of receiving water quality. The Copermittee has the authority to withhold issuance of the grading permit until the project proponent has demonstrated to the satisfaction of the Copermittee that the project will not violate their ordinances or cause the Copermittee to be in violation of its MS4 permit. Since the Copermittee will ultimately be held responsible for any discharges from the grading project by the Regional Board, the Copermittee will want to use its own permitting authority to ensure that whatever measures the Copermittee deems necessary to protect discharges into its MS4 are in fact taken by the project proponent.

The Order holds the local government accountable for this direct link between its land use decisions and water quality degradation. The Order recognizes that each of the three major stages in the development process (development planning, construction, and the use or operational stage) are controlled by and must be authorized by the local government. Accordingly, this permit requires the local government to implement, or require others to implement, appropriate best management practices to reduce storm water pollutant discharges and increased flow during each of the three stages of development.

Including plans for BMP implementation during the design phase of new development and redevelopment offers the most cost effective strategy to reduce storm water runoff pollutant loads to surface waters.¹¹⁴ The Phase II regulations for small municipalities reflect the necessity of addressing runoff during the early planning phase. Due to the greater water quality concerns generally experienced by larger municipalities, Phase II requirements for small municipalities are also applicable to larger municipalities such as the Copermittees. The Phase II regulations direct municipalities to develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale. The program must ensure that controls are in place that would prevent or minimize water quality impacts. This includes developing and implementing strategies which include a combination of structural and/or non-structural BMPs appropriate to the locality. The program must also ensure the adequate long-term operation and maintenance of BMPs.¹¹⁵ USEPA expands on the Phase II regulations for urban development when it recommends that Copermittees:

¹¹⁴ USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. EPA 833-R-00-002.

¹¹⁵ USEPA, 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System-Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. 64 FR 68845.

“Adopt a planning process that identifies the municipality’s program goals (e.g., minimize water quality impacts resulting from post-construction runoff from new development and redevelopment), implementation strategies (e.g., adopt a combination of structural and/or non-structural BMPs), operation and maintenance policies and procedures, and enforcement procedures. In developing your program, you should consider assessing existing ordinances, policies, programs and studies that address storm water runoff quality.”

Management of storm water runoff during the construction phase is also essential. USEPA explains in the preamble to the Phase II regulations that storm water discharges generated during construction activities can cause an array of physical, chemical, and biological water quality impacts. Specifically, the biological, chemical and physical integrity of the waters may become severely compromised due to runoff from construction sites. Fine sediment from construction sites can adversely affect aquatic ecosystems by reducing light penetration, impeding sight-feeding, smothering benthic organisms, abrading gills and other sensitive structures, reducing habitat by clogging interstitial spaces within the streambed, and reducing intergravel dissolved oxygen by reducing the permeability of the bed material. Water quality impairment also results, in part, because a number of pollutants are preferentially absorbed onto mineral or organic particles found in fine sediment. The interconnected process of erosion (detachment of the soil particles), sediment transport, and delivery is the primary pathway for introducing key pollutants, such as nutrients, metals, and organic compounds into aquatic systems.¹¹⁶

Finally, storm water and non-storm water runoff from existing development must be addressed. The Copermittees’ monitoring data exhibits that significant water quality problems exist in receiving waters which receive runoff from areas with extensive existing development, such as Aliso Creek. Source identification, BMP requirements, inspections, and enforcement are all important measures which can be implemented to address runoff from existing development. USEPA supports inspections and enforcement by municipalities when it states “Effective inspection and enforcement requires [...] penalties to deter infractions and intervention by the municipal authority to correct violations. Enforcement mechanisms [...] also must be described.”¹¹⁷

Finding D.1.g. Annual reporting requirements included in this Order are necessary to meet federal requirements and to evaluate the effectiveness and compliance of the Copermittees’ programs.

Discussion of Finding D.1.g. The annual reporting requirements are consistent with federal NPDES regulation 40 CFR 122.41, which states:

¹¹⁶ Ibid., 64 FR 68728.

¹¹⁷ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

“The operator of a large or medium municipal separate storm sewer system of a municipal separate storm sewer system that has been designated by the Director under section 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such a system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition, Such proposed changes shall be consistent with § 122.26(d)(2)iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)iv) and (d)(2)v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; and (7) Identification of water quality improvements or degradation.”

CWC section 13267 provides that “the regional board may require that any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

The Regional Board must assess the reports to ensure that the Copermitees’ programs are adequate to assess and address water quality. The reporting requirements can also be useful tools for the Copermitees to review, update, or revise their programs. Areas or issues which have received insufficient efforts can also be identified and improved.

Finding D.1.h. This Order establishes Storm Water Action Levels (SALs) for selected pollutants based on USEPA Rain Zone 6 (arid southwest) Phase I MS4 monitoring data for pollutants in storm water. The SALs were computed as the 90th percentile of the data set, utilizing the statistical based population approach, one of three approaches recommended by the California Water Board’s Storm Water Panel in its report, ‘The Feasibility of Numerical Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities (June 2006). SALs are identified in Section D of this Order. Copermitees shall implement a timely, comprehensive, cost-effective storm water pollution control program to reduce the discharge of pollutants in storm water from the permitted areas so as not to exceed the SALs. SALs express an integration of the adequacy/inadequacy of programmatic measures and BMPs required in this Order.

Discussion of Finding D.1.h. Section 402(p) of the CWA states MS4 permits for storm water shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the

Administrator or the State determines appropriate for the control of such pollutants. This includes requiring numeric effluent limitations for storm water.

SALs are not numeric effluent limitations, which is reflected in language which clarifies an excursion above a SAL does not create a presumption that MEP is not being met. Instead, a SAL exceedance is to be used by the Copermitttee as an indication that the MS4 storm water discharge point is a definitive "bad actor," and the result from the monitoring needs to be considered as part of the iterative process for reducing pollutants in storm water to the MEP.

The CWA defines effluent limitations as:

"Any restriction imposed by the Director on quantities, discharge rates, and concentrations of pollutants which are "discharged" from "point sources" into "waters of the United States"..." A SAL is not a restriction on a quantity, rate or concentration, but is a level at which actions that further reduce pollutants from that discharge point need to be evaluated in order to reduce storm water pollutants to the MEP. Thus, SALs are not effluent limitations as defined by the CWC or CWA.

The approach of using "action levels" is consistent with recommendations made by USEPA in their Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits, dated August 26, 1996:

"Under the Clean Water Act(CWA) and NPDES regulations, permitting authorities may employ a variety of conditions and limitations in storm water permits, including best management practices, performance objectives, narrative conditions, monitoring triggers, action levels (e.g., monitoring benchmarks, toxicity reduction evaluation action levels), etc., as the necessary water-quality based limitations, where numeric water quality based effluent limitations are determined to be unnecessary or infeasible". As such, these action levels are not considered numeric water quality-based effluent limitations.

It should be noted that a purpose of monitoring, required under this and previous Orders, is to aid in the evaluation of implemented programs and BMPs in reducing pollutants in storm water discharges to the MEP. The tentative Monitoring and Reporting Program states:

This Receiving Waters and Runoff Monitoring and Reporting Program is intended to meet the following goals:

2. Measure and improve the effectiveness of the Permittees' runoff management programs;
 3. Assess the chemical, physical, and biological impacts to receiving waters resulting from runoff discharges;
 4. Characterize runoff discharges;
 5. Identify sources of specific pollutants;
 6. Prioritize drainage and sub-drainage areas that need management actions;
- and

9. Provide information to implement required BMP improvements.

For the past 4 permit cycles (19 years), Copermittees have utilized non-numerical limitations (BMPs) to control and abate the discharge of any pollutants in storm water discharges to the MEP. Copermittees have been accorded 19 years to research, develop, and deploy BMPs that are capable of reducing storm water discharges from the MS4 to levels represented in SALs. Storm Water Action Levels are set at such a level that any exceedance of a SAL will clearly indicate BMPs being implemented are insufficient to protect the Beneficial Uses of waters of the State. Copermittee shall utilize the exceedance information as a high priority consideration when adjusting and executing annual work plans, as required by this Permit. Failure to appropriately consider and react to SAL exceedances in an iterative manner creates a presumption that the Copermittee(s) have not complied to the MEP.

SALs have been developed utilizing Phase I storm water effluent data (updated February 2008, <http://rpitt.eng.ua.edu/Research/ms4/mainms4.shtml>) from the arid west region (USEPA Rain Zone 6). USEPA Rainfall Zone 6, which includes MS4 effluent data from Orange, San Diego, Los Angeles and Ventura County. While the County of Orange has a large monitoring data set, Regional Board staff have concluded that there is a lack of effluent monitoring from major outfalls that are representative of conditions throughout the Region. The approach taken to derive SALs is a straightforward percentile approach, with the SAL being set as the 90th percentile of the dataset for each constituent. This approach is consistent with the 2006 State Board Panel Report:

"The statistically based population approach would once again rely on the average distribution of measured water quality values developed from many water quality samples taken for many events at many locations. In this case, however, the Action Level would be defined by the central tendency and variance estimates from the population data. For example, the Action Level could be set as two standard deviations above the mean, i.e. if measured concentrations are consistently higher than two standard deviations above the mean, an Action Level would be triggered. Other population based measures of central tendency could be used (i.e. geomean, median, etc.) or estimates of variance (i.e. prediction intervals, etc.). Regardless of which population based estimators are used (or percentile from above), the idea would be to identify the [statistically derived] point at which managers feel concentrations are significantly beyond the norm."

SALs are a measurable criteria which quantifies the performance of BMPs for a particular watershed or subwatershed that discharges storm water MS4 effluent from that particular discharge point. Thus, Copermittees can utilize SAL results to determine the effectiveness BMPs on the effluent from a particular area of the MS4.

SALs represent the lowest 10 percent of pollutant reduction for USEPA Rain Zone 6 MS4 Phase I programs discharging to waters of the United States. For the past 4

permit cycles (19 years), Copermitees have utilized non-numerical limitations (BMPs) to control and abate the discharge of any pollutants in storm water discharges to the MEP. Copermitees have been accorded 19 years to research, develop, and deploy BMPs that are capable of reducing storm water discharges from the MS4 to levels represented in SALs. Storm Water Action Levels are set at such a level that any exceedance of a SAL will indicate to the Copermitee(s) that the discharge is within the lowest 10% of monitored outfalls. Therefore, an exceedance of a SAL warrants priority consideration within the Copermitee iterative process.

Finding D.2.a. The Standard Storm Water Mitigation Plan (SSMP) requirements contained in this Order are consistent with Order WQ-2000-11 adopted by the State Water Resources Control Board (State Board) on October 5, 2000. In the precedential order, the State Board found that the design standards, which essentially require that runoff generated by 85 percent of storm events from specific development categories be infiltrated or treated, reflect the MEP standard. The order also found that the SSMP requirements are appropriately applied to the majority of the Priority Development Project categories contained in Section D.1 of this Order. The State Board also gave Regional Water Quality Control Boards the needed discretion to include additional categories and locations, such as retail gasoline outlets (RGOs), in SSMPs.

Discussion of Finding D.2.a. The post-construction requirements and design standards contained in the SSMP section of Order No. R9-2009-0002 constitute MEP consistent with State Board guidance, court decisions, and Regional Board requirements. The State Board and Regional Boards have made several recent decisions in regards to inclusion of SSMP requirements in MS4 permits. In a precedential decision, State Board WQ Order No. 2000-11, the State Board found that the SSMP provisions constitute MEP for addressing storm water pollutant discharges resulting from Priority Development Projects. The provisions of the SSMP section of the Order are also consistent with those previously issued by the Regional Board for Orange County (Order No. R9-2002-0001) and San Diego County (Order Nos. R9-2001-01 and R9-2007-0001), as well as requirements in the Los Angeles County MS4 permit (Order No. R4-2001-182). In State Board Order WQ 2001-15, the State Board reaffirmed that SSMP requirements constitute MEP. Moreover, the SSMP requirements of the San Diego County MS4 permit (Order No. R9-2001-01) were upheld when the California State Supreme Court declined to hear the matter on appeal.

Finding D.2.b. Controlling runoff pollution by using a combination of onsite source control and site design BMPs augmented with treatment control BMPs before the runoff enters the MS4 is important for the following reasons: (1) Many end-of-pipe BMPs (such as diversion to the sanitary sewer) are typically ineffective during significant storm events. Whereas, onsite source control BMPs can be applied during all runoff conditions; (2) End-of-pipe BMPs are often incapable of capturing and treating the wide range of pollutants which can be generated on a sub-watershed scale; (3) End-of-pipe BMPs are more effective when used as polishing BMPs, rather than the sole BMP to be implemented; (4) End-of-pipe BMPs do not protect the quality or beneficial uses of receiving waters between the pollutant source and the BMP; and (5) Offsite end-of-pipe BMPs do not aid in the effort to educate the public regarding sources of pollution and their prevention.

Discussion of Finding D.2.b. Many end-of-pipe BMPs are designed for low flow conditions because their end-of-pipe location prevents them from being designed for large storm events. This results in the end-of-pipe BMPs being overwhelmed, bypassed, or ineffective during larger storm events more frequently than onsite BMPs designed for larger storms. BMPs are also frequently most effective for a particular type of pollutant (such as sediment). Such BMPs may be appropriate for small sites with a limited suite of pollutants generated; however, end-of-pipe BMPs must typically be able to address a wide range of pollutants generated by a sub-watershed, limiting their effectiveness and/or increasing costs. Moreover, the location of some end-of-pipe BMPs allow for untreated pollutants to be discharged to and degrade receiving waters prior to their reaching the BMPs. This fails to protect receiving waters, which is the purpose of BMP implementation. In addition, opportunities to educate the public regarding runoff pollution can be lost when end-of-pipe BMPs are located away from pollutant sources and out of sight. Onsite BMPs can lead to a better public understanding of runoff issues since their presence can provide a visible and/or tangible lesson in pollution prevention.

Finding D.2.c. Use of Low-Impact Development (LID) site design BMPs at new development, redevelopment and retrofit projects can be an effective means for minimizing the impact of storm water runoff discharges from the development projects on receiving waters. LID is a site design strategy with a goal of maintaining or replicating the pre-development hydrologic regime through the use of design techniques. LID site design BMPs help preserve and restore the natural hydrologic cycle of the site, allowing for filtration and infiltration which can greatly reduce the volume, peak flow rate, velocity, and pollutant loads of storm water runoff. Current runoff management, knowledge, practices and technology have resulted in the use of LID BMPs as an acceptable means of meeting the storm water MEP standard.

Discussion of Finding D.2.c. The Clean Water Act (CWA) is the cornerstone of surface water quality protection in the United States. (The Act does not deal directly with ground water nor with water quantity issues.) The statute employs a variety of regulatory and nonregulatory tools to sharply reduce direct pollutant discharges into

waterways, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support the protection and propagation of fish, shellfish, wildlife and recreation in and on the water.

Increasing the volume, velocity, frequency and discharge duration of storm water runoff from developed areas will eventually greatly accelerate downstream erosion, impair stream habitat in natural drainages, and negatively impact beneficial uses. Development and urbanization increase pollutant loads and volume while simultaneously increasing impervious area. Impervious surfaces can neither absorb water nor remove pollutants and thus lose the purification and infiltration provided by naturally vegetated soil. Furthermore, impervious surfaces tend to concentrate pollutants on the top of the surface that are then washed off into the MS4 and waters of the State in a concentrated manner. The use of Low-Impact Development (LID) site design BMPs can be an effective means of minimizing the impact of runoff discharges on receiving waters. By reducing water pollution, reducing runoff and increasing groundwater recharge, LID helps to improve the quality of receiving surface waters, stabilize the flow rates of receiving waters (preventing downstream hydromodification), reduce downstream flooding and protect and enhance water supply sources. Current runoff management, knowledge, practice and technology has resulted in the use of LID BMPs as an acceptable means of meeting the MEP standard for storm water treatment.

Current municipal codes may oppose or hinder the design, use and implementation of specific elements of LID. These codes include, but are not limited to, emergency services access requirements, building landscape ordinances, building height limits and parking space requirements. It is essential for Copermittees to work with other responsible agencies and/or update codes that have the potential to impact the use of LID.

The Local Government Commission, a non-profit organization working to build livable communities, developed a set of principles known as the *Ahwahnee Water Principles for Resource-Efficient Land Use*¹¹⁸ that provide the opportunity to reduce costs and improve the reliability and quality of our water resources. Implementation of LID incorporates several of the Ahwahnee principles such as:

1. "Community Design should be compact, mixed use, walkable and transit-oriented so that urban runoff pollutants are minimized and the open lands that absorb water are preserved to the maximum extent possible."
3. "Water holding areas such as creek beds, recessed athletic fields, ponds, cisterns, and other features that serve to recharge groundwater, reduce runoff, improve water quality and decrease flooding should be incorporated into the urban landscape."

¹¹⁸ Local Government Commission, "The Ahwahnee Water Principles – A Blueprint for Regional Sustainability", http://water.lgc.org/Members/tony/docs/lgc_water_guide.pdf

4. "All aspects of landscaping from the selection of plants to soil preparation and the installation of irrigation systems should be designed to reduce water demand, retain runoff, decrease flooding, and recharge groundwater."
5. "Permeable surfaces should be used for hardscape. Impervious surfaces such as driveways, streets, and parking lots should be minimized so that land is available to absorb storm water, reduce polluted urban runoff, recharge groundwater and reduce flooding."

The use of LID site design BMPs helps reduce the amount of impervious area associated with development and allows storm water to infiltrate into the soil. Natural vegetation and soil filters storm water runoff and reduces the volume and pollutant loads of storm water. Studies have revealed that the level of imperviousness resulting from development and urbanization is strongly correlated with the water quality impairment of nearby receiving waters.¹¹⁹ In many cases, the impacts on receiving waters due to changes in hydrology can be more significant than those attributable to the contaminants found in storm water discharges.¹²⁰ These impacts include stream bank erosion (increased sediment load and subsequent deposition), benthic habitat degradation, and decreased diversity of macroinvertebrates. Although conventional BMPs do reduce storm water pollutant loads, they may not effectively control adverse effects from changes in the discharge hydrologic conditions.¹²¹

The Order includes requirements for developments to include site design BMPs that mimic or replicate the natural hydrologic cycle. Open space designs which maximize pervious surfaces and retention of "natural" drainages have been found to reduce both the costs of development and pollutant export.¹²² Moreover, USEPA finds including plans for a "natural" site design and BMP implementation during the design phase of new development and redevelopment offers the most cost effective strategy to reduce storm water pollutant loads to surface waters.¹²³ In addition, a recent U.S. Department of Housing and Urban Development guidance document on low-impact development notes that the use of LID-based storm water management design allows land to be developed, but in a cost-effective manner that helps mitigate potential environmental impacts.¹²⁴

¹¹⁹ USEPA, 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule.

¹²⁰ Ibid.

¹²¹ USEPA, 2000. Low-Impact Development: A literature review. EPA-841-B-00-005. 35p.

¹²² Center for Watershed Protection, 2000. "The Benefits of Better Site Design in Residential Subdivisions." Watershed Protection Techniques. Vol. 3. No. 2.

¹²³ USEPA, 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule.

¹²⁴ U.S. Department of Housing and Urban Development, Office of Policy Development and Research, 2003. "The Practice of Low Impact Development." Prepared by: NAHB Research Center, Inc. Upper Marlboro, Maryland. Contract No. H-21314CA. 131p.

Finding D.2.d. Retail Gasoline Outlets (RGOs) are significant sources of pollutants in storm water runoff. RGOs are points of convergence for motor vehicles for automotive related services such as repair, refueling, tire inflation, and radiator fill-up and consequently produce significantly higher loadings of hydrocarbons and trace metals (including copper and zinc) than other developed areas.

Discussion of Finding D.2.d. RGOs are included in the Order as a Priority Development Project category because RGOs produce significantly greater loadings of hydrocarbons and trace metals (including copper and zinc) than other developed areas. To meet the storm water MEP standard, source control and structural treatment BMPs are needed at RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) an ADT of 100 or more vehicles per day. These are appropriate thresholds since vehicular development size and volume of traffic are good indicators of potential impacts of storm water runoff from RGOs on receiving waters.

This finding has been added to satisfy State Board WQ Order No. 2000-11's requirements for including RGOs as a Priority Development Category. Order No. 2000-11 acknowledged that a threshold (size, average daily traffic, etc.) appropriate to trigger SSMP requirements should be developed for RGOs and that specific findings regarding RGOs should be included in MS4 permits to justify the requirement.¹²⁵ Additional detail to support the inclusion of RGOs can be found in the Fact Sheet discussion of Section D.1.d.2.j.

Finding D.2.e. Industrial sites are significant sources of pollutants in runoff. Pollutant concentrations and loads in runoff from industrial sites are similar or exceed pollutant concentrations and loads in runoff from other land uses, such as commercial or residential land uses. As with other land uses, LID site design, source control, and treatment control BMPs are needed at industrial sites in order to meet the MEP standard. These BMPs are necessary where the industrial site is larger than 10,000 square feet. The 10,000 square feet threshold is appropriate, since it is consistent with requirements in other Phase I NPDES storm water regulations throughout California.

¹²⁵ State Board, 2000. Order WQ 2000-11. In the Matter of the Petitions of The Cities Of Bellflower, Et Al., The City Of Arcadia, And Western States Petroleum Association Review of January 26, 2000 Action of the Regional Board And Actions and Failures to Act by both the California Regional Water Quality Control Board, Los Angeles Region and Its Executive Officer Pursuant to Order No. 96-054, Permit for Municipal Storm Water and Urban Run-Off Discharges Within Los Angeles County [NPDES NO. CAS614001] SWRCB/OCC FILES A-1280, A-1280(a) and A-1280(b)

Discussion of Finding D.2.e. Industrial sites can be a significant source of pollutants in storm water runoff. In an extensive review of storm water literature, the LARWQCB found widespread support for the finding that "industrial and commercial activities can also be considered hot spots as sources of pollutants." It also found that "industrial and commercial areas were likely to be the most significant pollutant source areas" of heavy metals.¹²⁶ Likewise, storm water runoff from heavy industry in the Santa Clara Valley has been found to be extremely toxic.¹²⁷ These findings are corroborated by USEPA, which states in the preamble to the 1990 Phase I NPDES storm water regulations that "Because storm water from industrial facilities may be a major contributor of pollutants to municipal separate storm sewer systems, municipalities are obligated to develop controls for storm water discharges associated with industrial activity through their system in their storm water management program." Since heavy industrial sites can be a significant source of pollutants in runoff in a manner similar to other SSMP project categories such as commercial development or automotive repair shops, it is appropriate to include heavy industrial sites as a SSMP category in the Order.

The Phase I NPDES storm water regulations require the Copermittees to "control through ordinance, permit, contract, order, or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity" (40 CFR 122.26(d)(2)(i)). In addition, it has been established that the MEP standard for the control of storm water runoff from new development projects includes incorporation of the SSMP requirements. Since the Copermittees must both control storm water pollutants from industrial sites and meet the storm water MEP standard for new development, it is appropriate to apply the SSMP requirements to heavy industrial sites.

The State Board's Order WQ 2000-11 indicates that it is appropriate to apply SSMP requirements to categories of development where evidence shows the category of development can be a significant source of pollutants. As evidenced above, heavy industrial sites can be a significant source of pollutants. Therefore, the Order includes heavy industrial sites as a SSMP Priority Development Project category.

¹²⁶ Los Angeles Regional Water Quality Control Board. 2001.

¹²⁷ Schueler and Holland, 2000. Storm Water Strategies for Arid and Semi-Arid Watersheds (Article 66). The Practice of Watershed Protection.

Finding D.2.f. If not properly designed or maintained, certain BMPs implemented or required by municipalities for runoff management may create a habitat for vectors (e.g. mosquitoes and rodents). However, proper BMP design and maintenance to avoid standing water can prevent the creation of vector habitat. Nuisances and public health impacts resulting from vector breeding can be prevented with close collaboration and cooperative effort between municipalities, the Orange County Vector Control District, and the California Department of Public Health during the development and implementation of runoff management programs.

Discussion of Finding D.2.f. The implementation of certain structural BMPs or other runoff treatment systems can result in significant vector problems in the form of increased breeding or harborage habitat for mosquitoes, rodents or other potentially disease transmitting organisms. The implementation of BMPs that retain water may provide breeding habitat for a variety of mosquito species, some of which have the potential to transmit diseases such as Western Equine Encephalitis, St. Louis Encephalomyelitis, and malaria. Recent BMP implementation studies by Caltrans¹²⁸ in District 7 and District 11 have demonstrated mosquito breeding associated with some types of BMPs. The Caltrans BMP Retrofit Pilot study cited lack of maintenance and improper design as factors contributing to mosquito production. However, a Watershed Protection Techniques article describes management techniques for selecting, designing, and maintaining structural treatment BMPs to minimize mosquito production.¹²⁹ State and local runoff management programs that include structural BMPs with the potential to retain water have been implemented in Florida and the Chesapeake Bay region without resulting in significant public health threats from mosquitoes or other vectors.¹³⁰

Finding D.2.g. The increased volume, velocity, frequency and discharge duration of storm water runoff from developed areas has the potential to greatly accelerate downstream erosion, impair stream habitat in natural drainages, and negatively impact beneficial uses. Development and urbanization increase pollutant loads in storm water runoff and the volume of storm water runoff. Impervious surfaces can neither absorb water nor remove pollutants and thus lose the purification and infiltration provided by natural vegetated soil. Hydromodification measures for discharges to hardened channels allow for the future restoration of the hardened channels to their natural state, thereby restoring the chemical, physical, and biological integrity and Beneficial Uses of local receiving waters.

¹²⁸ Caltrans, 2000. BMP Retrofit Pilot Studies: A Preliminary Assessment of Vector Production.

¹²⁹ Watershed Protection Techniques, 1995. Mosquitoes in Constructed Wetlands: A Management Bugaboo? 1(4):203-207.

¹³⁰ Shaver, E. and R. Baldwin, 1995. Sand Filter Design for Water Quality Treatment in Herricks, E., Ed. Stormwater Runoff and Receiving Systems: Impact, Monitoring, and Assessment, CRC Lewis Publishers, New York, NY.

Discussion of Finding D.2.g. Increasing the volume, velocity, frequency and discharge duration of storm water runoff from developed areas will eventually greatly accelerate downstream erosion, impair stream habitat in natural drainages, and negatively impact beneficial uses. Development and urbanization increase pollutant loads and volume while simultaneously increasing impervious area. Impervious surfaces can neither absorb water nor remove pollutants and thus lose the purification and infiltration provided by naturally vegetated soil.

Historic hydromodification impacts, such as concrete lining and channelization, have impacted the natural physical habitat of urban streams resulting in low Index of Biotic Integrity (IBI) scores. The Copermittee's 2006-2007 monitoring indicated decreased IBI scores in the developed watersheds. In the absence of water chemistry and toxicity impacts, these low scores were attributed to be a result of poor physical habitat conditions.¹³¹

Hydromodification impacts result in poor physical habitat conditions through streambed scour, erosion, vegetation displacement, sediment deposition, channelization and channel modifications. Increased sediment loads from hydromodification causes other impacts to physical habitats including increased turbidity which then may cause increased temperatures. In addition, an increased sediment load may have an increased biological content thereby increasing the sediment oxygen demand and lowering the dissolved oxygen available for aquatic life.¹³²

The objective of the CWA is "to restore and maintain the chemical, *physical*, and biological integrity of the Nation's waters (emphasis added)." Stream restoration by removing concrete and other unnatural materials is a major step toward achieving that objective. The success of future stream restoration and stabilization is, however, dependent on preventing and reducing physical impacts from activities upstream. Therefore, hydromodification management measures are necessary upstream of modified (e.g. concrete, rip rap, etc.) channels in addition to non-modified channels.

Please see discussion of Findings C.10 and C.11.

¹³¹ Orange County Copermittees, November 15, 2007. 2006-2007 Unified Annual Progress Report Program Effectiveness Assessment (San Diego Region).

¹³² USEPA, National Management Measures to Control Nonpoint Source Pollution from Hydromodification, EPA 841-B-07-002, July 2007.

Finding D.3.a. In accordance with federal NPDES regulations and to ensure the most effective oversight of industrial and construction site discharges, discharges of runoff from industrial and construction sites are subject to dual (state and local) storm water regulation. Under this dual system, each Copermitttee is responsible for enforcing its local permits, plans, and ordinances, and the Regional Board is responsible for enforcing the General Construction Activities Storm Water Permit, State Board Order 99-08 DWQ, NPDES No. CAS000002 (General Construction Permit) and the General Industrial Activities Storm Water Permit, State Board Order 97-03 DWQ, NPDES No. CAS000001 (General Industrial Permit). NPDES municipal regulations require that municipalities develop and implement measures to address runoff from industrial and construction activities. Those measures may require the implementation of additional BMPs than are required under the statewide general permits for activities subject to both state and local regulation.

Discussion of Finding D.3.a. USEPA finds the control of pollutant discharges from industry and construction so important to receiving water quality that it has established a double system of regulation over industrial and construction sites. This double system of regulation consists of two parallel regulatory systems with the same common objective: to keep pollutants from industrial and construction sites out of the MS4. In this double system of regulation for runoff from industrial and construction sites, local governments must enforce their legal authorities (i.e., local ordinances and permits) while the Regional Board must enforce its legal authority (i.e., statewide general industrial and construction storm water permits). These two regulatory systems are designed to complement and support each other. Municipalities are not required to enforce Regional Board and State Board permits; however, they are required to enforce their ordinances and permits. The Federal regulations are clear that municipalities have responsibility to prevent non-storm water and address storm water runoff from industrial and construction sites which enters their MS4s.

Municipalities have this responsibility because they have the authority to issue land use and development permits. Since municipalities are the lead permitting authority for industrial land use and construction activities, they are also the lead for enforcement regarding runoff discharges from these sites. For sites where the municipality is the lead permitting authority, the Regional Board will work with the municipality and provide support where needed. The Regional Board will assist municipalities in enforcement against non-compliant sites after the municipality has exhibited a good faith effort to bring the site into compliance.

According to USEPA, the storm water regulations envision that NPDES permitting authorities and municipal operators will cooperate to develop programs to monitor and control pollutants in storm water discharges from industrial facilities.¹³³ USEPA discusses the “dual regulation” of construction sites in its Storm Water Phase II Compliance Assistance Guide, which states “Even though all construction sites that disturb more than one acre are covered nationally by an NPDES storm water permit, the construction site runoff control minimum measure [...] is needed to induce more localized site regulation and enforcement efforts, and to enable operators [...] to more effectively control construction site discharges into their MS4s.”¹³⁴ While the Storm Water Phase II Compliance Assistance Guide applies to small municipalities, it is applicable to the Copermittees, because they are similar in size and have the potential to discharge similar pollutant types as Phase II municipalities.

Finding D.3.b. Identification of sources of pollutants in runoff (such as municipal areas and activities, industrial and commercial sites/sources, construction sites, and residential areas), development and implementation of BMPs to address those sources, and updating ordinances and approval processes are necessary for the Copermittees to ensure that discharges of pollutants from its MS4 in storm water are reduced to the MEP and that non-storm water discharges are not occurring. Inspections and other compliance verification methods are needed to ensure minimum BMPs are implemented. Inspections are especially important at high risk areas for pollutant discharges.

Discussion of Finding D.3.b. Source identification is necessary to characterize the nature and extent of pollutants in discharges and to develop appropriate BMPs. It is the first step in a targeted approach to runoff management. Source identification helps identify the location of potential sources of pollutants in runoff. Pollutants found to be present in receiving waters can then be traced to the sites which frequently generate such pollutants. In this manner source inventories can help to target inspections, monitoring, and potential enforcement. This allows for limited inspection, monitoring, and enforcement time to be most effective. USEPA supports source identification as a concept when it recommends construction, municipal, and industrial source identification in guidance and the federal regulations.^{135,136}

¹³³ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

¹³⁴ USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. EPA 833-R-00-002.

¹³⁵ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

¹³⁶ 40 CFR 122.26(d)(2)(ii)

The development of BMPs for identified sources will help ensure that appropriate, consistent controls are implemented at all types of development and areas. Copermittees must reduce the discharge of pollutants in storm water runoff to the maximum extent practicable. To achieve this level of pollutant reduction, BMPs must be implemented. Designation of minimum BMPs helps ensure that appropriate BMPs are implemented for various sources. These minimum BMPs also serve as guidance as to the level of water quality protection required. USEPA requires development and implementation of BMPs for construction, municipal, commercial, industrial, and residential sources at 40 CFR 122.26(d)(2)(iv)(A-D).

Updating ordinances and approval processes is necessary in order for the Copermittees to control discharges to their MS4s. USEPA supports updating ordinances and approval processes when it states “A crucial requirement of the NPDES storm water regulation is that a municipality must demonstrate that it has adequate legal authority to control the contribution of pollutants in storm water discharged to its MS4. [...] In order to have an effective municipal storm water management program, a municipality must have adequate legal authority to control the contribution of pollutants to the MS4. [...] ‘Control,’ in this context, means not only to require disclosure of information, but also to limit, discourage, or terminate a storm water discharge to the MS4.”¹³⁷

Inspections provide a necessary means for the Copermittees to evaluate compliance of pollutant sources with their municipal ordinances and minimum BMP requirements. USEPA supports inspections when it recommends inspections of construction, municipal, and industrial sources.¹³⁸ Inspection of high risk sources are especially important because of the ability of frequent inspections to help ensure compliance, thereby reducing the risk associated with such sources. USEPA suggests that inspections can improve compliance when it states “Effective inspection and enforcement requires [...] penalties to deter infractions and intervention by the municipal authority to correct violations.”¹³⁹

Finding D.3.c. Historic and current development makes use of natural drainage patterns and features as conveyances for runoff. Urban streams used in this manner are part of the municipalities MS4 regardless of whether they are natural, anthropogenic, or partially modified features. In these cases, the urban stream is both an MS4 and receiving water.

¹³⁷ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

¹³⁸ Ibid.

¹³⁹ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

Discussion of Finding D.3.c. An MS4 is defined in the federal regulations as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains), owned or operated by a Copermittee, and designed or used for collecting or conveying runoff.¹⁴⁰ Natural drainage patterns and urban streams are frequently used by municipalities to collect and convey runoff away from development within their jurisdiction. Therefore, the Regional Board considers natural drainages that are used for conveyances of runoff, regardless of whether or not they've been altered by the municipality, as both part of the MS4s and as receiving waters. To clarify, an unaltered natural drainage, which receives runoff from a point source (channeled by a Copermittee to drain an area within their jurisdiction), which then conveys the runoff to an altered natural drainage or a man-made MS4, is both an MS4 and a receiving water.¹⁴¹

Finding D.3.d. As operators of the MS4s, the Copermittees cannot passively receive and discharge pollutants from third parties. By providing free and open access to an MS4 that conveys discharges to waters of the U.S., the operator essentially accepts responsibility for discharges into the MS4 that it does not prohibit or control. These discharges may cause or contribute to a condition of contamination or a violation of water quality standards.

¹⁴⁰ USEPA, 2000. EPA Administered Permit Programs: The National Pollutant Discharge Elimination System. Code of Federal Regulations, Vol. 40, Part 122.

¹⁴¹ Regional Board, 2001. Response in Opposition to Petitions for Review of California Regional Water Quality Control Board San Diego Region Order No. 2001-01 – NPDES Permit No. CAS0108758 (San Diego Municipal Storm Water Permit).

Discussion of Finding D.3.d. CWA section 402(p) requires operators of MS4s to prohibit non-storm water discharges into their MS4s. This is necessary because pollutants which enter the MS4 generally are conveyed through the MS4 to be eventually discharged into receiving waters. If a municipality does not prohibit non-storm water discharges, it is providing the pathway (its MS4) which enables pollutants to reach receiving waters. Since the municipality's storm water management service can result in pollutant discharges to receiving waters, the municipality must accept responsibility for the water quality consequences resulting from this service. Furthermore, third party discharges can cause a municipality to be out of compliance with its permit. Since pollutants from third parties which enter the MS4 will eventually be discharged from the MS4 to receiving waters, the third party discharges can result in a situation of municipality non-compliance if the discharges lead to an exceedance of water quality standards. For these reasons, each Copermittee must prohibit and/or control discharges from third parties to its MS4. USEPA supports this concept when it states "the operators of regulated small MS4s cannot passively receive and discharge pollutants from third parties" and "the operator of a small MS4 that does not prohibit and/or control discharges into its system essentially accepts 'title' for those discharges. At a minimum, by providing free and open access to the MS4s that convey discharges to the waters of the United States, the municipal storm sewer system enables water quality impairment by third parties."¹⁴²

Finding D.3.e. Waste and pollutants which are deposited and accumulate in MS4 drainage structures will be discharged from these structures to waters of the U.S. unless they are removed. These discharges may cause or contribute to, or threaten to cause or contribute to, a condition of pollution in receiving waters. For this reason, pollutant discharges from storm water into MS4s must be reduced using a combination of management measures, including source control, and an effective MS4 maintenance program must be implemented by each Copermittee.

Discussion of Finding D.3.e. When rain falls and drains freeways, industries, construction sites, and neighborhoods, it picks up a multitude of pollutants. Gravity flow transports the pollutants to the MS4. Illicit discharges and connections also can contribute a significant amount of pollutants to MS4s. MS4s are commonly designed to convey their contents as quickly as possible. Due to the resulting typically high flow rates within the concrete conveyance systems of MS4s, pollutants which enter or are deposited in the MS4 and not removed are generally flushed unimpeded through the MS4 to waters of the United States. Since treatment generally does not occur within the MS4, in such cases reduction of storm water pollutants to the MEP must occur prior to discharges entering the MS4.

¹⁴² Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68765-68766.

The importance of this concept is supported by the tons of wastes/pollutants that have been removed from the Copermittees' MS4s as reported in their ROWD.¹⁴³ Moreover, these pollutants will be discharged into receiving waters unless an effective MS4 and structural treatment BMP maintenance program is implemented by the Copermittees. The requirement for Copermittees to conduct a MS4 maintenance program is specifically directed in both the Phase I and Phase II storm water regulations. Regarding MS4 cleaning, USEPA states "The removal of sediment, decaying debris, and highly polluted water from catch basins has aesthetic and water quality benefits, including reducing foul odors, reducing suspended solids, and reducing the load of oxygen-demanding substances that reach receiving waters."¹⁴⁴ It goes on to say, "Catch basin cleaning is an efficient and cost-effective method for preventing the transport of sediment and pollutants to receiving water bodies." USEPA also finds that "Lack of maintenance often limits the effectiveness of storm water structural controls such as detention/retention basins and infiltration devices. [...] The proposed program should provide for maintenance logs and identify specific maintenance activities for each class of control, such as removing sediment from retention ponds every five years, cleaning catch basins annually, and removing litter from channels twice a year."¹⁴⁵

Finding D.3.f. Enforcement of local runoff related ordinances, permits, and plans is an essential component of every runoff management program and is specifically required in the federal storm water regulations and this Order. Each Copermittee is individually responsible for adoption and enforcement of ordinances and/or policies, implementation of identified control measures/BMPs needed to prevent or reduce pollutants in storm water runoff, and for the allocation of funds for the capital, operation and maintenance, administrative, and enforcement expenditures necessary to implement and enforce such control measures/BMPs under its jurisdiction. Education is an important aspect of every effective runoff management program and the basis for changes in behavior at a societal level. Education of municipal planning, inspection, and maintenance department staffs is especially critical to ensure that in-house staffs understand how their activities impact water quality, how to accomplish their jobs while protecting water quality, and their specific roles and responsibilities for compliance with this Order. Public education, designed to target various urban land users and other audiences, is also essential to inform the public of how individual actions affect receiving water quality and how adverse effects can be minimized.

¹⁴³ Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region).

¹⁴⁴ USEPA, 1999. Storm Water O&M Fact Sheet, Catch Basin Cleaning. EPA 832-F-99-011.

¹⁴⁵ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

Discussion of Finding D.3.f. The Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A – D) are clear in placing responsibility on municipalities for control of runoff from third party activities and land uses to their MS4.¹⁴⁶ In order for municipalities to assume this responsibility, they must implement ordinances, permits, and plans addressing runoff from third parties. Assessments for compliance with their ordinances, permits, and plans are essential for a municipality to ensure that third parties are not causing the municipality to be in violation of its municipal storm water permit. When conditions of non-compliance are determined, enforcement is necessary to ensure that violations of municipality ordinances and permits are corrected. When the Copermitees determine a violation of its storm water ordinance, it must pursue correction of the violation. Without enforcement, third parties do not have incentive to correct violations. USEPA supports enforcement by municipalities when it states “Effective inspection and enforcement requires [...] penalties to deter infractions and intervention by the municipal authority to correct violations. Enforcement mechanisms [...] also must be described.”¹⁴⁷

Education is a critical BMP and an important aspect of runoff management programs. USEPA finds that “An informed and knowledgeable community is critical to the success of a storm water management program since it helps ensure the following: Greater support for the program as the public gains a greater understanding of the reasons why it is necessary and important, [and] greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters.”¹⁴⁸

Regarding target audiences, USEPA also states “The public education program should use a mix of appropriate local strategies to address the viewpoints and concerns of a variety of audiences and communities, including minority and disadvantaged communities, as well as children.”

Finding D.3.g. Public participation during the development of runoff management programs is necessary to ensure that all stakeholder interests and a variety of creative solutions are considered.

Discussion of Finding D.3.g.

This finding is supported by the Phase II Storm Water Regulations, which state “early and frequent public involvement can shorten implementation schedules and broaden public support for a program.” USEPA goes on to explain, “Public participation is likely to ensure a more successful storm water program by providing valuable expertise and a conduit to other programs and governments.”¹⁴⁹

¹⁴⁶ USEPA, 2000. EPA Administered Permit Programs: The National Pollutant Discharge Elimination System. Code of Federal Regulations, Vol. 40, Part 122.

¹⁴⁷ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA/833-B-92-002.

¹⁴⁸ USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. EPA 833-R-00-002.

¹⁴⁹ Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68755.

Finding D.3.h. Retrofitting existing development with storm water treatment controls including LID, is necessary to address storm water discharges from existing development that may cause or contribute to a condition of pollution or a violation of water quality standards. Although SSMP BMPs are required for redevelopment, the current rate of redevelopment will not address water quality problems in a timely manner. Cooperation with private landowners is necessary to effectively identify, implement and maintain retrofit projects for the preservation, restoration, and enhancement of water quality.

Discussion of Finding D.3.h. Existing BMPs are not sufficient to protect the Beneficial Uses of receiving waters from storm water MS4 discharges, as evidenced by 303(d) listings and exceedances of Water Quality Objectives from the Copermittees monitoring reports. Implementing more advanced BMPs, including the retrofitting of existing development with LID, is part of the iterative process. Based on the current rate of redevelopment compared to existing BMPs, the use of LID only on new and redevelopment will not adequately address current water quality problems, including downstream hydromodification. Retrofitting existing development is practicable for a municipality through a systematic evaluation, prioritization and implementation plan focused on impaired water bodies, pollutants of concern, areas of downstream hydromodification, feasibility and effective communication and cooperation with private property owners.

Finding D.4.a. Since runoff within a watershed can flow from and through multiple land uses and political jurisdictions, watershed-based runoff management can greatly enhance the protection of receiving waters. Such management provides a means to focus on the most important water quality problems in each watershed. By focusing on the most important water quality problems, watershed efforts can maximize protection of beneficial use in an efficient manner. Effective watershed-based runoff management actively reduces pollutant discharges and abates pollutant sources causing or contributing to watershed water quality problems. Watershed-based runoff management that does not actively reduce pollutant discharges and abate pollutant sources causing or contributing to watershed water quality problems can necessitate implementation of the iterative process outlined in section A.3 of the Tentative Order. Watershed management of runoff does not require Copermittees to expend resources outside of their jurisdictions. Watershed management requires the Copermittees within a watershed to develop a watershed-based management strategy, which can then be implemented on a jurisdictional basis.

Discussion of Finding D.4.a. In recent years, addressing water quality issues from a watershed perspective has increasingly gained attention. Regarding watershed-based permitting, the USEPA *Watershed-Based NPDES Permitting Policy Statement* issued on Jan. 7, 2004 states the following:

USEPA continues to support a holistic watershed approach to water quality management. The process for developing and issuing NPDES permits on a watershed basis is an important tool in water quality management. USEPA believes that developing and issuing NPDES permits on a watershed basis can benefit all watershed stakeholders, from the NPDES permitting authority to local community members. A watershed-based approach to point source permitting under the NPDES program may serve as one innovative tool for achieving new efficiencies and environmental results. USEPA believes that watershed-based permitting can:

- Lead to more environmentally effective results;
- Emphasize measuring the effectiveness of targeted actions on improvements in water quality;
- Provide greater opportunities for trading and other market based approaches;
- Reduce the cost of improving the quality of the nation's waters;
- Foster more effective implementation of watershed plans, including total maximum daily loads (TMDLs); and
- Realize other ancillary benefits beyond those that have been achieved under the CWA (e.g., facilitate program integration including integration of clean water act and safe drinking water act programs).

Watershed-based permitting is a process that ultimately produces NPDES permits that are issued to point sources on a geographic or watershed basis. In establishing point source controls in a watershed-based permit, the permitting authority may focus on watershed goals, and consider multiple pollutant sources and stressors, including the level of nonpoint source control that is practicable. In general, there are numerous permitting mechanisms that may be used to develop and issue permits within a watershed approach.

This USEPA guidance is in line with State Board and Regional Board watershed management goals. For example, the State Board's TAC recommends watershed-based water quality protection, stating "Municipal permits should have watershed specific components." The TAC further recommends that "All NPDES permits and Waste Discharge Requirements should be considered for reissuance on a watershed basis."

In addition, the Basin Plan states that "public agencies and private organizations concerned with water resources have come to recognize that a comprehensive evaluation of pollutant contributions on a watershed scale is the only way to realistically assess cumulative impacts and formulate workable strategies to truly protect our water resources. Both water pollution and habitat degradation problems can best be solved by following a basin-wide approach."

In light of USEPA's policy statement and the State Board's and Regional Board's watershed management goals, the Regional Board seeks to expand watershed management in the regulation of runoff from the MS4. Watershed-based MS4 permits can provide for more effective receiving water quality protection by focusing on specific water quality problems. The entire watershed for the receiving water can be assessed, allowing for critical areas and practices to be targeted for corrective actions. Known sources of pollutants of concern can be investigated for potential water quality impacts. Problem areas can then be addressed, leading to eventual improvements in receiving water quality. Management of runoff on a watershed basis allows for specific water quality problems to be targeted so that efforts result in maximized water quality improvements.¹⁵⁰

Finding D.4.b. Some runoff issues, such as general education and training, can be effectively addressed on a regional basis. Regional approaches to runoff management can improve program consistency and promote sharing of resources, which can result in implementation of more efficient programs.

Discussion of Finding D.4.b. Copermittees in Orange County participate in several runoff-related activities whose scope extends beyond the area subject to this Order. These include countywide activities (e.g., portions of Orange County fall under the jurisdiction of the Santa Ana Regional Board), southern California, and statewide activities. Copermittees' participation in these regional activities is generally directed at improving management capability, preventing redundancy and taking advantage of economies of scale. For instance, Copermittees seek to develop consistency between watershed and/or jurisdictional programs (e.g., through standards development), and to collaborate on certain program activities such as education, training, and monitoring. The Copermittees report agreeing that jurisdictional, watershed, and regional programs cannot be effectively developed and implemented in isolation. In addition, the Copermittees, through WRMP implementation efforts, have learned that many watershed activities can be more effectively implemented (e.g., achieve more water quality benefits) at the regional level due to economies of scale and agree watershed protection should be increasingly emphasized as a focal point of Copermittee efforts under the re-issued Permit.¹⁵¹

Finding D.4.c. It is important for the Copermittees to coordinate their water quality protection and land use planning activities to achieve the greatest protection of receiving water bodies. Copermittee coordination with other watershed stakeholders, especially Caltrans, the Department of Defense, and water and sewer districts, is also important.

¹⁵⁰ Regional Board, 2004. San Diego County Municipal Storm Water Permit Reissuance Analysis Summary. P. 1.

¹⁵¹ Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region).

Discussion of Finding D.4.c. Conventional planning and zoning can be limited in their ability to protect the environmental quality of creeks, rivers, and other waterbodies. Watershed-based planning is often ignored, despite the fact that receiving waters unite land by collecting runoff from throughout the watershed. Since watersheds unite land, they can be used as an effective basis for planning. Watershed-based planning enables local and regional areas to realize economic, social, and other benefits associated with growth, while conserving the resources needed to sustain such growth, including water quality.

This type of planning can involve four steps: (1) Identify the watersheds shared by the participating jurisdictions; (2) Identify, assess, and prioritize the natural, social, and other resources in the watersheds; (3) Prioritize areas for growth, protection, and conservation, based on prioritized resources; and (4) Develop plans and regulations to guide growth and protect resources. Local governments have started with simple, yet effective, steps toward watershed planning, such as adopting a watershed-based planning approach, articulating the basic strategy in their General Plans, and beginning to pursue the basic strategy in collaboration with neighboring local governments who share the watersheds. Examples of new mechanisms created to facilitate watershed-based planning and zoning include the San Francisquito Creek Watershed Coordinated Resource Management Process and the Santa Clara Basin Watershed Management Initiative.¹⁵²

¹⁵² Bay Area Stormwater Management Agencies Association., 1999. Start at the Source. Forbes Custom Publishing. Available on-line at: http://www.scvurppp-w2k.com/basmaa_satsm.htm

E. Statute and Regulatory Considerations

Finding E.1. The Receiving Water Limitations (RWL) language specified in this Order is consistent with language recommended by the USEPA and established in State Board Water Quality Order 99-05, *Own Motion Review of the Petition of Environmental Health Coalition to Review Waste Discharge Requirements Order No. 96-03, NPDES Permit No. CAS0108740*, adopted by the State Board on June 17, 1999. The RWL in this Order require compliance with water quality standards, which for storm water discharges is to be achieved through an iterative approach requiring the implementation of improved and better-tailored BMPs over time. Compliance with receiving water limitations based on applicable water quality standards is necessary to ensure that MS4 discharges will not cause or contribute to violations of water quality standards and the creation of conditions of pollution.

Discussion of Finding E.1. The RWLs in the Order require storm water compliance with water quality standards through an iterative approach for implementing improved and better-tailored BMPs over time. The iterative BMP process requires the implementation of increasingly stringent BMPs until receiving water standards are achieved. This is necessary because implementation of BMPs alone cannot ensure attainment of receiving water quality standards. For example, a BMP that is effective in one situation may not be applicable in another. An iterative process of BMP development, implementation, and assessment is needed to promote consistent compliance with receiving water quality objectives. If assessment of a given BMP confirms that the BMP is ineffective, the iterative process should be restarted, with redevelopment of a new BMP that is anticipated to result in compliance with receiving water quality objectives.

The issue of whether storm water discharges from MS4s must meet water quality standards has been intensely debated in past years. The argument arises because CWA section 402(p) fails to clearly state that municipal dischargers of storm water must meet water quality standards. On the issue of industrial discharges of storm water, the statute clearly indicates that industrial dischargers must meet both (1) the technology-based standard of “best available technology economically achievable (BAT)” and (2) applicable water quality standards. On the issue of municipal discharges however, the statute states that municipal dischargers must meet (1) the technology-based standard of “MEP” and (2) “such other provisions that the Administrator or the State determines appropriate for the control of such pollutants.” The statute fails, however, to specifically state that municipal dischargers must meet water quality standards.

As a result, the municipal storm water dischargers have argued that they do not have to meet water quality standards; and that they only are required to meet MEP for storm water. Environmental interest groups maintain that not only do MS4 discharges have to meet water quality standards, but that MS4 permits must also comply with numeric effluent limitations for the purpose of meeting water quality standards. On the issue of water quality standards, USEPA, the State Board, and the Regional Board have consistently maintained that MS4s must indeed comply with water quality standards. On the issue of whether water quality standards must be met by numeric effluent limitations, USEPA, the State Board (in Orders WQ 91-03 and WQ 91-04), and the Regional Board have maintained that MS4 permits can contain narrative requirements for the implementation of BMPs in place of numeric effluent limitations for storm water discharges.¹⁵³

In addition to relying on USEPA's legal opinion concluding that MS4s must meet MEP for storm water and water quality standards, the State Board also relied on the CWA's explicit authority for States to require "such other provisions that the Administrator or the State determines appropriate for the control of such pollutants" in addition to the technology-based standard of MEP for storm water discharges. To further support its conclusions that MS4 permit dischargers must meet water quality standards, the State Board relied on provisions of the CWC that specify that all waste discharge requirements must implement applicable Basin Plans and take into consideration the appropriate water quality objectives for the protection of beneficial uses.

The State Board first formally concluded that permits for MS4s must contain effluent limitations based on water quality standards in its Order WQ 91-03. In that Order, the State Board also concluded that it was appropriate for Regional Boards to achieve this result by requiring best management practices, rather than by inserting numeric effluent limitations into MS4 permits. Later, in Order WQ 98-01, the State Board prescribed specific precedent setting Receiving Water Limitations language to be included in all future MS4 permits. This language specifically requires that MS4 dischargers meet water quality standards and allows for the use of narrative BMPs (increasing in stringency and implemented in an iterative process) as the mechanism by which water quality standards can be met for storm water discharges.

In Order WQ 99-05, the State Board modified its receiving water limitations language in Order WQ 98-01 to meet specific objections by USEPA (the modifications resulted in stricter compliance with water quality standards). State Board Order WQ 99-05 states:

¹⁵³ For the most recent assessment, see Storm Water Panel Recommendations to the California State Water Resources Control Board, 2006. *The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial, and Construction Activities.*

“In Order WQ 98-01, the State Board ordered that certain receiving water limitation language be included in future municipal storm water permits. Following inclusion of that language in permits issued by the San Francisco Bay and San Diego Regional Boards for Vallejo and Riverside respectively, the USEPA objected to the permits. The USEPA objection was based on the receiving water limitation language. The USEPA has now issued those permits itself and has included receiving water limitation language it deems appropriate.

In light of USEPA’s objection to the receiving water limitation language in Order WQ 98-01 and its adoption of alternative language, the State Board is revising its instructions regarding receiving water limitation language for municipal storm water permits. It is hereby ordered that Order WQ 98-01 will be amended to remove the receiving water limitation language contained therein and to substitute the USEPA language. Based on the reasons stated here, and as a precedent decision, the following receiving water limitation language shall be included in future municipal storm water permits.”

In the 1999 case involving MS4 permits issued by USEPA to several Arizona cities (*Defenders of Wildlife v. Browner*, 1999, 197 F. 3d 1035), the United States Court of Appeals for the Ninth Circuit upheld USEPA’s requirement for MS4 dischargers to meet water quality standards, but it did so on the basis of USEPA’s discretion rather than on the basis of strict compliance with the Clean Water Act. In other words, while holding that the Clean Water Act does not require all MS4 discharges to comply strictly with state water quality standards, the Court also held that USEPA has the authority to determine that ensuring strict compliance with state water quality standards is necessary to control pollutants. On the question of whether MS4 permits must contain numeric effluent limitations, the court upheld USEPA’s use of iterative BMPs in place of numeric effluent limitations for storm water discharges.

On October 14, 1999, the State Board issued a legal opinion on the federal appellate decision and provided advice to the Regional Boards on how to proceed in the future. In the memorandum, the State Board concludes that the recent Ninth Circuit opinion upholds the discretion of USEPA and the State to (continue to) issue storm water permits to MS4s that require compliance with water quality standards through iterative BMPs. Moreover, the memorandum states that “[...] because most MS4 discharges enter impaired water bodies, there is a real need for permits to include stringent requirements to protect those water bodies. As TMDLs are developed, it is likely that MS4s will have to participate in pollutant load reductions, and the MS4 permits are the most effective vehicles for those reductions.” In summary, the State Board found that the Regional Boards should continue to include the RWL established in State Board Order WQ 99-05 in all future permits.

The issue of the RWLs language was also central to BIA's (and others') appeal of Order No. 2001-01 (San Diego MS4 permit), which was used as a template for Order No. R9-2002-01. BIA contended that the storm water MEP standard was a ceiling on what could be required of the Copermitees in implementing their runoff management programs, and that Order No. 2001-01's receiving water limitations requirements exceeded that ceiling. In other words, BIA argued that the Copermitees could not be required to comply with receiving water limitations if they necessitated efforts which went beyond the MEP standard. Again, the courts upheld the Regional Board's discretion to require compliance with water quality standards in municipal storm water permits, without limitation. The Court of Appeal, Fourth Appellate District found that the Regional Board has "the authority to include a permit provision requiring compliance with water quality standards."¹⁵⁴ On further appeal by BIA, the California State Supreme Court declined to hear the matter.

While implementation of the iterative BMP process is a means to achieve compliance with water quality objectives for storm water MS4 discharges, it does not shield the discharger from enforcement actions for continued non-compliance with water quality standards. Consistent with USEPA guidance,¹⁵⁵ regardless of whether or not an iterative process is being implemented, discharges that cause or contribute to a violation of water quality standards are in violation of Order No. R9-2008-0001.

Finding E.2. The Water Quality Control Plan for the San Diego Basin (Basin Plan), identifies the following beneficial uses for surface waters in Orange County: Municipal and Domestic Supply (MUN)¹⁵⁶, Agricultural Supply (AGR), Industrial Process Supply (PROC), Industrial Service Supply (IND), Ground Water Recharge (GWR), Contact Water Recreation (REC1) Non-contact Water Recreation (REC2), Warm Freshwater Habitat (WARM), Cold Freshwater Habitat (COLD), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRSH), Hydropower Generation (POW), and Preservation of Biological Habitats of Special Significance (BIOL). The following additional beneficial uses are identified for coastal waters of Orange County: Navigation (NAV), Commercial and Sport Fishing (COMM), Estuarine Habitat (EST), Marine Habitat (MAR), Aquaculture (AQUA), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), and Shellfish Harvesting (SHELL).

¹⁵⁴ Building Industry Association et al., v. State Water Resources Control Board, et al. 2004.

¹⁵⁵ USEPA, 1998. Jan. 21, 1998 correspondence, "State Board/OCC File A-1041 for Orange County," from Alexis Strauss to Walt Petit, and March 17, 1998 correspondence from Alexis Strauss to Walt Petit.

¹⁵⁶ Subject to exceptions under the "Sources of Drinking Waters" Policy (Resolution No. 89-33)

Discussion of Finding E.2. The southern portion of Orange County is within the San Diego Region. The Orange County portion of the San Diego Region falls within and comprises the majority of the San Juan Hydrologic Unit. Major streams within the Orange County watersheds include San Juan Creek, Trabuco Creek, and San Mateo Creek. Other surface water bodies include Aliso Creek, Prima Deshecha Canada, Segunda Deshecha Canada, Oso Creek, Salt Creek, Laguna Canyon Channel, Canada Gobernadora, and Bell Canyon. Several small canyon streams drain directly to the Ocean. Major inland waterbodies include Oso Reservoir, El Toro Reservoir, and Sulphur Creek Reservoir.

The Orange County watersheds include unincorporated portions of Orange County, the Cities of Aliso Viejo, Dana Point, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, Mission Viejo, Rancho Santa Margarita, San Clemente, and San Juan Capistrano. The uppermost portions of the San Mateo, San Juan, Trabuco, and Aliso Creek watersheds are within the Cleveland National Forests.

Approximately 500,000 people reside within the permitted area. This estimate is based on the 2000 census, which does not represent exact numbers because three municipalities (County of Orange and the Cities of Laguna Hills and Lake Forest) lie within both the San Diego Region and the Santa Ana Region. In addition, new developments have increased the housing stock of the area since the 2000 census. This includes the master planned developments of Ladera Ranch in the San Juan Creek watershed and Talega in the San Clemente Coastal and San Mateo Creek watersheds.

Finding E.3. This Order is in conformance with State Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality Waters in California*, and the federal Antidegradation Policy described in 40 CFR 131.12.

Discussion of Finding E.3. Runoff management programs are required to be designed to reduce pollutants in storm water MS4 discharges to the maximum extent practicable and achieve compliance with water quality standards. Therefore, implementation of runoff management programs, which satisfy the requirements of Order No. R9-2009-0002, will prevent violations of receiving water quality standards. The Basin Plan states that "Water quality objectives must [...] conform to US EPA regulations covering antidegradation (40 CFR 131.12) and State Board Resolution 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California*." As a result, when water quality standards are met, USEPA and State Board antidegradation policy requirements are also met.

Finding E.4. Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) requires coastal states with approved coastal zone management programs to address non-point pollution impacting or threatening coastal water quality. CZARA addresses five sources of non-point pollution: agriculture, silviculture, urban, marinas, and hydromodification. This NPDES permit addresses the management measures required for the urban category, with the exception of septic systems. The adoption and implementation of this NPDES permit relieves the Permittee from developing a non-point source plan, for the urban category, under CZARA. The Regional Board addresses septic systems through the administration of other programs.

Discussion of Finding E.4. Coastal states are required to develop programs to protect coastal waters from nonpoint source pollution, as mandated by the federal CZARA. CZARA Section 6217 identifies polluted runoff as a significant factor in coastal water degradation, and requires implementation of management measures and enforceable policies to restore and protect coastal waters. In lieu of developing a separate NPS program for the coastal zone, California's NPS Pollution Control Program was updated in 2000 to address the requirements of both the CWA section 319 and the CZARA section 6217 on a statewide basis. The California Coastal Commission (CCC), the State Board, and the nine Regional Water Quality Control Boards are the lead State agencies for upgrading the program, although 20 other State agencies also participate. Pursuant to the CZARA (6217(g) Guidance Document the development of runoff management programs pursuant to this NPDES permit fulfills the need for coastal cities to develop an runoff non-point source plan identified in the State's Non-point Source Program Strategy and Implementation Plan.¹⁵⁷

Finding E.5. Section 303(d)(1)(A) of the CWA requires that "Each state shall identify those waters within its boundaries for which the effluent limitations...are not stringent enough to implement any water quality standard (WQS) applicable to such waters." The CWA also requires states to establish a priority ranking of impaired waterbodies known as Water Quality Limited Segments and to establish Total Maximum Daily Loads (TMDLs) for such waters. This priority list of impaired waterbodies is called the Section 303(d) List. The current Section 303(d) List was approved by the State Board on February 4, 2003 and on July 25, 2003 by USEPA. The List was recently updated by the State Board on October 25, 2006. On June 28, 2007 the 2006 303(d) list for California was given final approval by the United States Environmental Protection Agency (USEPA).

¹⁵⁷ State Board/CCC, 2000. Nonpoint Source Program Strategy and Implementation Plan, 1998-2013 (PROSIP).

Discussion of Finding E.5. Section 303(d) of the federal CWA (CWA, 33 USC 1250, et seq., at 1313(d)), requires States to identify waters that do not meet water quality standards after applying certain required technology-based effluent limits (“impaired” water bodies). States are required to compile this information in a list and submit the list to USEPA for review and approval. This list is known as the Section 303(d) list of impaired waters. As part of this listing process, States are required to prioritize waters/watersheds for future development of TMDLs. The State Board and Regional Boards have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, to prioritize waters/watersheds for TMDL development and to subsequently develop TMDLs. TMDLs developed and adopted by the Regional Board are incorporated into the Basin Plan via a Basin Plan Amendment as authorized under section 13240 of the California Water Code. The 2006 California 303(d) List identifies impaired receiving water bodies and their watersheds within the State of California. Storm water and non-storm water runoff that is discharged from the Copermittees’ MS4s is a leading cause of receiving water quality impairment in the San Diego Region.¹⁵⁸ TMDLs Project I and II for bacteria are considered priority development TMDLs due to impacts to REC 1 benefits due to impairment of waters for human contact recreation.

Finding E.6. This Order does not constitute an unfunded local government mandate subject to subvention under Article XIII B, Section (6) of the California Constitution for several reasons, including, but not limited to, the following. First, this Order implements federally mandated requirements under federal Clean Water Act section 402. (33 U.S.C. § 1342(p)(3)(B).) Second, the local agency Copermittees’ obligations under this Order are similar to, and in many respects less stringent than, the obligations of non-governmental and new dischargers who are issued NPDES permits for storm water and non-storm water discharges. Third, the local agency Copermittees have the authority to levy service charges, fees, or assessments sufficient to pay for compliance with this Order. Fourth, the Copermittees have requested permit coverage in lieu of compliance with the complete prohibition against the discharge of pollutants contained in federal Clean Water Act section 301, subdivision (a) (33 U.S.C. § 1311(a)) and in lieu of numeric restrictions on their storm water discharges. Fifth, the local agencies’ responsibility for preventing discharges of waste that can create conditions of pollution or nuisance from conveyances that are within their ownership or control under State law predates the enactment of Article XIII B, Section (6) of the California Constitution. Likewise, the provisions of this Order to implement total maximum daily loads (TMDLs) are federal mandates. The federal Clean Water Act requires TMDLs to be developed for water bodies that do not meet federal water quality standards. (33 U.S.C. sec. 1313(d).) Once the U.S. Environmental Protection Agency or a state develops a TMDL, federal law requires that permits must contain effluent limitations consistent with the assumptions of any applicable wasteload allocation. (40 C.F.R. sec. 122.44(d)(1)(vii)(B).)

¹⁵⁸ The approved 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments is on-line at: http://www.waterboards.ca.gov/tmdl/303d_lists2006.html.

Discussion of Finding E.6. This Order does not constitute an unfunded local government mandate subject to subvention under Article XIII B, Section (6) of the California Constitution for several reasons, including, but not limited to, the following. First, this Order implements federally mandated requirements under federal Clean Water Act section 402, subdivision (p)(3)(B). (33 U.S.C. § 1342(p)(3)(B).) This includes federal requirements to effectively prohibit non-storm water discharges, to reduce the discharge of pollutants in storm water to the maximum extent practicable, and to include such other provisions as the Administrator or the State determines appropriate for the control of such pollutants. Federal cases have held these provisions require the development of permits and permit provisions on a case-by-case basis to satisfy federal requirements. (Natural Resources Defense Council, Inc. v. U.S. E.P.A. (9th Cir. 1992) 966 F.2d 1292, 1308, fn. 17.)

The authority exercised under this Order is not reserved state authority under the Clean Water Act's savings clause (cf. Burbank v. State Water Resources Control Bd. (2005) 35 Cal.4th 613, 627-628 [relying on 33 U.S.C. § 1370, which allows a state to develop requirements which are not "less stringent" than federal requirements]), but instead, is part of a federal mandate to develop pollutant reduction requirements for municipal separate storm sewer systems. To this extent, it is entirely federal authority that forms the legal basis to establish the permit provisions. (See, City of Rancho Cucamonga v. Regional Water Quality Control Bd.-Santa Ana Region (2006) 135 Cal.App.4th 1377, 1389; Building Industry Ass'n of San Diego County v. State Water Resources Control Bd. (2004) 124 Cal.App.4th 866, 882-883.)

Second, the local agency Copermittees' obligations under this Order are similar to, and in many respects less stringent than, the obligations of non-governmental dischargers who are issued NPDES permits for storm water discharges. With a few inapplicable exceptions, the Clean Water Act regulates the discharge of pollutants from point sources (33 U.S.C. § 1342) and the Porter-Cologne regulates the discharge of waste (Wat. Code, § 13263), both without regard to the source of the pollutant or waste. As a result, the "costs incurred by local agencies" to protect water quality reflect an overarching regulatory scheme that places similar requirements on governmental and nongovernmental dischargers. (See County of Los Angeles v. State of California (1987) 43 Cal.3d 46, 57-58 [finding comprehensive workers compensation scheme did not create a cost for local agencies that was subject to state subvention].)

The Clean Water Act and the Porter-Cologne Water Quality Control Act largely regulate storm water with an even hand, but to the extent there is any relaxation of this even-handed regulation, it is in favor of the local agencies. Except for municipal separate storm sewer systems, the Clean Water Act requires point source dischargers, including discharges of storm water associated with industrial or construction activity, to comply strictly with water quality standards. (33 U.S.C. § 1311(b)(1)(C), *Defenders of Wildlife v. Browner* (1999) 191 F.3d 1159, 1164-1165 [noting that industrial storm water discharges must strictly comply with water quality standards].) As discussed in prior State Water Resources Control Board decisions, this Order does not require strict compliance with water quality standards. (SWRCB Order No. WQ 2001-15, p. 7.) The Order, therefore, regulates the discharge of waste in municipal storm water more leniently than the discharge of waste from non-governmental sources.

Third, the local agency Copermittees have the authority to levy service charges, fees, or assessments sufficient to pay for compliance with this Order. The fact sheet demonstrates that numerous activities contribute to the pollutant loading in the municipal separate storm sewer system. Local agencies can levy service charges, fees, or assessments on these activities, independent of real property ownership. (See, e.g., *Apartment Ass'n of Los Angeles County, Inc. v. City of Los Angeles* (2001) 24 Cal.4th 830, 842 [upholding inspection fees associated with renting property].) The ability of a local agency to defray the cost of a program without raising taxes indicates that a program does not entail a cost subject to subvention. (*County of Fresno v. State of California* (1991) 53 Cal.3d 482, 487-488.)

Fourth, the Copermittees have requested permit coverage in lieu of compliance with the complete prohibition against the discharge of pollutants contained in federal Clean Water Act section 301, subdivision (a) (33 U.S.C. § 1311(a)) and in lieu of numeric restrictions on their storm water discharges. To the extent, the local agencies have voluntarily availed themselves of the permit, the program is not a state mandate. (*Accord County of San Diego v. State of California* (1997) 15 Cal.4th 68, 107-108.) Likewise, the Copermittees have voluntarily sought a program-based municipal storm water permit in lieu of a numeric limitations approach on their storm water discharge. (See *City of Abilene v. U.S. E.P.A.* (5th Cir. 2003) 325 F.3d 657, 662-663 [noting that municipalities can choose between a management permit or a permit with numeric limitations].) The local agencies' voluntary decision to file a report of waste discharge proposing a program-based permit is a voluntary decision not subject to subvention. (See *Environmental Defense Center v. USEPA* (9th Cir. 2003) 344 F.3d 832, 845-848.)

Fifth, the local agencies' responsibility for preventing discharges of waste that can create conditions of pollution or nuisance from conveyances that are within their ownership or control under state law predates the enactment of Article XIII B, Section (6) of the California Constitution.

Finding E. 7. Runoff treatment and/or mitigation must occur prior to the discharge of runoff into receiving waters. Treatment BMPs must not be constructed in waters of the U.S. or State unless the runoff flows are sufficiently pretreated to protect the values and functions of the water body. Federal regulations at 40 CFR 131.10(a) state that in no case shall a state adopt waste transport or waste assimilation as a designated use for any waters of the U.S. Authorizing the construction of an runoff treatment facility within a water of the U.S., or using the water body itself as a treatment system or for conveyance to a treatment system, would be tantamount to accepting waste assimilation as an appropriate use for that water body. Furthermore, the construction, operation, and maintenance of a pollution control facility in a water body can negatively impact the physical, chemical, and biological integrity, as well as the beneficial uses, of the water body. Without federal authorization (e.g., pursuant to Clean Water Act Section 404), waters of the U.S. may not be converted into, or used as, waste treatment or conveyance facilities. Similarly, waste discharge requirements pursuant to California Water Code Section 13260 are required for the conversion or use of waters of the State as waste treatment or conveyance facilities. Diversion from waters of the U.S./State to treatment facilities and subsequent return to waters of the U.S. is allowable, provided that the effluent complies with applicable NPDES requirements.

Discussion of Finding E.7. Runoff treatment and/or mitigation in accordance with any of the requirements in the Order must occur prior to the discharge of storm water into receiving waters. Allowing storm water polluted runoff to enter receiving waters prior to treatment to the MEP will result in degradation of the water body and potential exceedances of water quality standards, from the discharge point to the point of dissipation, infiltration, or treatment. Furthermore, the construction, operation, and maintenance of a pollution control facility in a water body can negatively impact the physical, chemical, and biological integrity, as well as the beneficial uses, of the water body. This requirement is supported by federal regulation 40 CFR 131.10(a) and USEPA guidance. According to USEPA,¹⁵⁹ "To the extent possible, municipalities should avoid locating structural controls in natural wetlands. Before considering siting of controls in a natural wetland, the municipality should demonstrate that it is not possible or practicable to construct them in sites that do not contain natural wetlands... Practices should be used that settle solids, regulate flow, and remove contaminants prior to discharging storm water into a wetland."

Additional Federal guidance discusses the implementation of wetlands to treat municipal storm water discharges (USEPA, 2000. *Guiding Principles for Constructed Treatment Wetlands: Providing for Water Quality and Wildlife Habitat*). It states:

¹⁵⁹ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

“..treatment wetlands should not be constructed in a waters of the U.S. unless you can sufficiently pretreat the stormwater flows to protect the values and functions of the waters of the U.S. Because storm water is an unpredictable effluent source and can contain high levels of toxic substances, nutrients, and pathogens, we strongly encourage that you construct the treatment wetland in uplands and use best management practices in these projects.”¹⁶⁰

Consistent with USEPA guidance, the conversion or use of waters of the U.S./State into runoff treatment facilities or conveyance facilities for untreated storm water discharges must be appropriately reviewed by both Federal and State resource agencies. Such projects may be subject to federal permitting pursuant to Clean Water Act Section 404 if discharges of dredged or fill material is involved.

The placement of hydromodification controls within waters of the U.S./State may also be subject to federal and/or state permitting, but would not necessarily be considered a pollutant treatment BMP. Provided the grade control structures are designed to re-establish a natural channel gradient and correct excessive changes to the sediment transport regime caused by urbanization, rather than to create a series of artificial hydrological impoundments for the purpose of treating pollution, this type of project is not considered an in-stream treatment BMP.

Finding E. 8. The issuance of waste discharge requirements and an NPDES permit for the discharge of runoff from MS4s to waters of the U.S. is exempt from the requirement for preparation of environmental documents under the California Environmental Quality Act (CEQA) (Public Resources Code, Division 13, Chapter 3, section 21000 et seq.) in accordance with the CWC section 13389.

Discussion of Finding E. 8. CWC Section 13389 exempts the adoption of waste discharge requirements (such as NPDES permits) from CEQA requirements: “Neither the State Board nor the regional boards shall be required to comply with the provisions of Chapter 3 (commencing with section 21100) of Division 13 of the Public Resources Code prior to the adoption of any waste discharge requirement, except requirements for new sources as defined in the Federal Water Pollution Control Act or acts amendatory thereof or supplementary thereto.”

¹⁶⁰ USEPA, 2000. Guiding Principles for Constructed Treatment Wetlands: Providing for Water Quality and Wildlife Habitat, (EPA 843-B-00-003).

This CEQA exemption was challenged during BIA's (and others') appeal of Order No. 2001-01. BIA contended that the CEQA exemption did not apply to permit requirements where the Regional Board utilized its discretion to craft permit requirements which were more prescriptive than required by federal law. The Court of Appeal, Fourth Appellate District disagreed with this argument, stating "we also reject Building Industry's argument to the extent it contends the statutory CEQA exemption in Water Code section 13389 is inapplicable to a particular NPDES permit provision that is discretionary, rather than mandatory, under the CWA."¹⁶¹ On further appeal by BIA, the California State Supreme Court declined to hear the matter.

In a recent decision, the Court of Appeal of the State of California, Second Appellate District, upheld the CEQA exemption for municipal storm water NPDES permits (County of Los Angeles, et al. v. California State Water Resources Control Board, et al.).¹⁶²

Finding E.9. Multiple water bodies in Orange County have been identified as impaired and placed on the 303(d) list. In 2004, Bacteria Impaired Waters TMDL Project II included six bacteria impaired shorelines in Dana Point Harbor and San Diego Bay: Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park, B Street, G Street Pier, Tidelands Park, and Chula Vista Marina in San Diego Bay. Since then, only Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay can be confirmed as still impaired by indicator bacteria. On June 11, 2008 the Regional Board adopted a Basin Plan amendment to incorporate *Bacteria Impaired Waters TMDL Project II for San Diego Bay and Dana Point Harbor Shorelines*. On June 16, 2009, the State Board approved the Basin Plan amendment. This action meets requirements of section 303(d) of the Clean Water Act (CWA). The Basin Plan amendment process is authorized under section 13240 of the Water Code. The State's Office of Administrative Law (OAL) approved the TMDLs on September 15, 2009. The effective date of the TMDLs is the date of OAL approval. USEPA approved the TMDLs on October 26, 2009.

Finding E.10. Storm water discharges from developed and developing areas in Orange County are significant sources of certain pollutants that cause, may be causing, threatening to cause or contributing to water quality impairment in the waters of Orange County. Furthermore, as delineated in the CWA section 303(d) list in Table 3, the Regional Board has found that there is a reasonable potential that municipal storm water and non-storm water discharges from MS4s cause or may cause or contribute to an excursion above water quality standards for the following pollutants: Indicator Bacteria, Phosphorous, Toxicity and Turbidity. In accordance with CWA section 303(d), the Regional Board is required to establish Total Maximum Daily Loads (TMDLs) for these pollutants to these waters to eliminate impairment and attain water quality standards. Therefore, certain early pollutant control actions and further pollutant impact assessments by the Copermitttees are warranted and required

¹⁶¹ Building Industry Association et al., v. State Water Resources Control Board, et al. 2004.

¹⁶² Los Angeles County Super. Ct. No. BS080792. Partial publication dated November 6, 2006.

pursuant to this Order.

Finding E.11. This Order incorporates only those MS4 Waste Load Allocations (WLAs) developed in TMDLs that have been adopted by the Regional Water Board and have been approved by the State Board, Office of Administrative Law and U.S. EPA. Approved TMDL WLAs are to be addressed using water quality-based effluent limitations (WQBELs) calculated as numeric limitations (either in the receiving waters and/or at the point of MS4 discharge) and/or as BMPs. In most cases, the numeric limitation must be achieved to ensure the adequacy of the BMP program. Waste load allocations for storm water and non-storm water discharges have been included within this Order only if the TMDL has received all necessary approvals. This Order establishes WQBELs and conditions consistent with the requirements and assumptions of the WLAs in the TMDLs as required by 40 CFR 122.44(d)(1)(vii)(B).

A TMDL is the total amount of a particular pollutant that a water body can receive and still meet Water Quality Standards (WQSs), which are comprised of Water Quality Objectives (WQOs), Beneficial Uses and the States Policy on Maintaining High Quality Waters¹⁶³. The WQOs serve as the primary basis for protecting the associated Beneficial Use. The Numeric Target of a TMDL interprets and applies the numeric and/or narrative WQOs of the WQSs as the basis for the WLAs. This Order addresses TMDLs through Water Quality Based Effluent Limitations (WQBELs) that must be consistent with the assumptions and requirements of the WLA¹⁶⁴. Federal guidance¹⁶⁵ states that when adequate information exists, storm water permits are to incorporate numeric water quality based effluent limitations. In most cases, the numeric target(s) of a TMDL are a component of the WQBELs. When the numeric target is based on one or more numeric WQOs, the numeric WQOs and underlying assumptions and requirements will be used in the WQBELs as numeric effluent limitations by the end of the TMDL compliance schedule, unless additional information is required. When the numeric target interprets one or more narrative WQOs, the numeric target may assess the efficacy and progress of the BMPs in meeting the WLAs and restoring the Beneficial Uses by the end of the TMDL compliance schedule.

This Order fulfills a component of the TMDL Implementation Plan adopted by this Regional Board on June 11, 2008 for indicator bacteria in Baby Beach by establishing WQBELs expressed as both BMPs to achieve the WLAs and as numeric limitations¹⁶⁶ for the City of Dana Point and the County of Orange. The establishment of WQBELs expressed as BMPs should be sufficient to achieve the WLA specified in the TMDL. The Waste Load Allocations (WLAs) and Numeric Targets are the necessary metrics to ensure that the BMPs achieve appropriate concentrations of bacterial indicators in

¹⁶³ State Water Resources Control Board, Resolution No. 68-16

¹⁶⁴ 40 CFR 122.44(d)(1)(vii)(B)

¹⁶⁵ USEPA, *Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits*, 61 FR 43761, August 26, 1996

¹⁶⁶ The Waste Load Allocations are defined in Resolution No. R9-2008-0027, A Resolution to Adopt an Amendment to the *Water Quality Control Plan for the San Diego Basin (9)* to Incorporate Total Maximum Daily Loads for Indicator Bacteria, Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay.

the receiving waters.

Discussion of Finding E.9, E.10, E.11. Section 303(d)(1)(A) of the Clean Water Act (CWA) requires that:

“Each state must identify those waters within its boundaries for which the effluent limitations...are not stringent enough to implement any water quality standard (WQS) applicable to such waters.”

The CWA also requires states to establish a priority ranking of impaired waterbodies known as Water Quality Limited Segments and to establish Total Maximum Daily Loads (TMDLs) for such waters. This priority list of impaired waterbodies is called the Section 303(d) List. The current Section 303(d) List was approved by the State Water Resources Control Board (State Board) on October 25, 2006. On June 28, 2007 the 2006 303(d) list for California was given final approval by the United States Environmental Protection Agency (USEPA). Every two years the State of California is required by CWA section 303(d) and 40 CFR(130.7) to develop and submit to the USEPA for approval an updated 303(d) list of impaired waterbodies. The Regional Board is currently undergoing the required 2 year (2008) update for submittal to the State Board.

Multiple water bodies in Orange County have been identified as impaired and placed on the Section 303(d) list. The Regional Board has 78 current 303(d) listings for which TMDLs must be prioritized and subsequently developed. The 303(d) listing of a waterbody and subsequent TMDL development is required when regulations under current permits, such as Technology Based Effluent Limitations (TBELS), are not stringent enough to meet Water Quality Standards and protect the Beneficial Uses of Waters of the State. In 2004, the *Bacteria Impaired Waters TMDL Project II* addressed six bacteria impaired shorelines including Baby Beach in Dana Point Harbor. On June 11, 2008 the Regional Board adopted a Basin Plan amendment to incorporate *TMDLs for Indicator Bacteria, Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay*. On June 16, 2009, the State Board approved the Basin Plan amendment. The *TMDLs for Indicator Bacteria, Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay* are pending approval by the State Office of Administrative Law (OAL) and USEPA.

Storm water discharges from developed and developing areas in Orange County are a significant source of certain pollutants that cause, may be causing, threatening to cause or contributing to water quality impairment in the waters of Orange County. Furthermore, the CWA section 303(d) list indicates that there is a reasonable potential that municipal storm water and dry weather discharges from MS4s cause or may cause or contribute to an excursion above water quality standards for the following pollutants: Indicator Bacteria, Phosphorous, Toxicity and Turbidity. In accordance with CWA section 303(d), the Regional Board is required to establish TMDLs for these pollutants in these waters to eliminate impairment and attain water quality standards. Per 40 CFR(130.7), WLAs are required for all point sources, including storm water and

non-storm water discharges from MS4s. Therefore, focused pollutant control actions and further pollutant impact assessments by the Copermittees are warranted and required pursuant to this Order.

MS4 Permits address only those TMDL WLAs that have been adopted by the Regional Board and have been approved by the State Board, OAL and USEPA. WLAs are portions of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. The TMDL WLAs in MS4 Permits can be addressed using water quality-based numeric effluent limitations (WQBELs) calculated at end-of-pipe. WQBELs must be consistent with the assumptions and requirements of the WLAs.¹⁶⁷

Assessment of compliance with WLAs is to be assessed at the point of discharge to the receiving water and within the receiving water. TMDL WLAs evaluated end-of-pipe will be assessed using WQBELs. Determination of compliance may also be assessed within the receiving waters to evaluate WLA reductions, program effectiveness and to assess overall water quality. As Numeric Targets serve to establish WLAs, they are part of the underlying assumptions of the WLA and can serve as points of compliance.

Finding E.12. This Order requires each Copermittee to effectively prohibit all types of unauthorized discharges of non-storm water into its MS4. However, historically pollutants have been identified as present in dry weather non-storm water discharges from the MS4s through 303(d) listings, monitoring conducted by the Copermittees under Order No. R9-2002-0001, and there are others expected to be present in dry weather non-storm water discharges because of the nature of these discharges. This Order includes action levels for pollutants in non-storm water, dry weather, discharges from the MS4 designed to ensure that the requirement to effectively prohibit all types of unauthorized discharges of non-storm water in the MS4 is being complied with. Action levels in the Order are based upon numeric or narrative water quality objectives and criteria as outlined in the Basin Plan, Water Quality Control Plan for Ocean Waters of California (Ocean Plan), and State Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). An exceedance of an action level requires specified responsive action by the Copermittees. This Order describes what actions the Copermittees must take when an exceedance of an action level is observed. Exceedances of non-storm water action levels do not alone constitute a violation of this Order but could indicate non-compliance with the requirement to effectively prohibit all types of unauthorized non-storm water discharges into the MS4 or other prohibitions established in this Order. Failure to undertake required source investigation and elimination action following an exceedance of a non-storm water action level (NAL or action level) is a violation of this Order. The Regional Board recognizes that use of action levels will not necessarily result in detection of all unauthorized sources of non-storm water discharges because there may be some

¹⁶⁷ Per 40 CFR 122.44(d)(1)(vii)(B)

discharges in which pollutants do not exceed established action levels. However, establishing NALs at levels appropriate to protect water quality standards is expected to lead to the identification of significant sources of pollutants in dry weather non-storm water discharges.

Discussion of Finding E.12. This Order includes the existing requirement that Copermittees effectively prohibit all types of unauthorized non-storm water discharges in the MS4s. It also includes the following prohibition set forth in the Basin Plan: “The discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in California Water Code section 13050 is prohibited.” (Prohibition A.1.) As discussed in the Order’s Findings on discharge characteristics, e.g., C.2., C.4., C.6., C.7., C.9., C.14., and C.15., the Copermittees’ reliance on BMPs for the past 19 years has not resulted in compliance with applicable water quality standards or compliance with the requirement to effectively prohibit all types of unauthorized discharges of non-storm water in the MS4. The Regional Board has evaluated (in accordance with 40 CFR 122.44(d)(1)) past and existing control (BMPs), non-storm water effluent monitoring results, the sensitivity of the species in receiving waters (e.g. endangered species), and the potential for effluent dilution and has determined that existing BMPs to control pollutants in storm water discharges are not sufficient to protect water quality standards in receiving waters and the existing requirement that Copermittees effectively prohibit all types of unauthorized non-storm water discharges into the MS4 historically results in the discharge of pollutants to the receiving waters.

Therefore it is appropriate to establish dry weather non-storm water action levels based upon established water quality standards to measure pollutants levels in the discharge of dry weather non-storm water that could indicate non-compliance with the requirement to effectively prohibit all types of unauthorized non-storm water discharges into the MS4 and/or that these discharges are causing, or threatening to cause, a condition of pollution, contamination or nuisance in the receiving waters. NALs are not numeric effluent limitations. While not alone a violation of this Order, an exceedance of an NAL requires the Copermittees to initiate a series of source investigation and elimination actions to address the exceedance. Results from the NAL monitoring are to be used in developing the Copermittees annual work plans. Failure to undertake required source investigation and elimination action following an exceedance of an NAL is a violation of this Order. Please see further discussion in the directives section C of the fact sheet.

A purpose of monitoring, required under this and previous Orders, as stated in the Monitoring and Reporting Program is to “detect and eliminate illicit discharges and illicit connections to the MS4” and to answer the following core management questions:

1. Are conditions in receiving waters protective, or likely to be protective, of beneficial uses?

2. What is the extent and magnitude of the current or potential receiving water problems?
3. What is the relative MS4 discharge contribution to the receiving water problem(s)?
4. What are the sources of MS4 discharge that contribute to receiving water problem(s)?
5. Are conditions in receiving waters getting better or worse?

For the past 4 permit cycles (19 years), Copermittees have utilized their IC/ID program to identify and eliminate non-storm water discharges that are sources of pollutants to the MS4. The Copermittees are also subject to the requirement to effectively prohibit all types of unauthorized discharges of non-storm water into the MS4s. Historically, discharges of unauthorized non-storm water do occur, resulting in the discharge of pollutants to the receiving water. NALs have been included in this Order to ensure that the Copermittees comply with the requirement to effectively prohibit all types of unauthorized non-storm water discharges that are a source of pollutants in the receiving waters.

F. Public Process

Finding F.1. The Regional Board has notified the Copermitttees, all known interested parties, and the public of its intent to consider adoption of an Order prescribing waste discharge requirements that would serve to renew an NPDES permit for the existing discharge of runoff.

Discussion of Finding F.1. Public notification of development of a draft permit is required under Federal regulation 40 CFR 124.10(a)(1)(ii). This regulation states “(a) Scope. (1) The Director shall give public notice that the following actions have occurred: (ii) A draft permit has been prepared under Sec. 124.6(d).” Public notifications “shall allow at least 30 days for public comment,” as required under Federal regulation 40 CFR 124.10(b)(1).

Finding F.2. The Regional Board has held public hearings on April 11, 2007, February 13, 2008, July 1, 2009, and November 18, 2009 and heard and considered all comments pertaining to the terms and conditions of this Order.

Discussion of Finding F.2. Public hearings are required under CWC Section 13378, which states “Waste discharge requirements and dredged or fill material permits shall be adopted only after notice and any necessary hearing.” Federal regulation 40 CFR 124.12(a)(1) also requires public hearings for draft permits, stating “The Director shall hold a public hearing whenever he or she finds, on the basis or requests, a significant degree of public interest in a draft permit(s).” Regarding public notice of a public hearing, Federal regulation 40 CFR 124.10(b)(2) states that “Public notice of a public hearing shall be given at least 30 days before the hearing.”

IX. DIRECTIVES

This section discusses significant changes which have been made to the requirements of the Order from the requirements which were previously included in Order No. R9-2002-0001. For each section of the Order that has been changed there is a discussion which describes the change that was made and provides the rationale for the change. In addition, comments on the Copermittees' ROWD recommendations, as they pertain to each changed requirement of the Order, are provided.

Requirements of the Order that are not discussed in this section have not been significantly changed from those requirements previously included in Order No. 2002-0001. For such requirements, discussions and rationale for the requirements can be found in section VII of the Fact Sheet/Technical Report for Regional Board Order No. R9-2002-0001, dated February 13, 2002. Section VII also provides additional background information for those requirements that have undergone significant change which are described in detail in this report. The Fact Sheet/Technical Report is available for download at:

http://www.waterboards.ca.gov/sandiego/programs/oc_stormwater.html

Legal authority citations are provided for each major section of the Tentative Order. These citations apply to all applicable requirements within the section for which they are provided.

A. Prohibitions and Receiving Water Limitations

The following legal authority applies to section A:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: The Regional Board Water Quality Control Plan for the San Diego Basin (Basin Plan) contains the following waste discharge prohibition: "The discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination, or nuisance as defined in California Water Code Section 13050, is prohibited."

California Water Code section 13050(l) states "(1) 'Pollution' means an alteration of the quality of waters of the state by waste to a degree which unreasonably affects either of the following: (A) The water for beneficial uses. (B) Facilities which serve beneficial uses. (2) 'Pollution' may include "contamination."

California Water Code section 13050(k) states “‘Contamination’ means an impairment of the quality of waters of the state by waste to a degree which creates a hazard to public health through poisoning or through the spread of disease. ‘Contamination’ includes any equivalent effect resulting from the disposal of waste, whether or not waters of the state are affected.”

California Water Code section 13050(m) states “‘Nuisance’ means anything which meets all of the following requirements: (1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. (2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. (3) Occurs during, or as a result of, the treatment or disposal of wastes.”

California Water Code section 13241 requires each regional board to “establish such water quality objectives in water quality control plans as in its judgment will ensure the reasonable protection of beneficial uses and the prevention of nuisance [...]”

California Water Code Section 13243 provides that “A regional board, in a water quality control plan or in waste discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted.”

California Water Code Section 13263(a) provides that waste discharge requirements prescribed by the Regional Board implement the Basin Plan.

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in storm water runoff from commercial, residential, industrial, and construction land uses or activities.

Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(A - D) require municipalities to have legal authority to control various discharges to their MS4.

Federal NPDES regulation 40 CFR 122.44(d)(1) requires municipal storm water permits to include any requirements necessary to “[a]chieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.”

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

Section A of the Order combines two previously distinct requirement sections – Prohibitions and RWLs. These sections have been combined into one section for organization purposes and to reduce redundancy, since both sections address the same issue. These changes have no net effect on the implementation and enforcement of the Order.

Section A.3 describes the “iterative process.” The Copermitees must reduce the discharge of storm water pollutants to the MEP and ensure that their MS4 discharges do not cause or contribute to violations of water quality standards. If the Copermitees have reduced storm water pollutant discharges to the MEP, but their discharges are still causing or contributing to violations of water quality standards, the Order provides a clear and detailed process for the Copermitees to follow. This process is often referred to as the "iterative process" and can be found at section A.3. The language of section A.3 is prescribed by the State Board and is included in MS4 permits statewide. Section A.3 essentially requires additional BMPs to be implemented until MS4 storm water discharges no longer cause or contribute to a violation of water quality standards.

The State Policy with respect to maintaining high quality waters has been added to clarify that discharges from the MS4 that cause or contribute to a violation of the Policy for high quality waters is prohibited.

B. Non-Storm Water Discharges

The following legal authority applies to section B:

Broad Legal Authority: CWA sections 402, 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F), 40 CFR 122.26(d)(2)(iv) and 40 CFR 122.44.

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B) requires MS4 operators “to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(1) provides that the Copermitees shall prevent all types of illicit discharges into the MS4 except for certain non-storm water discharges.

Section B of the Order has been reworded to simplify and clarify the requirements for addressing non-storm water discharges that are not prohibited. This rewording has no net effect on the implementation and enforcement of the Order.

Section B.2 has been modified by the removal of landscape irrigation, irrigation water and lawn watering from the list of non-storm water discharges that are not prohibited, i.e. landscape irrigation, irrigation water and lawn watering discharges into and from the MS4 are now prohibited. Saline swimming pool discharges have been added as a footnote to the list provided the discharge is directly to a saline water body (see Finding C.14 and Discussion). Language has been added to the section to clarify differences in the federal regulations under 40 CFR 122.26(d)(iv)(B) and for the authority of the Director (Regional Board) in regards to exempted discharges.

The following exemptions have been removed from Section B, per identification as a source and conveyance of pollutants to waters of the United States when discharged from the MS4: landscape irrigation, irrigation water and lawn watering. Therefore, these illicit discharges must be addressed per 40 CFR 122.26(B). These previously exempted discharges have been identified by Permittees as a source of pollutants and conveyance of pollutants to waters of the United States in the following:

The County of Orange conducted, per requirements of 401 Water Quality Certification 02C-055, a Drainage Area Reconnaissance and Urban Runoff Characterization study. From the reconnaissance and characterization, the County of Orange determined that “water quality results provided two important findings”. First, “analytical data strongly indicates that irrigation overspray and drainage constitutes a very substantial source and conveyance mechanism for fecal indicator bacteria into Aliso Creek, and suggests that reduction measures for this source of urban runoff could provide meaningful reduction in bacteria loading to the stream”. Aliso Creek, currently 303(d) listed as impaired for Indicator Bacteria, is included in the Bacteria Project I TMDL adopted by the San Diego Regional Board on December 12, 2007. Secondly, reclaimed water high in electrical conductivity and Nitrate was indicated as “the source water at three of the excessive runoff locations (P1,P2,J01P02). These dissolved nitrogen concentration and flow rates create relatively high nitrogen loadings, which have the potential to contribute to undesirable levels of periphytic algal growth in Aliso Creek”.

The County of Orange, Cities of Orange County and Orange County Flood Control District on November 15, 2007 submitted their Unified Annual Progress Report for the 2006-2007 reporting period. Within the report, the Copermitees demonstrate that a “wide range of constituents exceeded the tolerance interval bounds”, including orthophosphate. “These high levels of orthophosphate concentration are most likely the result of fertilizer runoff or reclaimed water runoff”. Aliso Creek is currently 303(d) listed as impaired for phosphorous.

The County of Orange, Orange County Flood Control District and Permittees within the San Juan Creek, Laguna Coastal Streams, Aliso Creek, and Dana Point Coastal Streams Watersheds on November 15, 2007 submitted their Watershed Action Plan Annual Reports for the 2006-2007 reporting period. San Juan Creek, Laguna Coastal Streams, Aliso Creek and Dana Point Coastal Streams are all currently 303(d) listed as impaired for Indicator Bacteria within the watershed and/or Pacific Ocean at the discharge point of the watershed. These locations are included in the Bacteria Project I TMDL adopted by the San Diego Regional Board on December 12, 2007. The Copermitees, within their Watershed Action Strategy Table for Fecal Indicator Bacteria “Support programs to reduce or eliminate the discharge of anthropogenic dry weather nuisance flow throughout the [...] watershed. Dry weather flow is the transport medium for bacteria and other 303(d) constituents of concern”. Additionally, they state that “conditions in the MS4 contribute to high seasonal bacteria propagation in-pipe during warm weather. Landscape irrigation is a major contributor to dry weather flow, both as surface runoff due to over-irrigation and overspray onto pavements; and as subsurface seepage that finds its way into the MS4”.

In 2006, the State Water Quality Control Board allocated Grant funding to the Smarttimer/Edgescape Evaluation Program (SEEP). Project partners include the cities of Aliso Viejo, Dana Point, Laguna Beach, Laguna Hills, Laguna Nigel, Laguna Woods, Lake Forest, Mission Viejo, Rancho Santa Margarita and San Juan Capistrano as well as the Metropolitan Water District of Southern California, the Department of Agriculture and ten south Orange County water districts. The project targets irrigation runoff by retrofitting existing development and documenting the conservation and runoff improvements. The Grant Application states that "Irrigation runoff contributes flow & pollutant loads to creeks and beaches that are 303(d) listed for bacteria indicators". Furthermore, the grant application states that "Regional program managers agree that the reduction and/or elimination of irrigation-related urban flows and associated pollutant loads may be key to successful attainment of water quality and beneficial use goals as outlined in the San Diego Basin Plan and Bacteria TMDL over the long term". This is reinforced in the project descriptions and objectives: "Elevated dry-weather storm drain flows, composed primarily in the South Orange County Region of landscape irrigation water wasted as runoff, carry pollutants that impair recreational use and aquatic habitats all along Southern California's urbanized coastline. Storm drain systems carry the wasted water, along with landscape derived pollutants such as bacteria, nutrients and pesticides, to local creeks and the ocean. Given the local Mediterranean climate, excessive perennial dry season stream flows are an unnatural hydrologic pattern, causing species shifts in local riparian communities and warm, unseasonal contaminated freshwater plumes in the near-shore marine environment". The basis of this grant project, conducted by the Permittees and additional water use partners, is that over-irrigation (landscape irrigation, irrigation water and lawn watering) into the MS4 is a source and conveyance of pollutants. In addition, they indicate that the alteration of natural flows is impacting the Beneficial Uses of waters of the State.

Section B.3 has been clarified by the recognition of building fire suppression system maintenance (e.g. fire sprinklers) as an illicit discharge. The Regional Board has found that such discharges contain waste, and as such the Regional Board is requiring these discharges be addressed as illicit discharges by the Copermittees. This is consistent with the Federal Regulations (55 Fed Reg 48037). Thus, the discharges are to be prohibited via ordinance, order or similar means and incorporated as part of the Copermittees IC/ID program.

C. Non Storm Water Dry Weather Action Levels

The following legal authority applies to Section C:

Broad Legal Authority: CWA section 402, 402(p)(3)(B)(ii), CWC §13377. 40 CFR 122.26(d)(2)(i)(B, C, E, and F), and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority:

The Clean Water Act section 402(p)(3)(B)(ii) provides that MS4 permits “shall include a requirement to effectively prohibit non-storm water discharges into the storm sewers.”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B) provides that the proposed management program “shall be based on a description of a program including a schedule, to detect and remove (or require the discharger to the municipal storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(1) provides that the Copermittee include in its proposed management program “a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal storm sewer system; this program description shall address all types of illicit discharges, however the [listed exempt] category of non-storm water discharges or flows shall be addressed where such discharges are identified by the municipality as sources of pollutants to waters of the United States.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(2) provides that the Copermittee include in its proposed management program “a description of procedures to conduct on-going field screening activities during the life of the permit, including areas or locations that will be evaluated by such field screens.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(3) provides that the Copermittee include in its proposed management program “procedures to be followed to investigate portions of the separate storm sewer system that, based on the results of the field scree, or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources of non-storm water.”

Section C establishes non-storm water dry weather action levels (see also Finding C.14, Finding E.12, and the Discussion for those sections).

Non-exempted, non-storm water discharges are to be effectively prohibited from entering the MS4 or become subject to another NPDES permit (see Federal Register, Vol. 55, No. 222, pg. 47995). Conveyances which continue to accept non-exempt, non-storm water discharges do not meet the definition of MS4 and are not subject to

section 402(p)(3)(B) of the CWA unless the discharges are issued separate NPDES permits. Instead, conveyances that continue to accept non-exempt, non-storm water discharges that do not have a separate NPDES permit are subject to sections 301 and 402 of the CWA (see Federal Register, Vol. 55, No. 222, pg. 48037).

The Order requires the sampling of a representative percentage of major outfalls and other identified stations within each hydrologic subarea. While it is important to assess all major outfall discharges from the MS4 into receiving waters, to date the Copermittees have implemented a dry-weather monitoring program that has identified major outfalls that are representative of each hydrologic subarea and have randomly sampled other major outfalls. Thus, it is expected that the Copermittees will utilize past dry weather monitoring in the selection and annual sampling of a representative percentage of major outfalls in accordance with the requirements under Section C.4.

Background and Rationale for Requirements

The Regional Board developed the requirements for dry weather, non-storm water action levels based upon an evaluation of existing controls, monitoring and reporting programs (effluent and receiving water), special studies, and based upon Findings C.1 C.3, C.4, C.6, C.7 and C.14.

Water Quality Control Plan

Section 303(C) of the Clean Water Act requires the state to establish Water Quality Standards (WQS). WQS define the water quality goals of a waterbody, or part thereof, by designating their use or uses to be made of the water and by setting criteria necessary to protect those uses.

The Regional Board's Water Quality Control Plan for the San Diego Basin (Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Basin Plan. The Basin Plan was adopted by the Regional Board on September 8, 1994, and was subsequently approved by the State Board on December 13, 1994. Subsequent revisions to the Basin Plan have also been adopted by the Regional Board and State Board.

State Board Resolution No. 88-63 establishes state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal and domestic supplies. Requirements of this Order do not include effluent limitations reflecting municipal and domestic supply use as all waters within the County of Orange under this Order are specifically exempted from municipal and domestic supply as a Beneficial Use.

The State Board adopted the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) in 2005, it was approved by USEPA, and became effective on February 14, 2006. The Ocean Plan establishes Water Quality Objectives, general requirements for management of waste discharged to the ocean, effluent quality

requirements, discharge provisions, and general provisions. Limitations derived from the Ocean Plan have been included in this Order as action levels to protect the Beneficial Uses of enclosed bays and estuaries because their Beneficial Uses are similar

National Toxics Rule (NTR) and California Toxics Rule (CTR)

The USEPA adopted the NTR on December 22, 1992, which was amended on May 4, 1995, and November 9, 1999. The CTR was adopted by USEPA on May 18, 2000, and amended on February 13, 2001. These rules include water quality criteria for priority pollutants and are applicable to non-storm water discharges from the MS4. Criteria for 126 priority pollutants are established by the CTR. USEPA promulgated this rule to fill a gap in California water quality standards that was created in 1994 when a California court overturned the State's water quality control plans containing criteria for priority toxic pollutants. The federal criteria are legally applicable in the State of California for inland surface waters, enclosed bays and estuaries for all purposes and programs under the CWA.

Antidegradation Policy

Section 131.12 of 40 CFR requires that the State water quality standards include an antidegradation policy consistent with the federal policy. The State Board established California's antidegradation policy in State Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Boards' Basin Plans implement, and incorporate by reference, both the State and federal antidegradation policies. Permitted non-storm water discharges from the MS4 are consistent with the antidegradation provision of 40 CFR section 131.12 and State Board Resolution No. 68-16.

Monitoring and Reporting

40 CFR Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Sections 13267 and 13383 of CWC authorize the Regional Boards to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement state and federal regulations. The Monitoring and Reporting Program can be found as Attachment E of the Order.

Dilution or Mixing Zones

In order to protect the Beneficial Uses of receiving waters from pollutants as a result of non-storm water MS4 discharges, this Order does not provide for a mixing zone or a zone of initial dilution except when the discharge is to the surf zone.

The San Diego Region has predominately intermittent and ephemeral rivers and streams (Inland Surface Waters) which vary in flow volume and duration at spatial and temporal scales. Therefore, it is assumed that any non-storm water discharge from

the MS4 into the receiving water is likely to be of a quantity and duration that does not allow for dilution or mixing. For ephemeral systems, non-storm water discharges from the MS4 are likely to be the only surface flows present within the receiving water during the dry season.

MS4 discharge points to bays, estuaries and lagoons are not designed to achieve maximum initial dilution and dispersion of non-storm water discharges. Thus, initial dilution factors for non-storm water discharges from the MS4 into bays, estuaries, and lagoons are conservatively assumed to equal zero.

It is appropriate to base numeric action levels for dry weather non-storm water discharges on these considerations.

California Ocean Plan

A discharge to a surf zone occurs when the non-storm water discharge point from the MS4 discharges:

- a) Directly into the ocean in a wave induced area subject to long-shore conditions;
or
- b) Across a primarily sandy substrate beach and subsequently directly into a wave induced area subject to long-shore conditions;

Establishment of Action Levels

Action levels in the Order are based upon numeric or narrative water quality objectives and criteria as defined in the Basin Plan, the Water Quality Control Plan for Ocean Waters of California (Ocean Plan), and the State Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The Regional Board recognizes that use of action levels will not necessarily result in detection of all unauthorized sources of non-storm water discharges because there may be some discharges in which pollutants do not exceed established action levels.

In June of 2006, the California Water Board's Blue Ribbon Storm Water Panel released its report titled 'The Feasibility of Numerical Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities.' The report only examined numerical limits as applied to storm water and not non-storm water. In the recommendations, the Blue Ribbon panel proposed storm water action levels which are computed using statistical based population approaches. For example, Section D of the Permit uses a recommended statistical approach to develop storm water action levels. The Blue Ribbon panel did not examine the efficacy of action levels or recommendations for development of action levels for non-storm water discharges.

For discharges to inland surface waters, action levels are based on the EPA water quality criteria for the protection of aquatic species, the EPA water quality criteria for the protection of human health, water quality criteria and objectives in the applicable

State plans, effluent concentration available using best available technology, and 40 CFR 131.38. Since the assumed initial dilution factor for the discharge is zero and a mixing zone is not allowed, a non-storm water discharge from the MS4 could not cause an excursion from numeric receiving water quality objectives if the discharge is in compliance with the action levels contained in the Order. Likewise, discharges in compliance with action levels to the surf zone cannot cause excursions from water quality objectives.

Dry weather monitoring of non-storm water MS4 effluent conducted under the previous Order (R9-2002-001), which relies on BMPs as controls to protect water quality standards, has identified pollutants that are found in non-storm water discharges. Monitoring of pH, Dissolved Oxygen, Phosphorus, Nitrate, Turbidity and Methylene Blue Active Substances (MBAS) in non-storm water MS4 discharges has shown that the effluent exceeds state water quality criteria. It is appropriate to establish numeric action levels for these pollutants to ensure that the Copermittees are complying with the requirement to effectively prohibit all types of unauthorized non-storm water discharges into the MS4s.

Water Quality Limited Segments on the current 303(d) list (2006) within the jurisdiction of this Order have been identified due to exceedances of Sulfate, Chloride and Total Dissolved Solids criteria from a source which is currently unknown (see Table 2a). These pollutants are not monitored for under the current non-storm water MS4 effluent monitoring program. While this Order does not establish a numeric action level for these constituents at this time, this Order now requires non-storm water MS4 discharge monitoring to include monitoring for Sulfates, Chlorides and Total Dissolved Solids.

Priority pollutants analyzed included Cadmium, Copper, Chromium, Lead, Nickel, Silver and Zinc. These priority pollutants are likely to be present in non-storm water MS4 discharges (see Finding C.3) and dissolved metal effluent monitoring is available from the previous Order. The most stringent applicable water quality criteria have been identified for these seven metals and, excluding Chromium (VI), and all are dependent on receiving water hardness. The conversion factors for Cadmium and Lead are also water hardness dependent (40 CFR 131.38(b)(2)). These levels are established as the action levels for these constituents.

While effluent monitoring is available from the previous Order, the monitoring was done for dissolved concentrations and lacked a measurement of receiving water hardness. Due to the multiple point source discharges of non-storm water from the MS4, a discharge may enter a receiving water whose hardness will vary temporally. In addition, hardness may vary spatially within and among receiving waters.

However, other information is available to determine the appropriateness of an action level. Existing effluent monitoring concentrations absent of receiving water data, no dilution credit or mixing zone allowance, current 303(d) listings of receiving waters for

other pollutants, receiving water monitoring data, and the classification of waters as critical habitat for endangered and species of concern, provide evidence that NALs are appropriate for these priority pollutants at this time in order to ensure that the Copermittees comply with the requirement to effectively prohibit all types of unauthorized non-storm water discharges into the MS4s.

Existing effluent data (see attachment F), absent receiving water hardness, provides evidence that it is appropriate to include NALs based on a conservative hardness level. Absent receiving water hardness, all analyzed metals, are discharged at concentrations which may be in exceedance of CTR criteria depending on receiving water hardness. Chromium effluent data that is available is in the form of total Chromium. However, per the SIP, Chromium criteria are for Chromium III and Chromium VI. Therefore, the total Chromium measurement is inadequate, but can be used as an estimate of Chromium III and VI concentrations.

As discussed, inland surface waters, enclosed bays, and estuaries have conservatively been allotted a mixing zone and dilution credit of zero. As such, any discharge of these priority pollutants is likely to impact the receiving water, regardless of the quantity or rate of discharge.

As discussed in Finding C.7 and discussion, multiple receiving waters within the County of Orange are 303(d) listed for a number of pollutants, including toxicity. The 303(d) listing of a waterbody as impaired provides evidence that the receiving water(s) are already experiencing negative impacts. These water quality limited segments are more susceptible to degradation from the synergistic addition of more pollutants, even from upstream discharges. It is therefore appropriate to include numeric action levels designed to ensure that the Copermittees are complying with the requirement to effectively prohibit all types of unauthorized discharges of non-storm water into the MS4s.

Copermittees have monitored the receiving waters for MS4 discharges pursuant to requirements under Order R9-2002-0002. Dry weather receiving water data indicates poor conditions within waters receiving non-storm water MS4 discharges. Urban stream bioassessment conducted under the Order (2002-2008) has documented all non-reference sites as consistently having poor or very poor Index of Biotic Integrity (IBI) scores, in part due to receiving water toxicity¹⁶⁸.

Receiving waters within the jurisdiction of this Order are classified as critical habitat, including being designated with the RARE beneficial use, for endangered, threatened and species of concern including, but not limited to, *O. mykiss irideus*, *E. newberryil*, *A. marmorata pallida* and *G. orcutti*.

¹⁶⁸ 2006-07 and 2007-08 Unified Annual Progress Reports.

The Regional Board evaluated discharges to the surf zone, per the California Ocean Plan, Appendix VI and in accordance with 40 CFR 122.44(d). Indicator bacteria, pH, turbidity (NTU), and metals were analyzed for the purpose of determining the levels of these constituents in non-storm water discharges from the MS4.

The Regional Board has determined that there is not sufficient information at this time to develop action levels for pH, turbidity and metals. While non-storm water MS4 effluent data is available, the data collected is for discharges to inland surface waters, enclosed bays and estuaries. Preliminary receiving water data and limited non-storm water MS4 discharge data collected under the Ambient Coastal Receiving Water Monitoring indicates some exceedances of criteria for metals in the discharge, and toxicity in receiving waters¹⁶⁹. However, the Regional Board believes the level of data available is insufficient, and is requiring additional monitoring of pH, turbidity and metals in non-storm water MS4 discharges to ocean waters (discharges to the surf zone).

Water Quality Limited Segments on the current 303(d) list (2006) for the Pacific Ocean shoreline within the jurisdiction of this Order have been identified due to exceedances of Indicator Bacteria criteria whose known source includes non-storm water discharges from the MS4. These 303(d) listed segments support extensive REC-1 beneficial uses and are located within State Marine Reserves and Conservation Areas. The listing of receiving waters as 303(d) listed for bacteria supports the inclusion of action levels to ensure that the Copermitttees are complying with the requirement to effectively prohibit all types of unauthorized non-storm water discharges into the MS4. In addition, no dilution credit or mixing zone allowance is included in developing numeric action levels for the discharge of a pollutant to waters which are 303(d) listed as impaired for that pollutant.

Dry Weather Non-Storm Water Action Levels Calculations for Discharges to Inland Surface Waters, Enclosed Bays, and Estuaries

On the basis of the foregoing discussion, the NALs were calculated with the following considerations and assumptions:

No dilution credit is considered for the discharge. Therefore, the discharge must comply with the Water Quality Objective at the point of discharge.

For NALs based on CTR, implementation was done using the procedure list as outlined in the SIP (see below example).

NAL CTR/SIP Calculation – Zinc Example:

Criteria for Priority Toxic Pollutants in the State of California is described in the CTR

¹⁶⁹ 2007-08 Unified Annual Progress Report.

table listed in 40 CFR 131.38.

A		B Freshwater		C Saltwater		D Human Health (10 ⁻⁶ risk for carcinogens) For consumption of:	
# Compound	CAS Number	Criterion Maximum Conc. ^d B1	Criterion Continuous Conc. ^d B2	Criterion Maximum Conc. ^d C1	Criterion Continuous Conc. ^d C2	Water & Organisms (µg/L) D1	Organisms Only (µg/L) D2
1. Antimony	7440360					14 a,s	4300 a,t
2. Arsenic ^b	7440382	340 i,m,w	150 i,m,w	69 i,m	36 i,m		
3. Beryllium	7440417					n	n
4. Cadmium ^b	7440439	4.3 e,i,m,w,x	2.2 e,i,m,w	42 i,m	9.3 i,m	n	n
5a. Chromium (III)	16065831	550 e,i,m,o	180 e,i,m,o			n	n
5b. Chromium (VI) ^b	18540299	16 i,m,w	11 i,m,w	1100 i,m	50 i,m	n	n
6. Copper ^b	7440508	13 e,i,m,w,x	9.0 e,i,m,w	4.8 i,m	3.1 i,m	1300	
7. Lead ^b	7439921	65 e,i,m	2.5 e,i,m	210 i,m	8.1 i,m	n	n
8. Mercury ^b	7439976	[Reserved]	[Reserved]	[Reserved]	[Reserved]	0.050 a	0.051 a
9. Nickel ^b	7440020	470 e,i,m,w	52 e,i,m,w	74 i,m	8.2 i,m	610 a	4600 a
10. Selenium ^b	7782492	[Reserved] p	5.0 q	290 i,m	71 i,m	n	n
11. Silver ^b	7440224	3.4 e,i,m		1.9 i,m			
12. Thallium	7440280					1.7 a,s	6.3 a,t
13. Zinc ^b	7440666	120 e,i,m,w,x	120 e,i,m,w	90 i,m	81 i,m		

Saltwater criterion maximum concentration (CMC) = 90 ug/L
Saltwater criterion continuous concentration (CCC) = 81 ug/L

These criteria are expressed in terms of the dissolved fraction of the metal in the water column. [See footnote “m” to Table in paragraph (b)(1) of 40 CFR 131.38].

40 CFR 122.45(c) requires that this Order include effluent limitations as total recoverable concentration; therefore it is appropriate to include action levels also as total recoverable concentration.

The SIP requires that if it is necessary to express a dissolved metal value as a total recoverable and a site-specific translator has not yet been developed, the Regional Board shall use the applicable conversion factor from 40 CFR 131.38.

The term “Conversion Factor” (CF) represents the recommended conversion factor for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column.

Total recoverable concentration * CF = Dissolved concentration criterion

or

Total recoverable concentration = Dissolved concentration criterion/ CF

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Metal	Conversion factor (CF) for freshwater acute criteria	CF for freshwater chronic criteria	CF for saltwater acute criteria	CF = for saltwater chronic criteria
Silver	0.85	(d)	0.85	(d)
Thallium	(d)	(d)	(d)	(d)
Zinc	0.978	0.986	0.946	0.946

CF for Zinc = .946, so the total recoverable concentrations for zinc:
 90 ug/L dissolved (CMC)/ 0.946 (CF) = 95 ug/L total recoverable CMC
 81 ug/L dissolved (CCC) / 0.946 (CF) = 86 ug/L total recoverable CCC

Effluent Variability multiplier and Coefficient of Variation (CV)

For each concentration based on an aquatic life criterion, the long-term average (LTA) is calculated by multiplying the concentration with a factor that adjusts for effluent variability. The multiplier can be found in Table 1 of the SIP. Since this Order does not have existing data to properly conduct a variability analysis in accordance with the SIP, the CV has been set equal to 0.6 per SIP requirements. The current effluent data is limited due to the small number of representative outfalls sampled, the lack of outfalls discharging to representative waterbodies within the Region, and the targeted nature of the sampling design.

Based upon a CV of 0.6, Table 1 of the SIP requires an effluent variability as follows:

Acute Multiplier = 0.321
 Chronic Multiplier = 0.527

The long-term average (LTA) is calculated by multiplying the total recoverable concentrations for zinc with the acute and chronic multipliers:

LTA Acute = 95 ug/L * 0.321 = 30.5
 LTA Chronic = 86 ug/L * 0.527 = 45.3

The MDAL and AMAL will be based on the most limiting of the acute and chronic LTA, in the case for copper the most limiting LTA is the acute of 30.5 ug/L

NALs are calculated by multiplying the most limiting LTA with a multiplier that adjusts for the averaging periods and exceedance frequencies of the criteria and the effluent limitations. The multiplier can be found in Table 2 of the SIP. Since this Order has insufficient data, the CV has been set to 0.6 and since sampling frequency is four times a month or less, n has been set equal to 4 per the SIP.

Table 2. Long-Term Average (LTA) Multipliers for Calculating Effluent Limitations

Coefficient of Variation	MDEL Multiplier	AMEL Multiplier			MDEL/AMEL Multiplier		
	99 th Percentile Occurrence Probability	95 th Percentile Occurrence Probability			MDEL = 99 th Percentile AMEL = 95 th Percentile Occurrence Probability		
(CV)		n = 4	n = 8	n = 30	n = 4	n = 8	n = 30
0.1	1.25	1.08	1.06	1.03	1.16	1.18	1.22
0.2	1.55	1.17	1.12	1.06	1.33	1.39	1.46
0.3	1.90	1.26	1.18	1.09	1.50	1.60	1.74
0.4	2.27	1.36	1.25	1.12	1.67	1.82	2.02
0.5	2.68	1.45	1.31	1.16	1.84	2.04	2.32
0.6	3.11	1.55	1.38	1.19	2.01	2.25	2.62

Therefore, from Table 2 of the SIP, the LTA multipliers will be as follows:

MDAL Multiplier = 3.11

AMAL Multiplier = 1.55

The MDAL and AMAL limits are calculated by multiplying the LTA with an LTA multiplier for each limit:

MDAL = 30.5 ug/L * 3.11 = 95 ug/L

AMAL = 30.5 ug/L * 1.55 = 47 ug/L

Dry Weather Non-Storm Water Action Levels Calculations for Discharges to the Surf Zone

Based on the foregoing discussion, the Average Monthly and Maximum Daily NALs were calculated with the following considerations and assumptions:

No dilution credit is considered for the discharge. Therefore, the discharge must comply with the Water Quality Objective at the point of discharge.

Whole Effluent Toxicity (WET) Testing Requirements

A WET limit is required if a discharge causes, has a reasonable potential to cause, or contributes to an exceedance of applicable water quality standards, including numeric and narrative. Since these types of discharges are prohibited under this Order, WET limits are not applicable.

Discussion of AMALs, MDALs and Instantaneous Maximums

Where practical, action levels in this Order have been expressed as both AMALs and MDALs. Certain action levels may not practicably be expressed as AMALs and MDALs due to specific BPO language, sampling requirements and/or a lack of Criteria. Based upon the likely sampling frequency of the Copermittees, the frequency of sampling will occur such that grab samples are taken once per sampling day. This single sample would then be subject to MDALs and Instantaneous Maximum levels. In this case, the more conservative action level would apply. In addition, it is expected that some effluent monitoring will occur less than or equal to once per month. In this scenario, the MDAL, AMAL and Instantaneous Maximum levels would need to be met based upon one sample, unless sampling did not occur. For some BPOs, AMALs have been excluded and only MDALs/Instantaneous Maximums set to prevent redundancy in action levels.

Compliance with Action levels (Priority Pollutants)

Compliance with action levels shall be determined as follows:

Dischargers shall be deemed out of compliance with this Order if the Copermittee failed to take the prescribed action in response to a concentration of the priority pollutant in the monitoring sample that is greater than the action level and greater than or equal to the reported Minimum Level (exceedance of an action level). Regardless of the Copermittee's actions in response to an exceedance, they are still subject to the prohibitions found in Section A and B of the Order.

When determining to take an action in response to the AMALs and more than one sample result is available in a month, the discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND. In those cases, the discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

- (1) The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
- (2) The median value of the data set shall be determined. If the data set has an odd number of data points then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of those points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

D. Storm Water Action Levels

Section D has been added to establish storm water action levels (see also Finding D.1.h and Discussion).

Introduction

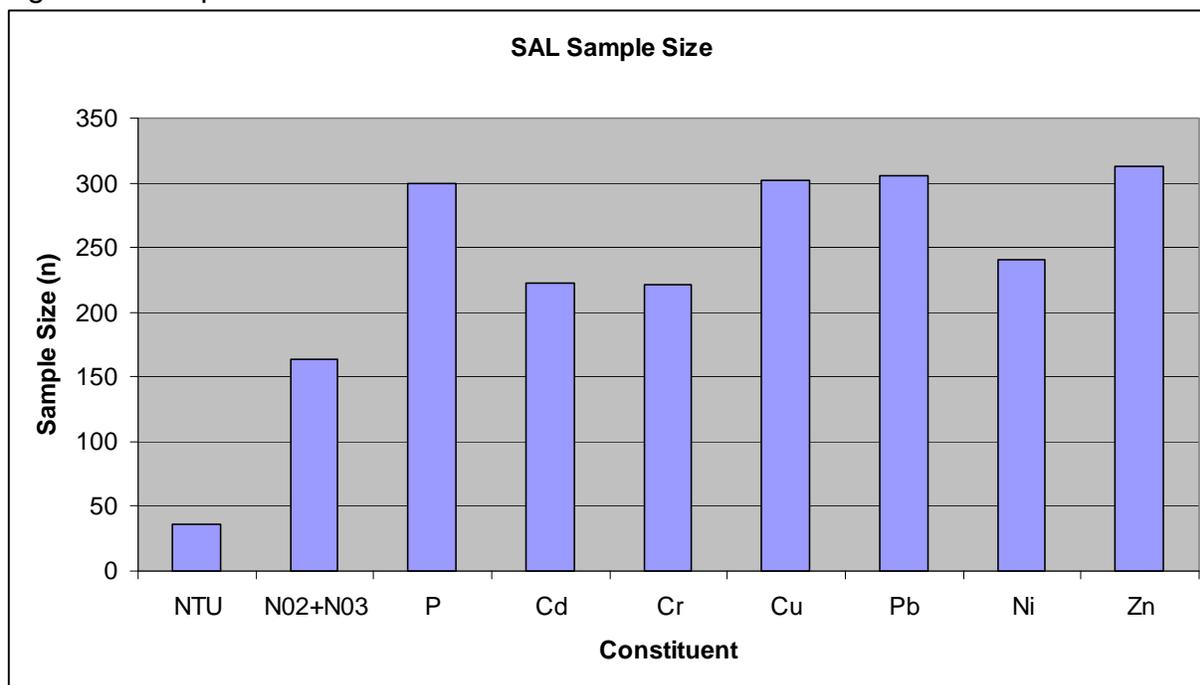
In response to comments at the initial public workshop, meetings with the principle Permittees, and comments from the July 01, 2009 Regional Board meeting, SAL concentrations, standards and constituents have been updated, Order language has been clarified and additions to the monitoring requirements have been made.

SAL Concentration/Standards Updates

SAL pollutant levels have been updated and now come from a regional subset of nationwide Phase I MS4 data. Regional Board staff have chosen to update SALs by using USEPA Climate Zone 6 (arid west) data when computing SALs. Utilizing data from USEPA Climate Zone 6 is expected to produce SALs which closely reflect the environmental conditions experienced in Orange County. The localized subset of data includes sampling events from multiple Southern California locations including Orange, San Diego, Riverside, Los Angeles and San Bernardino Counties. The dataset includes samples taken from highly built-out impervious areas and from storm events representative of Southern California conditions.

Additionally, utilization of regional data is appropriate due to the addition of data into the nationwide Phase I MS4 monitoring dataset in February 2008. This additional data increased the number of USEPA Climate Zone 6 samples to more than 400, and included additional monitoring events within Southern California (see Figure 2).

Figure 2. Sample Sizes Used to Calculate Storm Water Action Levels



Additional changes have been made by staff to update SALs to reflect the water quality standards in the San Diego Regional Water Quality Control Board Basin Plan, the California Toxic Rule and USEPA Water Quality Criteria. Since it is the goal of the SALs, through the iterative and MEP process, to have outfall storm water discharges meet all applicable water quality objectives, the list of constituents to be tested and protocol for testing has been updated to provide a reference point to evaluate the iterative MEP process. As such, Kjeldahl Nitrogen (TKN) and Total Suspended Solids (TSS) have been removed from the SAL table. There currently are no appropriate criteria for TKN or TSS, and alternate constituents are available which do have BPOs for comparative purposes. Instead, Nitrate/Nitrite and Turbidity, which have BPOs of 1.0 mg/L and 20 NTUs respectively, are included with associated SALs.

Metals included in SALs include Cadmium, Chromium, Nickel, Zinc, Lead and Copper. In receiving water quality monitoring collected by the Copermittees to date, these metals have been detected and shown to contribute to toxicity at mass loading stations within Southern Orange County.

Monitoring Updates

SAL language has been updated to require the measurement of hardness and to provide more specificity in the assessment of samples with SALs for total metal concentrations. While USEPA Climate Region 6 data includes a large sample size for concentrations of total metals, the impact the concentration will have on receiving waters will vary with receiving water hardness. Since it is the goal of the SALs,

through the iterative and MEP process, to have MS4 storm water discharges meet all applicable water quality objectives, the hardness of the receiving water should be used when assessing the total metal concentration of a sample. Thus, when an exceedance of a SAL concentration is detected for a metal the Copermittee must determine if that exceedance is above the existing applicable water quality limitation based upon the hardness of the receiving water. The water quality limitations Permittees must use to assess total metal SAL exceedances are the California Toxic Rule (CTR) and USEPA National Recommended Water Quality Criteria for Freshwater Aquatic Life 1 hour maximum concentrations. The 1 hour maximum concentration is to be used for comparison since it is expected to most replicate the impacts to waters of the State from the first flush following a precipitation event.

E. Legal Authority

The following legal authority applies to section E:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that the Copermittees shall develop and implement legal authority to “Control through ordinance, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that the Copermittees shall develop and implement legal authority to “Control through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system.”

Illicit discharge is defined under Federal NPDES regulation 40 CFR 122.26(b)(2) as “any discharge to a municipal separate storm sewer system that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in storm water runoff from commercial, residential, industrial, and construction land uses or activities.

Federal NPDES regulation 40 CFR 122.26(d)(1)(ii) requires from the Copermittee “A description of existing legal authority to control discharges to the municipal separate storm sewer system.”

Section E.1.b Prohibit all identified illicit discharges not otherwise allowed pursuant to section B.2 including but not limited to:

- (1) Sewage;
- (2) Discharges of wash water resulting from the hosing or cleaning of gas stations, auto repair garages, or other types of automotive services facilities;
- (3) Discharges resulting from the cleaning, repair, or maintenance of any type of equipment, machinery, or facility including motor vehicles, cement-related equipment, and port-a-potty servicing, etc.;
- (4) Discharges of wash water from mobile operations such as mobile automobile washing, steam cleaning, power washing, and carpet cleaning, etc.;

- (5) Discharges of wash water from the cleaning or hosing of impervious surfaces in municipal, industrial, commercial, and residential areas including parking lots, streets, sidewalks, driveways, patios, plazas, work yards and outdoor eating or drinking areas, etc.;
- (6) Discharges of runoff from material storage areas containing chemicals, fuels, grease, oil, or other hazardous materials;
- (7) Discharges of pool or fountain water containing chlorine, biocides, toxic amounts of salt, or other chemicals; discharges of pool or fountain filter backwash water;
- (8) Discharges of sediment, pet waste, vegetation clippings, or other landscape or construction-related wastes; and

Duplicative language has been removed from this section.

Section E.1.j has been added to the Order to ensure that BMPs implemented by third parties are effective. Since the Copermittees cannot passively receive and discharge pollutants from third parties, the Copermittees must ensure discharges of storm water pollutants to the MS4 are reduced to the MEP. In order to achieve this, the Copermittees must be able to ensure that effective BMPs are being implemented by requiring the third parties to document BMP effectiveness. Regarding the Copermittees' ability to require documentation and reporting from third parties, USEPA states "municipalities should provide documentation of their authority to enter, sample, inspect, review, and copy records, etc., as well as demonstrate their authority to require regular reports."¹⁷⁰

¹⁷⁰ USEPA, 1992. Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

F. Jurisdictional Runoff Management Program

F.1. Development Planning

The following legal authority applies to section F.1:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWA section 402(a), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F), 40 CFR 131.12, and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) provides that Copermittees develop and implement a management program which is to include “A description of planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment. Such plans shall address controls to reduce pollutants in discharges from municipal separate storm sewers after construction is completed.”

Federal NPDES regulation 40 CFR 122.44(d)(1) requires municipal storm water permits to include any requirements necessary to “[a]chieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.”

Sections F.1.a and F.1.b (General Plan and Environmental Review Process) require the Copermittees to update and revise their General Plan (or equivalent plan) and environmental review processes to ensure water quality and watershed protection principles are included. The Copermittees are required to detail any changes to the General Plan or environmental review process in their Jurisdictional Runoff Management Program Annual Reports.

The change made to these sections requires updating the General Plan and Environmental Review Process on an as-needed basis, is supported by information provided in the Copermittees’ Report of Waste Discharge (ROWD) and Annual Reports. Each Copermittee has either updated, is in the process of updating, or has assessed its General Plan to ensure the General Plans include the required principles and are in compliance with Order No. R9-2002-0001. The ROWD also states that although all the Copermittees have reviewed their environmental review processes, a number of Copermittees want the overall planning approval process to more effectively ensure that water quality protection is considered in the earliest phases of project consideration.

Section F.1.a has been modified to include redevelopment projects in the General Plan. This change requires Copermitees to update their General Plan to include water quality and watershed protection for all new development and redevelopment projects.

Section F.1.c (Approval Process Criteria and Requirements) requires that all development projects (regardless of size) implement BMPs to reduce storm water pollutant discharges to the MEP. Source control and site design BMP requirements were not clearly described in this section of Order No. R9-2002-0001. Additional detail has been added to this section to better describe the source control and site design BMPs needed for implementation. This additional detail is consistent with the requirements of the SSMP, known in Orange County as the Water Quality Management Plan (WQMP). However, only source control and site design BMPs that apply to all types of development projects are required (i.e., properly designed trash storage areas).

The requirements are consistent with Order No. R9-2002-0001, section F.1.b.1. However, some elements are not contained in the current or proposed DAMP¹⁷¹ (e.g., buffer zones). One exception is that Order No. R9-2002-0001's requirement that applicants must provide evidence of coverage under the General Industrial Permit has been removed, since industrial tenants for a development project are usually not known during the planning stage.

The section has been modified to reflect the prohibition of over-irrigation runoff to the MS4, as well as LID requirements. Additionally, this section requires the use of native and/or low water use plants for landscaping, where feasible.

Sections F.1.d and F.1.d.(1) (Standard Storm Water Mitigation Plans) require the Copermitees to review and update their local SSMPs (also known in Orange County as Water Quality Management Plans – WQMPs) for compliance with the Order. The sections also require all Priority Development Projects falling under certain categories to meet SSMP requirements. The update is necessary to ensure that the Copermitees' local SSMPs are consistent with the changes that have been made to the Order's SSMP requirements. The requirement for the development/adoption of a Model SSMP has been removed since a model was completed and adopted in 2003.

The SSMP section of the Order has been reformatted for clarity. There are also some significant changes. Changes have been made in response to experience gained by the Orange County Storm Water program, USEPA program evaluations, recent BMP development and effectiveness studies, recent reports on the magnitude of problems caused by hydromodification, and reviews of annual reports and the ROWD submitted by the Copermitees.

¹⁷¹ Orange County Storm Water Copermitees. *Drainage Area Management Plan (DAMP) 2007*. July 21, 2006. The 2007 DAMP was submitted to the Regional Board with the Report of Waste Discharge as part of the application for NPDES Permit reissuance.

In addition, the Order requires that a one-acre threshold be phased in over three years for the priority development category. This threshold was selected to be consistent with the Phase II NPDES regulations for small municipalities. The one-acre determination applies to the amount of ground area disturbed, not the total size of the parcel or project. Each Copermitttee may also lower this threshold if desired.

Section F.1.d.(2) (Priority Development Project Categories) includes several changes to improve, simplify, and clarify the Priority Development Project categories.

The most significant change is that where a new Development Project feature, such as a parking lot, falls into a Priority Development Project Category, the entire project footprint is subject to SSMP requirements. This criterion was not included in Order No. R9-2002-0001. It is included, however, in the Model San Diego SSMP that was approved by the Regional Board in 2002. It is included in this Order because existing development inspections by Orange County municipalities show that facilities included in the Priority Development Project Categories routinely pose threats to water quality. This permit requirement will improve water quality and program efficiency by preventing future problems associated with partly treated storm water runoff from redevelopment sites. This approach to improving storm water runoff from existing developments is practicable because municipalities have a better ability to regulate new developments than existing developments.

Industrial sites and retail gasoline outlets have been added to the priority development categories. This heavy industrial category was not included in Order No. R9-2002-0001 because industrial NPDES requirements already establish storm water criteria. This category is included in the Order to be consistent with Phase II rules and to close loopholes. A discussion of retail gasoline outlets is below.

The criterion for commercial developments has been lowered to one acre from 100,000 square feet (2.3 acres). It is modified in order to be consistent with USEPA Phase II guidance, and to reflect the findings from Permittees that smaller commercial developments pose high threats to storm water discharges.

Housing and restaurant criteria have been clarified. The two housing development categories are now combined into one category that includes 10 or more housing units. In addition, requirements which specifically apply to restaurants have been combined in this section. The section has been modified to clarify that restaurants with less than 5,000 square feet of development are subject to SSMP requirements, except for the treatment control BMP and hydromodification control requirements. This is consistent with Order No. R9-2002-0001's approach for applying SSMP requirements to restaurants.

Section F.1.d.(2)(j) includes Retail Gasoline Outlets (RGOs) as a Priority Development Project category because RGOs are points of confluence for motor vehicles for automotive related services such as repair, refueling, tire inflation, and radiator fill-up. RGOs consequently produce significantly greater pollutant loadings of hydrocarbons and trace metals (including copper and zinc) than other developed areas. To meet the storm water MEP standard, source control and structural treatment BMPs are needed at RGOs that meet the following criteria: (a) 5,000 square feet or more of developed area, or (b) a projected average daily traffic of 100 or more vehicles per day. These are appropriate thresholds since development size and volume of traffic are good indicators of potential impacts of runoff from RGOs on receiving waters. RGOs were proposed, but not included in Order No. R9-2002-0001 pending guidance from the State Board in its review of the San Diego MS4 Permit, Order No. 2001-0001.

In State Board WQ Order No. 2000-11, the State Board removed RGOs as a SSMP category because the State Board found that RGOs were already heavily regulated and limited in their ability to construct infiltration devices or perform treatment. Order No. 2000-11 also acknowledged that a threshold (size, average daily traffic, etc.) appropriate to trigger SSMP requirements should be developed, and that specific findings regarding RGOs should be included in MS4 permits to justify the requirement.¹⁷² The State Board also removed the RGO category from the San Diego County MS4 permit (Order No. 2001-01) because the Regional Board did not specifically address the issues raised in WQ Order No. 2000-11.

As discussed further below, the LARWQCB and the Regional Board have adequately addressed these issues. RGOs have been included as a SSMP category in the Los Angeles County MS4 permit (Order No. R4-01-182), the statewide general Phase II MS4 permit (WQ Order No. 2003-0005-DWQ), and the Regional Board Southern Riverside County MS4 permit (Order No. R9-2004-001). The State Board also addressed the inclusion of RGOs through the appeals of MS4 permits issued by the Los Angeles and San Francisco Bay Area Regional Boards. The State Board held a workshop addressing RGOs and identified RGOs as significant sources of pollutants. The State Board then dismissed the petitions for removal of RGOs from the SSMP requirements in the Los Angeles and San Francisco Bay Area MS4 permits.

Inexpensive and effective structural treatment BMPs which reduce storm water pollutants and control peak flow rates and velocities are available for use at RGOs. Studies have shown that some catch basin inserts can remove hydrocarbons and heavy metals, which are typical pollutants of concern at RGOs. Sand or media filters have also been found to be effective and available for use at RGOs. Site design measures to control flow include cisterns, small weirs, baffles, and redirecting roof runoff to pervious areas.

¹⁷² State Board, 2000. Order WQ 2000-11.

No evidence has been provided to indicate that use of these structural BMPs at RGOs will pose a safety risk. In fact, filter BMPs have been installed at RGOs in some municipalities without apparent adverse safety effects. In addition, similar BMPs such as oil/water separators have been used for years by RGOs without safety problems.

Threshold - Studies indicate that runoff from RGOs contains similar pollutants to runoff from commercial parking lots. In precedential WQ Order 2000-11, the State Board determined that parking lots with a size threshold of 5,000 square feet or more is an appropriate SUSMP category. Based in part on the similarity of pollutants, the 5,000 square feet size threshold was also included for RGOs in the Order. In addition, other municipalities currently use similar size thresholds for RGOs when requiring design standards to mitigate storm water runoff. To provide additional flexibility for the Copermittees, another threshold of 100 or more motor vehicles ADT has been added to the Order. This threshold is based on requirements used in Washington and Oregon for what are considered "high use" sites. This is an appropriate threshold since vehicular traffic is a good indicator of the amount of pollutants generated at a site.

The Regional Board followed the State Board's direction regarding RGOs by including the above discussion in this Fact Sheet, as well as a specific finding that justifies the regulation of runoff from RGOs that meet certain criteria. Considering all of the supporting documentation discussed above, it is appropriate to include RGOs as a Priority Development Project category.

Additional detailed supporting information can be found in the 2001 technical report titled *Retail Gasoline Outlets: New Development Design Standards for Mitigation of Storm Water Impacts* by the LARWQCB and the Regional Board.

Section F.1.d.(3) (Pollutants of Concern) requires Copermittees to update their procedures for identifying pollutants of concern for each Priority Development Project. This is important to do periodically because of changing water quality conditions and designations of impairments or areas of concern. Furthermore Copermittees continually learn more about pollutant-generating activities as they conduct inspections and investigations, and that information must be incorporated into the SSMP process.

Section F.1.d.(4) This Section has been modified to clarify some elements of low impact development. This section requires Copermittees to require or implement site design BMPs at Priority Development Projects in order to reduce the amount of polluted storm water runoff from those sites. The primary approach in site design BMPs is to limit the permanent loss of existing infiltration capacity because loss of infiltration is a major contributor to wet weather pollution discharges. General means to accomplish that goal include retaining natural infiltration areas of a site and limiting the amount of impervious surfaces. The Order does not require a specific or relative amount of pervious surfaces be added to a project. The Order seeks to retain on-site capture of the 85th percentile storm.

The site design BMP options listed in these sections are consistent with the site design BMPs currently required by the Copermittees in the Model WQMP. In the ROWD, the Copermittees propose to improve the process of selecting site design BMPs. Specifically, they propose to develop recommendations for incorporating low-impact design (LID) techniques and site design BMPs. However, the Model WQMP employs an open-ended approach to requirements for site design BMPs, requiring implementation of site design BMPs “where applicable and feasible” and “where appropriate.” Unfortunately, this approach has proven to be ineffective in integrating site design BMPs in project designs. Audits conducted in 2005 of four Copermittees found that municipalities need to work with project applicants to improve the quality of site design BMPs.¹⁷³ As a result, the Order establishes two sets of site design BMP criteria.

First, section F.1.d.(4)(b) of the Order directs the Copermittees to require, rather than consider, new development projects to employ certain classes of site design BMPs. The required site design BMPs take advantage of features that are incorporated into the Priority Development Project, such as landscaping or walkways. It also requires that projects seek to maintain natural water drainage features rather than instinctively convey water in buried pipes and engineered ditches that eliminate natural water quality treatment functions. These types of site design BMPs are both effective and achievable. These requirements are consistent with the guidelines of Order No. R9-2002-0001 and both the 2003 and 2007 DAMPs.¹⁷⁴

Next, section F.1.d.(4)(d) of the Order requires that LID BMPs be sized and designed to ensure onsite retention without runoff, of the volume of runoff produced from a 24-hour 85th percentile storm event. This is consistent with other municipal stormwater NPDES permits recently adopted by the Los Angeles and Santa Ana Regional Boards. In those permits, the stakeholders were involved in drafting the numerical performance criteria. The requirement for a numerical BMP design standard is well established for treatment control BMPs and is required in permits throughout the nation such as in Pennsylvania, West Virginia, Georgia, and Washington D.C. Since the 85th percentile storm event has previously been used as the numeric design standard for treatment control BMPs; the same size storm event can be applied as the numeric design standard for LID BMPs. According to information provided by the County of Orange, the 24 hour, 85th percentile rainfall is between 0.7 to 0.8 inches of rain for the majority of the area covered by this permit.

¹⁷³ Tetra Tech, Inc. 2005. Program Evaluation Report. Orange County Storm Water Program: Cities of Laguna Beach, Laguna Hills, Lake Forest, and Rancho Santa Margarita.

¹⁷⁴The 2003 and 2007 DAMPs include preserving natural drainage features as a recommended site design BMP requirement that was to be reviewed and used where applicable and feasible. The DAMPs note this as a way to mimic a site's natural hydrologic regime.

The retention of natural drainage features, such as ephemeral streams, wetlands, and depressions, can be particularly important because small tributaries are essential to the maintenance of the chemical, biological, and physical integrity of larger waterbodies.¹⁷⁵ The loss and modification of such natural water resources to accommodate post-development storm water management leads to direct and indirect adverse effects on water quality that are felt both on the project site and off the site within the watershed.^{176,177,178} Effects to aquatic beneficial uses from altered drainage features can occur downstream and upstream. The length of upstream or downstream effect of channel modifications is dependant on the specific structure type and channel slope.¹⁷⁹ For instance, road culverts can act as partial barriers to upstream distribution of native aquatic macroinvertebrates in urban streams, while bridges can provide adequate passage.¹⁸⁰ As a result of the adverse effects to water quality and beneficial uses, the State of California nonpoint source pollution program management measures for urban areas includes limiting the destruction of natural drainage features and natural conveyance areas.¹⁸¹

Through its process of conditioning development projects under the CWA section 401 Water Quality Certification program, the Regional Board finds that the level of site design BMP implementation in the Order is feasible for all projects. This site design BMP requirement will help ensure that site design BMPs are implemented for new development projects. Site design BMPs are a critical component of storm water runoff management at new development projects, since the BMPs provide multiple benefits including preservation of hydrologic conditions, reduction of pollutant discharges, cost effectiveness, and green space.

¹⁷⁵ Aquatic scientists comment letter (April 10, 2003) on the Advanced Notice of Proposed Rulemaking (ANPRM) on the Clean Water Act Regulatory Definition of "Waters of the United States." (Docket ID No. OW-2002-0050). This letter is a synthesis of scientific information regarding ephemeral, intermittent, and headwater streams. It was written to USEPA by 85 leading aquatic scientists.

¹⁷⁶ Wright, Tiffany, et al. 2006. *Direct and Indirect Impacts of Urbanization on Wetland Quality*. Prepared by the Center for Watershed Protection for the USEPA Office of Wetlands, Oceans, and Watersheds. 81p. Available online at <http://www.cwp.org>

¹⁷⁷ Konrad, Christopher P. and Derek K. Booth, 2005. *Hydrologic Changes in Urban Streams and Their Ecological Significance*. American Fisheries Society Symposium. Vol. 45 pp.157-177.

¹⁷⁸ Coleman, Derrick, et al. 2005. *Effect of Increases in Peak Flows and Imperviousness on the Morphology of Southern California Streams*. Technical Report No. 450 of the Southern California Coastal Water Research Project.

¹⁷⁹ Fischenich, J.C. 2001. "Impacts of stabilization measures," EMRRP Technical Notes Collection (ERDC TNEMRRP- SR-32), U.S. Army Engineer Research and Development Center, Vicksburg, MS. <http://www.wes.army.mil/el/emrrp>

¹⁸⁰ Blakely, Tanya J., et al. 2006. *Barriers To The Recovery Of Aquatic Insect Communities In Urban Streams* Freshwater Biology Vol. 51(9), 1634–1645.

¹⁸¹ California Nonpoint Source Encyclopedia, Management Measure 3.1.b. Runoff from Developing Areas, Site Development and Management Measure 3.3.a. Runoff from Existing Development, Existing Development.

The site design BMP options listed do not need to be costly.¹⁸² Some design options, such as concave vegetated surfaces or routing rooftop or walkway runoff to landscaped areas, are cost neutral.¹⁸³ Other site design BMPs, such as minimizing parking stall widths or use of efficient irrigation devices, are oftentimes already required. In addition, use of site design BMPs reduces storm water runoff quantity, allowing for treatment control BMPs and other storm water infrastructure on site to be smaller, therefore savings costs for both developers and municipalities.^{184,185}

Because of the potential economic and environmental benefits of using low-impact development site design, the U.S. Department of Housing and Urban Development, Office of Policy Development and Research, developed “*The Practice of Low Impact Development (LID)*” to assist the housing industry during the land development process.¹⁸⁶ This document focuses specifically on technologies that affect both the cost impacts and environmental issues associated with land development. Much of the report focuses on storm water management because low-impact development storm water management systems can save capital costs for developers and maintenance costs for municipalities.¹⁸⁷ The executive summary of the HUD report notes:

This approach to land development, called Low Impact Development (LID), uses various land planning and design practices and technologies to simultaneously conserve and protect natural resource systems and reduce infrastructure costs. LID still allows land to be developed, but in a cost-effective manner that helps mitigate potential environmental impacts. LID is best suited for new, suburban development.

Developers can use site and structure designs that reduce building footprints, decrease the amount of paved infrastructure, and provide for dispersed drainage and infiltration of runoff from impervious surfaces to reduce the effective impervious surface.¹⁸⁸ The concept of effective impervious surface is important, because when runoff from these surfaces is directed to pervious areas rather to an impervious drainage system (i.e., curbs, gutters, street surfaces, storm drain pipes), it can infiltrate, evaporate, or be taken up by vegetation, thereby reducing the total volume of storm water runoff leaving a site.

¹⁸² USEPA, 2000. Low-Impact Development: A literature review. EPA-841-B-00-005. 35p.

¹⁸³ Bay Area Stormwater Management Agencies Association., 1999. Start at the Source. Forbes Custom Publishing. Available on-line at: http://www.scvurppp-w2k.com/basmaa_satsm.htm. pp. 149.

¹⁸⁴ National Association of Home Builders Research Center. *Builders Guide to Low Impact Development*. Available on-line at <http://www.toolbase.org>

¹⁸⁵ National Association of Home Builders Research Center. *Municipal Guide to Low Impact Development*. Available on-line at <http://www.toolbase.org>

¹⁸⁶ U.S. Department of Housing and Urban Development, Office of Policy Development and Research, 2003. *The Practice of Low Impact Development*.” Prepared by: NAHB Research Center, Inc. Upper Marlboro, Maryland. Contract No. H-21314CA.

¹⁸⁷ Ibid. Executive Summary, p.x.

¹⁸⁸ Bay Area Stormwater Management Agencies Association. 2003. *Using Site Design Techniques to Meet Development Standards for Stormwater Quality*. Available on-line at: <http://www.basmaa.org/>

The Order continues to provide the Copermittees with flexibility in implementing site design BMP requirements by providing a LID BMP waiver program.

Section F.1.d.(5) (Source Control BMP Requirements) requires that Priority Development Projects implement minimum source control BMPs. This section has been added to provide more detail and clarify the Order's requirements for source control BMPs. The minimum source control BMPs listed in the section are consistent with the Model WQMP.

Section F.1.d.(6) (Treatment Control BMP Requirements) is consistent with Order No. R9-2002-0001, with two exceptions. First, the Order limits the selections of methods used to determine the appropriate volume of storm water runoff to be treated. The modification ensures that priority development project proponents utilize the most accurate information to determine the volume or flow of runoff which must be treated. Using detailed local rainfall data, the County of Orange has developed the 85th Percentile Precipitation Isopluvial Map, which exhibits the size of the 85th percentile storm event throughout Orange County.¹⁸⁹ Since this map uses detailed local rainfall data, it is more accurate for calculating the 85th percentile storm event than other methods which were included in Order No. R9-2002-0001. The other methods found in Order No. R9-2002-0001 were included as options to be used in the event that detailed accurate rainfall data did not exist for various locations within Orange County. The development of the 85th Percentile Precipitation Isopluvial Map makes these other less accurate methods superfluous. Therefore, these other methods for calculating the 85th percentile storm event have been removed from the current Order.

Second, the Order requires that treatment control BMPs selected for implementation at Priority Development Projects have a removal efficiency rating that is higher than the "low removal efficiency," as presented in the Model SSMP/WQMP. The requirement allows exceptions for those projects that, with a feasibility analysis, can justify the use of a treatment control BMP with a low removal efficiency for a Priority Development Project. This requirement is needed because to date, the Copermittees have generally approved low removal efficiency treatment control BMPs without justification or evidence that use of higher efficiency treatment BMPs was considered and found to be infeasible. Specifically, it has been found during audits of the Copermittees' SSMP programs that many SSMP reports do not adequately describe the selection of treatment control BMPs.¹⁹⁰ Moreover, USEPA's contractor Tetra Tech, Inc. recommends that "project proponents should begin with the treatment control that is most effective at removing the pollutants of concern [...] and provide justification if that treatment control BMP is not selected."¹⁹¹

¹⁸⁹ The isopluvial map can be found as Exhibit 7.II in the Model WQMP.

¹⁹⁰ Tetra Tech, Inc. 2005. Program Evaluation Report. Orange County Storm Water Program: Cities of Laguna Beach, Laguna Hills, Lake Forest, and Rancho Santa Margarita.

¹⁹¹ Tetra Tech, Inc., 2005. Program Evaluation Report –San Diego Standard Urban Storm Water Mitigation Plan (SUSMP) Evaluation. P. 5.

In the ROWD, the Copermittees acknowledge the need for further attention to the selection and implementation of effective treatment BMPs. They propose to revise the model WQMP table of BMP effectiveness. The requirement is needed to provide clarification that selection of low efficiency treatment control BMPs over high efficiency BMPs without justification does not meet permit requirements and is not in compliance with the storm water MEP standard.

In addition, treatment control BMPs must be designed and implemented with measures to avoid the creation of nuisance or pollution associated with vectors, such as mosquitoes, rodents, and flies. Related guidelines are identified in guidance from CASQA.¹⁹² Additional considerations are outlined in publications from the California Department of Health Services and University of California Division of Agriculture and Natural Resources.¹⁹³

Section F.1.d.(7). (Low-Impact Design BMP Waiver Program) allows Copermittees to develop a LID BMP waiver program, under which projects where it is technically infeasible to implement the required LID BMPs could substitute with treatment control BMPs and a mitigation project, payment into an in-lieu funding program, and/or watershed equivalent BMPs. Some sites may be technically infeasible to implement the required LID BMPs due to the site constraints. For this reason, the Regional Board has added to the Order a requirement for the Copermittees to develop such a program. The program would provide the opportunity for development projects to avoid partial or full LID BMP implementation in exchange for implementation of treatment control BMPs and mitigation. The program would maintain equal water quality benefits as properly implemented LID BMPs when partial LID BMPs are coupled with a mitigation project or in-lieu funding.

The Order includes specific minimum requirements so that the program will achieve similar water quality benefits. Any program which allows development projects to forgo LID BMP implementation must include provisions which will achieve similar water quality benefits. To ensure that this is the case for the LID BMP waiver program, minimum provisions for the program have been added to the Order

¹⁹² For example, see the California Stormwater BMP Handbook guidelines for Extended Detention Basins (TC-22) at <http://www.cabmphandbooks.org>.

¹⁹³ Marco Metzger. "Managing Mosquitoes in Stormwater Treatment Devices." University of California Division of Agriculture and Natural Resources Publication No. 8125. Available at <http://anrcatalog.ucdavis.edu>.

Section F.1.d.(8). (BMP Design Standards) addresses a need for the Copermittees to develop and apply consistent criteria for the design and maintenance of structural treatment BMPs. Correct BMP design is critical to ensure that BMPs are effective and perform as intended. Without design criteria, there is no assurance that this will occur, since there is no standard for design or review. As an example, Ventura County has developed a BMP manual that includes standard design procedure forms for BMPs. Ventura County's *Technical Guidance Manual for Storm Water Quality Control Measures* is available at <http://www.vcstormwater.org/publications.htm>.¹⁹⁴ California Stormwater Quality Association (CASQA) also confirms the necessity of design criteria when it includes such criteria in its New Development and Redevelopment BMP Handbook.¹⁹⁵ This issue is noted in the ROWD, and the Copermittees propose to develop standard design checklist/plans/details for selected source control and treatment BMPs.

Section F.1.d.(9). (Implementation process) requires the Copermittee to implement a process to verify compliance with SSMP requirements. As part of the SSMP, requires identification at what point in the planning process that projects must meet SUSMP requirements and what are roles/responsibilities of municipal departments. The intent of this requirement is to provide consistency in the application of the SSMPs between the Copermittees. This requirement was included in previous Order No. R9-2002-0001.

Section F.1.d.(10) (Annual Review of Treatment BMPs) requires Copermittees to keep their SSMPs up to date with BMP effectiveness studies for low-impact design and treatment control BMPs. The ROWD includes commitments to develop a library of BMP performance reports and to revise the model WQMP table for the latest information on BMPs. This requirement will ensure that two important types of information be included in those efforts: Site design BMPs and treatment BMPs that are assessed as part of contracts with the State Board and Regional Board. The later types of projects include those funded with Clean Beach Initiative grants and other grants. Projects funded with such state grants must include effectiveness assessments using a quality assurance plan. As a result, such studies generally provide reliable sources of local data and should be included in local SSMPs.

¹⁹⁴ Ibid.

¹⁹⁵ California Stormwater Quality Association, 2003. Stormwater Best Management Practice Handbook – New Development and Redevelopment.

Sections F.1.e and F.1.f. (BMP Verification and Treatment BMP Maintenance Tracking) are included in the Order to improve the effectiveness of the BMP requirements. They are included in response to findings from the Audits¹⁹⁶ and recommendations from USEPA.¹⁹⁷ The Copermittees recognize a need to improve the verification of post-construction BMPs. The 2007 DAMP proposes to verify 90 percent of WQMPs (including structural and non-structural BMPs) by inspection, self-certifications, surveys or other means. The Regional Board finds that 90 percent is a reasonable annual target, but considers inspections to be essential to achieve optimal results. Therefore, the Order requires high priority sites to be inspected annually, and allows other measures to be used for lower priority treatment control BMPs.

Section F.1.h. (Hydromodification) expands and clarifies current requirements for control of MS4 discharges to limit hydromodification effects caused by changes in runoff resulting from development and urbanization. The requirements are based on findings and recommendations of the Orange County Storm Water Program, the Stormwater Monitoring Coalition (SMC),^{198,199} and the Storm Water Panel on Numeric Effluent Limits (Numeric Effluent Panel).²⁰⁰ Added specificity is needed due to the current lack of a clear standard for controlling hydromodification resulting from development. More specific requirements are also warranted because hydromodification is increasingly recognized as a major factor affecting water quality and beneficial uses, and the Copermittees have proposed only vague and voluntary modifications to the Model WQMP. The Order is intended to ensure the intent of the proposed modifications is incorporated into each Copermittees' SSMP.

¹⁹⁶ The 2005 audits performed by Tetra Tech, Inc. found that cities are not tracking post-construction BMPs. The final audit report recommended (Section 2.1.2) that each city should develop a system to verify implementation and track post-construction BMPs to ensure that they are adequately maintained.

¹⁹⁷ Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68845. USEPA recommends such practices in the Phase II storm water regulations, promoting "inspections during construction to verify BMPs are built as designed."

¹⁹⁸ Coleman, Derrick, et al. 2005. *Effect of Increases in Peak Flows and Imperviousness on the Morphology of Southern California Streams*. Technical Report No. 450 of the Southern California Coastal Water Research Project.

¹⁹⁹ Stein, Eric and Susan Zaleski. 2005. *Managing Runoff to Protect Natural Streams: The Latest Developments on Investigation and Management of Hydromodification in California*. Proceedings of a special technical workshop co-sponsored by California Stormwater Quality Association (CASQA), Stormwater Monitoring Coalition (SMC), and University of Southern California Sea Grant (USC Sea Grant). Technical Report No. 475 of the Southern California Coastal Water Research Project.

²⁰⁰ Storm Water Panel Recommendations to the California State Water Resources Control Board. 2006. *The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial, and Construction Activities*.

Hydromodification is the change in a watershed's runoff characteristics resulting from development, together with associated morphological changes to channels receiving the runoff. As the total area of impervious surfaces increases, infiltration of rainfall decreases, causing more water to run off the surface and at a higher velocity. Runoff from developed areas can produce erosive flows in channels under rainfall conditions which were not previously problematic. Moreover, runoff from developed areas increases the duration of time that channels are exposed to erosive flows. The increase in the volume of runoff and the length of time that erosive flows occur ultimately intensify sediment transport, causing changes in sediment transport characteristics and the hydraulic geometry (width, depth, and slope) of channels.²⁰¹

These types of changes have been documented in southern California. It has been reported that researchers studying flood frequencies in Riverside County have found that increases in watershed imperviousness of only 9-22 percent can result in increases in peak flow rates for the two-year storm event of up to 100 percent.²⁰² Such changes in runoff have significant impacts on channel morphology. It has recently been found that ephemeral/intermittent channels in southern California appear to be more sensitive to changes in imperviousness than channels in other areas. Morphology of small channels in southern California was found to change with only 2-3 percent watershed imperviousness, as opposed to 7-10 percent watershed imperviousness in other parts of the nation.²⁰³

Effects of hydromodification are evident in southern Orange County and recognized by the Copermittees. Analyses of bioassessment data, for example, indicate that physical changes to stream channels caused by hydromodification are likely responsible, in part, for the low bioassessment scores in urbanized settings.²⁰⁴ It is important to recognize that the physical changes are a direct result of MS4 discharges, but that two separate mechanisms are involved. First, is a change in the flow regime caused by the increase in impervious surfaces and loss of natural conveyance systems. Discharges to receiving waters from the MS4 outfalls do not mimic the natural discharges from former tributaries to that receiving water, and the change results in erosion. Second, the physical stream habitat in many places has been severely modified in order to efficiently convey those increased storm water discharges to the ocean. Where streams are hardened and/or buried to convey storm water, they cannot provide adequate water quality and other necessary conditions to support beneficial uses. Both of these issues are addressed in the Order.

²⁰¹ Santa Clara Valley Urban Runoff Pollution Prevention Program, 2005. Hydromodification Management Plan. P. 1-1.

²⁰² Schueler and Holland, 2000. Storm Water Strategies for Arid and Semi-Arid Watersheds (Article 66). The Practice of Watershed Protection.

²⁰³ Coleman, et. al., 2005. Effect of Increases in Peak Flows and Imperviousness on the Morphology of Southern California Streams. P. iv.

²⁰⁴ See Chapter 11 of the ROWD and the 2005-06 Unified Annual Report for the analyses.

The Copermitees' recognize the need to improve management of hydromodification. The ROWD proposes to revise the Model WQMP to incorporate additional information from ongoing hydromodification studies conducted by the SMC. The Order allows the Copermitees to adopt criteria consistent with future SMC findings in the development of their Hydromodification Management Plan (see below).

Section F.1.h. requires the Copermitees to submit a Hydromodification Management Plan (HMP) within two years of permit adoption. This is consistent with other Southern California MS4 permits and in direct response to comments from the USEPA on Tentative Order R9-2008-001.

Section F.1.h (1) describes several elements that must be included in the HMP. For example, the HMP must identify a method for assessing susceptibility of channel segments which receive runoff discharges from Priority Development Projects, and include a channel standard to ensure that the stability of the channel is not compromised as a result of discharges from the Priority Development Projects. The HMP must also identify a range of flows where Priority Development Projects could cause hydromodification effects and subsequent stream instability.

Additionally, the HMP must require Priority Development Projects to implement hydrologic control measures (such as LID or detention basins) to prevent hydromodification and resultant degradation of stream conditions downstream of project sites. To compare post-project flow rates and durations to pre-project flow rates and durations, the HMP must specify that the pre-developed (naturally occurring) flow rates and durations shall be used when assessing pre-project conditions, so that the naturally occurring hydrology is eventually restored.

In cases where a stream has been armored with concrete, rip rap, or other man-made materials, the HMP shall require the assessment of a comparable soft-bottom channel as the channel standard, as opposed to using the characteristics of the hardened channel as the channel standard. This is to ensure that hydromodification management measures are already in place should any portion of the hardened channel be returned to its natural state, thereby restoring the physical integrity of the creek and its Beneficial Uses. For this reason, the waiver provision for hydromodification management measures for projects discharging into hardened channels was deleted from the Tentative Order. The remaining exception is for projects that discharge storm water runoff into underground storm drains discharging directly into bays or the ocean and for projects discharging to waters where the entire channel bed and banks have been concrete lined all the way to ocean receiving waters.

The HMP must also include metrics for assessing impacts to downstream watercourses from Priority Development Projects, as well as assessing improvements to these watercourses. One metric that must be included is the Index of Biotic Integrity (IBI) score for benthic macroinvertebrates. This is because historic hydromodification

impacts, such as concrete lining and channelization, have impacted the natural physical habitat of urban streams resulting in low IBI scores. The Copermittee's 2006-2007 monitoring indicated decreased IBI scores in the urbanized watersheds. In the absence of water chemistry and toxicity impacts, these low scores were attributed to be a result of poor physical habitat conditions.²⁰⁵ Therefore, the IBI score will be a useful metric in terms of assessing both impacts to streams from Priority Development Projects and improvements due to implementation of management measures.

In addition to the hydrologic control measures that must be included in the HMP to prevent or minimize hydromodification effects from Priority Development Projects, the HMP must also include additional measures to be used on Priority Development Projects based on a prioritized consideration of the following elements in this order: 1) site-design hydrologic control measures, 2) on-site management measures, 3) the use of regional controls upstream of receiving waters, and lastly, 4) in-stream controls (not to include reinforcement with non-naturally occurring materials). The suite of management measures must also include stream restoration as a viable option to achieve the channel standard and subsequently restore Beneficial Uses.

Section F.1.h (5) describes interim hydromodification criteria that must be implemented by the Copermittees within one year of adoption of the Tentative Order and concurrent to development of the local HMP. The values chosen for the interim criteria are those currently being implemented by Copermittees in the San Diego area.

Finally, the requirements included in section F.1.h do not supersede the requirements for LID presented in section F.1.d. (4). In certain situations, the requirements to incorporate LID will satisfy the requirements for hydromodification management. For example, detention basins are a common BMP used to manage high flow rates but behave hydrologically different than distributed systems used in LID. Using LID is a viable option for both accomplishing hydromodification management and pollutant load reductions.

F.2. Construction

The following legal authority applies to section F.2:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

²⁰⁵ Orange County Copermittees, November 15, 2007. 2006-2007 Unified Annual Progress Report Program Effectiveness Assessment (San Diego Region).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) provides that the proposed management program include “A description of a program to implement and maintain structural and non-structural best management practices to reduce pollutants in storm water runoff from construction sites to the municipal storm sewer system.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(1) provides that the proposed management program include “A description of procedures for site planning which incorporate consideration of potential water quality impacts.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(2) provides that the proposed management program include “A description of requirements for nonstructural and structural best management practices.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(3) provides that the proposed management program include “A description of procedures for identifying priorities for inspecting sites and enforcing control measures which consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(4) provides that the proposed management program include “A description of appropriate educational and training measures for construction site operators.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that each Copermitttee must demonstrate that it can control “through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from site of industrial activity.”

Federal NPDES regulation 40 CFR 122.26(b)(14) provides that “The following categories of facilities are considered to be engaging in ‘industrial activity’ for the purposes of this subsection: [...] (x) Construction activity including cleaning, grading and excavation activities [...].”

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

Section F.2 has additions to ensure the protection of threatened and endangered species and requires the consideration of potential impacts from the use of Active Treatment Systems. These requirements were added to ensure additional protection of the Beneficial Uses of waters of the State.

Section F.2.a. (Ordinance Update) requires each Copermittee to review and update its grading and storm water ordinances as necessary to comply with the MS4 permit. By updating the grading and storm water ordinances, the Copermittees will have the necessary legal authority to require construction sites to implement effective BMPs that will reduce pollutant discharges to the maximum extent practicable. The Order allows the Copermittees 365 days to review and update their ordinances. The 365 days should be adequate to allow for the relatively minor changes that might be needed since their ordinances were last updated under Order No. R9-2002-0001.

Section F.2.b. (Source Identification) requires the Copermittees to develop and update a watershed based inventory of all construction sites regardless of size or ownership. This section has been modified to require the inventory be updated regularly, rather than annually. More frequent updates will ensure the Copermittees have a more accurate inventory of construction sites within their jurisdiction. A regularly updated inventory of active construction sites will assist the Copermittees in ensuring that all sites are inspected per Order requirements. The Order does not specify the frequency of updates, and instead relies on each Copermittee to develop updates appropriate to local construction activity. The 2007 DAMP proposes that the inventory be updated “at a minimum” prior to the start of the rainy season. Such a minimum standard may not be appropriate for each Copermittee. Failure to maintain a useful inventory would be a violation of the Order.

Section F.2.c. (Site Planning and Project Approval Process) requires Copermittees to incorporate consideration of potential water quality impacts prior to approval and issuance of construction and grading permits. The Copermittees²⁰⁶ and our program evaluations in 2005²⁰⁷ recommend that storm water requirements need to be better incorporated into the pre-construction process.

²⁰⁶ Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region), Section 7, New Development.

²⁰⁷ Tetra Tech, Inc. 2005. Program Evaluation Report. Orange County Storm Water Program: Cities of Laguna Beach, Laguna Hills, Lake Forest, and Rancho Santa Margarita.

This section now requires the Copermittees to review project proponents' runoff management plans for compliance with local regulations, policies, and procedures. USEPA recommends that it is often easier and more effective to incorporate storm water quality controls during the site plan review process or earlier.²⁰⁸ In the Phase I storm water regulations, USEPA states that a primary control technique is good site planning.²⁰⁹ USEPA goes on to say that the most efficient controls result when a comprehensive storm water management system is in place.²¹⁰ To determine if a construction site is in compliance with construction and grading ordinances and permits, USEPA states that the "MS4 operator should review the site plans submitted by the construction site operator before ground is broken."²¹¹ Site plan review aids in compliance and enforcement efforts since it alerts the "MS4 operator early in the process to the planned use or non-use of proper BMPs and provides a way to track new construction activities."²¹² During audits of Orange County Copermittee storm water programs, it was found that site plan and SWPPP review were inadequate and inconsistent.²¹³

Section F.2.d. (BMP Implementation) includes modifications to the requirements for each Copermittee to designate and ensure implementation of a set of minimum BMPs at construction sites. These modifications are based on Regional Board findings and experience during implementation of Order No. R9-2002-0001.

²⁰⁸ USEPA, 1992. Guidance 833-8-92-002. Section 6.3.2.1.

²⁰⁹ Federal Register / Vol. 55, No. 222 / Friday, November 16, 1990 / Rules and Regulations. P. 48034.

²¹⁰ Ibid.

²¹¹ USEPA, 2000. Guidance 833-R-00-002. Section 4.6.2.4, P. 4-30.

²¹² Ibid., P. 4-31.

²¹³ Tetra Tech, Inc. 2005. Program Evaluation Report. Orange County Storm Water Program: Cities of Laguna Beach, Laguna Hills, Lake Forest, and Rancho Santa Margarita.

Unlike Order No. R9-2002-0001, this Order does not require the Copermittee to designate a set of minimum BMPs for high, medium, and low threat to water quality construction sites. This change was made in recognition of most Copermittees' application of one consistent set of BMPs throughout their jurisdictions. The Copermittees also desire to move toward a risk-based approach to BMP requirements.²¹⁴ As a result, the Order requires a minimum set of BMPs to be designated for all sites and that enhanced BMPs, including advanced treatment systems, be designated for sites upstream of 303(d) impairments and ESAs. Advanced treatment has been effectively implemented extensively in the other states and in the Central Valley Region of California.²¹⁵ In addition, the Regional Board's inspectors have observed advanced treatment being effectively implemented at large sites greater than 100 acres and at small, less than 5 acre, in-fill sites. Advanced treatment is often necessary for Copermittees to ensure that discharges from construction sites are not causing or contributing to a violation of water quality standards. For example, the Basin Plan lists the water quality objective for turbidity as 20 NTU for all hydrologic areas and subareas except for the Coronado HA (10.10) and the Tijuana Valley (11.10). For certain construction sites with large slopes and exposed areas, the only technology that is likely to meet 20 NTU is advanced treatment combined with erosion and sediment controls. To ensure the MEP standard and water quality standards are met, the requirement for implementation of advanced treatment at high threat construction sites has been added to the Order, while still providing sufficient flexibility for each Copermittee's unique program.

²¹⁴ Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region), Section 8, Construction

²¹⁵ SWRCB, 2004. Conference on Advanced Treatment at Construction Sites.

The Order does not include seasonal restrictions on grading. Seasonal restrictions on grading for storm water are difficult to implement due to the conflict between seasonal grading restrictions, endangered birds' breeding seasons and the seasonal passage of endangered salmonids; therefore the seasonal grading restrictions have not been included with the other BMPs in the Order. Found in southern California, the Least Bell's Vireo and the Coastal California Gnatcatcher are listed as federally endangered and threatened, respectively.²¹⁶ Permits issued by the California Department of Fish and Game (CDFG) restrict grading during these birds' breeding seasons, which is from April 10 to August 31 for the Least Bell's Vireo²¹⁷ and from February 15 to August 31 for the Coastal California Gnatcatcher.²¹⁸ Ideally storm water restrictions on grading would be during the wet season from October 1 through April 30.²¹⁹ Combined, these restrictions would limit construction grading to be during the month of September, which is infeasible. Section D.2.d of the Order still requires project proponents to minimize grading during the wet season and coincide grading with seasonal dry weather periods to the extent feasible.

Section F.2.e. (Inspections) establishes criteria for inspections based on risk factors including size, season, and location of the construction site. Modifications have been made to requirements of Order No. R9-2002-0001 based on the experience of the Copermitttees and Regional Board construction programs.

The Order requires sites in active grading during the wet season that are over 30 acres be inspected every two weeks, rather than sites over 50 acres being inspected weekly. In south Orange County approximately 15 percent (34 sites) of construction sites over one acre are larger than 30 acres, whereas about 9 percent (21 sites) of sites are over 50 acres.²²⁰ This may result in a net decrease of inspections of large sites, although more sites will be covered. The reduction in inspection frequency for sites greater than 50 acres is justified because the sites have generally improved their erosion and sediment control measures since adoption of Order No. R9-2002-0001. Biweekly inspections of these sites in the future should be sufficient to ensure compliance with local regulations.

²¹⁶ State of California, Department of Fish and Game, 2005. State and Federally Listed Endangered and Threatened Animals of California.

²¹⁷ United States Department of the Interior, Fish and Wildlife Service, 2001. Least Bell's Vireo Survey Guidelines.

²¹⁸ United States Department of the Interior, Fish and Wildlife Service, 1997. Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Guidelines.

²¹⁹ Regional Board, 2001. Order No. 2001-01, San Diego County MS4 Permit. Directive F.2.g.(2).

²²⁰ Based on the State Board's database of sites covered by the Construction Storm Water General NPDES Permit, Order No. 99-08-DWQ. That general permit requires sites disturbing over one acre to file for coverage, so it provides a good basis for assessment.

The Order lowers the size of construction sites adjacent to or discharging directly to ESAs that receive scrutiny. Order No. R9-2002-0001 requires such sites five acres and more to be inspected weekly during the wet season. This Order requires such sites one acre and above to be inspected every two weeks during the wet season and once during August or September. The lower size threshold is consistent with Phase II storm water permits.

The Order omits Order No. R9-2002-0001's provision allowing a Copermittee to decrease the inspection frequency for high priority sites if the Copermittee certifies in writing to the Regional Board that they have recorded the site's Waste Discharge Identification Number, reviewed the site's Storm Water Pollution Prevention Plan (SWPPP), assured the site's SWPPP is in compliance, and assured the SWPPP is properly implemented at the site. Under Order No. R9-2002-0001, the Regional Board never received from any of the Copermittees a certification to decrease the inspection frequency at high priority sites. Since the certification process was never used, the language has been deleted from the Order.

This section also requires the Copermittees to track the number of inspections for each inventoried construction site. This requirement has been added to ensure that the Copermittees can demonstrate that construction sites are inspected at the minimum frequencies.

Section F.2.g.2 includes an additional requirement for notification to the Regional Board regarding construction sites has been added to this section. Copermittees are required to annually notify the Regional Board of construction sites that have suspected violations. This was added to enhance Regional Board and Permittee communication and coordination in regulating construction sites.

F.3 Existing Development

F.3.a. Municipal

The following legal authority applies to section D.3.a:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(1) provides that the proposed management program include "A description of maintenance activities and a maintenance schedule for structural controls to reduce pollutants (including floatables) in discharges from municipal separate storm sewers."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(3) provides that the proposed management program include “A description for operating and maintaining public streets, roads and highways and procedures for reducing the impact on receiving waters of discharges from municipal storm sewer systems, including pollutants discharged as a result of de-icing activities.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(4) provides that the proposed management program include “A description of procedures to assure that flood management projects assess the impacts on the water quality of receiving water bodies and that existing structural flood control devices have been evaluated to determine if retrofitting the device to provide additional pollutant removal from storm water is feasible.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(5) provides that the proposed management program include “A description of a program to monitor pollutants in runoff from operating or closed municipal landfills or other treatment, storage or disposal facilities for municipal waste, which shall identify priorities and procedures for inspections and establishing and implementing control measures for such discharges.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(6) provides that the proposed management program include “A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides, and fertilizer which will include, as appropriate, controls such as educational activities, permits, certifications, and other measures for commercial applicators and distributors, and controls for application in public right-of-ways and at municipal facilities.”

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

Section F.3.a.2. (General BMP Implementation) requires the Copermittees to designate minimum BMPs for general municipal areas and activities, regardless of their threat to water quality. The requirement that different types of BMPs be designated for different threats to water quality categories of municipal areas and activities has been removed from the Order. This was done to help simplify and clarify the Order’s requirements. BMPs required to be implemented at a site can now be based on the sources or activities present at the site. This is closer to the approach taken by the Copermittees in their JRMPs. Threat to water quality is used to determine inspection frequencies in section F.3.a.(7).

Section F.3.a.3, F.3.a.4, and F.3.a.5. (Specific BMP Implementation Categories) establishes requirements for specific categories of activities and areas. These are selected based on the CWA and findings of the Permittees in annual reports and ROWD that identify these activities as warranting special attention.

Pesticides, Herbicides, and Fertilizers. 40 CFR 122.26(d)(2)(iv)(A)(6) requires a description of a storm water program for pesticides, herbicides, and fertilizers. In addition, water quality data demonstrates widespread presence of such pollutants in receiving waters and MS4 discharges. In response to similar requirements of Order No. R9-2002-0001, the Copermitees have developed a specific model Integrated Pest Management, Pesticides, and Fertilizer guidelines.

Flood Control Structures. In order to more closely meet the intent of the federal regulations and guidance, the requirement has been modified. 40 CFR 122.26(d)(2)(iv)(A)(4) requires "A description of procedures to assure that flood management projects assess the impacts on the water quality of receiving water bodies and that existing structural flood control devices have been evaluated to determine if retrofitting the device to provide additional pollutant removal from storm water is feasible." Retrofitting flood control devices can reduce storm water pollutants and improve water quality. Copermitees have conducted many flood control retrofit projects, many of which have been partially funded with State grant awards.

USEPA expands on the federal provision with the following information: "Storm water management devices and structures that focus solely on water quantity are usually not designed to remove pollutants, and may sometimes harm aquatic habitat and aesthetic values" (1992). As flood control structures and other elements of the MS4 age and retrofitting becomes necessary, opportunities for water quality improvements arise.

Conveyance systems which take water quality consideration into account (such as grassed swales, vegetated detention ponds, etc.) can often cost less to construct than traditional concrete systems. Evaluation of the applicability of such systems during retrofitting must occur to ensure that pollutants in storm water runoff are reduced to the maximum extent practicable. USEPA supports utilizing BMPs for pollution reduction in flood management projects, stating that "The proposed management program must demonstrate that flood management projects take into account the effects on the water quality of receiving water bodies. [...] Opportunities for pollutant reduction should be considered".²²¹

²²¹ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. Washington D.C. EPA/833-B-92-002.

Existing Copermittee projects include two types of retrofits. The first type involves adding an engineered device to an existing structure in order to treat or divert runoff. Examples include catch basin inlet filters/screens, ultraviolet disinfection facilities, hydrodynamic separators, and diversions to the sanitary sewer. The second type involves re-installing pervious or natural treatment features to facilities. Examples include removing concrete portions of conveyances to create pervious conveyances; and creating treatment wetlands within flood detention facilities. The later type of retrofit is preferred by the Regional Board. They are likely more sustainable over the long-term because they may require less rigorous operation and maintenance than the former. They may also provide the additional benefit of providing significant or incidental opportunities for beneficial uses (e.g., recreation, wildlife, water supply).^{222,223}

Sweeping of Municipal Areas. Sweeping municipal areas would likely be done in the absence of the Order. However, in certain cases it is an important component of a jurisdictional runoff management program. The Order contains requirements to ensure that the use of street sweeping is optimized for runoff applications if it is to be used and reported as a BMP. The criteria in the Order are taken from industry guidance as reported by the Permittees in the Aliso Creek watershed.²²⁴

Section F.3.a.(6). (Operation and Maintenance of MS4 and Structural Controls) requires the Copermittees to inspect and remove waste from their MS4s prior to the rainy season.

Maintenance is critical to the successful implementation of every storm water runoff management program. USEPA finds that "Lack of maintenance often limits the effectiveness of storm water structural controls such as detention/retention basins and infiltration devices. [...] The proposed program should provide for maintenance logs and identify specific maintenance activities for each class of control, such as removing sediment from retention ponds every five years, cleaning catch basins annually, and removing litter from channels twice a year.

²²² Burton, Carmen et al. 2005. Assessing Water Source and Channel Type as Factors Affecting Benthic Macroinvertebrate and Periphyton Assemblages in the Highly Urbanized Santa Ana River Basin, California. American Fisheries Society Symposium. Vol.47 pp.239-262.

²²³ Stromberg, Juliet C. 2001. Restoration of Riparian Vegetation in the South-Western United States: the importance of flow regimes and fluvial dynamism. Journal of Arid Environments. Vol49, pp.17-34.

²²⁴ See 20th and 21st quarterly reports for the Aliso Creek watershed bacteria investigation, prepared by the Orange County Copermittees within the Aliso Creek watershed.

If maintenance activities are scheduled infrequently, inspections must be scheduled to ensure that the control is operating adequately. In cases where scheduled maintenance is not appropriate, maintenance should be based on inspections of the control structure or frequency of storm events. If maintenance depends on the results of inspections or if it occurs infrequently, the applicant must provide an inspection schedule. The applicant should also identify the municipal department(s) responsible for the maintenance program".²²⁵ The MS4 maintenance requirements are based on the above USEPA recommendations. This maintenance will help ensure that structural controls are in adequate condition to be effective year round, but especially at the beginning of and throughout the rainy season.

Two requirements have been added to the Order that were not within Order No. 2002-0001. Subsection (3) allows a decreased inspection frequency for facilities that are routinely clean, and Subsection (4) requires trash to be removed from channels in a timely manner. Typically, Copermittees have reported annual or semi-annual creek cleanups as significant BMPs. The large volumes of trash reported to be removed during these events demonstrates the significant amount of trash that accumulates in the channels. In addition, storm water runoff is a leading contributor to the accumulation of trash and debris along the beaches of Orange County.²²⁶ In order to reduce the effect of the trash, the Order requires that trash be removed more frequently.

Section F.3.a.(7). (Sewage Infiltration) requires the Copermittees to implement controls and measures to prevent and eliminate sewage infiltration or seepage from municipal sanitary sewers to MS4s through thorough, routine preventive maintenance of the MS4. This requirement is in Order No. R9-2002-0001 in the section on Illicit Discharge Detection and Elimination (section F.5.i).

Sections F.3.a.(8) and F.3.a.(9). (Inspections and Enforcement) establishes a minimum set of municipal areas and activities for oversight and inspection by the Copermittees and requires that Copermittees properly enforce runoff requirements at municipal areas and activities.

²²⁵ USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. Washington D.C. EPA/833-B-92-002.

²²⁶ Moore, S.L., D. Gregorio, M. Carreon, S B. Weisberg, and M. K. Leecaster. 2001. *Composition and distribution of beach debris in Orange County, California*. Marine Pollution Bulletin 42(3): 241-245..

F.3.b. Industrial and Commercial

The following legal authority applies to section F.3.b:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C) provides that the proposed management program include “A description of a program to monitor and control pollutants in storm water discharges to municipal systems from municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to section 313 of title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and industrial facilities that the municipal permit applicant determines are contributing a substantial pollutant loading to the municipal storm sewer system.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C)(1) provides that the Copermittee must “identify priorities and procedures for inspections and establishing and implementing control measures for such discharges.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C)(2) provides that the proposed management program shall “Describe a monitoring program for storm water discharges associated with the industrial facilities identified in paragraph (d)(2)(iv)(C) of this section, to be implemented during the term of the permit, including the submission of quantitative data on the following constituents: any pollutants limited in effluent guidelines subcategories, where applicable; any pollutant listed in an existing NPDES permit for a facility; oil and grease, COD, pH, BOD5, TSS, total phosphorus, total Kjeldhal nitrogen, nitrate plus nitrite nitrogen, and any information on discharges required under 40 CFR 122.21(g)(7)(iii) and (iv).”

Federal NPDES regulation 40 CFR 122.26(d)(2)(ii) provides that the Copermittee “Provide an inventory, organized by watershed of the name and address, and a description (such as Standard Industrial Classification [SIC] codes) which best reflects the principal products or services provided by each facility which may discharge, to the municipal separate storm sewer, storm water associated with industrial activity.”

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that each Copermitee must demonstrate that it can control “through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from site of industrial activity.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) provides that the Copermitee develop a proposed management program which includes “A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls.”

Section F.3.b. (Industrial and Commercial) requires the Copermitees to implement an industrial and commercial program to reduce pollutants in storm water runoff from all industrial and commercial sites/sources. The industrial and commercial sections of Order No. 2002-0001 have been combined into one section in this Order. This change will streamline and simplify the Order, without negatively impacting water quality. This change is not unprecedented because industrial and commercial facilities are commonly addressed together. For example, the Southern Riverside County MS4 Permit²²⁷ combined industrial and commercial programs into one section. In addition, in their Annual Reports and ROWD,²²⁸ the Copermitees jointly address industrial and commercial components. USEPA contractor Tetra Tech also evaluated and reported on the industrial and commercial programs jointly during their program evaluations.²²⁹

Section F.3.b.(1)(a) (Source Identification) requires that building material retailers and storage, animal facilities, and power washing services be included in the Copermitees' inventory of commercial sites/sources. These activities have been identified annual MS4 program reports and quarterly Aliso Creek watershed reports as potentially significant sources of pollutants. This is not a significant change because Order No. R9-2002-0001 requires that any commercial site or source determined by a Copermitee to contribute a significant pollutant load to the MS4 be added to its inventory of commercial sites. Furthermore, the commercial BMP fact sheets developed by the Copermitees generally address the types of activities occurring at these facilities and practices.

²²⁷ Regional Board, 2004. Order No. R9-2004-001; Riverside County MS4 Permit. Section H.2; P. 24.

²²⁸ Orange County Storm Water Copermitees. 2006. Report of Waste Discharge (San Diego Region). Section 9.

²²⁹ Tetra Tech, Inc., 2005. Program Evaluation Reports Orange County Storm Water Programs: Cities of Laguna Beach, Laguna Hills, Lake Forest, and Rancho Santa Margarita.

The Order has revised requirements for identifying industrial sites/sources. The revised requirements are identical to those found in the Southern Riverside County MS4 permit.²³⁰ USEPA requires the same identification: “Measures to reduce pollutants in storm water discharges to municipal separate storm sewers from municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to section 313 of title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA).”²³¹ USEPA “also requires the municipal storm sewer permittee to describe a program to address industrial dischargers that are covered under the municipal storm sewer permit.”²³² In order to more closely follow USEPA’s guidance, this Order also includes operating and closed landfills, and hazardous waste treatment, disposal, storage and recovery facilities.

Section F.3.b.3. (Mobile Businesses) requires each Copermittee to develop and implement a program to reduce the discharge of storm water pollutants from mobile businesses to the MEP and to prevent the discharge of non-storm water. Mobile businesses are service industries that travel to the customer to perform the service rather than the customer traveling to the business to receive the service. Examples of mobile businesses are power washing, mobile vehicle washers, carpet cleaners, port-a-potty servicing, pool and fountain cleaning, mobile pet groomers, and landscapers. These mobile services produce waste streams that could potentially impact water quality if appropriate BMPs are not implemented.

Order No. R9-2002-0001 also requires BMP implementation for certain mobile businesses (e.g., mobile vehicle washing and mobile carpet cleaning). These storm water requirements of Order No. R9-2009-0002 are not significantly different from the existing requirements. The Order specifies mobile businesses must prevent non storm water dry weather flows from entering the MS4 (see C.1.b) for special attention based on reports from the Copermittees that mobile businesses have been difficult to control with existing programs.

Mobile businesses present a unique difficulty in storm water regulation. Due to the transient nature of the business, the regular, effective practice of unannounced inspections is difficult to implement. Also, tracking these mobile businesses is difficult because they are often not permitted or licensed and their services cross Copermittee jurisdictions. Mobile businesses that operate within a municipality may be based in another municipality or even outside the Region. The Order takes into account the difficulties in regulating mobile businesses.

Because BMPs have been developed already, but communication with mobile businesses may be difficult, the Order provides broad flexibility to the Copermittees for developing a targeted program within the Commercial portion of each JRMP.

²³⁰ Regional Board, 2004. Order No. R9-2004-001; Riverside County MS4 Permit. Section H.2.b)(2); P. 25.

²³¹ Federal Register / Vol. 55, No. 222 / Friday, November 16, 1990 / Rules and Regulations. P. 48056.

²³² Ibid.

Section F.3.b.4. (Inspections) includes requirements for inspections of industrial and commercial sites/sources. The Order is similar to the Southern Riverside County MS4 permit²³³ in requiring that inspections check for coverage under the General Industrial Permit; assessment of compliance with Copermittee ordinances and permits related to storm water and non-storm water runoff; assessment of BMP implementation, maintenance, and effectiveness; visual observations for non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff; and education and outreach on storm water pollution prevention. The Order also requires that inspections include review of BMP implementation plans if the site uses or is required to use such a plan, and the review of facility monitoring data if the site monitors its runoff. Order No. 2002-0001 did not contain requirements for inspection procedures.

Changes in the Order's requirements for inspection procedures mimic USEPA's guidance: "Site inspections should include (1) an evaluation of the pollution prevention plan and any other pertinent documents, and (2) an onsite visual inspection of the facility to evaluate the potential for discharges of contaminated storm water from the site and to assess the effectiveness of the pollution prevention plan."²³⁴ In 1999, USEPA "recognized visual inspection as a baseline BMP for over 10 years," and "visual inspections are an effective way to identify a variety of problems. Correcting these problems can improve the water quality of the receiving water."²³⁵ Most, if not all, of the Order's procedures are being conducted by the Copermittees that follow the Model Existing Development Program of the DAMP.

With the exception of restaurants, the Order allows Copermittees to establish inspection frequencies, as long as at least 20 percent of the sites are inspected annually. Restaurants are now required to be inspected annually. Inspection frequencies in the Order have been modified from Order No. R9-2002-0001. Order No. R9-2002-0001 specifies frequencies for inspecting industrial sites based on threat to water quality and requires high priority commercial sites to be inspected as needed. Copermittees have been inspecting industrial sites according to Order No. R9-2002-0001. The Copermittees have been inspecting restaurants annually as part of the County Health Department inspections. For other commercial sites, the Copermittees have been focusing annual activities on certain commercial sectors, such as automobiles, with the goal of inspecting every high priority site at least once during the permit term. This change is not considered significant because it should allow the Copermittees to continue existing programs.

²³³ Regional Board, 2004. Order No. R9-2004-001; Riverside County MS4 Permit. Section H.2.d)(3);

²³⁴ USEPA, 1992. Guidance 833-8-92-002, section 6.3.3.4 "Inspection and Monitoring".

²³⁵ USEPA, 1999. 832-F-99-046, "Storm Water Management Fact Sheet – Visual Inspection".

Reports from the Aliso Creek watershed Copermittees demonstrate that as-needed inspections for restaurants means at least annually. Restaurants have been found to present many threats to water quality and standard educational efforts are not effective because restaurants are subject to frequent management changes. For these reasons, the Order requires restaurants to be inspected annually.

An additional notification to the Regional Board regarding industrial sites has been added. Copermittees are required to annually notify the Regional Board of industrial sites that have suspected violations. This was added to enhance Regional Board and Permittee communication and coordination in regulating industrial sites.

Section F.3.b.(6). (Training and Education) requires training and education measures generally consistent with the existing storm water programs. One distinction is that the Order requires each Copermittee to notify the owner/operator of each inventoried industrial and commercial site/source of the BMP requirements applicable to the site/source. This requirement is necessary to ensure that the owners and operators of commercial sites stay informed of appropriate BMPs. This is especially important because sites may be inspected as little as once every five years.

Section F.3.c. (Residential Component)

The following legal authority applies to section F.3.c:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) provides that the Copermittee develop a proposed management program which includes “A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls.”

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

Section F.3.c (Residential Component) moves the common interest areas / homeowners' association component and the requirement for proper management of used oil, toxic materials, and other household hazardous wastes to the residential section of the Order, since these requirements generally apply to residential areas. These changes improve the organization of the Order and have no net effect on its implementation and enforcement. Other requirements for prioritization, BMP implementation, and enforcement are consistent with Order No. R9-2002-01.

Section F.3.d. (Retrofitting Existing Development)

Legal Authority: The legal authority for retrofitting existing development is the same legal authority as that identified for municipal, industrial, commercial and residential development sections (See fact sheet discussion on those sections, F.3.a – c). In particular, CWA sections 402(p)(3)(B)(ii-iii), and CWC section 13377 give the Regional Board the legal authority to require retrofitting of existing development.

A section has been added to require the retrofit of existing development (see Finding D.3.i and Discussion). This section contains specific requirements for the retrofit process. Retrofitting existing development is a widespread practice across the United States. Successful retrofitting programs have been implemented in such diverse locations as Seattle, Washington²³⁶; Portland Oregon²³⁷, Santa Monica, California²³⁸; Kansas City, Kansas²³⁹; and Montgomery County, MD²⁴⁰. When appropriately applied as the draft Tentative Order, retrofitting existing development meets the maximum extent practicable standard.

Existing BMPs are not sufficient, as evidenced by 303(d) listings and exceedances of Water Quality Objectives from the Copermitees monitoring reports. More advanced BMPs, including the retrofitting of existing development with LID, are part of the iterative process. Previous permits limited the requirement of treatment control BMPs to new development and redevelopment. Based on the current rate of redevelopment compared to existing BMPs, the use of LID only on new and redevelopment will not adequately address current water quality problems, including downstream hydromodification. Retrofitting existing development is practicable for a municipality through a systematic evaluation, prioritization and implementation plan focused on impaired water bodies, pollutants of concern, areas of downstream hydromodification, feasibility and effective communication and cooperation with private property owners.

²³⁶ SEA Street, http://www.seattle.gov/dpd/Planning/CityDesign/What_We_Do/Outreach/Folio/DPDS_008014.asp

²³⁷ Clean River Rewards, <http://www.portlandonline.com/BES/index.cfm?c=edeef>

²³⁸ City of Santa Monica, Urban Runoff program,

<http://www.smgov.net/Departments/OSE/categories/content.aspx?id=4007>

²³⁹ 10,000 Rain Gardens, <http://www.rainkc.com/>

²⁴⁰ Rainscapes, <http://www.montgomerycountymd.gov/Content/DEP/Rainscapes/home.html>

F.4. Illicit Discharge Detection and Elimination

The following legal authority applies to section F.4:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B) provides that the proposed management program “shall be based on a description of a program, including a schedule, to detect and remove (or require the discharger to the municipal storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(1) provides that the Copermitttee include in its proposed management program “a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal storm sewer system.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(2) provides that the Copermitttee include in its proposed management program “a description of procedures to conduct on-going field screening activities during the life of the permit, including areas or locations that will be evaluated by such field screens.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(3) provides that the Copermitttee include in its proposed management program “procedures to be followed to investigate portions of the separate storm sewer system that, based on the results of the field screen, or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources of non-storm water.”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(4) provides that the Copermitttee include in its proposed management program “a description of procedures to prevent, contain, and respond to spills that may discharge into the municipal separate storm sewer.”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(5) provides that the Copermitttee include in its proposed management program “a description of a program to promote, publicize, and facilitate public reporting of the presence of illicit discharges or water quality impacts associated with discharges from municipal separate storm sewers.”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(6) provides that the Copermittee include in its proposed management program “a description of educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials.”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(7) provides that the Copermittee include in its proposed management program “a description of controls to limit infiltration of seepage from municipal sanitary sewers to municipal separate storm sewer systems where necessary.”

Section F.4.a-b. (Prevent and Detect Illicit Discharges) requires the Copermittees to implement a program to actively seek and eliminate illicit connections and discharges (IC/ID). Additional wording has been added to this section to clarify and ensure that all appropriate (i.e., field personnel) municipal personnel are utilized in the program to observe and report these illicit discharges and connections. requirement has been added requiring submittal of the GIS layers of the MS4 map within 365 days of Order adoption.

Section F.4.e (Investigations) requires the Copermittees to conduct follow up investigations and inspect portions of the MS4 for illicit discharges and connections, based on dry weather effluent analytical monitoring results. The section also requires the Copermittees to establish criteria for triggering follow up investigations. Additional language has been added to this section to clarify the minimum level of effort and timeframes for follow up investigations when dry weather limitations are exceeded. Timely investigation and follow up of exceedances is necessary to identify sources of illicit discharges, especially since many of the discharges are transitory. The requirements for a 48-hour minimum response time when action levels are exceeded and for immediate response to obvious illicit discharges is necessary to ensure timely response by the Copermittees.

The Copermittees currently use action levels to facilitate the determination of when source investigation studies are warranted based on data from the dry-weather monitoring program. One set of criteria is based on regional averages of constituent concentrations that were developed based on randomly selected storm drains. Another set of criteria is based on trends at a particular station. These are reasonable criteria if decision-makers are properly trained and action levels set by the County are in compliance with dry weather non-storm water action levels as required in Section C. The ability of the local managers to interpret dry-weather monitoring data collected by the County has greatly improved in the last two years, and continued training is required in section F.4.i.

Section F.4.h. (Spill Response) requires each Copermittee to implement measures to prevent and respond to spills into its MS4. These requirements are similar to Order No. R9-2002-0001 and based on federal regulations at 40 CFR 122.26(d)(2)(iv)(B)(4). Those federal NPDES regulations clearly require that owners and operators of MS4s have procedures to prevent, contain, and respond to spills that may discharge into the municipal separate storm sewer.

The Tentative Order includes sewage and non-sewage spills in the requirement for spill prevention and response. Federal regulations clearly define sewage as an illicit discharge that must be addressed by municipalities (see Phase II Final Rule, p.68758). Sewage is an illicit discharge to the MS4 that threatens public health. As such, the Copermittees must implement measures to prevent sewage from entering the MS4 system and must respond to illicit discharges that have entered the system. This section has been revised to clarify that management measures and procedures must be implemented to prevent, respond to, and cleanup spills.

This same requirement was adopted by the Regional Board in Order No, 2002-0001, but was subsequently stayed by the State Board in Order WQO 2002-0014. The City of Mission Viejo challenged the requirement to prevent and respond to sewage spills on the grounds that since the sanitary sewer systems in the City are operated by three water districts already regulated by a NPDES permit from the Regional Board, this requirement would cause delayed spill responses as the City and agencies try to determine jurisdiction and responsibilities. The State Board found that the costs of this requirement did not constitute harm, but agreed that harm could ensue from potential response delay and confusion. Although the entire permit requirement was stayed, neither the State Board, nor the Petitioner discussed spills other than sewage.

Subsequently, the Copermittees and the local sewer agencies have developed mature relationships and implemented procedures for spill response and sewage spill response.²⁴¹ As a result, the concerns expressed by the State Water Board are no longer warranted. The Model Sewage Spill Response Procedure is outlined in the Copermittees' Proposed 2007 Drainage Area Management Plan (DAMP). According to the 2007 DAMP, regardless of where the spill originates, if the spill has entered or may enter the storm drain system, the Copermittees respond to assist with the cleanup and remediation of the area.

Only three Permittees (Laguna Beach, San Clemente, and San Juan Capistrano) own or operate their own sewage collection systems, yet all Copermittees implement the programs for spill response. For the Copermittees that do not own or operate sewage systems, the Regional Board expects that they will continue to respond appropriately to reported or identified spills to the MS4 system.

²⁴¹ Sections 10.2.4 and 10.2.5 in the 2007 DAMP.

Section F.3.a.7 of the Tentative Order includes requirements for measures that must be taken to prevent sewage spills. Examples of measures being implemented by Copermittees include inspections of fats, oils, and grease management at restaurants. Other preventative measures can be implemented during routine planning efforts for new development and redevelopment projects. Similarly, building permit inspections should be used to verify the integrity of the sanitary and storm sewer infrastructure and ensure that cross-connections between the two are avoided.

G. Watershed Runoff Management Programs

The following legal authority applies to section G:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(a)(3)(ii) states: “The Director may [...] issue distinct permits for appropriate categories of discharges [...] including, but not limited to [...] all discharges within a system that discharge to the same watershed [...]”

Federal NPDES regulations 40 CFR 122.26(a)(3)(v) states: “Permits for all or a portion of all discharges from large or medium municipal separate storm sewer systems that are issued on a system-wide, jurisdiction-wide, watershed, or other basis may specify different conditions relating to different discharges covered by the permit, including different management programs for different drainage areas [watersheds] which contribute storm water to the system.”

Federal NPDES regulation 40 CFR 122.26(a)(5) states: “The Director may issue permits for municipal separate storm sewers that are designated under paragraph (a)91)(v) of this section on a system-wide basis, a jurisdiction-wide basis, watershed basis, or other appropriate basis.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) states: “Proposed programs may impose controls on a system-wide basis, a watershed basis, a jurisdiction basis, or on individual outfalls.”

Section G. (Watershed Runoff Management Program) requires Copermittees to continue implementation of their watershed runoff management programs (WRMPs), however the implementation approach has changed. Order No. R9-2002-01 required watershed RMPs to include a collaborative strategy to abate the sources and reduce the discharges causing high priority water quality problems. This strategy was to guide Watershed Copermittee’s selection and implementation of Watershed Activities, so that the activities selected and implemented would remove that pollutant contribution responsible for the identified high priority water quality problem. Outcomes of these requirements were not able to demonstrate improvements to water quality.

Revised language in Order R9-2009-002 attempts to focus watershed copermittee's efforts and resources on addressing the highest water quality problems in the watershed by focusing attention on the health of the receiving water body and the most efficient use of the Watershed Copermittee's time and resources. Order R9-2009-002 requires the Watershed Copermittee's to follow a workplan approach towards assessing receiving water body conditions, prioritizing the Watershed Management Area's (WMAs) highest priority water quality problems, implementing effective BMPs, and measuring water quality improvement in the receiving water.

G1. (Lead Watershed Copermittee Identification) requires the watershed copermittee's to identify a Lead Watershed Copermittee for their WMA.

This requirement is the same to that found in Order 2002-01.

G.2 a-f. (Watershed Workplan) requires the Watershed Copermittees to develop and implement a collective watershed strategy to assess and prioritize the water quality problems within the watershed's receiving waters, identify and model sources of the highest priority water quality problem(s), develop a watershed-wide BMP implementation strategy to abate highest priority water quality problems, and a monitoring strategy to evaluate BMP effectiveness and changing water quality prioritization in the WMA. Development of a workplan rather than watershed activities will allow the Copermittees flexibility to iteratively modify their watershed strategy over the course of future planning years as priorities change.

G.3. Watershed Workplan Implementation – Watershed Copermittee's shall begin implementing the Watershed Workplan within 30-days of approval by the Regional Board Executive Officer. Since the Copermittees are already familiar with the watershed program requirements implementing the watershed workplan within 30-days of approval by the Regional Board Executive Officer is reasonable.

G.4. Copermittee Collaboration – Watershed Copermittees shall collaborate to develop and implement the Watershed Workplan. Watershed Copermittee collaboration shall include frequent regularly scheduled meetings.

This requirement is the same to that found in Order 2002-01.

G.5. Public Participation – Watershed Copermittees shall implement a watershed-specific public participation mechanism within each watershed. A required component of the watershed-specific public participation shall be a minimum 30-day public review of the Watershed Workplan. Opportunity for the public to review and comment on the Watershed Workplan must occur before the workplan is implemented.

This requirement is similar to that found in Order 2002-01.

G.6. Watershed Workplan Review and Updates – Watershed Copermittees shall

review and update the Watershed Workplan annually to identify need changes to the prioritized water quality problem(s) listed in the workplan. All updates to the Watershed Workplan shall be presented during an Annual Watershed Review Meeting. Annual Watershed Review Meetings shall be conducted by the Watershed Copermittees, open to the public and adequately noticed, and occur once every calendar year. Individual Watershed Copermittees shall also review and modify their jurisdictional programs and JRMP Annual Reports, as necessary, so that they are consistent with the updated Watershed Workplan.

This section requires the copermittee's to review and update their workplan each year to incorporate changing priorities and evolving watershed strategies. This requirement is meant to take the place of Order No. 2002-01 requirement to submit Watershed Annual Reports.

G.7. Aliso Creek Watershed RMP Provisions. This requirement is the same to that found in Order 2002-01.

H. Fiscal Analysis

The following legal authority applies to section H:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(vi) provides that “[The Copermittee must submit] for each fiscal year to be covered by the permit, a fiscal analysis of the necessary capital and operation and maintenance expenditures necessary to accomplish the activities of the programs under paragraphs (d)(2)(iii) and (iv) of this section. Such analysis shall include a description of the source of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds.”

Section H has been expanded in order to develop more useful and meaningful fiscal reporting. The Copermittees have identified a need to assess the current fiscal reporting process and have proposed to prepare a fiscal reporting strategy to better define the expenditure and budget line items included in the fiscal reports.²⁴² The Regional Board agrees that the process should be improved. A revamped fiscal reporting strategy will provide the Regional Board and the Copermittees with better capability to manage performance of the programs.

The Copermittees’ effort is expected to provide standardization of reporting so that figures between Copermittees are comparable, which is one of many types of information which can be used by the Regional Board to better understand Copermittee program implementation. Standardization and comparison of fiscal analysis reporting is supported by the State Board funded NPDES Stormwater Cost Survey, which finds that “standards for reporting costs and stormwater activities are needed to allow accurate cost comparisons to be made between stormwater activities.”²⁴³ This document also provides guidance regarding categorization of expenditures for tracking and reporting.

The Order establishes criterion for when Copermittees must add narrative evaluations to the tables. This will address some of the variability in reporting and will provide the public and Regional Board with improved understanding of how resources are shifted in response to annual assessments. This will also help ensure that projected annual costs adequately reflect planned program modifications described in the annual reports.

²⁴² Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region), section 2.3.4.

²⁴³ Currier, et al., 2005. *NPDES Storm Water Cost Survey Final Report*. Prepared for California State Water Resources Control Board by Office of Water Programs, California State University, Sacramento. P. 63.

The Regional Board has chosen not to require a description of fiscal benefits realized from implementation of the storm water protection program. This is a recommendation from the National Association of Flood and Stormwater Management Agencies.²⁴⁴ For instance, the current fiscal assessment does not address city-wide fiscal benefits of protection (e.g., public health, tourism, property values, economic activity, beneficial uses, etc.), even though many costs currently reported to the Regional Board are for related activities. This type of assessment may help Copermittees improve the allocation of resources and it may help the Copermittees secure adequate funding for the program. Finally, it will provide a clearer picture of the storm water and non-storm water runoff program to the public and Regional Board. However, qualitative assessments could be overly subjective and most Copermittees likely lack the ability to provide accurate quantitative assessments. The Regional Board encourages Copermittees to consider means for conducting assessments of fiscal benefits derived from the programs. Such assessments could be conducted on a regional scale similar to studies of program costs conducted by the State Water Board²⁴⁵ or community indicators by the Community Indicators Project.²⁴⁶

Currently, each Orange County municipality's annual report includes a table based on a template developed by the principal Copermittee. The template was meant to facilitate reporting consistency among the 13 Copermittees. The annual report table contains estimates of spending during the reported period and estimates of the next year's spending. The tables separate capital costs from operations and maintenance costs and are arranged by program element. In addition to the tables, each municipality reports on the sources of the funds, (e.g., general fund, special fee, grants, etc.) to demonstrate that resources have been secured. There is very heavy reliance on general funds.

Review of the fiscal analysis tables included in the annual reports has not been as straightforward as expected, and the value of the information is moderate. Generally, questions regarding the financial reporting process of individual Permittees have been adequately resolved during meetings to discuss the annual reports. Based on those meetings, the Regional Board staff has found that cities do not use consistent methods to fill in the tables because they use different accounting and budgeting processes, and certain stormwater program expenditures are not easily categorized into the table formats. Furthermore, stormwater permit-related activities involve several departments, which makes it difficult for the storm water manager to gather and decipher actual costs.

²⁴⁴ National Association of Flood and Stormwater Management Agencies. 2006. *Guidance for Municipal Stormwater Funding*. Prepared under a grant provided by the USEPA.

²⁴⁵ State Water Board, 2005. NPDES Stormwater Cost Survey.

²⁴⁶ Orange County 2006 Community Indicators Project. 2006. Sponsored by the County of Orange, the Orange County Business Council, and the Children and Families Commission of Orange County. Available on-line at www.oc.ca.gov/ceocommunity.asp

These issues also make it difficult for the Copermittees to accurately compartmentalize expenditures within the format. The Copermittees are aware of the reporting discrepancies and have planned to modify the reporting template and guidelines. As a result, the current financial reporting provides estimates at best and cannot be reliably used to compare program implementation among most municipalities.

I. Total Maximum Daily Loads

This section has been added to address any TMDLs that are adopted by the Regional Board. See Finding E.10 and Discussion.

J. Program Effectiveness Component

The following legal authority applies to section J:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(v) provides that the Copermittees must include “Estimated reductions in loadings of pollutants from discharges of municipal storm sewer constituents from municipal storm sewer systems expected as the result of the municipal storm water quality management program. The assessment shall also identify known impacts of storm water controls on ground water.” Under Federal NPDES regulation 40 CFR 122.42(c) applicants must provide annual reports on the progress of their storm water management programs.

Section J.1 (jurisdictional program effectiveness assessments) of the Order requires the Copermittees to assess the effectiveness of the implementation of their jurisdictional programs and activities. The section requires that the effectiveness strategy of the programs be designed around four classes of objectives and that the results are used to direct program modifications. The section does not specify the assessments to be conducted, but does require that assessment measures conform to the guidance developed by the California Storm Water Quality Association (CASQA). The Orange County Storm Water Program is supportive of the CASQA effort, and use of CASQA assessment techniques is consistent with the methodology proposed in the ROWD.^{247 248}

The section is also consistent with the plan of the Copermittees to improve the efficacy of the assessment process.²⁴⁹ The Copermittees currently report a series of metrics for spatial and temporal assessments across the County. The Program Effectiveness requirements of the Order provide the Copermittees with the framework for improving their standard assessment metrics.

²⁴⁷ The structure of planned program effectiveness is proposed in section 1.2.2 of the 2007 ROWD. The ROWD then identifies current and potential assessment outcome levels within each major program chapter (e.g., new development, construction, etc.).

²⁴⁸ CASQA 2007. Municipal Stormwater Program Effectiveness Assessment Guidance.

²⁴⁹ Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region), section 3.3.2.

The Order provides focus to the assessment methodology by requiring that impaired waterbodies and environmentally-sensitive areas are specifically addressed. In this way, the high priority water quality issues will receive a high level of attention, consistent with USEPA and CASQA guidance for prioritization. The Order provides flexibility to establish the actual metrics for each assessment outcome level. The Order also provides the Copermittees flexibility to develop objectives for the general program components based on the CASQA guidance, as is proposed in the ROWD and DAMP.

In addition, Section J.1 requires that an effectiveness assessment strategy is developed and implemented in response to actions taken by a Copermittee to comply with Section A.3 (Prohibitions and Receiving Water Limitations) of the Order. Section A.3 outlines the procedure for addressing instances when jurisdictional programs implement control actions in response to determinations that discharges from the MS4 are causing or contributing to violations of water quality standards.

This section includes a requirement for the Copermittees to develop and implement a workplan identifying and addressing the highest priority issues in the watershed. The workplan requirement in the JRMP section has been added to ensure Copermittees are allocating resources and effort to address priority problems and pollutants identified in the watershed analysis. This section has been added to ensure Copermittees use the annual watershed water quality assessment to assess, adjust and tailor their JRMP programs.

Section J.2 (program modification) of the Order requires the Copermittees to improve jurisdictional activities or BMPs when they are found to be ineffective or when water quality impairments are continuing. This requirement fulfills the purpose of conducting effectiveness assessments – to improve and refine the Copermittees’ programs. The requirement is consistent with USEPA’s Phase II regulations, which state: “If the permittee determines that its original combination of BMPs are not adequate to achieve the objectives of the municipal program, the MS4 should revise its program to implement BMPs that are adequate [...]”²⁵⁰

Section J.3 (reporting) of the Order describes the information required to be submitted in jurisdictional annual reports pertaining to program effectiveness assessments, review, and response. The reporting will demonstrate whether Copermittees have appropriately responded to the effectiveness assessments.

²⁵⁰ Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68762.

K. Reporting

The following legal authority applies to section K:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.42(c) requires that “The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer system that has been designated by the director under § 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)(iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; (7) Identification of water quality improvements or degradation.”

California Water Code section 13267 provides that “the Regional Board may require than any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

Section K.1 (Jurisdictional Runoff Management Plans and Watershed Workplans) outlines the process and due dates for submitting plans. The information to be included in the Jurisdictional and Watershed plans must be sufficient to demonstrate the capacity to implement the requirements of Section G and Section J, respectively, of the Order.

Two general modifications from Order No. R9-2002-0001 result in reduced reporting effort by the Copermittees. First, in many cases, the requirements of the Order should not necessitate a complete rewrite of the plans, as was basically done in 2003. Only sections of the Order which are new or have been significantly changed should warrant rewriting of plans' sections. Second, the WRMP annual reporting is no longer due in January. Annual reporting will occur during a watershed review meeting conducted some time during the calendar year. The Regional Board plans to work with the Copermittees and provide guidance regarding where JRMPs must be updated in accordance with the Order. This will help ensure that rewriting, reporting, and review efforts are minimized.

The reporting requirements include two significant additions. The first addition is a summary reporting checklist which has been added to the reporting requirements. The checklist has been added to ensure that Copermitees evaluate and demonstrate compliance with all requirements in the Order.

Section K.2 (Other Required Reports) include requirements for information to be included in the SSMP update and the Report of Waste Discharge for the next permit reissuance. The Order requires submittal of a ROWD prior to the expiration of the Order. The section identifies the minimum information to be included in the ROWD, based on USEPA's May 17, 1996 guidance "Interpretive Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems."

Section K.3 (Annual Reports) outlines the process and roles of the Copermitees for developing and submitting the JRMP annual report. Information to be included in the annual reports is described in Section K.3.a.3. The due dates have been changed. The JRMP is due approximately six weeks earlier than under Order No. R9-2002-0001. This change is necessary because the existing timelines prevented efficient response by the Copermitees to comments from the Regional Board and the Copermitees' own review. However, the Copermitees may propose alternate reporting criteria and schedules, as part of their updated JRMP, for the Executive Officer's acceptance.

Each Copermitee is required to maintain records demonstrating that Permit activity requirements have been met, which allows the Regional Board to confirm compliance as needed, such as via inspections, program audits, or requests for information per California Water Code Sections 13225 and 13267.

Reporting requirements in the Order focus on results and responses to the effectiveness assessments conducted by the Copermitees. This will allow the Regional Board to determine how appropriately municipalities adapt and tailor their programs to findings from activities and monitoring results. Assessment of progress toward meeting the objectives is possible because the data collected by the Copermitees under Order No. R9-2002-0001 can be used to establish baseline conditions. Compared to activity-based reporting, this will greatly enhance the ability of the Regional Board, Copermitees, and the public to determine whether the programs are successful.

The Order reduces the amount of program activity-based reporting from Order No. R9-2002-0001. Under the CASQA assessment model, activity-based reporting includes primarily outcomes that document compliance with permit requirements (Level 1 outcomes), rather than being indicators of the impact of activity implementation.²⁵¹ This approach is consistent with guidance from the USEPA, which notes that annual reports should highlight program effectiveness as well as describing activities.²⁵² This emphasis is also consistent with recommendations from the National Academy of Public Administration in its report to USEPA on Evaluating Environmental Progress, which suggest that reviewing activities data provides limited value when evaluating the effectiveness of programs and resulting environmental conditions.²⁵³

The Order maintains some reporting requirements for certain activity-based outcomes. These are mostly focused on activities that establish or revise municipal processes related to storm water runoff and management. The processes required by the Order are especially important in situations where sustaining water quality improvements may require activities that extend beyond the five-year period of the NPDES permit.

In addition, the Order maintains many activity-based reporting requirements related to enforcement of local requirements, with an emphasis on the results from such activities. This is intended to facilitate review of the contributions that inspection and enforcement activities have made toward meeting the goals of the Order. Reporting of these types of activities is supported by recommendations from the National Academy of Public Administration in its report to the USEPA: *Evaluating Environmental Progress: How EPA and the States Can Improve the Quality of Enforcement and Compliance Information* (June 2001).²⁵⁴ Other activity-based reporting has been reduced to selected items based on consideration of program priorities.

Another source of prioritization for activity-based reporting is the *Storm Water Panel Recommendations to the California State Water Resources Control Board The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities* (June 19, 2006). In particular, the panel highlighted needs to improve the design, maintenance, and inspections of best management practices.

²⁵¹ Level 1 outcomes under the CASQA guidance include documentation that required activities have been implemented.

²⁵² USEPA 2007. *MS4 Program Evaluation Guidance*. USEPA Office of Wastewater Management EPA-833-R-07-003. January 2007 field test version.

²⁵³ National Academy of Public Administration 2001. *Evaluating Environmental Progress: How EPA and the States Can Improve the Quality of Enforcement and Compliance Information* (June 2001). <http://www.napawash.org>

²⁵⁴ The National Academy of Public Administration report is available on-line at <http://www.napawash.org>

L. Modification of Programs

The following legal authority applies to section L:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Section L of the Order provides a process for the Copermittees to modify their runoff management programs. This process will be useful so that the Copermittees can continue to refine and improve their programs based on the findings of their annual program effectiveness assessments. The process allows for minor modifications to the Copermittees' programs where the Copermittees can exhibit that the modifications meet or exceed existing legal requirements under the Order. Such a process avoids lengthy and time consuming formal approvals of proposed modifications before the Regional Board, while still ensuring compliance with applicable legal standards and the Order. The process included in the Order is based on a process utilized by the San Francisco Bay Area Regional Water Quality Control Board in their MS4 permit for Alameda County.²⁵⁵

²⁵⁵ San Francisco Bay Area Regional Water Quality Control Board, 2003. Order No. R2-2003-0021. P. 45.

M. Principal Permittee Responsibilities

The following legal authority applies to section M:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(a)(3)(iii)(C) provides that "A regional authority may be responsible for submitting a permit application."

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that "[The Copermitttee must demonstrate that it can control] through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system."

No significant changes were made to this section.

N. Receiving Waters Monitoring and Reporting

The following legal authority applies to section N:

Broad Legal Authority: CWA sections 402, 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Copermitees must conduct a comprehensive monitoring program as required under Federal NPDES regulations 40 CFR 122.26(d)(2)(iii) and 122.44.

See section T of this Fact Sheet/Technical Report for a discussion of changes to the Receiving Waters Monitoring and Reporting Program.

O. Standard Provisions, Reporting Requirements, And Notifications

The following legal authority applies to section O:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Standard provisions, reporting requirements, and notifications are consistent to all NPDES permits and are generally found in Federal NPDES regulation 40 CFR 122.41.

Section L.2 of the Order has been changed to remove the statement that all plans and reports submitted in compliance with the Order are an enforceable part of the Order. This statement has been removed because it is unnecessary. The Order itself contains sufficient detailed requirements to ensure that compliance with discharge prohibitions, receiving water limitations, non-storm water action levels and the narrative standard of MEP for storm water are achieved. Implementation by the Copermittees of programs in compliance with the Order's requirements, prohibitions, and receiving water limitations is the pertinent compliance standard to be used under the Order, as opposed to assessing compliance by reviewing the Copermittees' implementation of their plans alone.

Rather than being substantive components of the Order itself, the Copermittees' management plans are simply descriptions of their runoff management programs required under the Order. These plans serve as procedural correspondence which guides program implementation and aids the Copermittees and Regional Board in tracking implementation of the programs. In this manner, the plans are not functional equivalents of the Order. For these reasons, the Copermittees' runoff management plans need not be an enforceable part of the Order.

P. Attachment A – Basin Plan Prohibitions

The following legal authority applies to Attachment A:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: California Water Code Section 13243 provides that “A regional board, in a water quality control plan or in waste discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted.”

California Water Code Section 13263(a) provides that waste discharge requirements prescribed by the SDRWQCB implement the Basin Plan.

No significant changes were made to this attachment.

Q. Attachment B – Standard Provisions

The following legal authority applies to Attachment B:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Standard provisions, reporting requirements, and notifications are consistent to all NPDES permits and are generally found in Federal NPDES regulation 40 CFR 122.41.

Attachment B includes Standard Provisions which have been developed by the State Board. These Standard Provisions ensure that NPDES permits are consistent and compatible with USEPA's federal regulations. Some Standard Provisions sections specific to publicly owned sewage treatment works are not included in Attachment B.

R. Attachment C – Definitions

The following legal authority applies to Attachment C:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Attachment C contains definitions for terms found in the Order. In addition, definitions for terms previously defined in Order No. R9-2002-0001 Attachment D, but which are not found in the current Order, have been deleted.

An additional section which includes acronyms and abbreviations has been added. This is to ensure clarity and prevent confusion of terms. Definitions have been added for new terms used in the permit to provide a clear understanding of their meaning and use.

S. Attachment D – Summary of Submittals

The following legal authority applies to Attachment D:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, 13383, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv) and 122.44(i).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.42(c) requires that “The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer system that has been designated by the director under § 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)(iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; (7) Identification of water quality improvements or degradation.”

California Water Code section 13267 provides that “the regional board may require than any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

Attachment D to the Order provides a table summary of scheduled submittals required by the Order. Unscheduled submittals are no longer added to the table, since there is no proper due date for such submittals. A task summary has not been created for the Order, since the previous task summary was found to be redundant, repeating information found in the submittal summary and elsewhere in the Order.

A Jurisdictional Runoff Management Program (JRMP) Annual Report Checklist has been added to the reporting requirements. This addition is to determine and ensure that all requirements of the permit are being met. A Jurisdictional Runoff Management Program (JRMP) Annual Report Checklist has been added to the reporting requirements. This addition is to determine and ensure that all requirements of the permit are being met.

T. Attachment E - Receiving Waters and MS4 Discharge Monitoring and Reporting Program

The following legal authority applies to the Receiving Waters and MS4 Discharge Monitoring and Reporting Program:

Broad Legal Authority: CWA sections 402, 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv), 122.44 and 122.45.

Specific Legal Authority: Copermittees must conduct a comprehensive monitoring program as required under Federal NPDES regulations 40 CFR 122.26(d)(2)(iii).

Federal NPDES regulation 40 CFR 122.42(c) requires that “The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer system that has been designated by the director under § 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)(iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; (7) Identification of water quality improvements or degradation.”

California Water Code section 13267 provides that “the regional board may require than any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

1. Purpose

According to USEPA, the benefits of sampling data include, but are not limited to:

1. Providing a means for evaluating the environmental risk of storm water discharges by identifying types and amounts of pollutants present;
2. Determining the relative potential for storm water discharges to contribute to water quality impacts or water quality standard violations;
3. Identifying potential sources of pollutants; and

4. Eliminating or controlling identified sources more specifically through permit conditions.²⁵⁶

Equally important, monitoring programs are an essential link in the improvement of storm water management efforts. Data collected from monitoring programs can be assessed to determine the effectiveness of management programs and practices, which is vital for the success of the iterative approach used to meet the MEP standard for storm water. Specifically, when data indicates that a particular BMP or program component is not effective, improved efforts can be selected and implemented. Also, when water quality data indicate that water quality standards or objectives are being exceeded, particular pollutants, sources, and drainage areas can be identified and targeted for specific management efforts.

Considering the benefits described above, the Receiving Waters Monitoring and Reporting Program (MRP) has been designed to determine impacts to receiving water quality and beneficial uses from storm water runoff and to use the results to refine the Copermittees' storm water runoff management programs for the reduction of storm water pollutant loadings to the MEP. For non-storm water discharges, monitoring has been designed for the identification of prohibited illicit discharges and to determine appropriate actions to take in response to dry weather non-storm water action levels. Additionally, the results from dry weather non-storm water monitoring can be used to evaluate exempted non-storm water discharges as a source or conveyance of pollutants. The primary goals of the MRP include:

1. Assess compliance with Order No. R9-2009-0002;
2. Measure and improve the effectiveness of the Copermittees' runoff management programs;
3. Assess the chemical, physical, and biological impacts of receiving waters from MS4 discharges;
4. Characterize storm water runoff discharges;
5. Identify sources of specific pollutants;
6. Prioritize drainage and sub-drainage areas that need management actions;
7. Detect and eliminate illicit discharges and illicit connections to the MS4;
8. Assess the overall health of receiving waters; and
9. Provide information to implement required BMP improvements

²⁵⁶ USEPA, 1992. NPDES Storm Water Sampling Guidance Document. EPA/833-B-92-001.

Each of the components of the MRP is necessary to meet the objectives listed above. In addition, the MRP has been designed in accordance with the guidance provided by the Southern California Stormwater Monitoring Coalition's Model Monitoring Technical Committee in its August 2004 "Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California." This guidance document was developed in response to Senate Bill 72 (Kuehl), which addressed the standardization of sampling and analysis protocols in municipal stormwater monitoring programs. The technical committee which developed the guidance included representatives from Southern California Regional Water Quality Control Boards (including San Diego), municipal storm water Permittees (including the County of Orange), Heal the Bay, and the Southern California Coastal Water Research Project.

As its title suggests, the guidance essentially developed a model municipal storm water monitoring program for use in Southern California. The model program is structured around five fundamental management questions, outlined below. The MRP is designed as an iterative step towards ensuring that the Copermittees' monitoring program can fully answer each of the five management questions.

1. Are conditions in receiving waters protective, or likely to be protective, of beneficial uses?
2. What is the extent and magnitude of the current or potential receiving water problems?
3. What is the relative storm water runoff contribution to the receiving water problem(s)?
4. What are the sources of storm water runoff that contribute to receiving water problem(s)?
5. Are conditions in receiving waters getting better or worse?

The justifications for each component of the monitoring program are discussed below.

2. Monitoring Program

Mass Loading Station Monitoring

The intent of current mass loading monitoring as conducted by the Copermittees is to use water chemistry data from storm events and dry weather flows to calculate pollutant loads and to assess water quality with respect to applicable acute and chronic toxicity criteria from the California Toxics Rule (CTR).²⁵⁷

²⁵⁷ Orange County Storm Water Permittees. 2006. Report of Waste Discharge, section C-11.3.2.

Section II.A.1 of the MRP requires mass loading and toxicity monitoring at monitoring stations located at the bottom of major watersheds within Orange County. The mass loading monitoring will provide data representing event mean concentrations of pollutants, total pollutant loadings, and toxicity conditions from specific drainage areas. Mass loading monitoring stations are recommended by the Model Monitoring Technical Committee in order to answer management questions 1, 2, and 5.²⁵⁸ The stations are also expected to contribute towards meeting MRP goals 1, 2, 3, 4, 6, and 8. The locations of the mass loading monitoring stations are not changed from Order No. R9-2002-0001. However, the frequency of monitoring has been changed, and some revisions to the constituents have been made.

The frequency of mass loading monitoring in Order No. 2009-0002 has been modified to include two wet and two dry weather events. Currently three wet events have been targeted (though usually two or less have been sampled). This modification is not expected to affect long-term trend analyses for storm events since the monitoring to date has been sporadic.²⁵⁹ Dry weather monitoring is necessary because dry-weather flows in these watersheds are now perennial and changes have been made to the Order for non-storm water discharges. The addition of dry weather monitoring provides a more comprehensive temporal view of the watershed, which will improve the Copermittees' ability to understand the dynamics of annual pollutant loading.

In addition, the required constituents include some revisions to Order No. R9-2002-0001. The changes are made to be compatible with the federal NPDES regulations and in response to data collected during the current permit term. The changes include:

1. All events must now include Biological Oxygen Demand, 5-day Chemical Oxygen Demand, Total Organic Carbon, Dissolved Organic Carbon. These are specifically identified in 40 CFR 122.26(d)(2)(iii)(B), but were omitted from Order No. R9-2002-01.
2. Carbamate and Pyrethroid pesticides must initially be monitored in Prima Deshecha and Segunda Deshecha watersheds. If carbamate and/or pyrethroid pesticides are found to correlate with observed acute or chronic toxicity, then sampling and analysis for that pesticide must be added to all stations displaying toxicity. The Copermittees suggest adding these pesticides to Prima and Segunda Deshecha watersheds in an attempt to find a cause for observed persistent toxicity at those stations.²⁶⁰ If these pesticides are found in these watersheds, then they will likely be present in the other developed watersheds of the Region.

²⁵⁸ Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. Chapter 5.

²⁵⁹ Mass loading monitoring has been hampered by technical difficulties. For instance, only four of six stations were operational during the 2004-05 season, and only three stations were operational during 2002-04 season.

²⁶⁰ Orange County Storm Water Permittees. 2006. Report of Waste Discharge, section C-11.4.1.

3. Impaired water body pollutants. Specific pollutants have been added in response to the U.S. Environmental Protection Agency approval of California's 2004-2006 Section 303(d) Water Quality Limited Waters List. Monitoring for these pollutants is specific to the watershed in which the impairment is located.
4. Dimethoate monitoring has been eliminated because data collected to date has not observed any significant levels at the mass emissions stations.
5. A requirement to collect a grab sample for total petroleum hydrocarbons whenever a sheen is observed has been added at the suggestion of the County of Orange.

Bioassessment

Section II.A.2 of the MRP requires the Copermitttees to conduct bioassessment monitoring. Bioassessment monitoring is a cost-effective tool that measures the effects of water quality over time.²⁶¹ It is an important indicator of stream health and impacts from storm water and non-storm water runoff. It can detect impacts that chemical and toxicity monitoring cannot. USEPA encourages permitting authorities to consider requiring biological monitoring methods to fully characterize the nature and extent of impacts from runoff.²⁶² Therefore, the Regional Board commonly requires bioassessment monitoring in MS4 and other types of discharge permits.

Bioassessment is the direct measurement of the biological condition, physical condition, and attainment of beneficial uses of receiving waters (typically using benthic macroinvertebrates, periphyton, and fish). Bioassessment monitoring integrates the effects of both water chemistry and physical habitat impacts (e.g., sedimentation or erosion) of various discharges on the biological community native to the receiving waters. Moreover, bioassessment is a direct measurement of the impact of cumulative, sub-lethal doses of pollutants that may be below reasonable water chemistry detection limits, but that still have biological affects.

²⁶¹ California Department of Fish and Game, 2002. California Regional Water Quality Control Board, San Diego Region 2002 Biological Assessment Report: Results of May 2001 Reference Site Study and Preliminary Index of Biotic Integrity.

²⁶² USEPA, 1999. Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers. EPA 841-B-99-002. P. 2-5.

Because bioassessment focuses on communities of living organisms as integrators of cumulative impacts resulting from water quality or habitat degradation, it defines the ecological risks resulting from storm water and non-storm water MS4 runoff. Bioassessment not only identifies that an impact has occurred, but also measures the effect of the impact and tracks recovery when control or restoration measures have been taken. These features make bioassessment a powerful tool to assess compliance, evaluate the effectiveness of BMPs, and to track both short and long-term trends (MRP goals 1,2,3, and 8). Bioassessment can also help answer management questions 1, 2, and 5.

The Order also identifies the most current established protocol to be used in identifying bioassessment reference stations. The protocol referenced in the Order is specified because it provides a qualitative and repeatable method for identifying reference sites. Moreover, the protocol is well established, since it has been peer reviewed and published.

The Order includes four modifications to the bioassessment monitoring required under Order 2002-0001. These changes include:

1. Bioassessment monitoring must utilize the targeted riffle composite approach, which is consistent with the State Board's Surface Water Ambient Monitoring Program (SWAMP) Quality Assurance Management Plan (QAMP), as amended. Through SWAMP, various bioassessment methods were evaluated and it was found that the targeted riffle composite approach was a particularly efficient method, providing accurate data in a cost efficient manner.
2. Bioassessment monitoring to include assessment of periphyton (algae). Advantages of bioassessment using periphyton include: (1) they have rapid reproduction rates and very short life cycles, making them valuable indicators of short-term impacts; (2) as primary producers, they are most directly affected by physical and chemical factors; (3) sampling is easy and inexpensive; and (4) algal assemblages are sensitive to some pollutants which may not visibly affect other aquatic assemblages.²⁶³ Future bioassessment must use algal IBI scores, when developed.

²⁶³ USEPA, 1999. Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers. EPA 841-B-99-002. P. 3-3.

3. One of the two required annual monitoring events has been eliminated for streams exhibiting perennial flows. The Copermittees suggest this approach in response to analyses that indicate that the physical habitat conditions are better correlated than aquatic chemistry data with IBI scores.²⁶⁴ The Copermittees analyses indicate that although biological communities are different in the Fall and Spring, both seasonal communities indicate the same common relationships to spatial biological patterns and potential variables that explain the differences. For instance, downstream urbanized locations which exhibit perennial flows display lower IBI scores than reference sites regardless of the season, even if the biological community at a downstream site differs between the Fall and Spring.
4. The number of bioassessment stations has been reduced from 12 to six. This will allow resources to be available to implement the Stormwater Monitoring Coalition's program for Regional Monitoring of Southern California's Coastal Watersheds (Section II.D.3). The Regional Monitoring program calls for six sites to be sampled each year and includes each of the basic elements within the Copermittees' bioassessment monitoring program. Although the amount of toxicity tests are reduced, wetland status analyses will also be analyzed. The Regional Monitoring program is discussed in Section II.D.3 below.

Follow-up Analyses and Actions

Section II.A.3 of the MRP requires the Copermittees to use the results of the chemistry, toxicity, and bioassessment monitoring to determine if impacts from MS4 discharges are occurring and when follow-up actions are necessary. The triad approach allows a wide range of measurements to be combined to more efficiently identify pollutants, their sources, and appropriate follow-up actions. Results from the three types of monitoring shall be assessed to evaluate the extent and causes of pollution in receiving waters and to prioritize management actions to eliminate or reduce the sources. The framework provided is to be used to determine conclusions from the data and appropriate follow-up actions. The framework is proposed by the Copermittees and derived from the Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California.²⁶⁵ These follow-up actions are expected to primarily help answer management questions 2 and 4, as well as address MRP goals 2, 4, 5, 6 and 7.

²⁶⁴ Orange County Storm Water Copermittees. 2006. Report of Waste Discharge (San Diego Region), section 11 and 2005-06 Annual Report section 11.3

²⁶⁵ Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. P. 5-61.

When, based on the framework in Table 2 of the M&R Program, data indicates the presence of toxic pollutants in runoff, the Copermittees are required to conduct a Toxicity Identification Evaluation (TIE). A TIE is a set of procedures used to identify the specific chemical(s) responsible for toxicity to aquatic organisms. When discharges are toxic to a test organism, a TIE must be conducted to confirm potential constituents of concern and rule out others, therefore allowing Copermittees to determine and prioritize appropriate management actions. If a sample is toxic to more than one species, it is necessary to determine the toxicant(s) affecting each species. If the type and source of pollutants can be identified based on the data alone and an analysis of potential sources in the drainage area, a TIE is not necessary.

When a TIE identifies a pollutant associated with MS4 discharge as a cause of toxicity, it is then necessary to conduct follow-up actions to identify the causative agents of toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. Follow-up actions should analyze all potential source(s) causing toxicity, potential BMPs to eliminate or reduce the pollutants causing toxicity, and suggested monitoring to demonstrate that toxicity has been removed.

Ambient Coastal Receiving Waters Monitoring

The Copermittees have been implementing a phased Ambient Coastal Monitoring Program that initially involved monitoring chemistry and aquatic toxicity of dry and storm water discharges to ecologically sensitive areas along the coastline. Later, aerial photographs of storm water plumes were taken to estimate the spatial extent of the impact of storm water runoff. The results were used to identify storm drains for source and toxicity identification studies, including sampling of storm water plumes.

Section II.A.4 of the MRP allows the Copermittees to continue the existing program, while requiring that the special studies be consistent with the MRP goals and that stations be located within Areas of Special Biological Significance.

Coastal Storm Drain Monitoring

Section II.A.5 of the MRP has been extensively modified and changed to a Regional Monitoring Program.

Section II.A.5.a. Coastal storm drain monitoring has been replaced with a Regional Bacteria Monitoring section. Coastal storm drain monitoring is critical because one of the primary impacts to coastal receiving waters is the loss of recreational beneficial uses resulting from high levels of bacteria in storm water and non-storm water MS4 runoff. The regional monitoring program is expected to help answer management questions 1, 2, 3, 4 and 5, as well as address MRP goals 1, 2, 3, 4, 5, 6, 7, and 8.

The changes to the coastal storm drain monitoring program have been made in response to the Copermittees' request. The Copermittees recommend participation in the regional program to save cost, prevent redundancy, improve notification times and provide more effort toward intensive investigations of problematic storm drains.²⁶⁶ This section has been modified to allow the Copermittees to participate in the development and subsequent regional bacteria monitoring program upon review and approval from the Executive Officer. An adaptive approach is consistent with the Model Monitoring Technical Committee's recommendations.

High Priority Inland Aquatic Habitats

Section II.A.6 of the MRP has been removed.

Wet Weather MS4 Runoff Discharge Monitoring

Section II.B of the MRP requires the Copermittees to develop and implement a program to monitor and characterize pollutant discharges from MS4 outfalls. Currently the Copermittees do not monitor the discharge of storm water from the MS4 outfalls. As a result, a substantial amount of information regarding the quality of MS4 effluent is unknown. The collection of wet-weather data will enable the Copermittees to assess the effectiveness of existing storm water BMP measures. This data can be used to more effectively target storm water management program efforts. The MRP also requires compliance with Section D of the Order for Storm Water Action Levels.

The monitoring of outfalls is expected to be used to identify storm drains that are discharging pollutants in concentrations that may pose a threat to receiving waters. Source investigations are expected to be conducted as a response to the data.

The MRP provides the Copermittees great flexibility in assigning stations for wet-weather monitoring. Copermittees are to choose the number and frequency of monitoring stations, thus determining the overall cost of their program.

The monitoring requirements also include a requirement to measure receiving water hardness when comparing storm water MS4 discharge data to Storm Water Action Levels for priority pollutants (e.g. metals). The effect of these constituents upon receiving waters will vary depending upon the hardness of receiving waters.

²⁶⁶ Ibid

Section II.B.2 requires the Copermittees to develop and implement a program to identify sources of discharges of pollutants causing the high priority water quality problems within each watershed. This requirement should be easily met because of the foundation already developed by the Copermittees in response to Order No. R9-2002-0001. To some extent, the Copermittees do conduct follow-up monitoring in response to dry-weather outfall data. The ROWD and 2007 DAMP describe some guidance that is provided by the County to the Copermittees, and it is expected that the Copermittees will develop follow-up monitoring programs for storm water discharges. The ROWD does recommend that additional training be provided for the municipalities with respect to interpreting and using the data collected by the County. In addition, many of the Copermittees have developed procedures and experience in conducting follow-up investigations in response to the bacteria investigations in the Aliso Creek watershed.²⁶⁷

Identification of sources causing high priority water quality problems is a central purpose of storm water runoff management programs. Monitoring which enables the Copermittees to identify sources of water quality problems aids the Copermittees in focusing their management efforts, improving their programs and choosing additional and/or better BMPs. In turn, the Copermittees' programs can abate identified sources, which will improve the quality of storm water runoff discharges and receiving waters. This monitoring is needed to address management question 4. Moreover, in its review of the San Diego County Copermittees' monitoring proposal, Tetra Tech, Inc. finds that "after some years of assessment monitoring, it is time to look more systematically at determining the relative urban contributions and the sources of urban runoff that contribute to identified receiving water problems."²⁶⁸

Non-storm Water Dry Weather Action Levels

Section II.C of the MRP describes the monitoring to be conducted by the Copermittees to determine compliance with dry weather, non-storm water action levels.

Section II.B.3 has been changed by removal of the Dry Weather Field Screening and Analytical Monitoring and subsequent replacement with section II.C for Dry Weather Non-Storm Water Action Level Monitoring. This change is required to assess compliance with action levels for non-storm water discharges from the MS4 into receiving waters. The required sampling frequency has been changed to allow Copermittees to sample a representative number of discharge points and the sampling methodology has been changed to grab sampling. This is expected to allow Copermittees to maintain a cost-neutral dry weather monitoring program that is similar to their existing IC/ID monitoring program.

²⁶⁷ Copermittees in the Aliso Creek watershed include the County of Orange and the Cities of Aliso Viejo, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, and Mission Viejo.

²⁶⁸ Tetra Tech Inc., 2006. Review of San Diego County MS4 Monitoring Program.

Special Studies

Section II.D.1 of the MRP absorbs the bacteria monitoring and reporting program currently in place in the Aliso Creek watershed.²⁶⁹ This monitoring effort has been required by the Regional Board pursuant to authorities provided under California Water Code sections 13225 and 13267. The monitoring and reporting is focused solely on the MS4s in the Aliso Creek watershed and has effectively been integrated already into the Copermittees' programs. Inclusion of it into the MRP is done for organizational purposes and will have no other net effect.

Section II.D.3 includes a requirement to participate in the program for Regional Monitoring of Southern California's Coastal Watersheds developed by the Stormwater Monitoring Coalition. That program calls for the sampling of six locations within the Permit area each year. All sampling will be SWAMP comparable. Sampling includes water chemistry, aquatic toxicity (*Ceriodaphnia dubia*), physical habitat, benthic macroinvertebrates, wetland status (based on California Rapid Assessment Method protocols), and periphyton.

Section II.D.4 includes a requirement that the Copermittees conduct a sediment toxicity special study. This study has been added to the Monitoring and Reporting requirements to assess the quality of urban stream sediments and possible contamination due to runoff from the MS4. Toxicity tests focusing on aqueous toxicity may not account for the full toxicity of receiving waters if constituents, such as heavy metals or pesticides, are bound to sediments. Southern California studies have shown that stream sediments can exhibit significant levels of toxic metals and pesticides.^{270,271}

Section II.D.5 includes a requirement that the Copermittees conduct a Trash and Litter Impairment Investigation (see Finding C.8 and Discussion).

Monitoring Provisions

Section II.E of the MRP includes monitoring provisions which are standard requirements for all municipal storm water permits.

²⁶⁹ On October 12, 2005, the Regional Board accepted the revised Aliso Creek watershed bacteria monitoring plan proposal from the MS4 Permittees. The Regional Board concluded that the scope of the current bacteria monitoring in the watershed was no longer warranted and that the proposed changes would constitute an effective interim program until adoption of a Total Maximum Daily Load, requiring a bacteria reduction and assessment program for the watershed. In addition, the Regional Board recognized that as a result of reduced monitoring costs, the municipalities expect to direct additional resources toward implementation of management practices to reduce indicator bacteria and pathogens.

²⁷⁰ Holmes, R.W., Anderson, B.S., Phillips, B.M., Hunt, J.W., Crane, D.B., Mekebri, A. and V. Connor. 2008. Statewide Investigation of the Role of Pyrethroid Pesticides in Sediment Toxicity in California's Urban Waterways. *Environmental Science Technology* 42: 7003-7009..

²⁷¹ Crane, D.B. and C. Younghans-Haug. 1992. Oxadiazon residue concentrations in sediment, fish, and shellfish from a combined residential/agricultural area in Southern California. *Bulletin of Environmental Contamination and Toxicology*. Volume 48, no. 4.

2. Reporting Program

Section III of the MRP discusses submittal of the Jurisdictional Runoff Management Program Annual Reports and the Receiving Waters Monitoring Annual Reports. In effect, a description of the monitoring program will be submitted with the Jurisdictional RMPs, and the monitoring data and assessment will be submitted one month later. The MRP continues the reporting approach utilized under the requirements of Order No. R9-2002-0001, where Lead Permittees for each watershed submit their annual reports to the Principal Permittee to be unified into one document.

The reporting requirements for the Aliso Creek watershed are also specified in this section. These reporting requirements are identical to the current reporting required by the Regional Board for the bacteria investigation. They are specified in this section because the requirements are more specific than reporting required for other watershed RMPs.

U. Attachment F - Source Data

Attachment F contains data utilized for the development of Storm Water Action Levels and Non-storm Water Action Levels.

ATTACHMENT

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**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
ORDER NO. R9-2002-0001
NPDES NO. CAS0108740**

**WASTE DISCHARGE REQUIREMENTS
FOR DISCHARGES OF URBAN RUNOFF FROM
THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s)
DRAINING THE WATERSHEDS OF THE
COUNTY OF ORANGE,
THE INCORPORATED CITIES OF ORANGE COUNTY,
AND THE
ORANGE COUNTY FLOOD CONTROL DISTRICT
WITHIN THE SAN DIEGO REGION**

The California Regional Water Quality Control Board, San Diego Region (hereinafter SDRWQCB), finds that:

1. **COPERMITTEES ARE DISCHARGERS OF URBAN RUNOFF:** Each of the persons in Table 1 below, hereinafter called Copermittees or dischargers, owns or operates a municipal separate storm sewer system (MS4), through which it discharges urban runoff into waters of the United States within the San Diego Region. The Copermittees serve a population of approximately 500,000 people within the San Diego Region. The MS4s operated by the Copermittees fall into one or more of the following categories: (1) a medium or large MS4 that services a population of greater than 100,000 or 250,000 respectively; or (2) a small MS4 that is "interrelated" to a medium or large MS4; or (3) an MS4 which contributes to a violation of a water quality standard; or (4) an MS4 which is a significant contributor of pollutants to waters of the United States.

Table 1. Municipal Copermittees

1.	City of Aliso Viejo	8.	City of Mission Viejo
2.	City of Dana Point	9.	City of Rancho Santa Margarita
3.	City of Laguna Beach	10.	City of San Clemente
4.	City of Lake Forest	11.	City of San Juan Capistrano
5.	City of Laguna Hills	12.	County of Orange
6.	City of Laguna Niguel	13.	Orange County Flood Control District
7.	City of Laguna Woods		

2. **URBAN RUNOFF CONTAINS "WASTE" AND IS A "POINT SOURCE DISCHARGE OF POLLUTANTS":** Urban runoff contains waste, as defined in the California Water Code, and pollutants that adversely affect the quality of the waters of the State. The discharge of urban runoff from an MS4 is a "discharge of pollutants from a point source" into waters of the United States as defined in the Clean Water Act.
3. **URBAN DEVELOPMENT AND RUNOFF CAUSES RECEIVING WATER DEGRADATION:** Urban runoff discharges from MS4s are a leading cause of receiving water quality impairment in the San Diego Region and throughout the United States. As runoff flows over urban areas, it picks up harmful pollutants such as pathogens, sediment (resulting from human activities), fertilizers, pesticides, heavy metals, and petroleum products. These pollutants often become dissolved or suspended in urban runoff and are conveyed and discharged to receiving waters, such as streams, lakes, lagoons, bays, and the ocean without treatment. Once in receiving waters, these pollutants harm aquatic life primarily through toxicity and habitat degradation. Furthermore, the pollutants can enter the food chain and may eventually enter the tissues of fish and humans.

There is a strong direct correlation between "urbanization" and "impacts to receiving water quality". In general, the more heavily developed the area, the greater the impacts to receiving waters from urban runoff.

These impacts especially threaten environmentally sensitive areas (such as Clean Water Act section 303(d) impaired water bodies, areas designated as Areas of Special Biological Significance, water bodies designated with the RARE beneficial use, riparian or estuarine areas designated by the Copermittees as Critical Aquatic Resources (CARS), and regional parks and preserves containing receiving waters within the Cities and County of Orange). Such environmentally sensitive areas have a much lower capacity to withstand pollutant shocks than might be acceptable in the general circumstance. In essence, urban development that is ordinarily insignificant in its impact on the environment may, in a particularly sensitive environment, be significant.

4. **URBAN DEVELOPMENT INCREASES POLLUTANT LOAD, VOLUME, AND VELOCITY OF RUNOFF:** During urban development two important changes occur. First, natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops, and parking lots. Natural vegetated soil can both absorb rainwater and remove pollutants providing a very effective natural purification process. Because pavement and concrete can neither absorb water nor remove pollutants, the natural purification characteristics of the land are lost.

Secondly, urban development creates new pollution sources as human population density increases and brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc. which can either be washed or directly dumped into the MS4.

As a result of these two changes, the runoff leaving the developed urban area is significantly greater in volume, velocity and pollutant load than the pre-development runoff from the same area.

The significance of the impacts of urban development on receiving waters is determined by the scope of the project, such as the size of the project, the project land-use type, etc. Large projects (such as commercial developments greater than 100,000 square feet, home subdivisions greater than 10 units, and streets, roads, highways, and freeways) generally have large amounts of impervious surface, and therefore have greater potential to significantly impact receiving waters by increasing erosion (through increased peak flow rates, flow velocities, flow volumes, and flow durations) than smaller projects. Projects of particular land use types also have greater potential to significantly impact receiving waters due to the presence of typically large amounts of pollutants on site or an increased potential for pollutants to move off site (such as automotive repair shops, restaurants, parking lots, streets, roads, highways, and freeways, hillside development, and retail gasoline outlets).

5. **WATER QUALITY DEGRADATION INCREASES WITH PERCENT IMPERVIOUSNESS:** The increased volume and velocity of runoff from developed urban areas greatly accelerates the erosion of downstream natural channels. Numerous studies have demonstrated a direct correlation between the degree of imperviousness of an area and the degradation of its receiving water quality. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as a 10% conversion from natural to impervious surfaces. (Developments of medium density single family homes range between 25 to 60% impervious). Today "% impervious coverage" is believed to be a reliable indicator and predictor of the water quality degradation expected from planned new development.
6. **URBAN RUNOFF IS A HUMAN HEALTH THREAT:** Urban runoff contains pollutants, which threaten human health. Human illnesses have been clearly linked to recreating (i.e., swimming, surfing, etc.) near storm drains flowing to coastal beach waters. Such flows from urban areas often result in the posting or closure of local beaches.

Pollutants transported to receiving waters by urban runoff can also enter the food chain. Once in the food chain they can "bioaccumulate" in the tissues of invertebrates (e.g., mussels, oysters, and

lobsters) and fish which may be eventually consumed by humans. Furthermore, some pollutants are also known to “biomagnify”. This phenomenon can result in pollutant concentrations in the body fat of top predators that are millions of times greater than the concentrations in the tissues of their lower trophic (food chain) counterparts or in ambient waters.

7. **POLLUTANT TYPES:** The most common categories of pollutants in urban runoff include total suspended solids, sediment (due to anthropogenic activities); pathogens (e.g., bacteria, viruses, protozoa); heavy metals (e.g., copper, lead, zinc and cadmium); petroleum products and polynuclear aromatic hydrocarbons; synthetic organics (e.g., pesticides, herbicides, and PCBs); nutrients (e.g., nitrogen and phosphorus fertilizers), oxygen-demanding substances (decaying vegetation, animal waste), and trash.
8. **URBAN STREAMS AS AN MS4 COMPONENT:** Historic and current development make use of natural drainage patterns and features as conveyances for urban runoff. Urban streams used in this manner are both MS4s and receiving waters.
9. **URBAN RUNOFF CAUSES BENEFICIAL USE IMPAIRMENT:** Individually and in combination, the discharge of pollutants and increased flows from MS4s can cause or threaten to cause a condition of pollution (i.e., unreasonable impairment of water quality for designated beneficial uses), contamination, or nuisance. The discharge of pollutants from MS4s can cause the concentration of pollutants to exceed applicable receiving water quality objectives and impair or threaten to impair designated beneficial uses. The discharge of urban runoff may also impact the physical habitat of receiving waters. Significant stream channel incision and bank erosion is a feature common in the Aliso Creek watershed and other drainages in Orange County and may be caused in part by changes in peak flow rates and volumes resulting from urban development. Preliminary results of the Ambient Bioassessment Monitoring Program in Aliso Creek and San Juan Creek in 1998 and 1999 indicate impacts to the benthic community that may be the result of water quality and habitat degradation.
10. **COPERMITTEES IMPLEMENT URBAN RUNOFF MANAGEMENT PROGRAMS (URMPs):** Copermittee implementation of Urban Runoff Management Programs (URMPs) designed to reduce discharges of pollutants and flow into and from MS4s to the maximum extent practicable (MEP) can protect receiving water quality by promoting attainment of water quality objectives necessary to support designated beneficial uses. To be most effective, URMPs must contain both structural and non-structural best management practices (BMPs).
11. **BEST MANAGEMENT PRACTICES (BMPs):** Pollutants can be effectively reduced in urban runoff by the application of a combination of pollution prevention, source control, and treatment control BMPs. Source control BMPs (both structural and non-structural) minimize the contact between pollutants and flows (e.g., rerouting run-on around pollutant sources or keeping pollutants on-site and out of receiving waters). Treatment control (or structural) BMPs remove pollutants from urban runoff. Where feasible, use of BMPs that utilize natural processes should be assessed. These types of BMPs, such as grassy swales and constructed wetlands, can frequently be as effective as less natural BMPs, while providing additional benefits such as aesthetics and habitat.
12. **POLLUTION PREVENTION:** Pollution prevention, the initial reduction/elimination of pollutant generation at its source, is the best “first line of defense” for Copermittees and should be used in conjunction with source control and treatment control BMPs. Pollutants that are never generated do not have to be controlled or treated. Encouragement during planning processes of the use of pollution prevention BMPs can be an effective means for pollution prevention BMPs to be implemented, through such methods as education, landscaping, etc.
13. **RECEIVING WATER LIMITATIONS:** Compliance with receiving water limits based on applicable water quality objectives is necessary to ensure that MS4 discharges will not cause or contribute to violations of water quality objectives and the creation of conditions of pollution.

14. **RECEIVING WATER LIMITATION COMPLIANCE STRATEGY:** Implementation of BMPs cannot ensure attainment of receiving water quality objectives under all circumstances; some BMPs may not prove to be as effective as anticipated. An iterative process of BMP development, implementation, monitoring, and assessment is necessary to assure that an Urban Runoff Management Program is sufficiently comprehensive and effective to achieve compliance with receiving water quality objectives.
15. **COPERMITTEES' RESPONSIBILITY FOR ILLICIT DISCHARGES FROM THIRD PARTIES:** As operators of MS4s, the Copermittees cannot passively receive and discharge pollutants from third parties. By providing free and open access to an MS4 that conveys discharges to the waters of the United States, the operator of an MS4 that does not prohibit and/or control discharges into its system essentially accepts responsibility for those discharges. These discharges may cause or contribute to a condition of contamination or exceedances of receiving water quality objectives.
16. **COPERMITTEES' RESPONSIBILITY BASED ON LAND USE AUTHORITY:** Utilizing their land use authority, Copermittees authorize and realize benefits from the urban development which generates the pollutants and runoff that impair receiving waters. Since the Copermittees utilize their legal authority to authorize urbanization, they must also exercise their legal authority to ensure that the resulting increased pollutant loads and flows do not further degrade receiving waters.
17. **THREE PHASES OF URBAN DEVELOPMENT:** Urban development has three major phases: (1) land use planning for new development; (2) construction; and (3) the "use" or existing development phase. Because the Copermittees authorize, permit, and realize benefits from each of these phases, and because each phase has a profound impact on water quality, the Copermittees have commensurate responsibilities to protect water quality during each phase. In other words, Copermittees are held responsible for the short and long-term water quality consequences of their land use planning, construction, and existing development decisions.
18. **PLANNING PHASE FOR NEW DEVELOPMENT:** Because land use planning and zoning is where urban development is conceived, it is the phase in which the greatest and most cost-effective opportunities to protect water quality exists. When a Copermittee incorporates policies and principles designed to safeguard water resources into its General Plan and development project approval processes, it has taken a far-reaching step towards the preservation of local water resources for future generations.
19. **CONSTRUCTION PHASE:** Construction activities are a significant cause of receiving water impairment. Siltation is currently the largest cause of river impairment in the United States. Sediment runoff rates from construction sites greatly exceed natural erosion rates of undisturbed lands causing siltation and impairment of receiving waters. In addition to requiring implementation of the full range of BMPs, an effective construction runoff program must include local plan review, permit conditions, field inspections, and enforcement.
20. **EXISTING DEVELOPMENT:** The Copermittees' wet weather monitoring results collected during the past decade, as well as volumes of other references in the literature today, confirm substantial pollutant loads to receiving waters in runoff from existing urban development. Implementation of jurisdictional and watershed URMPs, which include extensive controls on existing development, can reduce pollutant loadings over the long term.
21. **CHANGES NEEDED:** Because the urbanization process is a direct and leading cause of water quality degradation in this Region, fundamental changes to existing policies and practices about urban development are needed if the beneficial uses of the San Diego Region's natural water resources are to be protected.
22. **DUAL REGULATION OF INDUSTRIAL AND CONSTRUCTION SITES:** Discharges of runoff from industrial and construction sites in this Region are subject to dual (state and local) regulation. (1) All industries and construction sites are subject to the local permits, plans, and ordinances of the municipal jurisdiction in which it is located. Pursuant to this Order, local (storm water, grading,

construction, and use) permits, plans, and ordinances must (a) prohibit the discharge of pollutants and non-storm water into the MS4; and (b) require the routine use of BMPs to reduce pollutants in site runoff. (2) Many industries and construction sites are also subject to regulation under the statewide General Industrial Storm Water Permit or statewide General Construction Storm Water Permit¹. These statewide general permits are adopted by the State Water Resources Control Board and enforced by the nine Regional Water Quality Control Boards throughout California. Like the Copermittees' local permits and ordinances, the statewide General Industrial and Construction Permits also (a) prohibit the discharge of pollutants and non-storm water; and (b) require the routine use of BMPs to reduce pollutants in site runoff.

Recognizing that both authorities share a common goal, the federal storm water regulations at 40 CFR 122.26 (and its preamble) call for the dual system to ensure the most effective oversight of industrial and construction site discharges. Under this dual system, each municipal Copermittee is responsible for enforcing its local permits, plans, and ordinances within its jurisdiction. Similarly, the SDRWQCB is responsible for enforcing both statewide general permits and this Order within the San Diego Region.

23. **EDUCATION:** Education is the foundation of every effective URMP and the basis for changes in behavior at a societal level. Education of municipal planning, inspection, and maintenance department staffs is especially critical to ensure that in-house staffs understand how their activities impact water quality, how to accomplish their jobs while protecting water quality, and their specific roles and responsibilities for compliance with this Order. Public education, designed to target various urban land users and other audiences, is also essential to inform the public of how individual actions impact receiving water quality and how these impacts can be minimized. The proposed Drainage Area Management Plan (DAMP) that was submitted to the SDRWQCB by the Orange County Copermittees in September 2000 has a strong emphasis on education measures.
24. **ENFORCING LOCAL LEGAL AUTHORITY:** Enforcement of local urban runoff related ordinances, permits, and plans is an essential component of every URMP and is specifically required in the federal storm water regulations and this Order. Routine inspections provide an effective means by which Copermittees can evaluate compliance with their permits and ordinances. Inspections are especially important at high-risk areas for pollutant discharges such as industrial and construction sites.

When industrial or construction site discharges occur in violation of local permits and ordinances, the SDRWQCB looks to the municipality that has authorized the discharge for appropriate actions (typically education followed by enforcement where education has been unsuccessful). Each Copermittee must also provide enforcement against illegal discharges from other land uses it has authorized, such as commercial and residential developments.
25. **PUBLIC PARTICIPATION:** Public participation during the URMP development process is necessary to ensure that all stakeholder interests and a variety of creative solutions are considered.
26. **TOXICITY:** Urban runoff discharges from MS4s often contain pollutants that cause toxicity, (i.e., adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). The water quality objectives for toxicity provided in the Water Quality Control Plan, San Diego Basin, Region 9, (Basin Plan), state in part "*All waters shall be free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life....The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors, shall not be less than*

¹ The "statewide General Industrial Storm Water Permit" refers to State Water Resources Control Board Water Quality Order No. 97-03-DWQ National Pollutant Discharge Elimination System General Permit No. CAS000001, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities. The "statewide General Construction Storm Water Permit" refers to State Water Resources Control Board Order No. 99-08-DWQ National Pollutant Discharge Elimination System General Permit No. CAS000002, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity.

that for the same water body in areas unaffected by the waste discharge...” Urban runoff discharges from MS4s are considered toxic when (1) the toxic effect observed in an acute toxicity test exceeds zero Toxic Units Acute (TU_a=0); or (2) the toxic effect observed in a chronic toxicity test exceeds one Toxic Unit Chronic (TU_c=1).

27. FOCUS ON MAN-MADE POLLUTANTS AND FLOWS: The focus of this Order is on the control of urban runoff pollutants and flows, which are either generated or accelerated by human activities. This Order is not meant to control background or naturally occurring pollutants and flows.

28. COMMON WATERSHEDS AND CWA SECTION 303(d) IMPAIRED WATERS: The Copermittees discharge urban runoff into lakes, streams, creeks, bays, the Pacific Ocean, and tributaries thereto within six hydrologic areas within Orange County as shown in Table 2 below. During its downstream course, urban runoff is conveyed through lined and unlined (natural, manmade, and partially modified) channels, all of which are defined as components of the Copermittees’ MS4.

Some of the receiving water bodies listed below, which receive or convey urban runoff discharges, have been designated as impaired by the SDRWQCB and USEPA in 1998 pursuant to Clean Water Act section 303(d). Additional water bodies may be listed during the term of this Order pursuant to Clean Water Act section 303(d) as impaired as more information is collected and analyzed.

Table 2. Watershed Management Areas (WMAs)

SDRWQCB WATERSHED MANAGEMENT AREA (WMA)	HYDROLOGIC UNIT(S)	MAJOR SURFACE WATER BODIES	303(d) POLLUTANT(S) OF CONCERN OR WATER QUALITY EFFECT	COPERMITTEES
San Juan Creek WMA	San Juan Hydrologic Unit (901.00)	Moro Canyon Creek Laguna Canyon Creek Aliso Creek English Canyon Creek Sulphur Creek Wood Canyon Creek Salt Creek San Juan Creek Bell Canyon Creek Canada Gobernadora Arroyo Trabuco Oso Creek Prima Deshecha Canada Segunda Deshecha Canada Pacific Ocean	1. Coliform Bacteria	1. County of Orange 2. City of Aliso Viejo 3. City of Dana Point 4. City of Laguna Beach 5. City of Lake Forest 6. City of Laguna Hills 7. City of Laguna Niguel 8. City of Laguna Woods 9. City of Mission Viejo 10. City of Rancho Santa Margarita 11. City of San Juan Capistrano 12. City of San Clemente 13. Orange County Flood Control District

29. CUMULATIVE POLLUTANT LOAD CONTRIBUTIONS: Because they are interconnected, each MS4 within a watershed contributes to the cumulative pollutant loading, volume, and velocity of urban runoff and the ensuing degradation of downstream receiving water bodies. Accordingly, inland MS4s contribute to coastal impairments.

30. LAND USE PLANNING ON A WATERSHED SCALE: Because urban runoff does not recognize political boundaries, “watershed-based” land use planning (pursued collaboratively by neighboring local governments) can greatly enhance the protection of shared natural water resources. Such planning enables multiple jurisdictions to work together to plan for both development and resource conservation that can be environmentally as well as economically sustainable.

31. INTERGOVERNMENTAL COORDINATION: Within their common watersheds it is essential for the Copermittees to coordinate their water quality protection and land use planning activities to achieve the greatest protection of receiving water bodies. Copermittee coordination with other watershed stakeholders, especially CALTRANS and the Department of Defense is also critical.

Continued implementation of the management structure developed under previous permits, within which the Copermittees subject to this Order, will fund and coordinate those aspects of their joint obligations will promote implementation of Urban Runoff Management Programs on a watershed and regional basis in the most cost effective manner.

32. **WASTE REMOVAL:** Waste and pollutants which are deposited and accumulate in MS4 drainage structures will be discharged from these structures to waters of the United States unless they are removed. These discharges may cause or contribute to, or threaten to cause or contribute to, a condition of pollution in receiving waters. Once removed, such accumulated wastes must be characterized and lawfully disposed.
33. **CHANGING THE STORM WATER MANAGEMENT APPROACH:** In contrast to the conventional "conveyance" approach, a more natural approach to storm water management seeks to filter and infiltrate runoff by allowing it to flow slowly over permeable vegetated surfaces. By "preserving and restoring the natural hydrologic cycle", filtration and infiltration can greatly reduce the volume/peak rate, velocity, and pollutant loads of urban runoff. The greatest opportunities for changing from a "conveyance" to a more natural management approach occur during the land use planning and zoning processes and when new development projects are under early design.
34. **INFILTRATION AND POTENTIAL GROUNDWATER CONTAMINATION:** Any drainage feature that infiltrates runoff poses some risk of potential groundwater contamination. Although dependent on several factors, the risks typically associated with properly managed infiltration of runoff (especially from residential land use areas) are not significant. The risks associated with infiltration can be managed by many techniques, including (1) designing landscape drainage features that promote infiltration of runoff, but do not "inject" runoff (injection bypasses the natural processes of filtering and transformation that occur in the soil); (2) taking reasonable steps to prevent the illegal disposal of wastes; and (3) ensuring that each drainage feature is adequately maintained in perpetuity. Minimum conditions needed to protect groundwater are specified in section F.1.b. of this Order.
35. **VECTOR CONTROL:** Certain BMPs implemented or required by municipalities for urban runoff management may create a habitat for vectors (e.g. mosquitoes and rodents) if not properly designed or maintained. Close collaboration and cooperative effort between municipalities and local vector control agencies and the State Department of Health Services during the development and implementation of the Urban Runoff Management Programs is necessary to minimize nuisances and public health impacts resulting from vector breeding.
36. **LEGAL AUTHORITY:** This Order is based on the federal Clean Water Act, the Porter-Cologne Water Quality Control Act (Division 7 of the Water Code, commencing with Section 13000), applicable state and federal regulations, all applicable provisions of statewide Water Quality Control Plans and Policies adopted by the State Water Resources Control Board, the Regional Water Quality Control Plan (Basin Plan) adopted by the Regional Board, the California Toxics Rule, and the California Toxics Rule Implementation Plan.
37. **TOTAL MAXIMUM DAILY LOADS (TMDLs):** 40 CFR 122.44 (d)(vii)(B) requires that NPDES permits contain effluent limitations that are consistent with waste load allocations developed under a TMDL. Several TMDLs are being developed in the San Diego Region for impaired water bodies that receive Copermittees' discharge. Once these TMDLs are approved by the SDRWQCB and USEPA, Copermittees' discharge of urban runoff into an impaired water body will be subject to load allocations established by the TMDLs. This Order may be revised by the Regional Board to implement the TMDL waste load allocations for specific water bodies within the Orange County watersheds.
38. **ANTIDegradation:** Conscientious implementation of URMPs that satisfy the requirements contained in this Order will reduce the likelihood that discharges from MS4s will cause or contribute to unreasonable degradation of the quality of receiving waters. Therefore, this Order is in

conformance with SWRCB Resolution No. 68-16 and the federal antidegradation policy described in 40 CFR 131.12.

39. **CEQA:** The issuance of waste discharge requirements for the discharge of urban runoff from MS4s to waters of the United States is exempt from the requirement for preparation of environmental documents under the California Environmental Quality Act (CEQA) (Public Resources Code, Division 13, Chapter 3, § 21000 et seq.) in accordance with the CWC § 13389.
40. **COMMON INTEREST DEVELOPMENTS AND HOMEOWNERS ASSOCIATIONS:** Common interest developments occur within the jurisdiction of the Copermittees. Commonly owned areas can include those used to convey urban runoff. State Law (Civil code 1350-1376) requires that an association be established to manage the commonly owned areas. Urban runoff from storm water conveyance systems within common interest developments is discharged to receiving waters and/or MS4s. This runoff is expected to have water quality and quantity characteristics similar to runoff from areas of similar land use and drainage area.
41. **REPORT OF WASTE DISCHARGE:** In September 2000, the Orange County Copermittees submitted a Report of Waste Discharge and a proposed Drainage Area Management Plan (DAMP) for 2001-2006 to the SDRWQCB.
42. **PUBLIC NOTICE:** The SDRWQCB has notified the Copermittees, all known interested parties, and the public of its intent to consider adoption of an Order prescribing waste discharge requirements that would serve to renew an NPDES permit for the existing discharge of urban runoff.
43. **PUBLIC HEARING:** The SDRWQCB has, at a public meeting on January 9, 2002, held a public hearing and heard and considered all comments pertaining to the terms and conditions of this Order.

IT IS HEREBY ORDERED that the Copermittees, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations adopted thereunder, shall each comply with the following:

A. PROHIBITIONS -- DISCHARGES

1. Discharges into and from MS4s in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance (as defined in CWC § 13050), in waters of the state are prohibited.
2. Discharges from MS4s that cause or contribute to exceedances of receiving water quality objectives for surface water or groundwater are prohibited.
3. Discharges from MS4s containing pollutants which have not been reduced to the maximum extent practicable (MEP) are prohibited.
4. In addition to the above prohibitions, discharges from MS4s are subject to all Basin Plan prohibitions cited in **Attachment A** to this Order.

B. PROHIBITIONS -- NON-STORM WATER DISCHARGES

1. Each Copermittee shall effectively prohibit **all** types of non-storm water discharges into its Municipal Separate Storm Sewer System (MS4) unless such discharges are either authorized by a separate NPDES permit; or not prohibited in accordance with B.2. and B.3. below.
2. Pursuant to 40 CFR 122.26(d)(2)(iv)(B)(1), the following categories of non-storm water discharges need only be prohibited from entering an MS4 if such categories of discharges are identified by the Copermittee as a significant source of pollutants to waters of the United States:

- a. Diverted stream flows;
 - b. Rising ground waters;
 - c. Uncontaminated ground water infiltration [as defined at 40 CFR 35.2005(20)] to MS4s;
 - d. Uncontaminated pumped ground water;
 - e. Foundation drains;
 - f. Springs;
 - g. Water from crawl space pumps;
 - h. Footing drains;
 - i. Air conditioning condensation;
 - j. Flows from riparian habitats and wetlands;
 - k. Water line flushing;
 - l. Landscape irrigation;
 - m. Discharges from potable water sources other than water main breaks;
 - n. Irrigation water;
 - o. Lawn watering;
 - p. Individual residential car washing; and
 - q. Dechlorinated swimming pool discharges.
3. When a discharge category above is identified as a significant source of pollutants to waters of the United States, the Copermittee shall either:
- a. Prohibit the discharge category from entering its MS4; **OR**
 - b. Not prohibit the discharge category and implement, or require the responsible party(ies) to implement, BMPs which will reduce pollutants to the MEP; **AND**
 - c. For each discharge category not prohibited, the Copermittee shall submit the following information to the SDRWQCB within **365 days** of adoption of this Order:
 - (1) The non-storm water discharge category listed above which the Copermittee elects not to prohibit; and
 - (2) The BMP(s) for each discharge category listed above which the Copermittee will implement, or require the responsible party(ies) to implement, to prevent or reduce pollutants to the MEP.
4. **Fire Fighting Flows:** Emergency and non-emergency fire fighting flows need not be prohibited. However, where applicable, when not interfering with health and safety issues, BMPs for non-emergency fire fighting flows are encouraged.
5. **Dry Weather Monitoring and Non-Storm Water Discharges:** Each Copermittee shall examine all dry weather monitoring results collected in accordance with section F.5. and Attachment E of this Order to identify water quality problems which may be the result of any non-prohibited discharge category(ies) identified above in Non-Storm Water Discharges to MS4s Prohibition B.2. Follow-up investigations shall be conducted as necessary to identify and control any non-prohibited discharge category(ies) listed above.

C. RECEIVING WATER LIMITATIONS

1. Discharges from MS4s that cause or contribute to the violation of water quality standards (designated beneficial uses and water quality objectives developed to protect beneficial uses) are prohibited.
2. Each Copermittee shall comply with Part C.1., Part A.2, and Part A.4 as it applies to Prohibition 5 in Attachment A of this Order through timely implementation of control measures and other actions to

reduce pollutants in urban runoff discharges in accordance with the Jurisdictional Urban Runoff Management Program (Jurisdictional URMP) and other requirements of this Order including any modifications. The Jurisdictional URMP shall be designed to achieve compliance with Part C.1., Part A.2, and Part A.4 as it applies to Prohibition 5 in Attachment A of this Order. If exceedance(s) of water quality standards persist notwithstanding implementation of the URMP and other requirements of this Order, the Copermittee shall assure compliance with Part C.1., Part A.2, and Part A.4 as it applies to Prohibition 5 in Attachment A of this Order by complying with the following procedure:

- a. Upon a determination by either the Copermittee or the SDRWQCB that MS4 discharges are causing or contributing to an exceedance of an applicable water quality standard, the Copermittee shall promptly notify and thereafter submit a report to the SDRWQCB that describes BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of water quality standards. The report may be incorporated in the annual update to the Jurisdictional URMP unless the SDRWQCB directs an earlier submittal. The report shall include an implementation schedule. The SDRWQCB may require modifications to the report;
- b. Submit any modifications to the report required by the SDRWQCB within 30 days of notification;
- c. Within 30 days following approval of the report described above by the SDRWQCB, the Copermittee shall revise its Jurisdictional URMP and monitoring program to incorporate the approved modified BMPs that have been and will be implemented, the implementation schedule, and any additional monitoring required;
- d. Implement the revised Jurisdictional URMP and monitoring program in accordance with the approved schedule.

So long as the Copermittee has complied with the procedures set forth above and are implementing the revised Jurisdictional URMP, the Copermittee does not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the SDRWQCB to do so.

3. Nothing in this section shall prevent the SDRWQCB from enforcing any provision of this Order while the Copermittee prepares and implements the above report.

D. LEGAL AUTHORITY

1. Each Copermittee shall establish, maintain, and enforce adequate legal authority to control pollutant discharges **into** and **from** its MS4 through ordinance, statute, permit, contract or similar means. This legal authority must, at a minimum, authorize the Copermittee to:
 - a. Control the contribution of pollutants in discharges of runoff associated with industrial and construction activity **to** its MS4 and control the quality of runoff **from** industrial and construction sites. This requirement applies both to industrial and construction sites that have coverage under the statewide general industrial or construction storm water permits, as well as to those sites that do not. Grading ordinances shall be upgraded and enforced as necessary to comply with this Order.
 - b. Prohibit **all** identified illicit discharges not otherwise allowed pursuant to section B.2 including but not limited to:
 - (1) Sewage;

- (2) Discharges of wash water resulting from the hosing or cleaning of gas stations, auto repair garages, or other types of automotive services facilities;
 - (3) Discharges resulting from the cleaning, repair, or maintenance of any type of equipment, machinery, or facility including motor vehicles, cement-related equipment, and port-a-potty servicing, etc.;
 - (4) Discharges of wash water from mobile operations such as mobile automobile washing, steam cleaning, power washing, and carpet cleaning, etc.;
 - (5) Discharges of wash water from the cleaning or hosing of impervious surfaces in municipal, industrial, commercial, and residential areas including parking lots, streets, sidewalks, driveways, patios, plazas, work yards and outdoor eating or drinking areas, etc.;
 - (6) Discharges of runoff from material storage areas containing chemicals, fuels, grease, oil, or other hazardous materials;
 - (7) Discharges of pool or fountain water containing chlorine, biocides, or other chemicals; discharges of pool or fountain filter backwash water;
 - (8) Discharges of sediment, pet waste, vegetation clippings, or other landscape or construction-related wastes; and
 - (9) Discharges of food-related wastes (e.g., grease, fish processing, and restaurant kitchen mat and trash bin wash water, etc.).
- c. Prohibit and eliminate illicit connections to the MS4;
 - d. Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4;
 - e. Require compliance with conditions in Copermittee ordinances, permits, contracts or orders (i.e., hold dischargers to its MS4 accountable for their contributions of pollutants and flows);
 - f. Utilize enforcement mechanisms to require compliance with Copermittee storm water ordinances, permits, contracts, or orders;
 - g. Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees. Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as CALTRANS, Native American Tribes, and the Department of Defense is encouraged;
 - h. Carry out all inspections, surveillance, and monitoring necessary to determine compliance and noncompliance with local ordinances and permits and with this Order, including the prohibition on illicit discharges to the MS4. This means the Copermittee must have authority to enter, sample, inspect, review and copy records, and require regular reports from industrial facilities discharging into its MS4, including construction sites; and
 - i. Require the use of best management practices (BMPs) to prevent or reduce the discharge of pollutants to MS4s.
2. Within **365 days** of adoption of this Order, each Copermittee shall provide to the SDRWQCB a statement certified by its chief legal counsel that the Copermittee has adequate legal authority to

implement and enforce each of the requirements contained in 40 CFR 122.26(d)(2)(i)(A-F) and this Order. This statement shall include:

- a. Identification of all departments within the jurisdiction that conduct urban runoff related activities, and their roles and responsibilities under this Order. Include an up to date organizational chart specifying these departments and key personnel;
- b. Citation of urban runoff related ordinances and the reasons they are enforceable;
- c. Identification of the local administrative and legal procedures available to mandate compliance with urban runoff related ordinances and therefore with the conditions of this Order;
- d. Description of how these ordinances are implemented and appealed; and
- e. Description of whether the municipality can issue administrative orders and injunctions or if it must go through the court system for enforcement actions.

E. TECHNOLOGY BASED STANDARDS

Each Copermittee shall implement, or require implementation of, best management practices to ensure that the following pollutant discharges **into** and/or **from** its MS4 are reduced to the applicable technology based standard as specified below:

Table 3. Technology Based Standards²

POLLUTANT DISCHARGE FROM	DESCRIPTION	APPLICABLE PERFORMANCE STANDARD
Industrial Activity <u>owned by the Copermittee</u>	Categorical Industry in 40 CFR 122.26	The Copermittees are required to implement BMPs to the BAT/BCT standard (pursuant to Statewide General Industrial Permit)
Industrial Activity	All other industry	The Copermittees are required to implement or require the implementation of BMPs to the MEP standard for discharges into their MS4s. ³
Construction Activity <u>owned by the Copermittee</u>	Greater than or Equal to 5 Acres (or less than 5 acres and Part of a Larger Common Plan of Sale or Development)	The Copermittees are required to implement BMPs to the BAT/BCT standard (pursuant to Statewide General Construction Permit)
Construction Activity	All Other construction	The Copermittees are required to implement or require the implementation of BMPs to the MEP standard for discharges into their MS4s ⁴
Other Sources	All Other Land Use Activities	The Copermittees are required to implement or require the implementation of BMPs to the MEP standard for discharges into their MS4s
MS4s	All discharges from MS4s	The Copermittees are required to implement or require the implementation of BMPs to the MEP standard for all discharges from their MS4s

² Pursuant to this Order, each Copermittee shall ensure that pollutants in runoff from industrial and construction sites within its jurisdiction have been reduced to the MEP standard before entering its MS4. The industrial and construction site dischargers themselves however must ensure that pollutants in runoff leaving their sites have been reduced to the BAT/BCT standard pursuant to either the statewide General Industrial or Construction Storm Water Permit. Runoff from industrial and construction sites owned by municipalities and subject to either the General Industrial or Construction Storm Water Permits, must meet the BAT/BCT standard.

³ The facility operator is required to implement BMPs to the BAT/BCT standard pursuant to the Statewide General Industrial permit.

⁴ The facility operator is required to implement BMPs to the BAT/BCT standard pursuant to the Statewide General Construction permit.

F. JURISDICTIONAL URBAN RUNOFF MANAGEMENT PROGRAM

Each Copermittee shall take appropriate actions to reduce discharges of pollutants and runoff flow during each of the three major phases of urban development, i.e., the planning, construction, and existing development (or use) phases. Following the adoption of the Order and prior to the full implementation of the Jurisdictional URMP, each Copermittee shall at a minimum implement the provisions and commitments of the proposed DAMP submitted in September 2000.

Each Copermittee shall implement a Jurisdictional Urban Runoff Management Program (Jurisdictional URMP) that contains the components shown below as described in Sections F.1. through F.9:

F.1. Land-Use Planning for New Development and Redevelopment Component**F.2. Construction Component****F.3. Existing Development Component**

- a. Municipal
- b. Industrial
- c. Commercial
- d. Residential

F.4. Education Component**F.5. Illicit Discharge Detection and Elimination Component****F.6. Common Interest Areas and Homeowners Associations****F.7. Public Participation Component****F.8. Assessment of Jurisdictional URMP Effectiveness Component****F.9. Fiscal Analysis Component*****F.1. Land-Use Planning for New Development and Redevelopment Component***

Each Copermittee shall minimize the short and long-term impacts on receiving water quality from new development and redevelopment. In order to reduce pollutants and runoff flows from new development and redevelopment to the maximum extent practicable, each Copermittee shall at a minimum:

- F.1.a Assess General Plan
- F.1.b Modify Development Project Approval Processes
- F.1.c Revise Environmental Review Processes
- F.1.d Conduct Education Efforts Focused on New Development and Redevelopment

F.1.a. Assess General Plan

Each Copermittee's General Plan or equivalent plan (e.g., Comprehensive, Master, or Community Plan) shall include water quality and watershed protection principles and policies to direct land-use decisions and require implementation of consistent water quality protection measures for development projects. As part of its Jurisdictional Urban Runoff Management Program document, each Copermittee shall provide a workplan with time schedule detailing any changes to its General Plan regarding water quality and watershed protection. Examples of water quality and watershed protection principles and policies to be considered include the following:

- (1) Minimize the amount of impervious surfaces and directly connected impervious surfaces in areas of new development and redevelopment and where feasible slow runoff and maximize on-site infiltration of runoff.
- (2) Implement pollution prevention methods supplemented by pollutant source controls and treatment. Use small collection strategies located at, or as close as possible to, the source (i.e., the point where water initially meets the ground) to minimize the transport of urban runoff and pollutants offsite and into an MS4.

- (3) Preserve, and where possible, create or restore areas that provide important water quality benefits, such as riparian corridors, wetlands, and buffer zones. Encourage land acquisition of such areas.
- (4) Limit disturbances of natural water bodies and natural drainage systems caused by development including roads, highways, and bridges.
- (5) Prior to making land use decisions, utilize methods available to estimate increases in pollutant loads and flows resulting from projected future development. Require incorporation of structural and non-structural BMPs to mitigate the projected increases in pollutant loads and flows.
- (6) Avoid development of areas that are particularly susceptible to erosion and sediment loss; or establish development guidance that identifies these areas and protects them from erosion and sediment loss.
- (7) Reduce pollutants associated with vehicles and increasing traffic resulting from development. Coordinate local traffic management reduction efforts with Orange County Transit Authority's Congestion Management Plan.
- (8) Post-development runoff from a site shall not contain pollutant loads that cause or contribute to an exceedance of receiving water quality objectives and which have not been reduced to the maximum extent practicable.

F.1.b. Modify Development Project Approval Processes

Prior to project approval and issuance of local permits, Copermittees shall require each proposed project to implement measures to ensure that pollutants and runoff from the development will be reduced to the maximum extent practicable and will not cause or contribute to an exceedance of receiving water quality objectives. Each Copermittee shall further ensure that all development will be in compliance with Copermittee storm water ordinances, local permits, all other applicable ordinances and requirements, and this Order.

(1) *Development Project Requirements*

Each Copermittee shall include development project requirements in local permits to ensure that pollutant discharges from development are reduced to the maximum extent practicable, peak runoff velocities and runoff volumes from development are controlled, and that receiving water quality objectives are not violated throughout the life of the project. Such requirements shall, at a minimum:

- (a) Require project proponent to implement source control BMPs for all applicable development projects.
- (b) Require project proponent to implement site design/landscape characteristics where feasible which maximize infiltration, provide retention, slow runoff, and minimize impervious land coverage for all development projects.
- (c) Require project proponent to implement buffer zones for natural water bodies, where feasible. Where buffer zone implementation is infeasible, require project proponent to implement other buffers such as trees, lighting restrictions, access restrictions, etc.
- (d) Require industrial applicants subject to California's statewide General NPDES Permit for Storm Water Discharges Associated with Industrial Activities (Except Construction), (hereinafter General Industrial Permit), to provide evidence of coverage under the General Industrial Permit.
- (e) Require project proponent to ensure its grading or other construction activities meet the provisions specified in Section F.2. of this Order.

- (f) Require project proponent to provide proof of a mechanism which will ensure ongoing long-term maintenance of all structural post-construction BMPs.

(2) *Standard Urban Storm Water Mitigation Plans (SUSMPs)*

Within 365 days of adoption of this Order, the Copermittees shall collectively develop a model Standard Urban Storm Water Mitigation Plan (SUSMP) to reduce pollutants and to maintain or reduce downstream erosion and stream habitat from all new development and significant redevelopment projects falling under the priority project categories or locations listed in section F.1.b.(2)(a) below. The Copermittees shall submit the model SUSMP to the SDRWQCB. Within 180 days of development of the model SUSMP, each Copermittee shall adopt its own local SUSMP, and amended ordinances consistent with the model SUSMP, and shall submit both (local SUSMP and amended ordinances) to the SDRWQCB.

Immediately following adoption of its local SUSMP, each Copermittee shall ensure that all new development and significant redevelopment projects falling under the priority project categories or locations listed in F.1.b.(2)(a) below meet SUSMP requirements. The SUSMP requirements shall apply to all priority projects or phases of priority projects that have not yet begun grading or construction activities. If a Copermittee determines that lawful prior approval of a project exists, whereby application of SUSMP requirements to the project is infeasible, SUSMP requirements need not apply to the project. Where feasible, the Copermittees shall utilize the 18-month SUSMP implementation period to ensure that projects undergoing approval processes include application of SUSMP requirements in their plans.

- (a) *Priority Development Project Categories - SUSMP requirements shall apply to all new development and significant redevelopment projects falling under the priority project categories or locations listed below.* Significant redevelopment is defined as the creation or addition of at least 5,000 square feet of impervious surfaces on an already developed site. Significant redevelopment includes, but is not limited to: the expansion of a building footprint or addition or replacement of a structure; structural development including an increase in gross floor area and/or exterior construction or remodeling; replacement of impervious surface that is not part of a routine maintenance activity; and land disturbing activities related with structural or impervious surfaces. Where significant redevelopment results in an increase of less than fifty percent of the impervious surfaces of a previously existing development, and the existing development was not subject to SUSMP requirements, the numeric sizing criteria discussed in section F.1.b.(2)(c) applies only to the addition, and not to the entire development.
 - i. *Home subdivisions of 10 or more housing units.* This category includes single-family homes, multi-family homes, condominiums, and apartments.
 - ii. *Commercial developments greater than 100,000 square feet.* This category is defined as any development on private land that is not for heavy industrial or residential uses where the land area for development is greater than 100,000 square feet. The category includes, but is not limited to: hospitals; laboratories and other medical facilities; educational institutions; recreational facilities; commercial nurseries; multi-apartment buildings; car wash facilities; mini-malls and other business complexes; shopping malls; hotels; office buildings; public warehouses; automotive dealerships; commercial airfields; and other light industrial facilities.
 - iii. *Automotive repair shops.* This category is defined as a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 7532-7534, or 7536-7539.

- iv. *Restaurants.* This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812), where the land area for development is greater than 5,000 square feet. Restaurants where land development is less than 5,000 square feet shall meet all SUSMP requirements except for structural treatment BMP and numeric sizing criteria requirement F.1.b.(2)(c) and peak flow rate requirement F.1.b(2)(b)(i).
 - v. *All hillside development greater than 5,000 square feet.* This category is defined as any development which creates 5,000 square feet of impervious surface which is located in an area with known erosive soil conditions, where the development will grade on any natural slope that is twenty-five percent or greater.
 - vi. *Environmentally Sensitive Areas: All development and redevelopment located within or directly adjacent to or discharging directly to an environmentally sensitive area (where discharges from the development or redevelopment will enter receiving waters within the environmentally sensitive area), which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10% or more of its naturally occurring condition.* Environmentally sensitive areas include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Resources Control Board (Water Quality Control Plan for the San Diego Basin (1994) and amendments); water bodies designated with the RARE beneficial use by the State Water Resources Control Board (Water Quality Control Plan for the San Diego Basin (1994) and amendments); areas designated as preserves or equivalent under the Natural Community Conservation Planning Program; and any areas designated as Critical Aquatic Resources (CARS) or other equivalent environmentally sensitive areas which have been identified by the Copermitttees. "Directly adjacent" means situated within 200 feet of the environmentally sensitive area. "Discharging directly to" means outflow from a drainage conveyance system that is composed entirely of flows from the subject development or redevelopment site, and not commingled with flows from adjacent lands.
 - vii. *Parking lots 5,000 square feet or more or with 15 or more parking spaces and potentially exposed to urban runoff.* Parking lot is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce.
 - viii. *Street, roads, highways, and freeways.* This category includes any paved surface that is 5,000 square feet or greater used for the transportation of automobiles, trucks, motorcycles, and other vehicles.
- (b) BMP Requirements – The SUSMP shall include a list of recommended source control and structural treatment BMPs. The SUSMP shall require all new development and significant redevelopment projects falling under the above priority project categories or locations to implement a combination of BMPs selected from the recommended BMP list, including at a minimum (1) source control BMPs and (2) structural treatment BMPs. The BMPs shall, at a minimum:
- i. Control the post-development peak storm water runoff discharge rates and velocities to maintain or reduce pre-development downstream erosion, and to protect stream habitat;

- ii. Conserve natural areas where feasible;
 - iii. Minimize storm water pollutants of concern in urban runoff from the new development or significant redevelopment (through implementation of source control BMPs). Identification of pollutants of concern should include at a minimum consideration of any pollutants for which water bodies receiving the development's runoff are listed as impaired under Clean Water Act section 303(d), any pollutant associated with the land use type of the development, and any pollutant commonly associated with urban runoff;
 - iv. Remove pollutants of concern from urban runoff (through implementation of structural treatment BMPs);
 - v. Minimize directly connected impervious areas where feasible;
 - vi. Protect slopes and channels from eroding;
 - vii. Include storm drain stenciling and signage;
 - viii. Include properly designed outdoor material storage areas;
 - ix. Include properly designed trash storage areas;
 - x. Include proof of a mechanism, to be provided by the project proponent or Copermittee, which will ensure ongoing long-term structural BMP maintenance;
 - xi. Include additional water quality provisions applicable to individual priority project categories;
 - xii. Be correctly designed so as to remove pollutants to the maximum extent practicable;
 - xiii. Be implemented close to pollutant sources, when feasible, and prior to discharging into receiving waters supporting beneficial uses; and
 - xiv. Ensure that post-development runoff does not contain pollutant loads which cause or contribute to an exceedance of water quality objectives and which have not been reduced to the maximum extent practicable.
- (c) Numeric Sizing Criteria – The SUSMP shall require structural treatment BMPs to be implemented for all priority development projects. All structural treatment BMPs shall be located so as to infiltrate, filter, or treat the required runoff volume or flow prior to its discharge to any receiving water body supporting beneficial uses. Structural treatment BMPs may be shared by multiple new development projects as long as construction of any shared structural treatment BMPs is completed prior to the use of any new development project from which the structural treatment BMP will receive runoff.

In addition to meeting the BMP requirements listed in item F.1.b.(2)(b) above, all structural treatment BMPs for a single priority development project shall collectively be sized to comply with the following numeric sizing criteria:

Volume

Volume-based BMPs shall be designed to mitigate (infiltrate, filter, or treat) either:

- i. The volume of runoff produced from a 24-hour 85th percentile storm event, as determined from the local historical rainfall record (0.8 inch approximate average for the Orange County area);⁵ or
- ii. The volume of runoff produced by the 85th percentile 24-hour rainfall event, determined as the maximized capture storm water volume for the area, from the formula recommended in Urban Runoff Quality

⁵This volume is not a single volume to be applied to all of Orange County. The size of the 85th percentile storm event is different for various parts of the County. The Copermittees are encouraged to calculate the 85th percentile storm event for each of their jurisdictions using local rain data pertinent to their particular jurisdiction (the 0.8 inch standard is a rough average for the County and should only be used where appropriate rain data is not available). In addition, isopluvial maps may be used to extrapolate rainfall data to areas where insufficient data exists in order to determine the volume of the local 85th percentile storm event in such areas. Where the Copermittees will use isopluvial maps to determine the 85th percentile storm event in areas lacking rain data, the Copermittees shall describe their method for using isopluvial maps in the model and local SUSMPs.

Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998); or

- iii. The volume of annual runoff based on unit basin storage volume, to achieve 90% or more volume treatment by the method recommended in California Stormwater Best Management Practices Handbook – Industrial/Commercial, (1993); or
- iv. The volume of runoff, as determined from the local historical rainfall record, that achieves approximately the same reduction in pollutant loads and flows as achieved by mitigation of the 85th percentile 24-hour runoff event;⁶

OR

Flow

Flow-based BMPs shall be designed to mitigate (infiltrate, filter, or treat) either:

- i. The maximum flow rate of runoff produced from a rainfall intensity of 0.2 inch of rainfall per hour, for each hour; or
- ii. The maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity, as determined from the local historical rainfall record, multiplied by a factor of two; or
- iii. The maximum flow rate of runoff, as determined from the local historical rainfall record, that achieves approximately the same reduction in pollutant loads and flows as achieved by mitigation of the 85th percentile hourly rainfall intensity multiplied by a factor of two.

- (d) Equivalent Numeric Sizing Criteria - The Copermittees may develop, as part of the model SUSMP, any equivalent method for calculating the volume or flow which must be mitigated (i.e., any equivalent method for calculating numeric sizing criteria) by post-construction structural treatment BMPs. Such equivalent sizing criteria may be authorized by the SDRWQCB for use in place of the above criteria. In the absence of development and subsequent authorization of such equivalent numeric sizing criteria, the above numeric sizing criteria requirement shall be implemented.
- (e) Pollutants or Conditions of Concern – As part of the model SUSMP, the Copermittees shall develop a procedure for pollutants or conditions of concern to be identified for each new development or significant redevelopment project. The procedure shall include, at a minimum, consideration of (1) receiving water quality (including pollutants for which receiving waters are listed as impaired under Clean Water Act section 303(d)); (2) land use type of the development project and pollutants associated with that land use type; (3) pollutants expected to be present on site; (4) changes in storm water discharge flow rates, velocities, durations, and volumes resulting from the development project; and (5) sensitivity of receiving waters to changes in storm water discharge flow rates, velocities, durations, and volumes.
- (f) Implementation Process – As part of the model SUSMP, the Copermittees shall develop a process by which SUSMP requirements will be implemented. The process shall identify at what point in the planning process development projects will be required to meet SUSMP requirements. The process shall also include identification of the roles and responsibilities of various municipal departments in implementing the SUSMP requirements, as well as any other measures necessary for the implementation of SUSMP requirements.

⁶ Under this volume criteria, hourly rainfall data may be used to calculate the 85th percentile storm event, where each storm event is identified by its separation from other storm events by at least six hours of no rain. Where the Copermittees may use hourly rainfall data to calculate the 85th percentile storm event, the Copermittees shall describe their method for using hourly rainfall data to calculate the 85th percentile storm event in the model and local SUSMPs.

- (g) Waiver Provision – A Copermittee may provide for a project to be waived from the requirement of implementing all structural treatment BMPs (F.1.b.(2)(b) & F.1.b.(2)(c)) if infeasibility can be established. A waiver of infeasibility shall only be granted by a Copermittee when all available structural treatment BMPs have been considered and rejected as infeasible. Copermittees shall notify the SDRWQCB within 5 days of each waiver issued and shall include the name of the person granting each waiver.

As part of the model SUSMP, the Copermittees may develop a program to require project proponents who have received waivers to transfer the savings in cost, as determined by the Copermittee(s), to a storm water mitigation fund. This program may be implemented by all Copermittees that choose to provide waivers. Funds may be used on projects to improve urban runoff quality within the watershed of the waived project. The waiver program may identify:

- i. The entity or entities that will manage the storm water mitigation fund (i.e., assume full responsibility for)
 - ii. The range and types of acceptable projects for which mitigation funds may be expended;
 - iii. The entity or entities that will assume full responsibility for each mitigation project including its successful completion
 - iv. How the dollar amount of fund contributions will be determined.
- (h) Infiltration and Groundwater Protection – To protect groundwater quality, each Copermittee shall apply restrictions to the use of structural treatment BMPs which are designed to primarily function as infiltration devices (such as infiltration trenches and infiltration basins). Such restrictions shall ensure that the use of such infiltration structural treatment BMPs shall not cause or contribute to an exceedance of groundwater quality objectives. At a minimum, use of structural treatment BMPs which are designed to primarily function as infiltration devices shall meet the following conditions:⁷
- i. Urban runoff shall undergo pretreatment such as sedimentation or filtration prior to infiltration.
 - ii. All dry weather flows shall be diverted from infiltration devices.
 - iii. Pollution prevention and source control BMPs shall be implemented at a level appropriate to protect groundwater quality at sites where infiltration structural treatment BMPs are to be used.
 - iv. Infiltration structural treatment BMPs shall be adequately maintained so that they remove pollutants to the maximum extent practicable.
 - v. The vertical distance from the base of any infiltration structural treatment BMP to the seasonal high groundwater mark shall be at least 10 feet. Where groundwater basins do not support beneficial uses, this vertical distance criteria may be reduced, provided groundwater quality is maintained.
 - vi. The soil through which infiltration is to occur shall have physical and chemical characteristics (such as appropriate cation exchange capacity, organic content, clay content, and infiltration rate) which are adequate for proper infiltration durations and treatment of urban runoff for the protection of groundwater beneficial uses.
 - vii. Infiltration structural treatment BMPs shall not be used for areas of industrial or light industrial activity; areas subject to high vehicular traffic (25,000 or greater average daily traffic on main roadway or 15,000 or more average daily traffic on any intersecting roadway); automotive repair shops; car washes; fleet storage

⁷ These conditions do not apply to structural treatment BMPs which allow incidental infiltration and are not designed to primarily function as infiltration devices (such as grassy swales, detention basins, vegetated buffer strips, constructed wetlands, etc.)

- areas (bus, truck, etc.); nurseries; and other high threat to water quality land uses and activities as designated by each Copermittee.
- viii. Infiltration structural BMPs shall be located a minimum of 100 feet horizontally from any water supply wells.

As part of the model and local SUSMPs, the Copermittees may develop alternative restrictions on the use of structural treatment BMPs which are designed to primarily function as infiltration devices.

- (i) Downstream Erosion – As part of the model SUSMP and the local SUSMPs, the Copermittees shall develop criteria to ensure that discharges from new development and significant redevelopment maintain or reduce pre-development downstream erosion and protect stream habitat. At a minimum, criteria shall be developed to control peak storm water discharge rates and velocities in order to maintain or reduce pre-development downstream erosion and protect stream habitat. Storm water discharge volumes and durations should also be considered.

F.1.c. Revise Environmental Review Processes

- (1) To the extent feasible, the Copermittees shall revise their current environmental review processes to include requirements for evaluation of water quality effects and identification of appropriate mitigation measures. The following questions are examples to be considered in addressing increased pollutants and flows from proposed projects:
- (a) Could the proposed project result in an increase in pollutant discharges to receiving waters? Consider water quality parameters such as temperature, dissolved oxygen, turbidity and other typical storm water pollutants (e.g., heavy metals, pathogens, petroleum derivatives, synthetic organics, sediment, nutrients, oxygen-demanding substances, and trash).
 - (b) Could the proposed project result in significant alteration of receiving water quality during or following construction?
 - (c) Could the proposed project result in increased impervious surfaces and associated increased runoff?
 - (d) Could the proposed project create a significant adverse environmental impact to drainage patterns due to changes in runoff flow rates or volumes?
 - (e) Could the proposed project result in increased erosion downstream?
 - (f) Is the project tributary to an already impaired water body, as listed on the Clean Water Act Section 303(d) list? If so, can it result in an increase in any pollutant for which the water body is already impaired?
 - (g) Is project tributary to other environmentally sensitive areas? If so, can it exacerbate already existing sensitive conditions?
 - (h) Could the proposed project have a potentially significant environmental impact on surface water quality, to either marine, fresh, or wetland waters?
 - (i) Could the proposed project have a potentially significant adverse impact on ground water quality?
 - (j) Could the proposed project cause or contribute to an exceedance of applicable surface or groundwater receiving water quality objectives or degradation of beneficial uses?
 - (k) Can the project impact aquatic, wetland, or riparian habitat?

F.1.d. Conduct Education Efforts Focused on New Development and Redevelopment

- (1) Internal: Municipal Staff and Others

Each Copermittee shall implement an education program to ensure that its planning and development review staffs (and Planning Boards and Elected Officials, if applicable) have an understanding of:

- (a) Federal, state, and local water quality laws and regulations applicable to development projects;
 - (b) The connection between land use decisions and short and long-term water quality impacts (i.e., impacts from land development and urbanization); and
 - (c) How impacts to receiving water quality resulting from development can be minimized (i.e., through implementation of various source control and structural BMPs).
- (2) External: Project Applicants, Developers, Contractors, Property Owners, Community Planning Groups

As early in the planning and development process as possible, each Copermittee shall implement a program to educate project applicants, developers, contractors, property owners, and community planning groups on the following topics:

- (a) Federal, state, and local water quality laws and regulations applicable to development projects;
- (b) Required federal, state, and local permits pertaining to water quality;
- (c) Water quality impacts of urbanization; and
- (d) Methods for minimizing the impacts of development on receiving water quality.

F.2. Construction Component

Each Copermittee shall implement a Construction Component of its Jurisdictional URMP to reduce pollutants in runoff from construction sites during all construction phases. At a minimum the construction component shall address:

- F.2.a. Pollution Prevention
- F.2.b. Grading Ordinance Update
- F.2.c. Modify Construction and Grading Approval Process
- F.2.d. Source Identification
- F.2.e. Threat to Water Quality Prioritization
- F.2.f. BMP Implementation
- F.2.g. Inspection of Construction Sites
- F.2.h. Enforcement of Construction Sites
- F.2.i. Reporting of Non-compliant Sites
- F.2.j. Education Focused on Construction Activities

F.2.a. Pollution Prevention (Construction)

Each Copermittee shall implement pollution prevention methods in its Construction Component and shall require its use by construction site owners, developers, contractors, and other responsible parties, where appropriate.

F.2.b. Grading Ordinance Update (Construction)

Each Copermittee shall review and update its grading ordinances as necessary for compliance with its storm water ordinances and this Order. The updated grading ordinance shall require implementation of BMPs and other measures during all construction activities, including the following BMPs and other measures or their equivalent:

- (1) Erosion prevention;
- (2) Seasonal restrictions on grading;
- (3) Slope stabilization requirements;
- (4) Phased grading;
- (5) Revegetation as early as feasible;

- (6) Preservation of natural hydrologic features;
- (7) Preservation of riparian buffers and corridors;
- (8) Maintenance of all source control and structural treatment BMPs; and
- (9) Retention and proper management of sediment and other construction pollutants on site.

F.2.c Modify Construction and Grading Approval Process (Construction)

Prior to approval and issuance of local construction and grading permits, each Copermittee shall require all individual proposed construction and grading projects to implement measures to ensure that pollutants from the site will be reduced to the maximum extent practicable and will not cause or contribute to an exceedance of water quality objectives. Each Copermittee shall further ensure that all grading and construction activities will be in compliance with applicable Copermittee ordinances (e.g., storm water, grading, construction, etc.) and other applicable requirements, including this Order.

(1) Construction and Grading Project Requirements

Include construction and grading project requirements in local grading and construction permits to ensure that pollutant discharges are reduced to the maximum extent practicable and water quality objectives are not violated during the construction phase. Such requirements shall include the following requirements or their equivalent:

- (a) Require project proponent to develop and implement a plan to manage storm water and non-storm water discharges from the site at all times;
- (b) Require project proponent to minimize grading during the wet season and coincide grading with seasonal dry weather periods to the extent feasible. If grading does occur during the wet season, require project proponent to implement additional BMPs for any rain events which may occur, as necessary for compliance with this Order;
- (c) Require project proponent to emphasize erosion prevention as the most important measure for keeping sediment on site during construction;
- (d) Require project proponent to utilize sediment controls as a supplement to erosion prevention for keeping sediment on-site during construction, and never as the single or primary method;
- (e) Require project proponent to minimize areas that are cleared and graded to only the portion of the site that is necessary for construction;
- (f) Require project proponent to minimize exposure time of disturbed soil areas;
- (g) Require project proponent to temporarily stabilize and reseed disturbed soil areas as rapidly as possible;
- (h) Require project proponent to permanently revegetate or landscape as early as feasible;
- (i) Require project proponent to stabilize all slopes; and
- (j) Require project proponents subject to California's statewide General NPDES Permit for Storm Water Discharges Associated With Construction Activities, (hereinafter General Construction Permit), to provide evidence of existing coverage under the General Construction Permit.

F.2.d. Source Identification (Construction)

Each Copermittee shall annually develop and update, prior to the rainy season, a watershed-based inventory of all construction sites within its jurisdiction regardless of site size or ownership. This requirement is applicable to all construction sites regardless of whether the construction site is subject to the California statewide General NPDES Permit for Storm Water Discharges Associated With Construction Activities (hereinafter General Construction Permit), or other individual NPDES permit. The use of an automated database system, such as Geographical Information System (GIS) is highly recommended, but not required.

F.2.e. Threat to Water Quality Prioritization (Construction)

- (1) To establish priorities for construction oversight activities under this Order, the Copermittee shall prioritize its watershed-based inventory (developed pursuant to F.2.d. above) by threat to water quality. Each construction site shall be classified as high, medium, or low threat to water quality. In evaluating threat to water quality each Copermittee shall consider (1) soil erosion potential; (2) site slope; (3) project size and type; (4) sensitivity of receiving water bodies; (5) proximity to receiving water bodies; (6) non-storm water discharges; and (7) any other relevant factors.
- (2) A high priority construction site shall at a minimum be defined as a site meeting either of the following criteria or equivalent criteria:
 - (a) The site is 50 acres or more and grading will occur during the wet season; OR
 - (b) The site is (1) 5 acres or more and (2) tributary to a Clean Water Act section 303(d) water body impaired for sediment or is within or directly adjacent to or discharging directly to a receiving water within an environmentally sensitive area (as defined in section F.1.b.(2)(a)vi. of this Order).

F.2.f. BMP Implementation (Construction)

- (1) Each Copermittee shall designate a set of minimum BMPs for high, medium, and low threat to water quality construction sites (as determined under section F.2.e). BMPs are to be implemented year round.
- (2) Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs (based upon the site's threat to water quality rating) at each construction site within its jurisdiction year round. If particular minimum BMPs are infeasible at any specific site, each Copermittee shall implement, or require the implementation of, other equivalent BMPs. Each Copermittee shall also implement or require any additional site specific BMPs as necessary to comply with this Order, including BMPs which are more stringent than those required under the statewide General Construction Permit.
- (3) Each Copermittee shall implement, or require the implementation of, BMPs year round; however, BMP implementation requirements can vary based on wet and dry seasons.
- (4) Each Copermittee shall implement, or require implementation of, additional controls for construction sites tributary to Clean Water Act section 303(d) water bodies impaired for sediment as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for construction sites within or adjacent to or discharging directly to receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)vi. of this Order) as necessary to comply with this Order.

F.2.g. Inspection of Construction Sites (Construction)

- (1) Each Copermittee shall conduct construction site inspections for compliance with its ordinances (grading, storm water, etc.), permits (construction, grading, etc.), and this Order. Inspections shall include review of site erosion control and BMP implementation plans.
- (2) Each Copermittee shall establish inspection frequencies and priorities as determined by the threat to water quality prioritization described in F.2.e above. During the wet season (i.e., October 1 through April 30 of each year), each Copermittee shall inspect, at a minimum, each High Priority construction site, either:

(a) Weekly

OR

- (b) Monthly for any site that the responsible Copermittee certifies in a written statement to the SDRWQCB all of the following (certified statements may be submitted to the SDRWQCB at any time for one or more sites):
- i. Copermittee has record of construction site's Waste Discharge Identification Number (WDID#) documenting construction site's coverage under the statewide General Construction Permit; and
 - ii. Copermittee has reviewed the construction site's Storm Water Pollution Prevention Plan (SWPPP); and
 - iii. Copermittee finds SWPPP to be in compliance with all local ordinances, permits, and plans; and
 - iv. Copermittee finds that the SWPPP is being properly implemented on site.

At a minimum, Medium and Low Priority construction sites shall be inspected by Copermittees twice during the wet season. All construction sites shall be inspected by the Copermittees as needed during the dry season (i.e., May 1 through September 30 of each year).

- (3) Based upon site inspection findings, each Copermittee shall implement all follow-up actions necessary to comply with this Order.

F.2.h. Enforcement of Construction Sites (Construction)

Each Copermittee shall enforce its ordinances (grading, storm water, etc.) and permits (construction, grading, etc.) at all construction sites as necessary to maintain compliance with this Order. Copermittee ordinances or other regulatory mechanisms shall include sanctions to ensure compliance. Sanctions shall include the following or their equivalent: Non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance.

F.2.i. Reporting of Non-compliant Sites (Construction)

Each Copermittee shall provide oral notification to the SDRWQCB of non-compliant sites that are determined to pose a threat to human or environmental health within its jurisdiction within 24 hours of the discovery of noncompliance, as required under section R.1 (and B.6 of Attachment C) of this Order.

Each Copermittee shall develop and submit criteria by which to evaluate events of non-compliance to determine whether they pose a threat to human or environmental health. These criteria shall be submitted in the Jurisdictional Urban Runoff Management Program Document and Annual Reports for SDRWQCB review.

Such oral notification shall be followed up by a written report to be submitted to the SDRWQCB within 5 days of the incidence of non-compliance as required under section R.1 (and B.6 of Attachment C) of this Order. Sites are considered non-compliant when one or more violations of local ordinances, permits, plans, or this Order exist on the site.

F.2.j. Education Focused on Construction Activities (Construction)

(1) Internal: Municipal Staff

Each Copermittee shall implement an education program to ensure that its construction, building, and grading review staffs and inspectors have an understanding of:

- (a) Federal, state, and local water quality laws and regulations applicable to construction and grading activities.
- (b) The connection between construction activities and water quality impacts (i.e., impacts from land development and urbanization).
- (c) How erosion can be prevented.
- (d) How impacts to receiving water quality resulting from construction activities can be minimized (i.e., through implementation of various source control and structural BMPs).
- (e) Applicable topics listed in section F.4. of this Order.

(2) External: Project Applicants, Contractors, Developers, Property Owners, and other Responsible Parties

Each Copermittee shall implement an education program to ensure that project applicants, contractors, developers, property owners, and other responsible parties have an understanding of the topics outlined in section F.2.j.(1) above of this Order.

F.3. Existing Development Component

Each Copermittee shall minimize the short and long-term impacts on receiving water quality from all types of existing development.

F.3.a. Municipal (Existing Development)

Each Copermittee shall implement a Municipal (Existing Development) Component to prevent or reduce pollutants in runoff from all municipal land use areas and activities. At a minimum the municipal component shall address:

- | | |
|-----------|---|
| F.3.a.(1) | Pollution Prevention |
| F.3.a.(2) | Source Identification |
| F.3.a.(3) | Threat to Water Quality Prioritization |
| F.3.a.(4) | BMP Implementation |
| F.3.a.(5) | Maintenance of Municipal Separate Storm Sewer System |
| F.3.a.(6) | Management of Pesticides, Herbicides, and Fertilizers |
| F.3.a.(7) | Inspection of Municipal Areas and Activities |
| F.3.a.(8) | Enforcement of Municipal Areas and Activities |

F.3.a.(1) Pollution Prevention (Municipal)

Each Copermittee shall include and describe pollution prevention methods within its Municipal (Existing Development) Component. Each Copermittee shall require the use of pollution prevention methods by municipal departments, contractors, and personnel, where appropriate.

F.3.a.(2) Source Identification (Municipal)

Each Copermittee shall develop, and update annually, a watershed-based inventory of the name, address (if applicable), and description of all municipal land use areas and activities which generate pollutants.

F.3.a.(3) Threat to Water Quality Prioritization (Municipal)

- (a) To establish priorities for oversight of municipal areas and activities required under this Order, each Copermittee shall prioritize each watershed inventory in F.3.a.2. above by threat to water quality and update annually. Each municipal area and activity shall be classified as high, medium, or low threat to water quality. In evaluating threat to water quality, each Copermittee shall consider (1) type of municipal area or activity; (2) materials used; (3) wastes generated; (4) pollutant discharge potential; (5) non-storm water discharges; (6) size of facility or area; (7) proximity to receiving water bodies; (8) sensitivity of receiving water bodies; and (9) any other relevant factors.
- (b) At a minimum, the high priority municipal areas and activities shall include the following:
- i. Roads, Streets, Highways, and Parking Facilities.
 - ii. Flood Management Projects and Flood Control Devices.
 - iii. Areas and activities tributary to a Clean Water Act section 303(d) impaired water body, where an area or activity generates pollutants for which the water body is impaired. Areas and activities within or adjacent to or discharging directly to receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)vi of this Order).
 - iv. Municipal Waste Facilities.
 - Active or closed municipal landfills;
 - Publicly owned treatment works (including water and wastewater treatment plants) and sanitary sewage collection systems;
 - Municipal separate storm sewer systems;
 - Incinerators;
 - Solid waste transfer facilities;
 - Land application sites;
 - Uncontrolled sanitary landfills;
 - Corporate yards including maintenance and storage yards for materials, waste, equipment and vehicles;
 - Sites for disposing and treating sewage sludge; and
 - Hazardous waste treatment, disposal, and recovery facilities.
 - v. Other municipal areas and activities that the Copermittee determines may contribute a significant pollutant load to the MS4.
 - vi. Municipal airfields.

F.3.a.(4) BMP Implementation (Municipal)

- (a) Each Copermittee shall designate a set of minimum BMPs for high, medium, and low threat to water quality municipal areas and activities (as determined under section F.3.a.(3)). The designated minimum BMPs for high threat to water quality municipal areas and activities shall be area or activity specific as appropriate.
- (b) Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs (based upon the threat to water quality rating) at each municipal area or activity within its jurisdiction. If particular minimum BMPs are infeasible for any specific area or activity, each Copermittee shall implement, or require implementation of other equivalent BMPs. Each Copermittee shall also implement any additional BMPs as are necessary to comply with this Order.
- i. Each Copermittee shall evaluate feasibility of retrofitting existing structural flood control devices and retrofit where needed.
- (c) Each Copermittee shall implement, or require implementation of, any additional controls for municipal areas and activities tributary to Clean Water Act section 303(d) impaired

water bodies (where an area or activity generates pollutants for which the water body is impaired) as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for municipal areas and activities within or directly adjacent to or discharging directly to receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)vi. of this Order) as necessary to comply with this Order.

F.3.a.(5) Maintenance of Municipal Separate Storm Sewer System (Municipal)

- (a) Each Copermittee shall implement a schedule of maintenance activities at all structural controls designed to reduce pollutant discharges to or from its MS4s and related drainage structures.
- (b) Each Copermittee shall implement a schedule of maintenance activities for the municipal separate storm sewer system.
- (c) The maintenance activities must, at a minimum, include:
 - i. Inspection and removal of accumulated waste (e.g. sediment, trash, debris and other pollutants) between May 1 and September 30 of each year;
 - ii. Additional cleaning as necessary between October 1 and April 30 of each year;
 - iii. Record keeping of cleaning and the overall quantity of waste removed;
 - iv. Proper disposal of waste removed pursuant to applicable laws;
 - v. Measures to eliminate waste discharges during MS4 maintenance and cleaning activities.

F.3.a.(6) Management of Pesticides, Herbicides, and Fertilizers (Municipal)

The Copermittees shall implement BMPs to reduce the contribution of pollutants associated with the application, storage, and disposal of pesticides, herbicides and fertilizers from municipal areas and activities to MS4s. Important municipal areas and activities include municipal facilities, public rights-of-way, parks, recreational facilities, golf courses, cemeteries, botanical or zoological gardens and exhibits, landscaped areas, etc.

Such BMPs shall include, at a minimum: (1) educational activities, permits, certifications and other measures for municipal applicators and distributors; (2) integrated pest management measures that rely on non-chemical solutions; (3) the use of native vegetation; (4) schedules for irrigation and chemical application; and (5) the collection and proper disposal of unused pesticides, herbicides, and fertilizers.

F.3.a.(7) Inspection of Municipal Areas and Activities (Municipal)

At a minimum, each Copermittee shall inspect high priority municipal areas and activities annually. Based upon site inspection findings, each Copermittee shall implement all follow-up actions necessary to comply with this Order.

F.3.a.(8) Enforcement of Municipal Areas and Activities (Municipal)

Each Copermittee shall enforce its storm water ordinance for all municipal areas and activities as necessary to maintain compliance with this Order.

F.3.b. Industrial (Existing Development)

Each Copermittee shall implement an Industrial (Existing Development) Component to reduce pollutants in runoff from all industrial sites. At a minimum the industrial component shall address:

- F.3.b.(1) Pollution Prevention
- F.3.b.(2) Source Identification
- F.3.b.(3) Threat to Water Quality Prioritization
- F.3.b.(4) BMP Implementation
- F.3.b.(5) Monitoring of Industrial Sites
- F.3.b.(6) Inspection of Industrial Sites
- F.3.b.(7) Enforcement Measures for Industrial Sites
- F.3.b.(8) Reporting of Non-compliant Sites

F.3.b.(1) Pollution Prevention (Industrial)

Each Copermittee shall include and describe pollution prevention methods within its Industrial (Existing Development) Component. Each Copermittee shall require the use of pollution prevention methods by industry, where appropriate.

F.3.b.(2) Source Identification (Industrial)

Each Copermittee shall develop and update annually a watershed-based inventory of all industrial sites within its jurisdiction regardless of site ownership. This requirement is applicable to all industrial sites regardless of whether the industrial site is subject to the California statewide General NPDES Permit for Storm Water Discharges Associated With Industrial Activities, Except Construction (hereinafter General Industrial Permit) or other individual NPDES permit.

The inventory shall include the following minimum information for each industrial site: name; address; and a narrative description including SIC codes which best reflects the principal products or services provided by each facility.

F.3.b.(3) Threat to Water Quality Prioritization (Industrial)

- (a) To establish priorities for industrial oversight activities under this Order, the Copermittee shall prioritize each watershed-based inventory in F.3.b.(2) above by threat to water quality and update annually. Each industrial site shall be classified as high, medium, or low threat to water quality. In evaluating threat to water quality each Copermittee shall consider (1) type of industrial activity (SIC Code); (2) materials used in industrial processes; (3) wastes generated; (4) pollutant discharge potential; (5) non-storm water discharges; (6) size of facility; (7) proximity to receiving water bodies; (8) sensitivity of receiving water bodies; (9) whether the industrial site is subject to the statewide General Industrial Permit; and (10) any other relevant factors.
- (b) At a minimum the high priority industrial sites shall include industrial facilities that are subject to section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA); industrial facilities tributary to a Clean Water Act section 303(d) impaired water body, where a facility generates pollutants for which the water body is impaired; industrial facilities within or directly adjacent to or discharging directly to receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)vi. of this Order); facilities subject to the statewide General Industrial Permit (excluding those facilities that have been approved for No Exposure Certification); and all other industrial facilities that the Copermittee determines are contributing significant pollutant loading to its MS4, regardless of whether such facilities are covered under the statewide General Industrial Permit or other NPDES permit.

F.3.b.(4) BMP Implementation (Industrial)

- (a) Each Copermittee shall designate a set of minimum BMPs for high, medium, and low threat to water quality industrial sites (as determined under section F.3.b.(3)). The designated minimum BMPs for high threat to water quality industrial sites shall be industry and site specific as appropriate.
- (b) Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs (based upon the site's threat to water quality rating) at each industrial site within its jurisdiction. If particular minimum BMPs are infeasible at any specific site, each Copermittee shall implement, or require implementation of, other equivalent BMPs. Each Copermittee shall also implement or require any additional site specific BMPs as necessary to comply with this Order including BMPs which are more stringent than those required under the statewide General Industrial Permit.
- (c) Each Copermittee shall implement, or require implementation of, additional controls for industrial sites tributary to Clean Water Act section 303(d) impaired water bodies (where a site generates pollutants for which the water body is impaired) as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for industrial sites within or directly adjacent to or discharging directly to receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)vi. of this Order) as necessary to comply with this Order.

F.3.b.(5) Monitoring of Industrial Sites (Industrial)

- (a) Each Copermittee shall conduct, or require industry to conduct, a monitoring program for runoff from each high threat to water quality industrial site (identified in F.3.b.(3) above). Group monitoring by multiple industrial sites conducted under group monitoring programs approved by the State Water Resources Control Board is acceptable.
- (b) At a minimum, the monitoring program shall provide quantitative data from two storm events per year on the following constituents:
 - i. Any pollutant listed in effluent guidelines subcategories where applicable;
 - ii. Any pollutant for which an effluent limit has been established in an existing NPDES permit for the facility;
 - iii. Oil and grease or Total Organic Carbon (TOC);
 - iv. pH;
 - v. Total suspended solids (TSS);
 - vi. Specific conductance; and
 - vii. Toxic chemicals and other pollutants that are likely to be present in storm water discharges.
 - viii. Any pollutant that may be used, stored, or generated at the facility, which may be discharged to a water body or a tributary of that water body that is listed as impaired under Clean Water Act Section 303(d) for that pollutant(s), unless the facility can demonstrate approval of No Exposure Certification.

F.3.b.(6) Inspection of Industrial Sites (Industrial)

- (a) Each Copermittee shall conduct industrial site inspections for compliance with its ordinances, permits, and this Order. Inspections shall include review of BMP implementation plans.
- (b) Each Copermittee shall establish inspection frequencies and priorities as determined by the threat to water quality prioritization described in F.3.b.(3) above. Each Copermittee shall inspect high priority industrial sites, at a minimum:

i. Annually

OR

ii. Bi-annually for any site that the responsible Copermittee certifies in a written statement to the SDRWQCB all of the following (certified statements may be submitted to the SDRWQCB at any time for one or more sites):

- Copermittee has record of industrial site's Waste Discharge Identification Number (WDID#) documenting industrial site's coverage under the statewide General Industrial Permit; and
- Copermittee has reviewed the industrial site's Storm Water Pollution Prevention Plan (SWPPP); and
- Copermittee finds SWPPP to be in compliance with all local ordinances, permits, and plans; and
- Copermittee finds that the SWPPP is being properly implemented on site.

Each Copermittee shall inspect medium and low threat to water quality industrial sites as needed.

- (c) Based upon site inspection findings, each Copermittee shall implement all follow-up actions necessary to comply with this Order.
- (d) To the extent that the SDRWQCB has conducted an inspection of a high priority industrial site during a particular year, the requirement for the responsible Copermittee to inspect this site during the same year will be satisfied.

F.3.b.(7) Enforcement of Industrial Sites (Industrial)

Each Copermittee shall enforce its storm water ordinance at all industrial sites as necessary to maintain compliance with this Order. Copermittee ordinances or other regulatory mechanisms shall include sanctions to ensure compliance. Sanctions shall include the following or their equivalent: Non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance.

F.3.b.(8) Reporting of Non-compliant Sites (Industrial)

Each Copermittee shall provide oral notification to the SDRWQCB of non-compliant sites that are determined to pose a threat to human or environmental health within its jurisdiction within 24 hours of the discovery of noncompliance, as required under section R.1 (and B.6 of Attachment C) of this Order.

Each Copermittee shall develop and submit criteria by which to evaluate events of non-compliance to determine whether they pose a threat to human or environmental health. These criteria shall be submitted in the Jurisdictional Urban Runoff Management Program Document and Annual Reports for SDRWQCB review.

Such oral notification shall be followed up by a written report to be submitted to the SDRWQCB within 5 days of the incidence of non-compliance as required under section R.1 (and B.6 of Attachment C) of this Order. Sites are considered non-compliant when one or more violations of local ordinances, permits, plans, or this Order exist on the site.

F.3.c. Commercial (Existing Development)

Each Copermittee shall implement a Commercial (Existing Development) Component to reduce pollutants in runoff from commercial sites. At a minimum the commercial component shall address:

- F.3.c.(1) Pollution Prevention
- F.3.c.(2) Source Identification
- F.3.c.(3) BMP Implementation
- F.3.c.(4) Inspection of Commercial Sites and Sources
- F.3.c.(5) Enforcement of Commercial Sites and Sources

F.3.c.(1) Pollution Prevention (Commercial)

Each Copermittee shall include and describe pollution prevention methods within its Commercial (Existing Development) Component. Each Copermittee shall require the use of pollution prevention methods by commercial facilities, where appropriate.

F.3.c.(2) Source Identification (Commercial)

Each Copermittee shall develop and update annually an inventory of the following high priority threat to water quality commercial sites/sources listed below. (If any commercial site/source listed below is inventoried as an industrial site, as required under section F.3.b.(2) of this Order, it is not necessary to also inventory it as a commercial site/source).

- (a) Automobile mechanical repair, maintenance, fueling, or cleaning;
- (b) Airplane mechanical repair, maintenance, fueling, or cleaning;
- (c) Boat mechanical repair, maintenance, fueling, or cleaning;
- (d) Equipment repair, maintenance, fueling, or cleaning;
- (e) Automobile and other vehicle body repair or painting;
- (f) Mobile automobile or other vehicle washing;
- (g) Automobile (or other vehicle) parking lots and storage facilities;
- (h) Retail or wholesale fueling;
- (i) Pest control services;
- (j) Eating or drinking establishments;
- (k) Mobile carpet, drape or furniture cleaning;
- (l) Cement mixing or cutting;
- (m) Masonry;
- (n) Painting and coating;
- (o) Botanical or zoological gardens and exhibits;
- (p) Landscaping;
- (q) Nurseries and greenhouses;
- (r) Golf courses, parks and other recreational areas/facilities;
- (s) Cemeteries;
- (t) Pool and fountain cleaning;
- (u) Marinas;
- (v) Port-a-Potty servicing;
- (w) Other commercial sites/sources that the Copermittee determines may contribute a significant pollutant load to the MS4;
- (x) Any commercial site or source tributary to a Clean Water Act section 303(d) impaired water body, where the site or source generates pollutants for which the water body is impaired; and
- (y) Any commercial site or source within or directly adjacent to or discharging directly to a coastal lagoon or other receiving water within an environmentally sensitive area (as defined in F.1.b(2)(a)vi. of this Order).

F.3.c.(3) BMP Implementation (Commercial)

- (a) Each Copermittee shall designate a set of minimum BMPs for the high priority threat to water quality commercial sites/sources (listed above in section F.3.c.(2)). The designated minimum BMPs for the high threat to water quality commercial sites/sources shall be site and source specific as appropriate.
- (b) Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs at each high priority threat to water quality commercial site/source within its jurisdiction. If particular minimum BMPs are infeasible for any specific site/source, each Copermittee shall implement, or require the implementation of, other equivalent BMPs. Each Copermittee shall also implement or require any additional site specific BMPs as necessary to comply with this Order.
- (c) Each Copermittee shall implement, or require implementation of, additional controls for commercial sites or sources tributary to Clean Water Act section 303(d) impaired water bodies (where a site or source generates pollutants for which the water body is impaired) as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for commercial sites or sources within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)vi. of this Order) as necessary to comply with this Order.

F.3.c.(4) Inspection of Commercial Sites and Sources (Commercial)

Each Copermittee shall inspect high priority commercial sites and sources as needed. Based upon site inspection findings, each Copermittee shall implement all follow-up actions necessary to comply with this Order.

F.3.c.(5) Enforcement of Commercial Sites and Sources (Commercial)

Each Copermittee shall enforce its storm water ordinance for all commercial sites and sources as necessary to maintain compliance with this Order.

F.3.d. Residential (Existing Development)

Each Copermittee shall implement a Residential (Existing Development) Component to prevent or reduce pollutants in runoff from all residential land use areas and activities. At a minimum the residential component shall address:

- | | |
|-----------|---|
| F.3.d.(1) | Pollution Prevention |
| F.3.d.(2) | Threat to Water Quality Prioritization |
| F.3.d.(3) | BMP Implementation |
| F.3.d.(4) | Enforcement of Residential Areas and Activities |

F.3.d.(1) Pollution Prevention (Residential)

Each Copermittee shall include pollution prevention methods in its Residential (Existing Development) Component and shall encourage their use by residents, where appropriate.

F.3.d.(2) Threat to Water Quality Prioritization (Residential)

Each Copermittee shall identify high priority residential areas and activities. At a minimum, these shall include:

- Automobile repair and maintenance;
- Automobile washing;
- Automobile parking;
- Home and garden care activities and product use (pesticides, herbicides, and fertilizers);
- Disposal of household hazardous waste (e.g., paints, cleaning products, and other wastes generated during home improvement or maintenance activities);
- Disposal of pet waste;
- Disposal of green waste;
- Any other residential source that the Copermittee determines may contribute a significant pollutant load to the MS4;
- Any residence tributary to a Clean Water Act section 303(d) impaired water body, where the residence generates pollutants for which the water body is impaired; and
- Any residence within or directly adjacent to or discharging directly to coastal waters or other receiving waters within an environmentally sensitive area (as defined in F.1.b.(2)(a)vi. of this Order).

F.3.d.(3) BMP Implementation (Residential)

- (a) Each Copermittee shall designate a set of minimum BMPs for high threat to water quality residential areas and activities (as required under section F.3.d.(2)). The designated minimum BMPs for high threat to water quality residential areas and activities shall be area or activity specific.
- (b) Each Copermittee shall implement or require implementation of the designated minimum BMPs for high threat to water quality residential areas and activities. If particular minimum BMPs are infeasible for any specific site/source, each Copermittee shall require implementation of other equivalent BMPs. Each Copermittee shall also implement, or require implementation of, any additional BMPs as are necessary to comply with this Order.
- (c) Each Copermittee shall implement, or require implementation of, any additional controls for residential areas and activities tributary to Clean Water Act Section 303(d) impaired water bodies (where a residential area or activity generates pollutants for which the water body is impaired) as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for residential areas within or directly adjacent to or discharging directly to coastal waters or other receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)vi. of this Order) as necessary to comply with this Order.

F.3.d.(4) Enforcement of Residential Areas and Activities (Residential)

Each Copermittee shall enforce its storm water ordinance for all residential areas and activities as necessary to maintain compliance with this Order.

F.4. Education Component

Each Copermittee shall implement an Education Component using all media as appropriate to (1) measurably increase the knowledge of the target communities regarding MS4s, impacts of urban runoff on receiving waters, and potential BMP solutions for the target audience; and (2) to measurably change the behavior of target communities and thereby reduce pollutant releases to MS4s and the environment. At a minimum the education component shall address the following target communities:

- Municipal Departments and Personnel

- Construction Site Owners and Developers
- Industrial Owners and Operators
- Commercial Owners and Operators
- Residential Community, General Public, and School Children
- Quasi-Governmental Agencies/Districts (i.e., educational institutions, water districts, sanitation districts, etc.)

F.4.a. All Target Communities

The Education Program for each target audience may contain information on the following topics where applicable:

- State and Federal water quality laws
- Requirements of local municipal permits and ordinances (e.g., storm water and grading ordinances and permits)
- Water conservation
- Impacts of urban runoff on receiving waters
- Watershed concepts (i.e., stewardship, connection between inland activities and coastal problems, etc.)
- Distinction between MS4s and sanitary sewers
- Importance of good housekeeping (e.g., sweeping impervious surfaces instead of hosing)
- Pollution prevention and safe alternatives
- Household hazardous waste collection
- Recycling
- BMPs: Site specific, structural and source control
- BMP maintenance
- Non-storm water disposal alternatives (e.g., all wash waters)
- Pet and animal waste disposal
- Proper solid waste disposal (e.g., garbage, tires, appliances, furniture, vehicles)
- Equipment and vehicle maintenance and repair
- Public reporting mechanisms
- Green waste disposal
- Integrated pest management
- Native vegetation
- Proper disposal of boat and recreational vehicle waste
- Traffic reduction, alternative fuel use

F.4.b. Municipal, Construction, Industrial, Commercial, and Quasi-Governmental (educational institutions, water districts, sanitation districts, etc.) Communities

In addition to the topics listed in F.4.a. above, the Municipal, Construction, Industrial, Commercial, and Quasi-Governmental (Educational Institutions, Water Districts, Sanitation Districts) Communities may also be educated on the following topics where applicable:

- Basic urban runoff training for all personnel
- Additional urban runoff training for appropriate personnel
- Illicit Discharge Detection and Elimination observations and follow-up during daily work activities
- Lawful disposal of catchbasin and other MS4 cleanout wastes
- Water quality awareness for Emergency/First Responders
- California's Statewide General NPDES Permit for Storm Water Discharges Associated with Industrial Activities (Except Construction).

- California's Statewide General NPDES Permit for Storm Water Discharges Associated with Construction Activities
- SDRWQCB's General NPDES Permit for Groundwater Dewatering
- 401 Water Quality Certification by the SDRWQCB
- Statewide General NPDES Utility Vault Permit (NPDES No. CAG990002)
- SDRWQCB Waste Discharge Requirements for Dredging Activities
- Local requirements beyond statewide general permits
- Federal, state and local water quality regulations that affect development projects
- Water quality impacts associated with land development
- Alternative materials & designs to maintain peak runoff values
- How to conduct a storm water inspection
- Potable water discharges to the MS4
- Dechlorination techniques
- Hydrostatic testing
- Spill response, containment, & recovery
- Preventive maintenance
- How to do your job and protect water quality

F.4.c. Residential, General Public, School Children Communities

In addition to the topics listed in F.4.a. above, the Residential, General Public, and School Children Communities may be educated on the following topics where applicable:

- Public reporting information resources
- Residential and charity car-washing
- Community activities (e.g., "Adopt a Storm Drain, Watershed, or Highway" Programs, citizen monitoring, creek/beach cleanups, environmental protection organization activities, etc.)

F.5. Illicit Discharge Detection and Elimination Component

Each Copermittee shall implement an Illicit Discharge Detection and Elimination Component containing measures to actively seek and eliminate illicit discharges and connections. At a minimum the Illicit Discharge Detection and Elimination Component shall address:

- F.5.a Illicit Discharges and Connections
- F.5.b Dry Weather Monitoring Program
- F.5.c Investigation / Inspection and Follow-up
- F.5.d Elimination of Illicit Discharges and Connections
- F.5.e Enforce Ordinances
- F.5.f Prevent and Respond To Sewage Spills (Including from Private Laterals and Failing Septic Systems) and Other Spills
- F.5.g Facilitate Public Reporting of Illicit Discharges and Connections – Public Hotline
- F.5.h Facilitate Disposal of Used Oil and Toxic Materials
- F.5.i Limit Infiltration From Sanitary Sewer to MS4

F.5.a. Illicit Discharges and Connections

Each Copermittee shall implement a program to actively seek and eliminate illicit discharges and connections into its MS4. The program shall address all types of illicit discharges and connections excluding those non-storm water discharges not prohibited by the Copermittee in accordance with Section B. of this Order.

F.5.b. Dry Weather Monitoring Program

Each Copermittee shall conduct dry weather inspections, field screening, and analytical monitoring of MS4 outfalls within its jurisdiction to detect illicit discharges and connections in accordance with Attachment E of this Order.

F.5.c. Investigation / Inspection and Follow-Up

Each Copermittee shall investigate and inspect any portion of the MS4 that, based on dry weather monitoring results or other appropriate information, indicates a reasonable potential for illicit discharges, illicit connections, or other sources of non-storm water (including non-prohibited discharge(s) identified in Section B. of this Order). Each Copermittee shall establish criteria to identify portions of the system where such follow-up investigations are appropriate.

F.5.d. Elimination of Illicit Discharges and Connections

Each Copermittee shall eliminate all detected illicit discharges, discharge sources, and connections immediately.

F.5.e. Enforce Ordinances

Each Copermittee shall implement and enforce its ordinances, orders, or other legal authority to prevent illicit discharges and connections to its MS4. Each Copermittee shall also implement and enforce its ordinance, orders, or other legal authority to eliminate detected illicit discharges and connections to it MS4.

F.5.f. Prevent and Respond to Sewage Spills (Including from Private Laterals and Failing Septic Systems) and Other Spills

Each Copermittee shall prevent, respond to, contain and clean up all sewage and other spills that may discharge into its MS4 from any source (including private laterals and failing septic systems). Spill response teams shall prevent entry of spills into the MS4 and contamination of surface water, ground water and soil to the maximum extent practicable. Each Copermittee shall coordinate spill prevention, containment and response activities throughout all appropriate departments, programs and agencies to ensure maximum water quality protection at all times.

Each Copermittee shall develop and implement a mechanism whereby it is notified of all sewage spills from private laterals and failing septic systems into its MS4. Each Copermittee shall prevent, respond to, contain and clean up sewage from any such notification.

F.5.g. Facilitate Public Reporting of Illicit Discharges and Connections - Public Hotline

Each Copermittee shall promote, publicize and facilitate public reporting of illicit discharges or water quality impacts associated with discharges into or from MS4s. Each Copermittee shall facilitate public reporting through development and operation of a public hotline. Public hotlines can be Copermittee-specific or shared by Copermittees. All storm water hotlines shall be capable of receiving reports in both English and Spanish 24 hours per day / seven days per week. Copermittees shall respond to and resolve each reported incident. All reported incidents, and how each was resolved, shall be summarized in each Copermittee's individual Jurisdictional URMP Annual Report.

F.5.h. Facilitate Disposal of Used Oil and Toxic Materials

Each Copermittee shall facilitate the proper management and disposal of used oil, toxic materials, and other household hazardous wastes. Such facilitation shall include educational

activities, public information activities, and establishment of collection sites operated by the Copermittee or a private entity. Neighborhood collection of household hazardous wastes is encouraged.

F.5.i. Limit Infiltration From Sanitary Sewer to MS4/ Provide Preventive Maintenance of Both

Each Copermittee shall implement controls and measures to limit infiltration of seepage from municipal sanitary sewers to MS4s through thorough, routine preventive maintenance of the MS4. Each Copermittee that operates both a municipal sanitary sewer system and a MS4 shall implement controls and measures to limit infiltration of seepage from the municipal sanitary sewers to the MS4s that shall include overall sanitary sewer and MS4 surveys and thorough, routine preventive maintenance of both.

F.6. *Common Interest Areas and Homeowners Associations*

- a. Each Copermittee shall develop and implement a plan for ensuring that urban runoff within common interest areas from private roads, drainage facilities, and other components of the storm water conveyance system, including those managed by associations, meets the objectives of this Order.
- b. As part of its individual Jurisdictional URMP Annual Report, each Copermittee shall describe the measures taken to ensure that urban runoff from common interest areas to the MS4 meets the objectives of this Order.

F.7. *Public Participation Component*

Each Copermittee shall incorporate a mechanism for public participation in the implementation of the Jurisdictional URMP.

F.8. *Assessment of Jurisdictional URMP Effectiveness Component*

- a. As part of its individual Jurisdictional URMP, each Copermittee shall develop a long-term strategy for assessing the effectiveness of its individual Jurisdictional URMP. The long-term assessment strategy shall identify specific direct and indirect measurements that each Copermittee will use to track the long-term progress of its individual Jurisdictional URMP towards achieving improvements in receiving water quality. Methods used for assessing effectiveness shall include the following or their equivalent: surveys, pollutant loading estimations, and receiving water quality monitoring. The long-term strategy shall also discuss the role of monitoring data in substantiating or refining the assessment.
- b. As part of its individual Jurisdictional URMP Annual Report, each Copermittee shall include an assessment of the effectiveness of its Jurisdictional URMP using the direct and indirect assessment measurements and methods developed in its long-term assessment strategy.

F.9. *Fiscal Analysis Component*

Each Copermittee shall secure the resources necessary to meet the requirements of this Order. As part of its individual Jurisdictional URMP, each Copermittee shall develop a strategy to conduct a fiscal analysis of its urban runoff management program in its entirety. In order to demonstrate sufficient financial resources to implement the conditions of this Order, each Copermittee shall conduct an annual fiscal analysis as part of its individual Jurisdictional URMP Annual Report. This analysis shall, for each fiscal year covered by this Order, evaluate the expenditures (such as capital, operation and maintenance, education, and administrative expenditures) necessary to accomplish the activities of the Copermittee's urban runoff management program. Such analysis shall include a description of the source(s) of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds.

G. IMPLEMENTATION OF JURISDICTIONAL URMP

Each Copermittee shall have completed full implementation of all requirements of the Jurisdictional URMP section of this Order no later than **365 days after adoption** of this Order, except as stated as follows: Within 180 days of development of the model SUSMP, each Copermittee shall adopt its own local SUSMP, and amended ordinances consistent with the model SUSMP, and shall submit both (local SUSMP and amended ordinances) to the SDRWQCB.

Following the adoption of the Order and prior to the full implementation of the Jurisdictional URMP, the Copermittees shall at a minimum implement the provisions and commitments of the proposed DAMP submitted in September 2000.

H. SUBMITTAL OF JURISDICTIONAL URMP DOCUMENT

The written account of the overall program to be conducted by each Copermittee within its jurisdiction during the five-year life of this Order is referred to as the "Jurisdictional URMP Document".

1. Individual – Each Copermittee shall submit to the Principal Permittee(s) an individual Jurisdictional URMP document which describes all activities it has undertaken or is undertaking to implement the requirements of each component of the Jurisdictional URMP section F. of this Order.

a. At a minimum, the individual Jurisdictional URMP document shall contain the following information for the following components:

(1) Construction Component

- (a) Which pollution prevention methods will be required for implementation, and how and where they will be required
- (b) Updated grading ordinances
- (c) A description of the modified construction and grading approval process
- (d) Updated construction and grading project requirements in local grading and construction permits
- (e) A completed watershed-based inventory of all construction sites
- (f) A completed prioritization of all construction sites based on threat to water quality
- (g) Which BMPs will be implemented, or required to be implemented, for each priority category
- (h) How BMPs will be implemented, or required to be implemented, for each priority category
- (i) Planned inspection frequencies for each priority category
- (j) Methods for inspection
- (k) A description of enforcement mechanisms and how they will be used
- (l) A description of how non-compliant sites will be identified and the process for notifying the SDRWQCB, including a list of current non-compliant sites
- (m) A description of the construction education program and how it will be implemented

(2) Municipal (Existing Development) Component

- (a) Which pollution prevention methods will be required for implementation, and how and where they will be required
- (b) A completed watershed-based inventory of all municipal land use areas and activities
- (c) A completed prioritization of all municipal areas and activities based on threat to water quality
- (d) Which BMPs will be implemented, or required to be implemented, for each priority category
- (e) How BMPs will be implemented, or required to be implemented, for each priority category

- (f) Municipal maintenance activities and schedules
 - (g) Management strategy for pesticides, herbicides, and fertilizer use.
 - (h) Planned inspection frequencies for the high priority category
 - (i) Methods for inspection
 - (j) A description of enforcement mechanisms and how they will be used
- (3) Industrial (Existing Development) Component
- (a) Which pollution prevention methods will be required for implementation, and how and where they will be required
 - (b) A completed watershed-based inventory of all industrial sites
 - (c) A completed prioritization of all industrial sites based on threat to water quality
 - (d) Which BMPs will be implemented, or required to be implemented, for each priority category
 - (e) How BMPs will be implemented, or required to be implemented, for each priority category
 - (f) A description of the monitoring program to be conducted, or required to be conducted
 - (g) Planned inspection frequencies for each priority category
 - (h) Methods for inspection
 - (i) A description of enforcement mechanisms and how they will be used
 - (j) A description of how non-compliant sites will be identified and the process for notifying the SDRWQCB, including a list of current non-compliant sites
- (4) Commercial (Existing Development) Component
- (a) Which pollution prevention methods will be required for implementation, and how and where they will be required
 - (b) A completed watershed-based inventory of high priority commercial sites
 - (c) Which BMPs will be implemented, or required to be implemented, for high priority sites
 - (d) How BMPs will be implemented, or required to be implemented, for high priority sites
 - (e) Planned inspection frequencies for high priority sites
 - (f) Methods for inspection
 - (g) A description of enforcement mechanisms and how they will be used
- (5) Residential (Existing Development) Component
- (a) Which pollution prevention methods will be encouraged for implementation, and how and where they will be encouraged
 - (b) A completed inventory of high priority residential areas and activities
 - (c) Which BMPs will be implemented, or required to be implemented, for high priority areas and activities
 - (d) How BMPs will be implemented, or required to be implemented, for high priority areas and activities
 - (e) A description of enforcement mechanisms and how they will be used
- (6) Education Component
- (a) A description of the content, form, and frequency of education efforts for each target community
- (7) Illicit Discharges Detection and Elimination Component
- (a) A description of the program to actively seek and eliminate illicit discharges and connections

- (b) A description of dry weather monitoring to be conducted to detect illicit discharges and connections (see Attachment E)
 - (c) A description of investigation and inspection procedures to follow-up on dry weather monitoring results or other information which indicate potential for illicit discharges and connections
 - (d) A description of procedures to eliminate detected illicit discharges and connections
 - (e) A description of enforcement mechanisms and how they will be used
 - (f) A description of methods to prevent, respond to, contain, and clean up all sewage (including spills from private laterals and failing septic systems) and other spills in order to prevent entrance into the MS4
 - (g) A description of the mechanism to receive notification of spills from private laterals
 - (h) A description of efforts to facilitate public reporting of illicit discharges and connections, including a public hotline
 - (i) A description of efforts to facilitate proper disposal of used oil and other toxic materials
 - (j) A description of controls and measures to be implemented to limit infiltration of seepage from sanitary sewers to MS4s
 - (k) A description of routine preventive maintenance activities on the sanitary system (where applicable) and the MS4
- (8) Public Participation Component
- (a) A description of how public participation will be included in the implementation of the Jurisdictional URMP
- (9) Assessment of Jurisdictional URMP Effectiveness Component
- (a) A description of strategies to be used for assessing the long-term effectiveness of the individual Jurisdictional URMP.
- (10) Fiscal Analysis Component
- (a) A description of the strategy to be used to conduct a fiscal analysis of the urban runoff management program.
- (11) Land-Use Planning for New Development and Redevelopment Component
- (a) Workplan for inclusion in General Plan (or equivalent plan) of water quality and watershed protection principles and policies
 - (b) Development project requirements in local development permits
 - (c) Participation efforts conducted in the development of the Model SUSMP
 - (d) Environmental review processes revisions
 - (e) A description of the planning education program and how it will be implemented
- (12) Fire Fighting
- (a) A description of a program to reduce pollutants from non-emergency fire fighting flows identified by the Copermittee to be significant sources of pollutants.
- (13) Common Interest Areas and Homeowners Associations
- (a) A description of the program that will be implemented to ensure that urban runoff within common interest areas from private roads, drainage facilities, and other components of the storm water conveyance system including those managed by associations meets the objectives of this Order.

- b. Each Copermittee shall submit to the Principal Permittee(s) each part of its individual Jurisdictional URMP document by the dates specified by the Principal Permittee(s).
 - c. In addition to submittal of the Jurisdictional URMP document, each Copermittee shall submit to the SDRWQCB its own adopted local SUSMP consistent with the submitted Model SUSMP, as described in section F.1.b.(2). of this Order. Each Copermittee's own local SUSMP, along with its amended ordinances, shall be submitted to the SDRWQCB within 180 days of the submittal of the Model SUSMP to the SDRWQCB.
2. Unified – The Principal Permittee(s) shall submit the unified Jurisdictional URMP document to the SDRWQCB. The unified Jurisdictional URMP document shall be submitted in two parts (the collected Jurisdictional URMPs and the model SUSMP).
 - a. The unified Jurisdictional URMP document submittal shall address the requirements of the entire Jurisdictional URMP sections F.1 - F.9. of this Order, with the exception of the local SUSMP requirements (which are to be implemented 180 days after submittal of the model SUSMP by the SDRWQCB).
 - b. The unified Jurisdictional URMP document submittal shall contain a section covering common activities conducted collectively by the Copermittees including jointly developed reporting formats (section O.4), to be produced by the Principal Permittee(s), and the thirteen individual Jurisdictional URMP documents.
 - c. The Principal Permittee(s) shall be responsible for the development and production of a stand alone Model SUSMP document meeting the requirements of section F.1.b.(2) of this Order.
 - d. The Principal Permittee(s) shall submit the unified Jurisdictional URMP document, including the Model SUSMP, to the SDRWQCB within **365 days of adoption** of this Order.
 3. Universal Reporting Requirements

All individual and unified Jurisdictional URMP document submittals shall include an executive summary, introduction, conclusion, recommendations, and signed certified statement. Each Copermittee shall submit its individual Jurisdictional Urban Runoff Management Program Document with a signed certified statement. The Principal Permittee(s) shall submit a signed certified statement referring to its individual Jurisdictional Urban Runoff Management Program Document, the section covering common activities conducted collectively by the Copermittees, and the Model SUSMP document meeting the requirements of section F.1.b.(2) of this Order as produced by the Principal Permittee(s).

I. SUBMITTAL OF JURISDICTIONAL URMP ANNUAL REPORT

1. Individual - Each individual Jurisdictional URMP Annual Report shall be a documentation of the activities conducted by each Copermittee during the past annual reporting period. Each Jurisdictional URMP Annual Report shall, at a minimum, contain the following:
 - a. Comprehensive description of all activities conducted by the Copermittee to meet all requirements of each component of the Jurisdictional URMP section of this Order;
 - F.1. Land-Use Planning for New Development and Redevelopment Component
 - F.2. Construction Component
 - F.3. Existing Development Component (Including Municipal, Industrial, Commercial, Residential, and Education)
 - F.4. Education Component
 - F.5. Illicit Discharge Detection and Elimination Component
 - F.6. Common Interest Areas and Homeowners Associations

- F.7. Public Participation Component
- F.8. Assessment of Jurisdictional URMP Effectiveness Component
- F.9. Fiscal Analysis Component

- b. Each Copermittee's accounting of all:
 - (1) Reports of illicit discharges (i.e., complaints) and how each was resolved (indicating referral source);
 - (2) Inspections conducted;
 - (3) Enforcement actions taken; and
 - (4) Education efforts conducted.
 - c. Public participation mechanisms utilized during the Jurisdictional URMP implementation process;
 - d. Proposed revisions to the Jurisdictional URMP;
 - e. A summary of all urban runoff related data not included in the annual monitoring report (e.g., special investigations);
 - f. Budget for upcoming year;
 - g. Identification of management measures proven to be ineffective in reducing urban runoff pollutants and flow; and
 - h. Identification of water quality improvements or degradation.
2. Unified - The unified Jurisdictional URMP Annual Report shall contain a section covering common activities conducted collectively by the Copermittees, to be produced by the Principal Permittee(s), and the thirteen individual Jurisdictional URMP Annual Reports. Each Copermittee shall submit to the Principal Permittee(s) an individual Jurisdictional URMP Annual Report by the date specified by the Principal Permittee(s). The Principal Permittee(s) shall submit a unified Jurisdictional URMP Annual Report to the SDRWQCB prior to **November 9, 2003 and prior to every November 9th thereafter**. The reporting period for these annual reports shall be the previous fiscal year. For example, the report submitted prior to November 9, 2003 shall cover the reporting period July 1, 2002 to June 30, 2003.
3. Universal Reporting Requirements

All individual and unified Jurisdictional URMP submittals shall include an executive summary, introduction, conclusion, recommendations, and signed certified statement. Each Copermittee shall submit its individual Jurisdictional Urban Runoff Management Program Annual Report with a signed certified statement. The Principal Permittee(s) shall submit a signed certified statement referring to its individual Jurisdictional Urban Runoff Management Program Annual Report and the section covering common activities conducted collectively by the Copermittees as produced by the Principal Permittee(s).

J. WATERSHED URBAN RUNOFF MANAGEMENT PROGRAM

- 1. Each Copermittee shall collaborate with other Copermittees to identify, address, and mitigate the highest priority water quality issues/pollutants in the six (Table 4) watersheds in the San Juan Creek Watershed Management Area.
- 2. Each Copermittee shall collaborate with all other Copermittees discharging urban runoff into the same watershed to develop and implement a Watershed Urban Runoff Management Program (Watershed URMP) for the six watersheds in the San Juan Creek Watershed Management Area.

The Watershed URMP shall, at a minimum contain the following:

- a. An accurate map of the watersheds of the San Juan Creek Watershed Management Area in Orange County (preferably in Geographical Information System [GIS] format) that identifies all receiving waters (including the Pacific Ocean); all Clean Water Act section 303(d) impaired receiving waters (including the Pacific Ocean); existing and planned land uses; MS4s, major highways; jurisdictional boundaries; and inventoried commercial, construction, industrial, municipal sites, and residential areas.
- b. An assessment of the water quality of all receiving waters in the watershed based upon (1) existing water quality data; and (2) annual dry weather monitoring that satisfies requirements of section F.5 and Attachment E of this Order; and (3) watershed receiving water quality monitoring that satisfies the watershed monitoring requirements of Attachment B;
- c. An identification and prioritization of major water quality problems in the watershed caused or contributed to by MS4 discharges and the likely source(s) of the problem(s);
- d. An implementation time schedule of short and long-term recommended activities (individual and collective) needed to address the highest priority water quality problem(s) identified in section J.2.c of this Order. For this section, "short-term activities" shall mean those activities that are to be completed during the life of this Order and "long-term activities" shall mean those activities that are to be completed beyond the life of this Order;
- e. A mechanism for public participation throughout the entire watershed URMP process;
- f. A watershed-based education program that builds on and expands upon the education activities conducted by each Copermittee in a given watershed and that can focus on water quality issues specific to that watershed;
- g. A mechanism to facilitate collaborative "watershed-based" (i.e., natural resource-based) land use planning with neighboring local governments in the watershed.
- h. Short-term strategy for assessing the effectiveness of the activities and programs implemented under the Watershed URMP. The short term assessment strategy shall identify methods to assess the Watershed URMP effectiveness and include specific direct and indirect performance measurements that will track the immediate progress and accomplishments of the Watershed URMP towards improving receiving water quality impacted by urban runoff discharges. The short-term strategy shall also discuss the role of monitoring data collected by the Copermittees in substantiating or refining the assessment.
- i. Long-term strategy for assessing the effectiveness of the Watershed URMP. The long-term assessment strategy shall identify specific direct and indirect performance measurements that will track the long-term progress of Watershed URMP towards achieving improvements in receiving water quality impacted by urban runoff discharges. Methods used for assessing effectiveness shall include the following or their equivalent: surveys, pollutant loading estimations, and receiving water quality monitoring. The long-term strategy shall also discuss the role of monitoring data in substantiating or refining the assessment.

Table 4. Orange County Copermittees by Watershed for the San Juan Creek Watershed Management Area

Watershed	Major Receiving Water Bodies⁸	Copermittees
Orange County Coastal Streams - Laguna	Moro Canyon Creek Emerald Canyon Creek Laguna Canyon Creek Blue Bird Canyon Creek Rim Rock Canyon Creek Hobo Canyon Creek	County of Orange Laguna Beach Laguna Woods Orange County Flood Control District Aliso Viejo
Aliso Creek	Aliso Creek English Canyon Creek Sulphur Canyon Creek Wood Canyon Creek	Aliso Viejo Laguna Beach Laguna Hills Laguna Niguel Laguna Woods Lake Forest Mission Viejo County of Orange Orange County Flood Control District
Dana Point Coastal Streams	Salt Creek Arroyo Salada Creek San Juan Canyon	Dana Point Laguna Niguel Orange County Flood Control District
San Juan Creek	San Juan Creek Trampas Canyon Creek Canada Gobernadora Canada Chiquita Horno Creek Arroyo Trabuco Creek Tijeras Canyon Creek Live Oak Canyon Creek Oso Creek La Paz Creek Lucas Canyon Creek Verdugo Canyon Creek Bell Canyon Creek Dove Canyon Creek Crow Canyon Creek	San Juan Capistrano Mission Viejo Laguna Hills Laguna Niguel Dana Point Rancho Santa Margarita County of Orange Orange County Flood Control District San Clemente
Orange County Coastal Streams - San Clemente	Prima Deshecha Canada Segunda Deshecha Canada	San Clemente San Juan Capistrano County of Orange Orange County Flood Control District Dana Point
San Mateo Creek	Christianitos Creek Gambino Canyon Creek La Paz Canyon Creek Talega Canyon Creek	San Clemente County of Orange Orange County Flood Control District

⁸ Indented water bodies are tributary to the above water body.

K. IMPLEMENTATION OF WATERSHED URMP

Each Copermittee shall implement all requirements of the Watershed URMP section of this Order by August 13, 2003 unless otherwise specified. Following the adoption of the Order and prior to the full implementation of the Watershed URMP, the Copermittees shall at a minimum collectively implement the provisions and commitments of the proposed DAMP submitted in September 2000.

L. SUBMITTAL OF WATERSHED URMP DOCUMENT

The written account of the overall watershed program to be conducted by each Copermittee during the remaining life of this Order is referred to as the "Watershed URMP Document". The Watershed URMP is conducted concurrently with the Jurisdictional URMP.⁹

1. The Watershed URMP document shall state how the member Copermittees within each watershed will develop and implement the requirements of the Watershed URMP section J. of this Order. The Watershed URMP document shall include:
 - (1) A completed watershed map
 - (2) A water quality assessment of the San Juan Creek Watershed Management Area within Orange County and watershed monitoring needed
 - (3) Prioritization of water quality problems within Orange County in the San Diego Region
 - (4) Recommended activities (short and long term) to be conducted jointly by the Copermittees and a timeline for implementation
 - (5) Individual Copermittee implementation responsibilities and time schedules for implementation
 - (6) A description of watershed public participation mechanisms
 - (7) A description of watershed education mechanisms
 - (8) A description of the mechanism and implementation schedule for watershed-based land use planning
 - (9) A strategy for assessing the short-term effectiveness of the Watershed URMP
 - (10) A strategy for assessing the long-term effectiveness of the Watershed URMP
 - (11) A program to address common interest areas and homeowners associations
2. The Principal Permittee(s) shall submit the Watershed URMP document to the SDRWQCB by August 13, 2003.
3. Universal Reporting Requirements.

All Watershed URMP submittals shall include an executive summary, introduction, conclusion, recommendations, and signed certified statement. Each Copermittee shall submit a signed certified statement covering its responsibilities in the Watershed URMP Document. The Principal Permittee(s) shall submit a signed certified statement referring to its responsibilities in the Watershed URMP Document and the section covering common activities conducted collectively by the Copermittees as produced by the Principal Permittee(s).

⁹As the Copermittees jointly revise and implement the submitted proposed DAMP and each Copermittee revises and implements its jurisdictional level program to satisfy the requirements of this Order, it is expected that many activities will be conducted on both a jurisdictional level (e.g., enforcement of local ordinances and permits) and a watershed level. Implementation of the Watershed URMP is not meant to replace, but to expand and complement implementation of the Jurisdictional URMP. For this reason, it is necessary to report management activities on both levels. This can be accomplished either by submitting both a Jurisdictional URMP Annual Report and a Watershed URMP Annual Report or by submitting a single Watershed URMP Annual Report that contains two separate sections (i.e., watershed activities and jurisdictional activities). Information need only be reported once (to the extent something is covered in the Watershed URMP Annual Report, it need not be covered again in the Jurisdictional URMP Annual Report).

M. SUBMITTAL OF WATERSHED URMP ANNUAL REPORT

1. Each Watershed URMP Annual Report shall be a documentation of the activities conducted by watershed member Copermittees during the previous annual reporting period to meet the requirements of all components of the Watershed URMP section of this Order. Each Watershed URMP Annual Report shall, at a minimum, contain the following:
 - a. Comprehensive description of all activities conducted by the watershed member Copermittees to meet all requirements of each component of Watershed URMP section J. of this Order
 - b. A section covering common activities conducted collectively by the Copermittees, to be produced by the Principal Permittee(s)
 - c. Public participation mechanisms utilized during the Watershed URMP implementation process;
 - d. Mechanism for watershed-based land use planning;
 - e. Assessment of effectiveness of Watershed URMP;
 - f. Proposed revisions to the Watershed URMP;
 - g. A summary of watershed effort related data not included in the annual monitoring report (e.g., special investigations); and
 - h. Identification of water quality improvements or degradation.
2. The Principal Permittee(s) shall submit the Watershed URMP Annual Report to the SDRWQCB prior to November 9, 2004 and prior to every November 9th thereafter. The reporting period for these annual reports shall be the previous fiscal year. For example, the report submitted prior to November 9, 2004 shall cover the reporting period July 1, 2003 to June 30, 2004.
3. Universal Reporting Requirements

All Watershed URMP submittals shall include an executive summary, introduction, conclusion, recommendations, and signed certified statement. Each Copermittee shall submit a signed certified statement covering its responsibilities in the Watershed URMP Annual Report. The Principal Permittee(s) shall submit a signed certified statement referring to its responsibilities in the Watershed URMP Annual Report and the section covering common activities conducted collectively by the Copermittees as produced by the Principal Permittee(s).

N. PROGRAM MANAGEMENT

1. The Copermittees shall implement the Program Management activities and commitments as described in section 2 (Program Management) of the proposed DAMP.

O. PRINCIPAL PERMITTEE RESPONSIBILITIES

Within 90 days of adoption of this Order, the Copermittees shall designate the Principal Permittee(s) and notify the SDRWQCB of the name(s) of the Principal Permittee(s). The Principal Permittee(s) may require the Copermittees to reimburse the Principal Permittee(s) for reasonable costs incurred while performing coordination responsibilities and other related tasks. The Principal Permittee(s) shall, at a minimum:

1. Be responsible for implementing or coordinating the implementation of the Program Management activities and commitments described in section 2 (Program Management) of the proposed DAMP.
2. Serve as liaison(s) between the Copermittees and the SDRWQCB on general permit issues.
3. Coordinate permit activities among the Copermittees and facilitate collaboration on the development and implementation of programs required under this Order;

4. Coordinate the joint development by all of the Copermittees of standardized format(s) for all reports required under this Order (e.g., annual reports, monitoring reports, fiscal analysis reports, and program effectiveness reports, etc.). The standardized reporting format(s) shall be used by all Copermittees and shall include protocols for electronic reporting. The Principal Permittee(s) shall submit the standardized format(s) to the SDRWQCB as part of the unified Jurisdictional URMP document no later than **365 days after adoption** of this Order.
5. Integrate individual Copermittee documents and reports required under this Order into single unified documents and reports for submittal to the SDRWQCB as described below. If a reporting date falls on a non-working day or State holiday, then the report is to be submitted on the following working day.
 - a. Unified Jurisdictional URMP Document – The Principal Permittee(s) shall submit the unified Jurisdictional URMP document in its entirety (including the model SUSMP) to the SDRWQCB within 365 days of the adoption of this Order.

The Principal Permittee(s) shall be responsible for producing the sections of the unified Jurisdictional URMP document submittals covering common activities conducted by the Copermittees. The Principal Permittee(s) shall be responsible for the development and production of a stand alone Model SUSMP document meeting the requirements of section F.1.b.(2). of this Order. The Principal Permittee(s) shall also be responsible for collecting and assembling the individual Jurisdictional URMP document submittals covering the activities conducted by each individual Copermittee.

- b. Unified Jurisdictional URMP Annual Reports – The Principal Permittee(s) shall submit unified Jurisdictional URMP Annual Reports to the SDRWQCB prior to November 9th of each year, beginning on **November 9, 2003**. The reporting period for these annual reports shall be the previous fiscal year. For example, the report submitted prior to November 9, 2003 shall cover the reporting period July 1, 2002 to June 30, 2003.

The Principal Permittee(s) shall be responsible for producing the section of the unified Jurisdictional URMP Annual Reports covering common activities conducted by the Copermittees. The Principal Permittee(s) shall also be responsible for collecting and assembling the individual Jurisdictional URMP Annual Reports covering the activities conducted by each individual Copermittee.

- c. Watershed URMP Document – The Principal Permittee(s) shall prepare and submit the Watershed URMP document to the SDRWQCB by **August 13, 2003** .
 - d. Watershed URMP Annual Report - The Principal Permittee(s) shall prepare and submit the Watershed URMP Annual Reports to the SDRWQCB prior to November 9th of each year, beginning on **November 9, 2004**. The reporting period for these annual reports shall be the previous fiscal year. For example, the report submitted prior to November 9, 2004 shall cover the reporting period July 1, 2003 to June 30, 2004.
 - e. Receiving Waters Monitoring and Reporting Program - The Principal Permittee(s) shall be responsible for the production and submittal of the Previous Monitoring and Future Recommendations Report. The report shall be submitted to the SDRWQCB within 180 days of adoption of this Order.
 - f. Receiving Waters Monitoring and Reporting Program - The Principal Permittee(s) shall be responsible for the development and production of the Receiving Waters Monitoring Program as it is outlined in Attachment B. The Principal Permittee(s) shall submit the Receiving Waters Monitoring Program to the SDRWQCB within 180 days of adoption of this Order.

- g. Receiving Waters Monitoring and Reporting Program – The Principal Permittee(s) shall be responsible for coordinating the joint development by all of the Copermittees of monitoring reporting formats (Section O.4) and for implementing the Receiving Waters Monitoring Program as outlined in Attachment B by August 13, 2002.
- h. Receiving Waters Monitoring and Reporting Program - The Principal Permittee(s) shall submit the Receiving Waters Monitoring Annual Report to the SDRWQCB prior to November 9th of each year, beginning on November 9, 2003.
- i. Formal Agreements/Standardized Formats - The Principal Permittee(s) shall submit to the SDRWQCB, within 365 days of adoption of this Order, a formal agreement between the Copermittees which provides a management structure for meeting the requirements of this Order (as described in section N.1.). The Principal Permittee(s) shall submit to the SDRWQCB, within 365 days of adoption of this Order, standardized formats for all reports and documents required under this Order.
- j. Dry Weather Monitoring - The Principal Permittee(s) shall collectively submit the Copermittees' dry weather monitoring maps and procedures to the SDRWQCB within 365 days of adoption of this Order.

P. RECEIVING WATERS MONITORING AND REPORTING PROGRAM

1. Pursuant to California Water Code section 13267, each Copermittee shall comply with the Receiving Waters Monitoring and Reporting Program for Order No. R9-2002-0001 contained in **Attachment B** of this Order.
2. Each Copermittee shall also comply with standard provisions, reporting requirements, and notifications contained in **Attachment C** of this Order.

Q. TASKS AND SUBMITTAL SUMMARY

The tasks and submittals required under this Order are summarized in Tables 5 and 6 below:

Table 5. Task Summary

Task No.	Task	Permit Section	Completion Date	Frequency
1	Identify discharges not to be prohibited and BMPs required for treatment of discharges not prohibited	B.3.	365 days after adoption of Order	One Time
2	Examine field screening results to identify water quality problems resulting from non-prohibited non-storm water discharges, including follow-up of problems	B.5.	Prior to November 9, 2003	Annually
3	Notify SDRWQCB of discharges causing or contributing to an exceedance of water quality standards	C.2.a.	Immediate	As Needed
4	Establish adequate legal authority to control pollutant discharges into and from MS4	D.1.	365 days after adoption of Order	One Time
5	Assess General Plan to incorporate water quality and watershed protection principles	F.1.a.	365 days after adoption of Order	One Time
6	Include Development Project Requirements in local permits	F.1.b.(1).	365 days after adoption of Order	One Time
7	Develop Model SUSMP	F.1.b.(2).	365 days after adoption of Order	One Time
8	Develop and adopt individual local SUSMP and amended ordinances	F.1.b.(2).	180 days after development of Model SUSMP	One Time
9	Implement individual jurisdictional SUSMP	F.1.b.(2).	180 days after submittal of Model SUSMP to SDRWQCB	Continuous

Task No.	Task	Permit Section	Completion Date	Frequency
10	Revise environmental review processes	F.1.c.(1).	365 days after adoption of Order	One Time
11	Conduct education program for municipal planning and development review staff, project applicants, developers, contractors, community planning groups, and property owners	F.1.d.(1). And F.1.d.(2).	365 days after adoption of Order	Ongoing
12	Implement all requirements of Construction Component of Jurisdictional URMP	F.2.a. – F.2.j.	365 days after adoption of Order	Ongoing
13	Notify SDRWQCB of non-compliant construction sites that pose a threat to human or environmental health	F.2.i.	Within 24 hours of discovery of noncompliance	As Needed
14	Implement all requirements of Municipal Existing Development Component of Jurisdictional URMP	F.3.a.(1). – F.3.a.(8).	365 days after adoption of Order	Ongoing
15	Implement all requirements of Industrial Existing Development Component of Jurisdictional URMP	F.3.b.(1) – F.3.b.(8)	365 days after adoption of Order	Ongoing
16	Notify SDRWQCB of non-compliant industrial sites that pose a threat to human or environmental health	F.3.b.8.	Within 24 hours of discovery of noncompliance	As Needed
17	Implement all requirements of Commercial Existing Development Component of Jurisdictional URMP	F.3.c.(1) – F.3.c.(5)	365 days after adoption of Order	Ongoing
18	Implement all requirements of Residential Existing Development Component of Jurisdictional URMP	F.3.d.(1) – F.3.d.(4)	365 days after adoption of Order	Ongoing
19	Implement all requirements of Education Component of Jurisdictional URMP	F.4.a. – F.4.c.	365 days after adoption of Order	Ongoing
20	Implement all requirements of Illicit Discharge Detection and Elimination Component of Jurisdictional URMP	F.5.a. – F.5.i.	365 days after adoption of Order	Ongoing
21	Develop a plan to manage urban runoff from common interest areas, private roads, drainage facilities, and other components of the storm water conveyance system, including those managed by homeowners associations.	F.6.	365 days after adoption of Order	One Time
22	Implement all requirements of Public Participation Component of Jurisdictional URMP	F.7.	365 days after adoption of Order	Ongoing
23	Develop strategy for assessment of Jurisdictional URMP effectiveness	F.8.a.	365 days after adoption of Order	One Time
24	Assess Jurisdictional URMP effectiveness	F.8.b.	Prior to November 9, 2003	Annually
25	Develop strategy for fiscal analysis of urban runoff management program	F.9.	365 days after adoption of Order	One Time
26	Conduct fiscal analysis of urban runoff management program in entirety	F.9.	Prior to November 9, 2003	Annually
27	Develop and implement Watershed URMP	J.2.	August 13, 2003	Ongoing
28	Implement Program Management activities and commitments in proposed DAMP	N.1.	Immediately	Ongoing
29	Develop standardized formats for all required reports of this Order	O.4.	365 days after adoption of Order	One Time
30	Develop Receiving Waters Monitoring Document	Attachment B	180 days after adoption of Order	One Time
31	Implement Receiving Waters Monitoring Program	Attachment B	180 days after adoption of Order	Continuous
32	Develop Dry Weather Monitoring Program Document	Attachment E	365 days after adoption of Order	One Time
33	Conduct Dry Weather Monitoring Program	Attachment E	Begins May 1, 2003 Thereafter conducted May 1 st to September 30 th	Annually
34	Complete NPDES applications for issuance of renewal watershed-based permits	Attachment C	At least 180 days prior to expiration of Order	One Time

Task No.	Task	Permit Section	Completion Date	Frequency
35	Notify SDRWQCB of any incidence of non-compliance with this Order that poses a threat to human or environmental health.	R.1, B.6 of Attachment C	Within 24 hours of discovery of non-compliance	As Needed
36	Designate Principal Permittee(s) and notify SDRWQCB	O.	90 days after adoption of the Order	One Time

Table 6. Submittal Summary

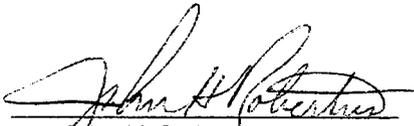
Submittal No.	Submittal	Permit Section	Completion Date	Frequency
1	Submit identification of discharges not to be prohibited and BMPs required for treatment of discharges not prohibited	B.3.	365 days after adoption of Order	One Time
2	Report on discharges causing or contributing to an exceedance of water quality standards, including description of BMP implementation	C.2.a.	With individual Jurisdictional URMP Annual Reports	As Needed
3	Submit Certified Statement of Adequate Legal Authority	D.2.	365 days after adoption of Order	One Time
4	Submit certified statement if particular high priority construction sites are to be inspected monthly rather than weekly in the rainy season	F.2.g.(2).	365 days after adoption of Order and as needed thereafter	As Needed
5	Submit report on non-compliant construction sites that pose a threat to human or environmental health.	F.2.i.	Within 5 Days of discovery of non-compliance	As Needed
6	Submit report on non-compliant industrial sites that pose a threat to human or environmental health.	F.3.b.8.	Within 5 days of discovery of non compliance	As Needed
7	Submit to Principal Permittee(s) individual Jurisdictional URMP document covering requirements for all Components	H.1.a.	Prior to 365 days after adoption of Order (Principal Permittee(s) specifies date of submittal)	One Time
8	(This space reserved).			
9	Principal Permittee(s) shall submit to SDRWQCB unified Jurisdictional URMP document covering requirements for all Components, including Model SUSMP	H.2.a.	365 days after adoption of Order	One Time
10	(This space reserved).			
11	Submit to SDRWQCB local SUSMP and amended ordinances	F.1.b.(2). and H.1.d.	180 days after development of Model SUSMP	One Time
12	Submit to Principal Permittee(s) individual Jurisdictional URMP Annual Report	I.1.	Prior to November 9, 2003 (Principal Permittee(s) specifies date of submittal)	Annually
13	Principal Permittee(s) shall submit 1st unified Jurisdictional URMP Annual Report to SDRWQCB	I.2.	Prior to November 9, 2003	One Time and Annually Thereafter
14	Submit to Principal Permittee(s) Watershed Specific URMP document	L.1.	Prior to August 13, 2003 (Principal Permittee(s) specifies date of submittal)	One Time
15	Principal Permittee(s) shall submit Watershed URMP document to SDRWQCB	L.2.	August 13, 2003	One Time
16	Principal Permittee(s) shall submit 2nd unified Jurisdictional URMP Annual Report to SDRWQCB	I.2.	Prior to November 9, 2004	One Time
17	(This space reserved).			
18	Principal Permittee(s) shall submit 1st Watershed URMP Annual Report to SDRWQCB	M.2.	Prior to November 9, 2004	One Time and Annually Thereafter
19	Principal Permittee(s) shall submit 3rd unified Jurisdictional URMP Annual Report to SDRWQCB	I.2.	Prior to November 9, 2005	One Time

Submittal No.	Submittal	Permit Section	Completion Date	Frequency
20	Principal Permittee(s) shall submit 2 nd Watershed URMP Annual Report to SDRWQCB	M.2.	Prior to November 9, 2005	One Time
21	Principal Permittee(s) shall submit 4 th unified Jurisdictional URMP Annual Report to SDRWQCB	I.2.	Prior to November 9, 2006	One Time
22	Principal Permittee(s) shall submit 3 rd Watershed URMP Annual Report to SDRWQCB	M.2.	Prior to November 9, 2006	One Time
23	Principal Permittee(s) shall submit 5 th unified Jurisdictional URMP Annual Report to SDRWQCB	I.2.	Prior to November 9, 2007	One Time
24	Principal Permittee(s) shall submit standardized formats for all reports required under this Order	O.4.	365 days after adoption of Order	One Time
25	Principal Permittee(s) submits Receiving Waters Monitoring Program Document	Attachment B	180 days after adoption of Order	One Time
26	Principal Permittee(s) submits Receiving Waters Monitoring Annual Report to SDRWQCB	Attachment B	Prior to November 9, 2003	Annually
27	Submit to Principal Permittee(s) Dry Weather Monitoring Program Document	Attachment E	Prior to 365 days after adoption of Order	One Time
28	Principal Permittee(s) submits collective Dry Weather Monitoring Program Documents	Attachment E	365 days after adoption of Order	One Time
29	Submit to Principal Permittee(s) Dry Weather Monitoring Program results as part of individual Jurisdictional URMP Annual Report	Attachment E	Prior to November 9, 2003, as part of individual Jurisdictional URMP Annual Report	Annually
30	Principal Permittee(s) shall submit NPDES applications for issuance of renewal watershed-based permits	Attachment C	At least 180 days prior to expiration of this Order	One Time
31	Submit reports of any incidence of non-compliance with this Order that poses a threat to human or environmental health.	R.1, B.6 of Attachment C	Within 5 days of discovery of non compliance	As Needed

R. STANDARD PROVISIONS, REPORTING REQUIREMENTS AND NOTIFICATIONS

1. Each Copermitttee shall comply with Standard Provisions, Reporting Requirements, and Notifications contained in **Attachment C** of this Order. This includes 24 hour/5day reporting requirements for any instance of non-compliance with this Order as described in section B.6 of Attachment C.
2. All plans, reports and subsequent amendments submitted in compliance with this Order shall be implemented immediately (or as otherwise specified) and shall be an enforceable part of this Order upon submission to the SDRWQCB. All submittals by Copermitttees must be adequate to implement the requirements of this Order.

I, John H. Robertus, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Diego Region, on **February 13, 2002**.


 John H. Robertus
 Executive Officer

ATTACHMENT A

BASIN PLAN PROHIBITIONS

California Water Code Section 13243 provides that a Regional Board, in a water quality control plan, may specify certain conditions or areas where the discharge of waste, or certain types of waste is not permitted. The following discharge prohibitions are applicable to any person, as defined by Section 13050(c) of the California Water Code, who is a citizen, domiciliary, or political agency or entity of California whose activities in California could affect the quality of waters of the state within the boundaries of the San Diego Region.

1. The discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in California Water Code Section 13050, is prohibited.
2. The discharge of waste to land, except as authorized by waste discharge requirements or the terms described in California Water Code Section 13264 is prohibited.
3. The discharge of pollutants or dredged or fill material to waters of the United States except as authorized by an NPDES permit or a dredged or fill material permit (subject to the exemption described in California Water Code §13376) is prohibited.
4. Discharges of recycled water to lakes or reservoirs used for municipal water supply or to inland surface water tributaries thereto are prohibited, unless this Regional Board issues a NPDES permit authorizing such a discharge; the proposed discharge has been approved by the State Department of Health Services and the operating agency of the impacted reservoir; and the discharger has an approved fail-safe long-term disposal alternative.
5. The discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives, is prohibited. Allowances for dilution may be made at the discretion of the Regional Board. Consideration would include streamflow data, the degree of treatment provided and safety measures to ensure reliability of facility performance. As an example, discharge of secondary effluent would probably be permitted if streamflow provided 100:1 dilution capability.
6. The discharge of waste in a manner causing flow, ponding, or surfacing on lands not owned or under the control of the discharger is prohibited, unless the discharge is authorized by the Regional Board.
7. The dumping, deposition, or discharge of waste directly into waters of the state, or adjacent to such waters in any manner which may permit its being transported into the waters, is prohibited unless authorized by the Regional Board.
8. Any discharge to a storm water conveyance system that is not composed entirely of "*storm water*" is prohibited unless authorized by the Regional Board. [The federal regulations, 40 CFR 122.26 (b) (13), define storm water as storm water runoff, snow melt runoff, and surface runoff and drainage. 40 CFR 122.26 (b) (2) defines an illicit discharge as any discharge to a storm water conveyance system that is not composed entirely of storm water except discharges pursuant to a NPDES permit and discharges resulting from fire fighting activities. [§122.26 amended at 56 FR 56553, November 5, 1991; 57 FR 11412, April 2, 1992].

9. The unauthorized discharge of treated or untreated sewage to waters of the state or to a storm water conveyance system is prohibited.
10. The discharge of industrial wastes to conventional septic tank/subsurface disposal systems, except as authorized by the terms described in California Water Code Section 13264, is prohibited.
11. The discharge of radioactive wastes amenable to alternative methods of disposal into the waters of the state is prohibited.
12. The discharge of any radiological, chemical, or biological warfare agent into waters of the state is prohibited.
13. The discharge of waste into a natural or excavated site below historic water levels is prohibited unless the discharge is authorized by the Regional Board.
14. The discharge of sand, silt, clay, or other earthen materials from any activity, including land grading and construction, in quantities which cause deleterious bottom deposits, turbidity or discoloration in waters of the state or which unreasonably affect, or threaten to affect, beneficial uses of such waters is prohibited.
15. The discharge of treated or untreated sewage from vessels to Mission Bay, Oceanside Harbor, Dana Point Harbor, or other small boat harbors is prohibited.
16. The discharge of untreated sewage from vessels to San Diego Bay is prohibited.
17. The discharge of treated sewage from vessels to portions of San Diego Bay that are less than 30 feet deep at mean lower low water (MLLW) is prohibited.
18. The discharge of treated sewage from vessels, which do not have a properly functioning US Coast Guard certified Type I or Type II marine sanitation device, to portions of San Diego Bay that are greater than 30 feet deep at mean lower low water (MLLW) is prohibited.

ATTACHMENT B

RECEIVING WATERS MONITORING AND REPORTING PROGRAM FOR ORDER NO. R9-2002-0001

B.1 Receiving Waters Monitoring Program

The Copermittees shall collaborate to develop, implement, and report annually on a Receiving Waters Monitoring Program for Orange County within the San Diego Region. The primary objectives of the Receiving Waters Monitoring and Reporting Program include:

- Assessing compliance with Order No. R9-2002-0001;
- Measuring the effectiveness of Urban Runoff Management Plans;
- Assessing the chemical, physical, and biological impacts to receiving waters resulting from urban runoff; and
- Assessing the overall health and evaluating long-term trends in receiving water quality.

Order No. R9-2002-0001 may be modified by the SDRWQCB Executive Officer without further public notice to direct the Copermittees to participate in comprehensive regional monitoring activities in the Southern California Bight in lieu of specific Order R9-2002-0001 receiving waters monitoring requirements during the term of this Order.

B.2 Receiving Waters Monitoring Program Document

Within **180** days of the adoption of this Order the Copermittees shall submit to the SDRWQCB a Receiving Waters Monitoring Program document, subject to SDRWQCB review, that incorporates the following components:

- a. Previous Monitoring and Future Recommendations Technical Report; and
- b. Receiving Waters Monitoring Program

B.2.a. Previous Monitoring and Future Recommendations Technical Report

The Copermittees shall collaborate to prepare a technical report that provides analysis, interpretation, and summary of all previous wet weather monitoring results from programs conducted in the watersheds within the San Diego Region under the First Term Permit, the Second Term Permit, and the Orange County Water Quality Monitoring Program (99-04 Plan) currently being implemented by the Copermittees. The report shall also provide recommendations for the Receiving Waters Monitoring Program to comply with the objectives listed in Attachment B.1 above and incorporates the specific receiving waters monitoring requirements of Attachment B.2.b. At a minimum, the report shall:

- (1) Summarize the cumulative findings of all previous wet weather monitoring;
- (2) Identify detectable trends in water quality data and receiving water quality, based on the cumulative previous wet weather monitoring findings;
- (3) Interpret the cumulative previous wet weather monitoring findings;
- (4) Describe the monitoring design, sampling and analytical methods employed in the 99-04 Plan within the San Diego Region;
- (5) Describe the identification of Critical Aquatic Resources and Warm Spots in the 99-04 Plan within the San Diego Region and how these will be addressed in the Receiving Waters Monitoring Program;
- (6) Draw conclusions regarding the cumulative previous wet weather monitoring findings;

- (7) Describe how the monitoring data collected under the previous monitoring programs, including the 99-04 Plan, have been utilized by the Copermittees in the implementation of the 1993 DAMP under Order No. 96-03;
- (8) Describe how the monitoring data collected under this Order will be utilized in the implementation of the Jurisdictional and Watershed Urban Runoff Management Plans;
- (9) Provide recommendations for future monitoring activities in the San Diego Region (i.e. number and location of sampling stations, frequency of sampling, parameters to be analyzed, methods and materials to be used, and a rationale for each) that achieves the objectives listed in section B.1 and incorporates the specific program requirements of section B.2.b of this Attachment; and
- (10) Include an executive summary, introduction, conclusion, and summary of recommendations.

B.2.b. Receiving Waters Monitoring Program

The Copermittees shall collaborate to review and revise the existing 99-04 Plan utilizing the findings of the Previous Monitoring and Future Recommendations Technical Report. The revised 99-04 Plan shall incorporate the specific requirements of this section for Orange County within the San Diego Region and henceforth referred to under this Order as the Receiving Waters Monitoring Program. The Receiving Waters Monitoring Program shall at a minimum include, satisfy, or exceed the following requirements:

- (1) The Receiving Waters Monitoring shall be conducted during each reporting period under the Order. A reporting period is defined as October 1st to September 30th of any year. The first reporting period under this Order is October 1, 2002 to September 30, 2003.
- (2) Both the annual and long-term objectives of the Receiving Waters Monitoring Program shall be clearly stated and reported annually and shall focus on the primary objectives of the program listed in Attachment B.1.
- (3) The monitoring program design, implementation, analysis, assessment, and reporting shall be conducted annually on a watershed basis for each of the six hydrologic units in the San Juan Creek Watershed Management Area within Orange County (Orange County Coastal Streams – Laguna, Aliso Creek Watershed, Dana Point Watershed, San Juan Creek Watershed, Orange County Coastal Streams – San Clemente, and San Mateo Creek) as defined in the Water Quality Control Plan for the San Diego Region (9) and Watershed Management Chapter for the San Diego Region.
- (4) Monitoring results shall be assessed and reported annually on a watershed basis as a single report by the Copermittees consisting of one common section and six watershed sections. Monitoring, analysis, assessment, and reporting shall satisfy the requirements of specified below for each watershed as applicable.
- (5) Describe how the Copermittees may collaborate with other agencies or organizations conducting similar monitoring, such as the Southern California Coastal Water Research Project (SCCWRP), including the possibility of participating in coordinated comprehensive regional monitoring in the Southern California Bight under this Order.
- (6) The Receiving Waters Monitoring Program document shall be submitted to the SDRWQCB for review and comment no later than 180 days following the adoption of this Order.
- (7) Implementation of the Receiving Waters Monitoring Program shall begin no later than August 13, 2002.
- (8) The Receiving Waters Monitoring Program shall incorporate the components listed below and shall address the primary objectives of the Receiving Waters Monitoring Program:
 - (a) Urban Stream Bioassessment
 - (b) Long Term Mass Loading

- (c) Coastal Storm Drain Outfall Monitoring
- (d) Ambient Coastal Receiving Waters Monitoring

B.2.b.8.a Urban Stream Bioassessment Monitoring

1. The Copermittees shall collaborate to develop and implement an urban stream bioassessment monitoring program. At a minimum, the program shall consist of station identification, sampling, monitoring, and analysis of data for 12 bioassessment stations in order to determine the biological and physical integrity of urban streams within the County of Orange. In addition to the urban stream bioassessment stations, three reference bioassessment stations shall be identified, sampled, monitored, and analyzed. The selection, sampling, monitoring, and analysis of bioassessment stations shall meet the following requirements:
 - a. Each urban stream bioassessment station shall be selected using the following criteria. Each urban stream bioassessment station shall:
 - (1) be located within the jurisdiction of a Copermittee; or
 - (2) be located within one of the six watersheds described above; and
 - (3) be representative of urban stream conditions within one of the six watersheds specified in Section J, Table 4 of this Order; and
 - (4) meet the physical criteria of the California Stream Bioassessment Procedure¹; and
 - (5) to the extent feasible, coincide with the location of an already existing monitoring station used by the California Department of Fish and Game in the conduct of the SDRWQCB's Ambient Bioassessment Program.
 - b. Each bioassessment station shall be monitored twice annually, in May and October of each year, beginning in October 2002². A minimum of three replicate samples shall be collected at each station during each sampling event.
 - c. Sampling, laboratory, quality assurance, and analysis procedures shall follow the standardized procedures set forth in the California Department of Fish and Game's California Stream Bioassessment Procedure (CSBP). Analysis procedures shall include comparison between station mean values for various biological metrics. Sampling, laboratory, quality assurance, and analytical procedures shall follow the standardized "Non-Point Source Bioassessment Sampling Procedures" for professional bioassessment set forth in the CSBP. In the event that the CSBP "Point-Source Professional Bioassessment Procedure" is performed in place of the "Non Point Source Bioassessment Sampling Procedure," justification and documentation of the procedure shall be submitted with the report. Results of the Urban Stream Bioassessment Monitoring shall be reported annually as part of the overall Receiving Waters Monitoring and Reporting Program for Order No. R9-2002-0001. Reporting of the bioassessment data shall follow the format of the San Diego Regional Water Quality Control Board 1999 Biological Assessment Annual Report³. The report shall include:

¹ California Stream Bioassessment Procedure (Protocol Brief for Biological and Physical/Habitat Assessment in Wadeable Streams), California Department of Fish and Game – Aquatic Bioassessment Laboratory, May 1999.

² Bioassessment sampling shall be performed in May and October each year.

³ San Diego Regional Water Quality Control Board, 1999 Biological Assessment Annual Report. A Water Quality Inventory Series: Biological and Physical/Habitat Assessment of California Water Bodies. California Department of Fish and Game Office of Spill Prevention and Response, Water Pollution Control Laboratory. December 1999.

- (1) All physical, chemical and biological data collected in the assessment;
 - (2) Photographic documentation of assessment and reference stations;
 - (3) Documentation of quality assurance and control procedures;
 - (4) Analysis that includes calculation of the metrics used in both the CSBP and the 1999 Annual Report.
 - (5) The assessment shall utilize a regional index of biological integrity when it becomes available.
 - (6) The report shall provide interpretation for comparisons of mean biological and habitat assessment metric values between assessment and reference stations.
 - (7) Electronic data formatted to California Department of Fish and Game Aquatic Bioassessment Laboratory specifications for inclusion in the Statewide Access Bioassessment database.
- d. A professional environmental laboratory or Copermittee staff shall perform all sampling, laboratory, quality assurance, and analytical procedures. While valuable, data collected by volunteer monitoring organizations shall not be submitted in place of professional assessments.
- e. Reference stations shall be selected following the recommendations in the 1999 Annual Report, Hughes (1995)⁴ and Barbour et. al. (1999)⁵. Reference stations shall be evaluated annually by the Copermittees for suitability and the results included in the annual report. New reference stations will be selected as needed by the Copermittees.
2. The Copermittees shall design and implement a program to conduct standardized toxicity testing at urban stream bioassessment stations where the bioassessment data indicates significant impairment. When findings indicate the presence of toxicity, a Toxicity Identification Evaluation (TIE) shall be conducted to determine the cause(s) of the toxicity.

B.2.b.8.b Long Term Mass Loading

For purposes of evaluating long-term trends and assessing the effectiveness of urban runoff management programs, the Copermittees shall continue to implement the mass loading monitoring conducted under the 99-04 Plan in Orange County within the San Diego Region. The mass loading monitoring component shall, however, be revised as necessary to ensure adequate coverage of the San Diego Region and to specify that when findings or observations indicate the possible presence of toxicity, a Toxicity Identification Evaluation (TIE) shall be conducted to determine the cause(s) of the toxicity.

B.2.b.8.c. Coastal Storm Drain Outfall Monitoring

The Copermittees shall collaborate to develop and implement a monitoring program for discharges of urban runoff from coastal storm drain outfalls. The program shall meet the following requirements:

4 Hughes, R. M. (1995) Defining Acceptable Biological Status by Comparing with Reference Conditions in Biological Assessment and Criteria: Tools for Water Resource Planning and Decision Making, Wayne S. Davis and Thomas P. Simon eds. Lewis Publishers, Boca Raton, LA.

5 Barbour, M.T. , J Gerritsen, B.D. Synder, and J.B. Stribling (1999) Rapid Bioassessment Protocols For Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates, and Fish. Second Edition. EPA 841-B-99-002.

1. The program shall include rationale and criteria for selection of storm drain outfalls to be monitored.
2. The program shall include collection of samples for analysis of total coliform, fecal coliform, and enterococci, in addition to any other indicators or pathogens identified by the Copermitees.
3. Samples shall be collected at both the storm drain outfall and in the surf zone (at ankle to knee water depths) directly in front of the outfall.
4. Samples shall be collected during both dry and wet weather periods.
5. Exceedances of public health standards for bacteria must be reported to the County of Orange Health Care Agency, Regulatory Health Services, Environmental Health, Ocean Recreation Protection Program as soon as possible by the Copermitees.

B.2.b.8.d. Ambient Coastal Receiving Water Monitoring

The Copermitees shall collaborate to develop and implement a program to assess the overall health of the coastal receiving waters and monitor the impact of urban runoff on ambient receiving water quality. This monitoring shall include Dana Cove, the creek and stream mouths, the Pacific Ocean coastline of Orange County within the San Diego region, and all Clean Water Act section 303(d) water bodies or other environmentally sensitive areas as defined in F.1.b.(2)(a)vi of this Order.

B.3 Implementation of the Receiving Waters Monitoring Program

Upon approval by the SDRWQCB the Copermitees shall implement the Receiving Waters Monitoring Program.

B.4 Interim Implementation of the 99-04 Plan

Until approval of the Receiving Waters Monitoring Program by the SDRWQCB, the Copermitees shall continue to implement the 99-04 Plan as described in Appendix K of the proposed DAMP.

B.5 Submittal of Receiving Waters Monitoring Annual Reports

The Principal Permittee shall submit the Receiving Waters Monitoring Annual Report to the SDRWQCB prior to November 9th of each year, beginning on November 9, 2003.

B.6 Monitoring Annual Report Requirements

- a. Monitoring reports shall provide the data/results, methods of evaluating the data, graphical summaries of the data, and an explanation/discussion of the data for each monitoring program component listed above.
- b. Monitoring reports shall include an analysis of the findings of each monitoring program component listed above. The analysis shall identify and prioritize water quality problems. Based on the identification and prioritization of water quality problems, the analysis shall identify potential sources of the problems, and recommend future monitoring and BMP implementation measures for identifying and addressing the sources. The analysis shall also include an evaluation of the effectiveness of existing control measures.

- c. Monitoring reports shall include identification and analysis of any long-term trends in storm water or receiving water quality.
- d. Monitoring reports shall provide an estimation of total pollutant loads (wet weather loads plus dry weather loads) due to urban runoff for each of the watersheds specified in Section J, Table 4 of Order No. R9-2002-0001.
- e. Monitoring reports shall for each monitoring program component listed above, include an assessment of compliance with applicable water quality standards.
- f. All monitoring reports shall use a standard report format and shall include the following:
 - 1. A stand alone comprehensive executive summary addressing all sections of the monitoring report;
 - 2. Comprehensive interpretations and conclusions; and
 - 3. Recommendations for future actions.
- g. All monitoring reports submitted to the Principal Permittee or the SDRWQCB shall contain the certified perjury statement described in Standard Reporting Requirements in Attachment C section B.9.d.
- h. A committee (consisting of no less than three members) shall review all monitoring reports prior to submittal to the SDRWQCB. All review comments shall also be submitted to the SDRWQCB.
- i. All monitoring reports shall be submitted in both electronic and paper formats.
- j. All monitoring reports shall describe monitoring station locations by latitude and longitude coordinates, frequency of sampling, quality assurance/quality control procedures and sampling and analysis protocols.
- k. Monitoring programs and reports shall comply with Section B.7 of Attachment B, as well as Attachment C.

B.7 Standard Monitoring Requirements

- a. All monitoring activities shall meet the following requirements:

- 1. Monitoring and Records [40 CFR 122.41(j)(1)]

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

- 2. Monitoring and Records [40 CFR 122.41(j)(2)] [California Water Code § 13383(a)]

The discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by request of the SDRWQCB at any time.

3. Monitoring and Records [40 CFR 122.21(j)(3)]

Records of monitoring information shall include the information requested in Attachment B and the following:

- a. The date, exact place, and time of sampling or measurements;
- b. The individual(s) who performed the sampling or measurements;
- c. The date(s) analyses were performed;
- d. The individual(s) who performed the analyses;
- e. The analytical techniques or methods used; and
- f. The results of such analyses.

4. Monitoring and Records [40 CFR 122.21(j)(4)]

Monitoring results must be conducted according to test procedures approved under 40 CFR part 136 unless other test procedures have been specified in this Order.

5. Monitoring and Records [40 CFR 122.21(j)(5)]

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Order shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than four years, or both.

6. Monitoring and Records [40 CFR 122.41(k)(2)]

The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both.

7. Monitoring Reports [40 CFR 122.41(l)(4)]

Monitoring results shall be reported at the intervals specified elsewhere in this Order.

8. Monitoring Reports [40 CFR 122.41(l)(4)(ii)]

If the discharger monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR part 136, unless otherwise specified in the Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the reports requested by the SDRWQCB.

9. Monitoring Reports [40 CFR 122.41(l)(4)(iii)]

Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the SDRWQCB in the Order.

ATTACHMENT C
STANDARD PROVISIONS
REPORTING REQUIREMENTS, AND
NOTIFICATIONS

A. STANDARD PROVISIONS

1. Duty To Comply [40 CFR 122.41(a)(1)]
The discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if this Order has not yet been modified to incorporate the requirement.
2. Need to Halt or Reduce Activity Not a Defense [40 CFR 122.41(c)]
It shall not be a defense for the discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. Upon reduction, loss, or failure of a treatment facility, the discharger shall, to the extent necessary to maintain compliance with this Order, control production or all discharges, or both, until the facility is restored or an alternative method of treatment is provided. This provision applies, for example, when the primary source of power of a treatment facility fails, is reduced, or is lost.
3. Duty to Mitigate [40 CFR 122.41(d)]
The discharger shall take all reasonable steps to minimize or prevent any discharge or prevent any discharge or sludge use or disposal in violation of this Order which has a reasonable likelihood of adversely affecting human health or the environment.
4. Proper Operation and Maintenance [40 CFR 122.41(e)]
The discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the discharger only when the operation is necessary to achieve compliance with the conditions of this Order.
5. Permit Actions [40 CFR 122.41(f)] [California Water Code § 13381]
This Order may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:
 - a. Violation of any terms or conditions of this Order;
 - b. Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts;
 - c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
 - d. A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination.

The filing of a request by the discharger for modification, revocation and reissuance, or termination of this Order, or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

6. Property Rights [40 CFR 122.41(g)] [California Water Code §13263(g)]
This Order does not convey any property rights of any sort or any exclusive privilege. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the discharger from liabilities under federal, state, or local laws, nor create a vested right for the discharger to continue the waste discharge.
7. Inspection and Entry [40 CFR 122.41(i)] [California Water Code § 13267(c)]
The discharger shall allow the SDRWQCB, or an authorized SDRWQCB representative, or an authorized representative of the USEPA (including an authorized contractor acting as a representative of the SDRWQCB or USEPA), upon presentation of credentials and other documents as may be required by law, to:
 - a. Enter upon the discharger's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
 - d. Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order or as otherwise authorized by the Clean Water Act or California Water Code, any substances or parameters at any location.
8. Bypass of Treatment Facilities [40 CFR 122.41(m)]
 - a. Definitions
 - (1) "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
 - (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
 - b. Bypass not Exceeding Limitations

The discharger may allow any bypass to occur which does not cause effluent limitations of this Order or the concentrations of pollutants set forth in Ocean Plan Table A or Table B to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs c. and d. of this provision.
 - c. Notice
 - (1) Anticipated bypass. If the discharger knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least ten days before the date of the bypass.
 - (2) Unanticipated bypass. The discharger shall submit notice of an unanticipated bypass as required in section B.7 of Attachment C.

d. Prohibition of Bypass

Bypass is prohibited, and the SDRWQCB may take enforcement action against the discharger for bypass, unless:

- (1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
- (3) The discharger submitted notices as required under paragraph c. of this section. The SDRWQCB may approve an anticipated bypass, after considering its adverse effects, if the SDRWQCB determines that it will meet the three conditions listed above in paragraph d.(1) of this section.

9. Upset [40 CFR 122.41(n)]

- a. Definition "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based effluent limitations because of factors beyond the reasonable control of the discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- b. Effect of an Upset An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph c. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
- c. Conditions Necessary for a Demonstration of Upset A discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - (1) An upset occurred and that the discharger can identify the cause(s) of the upset;
 - (2) The permitted facility was at the time being properly operated;
 - (3) The discharger submitted notice of the upset as required in section B.7 of Attachment C of this Order; and
 - (4) The discharger complied with any remedial measures required under Provision A.5. of Attachment C of this Order.
- d. Burden of Proof In any enforcement proceeding the discharger seeking to establish the occurrence of an upset has the burden of proof.

10. Other Effluent Limitations and Standards [40 CFR 122.44(b)(1)]

If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this Order, the SDRWQCB may institute proceedings under these regulations to modify or revoke and reissue the Order to conform to the toxic effluent standard or prohibition.

11. The discharger shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Order, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncomplying discharge.
12. The provisions of this Order are severable, and if any provision of this Order, or the application of any provision of this Order to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this Order, shall not be affected thereby.
13. The discharger shall comply with any interim effluent limitations as established by addendum, enforcement action, or revised waste discharge requirements which have been, or may be, adopted by this SDRWQCB.

B. REPORTING REQUIREMENTS

1. Duty to Reapply [40 CFR 122.41(b)] This Order expires on **February 13, 2007**. If the discharger wishes to continue any activity regulated by this Order after the expiration date of this Order, the discharger must apply for and obtain new waste discharge requirements. The discharger must file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations not later than **180 days** in advance of the expiration date of this Order as application for issuance of new waste discharge requirements.
2. Duty to Provide Information [40 CFR 122.41(h)] The discharger shall furnish to the SDRWQCB, SWRCB, or USEPA, within a reasonable time, any information which the SDRWQCB, SWRCB, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order, or to determine compliance with this Order. The discharger shall also furnish to the SDRWQCB, SWRCB, or USEPA, upon request, copies of records required to be kept by this Order.
3. Planned Changes [40 CFR 122.41(l)(1)] The discharger shall give notice to the SDRWQCB as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:
 - a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR Part 122.29(b);
 - b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in this Order, nor to notification requirements under 40 CFR 122.42(a)(l); or
 - c. The alteration or addition results in a significant change in the discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of conditions in this Order that are different from or absent in the existing Order, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.
4. Anticipated Non-Compliance [40 CFR 122.41(l)(2)] The discharger shall give advance notice to the SDRWQCB of any planned changes in the permitted facility or activity which may result in noncompliance with the requirements of this Order.

5. Transfers [40 CFR 122.41(l)(3)] This Order is not transferable to any person except after notice to the SDRWQCB. The SDRWQCB may require modification or revocation and reissuance of this Order to change the name of the discharger and incorporate such other requirements as may be necessary under the Clean Water Act or the California Water Code in accordance with the following:
 - a. Transfers by Modification [40 CFR 122.61(a)]

Except as provided in paragraph b. of this reporting requirement, this Order may be transferred by the discharger to a new owner or operator only if this Order has been modified or revoked and reissued, or a minor modification made to identify the new discharger and incorporate such other requirements as may be necessary under the Clean Water Act or California Water Code.
 - b. Automatic Transfers [40 CFR 122.61(b)]

As an alternative to transfers under paragraph a. of this reporting requirement, any NPDES permit may be automatically transferred to a new discharger if:

 - (1) The current discharger notifies the SDRWQCB at least 30 days in advance of the proposed transfer date in paragraph b.(2) of this reporting requirement;
 - (2) The notice includes a written agreement between the existing and new dischargers containing a specific date for transfer of permit responsibility, coverage, and liability between them; and
 - (3) The SDRWQCB does not notify the existing discharger and the proposed new discharger of his or her intent to modify or revoke and reissue the Order. A modification under this subparagraph may also be a minor modification under 40 CFR Part 122.63. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph b.(2) of this reporting requirement.
6. Twenty-four Hour Reporting [40 CFR 122.41(l)(6)]

Each Copermittee shall develop and submit criteria by which to evaluate events of non-compliance to determine whether they pose a threat to human or environmental health. These criteria shall be submitted in the Jurisdictional Urban Runoff Management Program Document and Annual Reports for SDRWQCB review. Using these criteria the discharger shall report any noncompliance with this Order or any noncompliance that may endanger human health or environmental health. Any information shall be provided orally to the SDRWQCB within **24 hours** from the time the discharger becomes aware of the circumstances. A written description of any noncompliance shall be submitted to the SDRWQCB within **five days** of such an occurrence and contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The following shall be included as information which must be reported within 24 hours under this reporting requirement:

 - a. Any unanticipated bypass which exceeds any effluent limitation in this Order;
 - b. Any discharge of treated or untreated wastewater, including reclaimed or recycled wastewater, resulting from pipeline breaks, obstruction, surcharge or any other circumstance;
 - c. Any discharge or spill of raw or potable water not authorized by this order or resulting from pipeline breaks, obstruction, surcharge or any other circumstance;

- d. Any upset which exceeds any effluent limitation in this Order;
 - e. Any spill or discharge of non-storm water not authorized by this Order. Non-storm water discharges not prohibited by the Copermittees pursuant to Section B of this Order need not be reported under this section; and
 - f. Any violation of this Order.
7. Other Non-Compliance [40 CFR 122.41(l)(7)]
The discharger shall report all instances of noncompliance not reported elsewhere under other sections of this Order at the time annual reports are submitted. The reports shall contain the information listed in part B.6 of Attachment C of this Order.
8. Other Information [40 CFR 122.41(l)(8)]
Where the discharger becomes aware that it failed to submit any relevant facts in a Report of Waste Discharge, or submitted incorrect information in a Report of Waste Discharge, or in any report to the SDRWQCB, it shall promptly submit such facts or information.
9. Signatory Requirements [40 CFR 122.41(k)(1) and 40 CFR 122.22]
All applications, reports, or information submitted to the SDRWQCB shall be signed and certified.
- a. All Reports of Waste Discharge shall be signed as follows:
 - (1) For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (a) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation; or (b) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
 - (2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
 - (3) For a municipality, State, Federal or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes: (a) the chief executive officer of the agency; or (b) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA).
 - b. All reports required by this Order, and other information requested by the SDRWQCB shall be signed by a person described in paragraph a. of this reporting requirement, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - (1) The authorization is made in writing by a person described in paragraph a. of this reporting requirement;
 - (2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of

plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and,

(3) The written authorization is submitted to the SDRWQCB.

- c. If an authorization under paragraph b. of this reporting requirement is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph b. of this reporting requirement must be submitted to the SDRWQCB prior to or together with any reports, information, or applications to be signed by an authorized representative.
- d. Any person signing a document under paragraph a. or b. of this reporting requirement shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

- 10. Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this Order shall be available for public inspection at the offices of the SDRWQCB. As required by the Clean Water Act, Reports of Waste Discharge, this Order, and effluent data shall not be considered confidential.
- 11. The discharger shall submit reports and provide notifications as required by this Order to the following:

DAVE GIBSON
NORTHERN WATERSHED PROTECTION UNIT
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
9174 SKY PARK COURT, SUITE 100
SAN DIEGO CA 92123-4340
Telephone: (858) 467-4387 Fax: (858) 571-6972

EUGENE BROMLEY
US ENVIRONMENTAL PROTECTION AGENCY
REGION IX
PERMITS ISSUANCE SECTION (W-5-1)
75 HAWTHORNE STREET
SAN FRANCISCO CA 94105

- 12. Unless otherwise directed, the discharger shall submit three copies of each report required under this Order to the SDRWQCB and one copy to USEPA.

C. NOTIFICATIONS

1. California Water Code Section 13263(g)
No discharge of waste into the waters of the state, whether or not such discharge is made pursuant to waste discharge requirements, shall create a vested right to continue such discharge. All discharges of waste into waters of the state are privileges, not rights.
2. The SDRWQCB has, in prior years, issued a limited number of individual NPDES permits for non-storm water discharges to municipal storm water conveyance systems. The SDRWQCB or SWRCB may in the future, upon prior notice to the Copermitee(s), issue an NPDES permit for any non-storm water discharge (or class of non-storm water discharges) to a municipal storm water conveyance system. Copermitees may prohibit any non-storm water discharge (or class of non-storm water discharges) to a municipal storm water conveyance system that is authorized under such separate NPDES permits.
3. Enforcement Provisions [40 CFR 122.41(a)(2)] [California Water Code §§ 13385 and 13387]
The Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any condition or limitation of this Order, is subject to a civil penalty not to exceed \$25,000 per day for each violation. The Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation of this Order, is subject to criminal penalties of \$2,500 to \$25,000 per day of violation, or imprisonment of not more than one year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation, or by imprisonment of not more than two years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than three years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than six years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any condition or limitation of this Order, and who knows at that time that he or she thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than \$250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the Clean Water Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can be fined up to \$2,000,000 for second or subsequent convictions.
4. Except as provided in Standard Provisions A.10. and A.11. in Attachment C of this Order, nothing in this Order shall be construed to relieve the discharger from civil or criminal penalties for noncompliance.
5. Nothing in this Order shall be construed to preclude the institution of any legal action or relieve the discharger from any responsibilities, liabilities, or penalties to which the discharger is or may be subject to under Section 311 of the Clean Water Act.
6. Nothing in this Order shall be construed to preclude institution of any legal action or relieve the discharger from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Clean Water Act.

7. This Order shall become effective on **February 13, 2002**, provided the USEPA Regional Administrator has no objection. If the Regional Administrator objects to its issuance, this Order shall not become effective until such objection is withdrawn.
8. This Order supersedes Order No. 96-03 upon the effective date of this Order.

ATTACHMENT D

GLOSSARY

Beneficial Uses - The uses of water necessary for the survival or well being of man, plants, and wildlife. These uses of water serve to promote the tangible and intangible economic, social, and environmental goals "Beneficial Uses" of the waters of the State that may be protected against include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. Existing beneficial uses are uses that were attained in the surface or ground water on or after November 28, 1975; and potential beneficial uses are uses that would probably develop in future years through the implementation of various control measures. "Beneficial Uses" are equivalent to "Designated Uses" under federal law. [California Water Code Section 13050(f)].

Best Available Technology (BAT) – BAT is the acronym for best available technology economically achievable. BAT is the technology-based standard established by congress in CWA section 402(p)(3)(A) for industrial dischargers of storm water. Technology-based standards establish the level of pollutant reductions that dischargers must achieve, typically by treatment or by a combination of treatment and best management practices, or BMPs. For example, secondary treatment (or the removal of 85% suspended solids and BOD) is the BAT for suspended solid and BOD removal from a sewage treatment plant. BAT generally emphasizes treatment methods first and pollution prevention and source control BMPs secondarily.

The best economically achievable technology that will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants, as determined in accordance with regulations issued by the Environmental Protection Agency Administrator. Factors relating to the assessment of best available technology shall take into account the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the permitting authority deems appropriate.

Best Conventional Technology (BCT) – BCT is an acronym for Best Conventional Technology. BCT is the treatment techniques, processes and procedure innovations, operating methods that eliminate amounts of chemical, physical, and biological characteristics of pollutant constituents to the degree of reduction attainable through the application of the best management practices to the maximum extent practicable.

Best Management Practices - Best Management Practices (BMPs) are defined in 40 CFR 122.2 as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. In the case of municipal storm water permits, BMPs are typically used in place of numeric effluent limits.

Bioaccumulate - The progressive accumulation of contaminants in the tissues of organisms through any route including respiration, ingestion, or direct contact with contaminated water, sediment, pore water, or dredged material to a higher concentration than in the surrounding environment. Bioaccumulation occurs with exposure and is independent of the trophic level.

Bioassessment - The use of biological community information to evaluate the biological integrity of a water body and its watershed. With respect to aquatic ecosystems, bioassessment is the collection and analysis of samples of the benthic macroinvertebrate community together with physical/habitat quality measurements associated with the sampling site and the watershed to evaluate the biological condition (i.e. biological integrity) of a water body.

Bioconcentration – A process by which there is a net accumulation of a chemical directly from water into aquatic organisms resulting from simultaneous uptake and elimination by gill or epithelial tissue. Bioconcentration differs from bioaccumulation in that bioaccumulation refers to the progressive concentration of contaminants in the tissues of organisms through multiple pathways.

Biocriteria - Under the Clean Water Act, numerical values or narrative expressions that define a desired biological condition for a water body that are legally enforceable. The U.S. EPA defines biocriteria as: “numerical values or narrative expressions that describe the reference biological integrity of aquatic communities inhabiting waters of a given designated aquatic life use...(that)...describe the characteristics of water body segments least impaired by human activities.”

Biological Integrity - Defined in Karr J.R. and D.R. Dudley. 1981. Ecological perspective on water quality goals. Environmental Management 5:55-68 as: “A balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of natural habitat of the region.” Also referred to as ecosystem health.

Biomagnification – The transfer and progressive increase in tissue concentrations of a contaminant along the food chain. Because some pollutants can be transferred to higher trophic levels, carnivores at the top of the food chain, such as predatory fish, birds, and mammals (including humans), obtain most of their pollution burden from aquatic ecosystems by ingestion. Thus, although such pollutants may only be present in receiving waters in low concentrations, they can have a significant impact to the integrity of the ecosystem through biomagnification.

Clean Water Act Section 402(p) - [33 USC 1342(p)] is the federal statute requiring municipal and industrial dischargers to obtain NPDES permits for their discharges of storm water.

Clean Water Act Section 303(d) Water Body - is an impaired water body in which water quality does not meet applicable water quality standards and/or is not expected to meet water quality standards, even after the application of technology based pollution controls required by the CWA. The discharge of urban runoff to these water bodies by the Copermittees is significant because these discharges can cause or contribute to violations of applicable water quality standards.

Contamination - As defined in the Porter-Cologne Water Quality Control Act, contamination is “an impairment of the quality of waters of the state by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease. ‘Contamination’ includes any equivalent effect resulting from the disposal of waste whether or not waters of the state are affected.”

Designated Waste - Designated waste is defined as a “nonhazardous waste which consists of pollutants which, under ambient environmental conditions at the waste management unit, could be released at concentrations in excess of applicable water quality objectives, or which could cause degradation of waters of the state.” [CCR Title 27, Chapter 3, Subchapter 2, Article 2, Section 20210; WC Section 13173]

Effluent Limitations - Limitations on the volume of each waste discharge, and the quantity and concentrations of pollutants in the discharge. The limitations are designed to ensure that the

discharge does not cause water quality objectives to be exceeded in the receiving water and does not adversely affect beneficial uses.

Effluent limitations are limitations of the quantity and concentrations of pollutants in a discharge. The limitations are designed to ensure that the discharge does not cause water quality objectives to be exceeded in the receiving water and does not adversely affect beneficial uses. In other words, an effluent limit is the maximum concentration of a pollutant that a discharge can contain. To meet effluent limitations, the effluent typically must undergo one or more forms of treatment to remove pollutants in order to lower the pollutant concentration below the limit. Effluent limits are typically numeric (e.g., 10 mg/l), but can also be narrative (e.g., no toxics in toxic amounts).

Erosion – When land is diminished or worn away due to wind, water, or glacial ice. Often the eroded debris (silt or sediment) becomes a pollutant via storm water runoff. Erosion occurs naturally but can be intensified by land clearing activities such as farming, development, road building, and timber harvesting.

Grading - The cutting and/or filling of the land surface to a desired slope or elevation.

Hazardous Waste - Hazardous waste is defined as “any waste which, under Section 600 of Title 22 of this code, is required to be managed according to Chapter 30 of Division 4.5 of Title 22 of this code.” [CCR Title 22, Division 4.5, Chapter 11, Article 1]

Illicit Discharge - Any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.

Inert Waste - Inert waste is defined as one that “does not contain hazardous waste or soluble pollutants at concentrations in excess of applicable water quality objectives, and does not contain significant quantities of decomposable waste.” [CCR Title 27, Chapter 3, Subchapter 2, Article 2, Section 20230]

MEP – MEP is the acronym for Maximum Extent Practicable. MEP is the technology-based standard established by Congress in CWA section 402(p)(3)(B)(iii) that municipal dischargers of storm water (MS4s) must meet. Technology-based standards establish the level of pollutant reductions that dischargers must achieve, typically by treatment or by a combination of treatment and best management practices (BMPs). MEP generally emphasizes pollution prevention and source control BMPs primarily (as the first line of defense) in combination with treatment methods serving as a backup (additional line of defense). MEP considers economics and is generally, but not necessarily, less stringent than BAT. A definition for MEP is not provided either in the statute or in the regulations. Instead the definition of MEP is dynamic and will be defined by the following process over time: municipalities propose their definition of MEP by way of their Urban Runoff Management Plan. Their total collective and individual activities conducted pursuant to the Urban Runoff Management Plan becomes their proposal for MEP as it applies both to their overall effort, as well as to specific activities (e.g., MEP for street sweeping, or MEP for municipal separate storm sewer system maintenance). In the absence of a proposal acceptable to the SDRWQCB, the SDRWQCB defines MEP.

In a memo dated February 11, 1993, entitled "Definition of Maximum Extent Practicable," Elizabeth Jennings, Senior Staff Counsel, SWRCB addressed the achievement of the MEP standard as follows:

“To achieve the MEP standard, municipalities must employ whatever Best Management Practices (BMPs) are technically feasible (i.e., are likely to be effective) and are not cost

prohibitive. The major emphasis is on technical feasibility. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the cost would be prohibitive. In selecting BMPs to achieve the MEP standard, the following factors may be useful to consider:

- a. *Effectiveness: Will the BMPs address a pollutant (or pollutant source) of concern?*
- b. *Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?*
- c. *Public Acceptance: Does the BMP have public support?*
- d. *Cost: Will the cost of implementing the BMP have a reasonable relationship to the pollution control benefits to be achieved?*
- e. *Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc?*

The final determination regarding whether a municipality has reduced pollutants to the maximum extent practicable can only be made by the Regional or State Water Boards, and not by the municipal discharger. If a municipality reviews a lengthy menu of BMPs and chooses to select only a few of the least expensive, it is likely that MEP has not been met. On the other hand, if a municipal discharger employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost would exceed any benefit derived, it would have met the standard. Where a choice may be made between two BMPs that should provide generally comparable effectiveness, the discharger may choose the least expensive alternative and exclude the more expensive BMP. However, it would not be acceptable either to reject all BMPs that would address a pollutant source, or to pick a BMP base solely on cost, which would be clearly less effective. In selecting BMPs the municipality must make a serious attempt to comply and practical solutions may not be lightly rejected. In any case, the burden would be on the municipal discharger to show compliance with its permit. After selecting a menu of BMPs, it is the responsibility of the discharger to ensure that all BMPs are implemented.”

Municipal Storm Water Conveyance System – (See Municipal Separate Storm Sewer System or MS4).

Municipal Separate Storm Sewer System (MS4) – MS4 is an acronym for Municipal Separate Storm Sewer System. A Municipal Separate Storm Sewer System is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, natural drainage features or channels, modified natural channels, man-made channels, or storm drains): (i) Owned or operated by a State, city town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) Designated or used for collecting or conveying storm water; (iii) Which is not a combined sewer; (iv) Which is not part of the Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

Historic and current development make use of natural drainage patterns and features as conveyances for urban runoff. Urban streams used in this manner are part of the municipalities MS4 regardless of whether they are natural, man-made, or partially modified features. In these cases, the urban stream is both an MS4 and a receiving water.

National Pollution Discharge Elimination System (NPDES) - These permits pertain to the discharge of waste to surface waters only. All State and Federal NPDES permits are also WDRs.

Non-hazardous Solid Waste - Non-hazardous solid waste means all putrescible and nonputrescible solid, semi-solid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semi-solid wastes and other discarded solid or semi-solid waste; provided that such wastes do not contain wastes which must be managed as hazardous wastes, or wastes which contain soluble pollutants in concentration which exceed applicable water quality objectives or could cause degradation of waters of the state." [CCR Title 27, Chapter 3, Subchapter 2, Article 2, Section 20220]

Non Point Source (NPS) – Non point source refers to diffuse, widespread sources of pollution. These sources may be large or small, but are generally numerous throughout a watershed. Non Point Sources include but are not limited to urban, agricultural, or industrial areas, roads, highways, construction sites, communities served by septic systems, recreational boating activities, timber harvesting, mining, livestock grazing, as well as physical changes to stream channels, and habitat degradation. NPS pollution can occur year round any time rainfall, snowmelt, irrigation, or any other source of water runs over land or through the ground, picks up pollutants from these numerous, diffuse sources and deposits them into rivers, lakes, and coastal waters or introduces them into ground water.

Non-Storm Water - Non-storm water consists of all discharges to and from a storm water conveyance system that do not originate from precipitation events (i.e., all discharges from a conveyance system other than storm water). Non-storm water includes illicit discharges, non-prohibited discharges, and NPDES permitted discharges. An illicit discharge is defined at 40 CFR 122.26(b)(2) as any discharge to a municipal storm water conveyance system that is not composed entirely of storm water except discharges pursuant to a separate NPDES permit and discharges resulting from emergency fire fighting activities.

Nuisance - As defined in the Porter-Cologne Water Quality Control Act a nuisance is "anything which meets all of the following requirements: 1) Is injurious to health, or is indecent, or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. 2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. 3) Occurs during, or as a result of, the treatment or disposal of wastes."

Numeric effluent limitations - The typical method by which effluent limits are prescribed for pollutants in waste discharge requirements implementing the federal NPDES regulations. When numeric effluent limits are met at the "end-of-pipe", the effluent discharge generally will not cause water quality standards to be exceeded in the receiving waters (i.e., water quality standards will also be met).

Person - A person is defined as an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof. [40 CFR 122.2].

Point Source - Any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operations, landfill leachate collection systems, vessel, or other floating craft from which pollutants are or may be discharged.

Pollution - As defined in the Porter-Cologne Water Quality Control Act, pollution is “the alteration of the quality of the waters of the State by waste, to a degree that unreasonably affects the either of the following: A) The waters for beneficial uses; or 2) Facilities that serve these beneficial uses.” Pollution may include contamination.

Pollutant - A pollutant is broadly defined as any agent that may cause or contribute to the degradation of water quality such that a condition of pollution or contamination is created or aggravated.

Pollution Prevention - Pollution prevention is defined as practices and processes that reduce or eliminate the generation of pollutants, in contrast to source control, treatment, or disposal.

Post-Construction BMPs - A subset of BMPs including structural and non-structural controls which detain, retain, filter, or educate to prevent the release of pollutants to surface waters during the final functional life of development.

Pre-Development Runoff Conditions - The runoff conditions that exist onsite immediately before the planned development activities occur. This definition is not intended to be interpreted as that period before any human-induced land activities occurred. This definition pertains to redevelopment as well as initial development.

Receiving Water Limitations - Waste discharge requirements issued by the SDRWQCB typically include both: (1) “Effluent Limitations” (or “Discharge Limitations”) that specify the technology-based or water-quality-based effluent limitations; and (2) “Receiving Water Limitations” that specify the water quality objectives in the Basin Plan as well as any other limitations necessary to attain those objectives. In summary, the “Receiving Water Limitations” provision is the provision used to implement the requirement of CWA section 301(b)(1)(C) that NPDES permits must include any more stringent limitations necessary to meet water quality standards.

Sediment - Soil, sand, and minerals washed from land into water. Sediment resulting from anthropogenic sources (i.e. human induced land disturbance activities) is considered a pollutant. This Order regulates only the discharges of sediment from anthropogenic sources and does not regulate naturally occurring sources of sediment. Sediment can destroy fish-nesting areas, clog animal habitats, and cloud waters so that sunlight does not reach aquatic plants.

Storm Water - “Storm water” is as defined urban runoff and snowmelt runoff consisting only of those discharges which originate from precipitation events. Storm water is that portion of precipitation that flows across a surface to the storm drain system or receiving waters. Examples of this phenomenon include: the water that flows off a building’s roof when it rains (runoff from an impervious surface); the water that flows into streams when snow on the ground begins to melt (runoff from a semi-pervious surface); and the water that flows from a vegetated surface when rainfall is in excess of the rate at which it can infiltrate into the underlying soil (runoff from a pervious surface). When all factors are equal, runoff increases as the perviousness of a surface decreases. During precipitation events in urban areas, rain water picks up and transports pollutants through storm water conveyance systems, and ultimately to waters of the United States.

Toxicity - Adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). The water quality objectives for toxicity provided in the Water Quality Control Plan, San Diego Basin, Region 9, (Basin Plan), state in part...*“All waters shall be free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life....The survival of aquatic life in surface waters subjected to a waste*

discharge or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge”.... Urban runoff discharges from MS4s are considered toxic when (1) the toxic effect observed in an acute toxicity test exceeds zero Toxic Units Acute (Tua=0); or (2) the toxic effect observed in a chronic toxicity test exceeds one Toxic Unit Chronic (Tuc=1). Urban runoff discharges from MS4s often contain pollutants that cause toxicity.

Total Maximum Daily Load (TMDL) - The TMDL is the maximum amount of a pollutant that can be discharged into a water body from all sources (point and non-point) and still maintain water quality standards. Under Clean Water Act section 303(d), TMDLs must be developed for all water bodies that do not meet water quality standards after application of technology-based controls.

Urban Runoff - Urban runoff is defined as all flows in a storm water conveyance system and consists of the following components: (1) storm water (wet weather flows) and (2) non-storm water illicit discharges (dry weather flows).

Waste - As defined in California Water Code Section 13050(d), “waste includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal.”

Article 2 of CCR Title 23, Chapter 15 (Chapter 15) contains a waste classification system which applies to solid and semi-solid waste which cannot be discharged directly or indirectly to water of the state and which therefore must be discharged to land for treatment, storage, or disposal in accordance with Chapter 15. There are four classifications of waste (listed in order of highest to lowest threat to water quality): hazardous waste, designated waste, nonhazardous solid waste, and inert waste.

Water Quality Objective - Numerical or narrative limits on constituents or characteristics of water designated to protect designated beneficial uses of the water. [California Water Code Section 13050 (h)]. California’s water quality objectives are established by the State and Regional Water Boards in the Water Quality Control Plans.

As stated in the Porter-Cologne Requirements for discharge (CWC 13263): "(Waste discharge) requirements shall implement any relevant water quality control plans that have been adopted, and shall take into consideration the beneficial uses to be protected, the water objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of Section 13241."

A more comprehensive list of legal authority containing water quality objectives applicable to this Order can be found in Finding 37 and in Section VII Directives Discussion Underlying Broad Legal Authority for Order R9-2002-0001 pp. 76-78.

Numeric or narrative limits for pollutants or characteristics of water designed to protect the beneficial uses of the water. In other words, a water quality objective is the maximum concentration of a pollutant that can exist in a receiving water and still generally ensure that the beneficial uses of the receiving water remain protected (i.e., not impaired). Since water quality objectives are designed specifically to protect the beneficial uses, when the objectives are violated the beneficial uses are, by definition, no longer protected and become impaired. This is a fundamental concept under the Porter Cologne Act. Equally fundamental is Porter Cologne’s definition of pollution. A condition of pollution exists when the water quality needed to support designated beneficial uses has become unreasonably affected or impaired; in other words, when

the water quality objectives have been violated. These underlying definitions (regarding beneficial use protection) are the reason why all waste discharge requirements implementing the federal NPDES regulations require compliance with water quality objectives. (Water quality objectives are also called water quality criteria in the Clean Water Act.)

Water Quality Standards - are defined as the beneficial uses (e.g., swimming, fishing, municipal drinking water supply, etc.) of water and the water quality objectives necessary to protect those uses.

Waters of the State - Any water, surface or underground, including saline waters within the boundaries of the State [California Water Code Section 13050 (e)]. The definition of the Waters of the State is broader than that for the Waters of the United States in that all water in the State is considered to be a Waters of the State regardless of circumstances or condition. Under this definition, a Municipal Separate Storm Sewer System (MS4) is always considered to be a Waters of the State.

Waters of the United States - Waters of the United States can be broadly defined as navigable surface waters and all tributary surface waters to navigable surface waters. Groundwater is not considered to be a Waters of the United States.

As defined in the 40 CFR 122.2, the Waters of the U.S. are defined as: “**(a) All waters, which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;** (b) All interstate waters, including interstate “wetlands;” (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, “wetlands,” sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation or destruction of which would affect or could affect interstate or foreign commerce including any such waters: (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) Which are used or could be used for industrial purposes by industries in interstate commerce; (d) All impoundments of waters otherwise defined as waters of the United States under this definition: **(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;** (f) The territorial seas; and (g) “Wetlands” adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area’s status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA.”

Watershed - That geographical area which drains to a specified point on a water course, usually a confluence of streams or rivers (also known as drainage area, catchment, or river basin).

ATTACHMENT E

DRY WEATHER MONITORING PROGRAM SPECIFICATIONS - URBAN RUNOFF

E.1 Dry Weather Monitoring Program

Each Copermittees shall review and revise as necessary its Dry Weather Monitoring Program to comply with section F.5 of this Order. The Dry Weather Monitoring Program for each Copermittee shall meet or exceed the specifications of this Attachment. The objectives of the Dry Weather Monitoring Program are:

- Assessing compliance with Order No. R9-2002-0001;
- Detect and eliminate illicit discharges and illegal connections to the MS4; and
- Characterize urban runoff within the MS4 system with respect to water quality constituents that may cause or contribute to exceedances of receiving water quality objectives when discharged to receiving waters.

E.2 Dry Weather Monitoring Program Document

Based upon a review of its Detection/Elimination of Illegal Discharges and Illicit Connections Program, each Copermittee shall revise or develop a Dry Weather Monitoring Program Document that meets or exceeds the specifications listed in section E.4 of this Attachment. The Dry Weather Monitoring Program shall be designed and implemented to address the objectives listed in section E.1 of this Attachment. Each Copermittee shall submit its Dry Weather Monitoring Program to the Principal Permittee as part of its Jurisdictional Urban Runoff Management Program Document on the date prescribed by the Principal Permittee. The Principal Permittee shall collectively submit the dry weather monitoring maps and procedures to the SDRWQCB within **365** days of adoption of this Order.

E.3 Implementation of the Dry Weather Monitoring Program

Each Copermittee shall implement its Dry Weather Monitoring Program by May 1, 2003. Following the adoption of this Order and prior to implementation of the Dry Weather Monitoring Program under the Jurisdictional URMP, each Copermittee shall continue to implement the Illicit Discharge and Illegal Connection programs and commitments described in the Orange County Water Quality Monitoring Program (99-04 Plan) and the proposed Drainage Area Management Plan (DAMP).

E.4 Dry Weather Monitoring Program Specifications

Each Copermittee shall develop or revise its Dry Weather Monitoring Program to meet or exceed the following requirements:

- a. Develop MS4 Map: Each Copermittee shall develop or obtain an up-to-date labeled map of its entire municipal separate storm sewer system (MS4) and the corresponding drainage watersheds within its jurisdiction. The use of a Geographic Information System (GIS) is highly recommended, but not required. The accuracy of the MS4 map shall be confirmed and updated at least annually during monitoring activities.

- b. Monitoring Stations: Based upon a review of its past Dry Weather Monitoring Programs, each Copermittee shall select dry weather monitoring stations within its jurisdiction to be monitored in the Dry Weather Monitoring Program.
- (1) Each Copermittee shall develop or revise its program to describe the rationale used to determine the number and locations of stations necessary to comply with the Order.
 - (2) Each Copermittee shall confirm that each major drainage area within its jurisdiction contains at least one station.
 - (3) Stations shall be either major outfalls or other outfall points (or any other point of access such as manholes) located throughout the MS4 to provide adequate coverage of the entire MS4 system.
 - (4) Each Copermittee shall clearly identify each dry weather monitoring station on its MS4 Map as either a separate GIS layer or a map overlay hereafter referred to as a Dry Weather Monitoring Stations Map.
- c. Determining Sampling Frequency: Dry weather analytical and field screening monitoring shall be conducted at each identified station at least twice between May 1st and September 30th of each year or as more frequently as the Copermittee determines is necessary to comply with the requirements of Section F.5 of the Order.
- (1) Each Copermittee shall develop or revise written procedures that describe the criteria and process used to determine the number and frequency of inspections, field screening and analytical monitoring to be performed.
 - (2) Any changes in Dry Weather Monitoring inspection or sampling frequency shall be described and reported in detail annually in the Dry Weather Monitoring Report section of the Jurisdictional URMP Annual Report.
- d. Develop Dry Weather Analytical Monitoring Procedures: Each Copermittee shall develop or revise written procedures for dry weather analytical and field screening monitoring (consistent with 40 CFR part 136), that shall include field observations, field screening monitoring, and analytical monitoring.
- (1) The Dry Weather Monitoring Program shall be designed to emphasize frequent, geographically widespread inspections, monitoring, and follow up investigations to detect illicit discharges and illegal connections. At a minimum, the procedures must be based on or incorporate the following guidelines and criteria:
 - (a) At each site inspected or sampled, record general information such as time since last rain, quantity of last rain, site descriptions (i.e., conveyance type, dominant watershed land uses), flow estimation (i.e., width of water surface, approximate depth of water, approximate flow velocity, flow rate), and visual observations (e.g., odor, color, clarity, floatables, deposits/stains, vegetation condition, structural condition, and biology).
 - (b) If flow or ponded runoff is observed at a station and there has been at least seventy-two (72) hours of dry weather, shall make observations and collect at least one (1) set of grab samples for field screening and/or analytical testing that meets or exceeds the requirements of section E.4.d.1.d (Field Screening Parameters) or E.4.d.1.e (Analytical Monitoring Parameters).
 - (c) Perform field screening analysis on all sites with ponded or flowing water and at a minimum collect samples at no less than 25% of these sites for analytical testing.
 - (d) Field Screening Monitoring Parameters: At a minimum, conduct field screening analysis of the following constituents:
 - (1) Specific conductance (calculate estimated Total Dissolved Solids).
 - (2) Turbidity
 - (3) pH

- (4) Reactive Phosphorous
 - (5) Nitrate Nitrogen
 - (6) Ammonia Nitrogen
 - (7) Phenol
 - (8) Surfactants (MBAS)
- (e) Analytical Monitoring Parameters: At a minimum, collect samples for analytical laboratory analysis of the following constituents:
- (1) Total Hardness
 - (2) Oil and Grease
 - (3) Diazinon and Chlorpyrifos
 - (4) Cadmium (Dissolved)
 - (5) Copper (Dissolved)
 - (6) Lead (Dissolved)
 - (7) Zinc (Dissolved)
 - (8) Enterococcus Bacteria
 - (9) Total Coliform Bacteria
 - (10) Fecal Coliform Bacteria
- (f) If the station is dry (no flowing or ponded runoff), make and record all applicable observations and select another station from the list of alternate stations for monitoring.
- (2) The Dry Weather Monitoring Program shall include criteria for dry weather inspection, analytical and field screening monitoring results whereby exceedance of the criteria will require follow-up investigations to be conducted to identify the source causing the exceedance of the criteria.
 - (3) Dry weather analytical and field screening monitoring stations identified to exceed dry weather monitoring criteria for any constituents shall continue to be screened in subsequent years.
 - (4) The Dry Weather Monitoring Program shall include procedures for source identification follow up investigations in the event of exceedance of dry weather analytical and field screening monitoring result criteria. These procedures shall be consistent with procedures required in section F.5.c. of this Order.
 - (5) The Dry Weather Monitoring Program shall include procedures to eliminate detected illicit discharges and connections. These procedures shall be consistent with each Copermittee's Illicit Discharge and Elimination component of its Jurisdictional Urban Runoff Management Plan as discussed in section F.5 of this Order.
 - (6) During monitoring, the accuracy of its MS4 map and shall be confirmed. Correct any inaccuracies in either the MS4 map or the Dry Weather Monitoring Stations Map and resubmit the corrected maps in the next annual report.

E.5 Summarize and Report Dry Weather Monitoring Results

As part of its individual Jurisdictional URMP Annual Report, each Copermittee shall summarize and report on its Dry Weather Monitoring Program results. The data shall be presented in tabular and graphical form. The reporting shall include all inspection, field screening, and analytical monitoring results. Each Copermittee shall also report all follow up and elimination activities for potential illicit discharges and connections undertaken by the Copermittee during that year. Dry weather analytical monitoring reports shall comply with all monitoring and standard reporting requirements in Attachments B and C of Order R9-2002-0001. The Principal Permittee shall submit to the SDRWQCB the individual Dry Weather Monitoring reports as part of the unified Jurisdictional URMP Annual Report prior to November 9, 2003, and every year thereafter.

ATTACHMENT

41

FACT SHEET/TECHNICAL REPORT

FOR

SDRWQCB ORDER NO. R9-2002-0001

MUNICIPAL STORM WATER PERMIT

FOR

THE COUNTY OF ORANGE,

THE INCORPORATED CITIES OF ORANGE COUNTY,

AND

ORANGE COUNTY FLOOD CONTROL DISTRICT

WITHIN

THE SAN DIEGO REGION

San Diego Regional Water Quality Control Board

February 13, 2002

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ATTACHMENT 1 - NPDES Municipal Storm Water Permit Justifications

ATTACHMENT 2 - 1998 Clean Water Act Section 303(D) Impaired Waterbody List

ATTACHMENT 3 - Copermitttee Populations (2000 U.S. Census Bureau)

ATTACHMENT 4 - Discussion Of Municipal Storm Water Permitting And The Watershed
Approach

ATTACHMENT 5 - DAMP Analysis For Order No. R9-2002-0001

ATTACHMENT 6 – Response to Comments Received Regarding Order No. R9-2002-0001
(Previously Tentative Order No. 2001-193)

LIST OF ABBREVIATIONS

99-04 Plan	Orange County Water Quality Monitoring Program
BAT	Best Available Technology
BMP	Best Management Practice
CAR	Critical Aquatic Resource
CEQA	California Environmental Quality Act
CWA	Clean Water Act
CWC	California Water Code
DAMP	Drainage Area Management Plan
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
NURP	Nationwide Urban Runoff Program
SANDAG	San Diego Association of Governments
SDRWQCB	San Diego Regional Water Quality Control Board
SERRA	South East Regional Reclamation Authority
SUSMP	Standard Urban Storm Water Mitigation Plan
SWRCB	State Water Resources Control Board
SWPPP	Storm Water Pollution Prevention Plan
TAC	State Water Resources Control Board Urban Runoff Technical Advisory Committee
TMDL	Total Maximum Daily Load
URMP	Urban Runoff Management Program
USACE	United States Army Corps of Engineers
US EPA	United States Environmental Protection Agency

I. FACT SHEET/TECHNICAL REPORT FORMAT

The purpose of this Fact Sheet/Technical Report is to give the Copermittees and the interested public an overview of the permit and a practical discussion of its requirements, as well as a clear explanation of the regulatory justification for the permit requirements. The Fact Sheet/Technical Report can be considered to consist of two primary parts. The first part (which includes sections I. through V.) contains general information regarding urban runoff and the permit, including a summary of the permit in section IV. This part of the Fact Sheet/Technical Report provides an overview of the permit and the reasoning behind its requirements, and is likely to be the most pertinent part of the Fact Sheet/Technical Report for the more casual reader.

The second part of the Fact Sheet/Technical Report (which includes sections VI. and VII.) contains more detailed practical discussions and regulatory justifications of each permit component, and is meant to be used as a reference document during review of the permit. In sections V. and VI. of this Fact Sheet/Technical Report, each component of the permit is displayed in italics, followed by a discussion of the permit component. Section VII. (which addresses permit directives) also includes appropriate legal authority citations for each permit component. Each permit component is broken down in this manner so that the reader may find "stand alone" justification for each issue or permit component. This allows the Fact Sheet/Technical Report to be used as a reference during review of the permit. Please note that this has led to some repetition, as justifications for different sections are often similar or identical.

The Attachments 1-6 provide supporting information including NPDES permit justifications relative to Orange County, Copermittee population estimates, a list of impaired water bodies, a discussion of storm water permitting and the SDRWQCB watershed management approach, and a discussion of the SDRWQCB analysis of the Report of Waste Discharge and proposed DAMP submitted by the Orange County Copermittees with respect to the Order. Attachment 6 includes staff responses to written comments including those received at the two staff workshops on July 19, 2001 and August 8, 2001. It should be noted that nearly every section of the permit was commented upon and that the responses to the comments are substantive and provide detailed support for the requirements of this Order.

II. BACKGROUND – IMPACTS OF URBAN RUNOFF

A. WATER QUALITY

Urban runoff is fundamentally important to the water quality of Southern California. It has been found to be a leading cause of water quality impairment in the San Diego Region and nationwide. Untreated pollutants in urban runoff, indiscriminate of dry or wet weather conditions, routinely find their way to our creeks, lagoons, bays, and ocean as easily from over watering of residential lawns as from rainstorms. Urban runoff in the San Diego Region is commonly contaminated with pesticides, fertilizers, animal droppings, trash, food wastes, automotive byproducts, and many other toxic substances that are generated by our urban environment. Water that flows over streets, parking lots, construction sites, and industrial, commercial, residential, and municipal areas carries these untreated pollutants through storm drain networks directly to the receiving waters of the region. Southern

California, with the highest coastal population density of the entire country,¹ suffers multiple tribulations from this urban generated pollution source. The type and extent of land-uses common to southern Orange County (industrial, commercial, residential, municipal, and construction) are the same landuses common throughout the coastal areas of the San Diego Region. With respect to potential urban runoff discharge quality/quantity, shopping malls, homes, and businesses located near Aliso Creek in Orange County are little different from a shopping malls, homes, and businesses located near Buena Vista Creek in San Diego County or Temecula Creek in Riverside County.

The United States Environmental Protection Agency (US EPA) recognizes urban wet weather flows as the number one source of estuarine pollution in coastal communities.² This trend is reflected locally by the 1998-1999 City of San Diego and Co-Permittee NPDES Storm Water Monitoring Program Report, which names urban runoff as one of the most significant contributors of pollution to our waterways and coastal areas. Furthermore, this document reports that monitoring efforts indicate that in-stream concentrations of pathogen indicators (fecal coliform and streptococcus) and heavy metals (such as cadmium, copper, lead, and zinc) exceed state and federal water quality criteria. Storm water within the region has also been found to contain the pesticides diazinon and chlorpyrifos (Dursban) at levels that can cause chronic or acute toxicity.³ These trends are also represented in data collected by the Orange County Copermittees (see discussion below).

Preliminary results of the SDRWQCB's Ambient Bioassessment Monitoring Program from 1998-2000 indicate that the benthic macroinvertebrate communities of Aliso Creek, San Juan Creek, and Arroyo Trabuco may be adversely impacted.

Inland surface water quality data in southern Orange County has been collected under the NPDES program by the Orange County Copermittees and under a number of other efforts, notably the Aliso Creek Watershed Management Study that was funded by a 205(j) grant from the State Water Resources Control Board. Data from these two sources have been among the most thoroughly assessed in the region and provide the best representation of contemporary water quality during the period of the Copermittees' DAMP. In particular, the U.S. Army Corps of Engineers (USACE) has assessed available water quality data in the Aliso Creek and San Juan Creek watersheds as part of comprehensive watershed studies to determine a process for restoring habitat and alleviating potential flood damage. A qualitative analysis of urban runoff was also performed by at least four Orange County Grand Juries from 1998-2001. Together, these sources of data and subsequent analyses indicate that urban runoff and storm water in southern Orange County is impairing water quality and that additional management efforts can have a positive impact of constituents of concern.

¹ Culliton, T.M. et al. 1988. "50 years of population changes along the nation's coast." *Coastal Trends Series, Report No. 2*. National Oceanic and Atmospheric Administration, Strategic Assessments Branch. As cited in Moore, S. L., et al. *Composition and Distribution of Beach Debris in Orange County, California*. Southern California Coastal Water Research Project, Southern California Marine Institute, Divers Involved Voluntarily in Environmental Rehabilitation and Safety.

² US EPA. 1999. 40 CFR Parts 9, 122, 123, and 124. National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. 64 FR 68727.

³ City of San Diego. 1999. 1989-1999 City of San Diego and Co-permittee NPDES Stormwater Monitoring Program Report. URS Greiner Woodward Clyde.

NPDES STORMWATER SAMPLING: Monitoring of urban runoff in the San Diego region in the 1999/2000 reporting period showed CTR (California Toxics Rule) exceedances of acute metals at the point of discharge to receiving waters in 94% of reported samples. From 1992 to 2000 the Copermittees report EMC data for one stream in the south county, Oso Creek. There are no discernible trends over time in the Oso Creek EMC data. There were no assessments for 1997, 1998, and 2000. At best, the data show a lack of water quality improvement, implying that the DAMP is not having a positive effect on EMC parameters in Oso Creek.

ALISO CREEK 205(J) BACTERIA INVESTIGATIONS: Bacteriological sampling demonstrated that high levels of Total and Fecal Coliform and Enterococcus bacteria were common in the watershed. Contact (REC-1) and Non-Contact Water Recreation (REC-2) standards were exceeded at all monitored stations except the uppermost. For example, three sampling locations on tributaries to Aliso Creek had *E. coli* averages over 2,000 MPN/100ml and two sampling locations on the main stem of Aliso Creek had average fecal coliform or *E. coli* averages greater than 2,000 MPN/100ml during the study period.

SOUTH EAST REGIONAL RECLAMATION AUTHORITY (SERRA) SURF ZONE BACTERIA DATA: Bacteriological sampling conducted by SERRA in the surf zone near the mouth of Prima Deshecha indicated elevated levels of fecal coliform and Enterococcus are present. One surf zone station is approximately 100 feet north of the Prima Deshecha beach outfall. From June 2000 through February 2001, 26 of 59 (44%) samples exceeded ocean water criteria for Enterococcus at this station. Regional Board staff does not attribute these elevated levels to the effluent discharged from SERRA's ocean outfall, but believe the creek may be a significant source of Fecal Coliform and Enterococcus bacteria.

USACE SAN JUAN CREEK WATERSHED STUDY: The USACE San Juan Creek Watershed Management Feasibility Study identifies high Fecal Coliform bacteria counts measured at the lowermost end of San Juan Creek as the greatest water quality concern in the watershed. Their analysis of water quality data from 1992-1995 further showed moderate contamination in San Juan Creek, Trabuco Creek, and Oso Creek. Their survey of historical data indicated that lead levels have dropped, copper levels have increased, and spikes of chromium and nitrates occur. The Feasibility Study concludes that *"Water quality in the San Juan creek watershed area is primarily influenced by nonpoint source stormwater runoff primarily from urban and residential areas."* (P.E44, SEC. 4.4.2.1).

USACE ALISO CREEK WATERSHED STUDY: In the USACE environmental evaluation for Aliso Creek watershed water quality, pollution concerns include runoff of pesticides and herbicides in areas near the creek. Non-point source pollution is attributed to an increase in urban developments and the associated storm water runoff. *"Due to the increase in development in the upper regions of the Aliso Creek watershed, stormwater runoff is likely the most prominent on-going factor causing deterioration of water quality."* (P.E40, SEC. 4.4.1.1).

GRAND JURY FINDINGS: The 1999-2000 Grand Jury investigating “The Rainy Season’s “First Flush” Hits the Harbors of Orange County,” found that in spite of the County’s strong emphasis on public education as required by the DAMP, a significant amount of trash finds its way into the County-maintained flood control channels and County-maintained storm drains, rather than being disposed of properly. In “The Urban Runoff Battle: Ready, Fire, Aim!” the 2001 Grand Jury examined beach advisory postings and concluded that since the total number of postings is nearly identical in 1999 and 2000, “*virtually no improvement has occurred.*”

B. IMPACTS OF URBAN RUNOFF

In Orange County, urban runoff enters the storm drains and then discharges to inland surface waters or, in some coastal areas, directly to the ocean. Urban runoff carries pollutants, contaminants, and other stressors from a large number of potential sources in developed areas. Impacts from these pollutants carried by urban runoff and the discharge of the runoff itself to surface waters include damage to riparian and in-stream habitats, increased flooding potential, threats to human and environmental, and subsequent economic ramifications.

Urban runoff causes many impacts in Southern California, including increased public health risks, high concentrations of toxic metals in harbor and ocean sediments, and toxicity to aquatic life.⁴ A study exploring the health risks associated with urban runoff in Southern California was conducted in 1995 by the Santa Monica Bay Restoration Project using a survey of 15,000 bathers at three Santa Monica beaches. The study concluded that there is a 57% higher rate of illness in swimmers who swim adjacent to storm drains than in swimmers who swim more than 400 yards away from storm drains.

The San Diego Regional Water Quality Control Board (SDRWQCB) finds that such problems are indeed frequently urban runoff related. For instance, a common conveyance for a sewage spill to reach a beach is through the municipal storm water system. Also, exceedances of standards at some of our Region’s beaches have unquestionably been conveyed by the storm water drainage system.⁵ In addition, urban runoff is increasingly being targeted as the cause of beach closures and postings in other areas of the San Diego Region and Southern California. Urban runoff has been identified as a principal contributor to Fecal Coliform bacteria contamination in Orange County’s Aliso Creek, a creek which often causes beach postings when flowing into the ocean.⁶ Municipal enforcement efforts focusing on urban runoff have also resulted in reduced coliform levels in receiving waters in Encinitas in San Diego County.⁷ Finally, US EPA goes on to say that urban storm water runoff and sewer overflows have become the largest cause of beach closings in the United States for the previous three years, becoming more significant than

⁴ Threats to beneficial uses such as swimming and seafood consumption or ecosystem health have been demonstrated in numerous studies. Two important studies to note for Southern California are: Bay, S., Jones, B.H. and Schiff, K. 1999. Study of the Impact of Stormwater Discharge on Santa Monica Bay. Sea Grant Program, University of Southern California; and Haile, R.W., et al. 1996. An Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay. Santa Monica Bay Restoration Project.

⁵ SDRWQCB Cleanup and Abatement Order No. 97-69 and Cease and Desist Order No. 98-74, both were issued to the City of Coronado.

⁶ SDRWQCB Cleanup and Abatement Order No. 99-211, issued to the City of Laguna Niguel and the County of Orange.

⁷ Kathy Weldon, City of Encinitas, Presentation to Beach Water Quality Workgroup, June 1, 2000.

such sources as oil spills and publicly owned treatment works.⁸

A May 1999 draft of the Aliso Creek Watershed Management Feasibility Study (Aliso Study) mentioned above, led by the USACE, concluded that the Aliso Creek watershed "is not in good health," and attributes many of the problems to storm water runoff. The Aliso Study developed a watershed management plan intended to identify feasible management options to improve environmental and economic conditions in the watershed and reestablish a stable, healthy, and sustainable watershed environment. The feasibility study and a concurrent one prepared for the San Juan Creek watershed do not guarantee the "feasible" projects will be implemented, but instead provide information to the County of Orange, the cities, water districts and other partners regarding potential corrective actions and the current impacts from urban runoff. Some of these findings and proposed projects may be incorporated into the Jurisdictional and Watershed Urban Runoff Management Programs.

Some of the major impacts associated with the discharge of pollutants in urban runoff include, but are not limited to:

BEACH CLOSURES: A number of the beach postings in the San Juan Creek Watershed Management Area within Orange County, including locations in Dana Point, Aliso Beach, and others are attributed to pollution from urban runoff. Beaches are posted and can be closed when bacteria levels indicate a potential health risk to humans. Coastal economies suffer when people decrease their time spent at beaches due to beach closings or fear of coastal water pollution.

Copermittees understand the connection between urban runoff pollution and beach impairments. Several of the coastal Copermittees, including Laguna Beach and Dana Point, have implemented or are proposing dry-weather diversions that route urban runoff in streams or storm drain outfalls to sewer lines in an attempt to keep pollution contained in urban runoff from impacting beaches. As discussed elsewhere in this document, dry weather diversions to the sanitary sewer or regional treatment facilities present significant problems with respect to urban runoff and should not be the primary means whereby urban runoff is managed.

The following table, adapted from the 2001 Grand Jury report "The Urban Runoff Battle: Ready, Fire, Aim!" and based on data obtained from the Orange County Health Care Agency, lists the number of beach postings at South County Beaches in 2000.

⁸ US EPA. 1999. 40 CFR Parts 9, 122, 123, and 124. National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. 64 FR 68727.

Posting Location	Number of Postings	Total Days Posted	Posting Location	Number of Postings	Total Days Posted
Crystal Cove State Park	9	23	Doheny State Beach Park	9	315
Laguna Beach	32	77	Capistrano County Beach	6	248
Aliso Beach	13	23	Capistrano Bay District	7	107
Monarch Beach	5	49	Poche Beach	5	163
Salt Creek Beach	3	4	San Clemente City Beach	8	20
Dana Point Harbor	12	739*	San Clemente State Beach	1	3
* includes 2 long term postings totaling 569 days					

HABITAT STRESS: An aquatic life assessment conducted as part of the Aliso Creek Watershed 205(j) study demonstrated habitat within the study sites is unstable and under considerable environmental stress. The poor conditions were deemed likely attributable to high variability in flow volumes and velocities, sediment load and movement, high water temperatures, poor riparian development, and poor water quality. All of these influences can, at least in part, be attributable to a change in the runoff regime associated with urban development. The 205(j) study report concludes that continued development in the watershed without appropriate mitigation would lead to increased riparian habitat degradation. In addition, the USACE studies conclude that channel down-cutting is responsible for the loss of riparian habitat in many reaches of both Aliso Creek and San Juan Creek watersheds. Down-cutting of channels decreases the ability of water to reach the floodplains and riparian zones. Down-cutting is attributable to altered hydrology, including increased volume and peak discharge rates of runoff. Channel down-cutting creates a channelized stream condition that increases the threat of flooding downstream. Habitat loss and degradation were also cited as a major problem in the USACE San Juan Creek Watershed Study.

CHANNEL INSTABILITY: According to the USACE San Juan Creek Watershed Study, intense development since the 1980's is correlated with significant down-cutting and bank erosion on San Juan Creek and its main tributaries, especially in the lower reaches. Erosion and channel instability are identified in the USACE study as one of the major watershed problems. Channel instability and erosion degrade existing in-stream and riparian habitat and prevent the establishment of further stable habitat areas.

In addition, private and public property, including important infrastructure such as rail lines, sewer and water lines, and roads, have been threatened by erosion within the San Juan Creek and Aliso Creek watersheds.

FLOODING: The USACE San Juan Creek Watershed Study concluded that the threat of flooding in the lower San Juan Creek watershed has been exacerbated by changes to the creek's hydrology as a result of urbanization in the watershed.

Potential flooding of the downstream portions of Oso, Trabuco, and San Juan Creeks is characterized by the USACE as a major watershed problem.

TOXICITY: A water quality data assessment conducted as part of the Aliso 205(j) study characterized surface water from several locations in the watershed and determined aquatic toxicity tests during two storm events caused varying degrees of mortality to test organisms. Storm sampling for toxicity was conducted twice at five locations within Aliso Creek during the study period. While two of the ten samples showed no mortality for *Ceriodaphnia*, six samples resulted in 100% mortality, one showed 85% mortality and one showed 95% mortality. The report suggests several possible sources of aquatic toxicity, all of which are derived from urban runoff.

These trends were observed in San Diego County as well and were considered during the adoption process for the San Diego Municipal Storm Water Permit Order No. 2001-01. As described in the Fact Sheet/Technical Report for that permit, in 1999, there were 29 days in which the San Diego County Health Department issued general advisories to avoid waters 300 feet either side of all storm drain outlets in order to protect the public from potential adverse health effects caused by urban runoff. Also, in 1999 there were 720 combined beach closures and postings in San Diego County. The San Diego County Department of Health does not recommend the public recreate in closed or posted waters due to associated health risk. A breakdown of the beach closure and posting data is as follows: 127 of these closings were related to sewage spills, 71 related to river mouth outlets or some other excavation, and 522 of the days were related to some exceedance of water quality standards.⁹

Regardless of how beach posting and closure data is interpreted, one thing is clear: the beneficial uses are not being adequately attained or protected for the waters in the San Diego Region, and urban runoff is a significant contributor to this receiving water impairment. For Orange County and the San Diego Region as a whole, known throughout the world for its beach lifestyle, these statistics are bound to have increasingly serious effects on tourism revenue as well as the local cultural identity.

III. ECONOMIC ISSUES

Urban runoff degrades surface water quality, but its impacts spread beyond the channel banks. Beach closures and other losses of recreational opportunity have a direct economic impact on communities whose economies are dependent on access to surface waters. Furthermore, property loss or damage from erosion and flooding has direct and indirect economic impacts on communities. In addition, replacement or perennial protection of public infrastructure from problems associated with urban runoff requires significant amount of public expenditures, thus diverting funds from other public agency concerns. The Copermittees have the power to encourage choices that decrease the impacts of urban runoff through activities such as public education on water quality issues, implementation of BMPs, and enforcement of water quality-related ordinances. The relationship between urban runoff, water quality, and both micro and macroeconomics in southern Orange County has been addressed in several reports, including the USACE watershed studies, Orange County Grand Jury reports, and others.

⁹ Information provided by the San Diego County Department of Public Health.

Water quality affects the recreational value of a water body and watershed. A recreational use analysis conducted within the Aliso 205(j) Watershed Study identified potential increases in recreational value would occur if the water quality improvements in the USACE Aliso Creek Watershed studies were implemented. The analysis noted that the largest benefit would be realized at Aliso Beach Park, but would require watershed-scale action because of the nature of the impacts derived from urban runoff.

The choices made by agencies, individuals, and businesses to protect water quality may be a decision based on microeconomics. The enforcement of local ordinances is an important tool of the Copermittees that can affect decisions made by agencies, individuals, and businesses. The disincentive to pollute created by enforcement, however, has been found to be insufficient by the 1998-1999 Orange County Grand Jury investigating "Coastal Water Quality and Urban Runoff in Orange County." The Grand Jury concluded that current local fines were less than abatement costs, thus the level of enforcement may actually invite some polluters to continue polluting. The Grand Jury recommended that the County address the possibility of increasing fines for violators. This approach is supported in this Order.

With respect to economic impacts of urban runoff to Orange County communities, the following (incomplete) information should be considered:

DANA POINT: In response to a Grand Jury finding (1999-2000 Rainy Season's First Flush Hits the Harbors of Orange County), the city of Dana Point notes the interrelationship between the clean coastal water and the economic health of the city. Dana Point reports receiving \$5.2 million in T.O.T. funds in FY 1999-2000 "due in large part because of proximity to the beach. Without clean beaches, Dana Point risks losing its major revenue source."

LAGUNA BEACH: Tourism is one of the primary components of the Laguna Beach economy and the beach is one of the main tourist attractions in the city. In 1999, hotel/motel bed tax revenue was approximately \$3 million, representing 13% of the City's general fund revenue. The City Council recognizes the value of the beaches to tourists and the local population and has funded several low-flow diversion systems in an attempt to decrease beach pollution and beach closures.

DOHENY STATE BEACH: In 1997, the USACE prepared an economic analysis as part of the San Juan Creek and Aliso Creek Watershed Study. Recreational value for Doheny State Beach, based on annual visitation of 670,545 people in 1995, was calculated at \$2,850,000. Furthermore, the USACE notes that lifeguards reported that beach attendance falls dramatically when there are unhealthy conditions in the ocean. In 1999, the USACE prepared an updated economic study as part of the Feasibility Phase of the San Juan Creek Watershed Management Study. The 1999 study reports that average beach attendance from 1996 to 1998 increased to 918,735. The USACE places a recreation value per visitor at \$5.76, which implies the annual recreational value of Doheny State Beach for 1996 to 1998 was \$5,291,914.

ALISO BEACH: In 1997, the USACE prepared an economic analysis as part of the San Juan Creek and Aliso Creek Watershed Study. Recreational value for Aliso Beach, based on annual visitation of 3,477,369 people in 1995, was calculated at \$14,779,000. In the 1999 Draft Feasibility Report for the Aliso Creek Watershed Management Study,

the USACE noted that the average beach attendance from 1996 to 1998 decreased to 1,148,374. The recreation value per visitor was calculated at \$4.50 and the average annual impact from water quality-related beach closures at Aliso Beach Park was estimated to be \$468,392. This number is comparable to an economic analysis conducted as part of the Aliso Creek Watershed 205(j) study that estimated the annual average recreational value impact of beach closures at Aliso Beach Park to be \$468,400.

The following information was considered during the adoption process for the San Diego Municipal Storm Water Permit, Order No. 2001-01. Because significant elements of the Order are similar to those adopted for San Diego County and because the information is broadly applicable to conditions in Orange County, the information is presented again for consideration. In the San Diego Region, polluted urban runoff not only poses a public health threat, but an economic one as well. A January 5, 1997 New York Times article warns: *Travel Advisory. Storm Drains Pose San Diego Health Risk*.¹⁰ In the July 3, 2000 edition of Forbes Magazine, an article entitled *Don't Go Near the Water. Beaches That Make You Go Ewwwww!*, two San Diego area beaches are highlighted as having troubles. The article is particularly hard on the Mission Bay beaches, in stating, "If San Diego County has established itself as the California capital of sewage spills, this beach is its White House."¹¹ Local problems do indeed make national news. US EPA also brings attention to our region in the guidance document *Liquid Assets 2000* in saying, "Although our lakes, rivers, estuaries, and wetlands are much cleaner than they were in 1970, headlines like these are all too common..."¹² Next to the quote is pictured the San Diego page from the San Diego Union Tribune bearing the headline "Human Waste Fouls Three Beaches, DNA Tests Find."¹³ Being spotlighted by the federal government in this context is definitely less than auspicious.

There may be no way to measure what effects such negative press have had on value lost due to changed vacation plans. However, one can presume that continued publicity will take its toll on local economies. According to a 1996 San Diego Association of Governments (SANDAG) Memorandum, the California Division of Tourism has estimated that each out-of-state visitor spends \$101.00 a day. The memo goes on to state that based on projections from the California Department of Boating and Waterways nearly \$1.2 billion in direct revenue and \$1.2 billion in indirect revenue is pumped into the San Diego area economy each year by out-of-state visitors.¹⁴ It would seem that given the importance of tourism to our area, municipalities cannot afford to ignore water quality. The bottom line is that there is no need to wait and see how much the waters can take before our economy is affected. We can simply look to catastrophes that other regions have

¹⁰ Kopytoff, V.G. 1/5/1997. *Travel Advisory: Storm Drains Pose San Diego Health Risk*. The New York Times.

¹¹ Powers, K. 7/3/2000. *Don't Go Near the Water. Beaches That Make You Go Ewwwww!* Forbes Magazine.

¹² US EPA. 2000. *Liquid Assets 2000. America's Water Resources at a Turning Point*. EPA -840-B-00-001.

¹³ Rodgers, T. 1/21/00. *Human Waste Fouls 3 Beaches, DNA Tests find*. The San Diego Union-Tribune.

¹⁴ San Diego Association of Governments. 10/25/96. *Memorandum: California Department of Boating and Waterways: Unpublished Survey Information Regarding Beach Use*. Written to the Shoreline Erosion Committee.

already had to bear. The 1988 medical waste wash-ups closing New York and New Jersey beaches caused an estimated \$4 billion loss to the local economy.¹⁵

“Willingness to pay” gives an indication of how much the public values clean water. A study conducted by Colorado State University researchers on a 45-mile stretch of the South Platte River looked at the value of ecosystem services. The services studied were habitat for fish and wildlife, recreation, erosion control, natural purification of water and dilution of wastewater. Results from nearly 100 in-person interviews show that households would pay on average \$21 per month for additional ecosystem services.¹⁶ The article goes on to explain that while the marginal benefits are often quite small per person, the non-rival nature of environmental goods often results in simultaneous enjoyment by millions of people. Therefore, ensuring dependable good water quality could mean huge social benefits. The National Water Research Institute states, “Water has a psychological value...People derive measurable pleasure from recreational activities like boating and fishing and find comfort in knowing that the water they drink is of the highest quality.”¹⁷

Water quality as an externality can also cause shifts in real estate value. To help assess this we consider other areas of the country. US EPA looked at a study conducted on real estate around Lake Champlain in the Northeastern United States. Property values in the area of the lake with good water quality were valued an average of 20% more than property around poor water quality.¹⁸ Research right here in California indicates that property values can increase by at least 3% for employing bank stabilization procedures and up to 11% for improving fishing habitat.¹⁹

Within the past decade or so we see that investor’s concerns about environmental quality do indeed drive investment decisions. *Money* magazine conducts a “Best Places to Live” survey every year. In 1995, clean water and air ranked as the most important factors in choosing a place to live. It is important to note that they were ranked above typical high priority quality of life issues such as low crime rates, plentiful doctors or hospitals, and low taxes.²⁰ In the 2000 *Money* magazine “Best Places to Live” analysis, clean water was

¹⁵ US EPA. 1996. Liquid Assets: A Summertime Perspective on the Importance of Clean Water to the Nation’s Economy. EPA 800-R-96-002. Page 5.

¹⁶ Loomis J., et al. 1999. Measuring the Total Economic Value of Restoring Ecosystem Services in an Impaired River Basin: Results from a Contingent Valuation Method Survey. Proceedings of the Third Workshop in the Environmental Policy and Economics Workshop Series. Sponsored by US EPA’s Offices of Economy & Environment, and Reserved & Development. April 21-22, 1999.

¹⁷ National Water Research Institute. The Value of Water: Recognizing and Using the Full Water Supply. National Water Research Institute, Fountain Valley, CA as cited in US EPA. 2000. Liquid Assets 2000. *America’s Water Resources at a Turning Point*. EPA –840-B-00-001.

¹⁸ US EPA. 1996. Liquid Assets: A Summertime Perspective on the Importance of Clean Water to the Nation’s Economy. EPA 800-R-96-002. Page 8.

¹⁹ Streiner C. and Loomis. J. 1996. Estimating the Benefits of Urban Stream Restoration Using the Hedonic Price Method. *Rivers* 5(4): 267-268 as cited in Loomis J., et al. 1999. Measuring the Total Economic Value of Restoring Ecosystem Services in an Impaired River Basin: Results from a Contingent Valuation Method Survey. Proceedings of the Third Workshop in the Environmental Policy and Economics Workshop Series. Sponsored by US EPA’s Offices of Economy & Environment, and Reserved & Development. April 21-22, 1999.

²⁰ US EPA. 1996. Liquid Assets: A Summertime Perspective on the Importance of Clean Water to the Nation’s Economy. EPA 800-R-96-002. Page 9.

cited as a contributing factor in three of the top six choices from around the country.²¹ Needless to say, San Diego did not make the list this year.

The SANDAG *Regional Growth Management Strategy, Water Quality Element* summarizes future needs in development strategies for San Diego by stating, "Protecting the health of the water bodies in the region calls for a new approach to storm water management in new development and redevelopment, an approach which considers the possibilities for *pollution prevention* and maximizing infiltration."²² This is may be generally true for Orange County as well. However, many stakeholders feel that the prospect of such planning presents an economic burden. Not so, according to a *Watershed Protection Techniques* article, "The Benefits of Better Site Design in Residential Subdivision."²³ The journal did a comparative hydrology analysis for a medium-density residential subdivision using open space and conventional design. The following table shows the environmental benefits of using an open space versus conventional design.

Table One: Change in Site Characteristics from a Conventional Design to Open Space Design (*Both employ storm water protection practices*).

Factor of Concern	Percent Change by Applying Open Space Design
Impervious cover	24% decrease
Residential Lawn	48% decrease
Stormwater Runoff	24% decrease
Stormwater Infiltration	55% increase
Phosphorus Export	60% decrease
Nitrogen Export	45% decrease
Development Cost	20% decrease

Source: Adapted from the Center for Watershed Protection, 2000.

It's no surprise that environmentally sensitive planning techniques will produce environmental benefits, but what may be surprising is they can also produce economic benefits. The total cost to build this development was about 20% less using the open space design as opposed to the conventional design. Less road paving, as well as shorter sidewalks, water lines, sewer lines, curbs and gutters contributed to the savings.

An example from Davis, California reflects similar results. The Village Homes development, consisting of 22 houses and 40 apartments, employed narrow streets, plus graded land, channels and ponds to encourage on-site rain absorption. The resulting cost savings was \$700/unit less than using conventional storm water management systems. It is also important to note that the development did not flood when a 100-year level flood hit the area. In fact, the owner Judy Corbett reported that the development soaked in some runoff from surrounding communities.²⁴ The ideas and technologies used in both of these examples have been available for many years. However, outdated development requirements, subdivision codes, zoning regulations, street standards, and drainage requirements have discouraged developers from even attempting changes in convention.

²¹ Gertner J. and Kirwan, R. 2000. *Money Magazine*. "The Best Places to Live 2000." As downloaded from http://www.money.com/money/depts/real_estate/bestplaces

²² San Diego Association of Governments. 1997. *Regional Growth Management Strategy: Water Quality Element*.

²³ Center for Watershed Protection. 2000. The Benefits of Better Site Design in Residential Subdivisions. *Water Protection Techniques*. 3(2): Page 641.

²⁴ Keith, L.D. 6/5/00. Fight Brewing in Southern California Over Construction Rules Aimed at Stormwater Runoff. *Fresno Bee*.

This problem can best be remedied on the municipal level. Local authorities can work to better encourage water quality sensitive planning techniques. Conditions of approval for new developments can be updated to allow for site designs that address water quality concerns. For instance, cities could decrease the width of impervious streets by allowing one way streets on alternate blocks. Providing discretion for creative thinking on site design can save developers money and help municipalities protect their local water quality. Employing such techniques also follows with SANDAG's *Regional Growth Management Strategy*. Preserving natural habitats and open spaces is one of the five basic elements the strategy recommends for addressing all growth-related questions.²⁵

SANDAG has also developed *The Cities/County Forecast for the San Diego Region*, which attempts to project the demands that humans are going to place on the region over the next 20 years. The report contains some startling projections. According to the article, we can expect 1 million more people and over 400,000 new homes in the area over the next two decades.²⁶ According to the United States Census Bureau, the estimated population for San Diego County in July 1999 was 2,820,844 people.²⁷ We can therefore expect a 35% increase in population in just over 20 years. Secondly, the implications of 400,000 new homes extend beyond the homes themselves to include new roads, shopping malls, business parks, parking lots, schools and all the other amenities that accompany new development. Although largely built out, southern Orange County is currently experiencing dramatic growth similar to that discussed above in the SANDAG report for San Diego County. Regulations of today must anticipate and address this growth. The Order was drafted to address this and other similar issues with respect to the discharge of urban runoff throughout the San Diego Region.

To help with this matter, the Order includes a requirement for the Orange County Copermittees to develop Standard Urban Storm Water Mitigation Plans (SUSMPs) for broad categories of new development and significant redevelopment. SUSMPs as developed by the Copermittees will require developers to implement post-construction best management practices (BMPs) to reduce storm water flows and the associated pollutant loads generated from the development. What this means is that runoff carrying automobile byproducts, pet droppings, trash, and lawn chemicals for instance will need to be infiltrated, filtered, or treated before it is allowed to leave all new development. The reasoning for this is simple: Since previous efforts under the First and Second Term Permits and 1993 DAMP were not successful in protecting the beneficial uses of water quality in the past, increased population and development pressures will need to be addressed differently than they were in the past.

²⁵ San Diego Association of Governments. 1999. "2020 Cities/County Forecast for the San Diego Region." *SANDAG INFO*. Page 2.

²⁶ San Diego Association of Governments. 1999. "2020 Cities/County Forecast for the San Diego Region." *SANDAG INFO*. Page 2.

²⁷ As downloaded from the United States Census Bureau website:
[Http://www.census.gov/population/estimates/county/co-00-1/99C_06.txt](http://www.census.gov/population/estimates/county/co-00-1/99C_06.txt)

IV. PERMIT SUMMARY

HISTORICAL PERSPECTIVE ON THE DEVELOPMENT OF THE ORDER (PERMIT SUMMARY)

The federal Clean Water Act was amended in 1987 to address urban runoff. One requirement of the amendment was that many municipalities throughout the United States were obligated for the first time to obtain National Pollutant Discharge Elimination System (NPDES) permits for discharges of urban runoff from their municipal separate storm sewer systems (MS4s). In response to the Clean Water Act amendment (and the pending federal NPDES regulations which would implement the amendment), the SDRWQCB issued an "early" municipal storm water permit, Order No. 90-38, in July 1990 to the County of Orange, the six incorporated cities within the County of Orange in the San Diego Region, and the Orange County Flood Control District (hereinafter Copermittees) for their urban runoff discharges. As the name implies, this "early" permit was issued prior to the November 1990 promulgation of the final federal storm water regulations. Although Order No. 90-38 contained the "essentials" of the 1990 regulations, the requirements were written in very broad, generic and often vague terms. Broad generic terms were incorporated into the permit for the purpose of providing the maximum amount of flexibility to the Copermittees in implementing the new requirements (flexibility was, in fact, the stated reason for issuing the permit in advance of the final regulations). This lack of specificity was reflected in the Drainage Area Management Plan implemented under this First Term Permit in 1993 and renewed under the Second Term Permit in 1996. From staff's perspective however, this same lack of specificity, combined with the lack of funding and political will, also provided the Copermittees with ample reasons to take few substantive steps towards permit compliance. The situation was exacerbated by the SDRWQCB's own lack of storm water resources and the general sense that the infant program was a considerably lower priority than its existing and competing core regulatory programs. In staff's assessment, the result was a general lack of action by the Copermittees and a general lack of corresponding reaction (enforcement) by the SDRWQCB during the early years of the storm water program.

When viewed relative to the early years, substantial progress towards compliance has been made by many of the Copermittees and improvements in the SDRWQCB's oversight have occurred as well. But when viewed relative to the magnitude of the problem, we've collectively progressed little in ten years and enormous challenges remain in Orange County. Today, urban runoff is the single largest discharge of waste and the leading cause of water quality impairment in the San Diego Region. One has only to look as far as the now too familiar "health advisory or beach closure" signs and the diversion of streams to the sanitary sewer to see the troubling local consequences of urban runoff.

Although renewed in 1996 as Order No. 96-03, the 1993 DAMP implemented by the Copermittees was not significantly updated until 2000. Although the Report of Waste Discharge and proposed DAMP submitted to the SDRWQCB were greatly improved over the earlier DAMP, staff has concluded that in most respects, the proposed DAMP and the new commitments submitted by the Copermittees reflect the basic requirements of the 1990 Federal Regulations and in most cases do not represent significant improvement over the 1993 DAMP. Continued implementation of the DAMP without amendment will not adequately address the impacts to receiving waters resulting from the discharge of urban runoff and would not achieve MEP as defined in this Order. In order to provide the

Copermittees with the minimum requirements to meet the MEP standard of the SDRWQCB, a more specifically detailed Order is proposed that emphasizes the strong jurisdictional level programs developed by the Copermittees during the First and Second Term Permits as well as the watershed-level approach embodied in the proposed DAMP.

At the jurisdictional level, the Copermittees have a number of options available to them in developing the programs to meet the requirements of the Order. Each Copermittee has the discretion to individually develop and implement its Jurisdictional URMP. The Copermittees also have the discretion to develop a model Jurisdictional URMP or model Jurisdictional URMP components. The Jurisdictional URMP or equivalent is subject to review and comment by the SDRWQCB. Each Copermittee is responsible for ensuring that the Jurisdictional URMP addresses the specific urban runoff issues within its jurisdiction. To the extent that a model or template Jurisdictional URMP forms the basis of its program, each Copermittee is individually responsible for: 1) tailoring the model to the conditions within its jurisdiction; 2) implementing the program within its jurisdiction; and 3) ensuring that the implementation of the model Jurisdictional URMP satisfies all of the requirements of the Order within its jurisdiction. However, it is important to note that implementation of the minimum requirements of a Copermittee authored management plan alone does not guarantee compliance with the Order. The determination of compliance to the MEP and to receiving water quality objectives under this Order rests with the SDRWQCB.

MUNICIPAL STORM WATER NPDES PERMITS OVERVIEW (PERMIT SUMMARY)

Municipal storm water NPDES permits seek to ensure that the beneficial uses of a receiving water are protected despite discharges from MS4s into that receiving water. Beneficial uses are defined as the uses of water necessary for the survival or well being of man, plants, and wildlife. Municipal storm water NPDES permits contain requirements to achieve numeric and narrative receiving water quality objectives which are established to protect these beneficial uses. Water quality objectives are defined as constituent concentrations, levels, or narrative statements, representing a quality of water that supports the most sensitive beneficial uses that have been designated for a water body. At this time, municipal storm water NPDES permits contain water quality objectives and a prohibition that MS4 discharges may not cause the water quality objectives in the receiving water to be exceeded. By definition, when the water quality objectives of a receiving water are exceeded, the beneficial uses of that water are not adequately protected.

Typical NPDES permits are based on the concept of employing full-scale treatment of an effluent to remove pollutants at the end of the pipe (i.e., just before being discharged into receiving waters). Accordingly, typical NPDES permits contain numeric effluent limits that are arithmetically derived from receiving water quality objectives for each pollutant of concern in the effluent. However, municipal storm water permits are not typical NPDES permits because they are not based on the concept of full-scale treatment of polluted storm water. Full-scale end of pipe treatment for storm water is not considered economically and technologically feasible at this time. Therefore municipal storm water permits do not contain numeric effluent limits, but rather are based on the concept that pollutants can be effectively reduced in storm water to the maximum extent practicable by the application of a wide range of best management practices (BMPs). The technology-based performance standard of "maximum extent practicable" refers to evaluation and implementation of BMPs to the maximum extent practicable, except where (1) other effective BMPs will achieve greater or substantially similar pollution benefits; (2) the BMP

is not technically feasible; or (3) the cost of BMP implementation greatly outweighs the pollution control benefits.

In other words, in municipal storm water permits, receiving water quality objectives are attained by way of BMP implementation, including use of pollution prevention, source control, and treatment control BMPs. To protect receiving water beneficial uses, municipal storm water permits require the use of best management practices which prevent the generation of pollutants and keep runoff from coming into contact with pollutants, to be supplemented by the use of methods that remove or treat pollutants.

COPERMITTEE RESPONSIBILITY BASED ON LAND USE AUTHORITY (PERMIT SUMMARY)

Storm water permits are issued to municipalities because of their land use authority. The ultimate responsibility for the pollutant discharges, increased runoff, and inevitable long-term water quality degradation that results from urbanization lies with local governments. This responsibility is based on the fact that it is the local governments that have authorized the urbanization (i.e., conversion of natural pervious ground cover to impervious urban surfaces) and the land uses that generate the pollutants and runoff. Furthermore, the MS4 through which the pollutants and increased flows are conveyed, and ultimately discharged into San Diego's natural receiving waters, are owned and operated by the same local governments. In summary, the municipal Copermittees under Order No. R9-2002-0001 are responsible for discharges into and out of their storm water conveyance systems because (1) they own or operate the MS4; and (2) they have the legal authority that authorizes the very development and land uses which generate the pollutants and increased flows in the first place.

Order No. R9-2002-0001 holds the local government accountable for this direct link between its land use decisions and water quality degradation. The permit recognizes that each of the three major stages in the urbanization process (development planning, construction, and the use or operational stage) are controlled by and must be authorized by the local government. Accordingly, this permit requires the local government to implement or require the implementation of appropriate best management practices to reduce pollutant discharges and increased flow during each of the three stages of urbanization.

For example, since grading cannot commence prior to the issuance of a local grading permit, the Copermittees have a built-in mechanism to ensure that all grading activities are protective of receiving water quality. The Copermittee has the authority and discretion to withhold issuance of the grading permit until the project proponent has demonstrated to the satisfaction of the Copermittee that the project will not violate the Copermittee's ordinances or cause the Copermittee to be in violation of its municipal storm water permit. Since the Copermittee will ultimately be held responsible for any discharges from the grading project by the SDRWQCB, the Copermittee will want to use its own permitting authority to ensure that whatever measures the Copermittee deems necessary to protect discharges into its MS4 are in fact taken by the project proponent.

ORDER NO. R9-2002-0001 OVERVIEW (PERMIT SUMMARY)

Order No. R9-2002-0001 is the proposed re-issuance of Order No. 96-03 (i.e., the renewal municipal storm water permit for the Copermittees within the County of Orange in the San Diego Region). Order No. R9-2002-0001 incorporates two highly controversial precedent setting decisions by the State Water Resources Control Board (SWRCB). Specifically, Order No. R9-2002-0001 includes: (1) explicit language requiring municipal storm water dischargers to meet numeric receiving water quality standards²⁸ (in addition to meeting the Maximum Extent Practicable or MEP technology based-standard); and (2) numeric sizing criteria (i.e., design standards) for structural post-construction best management practices (BMPs) for new development and significant redevelopment.

28 The issue of whether municipal storm water dischargers must meet water quality standards has been intensely debated for the past five years in California and throughout the nation. During that same five-year period, the SDRWQCB developed and adopted three other municipal storm water permits. As a consequence of the ongoing debate, each of the three permits was immediately appealed (primarily) on the basis of the water quality standards language. In particular, SDRWQCB Order No. 96-03, the Municipal Storm Water Permit for Orange County Copermittees was adopted and appealed in 1996. SDRWQCB Order No. 97-08, the Municipal Storm Water Permit for CALTRANS was adopted and appealed in 1997. SDRWQCB Order No. 98-02, the Municipal Storm Water Permit for Riverside County Copermittees was adopted and appealed in 1998.

In response to the appeal of the SDRWQCB's permit for Orange County, the SWRCB issued Order WQ 98-01 prescribing specific precedent-setting water quality standards language to be included in all future California MS4 permits. In essence, the SWRCB's precedent-setting language made very clear that storm water discharges must attain receiving water quality standards. In addition, unlike previously adopted versions of the language, it did not state that "violations of water quality standards are not violations of the municipal storm water permit under certain conditions." Likewise, the order's language did not indicate that the "implementation of best management practices is the 'functional equivalent' of meeting water quality standards."

In response to the appeal of the SDRWQCB's permit for Riverside County and the formal objection of the permit by the USEPA, the SWRCB issued Order WQ 99-05, modifying its own precedent-setting language (as specified in Order WQ 98-01) to meet the specific objections of the USEPA. SWRCB Order WQ 99-05 specified even more stringent requirements for municipal dischargers to meet water quality standards. In response to USEPA's formal objections to SDRWQCB Order No. 98-02, the USEPA assumed responsibility for the Riverside County permit and subsequently issued its own MS4 permit with water quality standards language for Riverside County in 1999. Upon issuance of its own permit, the USEPA returned full responsibility for the NPDES permit back to the SDRWQCB. In November 2000, the SDRWQCB amended its Order No. 98-02 to replace the existing language with the full text of the USEPA-issued NPDES permit. At that time, SDRWQCB Order No. 98-02 officially resumed function as both state waste discharge requirements and a federal NPDES permit.

Also following USEPA's issuance of its own MS4 permit for Riverside Copermittees (but in response to a separate similar USEPA-issued MS4 permit), the United States Court of Appeals for the Ninth Circuit (*Defenders of Wildlife v. Browner*, 1999, 197 F. 3d 1035), upheld USEPA's requirement for MS4 dischargers to meet water quality standards, but it did so on the basis of USEPA's discretion rather than on the basis of strict compliance with the Clean Water Act.

On October 14, 1999, the SWRCB issued what is currently its "final" legal opinion on the matter. In summary, the 1999 SWRCB opinion concluded that RWQCBs should continue to include the water quality standards language established in SWRCB Order WQ 99-05 in all future MS4 permits issued in California. The required language has been incorporated into Order No. R9-2002-0001.

While the requirements of Order No. R9-2002-0001 are markedly more clear and specific than those of Order No. 96-03, they are based on the same 1990 federal storm water regulations. Where Order No. 96-03 and Order No. R9-2002-0001 differ, Order No. R9-2002-0001 is more specific as to what is necessary for Copermittee compliance. The increased specificity of Order No. R9-2002-0001's requirements is necessary to address specific local urban runoff concerns, promote the attainment and protection of water quality standards in receiving waters, and satisfy the Copermittee's repeated request for the SDRWQCB to identify the minimum effort required for compliance with the permit. Where requirements are more stringent than the federal storm water regulations, they are generally based on specific guidance from the USEPA and/or the SWRCB and are authorized under both the Clean Water Act section 402(p)(3)(iii) as well as the California Water Code section 13377. Furthermore, the requirements in Order No. R9-2002-0001 represents the SDRWQCB's interpretation of the requisite maximum extent practicable (MEP) technology-based standard.

Order No. R9-2002-0001 places the responsibility for urban runoff discharges into and from MS4s on the Copermittees which own and operate the systems. This responsibility is based on the Copermittees' land use authority. Since the Copermittees permit, authorize, and realize benefits from urban development within their jurisdictions, Order No. R9-2002-0001 holds the Copermittees responsible for the short and long-term water quality consequences of their land use decisions. Furthermore because water quality degradation is the direct result of the urbanization process, Copermittees must implement (or require others to implement) controls to reduce the flow and pollutants generated from each of the three major phases of urbanization that they authorize; namely the (1) land use planning, (2) construction; and (3) use or existing development phase.

The principal requirements of Order No. R9-2002-0001 include the following: (1) each Copermittee shall prohibit all non-storm water discharges not specifically exempted to its MS4; (2) each Copermittee shall reduce pollutants in urban runoff discharges into and from its MS4 to the maximum extent practicable, (MEP); (3) each Copermittee shall ensure that urban runoff discharges into and from its MS4 do not cause or contribute to an exceedance of receiving water quality objectives; (4) each Copermittee shall actively seek and eliminate all sources of illicit discharges to its MS4; and (5) each Copermittee shall obtain, maintain, and enforce adequate legal authority (such as local ordinances and permits) to comply with all provisions of the Order.

Two Levels of Copermittee Responsibility

This Order is issued to each of the Copermittees and contains requirements to be implemented individually and collectively. Each Copermittee must carry out the requirements of Order No. R9-2002-0001 across two broad levels of responsibility. Copermittees have responsibility for the water quality impacts of urbanization within (1) their jurisdiction and (2) their watershed. The jurisdictional responsibility of each Copermittee stems from Copermittee land use authority within its jurisdiction. As discussed above, the Copermittee has authority over the three stages of development (planning, construction, and use or operation) within its jurisdiction. Each Copermittee must therefore take responsibility for water quality impacts resulting from their jurisdictional land use decisions.

Watershed responsibility is also necessary from each Copermittee. This is because each Copermittee is located somewhere within a watershed it shares with other Copermittees. Urban runoff generated in various Copermittee jurisdictions does not follow jurisdictional boundaries, but rather travels through many jurisdictions while flowing towards receiving waters. Simplistically, a watershed can be thought of as a common pipe to the ocean, along the length of which reside the Copermittees within the watershed. Inland Copermittees can be thought of as upstream contributors of pollutants and flow to the common pipe; while coastal Copermittees can be considered downstream contributors. Collectively the Copermittees within the watershed each contribute to the cumulative pollutant load that is conveyed in urban runoff by their interconnected MS4 systems to the receiving waters. Therefore, each Copermittee has collective, shared responsibility for the impacts of its urbanization on the watershed in which it is located. Both coastal and inland cities contribute to receiving water quality problems and both must accept responsibility for contributing to the solution. The Copermittees will address the watershed level activities discussed above in the Watershed Urban Runoff Management Program that will incorporate elements of the proposed Drainage Area Management Plan submitted in September 2000 (see discussion below and for section J of this Order).

Order No. R9-2002-0001 reflects these two broad levels of responsibility, in that it requires implementation of comprehensive urban runoff management plans on both a jurisdictional and watershed level.

Permit Requirements

Order No. R9-2002-0001 contains the following principal elements:

- Legal Authority – Each Copermittee shall establish and maintain adequate legal authority to control pollutant discharges into and from its MS4.
- Jurisdictional Urban Runoff Management Program – Each Copermittee shall develop and implement a Jurisdictional Urban Runoff Management Program (Jurisdictional URMP) which will reduce discharges of pollutants and runoff flow during each major phase of urban development (i.e., planning, construction, and use or operation phases) within its jurisdiction.
- Watershed Urban Runoff Management Program – Each Copermittee shall collaborate with other Copermittees within the San Juan Creek Watershed Management Area within Orange County to revise the proposed DAMP and develop and implement a Watershed Urban Runoff Management Program (Watershed URMP) that will identify and address the highest priority water quality issues/pollutants in the watershed management area.
- Program Management – Each Copermittee shall collaborate with all other Copermittees to address common issues, promote consistency, and plan and coordinate urban runoff management activities as described in section 2 of the proposed DAMP.
- Monitoring – The Copermittees shall collectively develop and implement a Receiving Waters Monitoring Program which shall focus on the collection of monitoring data to be used for the assessment of compliance, achievement of water quality objectives, and the protection of beneficial uses.
- Reporting – Each Copermittee shall submit various reports describing the measures it is undertaking to meet the requirements of Order No. R9-2002-0001.

Each of these principal elements of Order No. R9-2002-0001 is discussed in greater detail below.

Legal Authority

Each Copermittee must adopt and enforce whatever legal authority is needed to eliminate or reduce pollutant discharges from all urban land use sources into and out of its MS4. This legal authority must include the ability to prohibit all discharges into the MS4 except for those that originate from precipitation (and a few other minor exceptions). Each Copermittee must also have legal authority to conduct inspections, collect samples, and require businesses to implement BMPs. Legal authority can be developed through ordinance, permit, contract, or similar means. Each Copermittee must ensure that its requirements are being complied with and use its legal authority to take enforcement actions against violators that are not meeting the Copermittee's requirements.

Jurisdictional Urban Runoff Management Program

The focus of the Jurisdictional Urban Runoff Management Program (URMP) is to address urban runoff during each phase of urbanization (i.e., planning, construction, and use or operation phases). The Jurisdictional URMP includes specific requirements for each of these phases of urbanization, as well as broad requirements that apply to all of the phases. Solid Jurisdictional level programs are necessary to realize truly effective watershed-level programs.

The Jurisdictional URMP singles out the planning phase of urbanization since addressing urban runoff during the planning phase of development is an effective means (in terms of both cost and performance) for protecting receiving water quality. The planning stage provides the greatest number and variety of opportunities for addressing runoff, as well as the most cost-effective time for implementation of BMPs. Order No. R9-2002-0001 includes the following requirements for addressing urban runoff during the planning phase of new development:

- Each Copermittee shall incorporate water quality protection principles and policies into its General Plan or equivalent plan to guide land use decisions.
- Each Copermittee shall modify its development project approval processes to ensure water quality concerns are addressed by development projects. This requirement includes development and implementation by each Copermittee of water quality conditions of approval for projects. Each Copermittee shall also develop and implement Standard Urban Storm Water Mitigation Plans (SUSMPs), requiring various categories of development to implement post-construction BMPs meeting specific numeric sizing criteria.
- Each Copermittee shall revise its environmental review process to include requirements for evaluation of water quality effects from development projects.
- Each Copermittee shall conduct education efforts for its planning and development review staffs, as well as the development community at large.

The construction phase of urbanization is also singled out in the Jurisdictional URMP requirements of Order No. R9-2002-0001. Construction sites and practices are given a high priority in the Jurisdictional URMP requirements due to their significant potential for erosion and discharge of pollutants to MS4s and receiving waters. Order No. R9-2002-

0001 includes the following requirements for addressing urban runoff during the construction phase of urbanization:

- Each Copermittee shall implement, or require implementation of, pollution prevention measures at construction sites.
- Each Copermittee shall update its grading ordinance to require grading and construction activities to include pollution prevention, source control, and structural treatment BMPs.
- Each Copermittee shall update its construction and grading approval processes to ensure water quality concerns are addressed by construction/grading projects. This requirement includes development and implementation by each Copermittee of water quality conditions of approval for construction and grading projects.
- Each Copermittee shall maintain an inventory of all construction sites within its jurisdiction.
- Each Copermittee shall establish priorities for construction oversight activities.
- Each Copermittee shall implement, or require implementation of, minimum BMPs at construction sites. The level of BMPs to be implemented shall be basis on the priority level of the site.
- Each Copermittee shall conduct inspections of construction sites based on construction site priority level.
- Each Copermittee shall enforce its ordinances at all construction sites.
- Each Copermittee shall report non-compliant construction sites to the SDRWQCB.
- Each Copermittee shall conduct education efforts for its construction, building, and grading review staffs, as well as the construction community at large.

The Jurisdictional URMP contains extensive requirements for existing development as well. All urban land uses are addressed by the requirements. The specific land uses identified in the Jurisdictional URMP are municipal, industrial, commercial, and residential land uses. In general, the structure of the Jurisdictional URMP requirements for each of these land uses are similar. For each of the existing development land uses, the Jurisdictional URMP requirements include:

- Each Copermittee shall implement, or require implementation of, pollution prevention measures for each land use.
- Each Copermittee shall maintain an inventory of sites for the various land uses within its jurisdiction. The types of sites to be inventoried for each land use are detailed in section VII. of this fact sheet as well as the permit.
- Each Copermittee shall establish priorities for oversight activities of sites for each land use. The types of sites to be prioritized for each land use are detailed in section VII. of this fact sheet as well as the permit.
- Each Copermittee shall implement, or require implementation of, minimum BMPs at sites for each land use, based on the sites' designated priority levels.
- Each Copermittee shall conduct inspections of sites for each land use based on the sites' designated priority levels.
- Each Copermittee shall enforce its ordinances at all sites for all land uses.

In addition to the general requirements listed above for each land use, the Jurisdictional URMP also contains specific requirements for each land use. These requirements are detailed section VII. of this fact sheet as well as the permit.

While the specific Jurisdictional URMP requirements for each of the three phases of urbanization (i.e., planning, construction, and use or operational phase) are detailed above, the Jurisdictional URMP also contains requirements that apply to all of the phases of urbanization. These include:

- Education – Each Copermittee shall implement an education program using various types of media to (1) increase the knowledge of target communities regarding MS4s, impacts of urban runoff on receiving waters, and potential BMP solutions; and (2) change the behavior of target communities and thereby reduce pollutant releases to the MS4 and receiving waters. Education was emphasized under previous permits and most Copermittees already have well developed education programs.
- Illicit Discharge Detection and Elimination – Each Copermittee shall develop and implement measures to detect and eliminate all illicit discharges. This includes measures to respond to sewage and other spills, limit infiltration from sanitary sewers, and facilitate proper disposal and encourage reporting by the public.
- Public Participation – Each Copermittee shall incorporate a mechanism for public participation in the implementation of the Jurisdictional URMP.
- Assessment of Effectiveness – Each Copermittee shall develop a long-term strategy for assessing the effectiveness of its urban runoff management program.
- Fiscal Analysis – Each Copermittee conduct annual fiscal analyses to exhibit adequate fiscal resources necessary to meet the requirements of Order No. R9-2002-0001.

Watershed Urban Runoff Management Program

As discussed above, each Copermittee has responsibility for the impacts of its urban runoff on its respective watershed(s). This is because urban runoff does not follow jurisdictional boundaries, and often travels through many jurisdictions while flowing to receiving waters. Therefore, the actions of various municipalities within a watershed regarding urban runoff can have a cumulative impact upon shared receiving waters. For this reason, Order No. R9-2002-0001 requires the Copermittees to develop and implement a Watershed URMP for the San Juan Creek Watershed Management Area within Orange County as specified in section J of this Order. The Watershed URMP will be developed later in the permit cycle than the Jurisdictional URMP and is intended to build upon and enhance the Jurisdictional URMPs. The purpose of the Watershed URMP is to identify and address the highest priority water quality issues/pollutants in each of the six hydrologic units of the San Juan Creek Watershed Management Area within Orange County. Under the Watershed URMP requirements, for each hydrologic unit of the watershed, the Copermittees shall:

- Map the watershed and identify all receiving waters, all impaired receiving waters, land uses, highways, jurisdictional boundaries, and inventoried commercial, industrial, construction, municipal sites, and residential areas.
- Assess the water quality of all receiving waters in the watershed based on existing data, and eventually perform watershed based water quality monitoring.
- Identify and prioritize major water quality problems in the watershed caused or contributed to by discharges from MS4s, including potential sources of the problems.

- Develop and implement a time schedule of activities needed to address the highest priority water quality problems.
- Identify which Copermittee is responsible for implementing each recommended watershed activity.
- Develop and implement a mechanism for public participation in watershed activities.
- Develop and implement a watershed based education program.
- Develop a strategy for assessing the effectiveness of the Watershed URMP.

Program Management

The Copermittees shall implement the collective program management structure and commitments described in the proposed DAMP that allows individual Copermittees to carry out permit requirements with other Copermittees, either as a whole (all of the Copermittees countywide) or within a watershed (Copermittees within a watershed). This requirement provides for more effective urban runoff management, in that it defines various Copermittee roles, aids in the sharing of costs to meet permit requirements, and provides performance standards to assess compliance.

Monitoring

Order No. R9-2002-0001 requires a comprehensive monitoring program for urban runoff impacts to receiving waters. The monitoring program will help prioritize efforts so that limited resources will be most effective in improving receiving water quality. It will also aid in assessing the effectiveness of urban runoff management efforts. The Copermittees are to develop the monitoring program; however, the SDRWQCB has outlined several aspects to be included in the program. These aspects include:

- Development of a Receiving Waters Monitoring Program Document that includes both a Previous Monitoring and Future Recommendations (Technical) Report which summarizes all previous wet weather monitoring results and recommends future monitoring activities as well as a Receiving Waters Monitoring Program based upon that report and its recommendations.
- Development and implementation of a urban stream bioassessment monitoring program, which shall consist of station identification, sampling, monitoring, and analysis of bioassessment stations to determine the biological and physical integrity of urban streams within the County of San Diego.
- Review and revision of the monitoring program for existing mass loading stations for the purposes of evaluating long-term trends as described in the Orange County Water Quality Monitoring Program (99-04 Plan).
- Development and implementation of a monitoring program for discharges of urban runoff from coastal storm drain outfalls.
- Development and implementation of a monitoring program to assess the chemical, physical, and biological impact of urban runoff on ambient coastal receiving water quality.

Reporting

Under Order No. R9-2002-0001, each Copermittee must submit a series of documents and reports. The following is a brief description of the primary reports required by Order

No. R9-2002-0001. When each Copermittee has developed its Jurisdictional Urban Runoff Management Programs and its part of the Watershed Urban Runoff Management Program (by dates specified in the permit), it must submit documents describing the programs. Each Copermittee must also annually submit its Jurisdictional URMP Annual Reports and collaborate to submit the Watershed URMP Annual Reports once the programs have been implemented. An annual Receiving Waters Monitoring Program Report for the Copermittees must also be submitted. There are other documents and reports required for submittal; these documents and reports are detailed in section VII. of this fact sheet and in Order No. R9-2002-0001.

CONCLUSION (PERMIT SUMMARY)

Order No. R9-2002-0001 is an essential mechanism for maintaining and improving water quality in Orange County. Order No. R9-2002-0001, which was drafted to be applied throughout the San Diego Region, represents the SDRWQCB definition of the minimum requirements to achieve compliance to the MEP and to protect the beneficial uses of receiving waters. Since the inception of the NPDES Storm Water Program, progress has been made in the San Diego Region to control urban runoff pollution. The Orange County Copermittees have developed some strong programs under the First and Second Term Permits that this Order is intended to build upon and enhance. Also, there is a better understanding by local managers of the regulations, the public education campaigns implemented by the Copermittees under previous permits, and improved Copermittee group communication. However, continued improvement in urban runoff quality is still necessary to achieve sound protection of beneficial uses of the region's receiving waters.

V. COMMON MUNICIPAL STORM WATER PERMIT ISSUES

Interested parties have frequently brought the following issues listed below to the attention of the SDRWQCB. During issuance of previous municipal storm water permits, most comments from interested parties have revolved around these issues. For this reason, the SDRWQCB has included its responses to the following issues in order to clarify its position regarding the issues.

1. Issue: Is the SDRWQCB required to meet California Environmental Quality Act (CEQA) requirements prior to adoption of the Draft Municipal Storm Water Permit for Orange County, the Incorporated Cities within Orange County, and the Orange County Flood Control District within the San Diego Region Order No. R9-2002-0001 (Order)?

Response: No. The adoption and issuance of the Order itself, and the requirements contained in the Order are exempt from CEQA under California Water Code section 13389. California Water Code section 13389 exempts the adoption of waste discharge requirements (such as NPDES permits) from CEQA requirements. In its review of Order No. 2001-01, the template from which this Order is derived, the SWRCB stated: "As we have stated in several prior orders, the provisions of CEQA requiring adoption of environmental documents do not apply to NPDES permits. BIA contends that the exemption from CEQA contained in section 13389 applies only to the extent that the specific provisions of the permit are required by the federal Clean Water Act. This contention is easily rejected without addressing whether federal law mandated all of the permit provisions. The plain language of section 13389 broadly exempts the Regional Water Board from the requirements of CEQA to prepare environmental documents when

adopting “any waste discharge requirement” pursuant to Chapter 5.5 (§§ 13370 et seq., which applies to NPDES permits). BIA cites the decision in *Committee for a Progressive Gilroy v. State Water Resources Control Board* (1987) 192 Cal.App.3d 847. That case upheld the State Water Board’s view that section 13389 applies only to NPDES permits, and not to waste discharge requirements that are adopted pursuant only to state law. The case did not concern an NPDES permit, and does not support BIA’s argument.”

2. Issue: Do the requirements of the Order constitute an “unfunded mandate”?

Response: No. The requirements of the Order are not within the definition of “unfunded mandate” that would require reimbursement of costs under the California Constitution. This is because the requirements of the Order are derived from the federal Clean Water Act, as opposed to State Law. Since the Order would implement a federal requirement, rather than a state requirement, the Order is not an “unfunded mandate” by the state. The State Water Resources Control Board (SWRCB) has previously determined in several circumstances that regional board orders are exempt from the requirement for reimbursement under the California Constitution.

3. Issue: Does the SDRWQCB have the legal authority to require municipalities to regulate urban runoff flow to protect beneficial uses of receiving waters?

Response: Yes. Federal NPDES regulation 40 CFR 122.44(d)(1) requires municipal storm water permits to include any requirements necessary to “[a]chieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.” The term “water quality standards” in this context refers to a water body’s **beneficial uses** and the water quality objectives necessary to protect those beneficial uses. The negative impact of urban runoff flow on the beneficial uses of receiving waters has been widely documented. Increases in flows from impervious surfaces associated with urbanization can result in (1) increases in the number of bankfull events and increased peak flow rates; (2) sedimentation and increased sediment transport; (3) frequent flooding; (4) stream bed scouring and habitat degradation; (5) shoreline erosion and stream bank widening; (6) decreased baseflow; (7) loss of fish populations and loss of sensitive aquatic species; (8) aesthetic degradation; and (9) changes in stream morphology.²⁹ Many of these effects have been identified in the Aliso Creek and San Juan Creek hydrologic units in studies conducted by the Copermittees and the Army Corps of Engineers as summarized elsewhere in this document. US EPA finds that the level of imperviousness resulting from urbanization is strongly correlated with the water quality impairment of nearby receiving waters.³⁰ US EPA further attributes much of this water quality impairment to changes in flow conditions from urbanization, stating “[I]n many cases, the impacts on receiving streams due to high storm water flow rates or volumes can be more significant than those attributable to the

²⁹ U.S. Environmental Protection Agency. 1999. Preliminary Data Summary of Urban Storm Water Best Management Practices. EPA-821-R-99-012. p. 4-24.

³⁰ U.S. Environmental Protection Agency. 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. p. 68727.

contaminants found in storm water discharges.”³¹ Therefore, in order to protect the beneficial uses and water quality objectives of waters receiving urban runoff flows (as **required** by 40 CFR 122.44(d)(1)), the SDRWQCB has under certain circumstances placed limits on urban runoff flows in the Order.

In addition, the authority of states to regulate flow in order to protect water quality standards has been addressed by the U.S. Supreme Court in PUD No. 1 v. Washington Department of Ecology, 511 U.S. 700 (1994). In this case the U.S. Supreme Court found that the Clean Water Act applies to water quantity as well as water quality, stating “[p]etitioners also assert more generally that the Clean Water Act is only concerned with water ‘quality’ and does not allow the regulation of water ‘quantity.’ This is an artificial distinction. In many cases, water quantity is closely related to water quality.” The U.S. Supreme court goes on to refer to the Clean Water Act’s definition of pollution (“the man-made or man induced alteration of the chemical, physical, biological, and radiological integrity of water” 33 U.S.C. 1362(19)) and states “[t]his broad conception of pollution – one which expressly evinces Congress’ concern with the physical and biological integrity of water – refutes petitioners’ assertion that the Act draws a sharp distinction between the regulation of water ‘quantity’ and water ‘quality.’” In this context, the U.S. Supreme Court held that the state’s regulation of flow was “a limitation necessary to enforce the designated use of the River as a fish habitat.” Finally, it was held that the state’s regulation of flow was “a proper application of the state and federal antidegradation regulations, as it ensures than an ‘existing instream water use’ will be ‘maintained and protected.’ 40 CFR 131.12(a)(1) (1992).”

4. Issue: Can the SDRWQCB include in the Order more specific requirements than those stated in the federal NPDES regulations?

Response: Yes. In both a general sense, as well as specifically relating to municipal storm water, the Clean Water Act explicitly preserves independent state authority to enact and implement its own standards and requirements, provided that such standards and requirements are at least as stringent as those that would be mandated by the Clean Water Act and the federal regulations. For example, as one general overriding principle, Clean Water Act section 510 states “nothing in this chapter shall (1) preclude or deny the right of any State or political subdivision thereof or interstate agency to adopt or enforce (A) any standard or limitation respecting discharges of pollutants, or (B) any requirement respecting control or abatement of pollution [...]” When relating specifically to storm water, Clean Water Act section 402(p)(3)(B)(iii) clearly provides states with wide-ranging discretion, stating that municipal storm water permits “[s]hall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, **and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants**” (emphasis added).

Therefore, where the Order contains requirements more specific than those included in the federal NPDES regulations 40 CFR 122.26(d), it is seeking to

³¹ U.S. Environmental Protection Agency. 1999. Preliminary Data Summary of Urban Storm Water Best Management Practices. EPA-821-R-99-012. p. 4-23.

meet the above Clean Water Act requirements, as well as other particular federal NPDES regulations such as 40 CFR 122.44(d)(1)(i). This federal NPDES regulation requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.” Given the continued impact of urban runoff on receiving waters within the San Diego region, increased specificity in municipal storm water permits is necessary to meet the above CWA and federal regulation requirements.

In a 1992 decision, the U.S. Court of Appeals for the Ninth Circuit (NRDC v. US EPA, 966 F.2d 1292) interpreted the language in Clean Water Act section 402(p)(3)(B)(iii) as providing the State with substantial discretion and authority: “[t]he language in (iii), above, requires the Administrator or the State to design controls. Congress did not mandate a minimum standards approach or specify that U.S. EPA develop minimal performance requirements [...] we must defer to U.S. EPA on matters such as this, where U.S. EPA has supplied a reasoned explanation of its choices.” The decision in essence holds that the U.S. EPA and the States are authorized to require implementation of storm water control programs that, upon “reasoned explanation,” accomplish the goals of CWA section 402(p). The Ninth Circuit Court of Appeals further reinforced the State’s authority in this area more recently in 1999. In Defenders of Wildlife v. Browner (1999) Case No. 98-71080, the Court cited the language of CWA section 402(p)(3)(B)(iii) and stated “[t]hat provision gives the U.S. EPA discretion to determine what pollution controls are appropriate. As this court stated in NRDC v. U.S. EPA, ‘Congress gave the administrator discretion to determine what controls are necessary [...].’”

Furthermore, the increased specificity included in the Order is in line with US EPA guidance included in its *Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems*³² and its *Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits*.³³ Where the Order is more specific than the federal regulations, it is frequently based on the recommendations of the Guidance Manual. The Interim Permitting Approach also supports increased specificity in storm water permits, recommending that municipal storm water permits use “best management practices (BMPs) in first-round storm water permits, and **expanded or better-tailored BMPs in subsequent permits**, where necessary, to provide for the attainment of water quality standards. In cases where adequate information exists to develop more specific conditions or limitations to meet water quality standards, these conditions or limitations are to be incorporated into storm water permits, as necessary and appropriate” (emphasis added). It is important to note that the SWRCB cited US EPA’s

³² U.S. Environmental Protection Agency. 1992. *Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems*. EPA 833-B-92-002.

³³ U.S. Environmental Protection Agency. 1996. *Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits*. 61 FR 43761.

Interim Permitting Approach as support for its recent decision which upheld the increased specificity of numeric sizing criteria requirements for post-construction BMPs as appropriate requirements in municipal storm water permits.

Finally, Copermittees in the San Diego Region have frequently requested clarification from the SDRWQCB on what is necessary to achieve compliance with the current Municipal Storm Water Permits. The Order responds to this request by describing the minimum permit requirements in detail.

5. Issue: Does the Order dictate the design and manner of compliance in which the Copermittees are to comply with its requirements, in violation of California Water Code section 13360?

Response: No. CWA section 402(p)(3)(B)(iii) provides that municipal storm water permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." To meet this requirement of the CWA, the Order requires the implementation of BMPs, as required under Federal NPDES regulation 40 CFR 122.44(k). While the Order includes requirements for widespread BMP implementation, it does not require use of any particular BMPs. The Order actually encourages implementation of combinations of BMPs, and further does not preclude any particular BMPs or other means of compliance. A permit which allows for seemingly infinite means for achieving compliance does not 'specify the design or manner of compliance' in violation of California Water Code section 13360.

The specified programs included in the Order must be implemented by the Copermittees in order to carry out the CWA requirements. Any specified programs in the Order are made all the more necessary by the exclusion of numerical effluent limits from the permit. Reliance on BMPs as opposed to numerical effluent limits requires specification of those programs that are relied upon to reduce pollution.

Finally, the SWRCB's recent decision on the appeal of the Los Angeles Regional Water Quality Control Board's (LARWQCB's) action on SUSMPs and numeric sizing criteria appears to support inclusion of detail in municipal storm water permits on the level which is found in the Order. The SWRCB found that the numeric sizing criteria requirement for post-construction BMPs did not violate California Water Code section 13360. Provided that the numeric sizing criteria requirement is most likely the most specific requirement in the Order, the SWRCB decision in support of numeric sizing criteria indicates its general approval of the level of detail found in the Order.

6. Issue: Do discharges from municipal separate storm sewer systems (MS4s) need to meet the water quality standards (beneficial uses and water quality objectives) of the receiving waters to which they discharge?

Response: Yes. The issue of whether storm water discharges from MS4s must meet water quality standards has been intensely debated for the past five years.

The argument arises because Clean Water Act section 402(p) fails to clearly state that municipal dischargers of storm water must meet water quality standards. On the issue of industrial discharges of storm water, the statute clearly indicates that industrial dischargers must meet both (1) the technology-based standard of “best available technology economically achievable (BAT)” and (2) applicable water quality standards. On the issue of municipal discharges however, the statute states that municipal dischargers must meet (1) the technology-based standard of “maximum extent practicable (MEP)” and (2) “such other provisions that the Administrator or the State determines appropriate for the control of such pollutants.” The statute fails, however, to specifically state that municipal dischargers must meet water quality standards.

As a result, the municipal storm water dischargers have argued that they do not have to meet water quality standards; and that they only are required to meet the MEP standard. Environmental interest groups maintain that not only do MS4 discharges have to meet water quality standards, but that MS4 permits must also comply with numeric effluent limitations for the purpose of meeting water quality standards. On the issue of water quality standards, the US EPA, the SWRCB, and the SDRWQCB have consistently maintained that MS4s must indeed comply with water quality standards. On the issue of whether water quality standards must be met by numeric effluent limits, the US EPA, the SWRCB (in Orders WQ 91-03 and WQ 91-04), and the SDRWQCB have maintained that MS4 permits can, at this time, contain narrative requirements for the implementation of BMPs in place of numeric effluent limits.

SWRCB rationale: In addition to relying on US EPA’s legal opinion concluding that MS4s must meet MEP and water quality standards, the SWRCB also relied on the Clean Water Act’s explicit authority for States to require “such other provisions that the Administrator or the State determines appropriate for the control of such pollutants” in addition to the technology-based standard of MEP. To further support its conclusions that MS4 permit dischargers must meet water quality standards, the SWRCB relied on provisions of the California Water Code that specify that all waste discharge requirements must implement applicable Basin Plans and take into consideration the appropriate water quality objectives for the protection of beneficial uses.

The SWRCB first formally concluded that permits for MS4s must contain effluent limitations based on water quality standards in its Order WQ 91-03. In that Order, the SWRCB also concluded that it was appropriate for Regional Boards to achieve this result by requiring best management practices, rather than by inserting numeric effluent limitations into MS4 permits. In Order WQ 98-01, the SWRCB prescribed specific precedent setting Receiving Water Limitations language to be included in all future MS4 permits. This language specifically requires that MS4 dischargers meet water quality standards and allows for the use of narrative BMPs (increasing in stringency and implemented in an iterative process) as the mechanism by which water quality standards can be met.

In Order WQ 99-05, the SWRCB modified its receiving water limitations language found in Order WQ 98-01 to meet specific objections by the US EPA (the modifications resulted in stricter compliance with water quality standards). SWRCB Order WQ 99-05 states “In Order WQ 98-01, the State Water

Resources Control Board (State Water Board) ordered that certain receiving water limitation language be included in future municipal storm water permits. Following inclusion of that language in permits issued by the San Francisco Bay and San Diego Regional Water Quality Control Boards (Regional Water Boards) for Vallejo and Riverside respectively, the United States Environmental Protection Agency (EPA) objected to the permits. The EPA objection was based on the receiving water limitation language. The EPA has now issued those permits itself and has included receiving water limitation language it deems appropriate.

“In light of EPA’s objection to the receiving water limitation language in Order WQ 98-01 and its adoption of alternative language, the State Water Board is revising its instructions regarding receiving water limitation language for municipal storm water permits. It is hereby ordered that Order WQ 98-01 will be amended to remove the receiving water limitation language contained therein and to substitute the EPA language. Based on the reasons stated here, and as a precedent decision, the following receiving water limitation language [which is found in Receiving Water Limitations item C. of Order No. R9-2002-0001] shall be included in future municipal storm water permits.”

In a late 1999 case involving MS4 permits issued by US EPA to several Arizona cities (*Defenders of Wildlife v. Browner*, 1999, 197 F. 3d 1035), the United States Court of Appeals for the Ninth Circuit upheld US EPA’s requirement for MS4 dischargers to meet water quality standards, but it did so on the basis of US EPA’s discretion rather than on the basis of strict compliance with the Clean Water Act. In other words, while holding that the Clean Water Act does not require all MS4 discharges to comply strictly with state water quality standards, the Court also held that US EPA has the authority to determine that ensuring strict compliance with state water quality standards is necessary to control pollutants. On the question of whether MS4 permits must contain numeric effluent limitations, the court upheld US EPA’s use of iterative BMPs in place of numeric effluent limits.

SWRCB’s final position: On October 14, 1999, the SWRCB issued a legal opinion on the federal appellate decision and provided advice to the Regional Boards on how to proceed in the future. In the memorandum, the SWRCB concludes that the recent Ninth Circuit opinion upholds the discretion of US EPA and the State to (continue to) issue permits to MS4s that require compliance with water quality standards through iterative BMPs. Moreover, the memorandum states that “[...] because most MS4 discharges enter impaired water bodies, there is a real need for permits to include stringent requirements to protect those water bodies. As total maximum daily loads (TMDLs) are developed, it is likely that MS4s will have to participate in pollutant load reductions, and the MS4 permits are the most effective vehicles for those reductions.” Finally, in Order No. WQ 2001-15, the SWRCB stated that Order No. 2001-01, the template from which this permit is derived, “The Regional Water Board appropriately required compliance with water quality standards and included requirements to achieve reduction of pollutants to the maximum extent practicable. In summary, the SWRCB concludes that the Regional Boards should continue to include the Receiving Water Limitations language established in SWRCB Order WQ 99-05 in all future permits.

Accordingly, the SDRWQCB has required in the Order that discharges from MS4s meet receiving water quality objectives.

7. Issue: What is the definition of “maximum extent practicable (MEP)” and who defines it?

Response: Under Section 402(p) of the Clean Water Act, municipalities are required to reduce the discharge of pollutants from their storm water conveyance systems to the maximum extent practicable (MEP). MEP is the critical technology-based performance standard which municipalities must attain in order to comply with their municipal storm water permits. The MEP standard establishes the level of pollutant reductions the municipality must achieve. MEP generally emphasizes pollution prevention and source control BMPs (as the first line of defense) **in combination** with treatment methods serving as a backup (additional line of defense).

To achieve the MEP standard, municipalities must employ whatever BMPs are technically feasible (i.e., are likely to be effective) and are not cost prohibitive. The major emphasis is on technical feasibility. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the cost would be prohibitive. In selecting BMPs to achieve the MEP standard, the following factors may be useful to consider:

- a. Effectiveness: Will the BMPs address a pollutant (or pollutant source) of concern?
- b. Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?
- c. Public Acceptance: Does the BMP have public support?
- d. Cost: Will the cost of implementing the BMP have a reasonable relationship to the pollution control benefits to be achieved?
- e. Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc?

If a municipality reviews a lengthy menu of BMPs and chooses to select only a few of the least expensive BMPs, it is likely that MEP has not been met. On the other hand, if a municipal discharger employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost is prohibitive, it would have met the standard. Where a choice may be made between two BMPs that should provide generally comparable effectiveness, the discharger may choose the least expensive alternative and exclude the more expensive BMP. However, it would not be acceptable either to reject all BMPs that would address a pollutant source, or to pick a BMP base solely on cost, which would be clearly less effective. In selecting BMPs the municipality must make a serious attempt to comply and practical solutions may not be lightly rejected. In any case, the burden would be on the municipal discharger to show

compliance with its permit. After selecting a menu of BMPs, it is the responsibility of the discharger to ensure that all BMPs are implemented.³⁴

A definition of MEP is not provided in either the federal statute or in the federal regulations. The final determination regarding whether a municipality has reduced pollutants to the maximum extent practicable can only be made by the Regional or State Water Boards, and not by the municipal discharger. While Regional or State Boards ultimately define MEP, it is the responsibility of the Copermittees to initially propose actions that implement BMPs to reduce pollution to the MEP. In other words, the Copermittees' Jurisdictional and Watershed Urban Runoff Management Programs (URMPs) to be developed under the Order are the Copermittees' proposals of MEP. Their total collective and individual activities conducted pursuant to their URMPs become their proposal for MEP as it applies both to their overall effort, as well as to specific activities.

It is the SDRWQCB's responsibility to evaluate the proposed programs and specific BMPs to determine what constitutes MEP, using the above guidance and the court's decision in NRDC v. California Department of Transportation, Federal District Court, Central District of California (1994). The court stated that a permittee must evaluate and implement BMPs except where (1) other effective BMPs will achieve greater or substantially similar pollution control benefits; (2) the BMP is not technically feasible; or (3) the cost of BMP implementation greatly outweighs the pollution control benefits. In the absence of a proposal acceptable to the SDRWQCB, the SDRWQCB will define MEP by requiring implementation of additional measures by the Copermittees.

8. Issue: Can the SDRWQCB compel municipalities to use the local authority to control activities of third parties subject to their governmental jurisdiction that could affect the quality of the waters of the state?

Response: Yes. Copermittees cannot passively receive and discharge pollutants from third parties. As US EPA states, "The operator of a small MS4 that does not prohibit and/or control discharges into its system essentially accepts 'title' for those discharges. At a minimum, by providing free and open access to the MS4s that convey discharges to the waters of the United States, the municipal storm sewer system enables water quality impairment by third parties."³⁵

Discharges of pollutants to the MS4 must therefore be controlled, and an important means for a municipality to achieve this is through the development and enforcement of municipal legal authority. USEPA states "A crucial requirement of the NPDES storm water regulation is that a municipality must demonstrate that it has adequate legal authority to control the contribution of pollutants in storm water discharged to its MS4. [...] In order to have an effective municipal storm water

³⁴Source: February 11, 1993 memo entitled "Definition of Maximum Extent Practicable" by Elizabeth Jennings, Senior Staff Counsel, SWRCB

³⁵U.S. Environmental Protection Agency. 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. p. 68765.

management program, a municipality must have adequate legal authority to control the contribution of pollutants to the MS4. [...] ‘Control,’ in this context, means not only to require disclosure of information, but also to limit, discourage, or terminate a storm water discharge to the MS4.”³⁶

Since discharges that enter the MS4 are generally discharged unimpeded directly into receiving waters, the Copermittee’s legal authority is to apply to both discharges into and from MS4s. Federal NPDES regulations clearly provide the SDRWQCB with the legal authority to require municipalities to control discharges from third parties into their MS4. 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in urban runoff **from** commercial, residential, industrial, and construction land uses or activities. Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(A - D) require municipalities to have legal authority to control various discharges **to** their MS4. This concept is further supported in the Preamble to the Phase II Final Rule NPDES storm water regulations, which states “The operators of regulated small MS4s cannot passively receive and discharge pollutants **from** third parties”³⁷ (emphasis added). Due to the greater water quality concerns generally experienced by larger municipalities, Phase II Final Rule findings for small municipalities are also applicable to larger municipalities such as the Copermittees. Finally, underlying the Federal NPDES storm water regulations is the Clean Water Act, which states in section 402(p)(3)(B)(ii) that municipalities shall “effectively prohibit non-stormwater discharges **into** the storm sewers” (emphasis added).

The requirement for municipal storm water dischargers to have, and exercise, local governmental authority in order to comply with water quality control obligations is analogous to the requirement for Publicly Owned Treatment Works to have and exercise legal authority to require pretreatment of industrial wastes being discharged to their sewage collections systems (CWA 402(b)(8)).

9. Issue: Does the Order improperly shift responsibility for control of construction and industrial sources of pollution to the Copermittees?

Response: No. The Copermittees are not responsible for enforcing or overseeing the General Statewide Industrial or Construction Permits. The SDRWQCB will oversee and enforce the General Statewide Industrial and Construction Permits. The Copermittees are however, responsible for enforcing their ordinances that implement the Order, including the prohibitions against illicit discharges. In some cases, the Copermittees may be required to implement or require the implementation of BMPs at construction or industrial sites that exceed the minimum requirements of the General Statewide Industrial or Construction Permits in order to achieve compliance with the requirements of the Order. USEPA supports this approach, clearly placing responsibility for the control of discharges from construction and industrial sites with municipalities.

³⁶U.S. Environmental Protection Agency. 1992. Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

³⁷U.S. Environmental Protection Agency. 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. p. 68765.

US EPA felt it so important to control the discharge of pollutants from construction and industry that it established a double system of regulation over construction and industrial sites. Two parallel regulatory systems were established with the same common objective of keeping pollutants from construction and industrial sites out of the municipal separate storm sewer system (MS4). A structure was created where local governments must enforce their local ordinances and permits as required under their municipal storm water permits, while the SDRWQCB (state) must enforce its statewide general construction and industrial storm water permits. The two regulatory systems were designed to complement and support each other in the shared goal of minimizing pollutant discharges in runoff from construction and industrial sites. To this extent, this Order actually enables the SDRWQCB to alleviate some of the annual burden for inspecting high priority industrial sites by permitting a SDRWQCB inspection of a facility to satisfy the Copermittee requirement to inspect the same facility (section F.3.b.6.d). The SDRWQCB has recently added two full time positions to the Industrial Compliance Unit that conducts these inspections.

Local governments have the primary regulatory authority over the majority of construction and industrial sites since they issue the development and land use permits for the sites. In other words, the Copermittees are responsible for the water quality consequences of their planning, construction, and land use decisions that result in discharges into their MS4s.

US EPA supports this approach, clearly placing responsibility for the control of discharges from construction and industrial sites with municipalities. US EPA notes in the preamble to the storm water regulations that municipalities are in the best place to enforce industrial compliance with storm water discharge requirements, stating “[b]ecause storm water from industrial facilities may be a major contributor of pollutants to MS4s, municipalities are obligated to develop controls for storm water discharges associated with industrial activity through their system in their storm water management program [...]”³⁸ and “[t]hese permits are expected to require that controls be placed on storm water discharges associated with industrial activity which discharge through the municipal system.”³⁹

Regarding construction sites, US EPA also places enforcement responsibility on municipalities, requiring small municipalities to develop and implement “[a]n ordinance or other regulatory mechanism to require erosion and sediment controls, as well as **sanctions** to ensure compliance [...]” (40 CFR 122.34(b)(4)(ii)(A)) (emphasis added). In its guidance for the Phase II regulations, US EPA goes on to support increased municipality responsibility, stating “Even though all construction sites that disturb more than one acre are covered nationally by an NPDES storm water permit, the construction site runoff

³⁸U.S. Environmental Protection Agency. 1990. 40 CFR Parts 122, 123, and 124 National Pollutant discharge Elimination System Permit Application Regulations for Storm Water Discharges; Final Rule. p. 48000.

³⁹U.S. Environmental Protection Agency. 1990. 40 CFR Parts 122, 123, and 124 National Pollutant discharge Elimination System Permit Application Regulations for Storm Water Discharges; Final Rule. p. 48006.

control minimum measure for the small MS4 program is needed to induce more localized site regulation and enforcement efforts, and to enable operators of regulated small MS4s to more effectively control construction site discharges into their MS4s.”⁴⁰ While these above citations refer to small municipalities under Phase II of the NPDES program, US EPA recommendations to small municipalities are applicable to larger municipalities such as the Copermittees, due to the typically more serious water quality concerns attributed to such larger municipalities.

10. Issue: Must the Order require that municipal storm water discharges meet numeric effluent limits?

Response: No. Although NPDES permits must contain conditions to ensure that water quality standards are met, this does not require the use of numeric effluent limitations. Under the Clean Water Act and federal NPDES regulations, permitting authorities may employ a variety of conditions and limitations in storm water permits, including best management practices, performance objectives, narrative conditions, monitoring triggers, actions levels (e.g., monitoring benchmarks, toxicity reduction evaluation action levels), etc., as the necessary effluent limitations, where numeric effluent limitations are determined to be unnecessary or infeasible.

Neither the Clean Water Act nor the federal NPDES regulations require numeric effluent limitations for municipal storm water discharges. Section 301 of the Clean Water Act requires that discharger permits include effluent limitations necessary to meet water quality standards. Section 502 defines “effluent limitations” to mean any restriction on quantities, rates, and concentrations of constituents discharged from point sources. The Clean Water Act does not say that effluent limitations need be numeric. As a result, US EPA and States have flexibility in terms of how to express effluent limitations.

US EPA has, through the federal NPDES regulations, interpreted the Clean Water Act statute to allow for non-numeric effluent limitations (e.g., best management practices) to replace numeric effluent limitations where numeric effluent limitations are infeasible (40 CFR 122.44(k)). US EPA has found numeric effluent limitations infeasible because storm water discharges are highly variable both in terms of flow and pollutant concentrations, and the relationships between discharges and water quality can be complex. The current use of system-wide permits and a variety of jurisdiction-wide BMPs, including educational and programmatic BMPs, does not easily lend itself to the existing methodologies for deriving numeric effluent limitations.

It should be noted that while the Order does not specify numeric effluent limitations for municipal urban runoff discharges, it does not preclude numeric effluent limitations from applying to municipal urban runoff discharges into impaired water bodies. Where impaired water bodies are not meeting their water quality standards, numeric effluent limitations may be placed on municipal urban runoff discharges through the implementation of total maximum daily loads

⁴⁰ U.S. Environmental Protection Agency. 2000. Storm Water Phase II Compliance Assistance Guide. EPA 833-R-00-002.

(TMDLs) or other means. Furthermore, methods utilized to calculate waste load allocations for TMDLs may eventually be used to develop numeric effluent limitations for urban runoff in municipal storm water permits.⁴¹

11. Issue: Does the Order provide adequate time for the Copermitees to develop and implement programs to meet its requirements?

Response: Yes. The Order provides the Copermitees with at least one-year to develop and implement their Jurisdictional Urban Runoff Management Programs. With regards to the component of the Jurisdictional Urban Runoff Management Programs which addresses planning and new development, the Copermitees are given a full year for development and implementation. In addition, the Copermitees are allowed at least 18 months to develop and implement their individual Standard Urban Storm Water Mitigation Plans (SUSMPs) for new development. Given that the federal NPDES storm water regulations, as well as the Copermitees' current storm water permit requirements, have been in place for approximately 10 years under the First and Second Term Permits, the Copermitees should require little time to develop and implement Jurisdictional Urban Runoff Management Programs which meet the requirements of the Order. The time periods provided by the Order should be more than adequate.

12. Issue: Does have the SDRWQCB have the authority to require SUSMPs and numeric sizing criteria in Order No. R9-2002-0001

Response: Yes. Pursuant to the Clean Water Act and Federal NPDES regulations, municipal storm water permits must require controls to reduce the discharge of pollutants to the maximum extent practicable including controls which address pollutant discharges resulting from new development and significant redevelopment. Both the Los Angeles Regional Water Quality Control Board (Order No. 96-54) and the San Diego Regional Water Quality Control Board (2001-01) have adopted SUSMP requirements in their Municipal Storm Water Permits. The SWRCB Order No. 2000-11(from appeal of LARWQCB permit) finds that SUSMP requirements (including numeric sizing criteria) reflect a reasonable interpretation of development controls that achieve reduction of pollutants in storm water discharges to the maximum extent practicable. In Order No. WQ 2001-15, the SWRCB continued its support of the SUSMP requirements stating "This Board very recently reviewed the need for controls on urban runoff in MS4 permits, the emphasis on best management practices (BMPs) in lieu of numeric effluent limitations, and the expectation that the level of effort to control urban runoff will increase over time. We pointed out that urban runoff is a significant contributor of impairment to waters throughout the state, and that additional controls are needed. Specifically, in Board Order WQ 2000-11 (hereinafter, LA SUSMP Order), we concluded that the Los Angeles Regional Water Board acted appropriately in determining that numeric standards for the design of BMPs to control runoff from new construction and redevelopment constituted controls to the MEP. The San Diego permit incorporates numeric design standards for runoff from new construction and redevelopment similar to those considered in the LA SUSMP order. In addition, the

⁴¹ Source: U.S. Environmental Protection Agency. 1996. Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits. 61 FR 43761.

permit addresses programmatic requirements in other areas. The LA SUSMP order was a precedential decision, and we will not reiterate our findings and conclusions from that decision.” The numeric sizing criteria is included to ensure that structural treatment BMPs are sized effectively to remove pollutants of concern to the maximum extent practicable. The Order allows Copermittees discretion in what BMPs will be implemented at a project and provides sizing options based on either runoff volume or flow.

13. Issue: Should the Order allow for urban runoff from new development and significant redevelopment to be addressed by regional BMPs (i.e., end of pipe or diversion BMPs) in lieu of site-specific BMPs?

Response: No, with the exceptions discussed below. Implementation of BMPs on a site by site basis provides many benefits. By its very definition, new development presents opportunities for on-site BMPs to be designed into the development as an integral component, at low cost, and with a greater likelihood for protecting water quality downstream over the life of the development. Treatment costs for municipal storm water generally increase with distance from the source. Regional “end of pipe” treatment also results in the loss of cost reducing opportunities for water quality improvements en route. Rather than increasing costs, small collection strategies, located at the point where runoff initially meets the ground, repeated consistently over entire projects, will usually yield the greatest water quality improvements for the least cost (BASMAA, 1999).

Furthermore, regional BMP approaches (such as end of pipe diversions) can send the wrong message to dischargers and the public, which can then cause setbacks in progress that has already been made. Instead of the idea that “business as usual” is acceptable since regional BMPs will “take care of everything” downstream, the message that SUSMPs and numeric sizing criteria should send is that behavior and site design must change in order for water quality to improve.

The SDRWQCB is skeptical that large-scale regional BMPs would be cost effective. Treatment costs for municipal storm water generally increase with distance from the source. Regional “end of pipe” treatment also results in the loss of cost reducing opportunities for water quality improvements en route. Rather than increasing costs, small collection strategies, located at the point where runoff initially meets the ground, repeated consistently over entire projects, will usually yield the greatest water quality improvements for the least cost.⁴² Furthermore, where regional approaches have been relatively successful, such as Fresno, generally few municipalities have been involved. In urbanized watersheds with many different jurisdictions, such as those in Los Angeles, Orange and San Diego Counties, there will be significantly greater organizational and jurisdictional difficulties, and hence drastically higher costs. For example, the failure in the San Diego Region of a regional BMP approach, the Carmel Valley Restoration Project, occurred due to a breakdown in coordination among agencies and resulted in a \$527,000 Administrative Civil Liability fine against the City of San Diego. While the SDRWQCB supports watershed based intergovernmental coordination, in practice,

⁴² Bay Area Stormwater Management Agencies Association. 1999. Start at the Source. Forbes Custom Publishing.

this coordination is not yet in place and may take many years to develop. Furthermore, the difficulties of coordination on a watershed level are only compounded when expanded to a regional level.

Furthermore, a regional BMP approach (i.e. end of pipe treatment) will probably lead to a progressive erosion of storm water quality gains achieved through aforementioned education programs. Since most municipalities in Southern California have historically used natural drainage features as storm water conveyances, there could be an additional loss of beneficial uses, including aesthetic benefits, in those waterways upstream of the proposed regional mitigation facilities. The inadequate implementation of on-site BMPs, which may consequently result from focusing on regional end of pipe BMP approaches, may be more damaging than maintaining the status quo. The overall result of a regional BMP approach could be additional water quality degradation to already impacted receiving waters, while new development and significant redevelopment with inadequate BMP controls continues apace.

Additionally, popular short-term regional solutions, such as end of pipe diversions into sanitary sewers, are effective only for dry weather flows. The sanitary sewerage collection systems found in the San Diego Region were not designed to handle the increased loads from dry weather flows, let alone flows from even minor storm runoff events. Likewise, the existing coastal Publicly Owned Treatment Works (POTWs) are not sized to treat wet weather flows, have almost no capacity for expansion, and will not be able to treat storm water flows.

Finally, it is important to note that in 2000, Governor Davis opposed increasing funding for regional diversion BMPs. In his veto message of a \$6.9 million bill that would have funneled money to Orange County to help curb urban runoff and clean beaches, Davis said the legislation "focuses on a temporary, seasonal fix and does not provide for identification and elimination of the sources of contamination."

Consequently, nearly all of the programs required and implemented under the Phase I Municipal Storm Water NPDES permits have been focused on source reduction through modification of behaviors/practices, in combination with the use of on-site structural BMPs, rather than on regional end of pipe treatment or diversion. In fact, on-site BMP implementation (such as a combination of pollution prevention, source control, and treatment BMPs) is a fundamental requirement of Order No. R9-2002-0001. Shifting BMP implementation from an on-site focus to a regional focus violates this fundamental requirement.

However, while onsite BMPs provide many benefits, there may be cases where offsite structural BMPs, implemented on a "neighborhood" or "sub-watershed" basis, may be more feasible. This is particularly the case for existing development, where opportunities for innovative site design do not exist. To allow more flexibility in BMP implementation, the Order SUSMP requirements regarding structural treatment BMPs have been drafted to allow BMPs to be shared by multiple new development projects on a "neighborhood" or "sub-watershed" level. The SWRCB supports this approach in Order WQ 2000-11, which states "We do note that there could be further cost savings for developers if the permittees develop a regional solution to the problem." It should be noted, however, that shared BMPs will be required to be implemented upstream from

any receiving water supporting beneficial uses. The receiving waters (such as urban streams) of the region cannot be used to transport potentially contaminated urban runoff to "regional" treatment facilities.

14. Issue: Will the SDRWQCB approve the Copermittees' Urban Runoff Management Programs (URMPs) and other submittals?

Response: No. The SDRWQCB does not approve dischargers' submittals.⁴³ It is the responsibility of the Copermittees to develop and implement adequate URMPs and other measures required by Order No. R9-2002-0001 in a timely manner. In other words, a Copermittee cannot postpone implementation of its URMP because the URMP has not been approved by the SDRWQCB. The SDRWQCB will review the URMPs and other documents and provide comments where inadequacies are observed. Provision of comments by the SDRWQCB or lack thereof does not constitute approval on the part of the SDRWQCB. The SDRWQCB will provide as much guidance as possible regarding the requirements of Order No. R9-2002-0001, but ultimately the responsibility for development and implementation lies with the Copermittees.

15. Issue: Will the Order's various requirements for implementation of structural BMPs and infiltration adversely impact wetlands by reducing flows reaching the wetlands?

Response: No. The Order will not adversely impact wetlands through a reduction in their receipt of flows. There are two conditions to consider regarding flows to wetlands: wet weather flows and dry weather flows.

The Order has been drafted to include only one requirement (F.1.b.2.b.i.) regarding wet weather flows. It is important to note this requirement only applies to new development and significant redevelopment, and therefore does not effect the majority of the area of most watersheds. The requirement states: "BMPs shall [...] Control the post-development peak storm water runoff discharge rates and velocities as necessary to maintain or reduce pre-development downstream erosion, and to protect stream habitat." As can be seen, the requirement attempts to maintain peak flow rates at predevelopment levels. Nowhere does the requirement make it necessary for peak flow rates to be reduced below predevelopment rates. By seeking to maintain predevelopment peak flow rates, the Order helps preserve the natural wet-weather runoff conditions, thereby protecting wetlands, as opposed to adversely impacting them.

The Order's SUSMP requirements include the option of infiltration of storm water. This is an option, and need not be used if concerns exist regarding unforeseen impacts. The Order also promotes infiltration of storm water runoff during wet weather. Again, these requirements seek to maintain the natural infiltration rates and thereby maintain the natural flow regime, which can only benefit wetlands. Development, with its associated impervious surfaces, greatly reduces infiltration

⁴³This response refers to the SDRWQCB's policy against staff approval of dischargers' programs or documents. At times, the SDRWQCB will approve dischargers' programs or documents at a public hearing during the public process. An example of this is the requirement in this Order for the Copermittees to develop a model Standard Urban Storm Water Mitigation Plan (SUSMP). The model SUSMP is to be approved by the SDRWQCB during a public hearing. However, in general, the documents and programs required by Order No. R9-2002-0001 will not be approved by SDRWQCB, and never by SDRWQCB staff.

at newly developed sites. Maximization of infiltration at such development sites will only swing infiltration rates back closer to their natural predevelopment levels. It is doubtful that natural predevelopment infiltration levels can even be achieved at developed sites, as many engineers attested to at the Order workshops. Therefore, it is highly unlikely that requirements promoting the use of infiltration will result in decreased flows to wetlands, thereby causing any adverse impacts. On the contrary, promotion of infiltration maintains natural groundwater recharge and overland runoff rates, both of which are necessary for most healthy wetlands. Any argument focusing only on quantity of overland flows misses the important impact groundwater recharge typically has on wetlands.

The other flow condition the Order addresses is dry weather flows. It has been stated that the Order's prohibitions on illicit discharges (section B) will impact the artificial dry weather flows upon which some wetlands are reliant. This is incorrect. The requirements for the prohibition of non-storm water discharges in section B of the Order are almost identical to requirements regarding non-storm water discharges in the current Orange County Municipal Storm Water Permit (Order No. 96-03). Clearly, these prohibitions have not led to the halt of dry weather urban runoff within Orange County over the last ten years. It has been further stated that Legal Authority section D.1.b of the Order will also result in decreased dry weather flows to wetlands. Again, this is not the case. This section requires the Copermittees to have legal authority to prohibit the discharges described in the section. It does not require the discharges to be prohibited in all instances, but rather requires the Copermittees to have the legal authority to prohibit such discharges in the event that prohibition is determined to be necessary. Irregardless, it is doubtful that any of the discharges discussed in section D.1.b would be beneficial to wetlands.

It has also been suggested that the provisions of the Order will require the diversion of dry weather flows to the sanitary sewer, thereby depriving wetlands of valuable artificial flows. Nowhere does the Order require diversion of any types of flow to the sanitary sewer. The Order actually does the opposite by promoting onsite controls and discouraging diversion. The Fact Sheet/Technical Report also discusses a preference for on site controls as opposed to diversion-type regional solutions. Furthermore, the Order's requirement that dry weather flows be diverted from structural infiltration BMPs (section F.1.b.2.i.iii) does not constitute a diversion to the sanitary sewer. Dry weather flows can simply be diverted to other BMPs such as filters, which would remove pollutants in the dry weather flows prior to their discharge to wetlands or other downstream areas.

16. Issue: Does the federal Clean Water Act and State Water Code give the SDRWQCB the broad legal authority which staff claims, and on which the validity of the Order depends?

Response: Yes. The California Water Code 13263 & 13377 give SDRWQCB authority to regulate discharges to preserve highest reasonable water quality and water quality needed to sustain beneficial uses, including aquatic habitat, etc. NPDES regulations mandate reduction of pollutants in storm water that cause or contribute to pollution to MEP by municipalities; evidence establishes risk of unreasonable degradation and pollution associated with urban runoff and

support's SDRWQCB imposition of requirements implementing "MEP" performance standards.

While CWA does not require municipalities to satisfy receiving water standards; [Defenders of Wildlife v Browner (9th c, 1999), 191F3d 1159] WQ sections 13263 & 13377 requires WDRs functioning as NPDES permits to implement water quality objectives (i.e., water quality standards) in basin plans and provisions of the CWA and NPDES regulations needed to protect beneficial uses, and to prevent nuisance.

17. Issue: Since the region's storm water problems stem from existing land use actions, will new development and redevelopment would carry a disproportionate share of the financial obligation to implement the provisions of the permit?

Response: No. The Order does not require new development and redevelopment to carry a disproportionate share of the financial burden to implement the provisions of the permit. The requirements on new development and redevelopment are required under the Federal NPDES regulations, and are designed to prevent new development and redevelopment from exacerbating existing conditions. The SWRCB supports this approach, stating in Order WQ 2000-11 that "[i]n the context of the entire effort required by the permit, the development controls can be seen as preventing the existing situation from becoming worse." The requirements for new development and redevelopment are only one section of the Order; the entire rest of the Order is focused on existing problems stemming from existing development conditions. The controls on new development do not result in a disproportionate financial obligation, since incorporation of BMPs during the planning phase of development has been consistently shown to be the most cost effective approach to reduce pollutant loads to receiving waters (USEPA, 1999).

18. Issue: Does the Order expand legal authority over local government in a manner not prescribed?

Response: No. The Order does not expand on the legal authority provided the SDRWQCB by the Clean Water Act and Porter-Cologne. The increased detail in the Order is supported by the Clean Water Act, Porter-Cologne, and more recent guidance from USEPA and the SWRCB. Where the Order has increased detail, the detailed requirements are included as necessary to achieve water quality standards.

The Clean Water Act supports increased detail in permits, where necessary, in section 402(p)(3)(B)(iii), which requires that permits for discharges from municipal storm sewers "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." Porter-Cologne also supports this approach in section 13377, which requires "Notwithstanding any other provision of this division, the state board or the regional boards shall, as required or authorized by the Federal Water Pollution Control Act (Clean Water Act), as amended, issue waste discharge requirements and dredged or fill material permits which apply

and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with anymore stringent effluent standards or limitation necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance."

More recent USEPA guidance also supports more detail in storm water permits where needed to meet water quality standards. In its "Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits" USEPA states "The interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards." The SWRCB cited this guidance in Order WQ 2000-11, which upheld SUSMP requirements as a correct interpretation of the MEP standard.

19. Issue: Is the specificity of the Order in direct conflict with an iterative process described in the Order?

Response: No. The term "iterative process" only appears in the Order once, at Finding 14, where it applies to section C of the Order. The term specifically refers to the process to be undertaken in the situation where discharges from an MS4 persist in causing or contributing to an exceedance of water quality objectives, despite the Copermittee's full implementation of its urban runoff management program (see section C of the Order). The term does not mean that compliance with the whole urban runoff management program and Order should be an "iterative process." Instead, the term means that efforts required to meet water quality standards, which go above and beyond those required in the urban runoff management program and other sections of the Order, may be implemented in an "iterative process."

VI. FINDINGS DISCUSSION

1. Finding states the following:

COPERMITTEES ARE DISCHARGERS OF URBAN RUNOFF: *Each of the persons in Table 1 below, hereinafter called Copermittees or dischargers, owns or operates a municipal separate storm sewer system (MS4), through which it discharges urban runoff into waters of the United States within the San Diego Region. The Copermittees serve a population of approximately 500,000 people within the San Diego Region. The MS4s operated by the Copermittees fall into one or more of the following categories: (1) a medium or large MS4 that services a population of greater than 100,000 or 250,000 respectively; or (2) a small MS4 that is "interrelated" to a medium or large MS4; or (3) an MS4 which contributes to a violation of a water quality standard; or (4) an MS4 which is a significant contributor of pollutants to waters of the United States.*

Table 1. Municipal Copermittees

1.	City of Aliso Viejo	8.	City of Mission Viejo
2.	City of Dana Point	9.	City of Rancho Santa Margarita
3.	City of Laguna Beach	10.	City of San Clemente
4.	City of Lake Forest	11.	City of San Juan Capistrano
5.	City of Laguna Hills	12.	County of Orange
6.	City of Laguna Niguel	13.	Orange County Flood Control District
7.	City of Laguna Woods		

Discussion: Section 402 of the Clean Water Act prohibits the discharge of any pollutant to waters of the United States from a point source, unless that discharge is authorized by a NPDES permit. Though urban runoff comes from a diffuse source, it is discharged through MS4s, which are point sources under the Clean Water Act. Federal NPDES regulation 40 CFR 122.26(a) (iii) and (iv) provide that discharges from MS4s, which service medium or large populations greater than 100,000 or 250,000 respectively, shall be required to obtain a NPDES permit. Federal NPDES regulation 40 CFR 122.26(a)(v) also provides that a NPDES permit is required for "A [storm water] discharge which the Director, or in States with approved NPDES programs, either the Director or the EPA Regional Administrator, determines to contribute to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States." Such sources are then designated into the program. See Attachment 1, NPDES Municipal Storm Water Permit Justifications, for an explanation on NPDES municipal storm water permit coverage for each municipality.

2. Finding states the following:

URBAN RUNOFF CONTAINS "WASTE" AND IS A "POINT SOURCE DISCHARGE OF POLLUTANTS": *Urban runoff contains waste, as defined in the California Water Code, and pollutants that adversely affect the quality of the waters of the State. The discharge of urban runoff from an MS4 is a "discharge of pollutants from a point source" into waters of the United States as defined in the Clean Water Act.*

Discussion: The legal definition of "waste" can be found in California Water Code (CWC) section 13050(d), which states "'Waste' includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal." 40 CFR 122.2 defines

“point source” as “any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.” 40 CFR 122.2 defines “discharge of a pollutant” as “Any addition of any ‘pollutant’ or combination of pollutants to ‘waters of the United States’ from any point source.” Also, the justification for control of pollution into Californian waters can be found at CWC Section 13260(a)(1). The Finding was revised in response to SWRCB Order WQ 2001-15 to state that urban runoff contains waste.

3. Finding states the following:

URBAN DEVELOPMENT AND RUNOFF CAUSES RECEIVING WATER DEGRADATION: *Urban runoff discharges from MS4s are a leading cause of receiving water quality impairment in the San Diego Region and throughout the United States. As runoff flows over urban areas, it picks up harmful pollutants such as pathogens, sediment (resulting from human activities), fertilizers, pesticides, heavy metals, and petroleum products. These pollutants often become dissolved or suspended in urban runoff and are conveyed and discharged to receiving waters, such as streams, lakes, lagoons, bays, and the ocean without treatment. Once in receiving waters, these pollutants harm aquatic life primarily through toxicity and habitat degradation. Furthermore, the pollutants can enter the food chain and may eventually enter the tissues of fish and humans.*

There is a strong direct correlation between “urbanization” and “impacts to receiving water quality”. In general, the more heavily developed the area, the greater the impacts to receiving waters from urban runoff.

These impacts especially threaten environmentally sensitive areas (such as Clean Water Act section 303(d) impaired water bodies, areas designated as Areas of Special Biological Significance, water bodies designated with the RARE beneficial use, riparian or estuarine areas designated by the Copermittees as Critical Aquatic Resources (CARS), and regional parks and preserves containing receiving waters within the Cities and County of Orange). Such environmentally sensitive areas have a much lower capacity to withstand pollutant shocks than might be acceptable in the general circumstance. In essence, urban development that is ordinarily insignificant in its impact on the environment may, in a particularly sensitive environment, be significant.

Discussion: Urbanization generally results in an increase in pollutant sources and impervious surfaces. The increase in pollutant sources associated with human land use leads to an increase in pollutant loads found in urban runoff, while the increase in impervious surfaces associated with development prevents natural processes from reducing those pollutant loads. The impervious surfaces associated with urbanization prevent soil infiltration and natural vegetation filtration of urban runoff. The end result is urban runoff flows that are higher in volume and pollutant loads. This causes the quality of receiving waters to be adversely impacted and beneficial uses to be impaired.

The US EPA supports this finding, stating in its 1996 National Water Quality Inventory that urban runoff/discharges from storm sewers are a major source of water quality impairment nationwide.⁴⁴ The 1996 Inventory also found urban runoff to be the leading cause of ocean impairment for those ocean miles

⁴⁴ US EPA. 1998. The National Water Quality Inventory, 1996 Report to Congress. EPA 841-R-97-008. As cited in 64 FR 68726.

surveyed.⁴⁵ In addition, the Region's Clean Water Act section 303(d) list (see Attachment 2), which identifies water bodies with impaired beneficial uses within the region, also indicates that the impacts of urban runoff on receiving waters are significant. Many of the impaired water bodies on the 303(d) list are impaired by constituents that have been found at high levels within urban runoff by the regional storm water monitoring program.⁴⁶ Examples of constituents frequently responsible for beneficial use impairment include total and fecal coliform, heavy metals, and sediment; these constituents have been found at high levels in urban runoff both regionally and nationwide.^{47, 48}

Beneficial use impairment resulting from urban runoff not only harms aquatic life, but can adversely impact human health as well. The US EPA finds that receiving water impairment from urban runoff can impact human health when it states "As runoff flows over areas altered by development, it picks up harmful sediment and chemicals such as oil and grease, pesticides, heavy metals, and nutrients (e.g., nitrogen and phosphorus). These pollutants often become suspended in runoff and are carried to receiving waters, such as lakes, ponds, and streams. Once deposited, these pollutants can enter the food chain through small aquatic life, eventually entering the tissues of fish and humans."⁴⁹

4. Finding states the following:

URBAN DEVELOPMENT INCREASES POLLUTANT LOAD, VOLUME, AND VELOCITY OF RUNOFF: *During urban development two important changes occur. First, natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops, and parking lots. Natural vegetated soil can both absorb rainwater and remove pollutants providing a very effective natural purification process. Because pavement and concrete can neither absorb water nor remove pollutants, the natural purification characteristics of the land are lost.*

Secondly, urban development creates new pollution sources as human population density increases and brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc. which can either be washed or directly dumped into the MS4.

As a result of these two changes, the runoff leaving the developed urban area is significantly greater in volume, velocity and pollutant load than the pre-development runoff from the same area.

The significance of the impacts of urban development on receiving waters is determined by the scope of the project, such as the size of the project, the project land-use type, etc. Large projects (such as commercial developments greater than 100,000 square feet, home subdivisions greater than 10 units, and streets, roads, highways, and freeways) generally have large amounts of impervious surface, and therefore have greater potential to significantly impact receiving waters by increasing erosion (through increased peak flow rates, flow velocities, flow volumes, and flow durations) than smaller projects. Projects of particular land use types also have greater potential to significantly impact receiving waters due to the presence of typically large amounts of pollutants on site or an increased potential for pollutants to move off site (such as automotive repair shops,

⁴⁵ US EPA. 1998. The National Water Quality Inventory, 1996 Report to Congress. EPA 841-R-97-008. As cited in 64 FR 68726.

⁴⁶ City of San Diego. 1999. 1998-1999 City of San Diego and Co-permittee NPDES Storm Water Monitoring Program Report. By URS Greiner Woodward Clyde.

⁴⁷ City of San Diego. 1999. 1998-1999 City of San Diego and Co-permittee NPDES Storm Water Monitoring Program Report. By URS Greiner Woodward Clyde.

⁴⁸ US EPA. 1983. Results of the Nationwide Urban Runoff Program, Volume 1 – Final Report.

⁴⁹ US EPA. 2000. Storm Water Phase II Compliance Assistance Guide. EPA 833-R-00-002.

restaurants, parking lots, streets, roads, highways, and freeways, hillside development, and retail gasoline outlets).

Discussion: Urbanization increases the amount of impervious ground cover of an area. For example, residential areas commonly cover the ground with approximately 30-70% impervious surfaces.⁵⁰ Regarding the impact of urbanization's impervious surfaces on urban runoff volume and velocity, the State Water Resources Control Board (SWRCB) Urban Runoff Technical Advisory Committee states in its 1994 report:

Changes in stream hydrology resulting from urbanization include: increased peak discharges; increased total volume of runoff; decreased time needed for runoff to reach the stream; increased frequency and severity of flooding; changes in stream flow during dry periods due to reduced levels of infiltration in the watershed; and greater runoff velocity during storms.

This finding is further supported by the SDRWQCB's Water Quality Control Plan (Basin Plan). Regarding the impact of urban development on urban runoff pollutant loads, the Basin Plan states:

Nonpoint source pollution is primarily the result of man's uses of land such as urbanization, roads and highways, vehicles, agriculture, construction, industry, mineral extraction, physical habitat alteration (dredging/filling), hydromodification (diversion, impoundment, channelization), silviculture (logging), and other activities which disturb land.⁵¹ As a result, when rain falls on and drains through urban freeways, industries, construction sites, and neighborhoods it picks up a multitude of pollutants. The pollutants can be dissolved in the runoff and quickly transported by gravity flow through a vast network of concrete channels and underground pipes referred to as storm water conveyance systems. Such systems ultimately discharge the polluted runoff, without treatment, into the nation's creeks, rivers, estuaries, bays, and oceans.⁵²

5. Finding states the following:

WATER QUALITY DEGRADATION INCREASES WITH PERCENT IMPERVIOUSNESS: *The increased volume and velocity of runoff from developed urban areas greatly accelerates the erosion of downstream natural channels. Numerous studies have demonstrated a direct correlation between the degree of imperviousness of an area and the degradation of its receiving water quality. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as a 10% conversion from natural to impervious surfaces. (Developments of medium density single family homes range between 25 to 60% impervious). Today "% impervious coverage" is believed to be a reliable indicator and predictor of the water quality degradation expected from planned new development.*

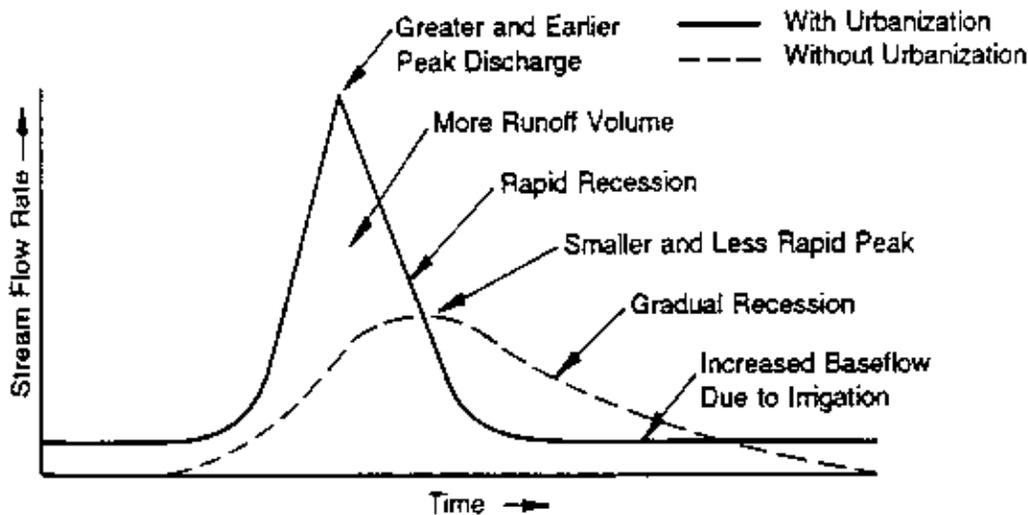
⁵⁰ Dunne, T. and Leopold, L.B. 1978. Water in Environmental Planning.

⁵¹ SDRWQCB. 1994. Water Quality Control Plan for the San Diego Basin. Page 4-66.

⁵² SDRWQCB. 1994. Water Quality Control Plan for the San Diego Basin. Page 4-69 through 4-70.

Discussion: Studies have shown that the level of imperviousness in an area strongly correlates with the quality of nearby receiving waters.⁵³ One comprehensive study, which looked at numerous areas, variables, and methods, revealed that stream degradation occurs at levels of imperviousness as low as (10% to 20%).⁵⁴ Degradation indicates a decline in the biological integrity and physical habitat conditions that are necessary to support natural biological diversity. For instance, few urban streams can support diverse benthic communities with imperviousness greater or equal to 25%.⁵⁵ To provide some perspective, a medium density, single family home area can be from 25% to 60% impervious (variation due to street and parking design).⁵⁶

The following figure shows the flow rate of an urban vs. a natural stream. What the figure demonstrates is that urban stream flows have greater peaks and volumes, as well as shorter retention times than natural stream flows. The greater peak flows and volumes result in stream degradation through increased erosion of stream banks and damage to aquatic habitat. The shorter retention times result in less time for sediments and other pollutants to settle before being carried out to the ocean. This sediment, and the associated pollutants it carries, can be a significant cause of degradation to the region's receiving waters, including coastal lagoons.



Source: Adapted from Schueler, 1997⁵⁷

⁵³ US EPA. 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System-Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges. 64 FR 68725.

⁵⁴ US EPA. 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System-Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges. 64 FR 68725.

⁵⁵ US EPA. 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System-Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges. 64 FR 68725.

⁵⁶ Schueler, T.R. 1994. *The Importance of Imperviousness*. Watershed Protection Techniques. As cited in 64 FR 68725.

⁵⁷ Schueler, T.R. 1987. *Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs*. Metropolitan Washington Council of Governments.

6. Finding states the following:

URBAN RUNOFF IS A HUMAN HEALTH THREAT: *Urban runoff contains pollutants, which threaten human health. Human illnesses have been clearly linked to recreating (i.e., swimming, surfing, etc.) near storm drains flowing to coastal beach waters. Such flows from urban areas often result in the posting or closure of local beaches.*

Pollutants transported to receiving waters by urban runoff can also enter the food chain. Once in the food chain they can "bioaccumulate" in the tissues of invertebrates (e.g., mussels, oysters, and lobsters) and fish which may be eventually consumed by humans. Furthermore, some pollutants are also known to "biomagnify". This phenomenon can result in pollutant concentrations in the body fat of top predators that are millions of times greater than the concentrations in the tissues of their lower trophic (food chain) counterparts or in ambient waters.

Discussion: This finding is supported by a landmark study conducted by the Santa Monica Bay Restoration Project. The study found that there was an increased occurrence of illness in people that swam in proximity to a flowing storm drain outlet.⁵⁸

In addition to the human health risk urban runoff poses from bodily contact, urban runoff also has the potential to adversely impact human health through bioaccumulation/biomagnification of urban runoff pollutants in the food chain. Pollutants such as heavy metals and pesticides, which are commonly found in urban runoff, have been found to bioaccumulate and biomagnify in long-lived organisms at the higher trophic levels.⁵⁹ Since many aquatic species are utilized for human consumption, toxic substances accumulated in species' tissues can pose a significant threat to public health.

The US EPA supports this finding when it states "As runoff flows over areas altered by development, it picks up harmful sediment and chemicals such as oil and grease, pesticides, heavy metals, and nutrients (e.g., nitrogen and phosphorus). These pollutants often become suspended in runoff and are carried to receiving waters, such as lakes, ponds, and streams. Once deposited, these pollutants can enter the food chain through small aquatic life, eventually entering the tissues of fish and humans."⁶⁰

7. Finding states the following:

POLLUTANT TYPES: *The most common categories of pollutants in urban runoff include total suspended solids, sediment (due to anthropogenic activities); pathogens (e.g., bacteria, viruses, protozoa); heavy metals (e.g., copper, lead, zinc and cadmium); petroleum products and polynuclear aromatic hydrocarbons; synthetic organics (e.g., pesticides, herbicides, and PCBs); nutrients (e.g., nitrogen and phosphorus fertilizers), oxygen-demanding substances (decaying vegetation, animal waste), and trash.*

Discussion: US EPA Nationwide Urban Runoff Program (NURP) data shows that heavy metals, organics, coliform bacteria, nutrients (e.g., fertilizers), oxygen demanding substances (e.g., decaying vegetation), and total suspended solids are

⁵⁸ Haile, R.W., et al. 1996. An Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay. Santa Monica Bay Restoration Project.

⁵⁹ Abel, P.D. 1996. Water Pollution Biology.

⁶⁰ US EPA. 2000. Storm Water Phase II Compliance Assistance Guide. EPA 833-R-00-002.

found at relatively high levels in urban runoff.⁶¹ The Basin Plan goes on to identify examples of nonpoint sources in southern California to include lawn and garden chemicals, household and automotive care products dumped or drained on streets, sediment that erodes from construction sites, and various pollutants deposited by atmospheric deposition.⁶² In addition, the SWRCB Urban Runoff Technical Advisory Committee finds urban runoff pollutants to include sediment, nutrients, oxygen-demanding substances, road salts, heavy metals, petroleum hydrocarbons, pathogenic bacteria, viruses, and pesticides.”

8. Finding states the following:

URBAN STREAMS AS AN MS4 COMPONENT: *Historic and current development make use of natural drainage patterns and features as conveyances for urban runoff. Urban streams used in this manner are both MS4s and receiving waters.*

Discussion: Natural drainage patterns and urban streams are frequently used by municipalities to convey urban runoff away from development within their jurisdiction. This is exhibited when urban streams and natural drainage systems are often altered (channelized, lined, widened, etc.) by municipalities in order to control and convey the increased urban runoff flows resulting from the urban development. Since the natural drainage or urban stream is used by the municipality to convey urban runoff, it becomes part of the municipality's MS4. However, urban streams and natural drainages used to convey urban runoff are part of a municipality's MS4 regardless of whether they have been altered by the municipality or not. For example, urban streams frequently run back and forth between lined and unlined (or natural) segments. Changes in the condition of an urban stream's channel (lined or unlined) does not constitute a change in the use of the urban stream or drainage by a municipality. In this manner, urban streams can be both receiving waters and MS4s.

9. Finding states the following:

URBAN RUNOFF CAUSES BENEFICIAL USE IMPAIRMENT: *Individually and in combination, the discharge of pollutants and increased flows from MS4s can cause or threaten to cause a condition of pollution (i.e., unreasonable impairment of water quality for designated beneficial uses), contamination, or nuisance. The discharge of pollutants from MS4s can cause the concentration of pollutants to exceed applicable receiving water quality objectives and impair or threaten to impair designated beneficial uses. The discharge of urban runoff may also impact the physical habitat of receiving waters. Significant stream channel incision and bank erosion is a feature common in the Aliso Creek watershed and other drainages in Orange County and may be caused in part by changes in peak flow rates and volumes resulting from urban development. Preliminary results of the Ambient Bioassessment Monitoring Program in Aliso Creek and San Juan Creek in 1998 and 1999 indicate impacts to the benthic community that may be the result of water quality and habitat degradation.*

Discussion: The Basin Plan supports this finding:

[W]hen rain falls on and drains through urban freeways, industries, construction sites, and neighborhoods it picks up a multitude of pollutants. The pollutants can be dissolved in the runoff and quickly transported by gravity flow through a vast network of concrete channels and underground

⁶¹ US EPA. 1983. Results of the Nationwide Urban Runoff Program, Volume 1-Final Report.

⁶² SDRWQCB. 1994. Water Quality Control Plan for the San Diego Basin. Page 4-1.

pipes referred to as storm water conveyance systems. Such systems ultimately discharge the polluted runoff, without treatment, into the nation's creeks, rivers, estuaries, bays, and oceans. [...] These pollutants severely degrade the beneficial uses of surface waters, and threaten the health of both humans and aquatic organisms.⁶³

The US EPA also supports this finding, stating in its 1996 National Water Quality Inventory that urban runoff/discharges from storm sewers are a major source of water quality impairment nationwide.⁶⁴ The 1996 Inventory also found urban runoff to be the leading cause of ocean impairment for those ocean miles surveyed.⁶⁵ In addition, the Region's Clean Water Act section 303(d) list (see Attachment 2), which identifies water bodies with impaired beneficial uses within the region, also indicates that the impacts of urban runoff on receiving waters are significant. Many of the impaired water bodies on the 303(d) list are impaired by constituents that have been found at high levels within urban runoff by the regional storm water monitoring program.⁶⁶ Examples of constituents frequently responsible for beneficial use impairment include total and fecal coliform, heavy metals, and sediment; these constituents have been found at high levels in urban runoff both regionally and nationwide.^{67,68}

10. Finding states the following:

COPERMITTEES IMPLEMENT URBAN RUNOFF MANAGEMENT PROGRAMS (URMPs):

Copermittee implementation of Urban Runoff Management Programs (URMPs) designed to reduce discharges of pollutants and flow into and from MS4s to the maximum extent practicable (MEP) can protect receiving water quality by promoting attainment of water quality objectives necessary to support designated beneficial uses. To be most effective, URMPs must contain both structural and non-structural best management practices (BMPs).

Discussion: US EPA finds that a "satisfactory proposed management program will address: management practices; control techniques and systems; design and engineering methods; and other measures to ensure the reduction of pollutants to the maximum extent practicable (MEP)."⁶⁹ The US EPA further states that "at a minimum, the proposed management program must include: [...] Identification of structural control measures to be included in these proposed programs."⁷⁰ These statements indicate that it is expected that URMPs be developed by the Copermittees that contain both structural and non-structural BMPs for the purpose

⁶³ SDRWQCB. 1994. Water Quality Control Plan for the San Diego Basin. Page 4-69 through 4-70.

⁶⁴ US EPA. 1998. The National Water Quality Inventory, 1996 Report to Congress. EPA 841-R-97-008. As cited in 64 FR 68726.

⁶⁵ US EPA. 1998. The National Water Quality Inventory, 1996 Report to Congress. EPA 841-R-97-008. As cited in 64 FR 68726.

⁶⁶ City of San Diego. 1999. 1998-1999 City of San Diego and Co-permittee NPDES Storm Water Monitoring Program Report. By URS Greiner Woodward Clyde.

⁶⁷ City of San Diego. 1999. 1998-1999 City of San Diego and Co-permittee NPDES Storm Water Monitoring Program Report. By URS Greiner Woodward Clyde.

⁶⁸ US EPA. 1983. Results of the Nationwide Urban Runoff Program, Volume 1 – Final Report.

⁶⁹ US EPA. 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

⁷⁰ US EPA. 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

of reducing pollutants in MS4 discharges to the maximum extent practicable. When pollutants in MS4 discharges are treated to the maximum extent practicable, receiving water quality and beneficial uses are typically protected through the attainment of water quality objectives. However, it should be noted that pollutant discharges which have the potential to cause or contribute to an exceedance of water quality objectives (such as discharges to Clean Water Act section 303(d) waterbodies) may require implementation of BMPs beyond the "maximum extent practicable" standard (40 CFR 122.44(d)(1)(i)).

11. Finding states the following:

BEST MANAGEMENT PRACTICES (BMPs): *Pollutants can be effectively reduced in urban runoff by the application of a combination of pollution prevention, source control, and treatment control BMPs. Source control BMPs (both structural and non-structural) minimize the contact between pollutants and flows (e.g., rerouting run-on around pollutant sources or keeping pollutants on-site and out of receiving waters). Treatment control (or structural) BMPs remove pollutants from urban runoff. Where feasible, use of BMPs that utilize natural processes should be assessed. These types of BMPs, such as grassy swales and constructed wetlands, can frequently be as effective as less natural BMPs, while providing additional benefits such as aesthetics and habitat..*

Discussion: The SWRCB finds in its Order WQ 98-01 that BMPs are effective in reducing pollutants in urban runoff, stating that "implementation of BMPs [is] generally the most appropriate form of effluent limitations when designed to satisfy technology requirements, including reduction of pollutants to the maximum extent practicable." The SWRCB Urban Runoff Technical Advisory Committee further supports this finding by recommending "that nonpoint source pollution control can be accomplished most effectively by giving priority to [best management practices] in the following order:

1. Prevention – implementation of practices that use or promote pollution free alternatives;
2. Source Control – implementation of control measures that focus on preventing or minimizing urban runoff from contacting pollution sources;
3. Treatment Controls – implementation of practices that require treatment of polluted runoff either onsite or offsite."

US EPA also supports the utilization of a combination of BMPs to address pollutants in urban runoff. For example, US EPA has found there has been success in addressing illicit discharge related problems through BMP initiatives like storm drain stenciling and recycling programs, including household hazardous waste special collection days.⁷¹ Structural BMP performance data has also been compiled and summarized by US EPA.⁷² This data indicates that structural BMPs can be effective in reducing pollutants in urban runoff discharges. The summary provides the performance ranges of various types of structural BMPs for removing suspended solids, nutrients, pathogens, and metals from storm water flows. These pollutants are in general the pollutants of most concern in storm water in the San Diego Region. For suspended solids, the least effective

⁷¹ US EPA. 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System-Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges. 64 FR 68728.

⁷² USEPA. 1999. Preliminary Data Summary of Urban Storm Water Best Management Practices. EPA 821-R-99-012.

structural BMP type was found to remove 30-65% of the pollutant load, while the most effective was found to remove 65-100% of the pollutant load. For nutrients, the least effective structural BMP type was found to remove 15-45% of the pollutant load, while the most effective was found to remove 65-100% of the pollutant load. For pathogens, the least effective structural BMP type was found to remove <30% of the pollutant load, while the most effective was found to remove 65-100% of the pollutant load. For metals, the least effective structural BMP type was found to remove 15-45% of the pollutant load, while the most effective was found to remove 65-100% of the pollutant load.

12. Finding states the following:

POLLUTION PREVENTION: *Pollution prevention, the initial reduction/elimination of pollutant generation at its source, is the best "first line of defense" for Copermittees and should be used in conjunction with source control and treatment control BMPs. Pollutants that are never generated do not have to be controlled or treated. Encouragement during planning processes of the use of pollution prevention BMPs can be an effective means for pollution prevention BMPs to be implemented, through such methods as education, landscaping, etc.*

Discussion: Pollution prevention, the reduction or elimination of pollutant generation at its source, is an essential aspect of BMP implementation. By limiting the generation of pollutants by urban activities, less pollutants are available to be washed from urban areas, resulting in reduced pollutant loads in storm water discharges from these areas. In addition, there is no need to control or treat pollutants that are not initially generated. Furthermore, pollution prevention BMPs are generally more cost effective than removal of pollutants by treatment facilities or cleanup of contaminated media.⁷³

In the Pollution Prevention Act of 1990, Congress established a national policy that emphasizes pollution prevention over control and treatment. California Water Code section 13263.3(a) also supports pollution prevention, stating "The Legislature finds and declares that pollution prevention should be the first step in a hierarchy for reducing pollution and managing wastes, and to achieve environmental stewardship for society. The Legislature also finds and declares that pollution prevention is necessary to support the federal goal of zero discharge of pollutants into navigable waters." Finally, the Basin Plan also supports this finding by stating that "[T]o eliminate pollutants in storm water, one can either clean it up by removing pollutants or prevent it from becoming polluted in the first place. Because of the overwhelming volume of storm water and the enormous costs associated with pollutant removal, pollution prevention is the only approach that makes sense."

13. Finding states the following:

RECEIVING WATER LIMITATIONS: *Compliance with receiving water limits based on applicable water quality objectives is necessary to ensure that MS4 discharges will not cause or contribute to violations of water quality objectives and the creation of conditions of pollution.*

⁷³Center for Watershed Protection, 2000. Assessing the Potential for Urban Watershed Restoration, Article 142 in the Protection, Tom Schueler.

Discussion: Urban runoff discharges from MS4s are a leading cause of receiving water quality impairment in the San Diego Region and throughout the United States. Due to this significant contribution to the impairment of receiving waters, discharges from MS4s that cause or contribute to the violation of water quality standards (i.e., beneficial uses and the water quality objectives necessary to protect those uses) must be controlled and prohibited. MS4 permits must therefore include stringent discharge requirements to protect water bodies from discharges from MS4s.

The issue of whether storm water discharges from MS4s must meet water quality standards has been intensely debated for the past five years. The argument arises because Clean Water Act section 402(p) fails to clearly state that municipal dischargers of storm water must meet water quality standards. On the issue of industrial discharges of storm water, the statute clearly indicates that industrial dischargers must meet both (1) the technology-based standard of "best available technology economically achievable (BAT)" and (2) applicable water quality standards. On the issue of municipal discharges however, the statute states that municipal dischargers must meet (1) the technology-based standard of "maximum extent practicable (MEP)" and (2) "such other provisions that the Administrator or the State determines appropriate for the control of such pollutants." The statute fails, however, to specifically state that municipal dischargers must meet water quality standards.

As a result, the municipal storm water dischargers have argued that they do not have to meet water quality standards; and that they only are required to meet MEP. Environmental interest groups maintain that not only do MS4 discharges have to meet water quality standards, but that MS4 permits must also comply with numeric effluent limitations for the purpose of meeting water quality standards. On the issue of water quality standards, the US EPA, the SWRCB, and the SDRWQCB have consistently maintained that MS4s must indeed comply with water quality standards. On the issue of whether water quality standards must be met by numeric effluent limits, the US EPA, the SWRCB (in Orders WQ 91-03 and WQ 91-04), and the SDRWQCB have maintained that MS4 permits can, at this time, contain narrative requirements for the implementation of BMPs in place of numeric effluent limits.

SWRCB rationale: In addition to relying on US EPA's legal opinion concluding that MS4s must meet MEP and water quality standards, the SWRCB also relied on the Clean Water Act's explicit authority for States to require "such other provisions that the Administrator or the State determines appropriate for the control of such pollutants" in addition to the technology-based standard of MEP. To further support its conclusions that MS4 permit dischargers must meet water quality standards, the SWRCB relied on provisions of the California Water Code that specify that all waste discharge requirements must implement applicable Basin Plans and take into consideration the appropriate water quality objectives for the protection of beneficial uses.

The SWRCB first formally concluded that permits for MS4s must contain effluent limitations based on water quality standards in its Order WQ 91-03. In that Order, the SWRCB also concluded that it was appropriate for Regional Boards to achieve this result by requiring best management practices, rather than by inserting

numeric effluent limitations into MS4 permits. In Order WQ 98-01, the SWRCB prescribed specific precedent setting Receiving Water Limitations language to be included in all future MS4 permits. This language specifically requires that MS4 dischargers meet water quality standards and allows for the use of narrative BMPs (increasing in stringency and implemented in an iterative process) as the mechanism by which water quality standards can be met.

In Order WQ 99-05, the SWRCB modified its receiving water limitations language in Order WQ 98-01 to meet specific objections by the US EPA (the modifications resulted in stricter compliance with water quality standards). SWRCB Order WQ 99-05 states "In Order WQ 98-01, the State Water Resources Control Board (State Water Board) ordered that certain receiving water limitation language be included in future municipal storm water permits. Following inclusion of that language in permits issued by the San Francisco Bay and San Diego Regional Water Quality Control Boards (Regional Water Boards) for Vallejo and Riverside respectively, the United States Environmental Protection Agency (EPA) objected to the permits. The EPA objection was based on the receiving water limitation language. The EPA has now issued those permits itself and has included receiving water limitation language it deems appropriate.

"In light of EPA's objection to the receiving water limitation language in Order WQ 98-01 and its adoption of alternative language, the State Water Board is revising its instructions regarding receiving water limitation language for municipal storm water permits. It is hereby ordered that Order WQ 98-01 will be amended to remove the receiving water limitation language contained therein and to substitute the EPA language. Based on the reasons stated here, and as a precedent decision, the following receiving water limitation language [which is found in Receiving Water Limitations item C. of Order No. R9-2002-0001] shall be included in future municipal storm water permits."

In a late 1999 case involving MS4 permits issued by US EPA to several Arizona cities (*Defenders of Wildlife v. Browner*, 1999, 197 F. 3d 1035), the United States Court of Appeals for the Ninth Circuit upheld US EPA's requirement for MS4 dischargers to meet water quality standards, but it did so on the basis of US EPA's discretion rather than on the basis of strict compliance with the Clean Water Act. In other words, while holding that the Clean Water Act does not require all MS4 discharges to comply strictly with state water quality standards, the Court also held that US EPA has the authority to determine that ensuring strict compliance with state water quality standards is necessary to control pollutants. On the question of whether MS4 permits must contain numeric effluent limitations, the court upheld US EPA's use of iterative BMPs in place of numeric effluent limits.

SWRCB's final position: On October 14, 1999, the SWRCB issued a legal opinion on the federal appellate decision and provided advice to the Regional Boards on how to proceed in the future. In the memorandum, the SWRCB concludes that the recent Ninth Circuit opinion upholds the discretion of US EPA and the State to (continue to) issue permits to MS4s that require compliance with water quality standards through iterative BMPs. Moreover, the memorandum states that "[...] because most MS4 discharges enter impaired water bodies, there is a real need for permits to include stringent requirements to protect those water bodies. As total maximum daily loads (TMDLs) are developed, it is likely that MS4s will have

to participate in pollutant load reductions, and the MS4 permits are the most effective vehicles for those reductions.” In summary, the SWRCB concludes that the Regional Boards should continue to include the Receiving Water Limitations language established in SWRCB Order WQ 99-05 in all future permits.

Accordingly, the SDRWQCB has included the Receiving Water Limitations language in Receiving Water Limitations item C. of Order No. R9-2002-0001.

14. Finding states the following:

RECEIVING WATER LIMITATION COMPLIANCE STRATEGY: *Implementation of BMPs cannot ensure attainment of receiving water quality objectives under all circumstances; some BMPs may not prove to be as effective as anticipated. An iterative process of BMP development, implementation, monitoring, and assessment is necessary to assure that an Urban Runoff Management Program is sufficiently comprehensive and effective to achieve compliance with receiving water quality objectives.*

Discussion: As discussed above in the Finding 13 discussion, the US EPA and SWRCB have discretion to issue municipal storm water permits which require compliance with water quality standards. To ensure that MS4 discharges comply with water quality standards, the SWRCB has adopted US EPA language in SWRCB Order WQ 99-05 that dictates implementation of an iterative BMP process when water quality standards are not met. This language is included in Order No. R9-2002-0001 in Receiving Water Limitations item C. The iterative BMP process requires the implementation of increasingly stringent BMPs until receiving water standards are achieved. This is necessary because implementation of BMPs alone cannot ensure attainment of receiving water quality objectives. For example, a BMP that is effective in one situation may not be applicable in another. An iterative process of BMP development, implementation, and assessment is needed to promote consistent compliance with receiving water quality objectives. If assessment of a given BMP confirms that the BMP is ineffective, the iterative process should be restarted, with redevelopment of a new BMP which is anticipated to result in compliance with receiving water quality objectives. Regarding BMP assessment, the SWRCB Urban Runoff Technical Advisory Committee states “The [Storm Water Pollution Prevention Plan] SWPPP must be revised if an inspection indicates a need to alter the BMPs: drop ineffective BMPs, add new BMPs, or modify a BMP that is to remain in the SWPPP.” It should be noted that while implementation of the iterative BMP process is a means to achieve compliance with water quality objectives, it does not shield the discharger from enforcement actions for continued non-compliance with water quality objectives.

15. Finding states the following:

COPERMITTEES' RESPONSIBILITY FOR ILLICIT DISCHARGES FROM THIRD PARTIES: *As operators of MS4s, the Copermittees cannot passively receive and discharge pollutants from third parties. By providing free and open access to an MS4 that conveys discharges to the waters of the United States, the operator of an MS4 that does not prohibit and/or control discharges into its system essentially accepts responsibility for those discharges. These discharges may cause or contribute to a condition of contamination or exceedances of receiving water quality objectives*

Discussion: Clean Water Act section 402(p) requires operators of MS4s to prohibit non-storm water into their MS4s. This is necessary because pollutants that enter the MS4 generally are conveyed through the MS4 to be eventually discharged

into receiving waters. If a municipality does not prohibit non-storm water discharges, it is providing the pathway (its MS4) which enables pollutants to reach receiving waters. Since the municipality's storm water management service can result in pollutant discharges to receiving waters, the municipality must accept responsibility for the water quality consequences resulting from this service. Furthermore, third party discharges can cause a municipality to be out of compliance with its permit. Since pollutants from third parties that enter the MS4 will eventually be discharged from the MS4 to receiving waters, the third party discharges can result in a situation of municipality non-compliance if the discharges lead to an exceedance of water quality standards. For these reasons, each Copermittee must prohibit and/or control discharges from third parties to its MS4.

16. Finding states the following:

COPERMITTEES' RESPONSIBILITY BASED ON LAND USE AUTHORITY: Utilizing their land use authority, Copermittees authorize and realize benefits from the urban development which generates the pollutants and runoff that impair receiving waters. Since the Copermittees utilize their legal authority to authorize urbanization, they must also exercise their legal authority to ensure that the resulting increased pollutant loads and flows do not further degrade receiving waters.

Discussion: Storm water permits are issued to municipalities because of their land use authority. The ultimate responsibility for the pollutant discharges, increased runoff, and inevitable long-term water quality degradation that results from urbanization lies with local governments. This responsibility is based on the fact that it is the local governments that have authorized the urbanization (i.e., conversion of natural pervious ground cover to impervious urban surfaces) and the land uses that generate the pollutants and runoff. Furthermore, the MS4 through which the pollutants and increased flows are conveyed, and ultimately discharged into San Diego's natural receiving waters, are owned and operated by the same local governments. In summary, the municipal Copermittees under Order No. R9-2002-0001 are responsible for discharges into and out of their storm water conveyance systems because (1) they own and operate the MS4; and (2) they have the legal authority that authorizes the very development and land uses with generate the pollutants and increased flows in the first place.

Order No. R9-2002-0001 holds the local government accountable for this direct link between its land use decisions and water quality degradation. The permit recognizes that each of the three major stages in the urbanization process (development planning, construction, and the use or operational stage) are controlled by and must be authorized by the local government. Accordingly, this permit requires the local government to implement, or require others to implement, appropriate best management practices to reduce pollutant discharges and increased flow during each of the three stages of urbanization.

For example, since grading cannot commence prior to the issuance of a local grading permit, the Copermittees have a built-in mechanism to ensure that all grading activities are protective of receiving water quality. The Copermittee has the authority and discretion to withhold issuance of the grading permit until the project proponent has demonstrated to the satisfaction of the Copermittee that the project will not violate the Copermittee's ordinances or cause the Copermittee to

be in violation of its municipal storm water permit. Since the Copermittee will ultimately be held responsible for any discharges from the grading project by the SDRWQCB, the Copermittee will want to use its own permitting authority to ensure that whatever measures the Copermittee deems necessary to protect discharges into its MS4 are in fact taken by the project proponent.

17. Finding states the following:

THREE PHASES OF URBAN DEVELOPMENT: *Urban development has three major phases: (1) land use planning for new development; (2) construction; and (3) the "use" or existing development phase. Because the Copermittees authorize, permit, and realize benefits from each of these phases, and because each phase has a profound impact on water quality, the Copermittees have commensurate responsibilities to protect water quality during each phase. In other words, Copermittees are held responsible for the short and long-term water quality consequences of their land use planning, construction, and existing development decisions.*

Discussion: Through its permitting processes, each Copermittee authorizes the three major phases of urban development within its jurisdiction. Each Copermittee can also realize benefits from the authorization of urban development. For these reasons, each Copermittee must assume responsibility for its urban development decisions (see also the Discussion for Finding 16). The Federal Regulations clearly require municipalities to address urban runoff during each stage of development. Regarding BMP implementation during each stage of urban development, US EPA recommends that Copermittees ensure the appropriate implementation of the structural BMPs by considering some or all of the following: pre-construction review of BMP designs; inspections during construction to verify BMPs are built as designed; post-construction inspection and maintenance of BMPs; and penalty provisions for noncompliance with design, construction or operation and maintenance.⁷⁴

18. Finding states the following:

PLANNING PHASE FOR NEW DEVELOPMENT: *Because land use planning and zoning is where urban development is conceived, it is the phase in which the greatest and most cost-effective opportunities to protect water quality exists. When a Copermittee incorporates policies and principles designed to safeguard water resources into its General Plan and development project approval processes, it has taken a far-reaching step towards the preservation of local water resources for future generations.*

Discussion: Including plans for BMP implementation during the design phase of new development and redevelopment offers the most cost effective strategy to reduce urban runoff pollutant loads to surface waters.⁷⁵ The Phase II regulations for small municipalities reflect the necessity of addressing urban runoff during the early planning phase. Due to the greater water quality concerns generally experienced by larger municipalities, Phase II requirements for small municipalities are also applicable to larger municipalities such as the Copermittees. The Phase II regulations direct municipalities to develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre

⁷⁴ US EPA. 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System-Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. 64 FR 68845.

⁷⁵ US EPA. 2000. Storm Water Phase II Compliance Assistance Guide. EPA 833-R-00-002.

that are part of a larger common plan of development or sale. The program must ensure that controls are in place that would prevent or minimize water quality impacts. This includes developing and implementing strategies that include a combination of structural and/or non-structural BMPs appropriate to the locality. The program must also ensure the adequate long-term operation and maintenance of BMPs.⁷⁶ US EPA expands on the Phase II regulations for urban development when it recommends that Copermitees:

“[A]dopt a planning process that identifies the municipality’s program goals (e.g., minimize water quality impacts resulting from post-construction runoff from new development and redevelopment), implementation strategies (e.g., adopt a combination of structural and/or non-structural BMPs), operation and maintenance policies and procedures, and enforcement procedures. In developing your program, you should consider assessing existing ordinances, policies, programs and studies that address storm water runoff quality.”

19. Finding states the following:

CONSTRUCTION PHASE: Construction activities are a significant cause of receiving water impairment. Siltation is currently the largest cause of river impairment in the United States. Sediment runoff rates from construction sites greatly exceed natural erosion rates of undisturbed lands causing siltation and impairment of receiving waters. In addition to requiring implementation of the full range of BMPs, an effective construction runoff program must include local plan review, permit conditions, field inspections, and enforcement.

Discussion: The US EPA strongly supports this finding in the Phase II regulations. The US EPA explains in the regulations that storm water discharges generated during construction activities can cause an array of physical, chemical, and biological water quality impacts. Specifically, the biological, chemical and physical integrity of the waters may become severely compromised due to runoff from construction sites. Fine sediment from construction sites can adversely affect aquatic ecosystems by reducing light penetration, impeding sight-feeding, smothering benthic organisms, abrading gills and other sensitive structures, reducing habitat by clogging interstitial spaces within the streambed, and reducing intergravel dissolved oxygen by reducing the permeability of the bed material. Water quality impairment also results, in part, because a number of pollutants are preferentially absorbed onto mineral or organic particles found in fine sediment. The interconnected process of erosion (detachment of the soil particles), sediment transport, and delivery is the primary pathway for introducing key pollutants, such as nutrients, metals, and organic compounds into aquatic systems.⁷⁷

20. Finding states the following:

⁷⁶ US EPA. 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System-Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. 64 FR 68845.

⁷⁷ US EPA. 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System-Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. 64 FR 68728.

EXISTING DEVELOPMENT: *The Copermittees' wet weather monitoring results collected during the past decade, as well as volumes of other references in the literature today, confirm substantial pollutant loads to receiving waters in runoff from existing urban development. Implementation of jurisdictional and watershed URMPs, which include extensive controls on existing development, can reduce pollutant loadings over the long term.*

Discussion: This finding is supported by the results of the City of San Diego and Co-permittee NPDES Stormwater Monitoring Program annual reports.⁷⁸

21. Finding states the following:

CHANGES NEEDED: *Because the urbanization process is a direct and leading cause of water quality degradation in this Region, fundamental changes to existing policies and practices about urban development are needed if the beneficial uses of the San Diego Region's natural water resources are to be protected.*

Discussion: Urban runoff has been recognized as a leading cause of water quality degradation both regionally and nationwide. The 1998-1999 City of San Diego and Co-Permittee NPDES Stormwater Monitoring Program Report reflects the water quality issues resulting from urban runoff that have been observed in the San Diego region and on a nationwide level. Monitoring efforts indicate that instream concentrations of pathogen indicators (fecal coliform and streptococcus) and heavy metals (such as cadmium, copper, lead, and zinc) exceed state and federal water quality criteria. In addition, storm water within the region has been found to contain the pesticides diazinon and chlorpyrifos (Dursban) at levels that can cause chronic or acute toxicity.⁷⁹

As the monitoring program results indicate, urban runoff is identified as a primary source of receiving water quality impairment within the Region. Though urban land use occupies approximately 30% of the monitoring program study area, approximately 50% or more of the total pollutant load for many constituents is contributed by urbanized land uses including residential, commercial, and industrial land uses.⁸⁰ The Region's Clean Water Act Section 303(d) list, which identifies water bodies with impaired beneficial uses within the Region, also indicates that the impacts of urban runoff are significant. Many of the impaired water bodies on the 303(d) list are impaired by constituents that have been found at high levels within urban runoff by the regional storm water monitoring program. Examples of constituents frequently responsible for beneficial use impairment include total and fecal coliform, heavy metals, and sediment; these constituents have been found at high levels in urban runoff both regionally and nationwide.

Clearly, current policies and practices to protect water quality from the impacts of urbanization have not been entirely effective. A shift is toward new and expanded policies and practices is needed to achieve the requirements of the Clean Water Act. The requirements of Order No. R9-2002-0001 include and encourage new policies and practices to manage urban runoff. These new policies and practices

⁷⁸ City of San Diego. Multiple Years. City of San Diego and Co-permittee NPDES Stormwater Monitoring Program. Prepared by Woodward Clyde Consultants.

⁷⁹ City of San Diego. 1999. 1998-1999 City of San Diego and Co-permittee NPDES Stormwater Monitoring Program Report. Prepared by URS Greiner Woodward Clyde.

⁸⁰ City of San Diego. 1998. 1997-1998 City of San Diego and Co-permittee NPDES Stormwater Monitoring Program Report. Woodward Clyde Consultants.

are based on US EPA and SWRCB guidance, and are supported by recent and ongoing research. The requirements of Order No. R9-2002-0001 are discussed individually in further detail in section VII of this Fact Sheet/Technical Report.

22. Finding states the following:

DUAL REGULATION OF INDUSTRIAL AND CONSTRUCTION SITES: *Discharges of runoff from industrial and construction sites in this Region are subject to dual (state and local) regulation. (1) All industries and construction sites are subject to the local permits, plans, and ordinances of the municipal jurisdiction in which it is located. Pursuant to this Order, local (storm water, grading, construction, and use) permits, plans, and ordinances must (a) prohibit the discharge of pollutants and non-storm water into the MS4; and (b) require the routine use of BMPs to reduce pollutants in site runoff. (2) Many industries and construction sites are also subject to regulation under the statewide General Industrial Storm Water Permit or statewide General Construction Storm Water Permit¹. These statewide general permits are adopted by the State Water Resources Control Board and enforced by the nine Regional Water Quality Control Boards throughout California. Like the Copermittees' local permits and ordinances, the statewide General Industrial and Construction Permits also (a) prohibit the discharge of pollutants and non-storm water; and (b) require the routine use of BMPs to reduce pollutants in site runoff.*

Recognizing that both authorities share a common goal, the federal storm water regulations at 40 CFR 122.26 (and its preamble) call for the dual system to ensure the most effective oversight of industrial and construction site discharges. Under this dual system, each municipal Copermittee is responsible for enforcing its local permits, plans, and ordinances within its jurisdiction. Similarly, the SDRWQCB is responsible for enforcing both statewide general permits and this Order within the San Diego Region.

Discussion: US EPA finds the control of pollutant discharges from industry and construction so important to receiving water quality that it has established a double system of regulation over industrial and construction sites. This double system of regulation consists of two parallel regulatory systems with the same common objective: to keep pollutants from industrial and construction sites out of the MS4. In this double system of regulation for runoff from industrial and construction sites, local governments must enforce their legal authorities (i.e., local ordinances and permits) while the SDRWQCB must enforce its legal authority (i.e., statewide general industrial and construction storm water permits). These two regulatory systems are designed to complement and support each other. Municipalities are not required to enforce SDRWQCB and SWRCB permits; however, they are required to enforce their ordinances and permits. The Federal regulations are clear that municipalities have responsibility to address runoff from industrial and construction sites which enters their MS4s.

Municipalities have this responsibility because they have the authority to issue land use and development permits. Since municipalities are the lead permitting authority for industrial land use and construction activities, they are also the lead for enforcement regarding runoff discharges from these sites. For sites where the municipality is the lead permitting authority, the SDRWQCB will work with the municipality and provide support where needed. In some instances, where the

¹The "statewide General Industrial Storm Water Permit" refers to State Water Resources Control Board Water Quality Order No. 97-03-DWQ National Pollutant Discharge Elimination System General Permit No. CAS000001, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities. The "statewide General Construction Storm Water Permit" refers to State Water Resources Control Board Order No. 99-08-DWQ National Pollutant Discharge Elimination System General Permit No. CAS000002, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity.

SDRWQCB is the primary regulatory authority and lead permitting authority (e.g., for landfills and sewage collection and treatment systems), the SDRWQCB is the lead for enforcement and will look for support from the municipalities.

23. Finding states the following:

EDUCATION: *Education is the foundation of every effective URMP and the basis for changes in behavior at a societal level. Education of municipal planning, inspection, and maintenance department staffs is especially critical to ensure that in-house staffs understand how their activities impact water quality, how to accomplish their jobs while protecting water quality, and their specific roles and responsibilities for compliance with this Order. Public education, designed to target various urban land users and other audiences, is also essential to inform the public of how individual actions impact receiving water quality and how these impacts can be minimized. The proposed Drainage Area Management Plan (DAMP) that was submitted to the SDRWQCB by the Orange County Copermittees in September 2000 has a strong emphasis on education measures.*

Discussion: The SWRCB and US EPA both recognize education as a critical component of storm water management. In its 1994 report, the SWRCB Technical Advisory Committee (TAC) “recognizes that education with an emphasis on pollution prevention is the fundamental basis for solving nonpoint source pollution problems.” The TAC goes on to recommend that target audiences for education efforts include the government, youth groups, the development community, and business and industrial groups. According to the Phase II Storm Water Regulations found at 64 FR 68754 and 68754, US EPA believes that as the public gains a greater understanding of the storm water program through education, the municipality is likely to gain more support for the program (including funding initiatives). In addition, compliance with the program will probably be greater if the public understands the personal responsibilities expected of them. US EPA goes on to explain that a public education program should inform individuals and households about problems and the steps they can take to reduce or prevent storm water pollution.

24. Finding states the following:

ENFORCING LOCAL LEGAL AUTHORITY: *Enforcement of local urban runoff related ordinances, permits, and plans is an essential component of every URMP and is specifically required in the federal storm water regulations and this Order. Routine inspections provide an effective means by which Copermittees can evaluate compliance with their permits and ordinances. Inspections are especially important at high-risk areas for pollutant discharges such as industrial and construction sites.*

When industrial or construction site discharges occur in violation of local permits and ordinances, the SDRWQCB looks to the municipality that has authorized the discharge for appropriate actions (typically education followed by enforcement where education has been unsuccessful). Each Copermittee must also provide enforcement against illegal discharges from other land uses it has authorized, such as commercial and residential developments.

Discussion: Since municipalities approve and permit construction and land use within their jurisdiction, they must assume responsibility for urban runoff discharges from these activities and land uses. The Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A – D) are clear in placing responsibility on municipalities for control of urban runoff from third party activities and land uses to their MS4. In order for municipalities to assume this responsibility, they must implement ordinances, permits, and plans addressing urban runoff from third parties. Assessments for compliance with their ordinances, permits, and plans are

essential for a municipality to ensure that third parties are not causing the municipality to be in violation of its municipal storm water permit. When conditions of non-compliance is determined, enforcement is necessary to ensure that violations of municipality ordinances and permits are corrected. Without enforcement, third parties do not have incentive to correct violations. US EPA supports inspections and enforcement by municipalities when it states "Effective inspection and enforcement requires [...] penalties to deter infractions and intervention by the municipal authority to correct violations. Enforcement mechanisms [...] also must be described."⁸¹

US EPA discusses the "dual regulation" of construction sites in its *Storm Water Phase II Compliance Assistance Guide*, which states "Even though all construction sites that disturb more than one acre are covered nationally by an NPDES storm water permit, the construction site runoff control minimum measure [...] is needed to induce more localized site regulation and enforcement efforts, and to enable operators [...] to more effectively control construction site discharges into their MS4s." While the *Storm Water Phase II Compliance Assistance Guide* applies to small municipalities, requirements for small municipalities are applicable to larger municipalities, such as the Copermittees, due to the generally more serious water quality problems caused by larger municipalities.

Municipalities assume initial responsibility for enforcement against illegal discharges from land uses and activities within their jurisdiction because of their land use authority. Since the municipality approves and permits development and land use, it must ensure that its development or land use decisions do not result in receiving water quality degradation. The SDRWQCB will assist municipalities in enforcement against non-compliant sites after the municipality has exhibited a good faith effort to bring the site into compliance.

25. Finding states the following:

PUBLIC PARTICIPATION: *Public participation during the URMP development process is necessary to ensure that all stakeholder interests and a variety of creative solutions are considered.*

Discussion: This finding is supported by the Phase II Storm Water Regulations found at 64 FR 68755 which states, "[E]arly and frequent public involvement can shorten implementation schedules and broaden public support for a program." It goes on to explain, "[P]ublic participation is likely to ensure a more successful storm water program by providing valuable expertise and a conduit to other programs and governments."

26. Finding states the following:

TOXICITY: *Urban runoff discharges from MS4s often contain pollutants that cause toxicity, (i.e., adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). The water quality objectives for toxicity provided in the Water Quality Control Plan, San Diego Basin, Region 9, (Basin Plan), state in part "All waters shall be free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.... The*

⁸¹ US EPA. 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge...” Urban runoff discharges from MS4s are considered toxic when (1) the toxic effect observed in an acute toxicity test exceeds zero Toxic Units Acute (TU_a=0); or (2) the toxic effect observed in a chronic toxicity test exceeds one Toxic Unit Chronic (TU_c=1).

Discussion: Consideration of urban runoff toxicity is significant because toxicity assessments measure the potential effect of a discharge on receiving waters. This is particularly useful in assessing impacts, as opposed to measurements of pollutant concentrations where the effect of the pollutant concentration on receiving waters may be unknown. Finding 26 and this discussion clarify SDRWQCB expectations regarding urban runoff toxicity. Toxicity is also further discussed in Appendix I of the SWRCB's 1997 Water Quality Control Plan – Ocean Waters of California, “California Ocean Plan.”

Toxicity is commonly evaluated in terms of both acute toxicity and chronic toxicity. “Acute toxicity concentration” can be expressed in Toxic Units Acute (TU_a). The Ocean Plan defines acute toxicity and a method for calculating TU_a in a manner that can be used for ocean waters and other waters. Using this Ocean Plan definition and calculation methodology, 100% survival of test organisms in an acute toxicity test yields an acute toxicity concentration of zero TU_a. 100% survival of test organisms corresponds to the Basin Plan narrative objective of ‘no toxics in toxic amounts.’ Therefore, an acute toxicity concentration in excess of zero TU_a would not meet the Basin Plan narrative objective for toxicity.

“Chronic toxicity concentration” can be expressed in Toxic Units Chronic (TU_c). As with acute toxicity, the Ocean Plan defines chronic toxicity and a method for calculating TU_c that can be used for ocean waters and other waters. Using this Ocean Plan definition and calculation methodology, the absence of observable effects on test organisms in undiluted test water in a critical life stage toxicity test yields a chronic toxicity concentration of 1 TU_c. The absence of observable effects on test organisms in undiluted test water corresponds to the Basin Plan narrative objective of ‘no toxics in toxic amounts.’ Therefore, a chronic toxicity concentration in excess of 1 TU_c would not meet the Basin Plan narrative objective for toxicity.

27. Finding states the following:

FOCUS ON MAN-MADE POLLUTANTS AND FLOWS: *The focus of this Order is on the control of urban runoff pollutants and flows, which are either generated or accelerated by human activities. This Order is not meant to control background or naturally occurring pollutants and flows.*

Discussion: In general, man-made pollutants and flows are the cause of receiving water impairment resulting from urban runoff. This is because human activities increase the concentrations of constituents above natural or background levels. Flow volumes and rates are also increased above background levels due to human activities, in both wet and dry weather. The focus of Order No. R9-2002-0001 is therefore placed man-made pollutants and flows. Man-made pollutants and flows are also focused on due to our ability to control them. In comparison with naturally occurring pollutants and flows, man-made pollutants and flows are significantly easier to control. The SDRWQCB has discretion to require control of

flows under a United States Supreme Court decision, which held that regulation of flow to protect beneficial uses is within the authority of the Clean Water Act (PUD No. 1 v. WA Dept. of Ecology, 511 U.S. 700 (1994)).

28. Finding states the following:

COMMON WATERSHEDS AND CWA SECTION 303(d) IMPAIRED WATERS: *The Copermittees discharge urban runoff into lakes, streams, creeks, bays, the Pacific Ocean, and tributaries thereto within six hydrologic areas within Orange County as shown in Table 2 below. During its downstream course, urban runoff is conveyed through lined and unlined (natural, manmade, and partially modified) channels, all of which are defined as components of the Copermittees' MS4.*

Some of the receiving water bodies listed below, which receive or convey urban runoff discharges, have been designated as impaired by the SDRWQCB and USEPA in 1998 pursuant to Clean Water Act section 303(d). Additional water bodies may be listed during the term of this Order pursuant to Clean Water Act section 303(d) as impaired as more information is collected and analyzed.

Table 2. Watershed Management Areas (WMAs)

SDRWQCB WATERSHED MANAGEMENT AREA (WMA)	HYDROLOGIC UNIT(S)	MAJOR SURFACE WATER BODIES	303(d) POLLUTANT(S) OF CONCERN OR WATER QUALITY EFFECT	COPERMITTEES
San Juan Creek WMA	San Juan Hydrologic Unit (901.00)	Moro Canyon Creek Laguna Canyon Creek Aliso Creek English Canyon Creek Sulphur Creek Wood Canyon Creek Salt Creek San Juan Creek Bell Canyon Creek Canada Gobernadora Arroyo Trabuco Oso Creek Prima Deshecha Canada Segunda Deshecha Canada Pacific Ocean	1. Coliform Bacteria	1. County of Orange 2. City of Aliso Viejo 3. City of Dana Point 4. City of Laguna Beach 5. City of Lake Forest 6. City of Laguna Hills 7. City of Laguna Niguel 8. City of Laguna Woods 9. City of Mission Viejo 10. City of Rancho Santa Margarita 11. City of San Juan Capistrano 12. City of San Clemente 13. Orange County Flood Control District

Discussion: The 1998 California 303(d) List and TMDL Priority Schedule identifies impaired receiving water bodies and their watersheds within the State of California. The Copermittees which discharge from MS4s to these water bodies are identified in the Regional Board *Draft Watershed Management Approach*.⁸² For an explanation on how the watershed approach fits into the NPDES municipal storm water permitting program, see Attachment 4, Municipal Storm Water Permitting and the Watershed Approach.

29. Finding states the following:

CUMULATIVE POLLUTANT LOAD CONTRIBUTIONS: *Because they are interconnected, each MS4 within a watershed contributes to the cumulative pollutant loading, volume, and velocity of urban runoff and the ensuing degradation of downstream receiving water bodies. Accordingly, inland MS4s contribute to coastal impairments.*

Discussion: A watershed is the drainage basin, outlined by topographic divides, which drain to a common outlet, such as a stream, lake, estuary, enclosed bay, or

⁸² SDRWQCB. 1999. Fifth Draft Watershed Management Approach for the San Diego Region.

ocean. Therefore, when various MS4s discharge into the same watershed, the discharges eventually flow into a common receiving water body. In this manner, individual MS4s that share the same watershed contribute to cumulative pollutant loading in the watershed's receiving water body. To help alleviate this cumulative loading, watershed based water quality protection is needed. The SWRCB Urban Runoff Technical Advisory Committee defines watershed based water quality protection as "the prevention/control of pollution and management of human activities within a geographically or other defined drainage area to protect, restore, and/or enhance the natural resources and beneficial uses within the watershed."

30. Finding states the following:

LAND USE PLANNING ON A WATERSHED SCALE: *Because urban runoff does not recognize political boundaries, "watershed-based" land use planning (pursued collaboratively by neighboring local governments) can greatly enhance the protection of shared natural water resources. Such planning enables multiple jurisdictions to work together to plan for both development and resource conservation that can be environmentally as well as economically sustainable.*

Discussion: Conventional planning and zoning can be limited in their ability to protect the environmental quality of creeks, rivers, and other waterbodies. Watershed-based planning is often ignored, despite the fact that receiving waters unite land by collecting runoff from throughout the watershed. Since watersheds unite land, they can be used as an effective basis for planning. Watershed-based planning enables local and regional areas to realize economic, social, and other benefits associated with growth, while conserving the resources needed to sustain such growth, including water quality. This type of planning can involve four steps: (1) Identify the watersheds shared by the participating jurisdictions; (2) Identify, assess, and prioritize the natural, social, and other resources in the watersheds; (3) Prioritize areas for growth, protection, and conservation, based on prioritized resources; and (4) Develop plans and regulations to guide growth and protect resources. Local governments can start with simple, yet effective, steps toward watershed planning, such as adopting a watershed-based planning approach, articulating the basic strategy in their General Plans, and beginning to pursue the basic strategy in collaboration with neighboring local governments who share the watersheds. New mechanisms have been created to facilitate watershed-based planning and zoning, such as the San Francisquito Creek Watershed Coordinated Resource Management Process and the Santa Clara Basin Watershed Management Initiative.⁸³

31. Finding states the following:

INTERGOVERNMENTAL COORDINATION: *Within their common watersheds it is essential for the Copermitees to coordinate their water quality protection and land use planning activities to achieve the greatest protection of receiving water bodies. Copermitee coordination with other watershed stakeholders, especially CALTRANS and the Department of Defense is also critical.*

Continued implementation of the management structure developed under previous permits, within which the Copermitees subject to this Order, will fund and coordinate those aspects of their joint obligations will promote implementation of Urban Runoff Management Programs on a watershed and regional basis in the most cost effective manner.

⁸³ Source: Bay Area Stormwater Management Agencies Association. 1999. Start at the Source. Forbes Custom Publishing.

Discussion: Within a given watershed, “water quality and beneficial uses may be affected by many different activities – which may occur throughout or only in certain parts of watersheds, and which may occur near to or far from locations of known water problems” (SDRWQCB,1999). This implies that pollutant sources may actually be located far from where the water quality problem manifests itself. Therefore, water quality problems generated by one municipality may impact another municipality. In addition, municipalities within a watershed all contribute pollutants to shared receiving waters. For these reasons, coordination between municipalities and stakeholders within a watershed is necessary. Watershed scale coordination provides for the highest priority water quality problems to be addressed, resulting in the greatest improvements in water quality for costs incurred. Intergovernmental coordination can also result in cost savings through the sharing of resources between Copermittees.

Also, federal NPDES regulation 40 CFR 122.26(d)(2)(iv) requires where necessary intergovernmental coordination by stating “a proposed management program covers the duration of the permit. It shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate.” In addition, the US EPA finds that “[Copermittees] may use jurisdictional agreements to show adequate legal authority and to ensure planning, coordination, and the sharing of the resource burden of permit compliance” (1992).

32. Finding states the following:

WASTE REMOVAL: *Waste and pollutants which are deposited and accumulate in MS4 drainage structures will be discharged from these structures to waters of the United States unless they are removed. These discharges may cause or contribute to, or threaten to cause or contribute to, a condition of pollution in receiving waters. Once removed, such accumulated wastes must be characterized and lawfully disposed.*

Discussion: When rain falls and drains urban freeways, industries, construction sites, and neighborhoods it picks up a multitude of pollutants. Gravity flow transports the pollutants to the MS4. Illicit discharges and connections also contribute a significant amount of pollutants to MS4s. MS4s are commonly designed to convey their contents as quickly as possible. Due to these typically high flow rates within the concrete conveyance systems of MS4s, pollutants that enter or are deposited in the MS4 and not removed are generally flushed unimpeded through the MS4 to waters of the United States. The US EPA found in its National Urban Runoff Pollution study (1983) that pollutant concentrations in urban runoff discharged from MS4s frequently exceed established receiving water quality objectives and drinking water standards. Therefore, when waste is deposited in the MS4, it is generally flushed to receiving waters, when it can potentially cause or contribute to a violation of water quality standards.

33. Finding states the following:

CHANGING THE STORM WATER MANAGEMENT APPROACH: *In contrast to the conventional “conveyance” approach, a more natural approach to storm water management seeks to filter and infiltrate runoff by allowing it to flow slowly over permeable vegetated surfaces. By “preserving and restoring the natural hydrologic cycle”, filtration and infiltration can greatly reduce the volume/peak*

rate, velocity, and pollutant loads of urban runoff. The greatest opportunities for changing from a "conveyance" to a more natural management approach occur during the land use planning and zoning processes and when new development projects are under early design.

Discussion: Urbanization generally results in an increase in pollutant sources and impervious surfaces. The increase in pollutant sources leads to an increase in pollutant loads found in storm water, while the increase in impervious surfaces prevents natural processes from reducing those pollutant loads. The impervious surfaces associated with urbanization and its storm water conveyance systems prevent storm water from infiltrating into the soil. Natural vegetation and soil are prevented from filtering urban runoff, resulting in storm water flows that are higher in volume and pollutant loads. This causes the quality of receiving waters to be adversely impacted and beneficial uses to be impaired.

Studies have revealed that the level of imperviousness resulting from urbanization is strongly correlated with the water quality impairment of nearby receiving waters.⁸⁴ Urbanization creates new sources of pollutants and provides for their rapid transport to receiving waters through storm water conveyance systems. Urbanization also adversely impacts receiving waters through changes it causes to local hydrology. Increases in population density and imperviousness stemming from urbanization result in changes to stream hydrology, including:

1. increased peak discharges compared to predevelopment levels;
2. increased volume of storm water runoff with each storm compared to pre-development levels;
3. decreased travel time to reach receiving water;
4. increased frequency and severity of floods;
5. increased runoff velocity during storms due to a combination of effects of higher discharge peaks, rapid time of concentration, and smoother hydraulic surfaces from channelization; and
6. decreased infiltration and diminished groundwater recharge.

In many cases the impacts on receiving waters due to changes in hydrology can be more significant than those attributable to the contaminants found in storm water discharges (USEPA, 1999b). These impacts include stream bank erosion (increased sediment load and subsequent deposition), benthic habitat degradation, and decreased diversity of macroinvertebrates.

For the above reasons, this Order encourages an approach to storm water management that seeks to preserve and restore the natural hydrologic cycle. Open space designs which maximize pervious surfaces and retention of "natural" drainages have been found to reduce both the costs of development and pollutant export.⁸⁵ Moreover, US EPA finds including plans for a "natural" site design and BMP implementation during the design phase of new development and

⁸⁴ U.S. Environmental Protection Agency. 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule.

⁸⁵ Center for Watershed Protection. 2000. "The Benefits of Better Site Design in Residential Subdivisions." Watershed Protection Techniques. Vol. 3. No. 2.

redevelopment offers the most cost effective strategy to reduce pollutant loads to surface waters.⁸⁶

34. Finding states the following:

INFILTRATION AND POTENTIAL GROUNDWATER CONTAMINATION: *Any drainage feature that infiltrates runoff poses some risk of potential groundwater contamination. Although dependent on several factors, the risks typically associated with properly managed infiltration of runoff (especially from residential land use areas) are not significant. The risks associated with infiltration can be managed by many techniques, including (1) designing landscape drainage features that promote infiltration of runoff, but do not “inject” runoff (injection bypasses the natural processes of filtering and transformation that occur in the soil); (2) taking reasonable steps to prevent the illegal disposal of wastes; and (3) ensuring that each drainage feature is adequately maintained in perpetuity. Minimum conditions needed to protect groundwater are specified in section F.1.b. of this Order.*

Discussion: Infiltration is an effective means for managing urban runoff. However, measures must be taken to protect groundwater quality when infiltration of urban runoff is implemented. US EPA supports urban runoff infiltration and provides guidance for protection of groundwater: “With a reasonable degree of site-specific design considerations to compensate for soil characteristics, infiltration may be very effective in controlling both urban runoff quality and quantity problems. This strategy encourages infiltration of urban runoff to replace the natural infiltration capacity lost through urbanization and to use the natural filtering and sorption capacity of soils to remove pollutants; however, the potential for some types of urban runoff to contaminate groundwater through infiltration requires some restrictions.”⁸⁷ The restrictions placed on urban runoff infiltration in Order No. R9-2002-0001 is based on recommendations provided by the US EPA Risk Reduction Engineering Laboratory. The SWRCB found in its draft order on the appeal of the Los Angeles Regional Water Quality Control Board’s (LARWQCB’s) Standard Urban Storm Water Mitigation Plan (SUSMP) requirements that the guidance provided in the above referenced document by the US EPA Risk Reduction Engineering Laboratory is sufficient for the protection of groundwater quality from urban runoff infiltration. To further protect groundwater quality, Order No. R9-2002-0001 also includes guidance from the LARWQCB,⁸⁸ the State of Washington,⁸⁹ and the State of Maryland.⁹⁰

35. Finding states the following:

VECTOR CONTROL: *Certain BMPs implemented or required by municipalities for urban runoff management may create a habitat for vectors (e.g. mosquitoes and rodents) if not properly designed or maintained. Close collaboration and cooperative effort between municipalities and local vector control agencies and the State Department of Health Services during the development and*

⁸⁶ U.S. Environmental Protection Agency. 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule.

⁸⁷ U.S. Environmental Protection Agency. 1994. Potential Groundwater Contamination from Intentional and Nonintentional Stormwater Infiltration. EPA 600 SR-94 051.

⁸⁸ Guidance on vertical distance from base of BMP to groundwater table. LARWQCB. 2000. Standard Urban Storm Water Mitigation Plan for Los Angeles County and Cities in Los Angeles County.

⁸⁹ Washington State Department of Ecology. 1999. Draft Stormwater Management in Washington State. Volume V – Runoff Treatment BMPs. Pub. No. 99-15.

⁹⁰ Maryland Department of the Environment. 1999. 2000 Maryland Stormwater Design Manual. Volume I.

implementation of the Urban Runoff Management Programs is necessary to minimize nuisances and public health impacts resulting from vector breeding.

Discussion:

The implementation of certain structural BMPs or other urban runoff treatment systems can result in significant vector problems in the form of increased breeding or harborage habitat for mosquitoes, rodents or other potentially disease transmitting organisms. The implementation of BMPs that retain water may provide breeding habitat for a variety of mosquito species, some of which have the potential to transmit diseases such as Western Equine Encephalitis, St. Louis Encephalomyelitis, and malaria. Recent BMP implementation studies by CALTRANS⁹¹ in District 7 and District 11 have demonstrated mosquito breeding associated with some types of BMPs. The CALTRANS BMP Retrofit Pilot study cited lack of maintenance and improper design as factors contributing to mosquito production. However, a Watershed Protection Techniques article⁹² describes management techniques to select, design and maintain structural treatment BMPs for urban runoff to minimize mosquito production. State and local urban runoff management programs that include structural BMPs with the potential to retain water have been implemented in Florida and the Chesapeake Bay region without resulting in significant public health threats from mosquitoes or other vectors⁹³. The finding identifies the potential vector issues related to BMP implementation and the role of collaborative program development between municipalities and vector control agencies in addressing and minimizing vector production in the implementation of the Jurisdictional Urban Runoff Management Program.

36. Finding states the following:

LEGAL AUTHORITY: *This Order is based on the federal Clean Water Act, the Porter-Cologne Water Quality Control Act (Division 7 of the Water Code, commencing with Section 13000), applicable state and federal regulations, all applicable provisions of statewide Water Quality Control Plans and Policies adopted by the State Water Resources Control Board, the Regional Water Quality Control Plan (Basin Plan) adopted by the Regional Board, the California Toxics Rule, and the California Toxics Rule Implementation Plan.*

Discussion:

The United States and State of California have sought to protect streams, bays, lagoons, the ocean, and other waters from human-induced pollution. Municipal separate storm sewer systems (MS4s) are recognized as a significant conveyor of pollutants to waters of the United States and waters of the State of California. In 1987, Congress established Clean Water Act Amendments to create requirements for storm water discharges under the NPDES program, which provides for permit systems to regulate the discharge of pollutants. Under the Porter-Cologne Water Quality Control Act (California Water Code), the State Water Resources Control Board and each Regional Water Quality Control Board have primary responsibility for the coordination and control of water quality,

⁹¹ Caltrans BMP Retrofit Pilot Studies: A Preliminary Assessment of Vector Production (2000), Vicki Kramer, Vector Borne Disease Section, California Department of Health Services.

⁹² Watershed Protection Techniques (1995) 1(4):203-207 Mosquitoes in Constructed Wetlands: A Management Bugaboo?

⁹³ Shaver, E. and R. Baldwin (1995) Sand Filter Design for Water Quality Treatment in Herricks, E., Ed. Stormwater Runoff and Receiving Systems: Impact, Monitoring, and Assessment, CRC Lewis Publishers, New York, NY.

including the authority to implement the Federal Clean Water Act. Porter Cologne (section 13240) directs the Regional Boards to set water quality objectives via adoption of Basin Plans that conform to all state policies for water quality control. As a means for achieving those water quality objectives, Porter Cologne (section 13243) further authorizes the Regional Boards to establish waste discharge requirements to prohibit waste discharges in certain conditions or areas. Since 1990 the San Diego Regional Board has issued area-wide NPDES permits for storm water runoff. This Order will renew Order No. 96-03 as a means to attain water quality objectives in the Basin Plan by limiting the contributions of pollutants conveyed by urban runoff and to comply with Federal Clean Water Act. Further discussions of the broad and specific legal authority associated with the prohibitions and directives of this Order are provided throughout this document.

37. Finding states the following:

TOTAL MAXIMUM DAILY LOADS (TMDLs): *40 CFR 122.44 (d)(vii)(B) requires that NPDES permits contain effluent limitations that are consistent with waste load allocations developed under a TMDL. Several TMDLs are being developed in the San Diego Region for impaired water bodies that receive Copermitees' discharge. Once these TMDLs are approved by the SDRWQCB and USEPA, Copermitees' discharge of urban runoff into an impaired water body will be subject to load allocations established by the TMDLs. This Order may be revised by the Regional Board to implement the TMDL waste load allocations for specific water bodies within the Orange County watersheds.*

Discussion:

40 CFR 122.44 (d)(vii)(B) requires that NPDES permit effluent limitations be consistent with any waste load allocation for the discharge that are prepared by the state (Regional Board) and approved by USEPA. Furthermore, USEPA's guidance for developing TMDLs in California includes a recommendation that the state (Regional Board) evaluate how waste load allocations will be translated into NPDES permits as part of the development of the TMDL implementation plan. Once TMDL limits are established and approved by USEPA, NPDES permits will be required to include effluent limitations that are consistent with the TMDL allocations. This Order may be specifically revised by the Regional Board to implement the TMDL waste load allocations for specific water bodies within the Orange County watersheds. There are no USEPA approved TMDLs for the San Diego Region, and therefore no limitations that can be explicitly included in the Order at this time. This finding was added to the permit to reference TMDLs and their relationship to the permit.

38. Finding states the following:

ANTIDEGRADATION: *Conscientious implementation of URMPs that satisfy the requirements contained in this Order will reduce the likelihood that discharges from MS4s will cause or contribute to unreasonable degradation of the quality of receiving waters. Therefore, this Order is in conformance with SWRCB Resolution No. 68-16 and the federal antidegradation policy described in 40 CFR 131.12.*

Discussion: Implementation of URMPs is required to reduce pollutants in urban runoff to the maximum extent practicable. Reduction of pollutants to the maximum extent practicable will prevent degradation of the quality of receiving waters. Therefore, implementation of URMPs that satisfy the requirements of Order No. R9-2002-0001 will prevent violations of receiving water quality objectives. The

Basin Plan states that "Water quality objectives must [...] conform to US EPA regulations covering antidegradation (40 CFR 131.12) and State Board Resolution 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California." As a result, when water quality objectives are met through the implementation of URMPs, US EPA and SWRCB antidegradation policy requirements are also met.

39. Finding states the following:

CEQA: *The issuance of waste discharge requirements for the discharge of urban runoff from MS4s to waters of the United States is exempt from the requirement for preparation of environmental documents under the California Environmental Quality Act (CEQA) (Public Resources Code, Division 13, Chapter 3, § 21000 et seq.) in accordance with the CWC § 13389.*

Discussion: CWC section 13389 provides that "Neither the state board nor the regional boards shall be required to comply with the provisions of Chapter 3 (commencing with section 21100) of Division 13 of the Public Resources Code prior to the adoption of any waste discharge requirement, except requirements for new sources as defined in the Federal Water Pollution Control Act or acts amendatory thereof or supplementary thereto."

40. Finding states the following:

COMMON INTEREST DEVELOPMENTS AND HOMEOWNERS ASSOCIATIONS: *Common interest developments occur within the jurisdiction of the Copermittees. Commonly owned areas can include those used to convey urban runoff. State Law (Civil code 1350-1376) requires that an association be established to manage the commonly owned areas. Urban runoff from storm water conveyance systems within common interest developments is discharged to receiving waters and/or MS4s. This runoff is expected to have water quality and quantity characteristics similar to runoff from areas of similar land use and drainage area.*

Discussion:

Many residential neighborhoods and some commercial areas within the jurisdiction of the Copermittees are within common interest developments and are, therefore, subject to management of common areas by associations. The Declaration of the Covenants, Conditions and Restrictions (CC&Rs) contains the ground rules for the operation of such an association. CC&Rs are an appropriate method for protecting the common plan of developments and to provide for a mechanism for financial support for the upkeep of common areas including roads, storm drains, and other components of storm water conveyance systems.

In certain cases the Copermittees may neither own nor operate the storm water conveyance systems within common interest developments. Presently, some Copermittees have agreements with the responsible association(s) in which the association either allows the Copermittee to implement best management practices or the association agrees to uphold the intent of the DAMP. Rather than list the associations as Copermittees, this Order interprets common interest areas as property subject to the codes and ordinance and enforcement mechanisms of the city or county in which it resides and, therefore, holds the local government responsible for the discharge of wastes from private storm water conveyance systems.

41. Finding states the following:

REPORT OF WASTE DISCHARGE: *In September 2000, the Orange County Copermittees submitted a Report of Waste Discharge and a proposed Drainage Area Management Plan (DAMP) for 2001-2006 to the SDRWQCB.*

Discussion:

The Orange County Copermittees submitted the Report of Waste Discharge and a proposed Drainage Area Management Plan (DAMP) for Orange County. A staff level review of the Report of Waste Discharge and the proposed DAMP submitted in September 2000 concluded that implementation of the proposed DAMP would not satisfy the MEP standard as defined in this Order or adequately protect the beneficial uses of the receiving waters of Orange County within the San Diego Region. Although the Copermittees proposed performance commitments that improved the 1993 DAMP, staff concluded that the DAMP as a whole does not provide adequate specific information on the required implementation of BMPs that would prevent, treat or reduce the pollutants in the discharges of urban runoff to the maximum extent practicable. The proposed DAMP does not incorporate sufficient tools to complement public education as a means to increase public cooperation in the effort to reduce sources of urban runoff pollution.

Implementation of the DAMP has not adequately protected the beneficial uses of the receiving waters of Orange County within the San Diego region as evidenced in part by the ongoing beach closures, elevated bacterial contamination of Aliso Creek, and the continued diversion of Aliso Creek into the AMWA Regional Treatment Facility (sewer) outfall at Aliso State Beach. In addition, the Orange County Grand Jury found that local enforcement actions are insufficient to deter polluters because monetary fines related to urban runoff pollution are "so minimal that it is often more cost effective for the offender to pay the fine than to properly dispose of the pollutants." (source: OC Grand Jury, 1998-1999 "Coastal Water Quality and Urban Runoff in Orange County") Furthermore, during the May 9, 2001 meeting of the SDRWQCB in Laguna Beach, concerns were expressed regarding the adequacy of proposed BMP implementation, source identification and control, and the urban runoff management programs being employed by the Copermittees.

A more detailed analysis of the proposed DAMP has been prepared and presented as Attachment 5 of this Fact Sheet/Technical Report. In addition, this subject has been extensively addressed in the response to comments, which will be appended to this document.

42. Finding states the following:

PUBLIC NOTICE: *The SDRWQCB has notified the Copermittees, all known interested parties, and the public of its intent to consider adoption of an Order prescribing waste discharge requirements that would serve to renew an NPDES permit for the existing discharge of urban runoff.*

Discussion: Public notification of development of a draft permit is required under Federal regulation 40 CFR 124.10(a)(1)(ii). This regulation states "(a) Scope. (1) The Director shall give public notice that the following actions have occurred: (ii) A draft permit has been prepared under Sec. 124.6(d)." Public notifications "shall allow at least 30 days for public comment," as required under Federal regulation 40 CFR 124.10(b)(1). Public notification is also required under California Water

Code Section 13378, which states “Waste discharge requirements and dredged or fill material permits shall be adopted only after notice and any necessary hearing.”

43. Finding states the following:

***PUBLIC HEARING:** The SDRWQCB has, at a public meeting on January 9, 2002, held a public hearing and heard and considered all comments pertaining to the terms and conditions of this Order.*

Discussion: Public hearings are required under California Water Code Section 13378, which states “Waste discharge requirements and dredged or fill material permits shall be adopted only after notice and any necessary hearing.” Federal regulation 40 CFR 124.12(a)(1) also requires public hearings for draft permits, stating “The Director shall hold a public hearing whenever he or she finds, on the basis or requests, a significant degree of public interest in a draft permit(s).” Regarding public notice of a public hearing, Federal regulation 40 CFR 124.10(b)(2) states that “Public notice of a public hearing shall be given at least 30 days before the hearing.”

VII. DIRECTIVES DISCUSSION

UNDERLYING BROAD LEGAL AUTHORITY FOR ORDER NO. R9-2002-0001

The following statutes, regulations, and Water Quality Control Plans provided the basis for Order No. R9-2002-0001: Clean Water Act, California Water Code, 40 CFR Parts 122, 123, 124 (National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges, Final Rule), Part II of 40 CFR Parts 9, 122, 123, and 124 (National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule), Water Quality Control Plan – Ocean Waters of California (California Ocean Plan), Water Quality Control Plan for the San Diego Basin (Basin Plan), 40 CFR 131 Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; Rule (California Toxics Rule), and the California Toxics Rule Implementation Plan.

The following broad legal authority citations generally apply to all directives in Order No. R9-2002-0001, and provide the SDRWQCB with ample underlying authority to require each of the directives.

CWA 402(p)(3)(B)(ii) – Prohibit Non-Storm Water

The CWA requires in section 402(p)(3)(B)(ii) that permits for discharges from municipal storm sewers “shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers.”

CWA 402(p)(3)(B)(iii) – Reduce to MEP and Whatever Else is Needed

The CWA requires in section 402(p)(3)(B)(iii) that permits for discharges from municipal storm sewers “shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other

provisions as the Administrator or the State determines appropriate for the control of such pollutants.”

40 CFR 122.26(d)(2)(i)(B,C,E, and F) – Obtain Adequate Legal Authority

Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) provide that each Copermittee’s permit application “shall consist of : (i) Adequate legal authority. A demonstration that the applicant can operate pursuant to legal authority established by statute, ordinance or series of contracts which authorizes or enables the applicant at a minimum to: [...] (B) Prohibit through ordinance, order or similar means, illicit discharges to the municipal separate storm sewer; (C) Control through ordinance, order or similar means the discharge to a municipal separate storm sewer of spills, dumping or disposal of materials other than storm water; [...] (E) Require compliance with condition in ordinances, permits, contracts or orders; and (F) Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer.”

40 CFR 122.26(d)(2)(iv) – Reduce to the MEP and Whatever Else is Needed

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) provides that the Copermittee shall develop and implement a proposed management program which “shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate. The program shall also include a description of staff and equipment available to implement the program. [...] Proposed programs may impose controls on a systemwide basis, a watershed basis, a jurisdiction basis, or on individual outfalls. [...] Proposed management programs shall describe priorities for implementing controls.”

CWC 13377 – Implement Clean Water Act and Whatever Else is Needed

California Water Code section 13377 provides that “Notwithstanding any other provision of this division, the state board or the regional boards shall, as required or authorized by the Federal Water Pollution Control Act (Clean Water Act), as amended, issue waste discharge requirements and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with anymore stringent effluent standards or limitation necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance.”

In addition to the five broad legal authority items cited above, which underlie all of the directives in Order No. R9-2002-0001, additional specific legal authority citations applicable to particular directives of Order No. R9-2002-0001 are provided in this Fact Sheet/Technical Report as necessary. Some of these additional specific legal authority citations apply to entire components of Order No. R9-2002-0001. In this case, the specific legal authority quotations are provided at the beginning of the discussion of the permit component, while the legal authority is again cited under each directive of the component. Furthermore, some specific legal authority citations only apply to distinct directives of

Order No. R9-2002-0001. When this occurs, the quotation of the specific legal authority citation will appear with the discussion of the distinct permit directive.

A. PROHIBITIONS – DISCHARGES

A.1. Prohibitions – Discharges states the following:

Discharges into and from MS4s in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance (as defined in CWC § 13050), in waters of the state are prohibited.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: The SDRWQCB Water Quality Control Plan for the San Diego Basin (Basin Plan) contains the following waste discharge prohibition: “The discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination, or nuisance as defined in California Water Code Section 13050, is prohibited.”

California Water Code section 13050(l) states“(1) ‘Pollution’ means an alteration of the quality of waters of the state by waste to a degree which unreasonably affects either of the following: (A) The water for beneficial uses. (B) Facilities which serve beneficial uses. (2) ‘Pollution’ may include “contamination.”

California Water Code section 13050(k) states “‘Contamination’ means an impairment of the quality of waters of the state by waste to a degree which creates a hazard to public health through poisoning or through the spread of disease. ‘Contamination’ includes any equivalent effect resulting from the disposal of waste, whether or not waters of the state are affected.”

California Water Code section 13050(m) states “‘Nuisance’ means anything which meets all of the following requirements: (1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. (2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. (3) Occurs during, or as a result of, the treatment or disposal of wastes.”

California Water Code Section 13243 provides that “A regional board, in a water quality control plan or in waste discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted.”

California Water Code Section 13263(a) provides that waste discharge requirements prescribed by the SDRWQCB implement the Basin Plan.

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in urban runoff from commercial, residential, industrial, and construction land uses or activities.

Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(A - D) require municipalities to have legal authority to control various discharges to their MS4.

Discussion: Prohibition item A.1. characterizes a basic premise and primary goal of Order No. R9-2002-0001. The entire thrust of Order No. R9-2002-0001 is to prevent discharges from MS4s from causing, or threatening to cause, a condition of pollution, contamination, or nuisance. In fact, Prohibition item A.1. exhibits a major component of the SDRWQCB's mission, and is included in its Basin Plan. The SDRWQCB seeks to preserve and enhance the quality of the region's waters, and one primary method to achieve this is by preventing conditions of pollution, contamination, or nuisance in the region's waters. As discussed in Finding 9, urban runoff discharges from MS4s can cause these conditions. Therefore, Prohibition item A.1 is included in Order No. R9-2002-0001 to prevent urban runoff discharges which may cause or threaten to cause conditions of pollution, contamination, or nuisance.

Since discharges that enter the MS4 are generally discharged unimpeded directly into receiving waters, this prohibition applies to both discharges into and from MS4s. Federal NPDES regulations clearly provide the SDRWQCB with the legal authority to require municipalities to control discharges from third parties into their MS4. 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in urban runoff **from** commercial, residential, industrial, and construction land uses or activities. Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(A - D) require municipalities to have legal authority to control various discharges **to** their MS4. This concept is further supported in the Preamble to the Phase II Final Rule NPDES storm water regulations, which states "The operators of regulated small MS4s cannot passively receive and discharge pollutants **from** third parties" (US EPA, 1999). Due to the greater water quality concerns generally experienced by larger municipalities, Phase II Final Rule findings for small municipalities are also applicable to larger municipalities such as the Copermittees. Finally, underlying the Federal NPDES storm water regulations is the Clean Water Act, which states in section 402(p)(3)(B)(ii) that municipalities shall "effectively prohibit non-stormwater discharges **into** the storm sewers."

The requirement for municipal storm water dischargers to have, and exercise, local governmental authority in order to comply with water quality control obligations (such as Prohibition A.1 of Order No. R9-2002-0001) is analogous to the requirement for Publicly Owned Treatment Works to have and exercise legal authority to require pretreatment of industrial wastes being discharged to their sewage collections systems (CWA 402(b)(8)).

The SDRWQCB has discretion to require Prohibition item A.1. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

A.2. Prohibitions – Discharges states the following:

Discharges from MS4s that cause or contribute to exceedances of receiving water quality objectives for surface water or groundwater are prohibited.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

California Water Code section 13241 requires each regional board to “establish such water quality objectives in water quality control plans as in its judgement will ensure the reasonable protection of beneficial uses and the prevention of nuisance [...]”

California Water Code Section 13243 provides that “A regional board, in a water quality control plan or in waste discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted.”

California Water Code Section 13263(a) provides that waste discharge requirements prescribed by the SDRWQCB implement the Basin Plan.

Discussion: As with Prohibition item A.1., Prohibition item A.2. also characterizes a primary goal of Order No. R9-2002-0001 and the SDRWQCB. This goal is to protect the beneficial uses of the region’s waters and achieve the water quality objectives necessary to protect those uses. The overarching intent of the Clean Water Act embodies Prohibition item A.2. as well; the Act’s objective is to “restore and maintain all chemical, physical and biological integrity of the Nation’s waters [to make all surface waters] fishable [and] swimmable.”

As discussed in Finding 3, urban runoff discharges from MS4s can cause or contribute to exceedances of receiving water quality objectives. For this reason, there is a real need for municipal storm water permits to include stringent requirements such as Prohibition item A.2. to protect those water bodies. To meet this need the SDRWQCB has included receiving water limitations, which dictate water quality standards (designated beneficial uses and water quality objectives developed to protect beneficial uses), in Receiving Water Limitations item C. of Order No. R9-2002-0001 (see the Discussion for this item for more information). To ensure that water quality standards are protected and receiving water limitations met, the SDRWQCB must prohibit MS4 discharges that cause or contribute to exceedances of receiving water quality objectives.

The SDRWQCB has discretion to require Prohibition item A.2. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

A.3. Prohibitions – Discharges states the following:

Discharges from MS4s containing pollutants which have not been reduced to the maximum extent practicable (MEP) are prohibited.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: California Water Code Section 13243 provides that “A regional board, in a water quality control plan or in waste discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted.”

Discussion: As discussed in Findings 3 and 9, urban runoff discharges from MS4s can cause receiving water degradation and beneficial use impairment. For this reason, pollutants in these discharges must be reduced to the maximum extent practicable (see Finding 10). The Clean Water Act and Federal NPDES regulations clearly require operators of MS4s to reduce pollutants in discharges from MS4s to the maximum extent practicable. Therefore, the SDRWQCB has prohibited discharges that do not meet this requirement.

The SDRWQCB has discretion to require Prohibition item A.3. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

This prohibition has been revised and is included in the Order in response to a draft SWRCB Order WQ 2001-15, (In the Matter of the Petitions of Building Industry Association of San Diego County and Western States Petroleum Association for Review of Waste Discharge Requirements Order No. 2001-01 for Urban Runoff from San Diego County [NPDES No. CAS0108758] Issued by the California Water Quality Control Board, San Diego Region).

A.4. Prohibitions – Discharges states the following:

In addition to the above prohibitions, discharges from MS4s are subject to all Basin Plan prohibitions cited in Attachment A to this Order.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: California Water Code Section 13243 provides that “A regional board, in a water quality control plan or in waste discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted.”

California Water Code Section 13263(a) provides that waste discharge requirements prescribed by the SDRWQCB implement the Basin Plan.

Discussion: As discussed in Findings 3, 6, and 9, the discharge of pollutants from MS4s can cause the concentration of pollutants to exceed applicable

receiving water quality objectives, impair or threaten to impair designated beneficial uses, and pose a significant threat to the public health. To prevent these conditions, the Prohibitions included in the SDRWQCB's Basin Plan must therefore apply to MS4 discharges. The Basin Plan contains Prohibitions established by the SDRWQCB pursuant to California Water Code Section 13243. The SDRWQCB is required to implement Basin Plan Prohibitions in Order No. R9-2002-0001 pursuant to California Water Code Section 13263(a).

The SDRWQCB has discretion to require Prohibition item A.5. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

B. PROHIBITIONS – NON STORM WATER DISCHARGES

B.1. Prohibitions – Non-Storm Water Discharges states the following:

*Each Copermittee shall effectively prohibit **all** types of non-storm water discharges into its Municipal Separate Storm Sewer System (MS4) unless such discharges are either authorized by a separate NPDES permit; or not prohibited in accordance with B.2. and B.3. below.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B) requires MS4 operators “to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(1) provides that the Copermittees shall prevent all types of illicit discharges into the MS4 except for the non-storm water discharges listed in Prohibition item B.2., provided that these discharges are not found to be a significant source of pollutants.

Discussion: Illicit or non-storm water discharges can constitute a significant portion of urban runoff discharges from MS4s. US EPA states “A study conducted in 1987 in Sacramento, California, found that almost one-half of the water discharged from a local MS4 was not directly attributable to precipitation runoff. A significant portion of these dry weather flows were from illicit and/or inappropriate discharges and connections to the MS4” (2000).

MS4 discharges attributable to illicit or non-storm water discharges can be a significant source of pollutant loading to receiving waters. The NURP study concluded that the quality of urban runoff can be adversely impacted by illicit discharges and connections (US EPA, 1983). Furthermore, US EPA states that illicit or non-storm water discharges result in “untreated discharges that contribute high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria to receiving waterbodies. Pollutant levels from these illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic wildlife and human health” (2000).

For these reasons, CWA section 402(p)(3)(B)(ii) requires each Copermittee to prohibit non-storm water discharges into its MS4. The detection and elimination of illicit discharges and connections is also clearly identified in the federal regulations as a high priority (40 CFR 122.26(d)(2)(iv)(B) and 122.26(d)(2)(iv)(B)(1)). As guidance for detecting and eliminating illicit discharges and connections, the US EPA suggests "The proposed management program must include a description of inspection procedures, orders, ordinances, and other legal authorities necessary to prevent illicit discharges to the MS4" (1992).

The SDRWQCB has the discretion to require Prohibition item B.1. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

B.2. Prohibitions – Non-Storm Water Discharges states the following:

Pursuant to 40 CFR 122.26(d)(2)(iv)(B)(1), the following categories of non-storm water discharges need only be prohibited from entering an MS4 if such categories of discharges are identified by the Copermittee as a significant source of pollutants to waters of the United States:

- a. Diverted stream flows;
- b. Rising ground waters;
- c. Uncontaminated ground water infiltration [as defined at 40 CFR 35.2005(20)] to MS4s;
- d. Uncontaminated pumped ground water;
- e. Foundation drains;
- f. Springs;
- g. Water from crawl space pumps;
- h. Footing drains;
- i. Air conditioning condensation;
- j. Flows from riparian habitats and wetlands;
- k. Water line flushing;
- l. Landscape irrigation;
- m. Discharges from potable water sources other than water main breaks;
- n. Irrigation water;
- o. Lawn watering;
- p. Individual residential car washing; and
- q. Dechlorinated swimming pool discharges.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B) requires MS4 operators "to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(1) provides that the Copermittees shall prevent all types of illicit discharges into the MS4 except for the non-storm water discharges listed in Prohibition item B.2., provided that these discharges are not found to be a significant source of pollutants.

Discussion: The discharges listed in Prohibition item B.2. are referred to as "de minimis" discharges in the Federal NPDES regulations. They are considered acceptable non-storm water discharges to the MS4 only when found by the municipality to not be a significant source of pollutants to the MS4 (40 CFR 122.26(d)(2)(iv)(B)(1)). Regarding these discharges, US EPA states "While EPA

does not consider these flows to be innocuous, they are only to be regulated by the storm water program to the extent that they may be identified as significant sources of pollutants to waters of the United States under certain circumstances” (1992).

The SDRWQCB has discretion to require Prohibition item B.2. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

B.3. Prohibitions – Non-Storm Water Discharges states the following:

When a discharge category above is identified as a significant source of pollutants to waters of the United States, the Copermittee shall either:

- a. *Prohibit the discharge category from entering its MS4; **OR***
- b. *Not prohibit the discharge category and implement, or require the responsible party(ies) to implement, BMPs which will reduce pollutants to the MEP; **AND***
- c. *For each discharge or discharge class not prohibited, the Copermittee shall submit the following information to the SDRWQCB within 180 days of adoption of this Order:*
 - (1) *The non-storm water discharge category listed above which the Copermittee elects not to prohibit; and*
 - (2) *The BMP(s) for each discharge category listed above which the Copermittee will implement, or require the responsible party(ies) to implement, to prevent or reduce pollutants to the MEP.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B) requires MS4 operators “to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(1) provides that the Copermittees shall prevent all types of illicit discharges into the MS4 except for the non-storm water discharges listed in Prohibition item B.2., provided that these discharges are not found to be a significant source of pollutants.

California Water Code Section 13267 provides that “the regional board may require that any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

Discussion: Discharges listed in Prohibition item B.2. which are found to be significant sources of pollutants cannot be discharged to the MS4 without implementation of applicable control measures. These control measures can include prohibition of the discharges or implementation of BMPs to reduce pollutants in the discharges to the maximum extent practicable. If a municipality chooses not to prohibit such a discharge, the municipality must supply the SDRWQCB information assuring that pollutants in the discharges will be reduced to the maximum extent practicable. This will help ensure that the municipality has

a plan in place to address the discharges, thereby reducing the potential for the discharges to impact receiving water quality.

The SDRWQCB has discretion to require Prohibition item B.3. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

B.4. Prohibitions – Non-Storm Water Discharges states the following:

***Fire Fighting Flows:** Emergency and non-emergency fire fighting flows need not be prohibited. However, where applicable, when not interfering with health and safety issues, BMPs for non-emergency fire fighting flows are encouraged.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B) requires MS4 operators “to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(1) provides that Copermittees “shall address discharges or flows from fire fighting only where such discharges or flows are identified as significant sources of pollutants to waters of the United States.”

Discussion: Discharges or flows from non-emergency fire fighting can be a significant source of pollutants to the MS4. Pollutants that enter the MS4 are generally flushed out to receiving waters. Discharges or flows from non-emergency fire fighting activities can therefore negatively impact receiving water quality. For this reason, non-emergency fire fighting discharges and flows must be addressed when identified as significant sources of pollutants.

The SDRWQCB has discretion to require Prohibition item B.4. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

B.5. Prohibitions – Non-Storm Water Discharges states the following:

***Dry Weather Monitoring and Non-Storm Water Discharges:** Each Copermittee shall examine all dry weather monitoring results collected in accordance with section F.5. and Attachment E of this Order to identify water quality problems which may be the result of any non-prohibited discharge category(ies) identified above in Non-Storm Water Discharges to MS4s Prohibition B.2. Follow-up investigations shall be conducted as necessary to identify and control any non-prohibited discharge category(ies) listed above.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B) requires MS4 operators “to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(2) requires that Copermittees shall provide "A description of procedures to conduct on-going field screening activities during the life of the permit, including areas or locations that will be evaluated by such field screens."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(3) provides that Copermittees shall "investigate portions of the separate storm sewer system that, based on the results of a field screen, or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources on non-storm water."

Discussion: Non-prohibited non-storm water discharges can be a significant source of pollutants to the MS4. These discharges can reach receiving waters, causing negative impacts to receiving water quality. Field screening can be an effective tool to help prevent these conditions. Field screening results can be used to identify non-prohibited discharges that may be a significant source of pollutants to the MS4. When field screening results exhibit potential non-storm water discharges, follow-up investigations should be conducted to find if non-prohibited discharges are the source. This information can then be used to prohibit the non-prohibited discharge or require implementation of BMPs.

The SDRWQCB has discretion to require Prohibition item B.5. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

C. RECEIVING WATER LIMITATIONS

C. Receiving Water Limitations states the following:

1. *Discharges from MS4s that cause or contribute to the violation of water quality standards (designated beneficial uses and water quality objectives developed to protect beneficial uses) are prohibited.*
2. *Each Copermittee shall comply with Part C.1., Part A.2 and Part A.4 as it applies to Prohibition 5 in Attachment A of this Order through timely implementation of control measures and other actions to reduce pollutants in urban runoff discharges in accordance with the Jurisdictional Urban Runoff Management Program (Jurisdictional URMP) and other requirements of this Order including any modifications. The Jurisdictional URMP shall be designed to achieve compliance with Part C.1., Part A.2 and Part A.4 as it applies to Prohibition 5 in Attachment A of this Order. If exceedance(s) of water quality standards persist notwithstanding implementation of the URMP and other requirements of this Order, the Copermittee shall assure compliance with Part C.1., Part A.2 and Part A.4 as it applies to Prohibition 5 in Attachment A of this Order by complying with the following procedure:*
 - a. *Upon a determination by either the Copermittee or the SDRWQCB that MS4 discharges are causing or contributing to an exceedance of an applicable water quality standard, the Copermittee shall promptly notify and thereafter submit a report to the SDRWQCB that describes BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of water quality standards. The report may be incorporated in the annual update to the Jurisdictional URMP unless the SDRWQCB directs an earlier submittal. The report shall include an implementation schedule. The SDRWQCB may require modifications to the report;*

- b. *Submit any modifications to the report required by the SDRWQCB within 30 days of notification;*
- c. *Within 30 days following approval of the report described above by the SDRWQCB, the Copermittee shall revise its Jurisdictional URMP and monitoring program to incorporate the approved modified BMPs that have been and will be implemented, the implementation schedule, and any additional monitoring required;*
- d. *Implement the revised Jurisdictional URMP and monitoring program in accordance with the approved schedule.*

So long as the Copermittee has complied with the procedures set forth above and are implementing the revised Jurisdictional URMP, the Copermittee does not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the SDRWQCB to do so.

3. *Nothing in this section shall prevent the SDRWQCB from enforcing any provision of this Order while the Copermittee prepares and implements the above report.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: California Water Code Section 13241 provides that the "SDRWQCB shall establish such water quality objectives in water quality control plans as in its judgement will ensure the reasonable protection of beneficial uses and the prevention of nuisance."

California Water Code Section 13263(a) provides that waste discharge requirements prescribed by the SDRWQCB implement the Basin Plan.

Discussion: See the above discussion of Finding 13 in section VI. of this Fact Sheet/Technical Report.

This section has been modified in response to a SWRCB Order WQ 2001-15 (In the Matter of the Petitions of Building Industry Association of San Diego County and Western States Petroleum Association for Review of Waste Discharge Requirements Order No. 2001-01 for Urban Runoff from San Diego County [NPDES No. CAS0108758] Issued by the California Water Quality Control Board, San Diego Region).

D. LEGAL AUTHORITY

D.1. Legal Authority states the following:

*Each Copermittee shall establish, maintain, and enforce adequate legal authority to control pollutant discharges **into** and **from** its MS4 through ordinance, statute, permit, contract or similar means. This legal authority must, at a minimum, authorize the Copermittee to:*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that the Copermittees shall develop and implement legal authority to "Control through ordinance, order or similar means, the contribution of pollutants

to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that the Copermittees shall develop and implement legal authority to “Control through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system.”

Illicit discharge is defined under Federal NPDES regulation 40 CFR 122.26(b)(2) as “any discharge to a municipal separate storm sewer system that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in urban runoff from commercial, residential, industrial, and construction land uses or activities.

Discussion: As discussed in Finding 15, Copermittees cannot passively receive and discharge pollutants from third parties. As US EPA states, “The operator of a small MS4 that does not prohibit and/or control discharges into its system essentially accepts ‘title’ for those discharges. At a minimum, by providing free and open access to the MS4s that convey discharges to the waters of the United States, the municipal storm sewer system enables water quality impairment by third parties” (1999).

Discharges of pollutants to the MS4 must therefore be controlled, and an important means for a municipality to achieve this is through development of municipal legal authority. USEPA states “A crucial requirement of the NPDES storm water regulation is that a municipality must demonstrate that it has adequate legal authority to control the contribution of pollutants in storm water discharged to its MS4. [...] In order to have an effective municipal storm water management program, a municipality must have adequate legal authority to control the contribution of pollutants to the MS4. [...] ‘Control,’ in this context, means not only to require disclosure of information, but also to limit, discourage, or terminate a storm water discharge to the MS4” (1992).

Since discharges that enter the MS4 are generally discharged unimpeded directly into receiving waters, the Copermittee’s legal authority is to apply to both discharges into and from MS4s. Federal NPDES regulations clearly provide the SDRWQCB with the legal authority to require municipalities to control discharges from third parties into their MS4. 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in urban runoff **from** commercial, residential, industrial, and construction land uses or activities. Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(A - D) require municipalities to have legal authority to control various discharges **to** their MS4. This concept is further supported in the Preamble to the Phase II Final Rule NPDES storm water regulations, which states “The operators of regulated small MS4s cannot passively receive and discharge pollutants **from** third parties” (US EPA, 1999). Due to the greater water quality concerns generally experienced by larger municipalities,

Phase II Final Rule findings for small municipalities are also applicable to larger municipalities such as the Copermittees. Finally, underlying the Federal NPDES storm water regulations is the Clean Water Act, which states in section 402(p)(3)(B)(ii) that municipalities shall “effectively prohibit non-stormwater discharges **into** the storm sewers.”

The requirement for municipal storm water dischargers to have, and exercise, local governmental authority in order to comply with water quality control obligations is analogous to the requirement for Publicly Owned Treatment Works to have and exercise legal authority to require pretreatment of industrial wastes being discharged to their sewage collections systems (CWA 402(b)(8)).

The SDRWQCB has discretion to require Legal Authority item D.1 in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

D.1.a. Legal Authority states the following:

*Control the contribution of pollutants in discharges of runoff associated with industrial and construction activity **to** its MS4 and control the quality of runoff **from** industrial and construction sites. This requirement applies both to industrial and construction sites that have coverage under the statewide general industrial or construction storm water permits, as well as to those sites that do not. Grading ordinances shall be upgraded as necessary to comply with this Order.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that the Copermittees shall develop and implement legal authority to “Control through ordinance, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity.”

Federal NPDES regulation 40 CFR 122.26(b)(14) provides that “The following categories of facilities are considered to be engaging in ‘industrial activity’ for purposes of this subsection: [...] (x) Construction activity including clearing, grading and excavation activities [...].”

Discussion: Industrial and construction sites are frequently sources of pollutants such as hazardous materials or sediment. These pollutants are typically carried to MS4s by urban runoff. As discussed in Finding 32, pollutants in urban runoff which enter the MS4 are generally discharged from these structures into receiving waters, where they may cause or contribute to a condition of pollution. Pollutant discharges from industrial and construction sites to MS4s must therefore be controlled. As discussed in Finding 22, municipalities are responsible for discharges from industrial and construction sites to their MS4s (see also Discussion under Legal Authority item D.1). US EPA supports this when it states “To comply with its permit, a municipality must have the authority to hold dischargers accountable for their contributions to separate storm sewers” (1992).

A necessary means for controlling pollutant discharges from industrial and construction sites is the development and implementation of legal authority that

addresses urban runoff from these sites. The Federal NPDES regulations clearly emphasize the development and implementation of legal authority for controlling pollutant discharges from industrial and construction sites in 40 CFR 122.26(d)(2)(i)(A) and 40 CFR 122.26(b)(14).

Ordinances, statutes, permits, or contracts can be used to develop legal authority. For example, grading ordinances should be upgraded to control pollutant discharges from construction sites. The US EPA suggests this, stating "All construction sites, regardless of size, must be addressed by the municipality. [...] A description of the local erosion and sediment control law or ordinance is needed to satisfy this program requirement. The description should include information that links the enforcement of the law or ordinance to the legal authority of the applicant" (1992). The US EPA further states "a municipality, to satisfy its permit conditions, may need to impose additional requirements on discharges from permitted industrial facilities, as well as discharges from industrial facilities and construction sites not required to obtain permits. Therefore, a municipality should develop a mechanism to assure that all industrial facilities and construction sites that discharge to the MS4 know their obligation to comply with the applicable terms of the municipality's storm water ordinances" (1992).

The SDRWQCB has discretion to require Legal Authority item D.1.a in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

D.1.b. Legal Authority states the following:

*Prohibit **all** illicit discharges not otherwise allowed pursuant to section B.2 including but not limited to:*

- (1) Sewage;*
- (2) Discharges of wash water resulting from the hosing or cleaning of gas stations, auto repair garages, or other types of automotive services facilities;*
- (3) Discharges resulting from the cleaning, repair, or maintenance of any type of equipment, machinery, or facility including motor vehicles, cement-related equipment, and port-a-potty servicing;*
- (4) Discharges of wash water from mobile operations such as mobile automobile washing, steam cleaning, power washing, and carpet cleaning, etc.;*
- (5) Discharges of wash water from the cleaning or hosing of impervious surfaces in municipal, industrial, commercial, and residential areas including parking lots, streets, sidewalks, driveways, patios, plazas, work yards and outdoor eating or drinking areas, etc.;*
- (6) Discharges of runoff from material storage areas containing chemicals, fuels, grease, oil, or other hazardous materials;*
- (7) Discharges of pool or fountain water containing chlorine, biocides, or other chemicals; discharges of pool or fountain filter backwash water;*
- (8) Discharges of sediment, pet waste, vegetation clippings, or other landscape or construction-related wastes; and*

(9) *Discharges of food-related wastes (e.g., grease, fish processing, and restaurant kitchen mat and trash bin wash water, etc.).*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26 (b)(2) defines an illicit discharge as “any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.”

California Water Code Section 13243 also provides that a “regional board, in a water quality control plan or in waste discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted.”

Discussion: Illicit or non-storm water discharges can be a significant source of pollutants to the MS4. As discussed in Finding 32, pollutants that enter the MS4 are generally discharged to receiving waters, where they can impact receiving water quality. Illicit or non-storm water discharges must therefore be prohibited. In order to effectively prohibit illicit or non-storm water discharges, legal authority addressing the discharges must be developed and implemented by each Copermitee.

The SDRWQCB has discretion to require Legal Authority item D.1.b in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

D.1.c. Legal Authority states the following:

Prohibit and eliminate illicit connections to the MS4;

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(b)(2) defines an illicit discharge as “any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.”

California Water Code Section 13243 also provides that a “regional board, in a water quality control plan or in waste discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted.”

Discussion: An illicit connection is a connection to the MS4 that carries illicit discharges to the MS4. Because illicit discharges to the MS4 are prohibited (discussed in section D.1.b. Legal Authority above), illicit connections are also

prohibited and must be eliminated. In order to effectively prohibit and eliminate illicit connections, legal authority addressing the discharges must be developed and implemented by each Copermittee.

The SDRWQCB has discretion to require Legal Authority item D.1.c in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

D.1.d. Legal Authority states the following:

Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4;

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: California Water Code Section 13243 also provides that a “regional board, in a water quality control plan or in waste discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted.”

Discussion: Non-storm water discharges such as spills, dumping, and disposal of materials can be a significant source of pollutants to the MS4. As discussed in Finding 32, pollutants deposited in MS4s most likely will be discharged to receiving waters, where they can impact receiving water quality. Non-storm water discharges such as spills, dumping, or disposal of materials must therefore be prohibited. In order to effectively prohibit these non-storm water discharges, legal authority addressing the discharges must be developed and implemented by each Copermittee. The SDRWQCB has discretion to require Legal Authority item D.1.d in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

D.1.e. and D.1.f. Legal Authority state the following:

Require compliance with conditions in Copermittee ordinances, permits, contracts or orders (i.e., hold dischargers to its MS4 accountable for their contributions of pollutants and flows);

Utilize enforcement mechanisms to require compliance with Copermittee storm water ordinances, permits, contracts, or orders;

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Discussion: As discussed in Finding 15, the Copermittees cannot passively receive and discharge pollutants from third parties. Each Copermittee must implement ordinances, permits, contracts, and orders to hold dischargers to MS4s accountable for their contributions of pollutants. In order for the ordinances to be effective, each Copermittee must be able to require compliance with the ordinances. Lack of ordinance enforcement by a Copermittee allows third parties to violate a municipality’s ordinances with little fear of retribution, leading to receiving water quality degradation. US EPA recommends that a municipality in its urban runoff management program “identify the administrative and legal

procedures available to mandate compliance with appropriate ordinances, and therefore, with permit conditions. [Programs] should contain descriptions of how ordinances are implemented and appealed. In particular, a municipality should indicate if it can issue administrative orders and injunctions or if it must go through the court system for enforcement actions” (1992).

The SDRWQCB has discretion to require Legal Authority item D.1.e and D.1.f in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

D.1.g. Legal Authority states the following:

Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees. Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as CALTRANS, Native American Tribes, and the Department of Defense is encouraged;

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that the Copermittee must demonstrate that it can control “through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system.”

Discussion: Discharges from Copermittees that share an MS4 eventually reach the same receiving water body. Each Copermittee that discharges to the shared MS4 is therefore responsible for discharges from the shared MS4, and the impacts of those discharges on receiving waters. The Copermittees of a shared MS4 must demonstrate that together they can control the contribution of pollutants over the whole shared MS4. To this effect, the US EPA states “When two or more municipalities submit a joint application, each coapplicant must demonstrate that it individually possesses adequate legal authority over the entire municipal system it operates and owns. A coapplicant need not fulfill every component of legal authority specified in the regulations, as long as the combined legal authority of all coapplicants satisfies the regulatory criteria for every segment of the MS4 (including authority over all sources that discharge to the MS4). [...] Coapplicants also may use interjurisdictional agreements to show legal authority and to ensure planning, coordination, and the sharing of the resource burden of permit compliance” (1992).

The SDRWQCB has discretion to require Legal Authority item D.1.g. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

D.1.h. Legal Authority states the following:

Carry out all inspections, surveillance, and monitoring necessary to determine compliance and noncompliance with local ordinances and permits and with this Order, including the prohibition on illicit discharges to the MS4. This means the Copermittee must have authority to enter, sample, inspect, review and copy records, and require regular reports from industrial facilities discharging into its MS4, including construction sites; and

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Discussion: The Copermittees' ability to determine compliance and noncompliance with permit conditions is critical to control pollutant discharges to and from MS4s. Determination of compliance and noncompliance allows for significant sources of pollutants to be identified and addressed, thereby minimizing the discharge of pollutants from the MS4 and the resulting receiving water quality degradation. For this reason each Copermittee must have legal authority to carry out the inspections, surveillance, and monitoring necessary to assess compliance. Regarding compliance determination, US EPA states "municipalities should provide documentation of their authority to enter, sample, inspect, review, and copy records, etc., as well as demonstrate their authority to require regular reports" (1992).

The SDRWQCB has discretion to require Legal Authority item D.1.h in Order No. R9-2002-0001 under the broad legal authority cited above.

D.1.i. Legal Authority states the following:

Require the use of best management practices (BMPs) to prevent or reduce the discharge of pollutants to MS4s.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(1)(ii) requires from the Copermittee "A description of existing legal authority to control discharges to the municipal separate storm sewer system."

Discussion: As discussed in Finding 15, the Copermittees cannot passively receive and discharge pollutants from third parties. The Copermittees must ensure discharges of pollutants to the MS4 are reduced to the maximum extent practicable. In order to achieve this, and hold third party dischargers responsible for their contributions of pollutants, the Copermittees must require the use of BMPs by third party dischargers (see Discussion under Legal Authority item D.1).

The SDRWQCB has discretion to require Legal Authority item D.1.i in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

D.2. Legal Authority states the following:

Within 365 days of adoption of this Order, each Copermittee shall provide to the SDRWQCB a statement certified by its chief legal counsel that the Copermittee has adequate legal authority to implement and enforce each of the requirements contained in 40 CFR 122.26(d)(2)(i)(A-F) and this Order. This statement shall include:

- a. *Identification of all departments within the jurisdiction that conduct urban runoff related activities, and their roles and responsibilities under this Order. Include an up to date organizational chart specifying these departments and key personnel.*
- b. *Citation of urban runoff related ordinances and the reasons they are enforceable;*
- c. *Identification of the local administrative and legal procedures available to mandate compliance with urban runoff related ordinances and therefore with the conditions of this Order;*
- d. *Description of how these ordinances are implemented and appealed; and*
- e. *Description of whether the municipality can issue administrative orders and injunctions or if it must go through the court system for enforcement actions.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that the Copermittees shall develop and implement legal authority to “Control through ordinance, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that the Copermittee must demonstrate that it can control “through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system.”

Discussion: Copermittees must demonstrate that they can operate pursuant to legal authority to meet the requirements of Federal NPDES regulations 40 CFR 122.26(d)(2)(A-F). For the Copermittee to demonstrate this legal authority, the US EPA suggests that “One acceptable way to support a declaration of adequate legal authority, including the ability to enforce appropriate ordinances, is for the municipality to provide a certification from the Municipal General Counsel or equivalent. The certification should state that the applicant has the legal authority to apply and enforce the requirements of 40 CFR 122.26(d)(2)(i)(A-F) in State or local courts. The certification would, therefore, cite specific ordinances and the reasons why they are enforceable. The statement should discuss what the municipality can do to ensure full compliance with 40 CFR 122.26(d)(2)(i)” (1992).

The SDRWQCB has discretion to require Legal Authority item D.2 in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

E. TECHNOLOGY BASED STANDARDS

E. Technology Based Standards states the following:

*Each Copermittee shall implement, or require implementation of, best management practices to ensure that the following pollutant discharges **into** and/or **from** its MS4 are reduced to the applicable technology based standard as specified below:*

Table 3. Technology Based Standards

POLLUTANT DISCHARGE FROM	DESCRIPTION	APPLICABLE PERFORMANCE STANDARD
<i>Industrial Activity <u>owned by the Copermittee</u></i>	<i>Categorical Industry in 40 CFR 122.26</i>	<i>The Copermittees are required to implement BMPs to the BAT/BCT standard (pursuant to Statewide General Industrial Permit)</i>
<i>Industrial Activity</i>	<i>All other industry</i>	<i>The Copermittees are required to implement or require the implementation of BMPs to the MEP standard for discharges into their MS4s.⁹⁴</i>
<i>Construction Activity <u>owned by the Copermittee</u></i>	<i>Greater than or Equal to 5 Acres (or less than 5 acres and Part of a Larger Common Plan of Sale or Development)</i>	<i>The Copermittees are required to implement BMPs to the BAT/BCT standard (pursuant to Statewide General Construction Permit)</i>
<i>Construction Activity</i>	<i>All Other construction</i>	<i>The Copermittees are required to implement or require the implementation of BMPs to the MEP standard for discharges into their MS4s⁹⁵</i>
<i>Other Sources</i>	<i>All Other Land Use Activities</i>	<i>The Copermittees are required to implement or require the implementation of BMPs to the MEP standard for discharges into their MS4s</i>
<i>MS4s</i>	<i>All discharges from MS4s</i>	<i>The Copermittees are required to implement or require the implementation of BMPs to the MEP standard for all discharges from their MS4s</i>

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: CWA section 402(p)(3)(A) requires “Permits for discharges associated with industrial activity shall meet all applicable provisions of this section and section 301.”

CWA section 301(b)(2) requires “effluent limitations for categories and classes of point sources, other than publicly owned treatment works, which (i) shall require application of the best available technology economically achievable for such category or class, which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants.”

Federal NPDES regulation 40 CFR 122.26(b)(14) provides that “The following categories of facilities are considered to be engaging in ‘industrial activity’ for purposes of this subsection: [...] (x) Construction activity including clearing, grading and excavation activities [...].”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A-D) require municipalities to control pollutants in urban runoff discharges to the MS4 to the maximum extent practicable from urban land uses such as residential, commercial, municipal, industrial, and construction.

⁹⁴ The facility operator is required to implement BMPs to the BAT/BCT standard pursuant to the Statewide General Industrial permit.

⁹⁵ The facility operator is required to implement BMPs to the BAT/BCT standard pursuant to the Statewide General Construction permit.

Discussion: Pollutant discharges in storm water to and from MS4s are held to applicable technology based standards. Storm water discharges to the MS4 from industrial and construction activities owned by the Copermittee, which fall under the general statewide industrial and construction storm water permits, must meet the BAT/BCT performance standard per permit requirements. This BAT/BCT performance standard is required in CWA section 301(b)(2), and is further described in CWA sections 304(b)(2-4).

Pollutant discharges in storm water **to** and **from** the MS4 for all other urban land use activities, including industrial and construction activities not covered under the statewide general permits, must be reduced to the maximum extent practicable. CWA section 402(p)(3)(B)(iii) and Federal NPDES regulation 40 CFR 122.26 (d)(2)(iv) require pollutant discharges in urban runoff discharged **from** MS4s to be reduced to the maximum extent practicable.

Since discharges that enter the MS4 are generally discharged unimpeded directly into receiving waters, the maximum extent practicable standard is to apply to both discharges into and from MS4s. Federal NPDES regulations clearly provide the SDRWQCB with the legal authority to require municipalities to control discharges from third parties into their MS4. 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in urban runoff **from** commercial, residential, industrial, and construction land uses or activities to the maximum extent practicable. Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(A - D) require municipalities to have legal authority to control various discharges **to** their MS4. This concept is further supported in the Preamble to the Phase II Final Rule NPDES storm water regulations, which states "The operators of regulated small MS4s cannot passively receive and discharge pollutants **from** third parties" (US EPA, 1999). Due to the greater water quality concerns generally experienced by larger municipalities, Phase II Final Rule findings for small municipalities are also applicable to larger municipalities such as the Copermittees. Finally, underlying the Federal NPDES storm water regulations is the Clean Water Act, which states in section 402(p)(3)(B)(ii) that municipalities shall "effectively prohibit non-stormwater discharges **into** the storm sewers."

The requirement for municipal storm water dischargers to have, and exercise, local governmental authority in order to comply with water quality control obligations is analogous to the requirement for Publicly Owned Treatment Works to have and exercise legal authority to require pretreatment of industrial wastes being discharged to their sewage collections systems (CWA 402(b)(8)).

The SDRWQCB has discretion to require Technology Based Standards item E. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F. JURISDICTIONAL URBAN RUNOFF MANAGEMENT PROGRAM

The following underlying broad legal authority citations generally apply to all directives of section F. Jurisdictional Urban Runoff Management Program of Order No. R9-2002-0001, and provide the SDRWQCB with ample underlying authority to require each of the directives. These legal authority citations are also listed under the Underlying Broad Legal

Authority for Order No. R9-2002-0001 segment of section VII. of this Fact Sheet/Technical Report. They are repeated here to emphasize their pertinence to the Jurisdictional Urban Runoff Management Program section of Order No. R9-2002-0001, which is the primary component of the Order.

In addition to the five broad legal authority items cited below that underlie all of the directives in section F. of Order No. R9-2002-0001, additional specific legal authority citations applicable to particular directives of section F. are provided in this section of the Fact Sheet/Technical Report as necessary. Some of these additional specific legal authority citations apply to entire components of section F. of Order No. R9-2002-0001. In these cases, the specific legal authority quotations are provided at the beginning of the discussion of the permit component, while the legal authority is again cited under each directive of the component. Furthermore, some specific legal authority citations only apply to distinct directives of section F. of Order No. R9-2002-0001. When this occurs, the quotation of the specific legal authority citation will appear with the discussion of the distinct permit directive.

CWA 402(p)(3)(B)(ii) – Prohibit Non-Storm Water

The CWA requires in section 402(p)(3)(B)(ii) that a storm water program “shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers.”

CWA 402(p)(3)(B)(iii) – Reduce to MEP and Whatever Else is Needed

The CWA requires in section 402(p)(3)(B)(iii) that a storm water program “shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.”

40 CFR 122.26(d)(2)(i)(B,C,E, and F) – Obtain Adequate Legal Authority

Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) provide that each Copermitttee’s permit application “shall consist of : (i) Adequate legal authority. A demonstration that the applicant can operate pursuant to legal authority established by statute, ordinance or series of contracts which authorizes or enables the applicant at a minimum to: [...] (B) Prohibit through ordinance, order or similar means, illicit discharges to the municipal separate storm sewer; (C) Control through ordinance, order or similar means the discharge to a municipal separate storm sewer of spills, dumping or disposal of materials other than storm water; [...] (E) Require compliance with condition in ordinances, permits, contracts or orders; and (F) Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer.”

40 CFR 122.26(d)(2)(iv) – Reduce to MEP and Whatever Else is Needed

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) provides that the Copermitttee shall develop and implement a proposed management program which “shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other

provisions which are appropriate. The program shall also include a description of staff and equipment available to implement the program. [...] Proposed programs may impose controls on a systemwide basis, a watershed basis, a jurisdiction basis, or on individual outfalls. [...] Proposed management programs shall describe priorities for implementing controls.”

CWC 13377 – Implement CWA and Whatever Else is Needed

California Water Code section 13377 provides that “Notwithstanding any other provision of this division, the state board or the regional boards shall, as required or authorized by the Federal Water Pollution Control Act (Clean Water Act), as amended, issue waste discharge requirements and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with an more stringent effluent standards or limitation necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance.”

F. Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall take appropriate actions to reduce discharges of pollutants and runoff flow during each of the three major phases of urban development, i.e., the planning, construction, and existing development (or use) phases. Following the adoption of the Order and prior to the full implementation of the Jurisdictional URMP, each Copermittee shall at a minimum implement the provisions and commitments of the proposed DAMP submitted in September 2000.

Each Copermittee shall implement a Jurisdictional Urban Runoff Management Program (Jurisdictional URMP) that contains the components shown below as described in Sections F.1. through F.9:

- F.1. Land-Use Planning for New Development and Redevelopment Component*
- F.2. Construction Component*
- F.3. Existing Development Component*
 - a. Municipal*
 - b. Industrial*
 - c. Commercial*
 - d. Residential*
- F.4. Education Component*
- F.5. Illicit Discharge Detection and Elimination Component*
- F.6. Common Interest Areas and Homeowners Associations*
- F.7. Public Participation Component*
- F.8. Assessment of Jurisdictional URMP Effectiveness Component*
- F.9. Fiscal Analysis Component*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A – D) include provisions for inclusion of program components F.1 – F.9 in the Jurisdictional URMPs.

Discussion: As discussed in Finding 17, urban development has three major phases: (1) land use planning for new development; (2) construction; and (3) the land use or existing development phase. Because the Copermittees authorize each of these phases, they have commensurate responsibilities to protect water quality during each phase. Findings 18 – 20 indicate how each of these phases of development can be a significant source of pollutants in urban runoff and can impact receiving water quality. To address the potential negative impacts from the three phases of urban development, Urban Runoff Management Programs focusing on the three phases must be developed and implemented (see Finding 10). US EPA places importance on the development and implementation of URMPs when it states “Under the Part 2 application requirements, municipalities must propose site-specific storm water management programs. This is the most important aspect of the permit application” (1992).

The SDRWQCB has discretion to require development and implementation of Jurisdictional Urban Runoff Management Programs in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.1. LAND-USE PLANNING FOR NEW DEVELOPMENT AND REDEVELOPMENT COMPONENT

In addition to the underlying broad legal authority citations listed above in section VII. of this Fact Sheet/Technical Report, the following specific legal authority item also generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.1. Land-Use Planning for New Development and Redevelopment Component of Order No. R9-2002-0001. Other specific legal authority items applicable only to distinct directives of Jurisdictional Urban Runoff Management Program item F.1. are provided as necessary.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) provides that Copermittees develop and implement a proposed management program which is to include “A description of planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment. Such plan shall address controls to reduce pollutants in discharges from municipal separate storm sewers after construction is completed.”

F.1. Land-Use Planning for New Development and Redevelopment Component states the following:

Each Copermittee shall minimize the short and long-term impacts on receiving water quality from new development and redevelopment. In order to reduce pollutants and runoff flows from new development and redevelopment to the maximum extent practicable, each Copermittee shall at a minimum:

- F.1.a Assess General Plan*
- F.1.b Modify Development Project Approval Processes*
- F.1.c Revise Environmental Review Processes*
- F.1.d Conduct Education Efforts Focused on New Development and Redevelopment*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.1. Land-Use Planning for New Development and Redevelopment Component of Order No. R9-2002-0001.

Discussion: As discussed in Finding 4, urban development can negatively impact receiving water quality by increasing the pollutant load, volume, and velocity of urban runoff. An effective means for minimizing these impacts is to address water quality concerns during the planning phase of urban development. US EPA supports this, stating "Post-construction storm water management in areas undergoing new development or redevelopment is necessary because runoff from these areas has been shown to significantly effect receiving waterbodies. Many studies indicate that prior planning and design for the minimization of pollutants in post-construction storm water discharges is the most cost-effective approach to storm water quality management" (2000). For these reasons, Order No. R9-2002-0001 includes a requirement for the development and implementation of a Land-Use Planning for New Development and Redevelopment Component.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.1. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.1.a. Assess General Plan of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee's General Plan or equivalent plan (e.g., Comprehensive, Master, or Community Plan) shall include water quality and watershed protection principles and policies to direct land-use decisions and require implementation of consistent water quality protection measures for development projects. As part of its Jurisdictional Urban Runoff Management Program document, each Copermittee shall provide a workplan with time schedule detailing any changes to its General Plan regarding water quality and watershed protection. Examples of water quality and watershed protection principles and policies to be considered include the following:

- (1) *Minimize the amount of impervious surfaces and directly connected impervious surfaces in areas of new development and redevelopment and where feasible slow runoff and maximize on-site infiltration of runoff.*
- (2) *Implement pollution prevention methods supplemented by pollutant source controls and treatment. Use small collection strategies located at, or as close as possible to, the source (i.e., the point where water initially meets the ground) to minimize the transport of urban runoff and pollutants offsite and into an MS4.*
- (3) *Preserve, and where possible, create or restore areas that provide important water quality benefits, such as riparian corridors, wetlands, and buffer zones. Encourage land acquisition of such areas.*
- (4) *Limit disturbances of natural water bodies and natural drainage systems caused by development including roads, highways, and bridges.*
- (5) *Prior to making land use decisions, utilize methods available to estimate increases in pollutant loads and flows resulting from projected future development. Require*

incorporation of structural and non-structural BMPs to mitigate the projected increases in pollutant loads and flows.

- (6) *Avoid development of areas that are particularly susceptible to erosion and sediment loss; or establish development guidance that identifies these areas and protects them from erosion and sediment loss.*
- (7) *Reduce pollutants associated with vehicles and increasing traffic resulting from development. Coordinate local traffic management reduction efforts with Orange County Transit Authority's Congestion Management Plan.*
- (8) *Post-development runoff from a site shall not contain pollutant loads that cause or contribute to an exceedance of receiving water quality objectives and which have not been reduced to the maximum extent practicable.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.1. Land-Use Planning for New Development and Redevelopment Component of Order No. R9-2002-0001.

Discussion: The US EPA finds that the Copermittee "must thoroughly describe how the municipality's comprehensive plan is compatible with the storm water regulations" (1992). To achieve this, the Copermittee shall incorporate water quality and watershed protection principles and policies into its General Plan (or equivalent plan). US EPA supports addressing urban runoff problems in General Plans (or equivalent plans) when it states "Runoff problems can be addressed efficiently with sound planning procedures. Master Plans, Comprehensive Plans, and zoning ordinances can promote improved water quality by guiding the growth of a community away from sensitive areas and by restricting certain types of growth (industrial, for example) to areas that can support it without compromising water quality" (2000).

The principles included in Jurisdictional Urban Runoff Management Program item F.1.a. are based on findings by the SWRCB Urban Runoff Technical Advisory Committee. They incorporate basic measures that have been found to minimize pollutants in urban runoff from new development and redevelopment.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.1.a. in Order No. R9-2002-0001 under the broad legal authority cited above.

F.1.b. Modify Development Project Approval Processes of the Jurisdictional Urban Runoff Management Program states the following:

Prior to project approval and issuance of local permits, Copermittees shall require each proposed project to implement measures to ensure that pollutants and runoff from the development will be reduced to the maximum extent practicable and will not cause or contribute to an exceedance of receiving water quality objectives. Each Copermittee shall further ensure that all development will be in compliance with Copermittee storm water ordinances, local permits, all other applicable ordinances and requirements, and this Order.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.1. Land-Use Planning for New Development and Redevelopment Component of Order No. R9-2002-0001.

Discussion: As discussed in Finding 18, incorporating post-construction BMPs into new development and redevelopment during project planning and approval is an effective means for controlling pollutants in urban runoff. US EPA finds review of development plans during the project approval process necessary, stating: "Proposed storm water management programs should include planning procedures for both during and after construction to implement control measures to ensure that pollution is reduced to the maximum extent practicable in areas of new development and redevelopment. Design criteria and performance standards may be used to assist in meeting this objective. Further, storm water management program goals should be reviewed during planning processes that guide development to appropriate locations and steer intensive land uses away from sensitive environmental areas. [...] A municipality should describe how it plans to implement the proposed standards (e.g., through an ordinance requiring approval of storm water management programs, a review and approval process, and adequate enforcement)" (1992).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.1.b. in Order No. R9-2002-0001 under the broad legal authority cited above.

F.1.b.(1). Development Project Requirements of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermitttee shall include development project requirements in local permits to ensure that pollutant discharges from development are reduced to the maximum extent practicable, peak runoff velocities and runoff volumes from development are controlled, and that receiving water quality objectives are not violated throughout the life of the project. Such requirements shall, at a minimum:

- (a) Require project proponent to implement source control BMPs for all applicable development projects.*
- (b) Require project proponent to implement site design/landscape characteristics where feasible which maximize infiltration, provide retention, slow runoff, and minimize impervious land coverage for all development projects.*
- (c) Require project proponent to implement buffer zones for natural water bodies, where feasible. Where buffer zone implementation is infeasible, require project proponent to implement other buffers such as trees, lighting restrictions, access restrictions, etc.*
- (d) Require industrial applicants subject to California's statewide General NPDES Permit for Storm Water Discharges Associated with Industrial Activities (Except Construction), (hereinafter General Industrial Permit), to provide evidence of coverage under the General Industrial Permit.*
- (e) Require project proponent to ensure its grading or other construction activities meet the provisions specified in Section F.2. of this Order.*

- (f) *Require project proponent to provide proof of a mechanism which will ensure ongoing long-term maintenance of all structural post-construction BMPs.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.1. Land-Use Planning for New Development and Redevelopment Component of Order No. R9-2002-0001.

Discussion: Regarding conditions of approval in storm water permits, the US EPA finds that "Proposed storm water management programs should include planning procedures for both during and after construction to implement control measures to ensure that pollution is reduced to the maximum extent practicable in areas of new development and redevelopment. Design criteria and performance standards may be used to assist in meeting this objective" (1992). The US EPA further finds that "The municipality should consider storm water controls and structural controls in planning, zoning, and site or subdivision plan approval" (1992). In addition, US EPA states each Copermittee should "have an ordinance or other regulatory mechanism requiring the implementation of post-construction runoff controls [...]" (2000).

Furthermore, in its Phase II Final Rule, US EPA requires small municipalities to "Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects [...]" (1999). Due to the greater water quality concerns generally experienced by larger municipalities, Phase II Final Rule requirements for small municipalities are also applicable to larger municipalities such as the Copermittees.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.1.b.(1). in Order No. R9-2002-0001 under the broad legal authority cited above.

F.1.b.(2). Standard Urban Storm Water Mitigation Plans (SUSMPs) of the Jurisdictional Urban Runoff Management Program states the following:

Within 365 days of adoption of this Order, the Copermittees shall collectively develop a model Standard Urban Storm Water Mitigation Plan (SUSMP) to reduce pollutants and to maintain or reduce downstream erosion and stream habitat from all new development and significant redevelopment projects falling under the priority project categories or locations listed in section F.1.b.(2)(a) below. The Copermittees shall submit the model SUSMP to the SDRWQCB. Within 180 days of development of the model SUSMP, each Copermittee shall adopt its own local SUSMP, and amended ordinances consistent with the model SUSMP, and shall submit both (local SUSMP and amended ordinances) to the SDRWQCB.

Immediately following adoption of its local SUSMP, each Copermittee shall ensure that all new development and significant redevelopment projects falling under the priority project categories or locations listed in F.1.b.(2)(a) below meet SUSMP requirements. The SUSMP requirements shall apply to all priority projects or phases of priority projects that have not yet begun grading or construction activities. If a Copermittee determines that lawful prior approval of a project exists, whereby application of SUSMP requirements to the project is infeasible, SUSMP requirements need not apply to the project. Where feasible, the Copermittees shall utilize the 18-month SUSMP

implementation period to ensure that projects undergoing approval processes include application of SUSMP requirements in their plans.

(a) *Priority Development Project Categories - SUSMP requirements shall apply to all new development and significant redevelopment projects falling under the priority project categories or locations listed below. Significant redevelopment is defined as the creation or addition of at least 5,000 square feet of impervious surfaces on an already developed site. Significant redevelopment includes, but is not limited to: the expansion of a building footprint or addition or replacement of a structure; structural development including an increase in gross floor area and/or exterior construction or remodeling; replacement of impervious surface that is not part of a routine maintenance activity; and land disturbing activities related with structural or impervious surfaces. Where significant redevelopment results in an increase of less than fifty percent of the impervious surfaces of a previously existing development, and the existing development was not subject to SUSMP requirements, the numeric sizing criteria discussed in section F.1.b.(2)(c) applies only to the addition, and not to the entire development.*

- i. Home subdivisions of 10 or more housing units. This category includes single-family homes, multi-family homes, condominiums, and apartments.*
- ii. Commercial developments greater than 100,000 square feet. This category is defined as any development on private land that is not for heavy industrial or residential uses where the land area for development is greater than 100,000 square feet. The category includes, but is not limited to: hospitals; laboratories and other medical facilities; educational institutions; recreational facilities; commercial nurseries; multi-apartment buildings; car wash facilities; mini-malls and other business complexes; shopping malls; hotels; office buildings; public warehouses; automotive dealerships; commercial airfields; and other light industrial facilities.*
- iii. Automotive repair shops. This category is defined as a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 7532-7534, or 7536-7539.*
- iv. Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812), where the land area for development is greater than 5,000 square feet. Restaurants where land development is less than 5,000 square feet shall meet all SUSMP requirements except for structural treatment BMP and numeric sizing criteria requirement F.1.b.(2)(c) and peak flow rate requirement F.1.b(2)(b)(i).*
- v. All hillside development greater than 5,000 square feet. This category is defined as any development which creates 5,000 square feet of impervious surface which is located in an area with known erosive soil conditions, where the development will grade on any natural slope that is twenty-five percent or greater.*
- vi. Environmentally Sensitive Areas: All development and redevelopment located within or directly adjacent to or discharging directly to an environmentally sensitive area (where discharges from the development or redevelopment will enter receiving waters within the environmentally sensitive area), which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10% or more of its naturally occurring condition. Environmentally sensitive areas include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Resources Control Board (Water Quality Control Plan for the San Diego Basin (1994) and amendments); water bodies designated with the RARE beneficial use by the State Water Resources Control Board (Water Quality Control Plan for the San Diego Basin (1994) and amendments); areas designated as preserves or equivalent under the Natural Community Conservation Planning Program; and any areas designated as Critical Aquatic Resources (CARS) or other equivalent environmentally sensitive areas which have been identified by the Copermittees. "Directly adjacent" means situated within 200 feet of the environmentally sensitive area. "Discharging directly to" means outflow from a drainage conveyance system that is composed entirely of flows from the subject development or redevelopment site, and not commingled with flows from adjacent lands.*

- vii. *Parking lots 5,000 square feet or more or with 15 or more parking spaces and potentially exposed to urban runoff. Parking lot is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce.*
 - viii. *Street, roads, highways, and freeways. This category includes any paved surface that is 5,000 square feet or greater used for the transportation of automobiles, trucks, motorcycles, and other vehicles.*
- (b) *BMP Requirements – The SUSMP shall include a list of recommended source control and structural treatment BMPs. The SUSMP shall require all new development and significant redevelopment projects falling under the above priority project categories or locations to implement a combination of BMPs selected from the recommended BMP list, including at a minimum (1) source control BMPs and (2) structural treatment BMPs. The BMPs shall, at a minimum:*
- i. *Control the post-development peak storm water runoff discharge rates and velocities to maintain or reduce pre-development downstream erosion, and to protect stream habitat;*
 - ii. *Conserve natural areas where feasible;*
 - iii. *Minimize storm water pollutants of concern in urban runoff from the new development or significant redevelopment (through implementation of source control BMPs). Identification of pollutants of concern should include at a minimum consideration of any pollutants for which water bodies receiving the development's runoff are listed as impaired under Clean Water Act section 303(d), any pollutant associated with the land use type of the development, and any pollutant commonly associated with urban runoff;*
 - iv. *Remove pollutants of concern from urban runoff (through implementation of structural treatment BMPs);*
 - v. *Minimize directly connected impervious areas where feasible;*
 - vi. *Protect slopes and channels from eroding;*
 - vii. *Include storm drain stenciling and signage;*
 - viii. *Include properly designed outdoor material storage areas;*
 - ix. *Include properly designed trash storage areas;*
 - x. *Include proof of a mechanism, to be provided by the project proponent or Copermittee, which will ensure ongoing long-term structural BMP maintenance;*
 - xi. *Include additional water quality provisions applicable to individual priority project categories;*
 - xii. *Be correctly designed so as to remove pollutants to the maximum extent practicable;*
 - xiii. *Be implemented close to pollutant sources, when feasible, and prior to discharging into receiving waters supporting beneficial uses; and*
 - xiv. *Ensure that post-development runoff does not contain pollutant loads which cause or contribute to an exceedance of water quality objectives and which have not been reduced to the maximum extent practicable.*
- (c) *Numeric Sizing Criteria – The SUSMP shall require structural treatment BMPs to be implemented for all priority development projects. All structural treatment BMPs shall be located so as to infiltrate, filter, or treat the required runoff volume or flow prior to its discharge to any receiving water body supporting beneficial uses. Structural treatment BMPs may be shared by multiple new development projects as long as construction of any shared structural treatment BMPs is completed prior to the use of any new development project from which the structural treatment BMP will receive runoff.*

In addition to meeting the BMP requirements listed in item F.1.b.(2)(b) above, all structural treatment BMPs for a single priority development project shall collectively be sized to comply with the following numeric sizing criteria:

Volume

Volume-based BMPs shall be designed to mitigate (infiltrate, filter, or treat) either:

- i. The volume of runoff produced from a 24-hour 85th percentile storm event, as determined from the local historical rainfall record (0.8 inch approximate average for the Orange County area),⁹⁶ or
- ii. The volume of runoff produced by the 85th percentile 24-hour rainfall event, determined as the maximized capture storm water volume for the area, from the formula recommended in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998); or
- iii. The volume of annual runoff based on unit basin storage volume, to achieve 90% or more volume treatment by the method recommended in California Stormwater Best Management Practices Handbook – Industrial/Commercial, (1993); or
- iv. The volume of runoff, as determined from the local historical rainfall record, that achieves approximately the same reduction in pollutant loads and flows as achieved by mitigation of the 85th percentile 24-hour runoff event;⁹⁷

OR

Flow

Flow-based BMPs shall be designed to mitigate (infiltrate, filter, or treat) either:

- i. The maximum flow rate of runoff produced from a rainfall intensity of 0.2 inch of rainfall per hour, for each hour; or
 - ii. The maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity, as determined from the local historical rainfall record, multiplied by a factor of two; or
 - iii. The maximum flow rate of runoff, as determined from the local historical rainfall record, that achieves approximately the same reduction in pollutant loads and flows as achieved by mitigation of the 85th percentile hourly rainfall intensity multiplied by a factor of two.
- (d) *Equivalent Numeric Sizing Criteria* - The Copermittees may develop, as part of the model SUSMP, any equivalent method for calculating the volume or flow which must be mitigated (i.e., any equivalent method for calculating numeric sizing criteria) by post-construction structural treatment BMPs. Such equivalent sizing criteria may be authorized by the SDRWQCB for use in place of the above criteria. In the absence of development and subsequent authorization of such equivalent numeric sizing criteria, the above numeric sizing criteria requirement shall be implemented.
- (e) *Pollutants or Conditions of Concern* – As part of the model SUSMP, the Copermittees shall develop a procedure for pollutants or conditions of concern to be identified for each new development or significant redevelopment project. The procedure shall include, at a minimum, consideration of (1) receiving water quality (including pollutants for which receiving waters are listed as impaired under Clean Water Act section 303(d)); (2) land use type of the development project and pollutants associated with that land use type; (3) pollutants expected to be present on site; (4) changes in storm water discharge flow rates, velocities, durations, and volumes resulting from the development project; and (5) sensitivity of receiving waters to changes in storm water discharge flow rates, velocities, durations, and volumes.
- (f) *Implementation Process* – As part of the model SUSMP, the Copermittees shall develop a process by which SUSMP requirements will be implemented. The process shall identify at what point in the planning process development projects will be required to meet SUSMP requirements. The process

⁹⁶This volume is not a single volume to be applied to all of Orange County. The size of the 85th percentile storm event is different for various parts of the County. The Copermittees are encouraged to calculate the 85th percentile storm event for each of their jurisdictions using local rain data pertinent to their particular jurisdiction (the 0.8 inch standard is a rough average for the County and should only be used where appropriate rain data is not available). In addition, isopluvial maps may be used to extrapolate rainfall data to areas where insufficient data exists in order to determine the volume of the local 85th percentile storm event in such areas. Where the Copermittees will use isopluvial maps to determine the 85th percentile storm event in areas lacking rain data, the Copermittees shall describe their method for using isopluvial maps in the model and local SUSMPs.

⁹⁷ Under this volume criteria, hourly rainfall data may be used to calculate the 85th percentile storm event, where each storm event is identified by its separation from other storm events by at least six hours of no rain. Where the Copermittees may use hourly rainfall data to calculate the 85th percentile storm event, the Copermittees shall describe their method for using hourly rainfall data to calculate the 85th percentile storm event in the model and local SUSMPs.

shall also include identification of the roles and responsibilities of various municipal departments in implementing the SUSMP requirements, as well as any other measures necessary for the implementation of SUSMP requirements.

- (g) *Waiver Provision – A Copermittee may provide for a project to be waived from the requirement of implementing all structural treatment BMPs (F.1.b.(2)(b) & F.1.b.(2)(c)) if infeasibility can be established. A waiver of infeasibility shall only be granted by a Copermittee when all available structural treatment BMPs have been considered and rejected as infeasible. Copermittees shall notify the SDRWQCB within 5 days of each waiver issued and shall include the name of the person granting each waiver.*

As part of the model SUSMP, the Copermittees may develop a program to require project proponents who have received waivers to transfer the savings in cost, as determined by the Copermittee(s), to a storm water mitigation fund. This program may be implemented by all Copermittees that choose to provide waivers. Funds may be used on projects to improve urban runoff quality within the watershed of the waived project. The waiver program may identify:

- i. The entity or entities that will manage the storm water mitigation fund (i.e., assume full responsibility for)*
 - ii. The range and types of acceptable projects for which mitigation funds may be expended;*
 - iii. The entity or entities that will assume full responsibility for each mitigation project including its successful completion*
 - iv. How the dollar amount of fund contributions will be determined.*
- (h) *Infiltration and Groundwater Protection – To protect groundwater quality, each Copermittee shall apply restrictions to the use of structural treatment BMPs which are designed to primarily function as infiltration devices (such as infiltration trenches and infiltration basins). Such restrictions shall ensure that the use of such infiltration structural treatment BMPs shall not cause or contribute to an exceedance of groundwater quality objectives. At a minimum, use of structural treatment BMPs which are designed to primarily function as infiltration devices shall meet the following conditions:⁹⁸*

- i. Urban runoff shall undergo pretreatment such as sedimentation or filtration prior to infiltration.*
- ii. All dry weather flows shall be diverted from infiltration devices.*
- iii. Pollution prevention and source control BMPs shall be implemented at a level appropriate to protect groundwater quality at sites where infiltration structural treatment BMPs are to be used.*
- iv. Infiltration structural treatment BMPs shall be adequately maintained so that they remove pollutants to the maximum extent practicable.*
- v. The vertical distance from the base of any infiltration structural treatment BMP to the seasonal high groundwater mark shall be at least 10 feet. Where groundwater basins do not support beneficial uses, this vertical distance criteria may be reduced, provided groundwater quality is maintained.*
- vi. The soil through which infiltration is to occur shall have physical and chemical characteristics (such as appropriate cation exchange capacity, organic content, clay content, and infiltration rate) which are adequate for proper infiltration durations and treatment of urban runoff for the protection of groundwater beneficial uses.*
- vii. Infiltration structural treatment BMPs shall not be used for areas of industrial or light industrial activity; areas subject to high vehicular traffic (25,000 or greater average daily traffic on main roadway or 15,000 or more average daily traffic on any intersecting roadway); automotive repair shops; car washes; fleet storage areas (bus, truck, etc.); nurseries; and other high threat to water quality land uses and activities as designated by each Copermittee.*
- viii. Infiltration structural BMPs shall be located a minimum of 100 feet horizontally from any water supply wells.*

As part of the model and local SUSMPs, the Copermittees may develop alternative restrictions on the use of structural treatment BMPs which are designed to primarily function as infiltration devices.

- (j) *Downstream Erosion – As part of the model SUSMP and the local SUSMPs, the Copermittees shall develop criteria to ensure that discharges from new development and significant redevelopment*

⁹⁸ These conditions do not apply to structural treatment BMPs which allow incidental infiltration and are not designed to primarily function as infiltration devices (such as grassy swales, detention basins, vegetated buffer strips, constructed wetlands, etc.)

maintain or reduce pre-development downstream erosion and protect stream habitat. At a minimum, criteria shall be developed to control peak storm water discharge rates and velocities in order to maintain or reduce pre-development downstream erosion and protect stream habitat. Storm water discharge volumes and durations should also be considered.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.1. Land-Use Planning for New Development and Redevelopment Component of Order No. R9-2002-0001.

California Water Code Section 13267 provides that "the regional board may require that any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires."

Discussion: Copermittees must utilize planning procedures to reduce the discharge of pollutants from new development and redevelopment to the maximum extent practicable. This is necessary due to the potential for new development to increase the volume, flow velocity, and pollutant load of urban runoff (see Findings 4 and 5). As the SWRCB Urban Runoff Technical Advisory Committee (TAC) states, "Urban development often results in impacts to the land and consequently the water bodies adjacent to the land. The two major changes that result from urbanization are changes in stream hydrology and an increase in pollutant loading." To alleviate these potential negative impacts on receiving waters, each Copermittee must develop and implement a Standard Urban Runoff Mitigation Plan for various categories of development.

GENERAL INFORMATION ON SUSMPs

As part of the Jurisdictional Urban Runoff Management Program, Copermittees must also develop Standard Urban Runoff Management Plans (SUSMPs) for certain development and significant redevelopment projects falling under priority project categories. The project categories generally result in the large increases in impervious surfaces, are potential significant sources of pollutants, or have a history of storm water mismanagement. The SUSMPs include requirements for implementation of minimum source control and structural treatment BMPs. The structural treatment BMPs also have numeric sizing criteria that must be met based on volume or flow (of runoff). By developing and implementing the SUSMPs, the Copermittees are reducing the potential negative impacts of urban runoff on receiving waters.

SUPPORT FOR SUSMPS

Support for the inclusion of the SUSMP requirements is found in both Federal and State guidance/regulations. Pursuant to the Clean Water Act and Federal NPDES regulations, municipal storm water permits must require controls to reduce the discharge of pollutants to the maximum extent practicable including controls which address pollutant discharges resulting from new development and significant redevelopment. Clean Water Act section 402(p)(3)(B)(iii) gives USEPA

and States considerable discretion on establishing provisions for implementation in storm water programs, stating “require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and systems, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of pollutants.” USEPA also recommends design criteria (such as numeric sizing criteria) and performance standards for post construction BMPs at development sites (1992). The increased specificity of the SUSMP requirements is also in line with U.S. EPA Interim Permitting Approach guidance, which states that first round permit BMPs should be expanded or better-tailored where necessary in subsequent permits to attain water quality standards (1996). The SWRCB Urban Runoff Technical Advisory Committee supports development of plans such as SUSMPs, stating that “The TAC recommends that communities of all sizes implement programs[...] to address control of urban runoff pollution from new development and construction.” Both the Los Angeles Regional Water Quality Control Board (Order No. 96-54) and the San Diego Regional Water Quality Control Board (Order No. 2001-01) have adopted SUSMP requirements in their Municipal Storm Water Permits. The SWRCB Order No. 2000-11(from appeal of LARWQCB permit) finds that SUSMP requirements reflect a reasonable interpretation of development controls that achieve reduction of pollutants in storm water discharges to the maximum extent practicable.

The current Municipal Storm Water Permit for Orange County and Cities (Order No. 96-03) generally addresses new development and redevelopment. The Permit requires the Copermittees to implement new development BMPs that were developed under the previous first term permit (Order No. 90-38). These BMP guidelines were developed in 1993 by a New Development Task Force comprised of government and industry representatives. The guidelines are very general, resulting in development projects proceeding with minimal measures to reduce the impacts of urban runoff. Consequently, Order No. R9-2002-0001 contains SUSMP requirements that are more prescriptive than Order 96-03 to establish a framework of narrative and numeric criteria that ensure adequate measures are taken to address urban runoff.

SUSMP REQUIREMENTS IN ORANGE COUNTY PERMIT

Staff reviewed the SUSMP requirements included in the San Diego Municipal Storm Water Permit to determine applicability to the Orange County Municipal Storm Water Permit. Staff also reviewed public comments, the Los Angeles Municipal Storm Water Permit, and SWRCB Order No. 2000-11. The following sections are proposed to be included in the Orange County Permit and include discussion on intent of the requirements.

Priority Development Projects Categories

1. Home subdivisions of 10 or more housing units
2. Commercial developments greater than 100,000 square feet
3. Automotive repair shops
4. Restaurants
5. All hillside development greater than 5,000 square feet
6. Environmentally Sensitive Areas (defined in the Order)

7. Parking lots 5,000 square feet or more or with 15 or more parking spaces
8. Street, roads, highways, and freeways

The categories listed above will either result in a large increase of impervious surfaces or are potential significant sources of pollutants. These types of projects are typical of new development and significant redevelopment that are likely to occur and be locally approved by the Copermittees in Orange County. The SUSMP provisions that apply to the eight categories of new development and significant redevelopment are separated into two categories, required and optional

1. Required Provisions

BMPs Requirements

Requires SUSMPs include a list of recommended source control and structural BMPs for all projects falling under the priority development categories. Also establishes criteria that these BMPs must meet. The intent of the requirements is to allow the Copermittees and developers flexibility in choosing which combination of source control and structural treatment BMPs are to be implemented at a site. The intent of the criteria is to define what minimum performance standards must be met by these selected BMPs.

Numeric Sizing Criteria

Requires structural BMPs to meet numeric sizing criteria to mitigate (infiltrate, filter, or treat) volume or flow prior to discharge into receiving waters. The numeric sizing criteria is included to ensure that structural BMPs are sized effectively to remove the pollutants of concern. The sizing criteria are based on capture of runoff from a 24-hour 85th percentile storm. The 24-hour 85th percentile storm represents the “knee” of a precipitation probability curve from which it is no longer cost effective to treat runoff. The precipitation curve is calculated by using local historical rainfall data on the number and intensity of storm events. The Regional Board staff has calculated the average 24-hour 85th percentile storm for area covered by the permit to be 0.8 inch (see San Diego SUSMP staff report for example calculations). However, the requirements allow needed flexibility for the Copermittees and developers to mitigate runoff based on either volume or flow. In addition, the requirements allow for several different options to calculate the amount of runoff to ensure that projects are not required to capture runoff from storm events beyond the point of diminishing returns. For example, a project proponent may demonstrate that the 24-hour 85th storm event may be less than the average 0.8 inch by using local precipitation data.

Pollutants or Conditions of Concern

As part of the model SUSMP, requires the Copermittees to develop a procedure to identify pollutants or conditions of concern for each development or significant redevelopment project. The intent of the requirements is to provide consistency in the application of the SUSMPs between the Copermittees. This requirement was included in response to consistency concerns of the Copermittees.

Implementation Process

As part of the model SUSMP, requires identification at what point in the planning process that projects must meet SUSMP requirements and what are roles/responsibilities of municipal departments. The intent of this requirement is to provide consistency in the application of the SUSMPs between the Copermittees. This requirement was included in response to consistency concerns of the Copermittees.

Infiltration and Groundwater Protection

Requires restrictions for structural treatment BMPs that are designed to primarily function as infiltration devices to protect groundwater quality. Defines what restrictions are placed on these BMPs, but allows Copermittees to develop alternative restrictions. Applying large amounts of runoff water in a small area has the potential to adversely impact groundwater quality. The intent of these requirements is to provide necessary restrictions for use of these structural BMPs to protect the beneficial uses (municipal, agricultural, industrial) of groundwater in the Orange County section of the San Juan Creek Watershed Management Area. The intent of the requirements is also to provide the Copermittees needed flexibility to develop alternative restrictions for projects or locations.

Downstream Erosion

Require Copermittees to develop criteria to ensure discharges from new development and significant redevelopment maintain or reduce pre-development downstream erosion and protect stream habitat. Development and significant redevelopment can cause increases in runoff amount and velocity causing down erosion problems. The intent of these requirements is to mitigate these potential increases and prevent downstream erosion problems as seen in Aliso & San Juan Creeks.

2. Optional Provisions

Equivalent Numeric Sizing Criteria

Allows Copermittees the opportunity to develop an equivalent method for calculating the volume or flow to be mitigated. The intent of the requirement is to provide necessary flexibility to Copermittees to develop equivalent methods in calculating the volume or flow that must be mitigated from the 24-hour 85th percentile storm event.

Waiver Provision

Allows Copermittees to waive structural treatment BMPs when all available BMPs have been considered and rejected as infeasible. Also allows the Copermittees to develop a program to require projects that receive waivers, to transfer the cost savings to a fund. The intent of the requirements is to allow Copermittees necessary flexibility to waive structural BMPs when it can be established that the implementation of structural BMPs that meet numeric sizing criteria is not feasible at a given site. This provision also allows Copermittees

discretion to transfer the costs saving from such a waiver to a fund for water quality projects within the watershed.

The SDRWQCB has discretion to require Standard Urban Runoff Mitigation Plans in Jurisdictional Urban Runoff Management Program item F.1.b.(2). of Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.1.c. Revise Environmental Review Processes of the Jurisdictional Urban Runoff Management Program states the following:

- (1) *To the extent feasible, the Copermitees shall revise their current environmental review processes to include requirements for evaluation of water quality effects and identification of appropriate mitigation measures. The following questions are examples to be considered in addressing increased pollutants and flows from proposed projects:*
 - (a) *Could the proposed project result in an increase in pollutant discharges to receiving waters? Consider water quality parameters such as temperature, dissolved oxygen, turbidity and other typical storm water pollutants (e.g., heavy metals, pathogens, petroleum derivatives, synthetic organics, sediment, nutrients, oxygen-demanding substances, and trash).*
 - (b) *Could the proposed project result in significant alteration of receiving water quality during or following construction?*
 - (c) *Could the proposed project result in increased impervious surfaces and associated increased runoff?*
 - (d) *Could the proposed project create a significant adverse environmental impact to drainage patterns due to changes in runoff flow rates or volumes?*
 - (e) *Could the proposed project result in increased erosion downstream?*
 - (f) *Is the project tributary to an already impaired water body, as listed on the Clean Water Act Section 303(d) list? If so, can it result in an increase in any pollutant for which the water body is already impaired?*
 - (g) *Is project tributary to other environmentally sensitive areas? If so, can it exacerbate already existing sensitive conditions?*
 - (h) *Could the proposed project have a potentially significant environmental impact on surface water quality, to either marine, fresh, or wetland waters?*
 - (i) *Could the proposed project have a potentially significant adverse impact on ground water quality?*
 - (j) *Could the proposed project cause or contribute to an exceedance of applicable surface or groundwater receiving water quality objectives or degradation of beneficial uses?*
 - (k) *Can the project impact aquatic, wetland, or riparian habitat?*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.1. Land-Use Planning for New Development and Redevelopment Component of Order No. R9-2002-0001.

Discussion: Consideration of the effects of new development and redevelopment on water quality during project approval processes will help ensure that potential water quality problems resulting from the development are identified and addressed. The US EPA finds that "Proposed storm water management programs should include planning procedures for both during and after construction to implement control measures to ensure that pollution is reduced to the maximum extent practicable in areas of new development and redevelopment. Design criteria and performance standards may be used to assist in meeting this objective"

(1992). The US EPA further finds that "The municipality should consider storm water controls and structural controls in planning, zoning, and site or subdivision plan approval" (1992). The SWRCB Urban Runoff Technical Advisory Committee advises that the Copermittees' CEQA initial study checklists be revised to include consideration of water quality effects from new development or redevelopment. The questions included in Jurisdiction Urban Runoff Management Program item F.1.c. are based on questions recommended by the Technical Advisory Committee. The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.1.c. in Order No. R9-2002-0001 under the broad legal authority cited above.

F.1.d. Conduct Education Efforts Focused on New Development and Redevelopment of the Jurisdictional Urban Runoff Management Program states the following:

(1) *Internal: Municipal Staff and Others*

Each Copermittee shall implement an education program to ensure that its planning and development review staffs (and Planning Boards and Elected Officials, if applicable) have an understanding of:

- (a) *Federal, state, and local water quality laws and regulations applicable to development projects;*
- (b) *The connection between land use decisions and short and long-term water quality impacts (i.e., impacts from land development and urbanization); and*
- (c) *How impacts to receiving water quality resulting from development can be minimized (i.e., through implementation of various source control and structural BMPs).*

(2) *External: Project Applicants, Developers, Contractors, Property Owners, Community Planning Groups*

As early in the planning and development process as possible, each Copermittee shall implement a program to educate project applicants, developers, contractors, property owners, and community planning groups on the following topics:

- (a) *Federal, state, and local water quality laws and regulations applicable to development projects;*
- (b) *Required federal, state, and local permits pertaining to water quality;*
- (c) *Water quality impacts of urbanization; and*
- (d) *Methods for minimizing the impacts of development on receiving water quality.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.1. Land-Use Planning for New Development and Redevelopment Component of Order No. R9-2002-0001.

Discussion: Training of municipal planning and development review staff is a critical aspect of an urban runoff management program. As discussed in Finding 18, development and implementation of urban runoff control measures as early in the project planning process as possible is an effective means (in terms of both cost and performance) for minimizing the impacts of urban runoff to receiving

waters. Municipal planning and development review staff are well-positioned to ensure that water quality considerations are incorporated into development projects in the early planning stages. With adequate training, municipal planning and development review staff can require implementation of BMPs early in the project planning process, thereby minimizing the urban runoff impacts of development in a cost effective manner. US EPA supports training of municipal staff when it identifies "training for appropriate employees" as a measurable goal of an urban runoff management program (2000).

Education on storm water planning issues for the public sector involved with development is equally critical. When the public sector has knowledge of storm water issues and regulations, it is more likely to incorporate storm water planning in the development and redevelopment process. In this manner, implementation of measures to address storm water issues will be included in development plans, saving time and money for the developer and the municipality. The SWRCB Urban Runoff Technical Advisory Committee finds that Copermittees should "Establish an education/information dissemination program that includes such things as: brochures to distribute to developers and contractors at permit counters and by mail; reference and training manuals for planners, engineers, inspectors, developers, contractors; and training and information exchange workshops."

Furthermore, in its Phase II Final Rule, US EPA requires small municipalities to "...implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities [...]" (1999). Due to the greater water quality concerns generally experienced by larger municipalities, Phase II Final Rule requirements for small municipalities are also applicable to larger municipalities such as the Copermittees.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.1.d. in Order No. R9-2002-0001 under the broad legal authority cited above.

F.2. CONSTRUCTION COMPONENT

In addition to the underlying broad legal authority citations listed above in section VII. of this Fact Sheet/Technical Report, the following specific legal authority item also generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.2. Construction Component of Order No. R9-2002-0001. Other specific legal authority items applicable only to distinct directives of Jurisdictional Urban Runoff Management Program item F.2. are provided as necessary.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) provides that the proposed management program include "A description of a program to implement and maintain structural and non-structural best management practices to reduce pollutants in storm water runoff from construction sites to the municipal storm sewer system."

F.2. Construction Component of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall implement a Construction Component of its Jurisdictional URMP to reduce pollutants in runoff from construction sites during all construction phases. At a minimum the construction component shall address:

- F.2.a. Pollution Prevention*
- F.2.b. Grading Ordinance Update*
- F.2.c. Modify Construction and Grading Approval Process*
- F.2.d. Source Identification*
- F.2.e. Threat to Water Quality Prioritization*
- F.2.f. BMP Implementation*
- F.2.g. Inspection of Construction Sites*
- F.2.h. Enforcement of Construction Sites*
- F.2.i. Reporting of Non-compliant Sites*
- F.2.j. Education Focused on Construction Activities*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.2. Construction Component of Order No. R9-2002-0001.

Discussion: CWA sections 402(p)(3)(B)(ii-iii) requires each Copermittee to prohibit non-storm water discharges into its MS4 and to reduce the discharge of pollutants to the maximum extent practicable for all urban land uses. The purpose of these two broad requirements is to minimize the short and long-term impacts of urban runoff on receiving water quality. Land used for construction activities is clearly identified in the federal regulations as one of several high priority land uses from which pollutants in urban runoff discharges must be reduced to the maximum extent practicable by each Copermittee. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) requires the development of a proposed management program to reduce the discharge of pollutants in storm water to the maximum extent practicable. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) requires that this program include components which address construction sites and activities.

Natural erosion processes are accelerated when existing protective cover is removed during construction. Suspended sediments constitute the largest mass of pollutant loadings to surface waters. As discussed in Finding 19, the primary source of these sediments is construction sites. Sediments from construction site erosion can be effectively reduced in urban runoff by the application of a wide range of BMPs, which emphasize pollution prevention and source control and are supplemented by treatment control BMPs. For these reasons, each Copermittee must develop and implement a Construction Component that utilizes BMPs to control pollutants in runoff generated from construction sites.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.2 in Order No. R9-2002-0001 under broad legal authority cited above.

F.2.a. Pollution Prevention (Construction) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall implement pollution prevention methods in its Construction Component and shall require its use by construction site owners, developers, contractors, and other responsible parties, where appropriate.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.2. Construction Component of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(1) provides that the proposed management program include “A description of procedures for site planning which incorporate consideration of potential water quality impacts.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(2) provides that the proposed management program include “A description of requirements for nonstructural and structural best management practices.”

Discussion: Each Copermittee must develop a program to reduce the discharge of pollutants in storm water from construction sites to the maximum extent practicable. In order to achieve this level of pollution reduction, BMPs must be implemented.⁹⁹ As discussed in Finding 12, pollution prevention (the reduction or elimination of pollutant generation at its source) is an essential aspect of BMPs. By limiting the generation of pollutants, less pollutants are available to be washed from construction sites, resulting in reduced pollutant loads in storm water discharges from these sites. In addition, there is no need to control or treat pollutants that are not initially generated. Furthermore, pollution prevention BMPs are generally more cost effective than removal of pollutants by treatment facilities or cleanup of contaminated media. In the Pollution Prevention Act of 1990, Congress established a national policy that emphasizes pollution prevention over control and treatment. Since pollution prevention is an effective and efficient means for reducing pollutant loads in storm water runoff, pollution prevention methods are an important aspect of BMPs to be included in the Construction Component of the Jurisdictional URMP.¹⁰⁰

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.2.a in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.2.b. Grading Ordinance Update (Construction) of the Jurisdictional Urban Runoff Management Program states the following:

⁹⁹Santa Clara Valley Urban Runoff Pollution Program, 1995. Blueprint for a Clean Bay:Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities.

¹⁰⁰U.S. EPA, 1996. Controlling Stormwater Runoff Discharges from Small Construction Sites: A National Review.

Each Copermittee shall review and update its grading ordinances as necessary for compliance with its storm water ordinances and this Order. The updated grading ordinance shall require implementation of BMPs and other measures during all construction activities, including the following BMPs and other measures or their equivalent:

- (1) Erosion prevention;
- (2) Seasonal restrictions on grading;
- (3) Slope stabilization requirements;
- (4) Phased grading;
- (5) Revegetation as early as feasible;
- (6) Preservation of natural hydrologic features;
- (7) Preservation of riparian buffers and corridors;
- (8) Maintenance of all source control and structural treatment BMPs; and
- (9) Retention and proper management of sediment and other construction pollutants on site.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.2. Construction Component of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(1) provides that the proposed management program include “A description of procedures for site planning which incorporate consideration of potential water quality impacts.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(2) provides that the proposed management program include “A description of requirements for nonstructural and structural best management practices.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that each Copermittee must demonstrate that it can control “through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from site of industrial activity.”

Federal NPDES regulation 40 CFR 122.26(b)(14) provides that “The following categories of facilities are considered to be engaging in ‘industrial activity’ for the purposes of this subsection: [...] (x) Construction activity including cleaning, grading and excavation activities [...].”

Discussion: Copermittees must reduce pollutant discharges in storm water from construction sites to the maximum extent practicable. In order to achieve this level of pollution reduction, BMPs must be implemented. An effective means for ensuring BMP implementation at construction sites is through the development and implementation of grading ordinances which require pollution prevention, source control, and structural treatment BMPs. Updated grading ordinances that adequately address water quality considerations will provide Copermittees with the necessary legal authority to require effective BMPs at construction sites.

The US EPA suggests that local ordinance be used to require implementation of BMPs, stating that “A description of the local erosion and sediment control law or

ordinance is needed to satisfy this requirement [i.e., Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(2)]” (1992). Regarding Copermittee approval of construction activities, the US EPA further states that “applicants must propose site review and approval procedures that address sediment and erosion controls, storm water management, and other appropriate measures. Approvals should be clearly tied to commitments to implement structural and nonstructural BMPs during the construction process” (1992).

Furthermore, in its Phase II Final Rule, US EPA requires small municipalities to develop and implement for construction sites “An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance [...]” (1999). Due to the greater water quality concerns generally experienced by larger municipalities, Phase II Final Rule requirements for small municipalities are also applicable to larger municipalities such as the Copermittees.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.2.b in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.2.c. Modify Construction and Grading Approval Process (Construction) of the Jurisdictional Urban Runoff Management Program states the following:

Prior to approval and issuance of local construction and grading permits, each Copermittee shall require all individual proposed construction and grading projects to implement measures to ensure that pollutants from the site will be reduced to the maximum extent practicable and will not cause or contribute to an exceedance of water quality objectives. Each Copermittee shall further ensure that all grading and construction activities will be in compliance with applicable Copermittee ordinances (e.g., storm water, grading, construction, etc.) and other applicable requirements, including this Order.

(1) Construction and Grading Project Requirements

Include construction and grading project requirements in local grading and construction permits to ensure that pollutant discharges are reduced to the maximum extent practicable and water quality objectives are not violated during the construction phase. Such requirements shall include the following requirements or their equivalent:

- (a) Require project proponent to develop and implement a plan to manage storm water and non-storm water discharges from the site at all times;*
- (b) Require project proponent to minimize grading during the wet season and coincide grading with seasonal dry weather periods to the extent feasible. If grading does occur during the wet season, require project proponent to implement additional BMPs for any rain events which may occur, as necessary for compliance with this Order;*
- (c) Require project proponent to emphasize erosion prevention as the most important measure for keeping sediment on site during construction;*
- (d) Require project proponent to utilize sediment controls as a supplement to erosion prevention for keeping sediment on-site during construction, and never as the single or primary method;*
- (e) Require project proponent to minimize areas that are cleared and graded to only the portion of the site that is necessary for construction;*
- (f) Require project proponent to minimize exposure time of disturbed soil areas;*
- (g) Require project proponent to temporarily stabilize and reseed disturbed soil areas as rapidly as possible;*
- (h) Require project proponent to permanently revegetate or landscape as early as feasible;*
- (i) Require project proponent to stabilize all slopes; and*
- (j) Require project proponents subject to California’s statewide General NPDES Permit for Storm Water Discharges Associated With Construction Activities, (hereinafter General*

Construction Permit), to provide evidence of existing coverage under the General Construction Permit.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.2. Construction Component of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(1) provides that the proposed management program include “A description of procedures for site planning which incorporate consideration of potential water quality impacts.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(2) provides that the proposed management program include “A description of requirements for nonstructural and structural best management practices.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that each Copermittee must demonstrate that it can control “through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from site of industrial activity.”

Federal NPDES regulation 40 CFR 122.26(b)(14) provides that “The following categories of facilities are considered to be engaging in ‘industrial activity’ for the purposes of this subsection: [...] (x) Construction activity including cleaning, grading and excavation activities [...].”

Discussion: As discussed in Finding 16, since each Copermittee approves and issues construction and grading permits, and discharges from construction and grading activities enter its MS4, each Copermittee is responsible for the pollutant discharges resulting from construction and grading activities. Each Copermittee must ensure that pollutant discharges from construction and grading activities are reduced to the maximum extent practicable and do not result in degradation of receiving waters. An effective means for achieving this is to develop conditions of approval for grading and construction permits that require measures to minimize pollutant discharges. The US EPA recommends approval processes which consider water quality impacts, stating that approval process requirements should “include phasing development to coincide with seasonal dry periods, minimizing areas that are cleared and graded to only the portion of the site that is necessary for construction, exposing areas for the briefest period possible, and stabilizing and reseeding disturbed areas rapidly after construction activity is completed” (1992). Other suggested construction and grading conditions of approval listed in this item are based on SWRCB Urban Runoff Technical Advisory Committee recommendations.

During approval and issuance of grading and construction permits, each Copermittee must review construction and grading plans to ensure that the conditions of approval are met. US EPA states that to determine if a construction

site is in compliance with construction and grading ordinances and permits, the “MS4 operator should review the site plans submitted by the construction site operator before ground is broken” (2000). Furthermore, in its Phase II Final Rule, US EPA requires small municipalities to develop and implement for construction sites “Procedures for site plan review which incorporate consideration of potential water quality impacts” (1999). Due to the greater water quality concerns generally experienced by larger municipalities, Phase II Final Rule requirements for small municipalities are also applicable to larger municipalities such as the Copermittees.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.2.c in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.2.d. Source Identification (Construction) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall annually develop and update, prior to the rainy season, a watershed-based inventory of all construction sites within its jurisdiction regardless of site size or ownership. This requirement is applicable to all construction sites regardless of whether the construction site is subject to the California statewide General NPDES Permit for Storm Water Discharges Associated With Construction Activities (hereinafter General Construction Permit), or other individual NPDES permit. The use of an automated database system, such as Geographical Information System (GIS) is highly recommended, but not required.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.2. Construction Component of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(3) provides that the proposed management program include “A description of procedures for identifying priorities for inspecting sites and enforcing control measures which consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality.”

Discussion: In order to prohibit non-storm water discharges, reduce construction pollutant sources to the maximum extent practicable, and ensure that adequate BMPs are implemented, Copermittees must first identify all of the construction sites within their jurisdiction. The construction sites are to be inventoried on a watershed basis in order to help with prioritization of the sites. For example, construction sites which are found to be located in a watershed with impaired receiving waters for sediment should be considered a high priority for BMP implementation, inspections, and enforcement. The US EPA requires that all construction sites be addressed (and therefore inventoried), stating: “All construction sites, regardless of size, must be addressed by the municipality. To begin to identify these sites, the applicant should obtain lists of construction site operators that are covered by general or individual storm water NPDES permits from the NPDES permitting authority. However, construction sites not covered by a storm water discharge permit also need to be addressed by the municipality.

The best way to identify these construction sites and implement an effective BMP program to reduce pollutants in their runoff is through the site planning process” (1992).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.4.d in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.2.e. Threat to Water Quality Prioritization (Construction) of the Jurisdictional Urban Runoff Management Program states the following:

- (1) *To establish priorities for construction oversight activities under this Order, the Copermittee shall prioritize its watershed-based inventory (developed pursuant to F.2.d. above) by threat to water quality. Each construction site shall be classified as high, medium, or low threat to water quality. In evaluating threat to water quality each Copermittee shall consider (1) soil erosion potential; (2) site slope; (3) project size and type; (4) sensitivity of receiving water bodies; (5) proximity to receiving water bodies; (6) non-storm water discharges; and (7) any other relevant factors.*
- (2) *A high priority construction site shall at a minimum be defined as a site meeting either of the following criteria or equivalent criteria:*
 - (a) *The site is 50 acres or more and grading will occur during the wet season; OR*
 - (b) *The site is (1) 5 acres or more and (2) tributary to a Clean Water Act section 303(d) water body impaired for sediment or is within or directly adjacent to or discharging directly to a receiving water within an environmentally sensitive area (as defined in section F.1.b.(2)(a)vi. of this Order).*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.2. Construction Component of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(3) provides that the proposed management program include “A description of procedures for identifying priorities for inspecting sites and enforcing control measures which consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality.”

Discussion: As discussed in Finding 19, construction sites are high risk areas for pollutant discharges to storm water. Development of an inventory of construction sites within a watershed will help identify potential sources of pollutants in storm water. By assessing information provided in the inventory (such as site topography and site proximity to receiving waters), sites can be prioritized by threat to water quality. Those sites that pose the greatest threat can then be targeted for inspection and monitoring. This will allow for limited inspection and monitoring time to be most effective.

The types of construction sites identified as high priority in this item are identified as such due to their high potential for erosion and impacting receiving waters. These types of construction sites are generally large, requiring grading of a large

area, resulting in a large area of disturbed earth which is susceptible to erosion. Hillside construction is also high priority, due to its susceptibility to slope erosion. Any construction sites tributary to a CWA section 303(d) waterbody are also high priority due to their potential to further degrade those waterbodies. US EPA supports this type of prioritization, stating that municipalities should “identify priority sites for inspection and enforcement based on the nature and extent of the construction activity, topography, and the characteristics of soils and receiving water quality” (2000).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.2.e in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.2.f.(1), F.2.f.(2), and F.2.f.(3) BMP Implementation (Construction) of the Jurisdictional Urban Runoff Management Program state the following:

- (1) *Each Copermitttee shall designate a set of minimum BMPs for high, medium, and low threat to water quality construction sites (as determined under section F.2.e). BMPs are to be implemented year round.*
- (2) *Each Copermitttee shall implement, or require the implementation of, the designated minimum BMPs (based upon the site's threat to water quality rating) at each construction site within its jurisdiction year round. If particular minimum BMPs are infeasible at any specific site, each Copermitttee shall implement, or require the implementation of, other equivalent BMPs. Each Copermitttee shall also implement or require any additional site specific BMPs as necessary to comply with this Order, including BMPs which are more stringent than those required under the statewide General Construction Permit.*
- (3) *Each Copermitttee shall implement, or require the implementation of, BMPs year round; however, BMP implementation requirements can vary based on wet and dry seasons.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.2. Construction Component of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(2) provides that the proposed management program include “A description of requirements for nonstructural and structural best management practices.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(3) provides that the proposed management program include “A description of procedures for identifying priorities for inspecting sites and enforcing control measures which consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality.”

Discussion: Copermitttees must reduce the discharge of pollutants in storm water from construction sites to the maximum extent practicable. To achieve this level of pollutant reduction, BMPs must be implemented (see Finding 11). Designation of a set of minimum BMPs for high, medium, and low threat construction sites will help ensure that appropriate BMPs are implemented at construction sites. These

minimum BMPs will also serve as guidance as to the level of water quality protection required.

Regarding designation of BMPs to be implemented, the US EPA states that “the proposed management program should describe requirements for nonstructural and structural BMPs that operators of construction activities that discharge to MS4s must meet” (1992). While minimum BMPs will be required at all construction sites, implementation of particular BMPs will be site specific in order to address various conditions at different sites. Regarding site specific BMPs, the US EPA states “Appropriate structural and nonstructural control requirements will vary by project. Project type, size, and duration, as well as soil composition, site slope, and proximity to sensitive receiving waters will determine the appropriate structural and nonstructural BMPs” (1992).

In order to comply with Order No. R9-2002-0001 requirements, implemented BMPs may need to be more stringent than those required under the statewide General Construction Permit. The US EPA implies that local sediment and erosion control requirements may be more stringent than statewide General Construction Permit requirements when it states that “construction sites covered under NPDES permit regulations must indicate whether they are in compliance with State and local sediment and erosion control plans” (1992).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program items F.2.f.(1-3) in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.2.f.(4) BMP Implementation (Construction) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermitttee shall implement, or require implementation of, additional controls for construction sites tributary to Clean Water Act section 303(d) water bodies impaired for sediment as necessary to comply with this Order. Each Copermitttee shall implement, or require implementation of, additional controls for construction sites within or adjacent to or discharging directly to receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)vi. of this Order) as necessary to comply with this Order.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.2. Construction Component of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

Discussion: CWA section 303(d) water bodies are impaired water bodies that are not achieving the water quality objectives necessary to protect their beneficial uses. As discussed in Finding 3, urban runoff discharges from MS4s are a leading cause of receiving water quality impairment in the San Diego Region and throughout the United States. Since discharges that cause or contribute to an exceedance of water quality standards are prohibited (see section C.1. of Order No. R9-2002-0001), any discharges to CWA section 303(d) waterbodies of pollutants for which the waterbody is impaired are prohibited. Therefore, construction sites and activities tributary to these water bodies must implement additional controls to ensure that they are not discharging the pollutants which are causing or contributing to the impairment of these water bodies.

With regards to coastal lagoons and other sensitive water bodies, additional controls are needed to protect these valuable and unique resources. In their Nonpoint Source Program Strategy and Implementation Plan, the SWRCB and California Coastal Commission support additional controls for critical coastal areas, stating "the State will seek to attain and maintain applicable water quality standards, and protect waters threatened by land uses, or by substantial expansion of existing land uses, by implementing additional management measures."

Furthermore, US EPA supports additional controls for construction sites tributary to impaired or sensitive water bodies, stating "The proximity and sensitivity of the receiving water to which the construction site discharges is an important consideration. For construction sites that discharge to receiving waters that do not support their designated use or other waters of special concern, additional construction site controls are probably warranted and should be strongly considered" (1992).

The SDRWQCB has the discretion to require Jurisdictional Urban Runoff Program item F.2.f.(4) in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.2.g. Inspection of Construction Sites (Construction) of the Jurisdictional Urban Runoff Management Program states the following:

- (1) *Each Copermittee shall conduct construction site inspections for compliance with its ordinances (grading, storm water, etc.), permits (construction, grading, etc.), and this Order. Inspections shall include review of site erosion control and BMP implementation plans..*
- (2) *Each Copermittee shall establish inspection frequencies and priorities as determined by the threat to water quality prioritization described in F.2.e above. During the wet season (i.e., October 1 through April 30 of each year), each Copermittee shall inspect, at a minimum, each High Priority construction site, either:*

(a) *Weekly*

OR

(b) *Monthly for any site that the responsible Copermittee certifies in a written statement to the SDRWQCB all of the following (certified statements may be submitted to the SDRWQCB at any time for one or more sites):*

- i. *Copermittee has record of construction site's Waste Discharge Identification Number (WDID#) documenting construction site's coverage under the statewide General Construction Permit; and*

- ii. Copermittee has reviewed the construction site's Storm Water Pollution Prevention Plan (SWPPP); and
- iii. Copermittee finds SWPPP to be in compliance with all local ordinances, permits, and plans; and
- iv. Copermittee finds that the SWPPP is being properly implemented on site.

At a minimum, Medium and Low Priority construction sites shall be inspected by Copermittees twice during the wet season. All construction sites shall be inspected by the Copermittees as needed during the dry season (i.e., May 1 through September 30 of each year).

- (3) *Based upon site inspection findings, each Copermittee shall implement all follow-up actions necessary to comply with this Order.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.2. Construction Component of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(3) provides that the proposed management program include "A description of procedures for identifying priorities for inspecting sites and enforcing control measures which consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality."

Discussion: As discussed in Finding 24, inspections provide a necessary means by which Copermittees can evaluate compliance with their municipal ordinances. Inspections are especially important at high-risk areas for pollutant discharges, such as industrial and construction sites. To ensure that BMPs are properly installed and maintained, US EPA states MS4 operators should "develop procedures for site inspection and enforcement of control measures to deter infractions" (2000). Inspections of construction projects in the early stages of land disturbance have been shown to be an effective tool to ensure initial compliance with its local ordinances, permits and erosion control plans. A study was conducted by the North Carolina Department of Environment, which evaluated the effectiveness of their Erosion and Sediment Control Program (Malcom et al., 1990). The study found that at the start of construction, less than half of construction sites inspected had installed all of the sediment and erosion control measures specified on their approved plans, and even higher degrees of noncompliance were found in the maintenance of these measures once they were installed.¹⁰¹

Construction site inspections shall be conducted to determine compliance with applicable ordinances and permits, including Order No. R9-2002-0001. To this effect, the US EPA finds that "Site inspections are expected to be the primary enforcement mechanism by which erosion and sediment controls are maintained" (1992). When inspections result in findings of noncompliance, follow-up by the Copermittee to ensure compliance is necessary. The US EPA states "Effective inspection and enforcement requires [...] intervention by the municipal authority to

¹⁰¹Malcom, H.R., A.C. Beard, R.J. Burby, E.J. Kaiser, M.I. Luger, and R.G. Patterson. 1990. *Evaluation of the North Carolina Erosion and Sediment Control Program*. Raleigh NC: Land Quality Section, Division of Land Resources, North Carolina Department of Environmental Health and Natural Resources.

correct violations” (1992). This is supported by the North Carolina Study that provided empirical support for the importance of inspections in increasing construction site compliance with local and state ordinances. Both the frequency and duration of project inspections were positively associated with the level of installation and maintenance compliance at the construction sites (Malcom et al., 1990). US EPA further finds “inspections give the MS4 operator an opportunity to provide additional guidance and education, issue warnings or assess penalties”(2000)”. Frequent inspections by Copermittees of high priority construction sites will keep compliance a priority, and allow opportunities for inspectors to enhance problem-solving skills among site personnel.

Construction site inspection frequencies are to be based on threat to water quality prioritization. US EPA supports this, stating that site inspection procedures should “identify priority sites for inspection and enforcement based on the nature and extent of the construction activity, topography, and the characteristics of soils and receiving water quality” (2000). For example, construction sites that are considered a high threat to water quality are to be given a high priority for inspection. This will allow for limited inspection and monitoring time to be most effective. Weekly to monthly inspection of high threat sites is necessary due to the dynamic nature of construction activities. Medium and low threat construction sites can be inspected less frequently, due to their reduced risk of negatively impacting receiving waters. Review of SWPPPs can be one effective tool for determining frequency of site inspections. Construction sites which effectively implement the measures of a comprehensive SWPPP may not need to be inspected as frequently as less diligent sites.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.2.g in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.2.h. Enforcement of Construction Sites (Construction) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall enforce its ordinances (grading, storm water, etc.) and permits (construction, grading, etc.) at all construction sites as necessary to maintain compliance with this Order. Copermittee ordinances or other regulatory mechanisms shall include sanctions to ensure compliance. Sanctions shall include the following or their equivalent: Non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.2. Construction Component of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(3) provides that the proposed management program include “A description of procedures for identifying priorities for inspecting sites and enforcing control measures which consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality.”

Discussion: Each Copermittee must develop grading and storm water ordinances under its Jurisdictional Urban Runoff Management Program. As discussed in Finding 24, when a Copermittee determines a violation of its grading or storm water ordinance, it must pursue correction of the violation. A critical aspect of the correction of violations is enforcement of ordinances. Enforcement increases the probability of correction of a violation. The US EPA supports development of enforceable ordinances and permits when it states “applicants must describe proposed regulatory programs to reduce pollutants in storm water runoff from construction sites to the MS4” (1992). The US EPA supports enforcement of these ordinances and permits at construction sites when it states “Effective inspection and enforcement requires [...] penalties to deter infractions and intervention by the municipal authority to correct violations. Enforcement mechanisms [...] also must be described” (1992).

Furthermore, in its Phase II Final Rule, US EPA requires small municipalities to develop and implement “An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance [...]” (1999). Due to the greater water quality concerns generally experienced by larger municipalities, Phase II Final Rule requirements for small municipalities are also applicable to larger municipalities such as the Copermittees.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.2.h of Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.2.i. Reporting of Non-compliant Sites (Construction) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall provide oral notification to the SDRWQCB of non-compliant sites that are determined to pose a threat to human or environmental health within its jurisdiction within 24 hours of the discovery of noncompliance, as required under section R.1 (and B.6 of Attachment C) of this Order.

Each Copermittee shall develop and submit criteria by which to evaluate events of non-compliance to determine whether they pose a threat to human or environmental health. These criteria shall be submitted in the Jurisdictional Urban Runoff Management Program Document and Annual Reports for SDRWQCB review.

Such oral notification shall be followed up by a written report to be submitted to the SDRWQCB within 5 days of the incidence of non-compliance as required under section R.1 (and B.6 of Attachment C) of this Order. Sites are considered non-compliant when one or more violations of local ordinances, permits, plans, or this Order exist on the site.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.2. Construction Component of Order No. R9-2002-0001.

California Water Code section 13267 provides that “the regional board may require than any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

Federal NPDES regulation 40 CFR 122.44(l)(6) states “The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of non-compliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.”

Discussion: Follow-up with non-compliant construction sites is essential to ensure that the site has taken adequate corrective measures to achieve compliance. To help ensure that compliance has been achieved, the Copermittees shall report non-compliant industrial sites to the SDRWQCB. The SDRWQCB can then participate in follow-up efforts to assure that the construction site is in compliance. Notification of non-compliance is common to all NPDES permits under Federal NPDES regulation 40 CFR 122.44(l)(6).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.3.b.(7) in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.2.j. Education Focused on Construction Activities (Construction) of the Jurisdictional Urban Runoff Management Program states the following:

(1) *Internal: Municipal Staff*

Each Copermittee shall implement an education program to ensure that its construction, building, and grading review staffs and inspectors have an understanding of:

- (a) *Federal, state, and local water quality laws and regulations applicable to construction and grading activities.*
- (b) *The connection between construction activities and water quality impacts (i.e., impacts from land development and urbanization).*
- (c) *How erosion can be prevented.*
- (d) *How impacts to receiving water quality resulting from construction activities can be minimized (i.e., through implementation of various source control and structural BMPs).*
- (e) *Applicable topics listed in section F.4. of this Order.*

(2) *External: Project Applicants, Contractors, Developers, Property Owners, and other Responsible Parties*

Each Copermittee shall implement an education program to ensure that project applicants, contractors, developers, property owners, and other responsible parties have an understanding of the topics outlined in section F.2.j.(1) above of this Order.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.2. Construction Component of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(4) provides that the proposed management program include “A description of appropriate educational and training measures for construction site operators.”

Discussion: As discussed in Finding 23, implementation of an education program is an important best management practice for construction sites and activities. The SWRCB Technical Advisory Committee “recognizes that education with an emphasis on pollution prevention is the fundamental basis for solving nonpoint source pollution problems.” The TAC points out several target communities for education efforts, including “Government: Educate agencies and officials to achieve better communication, consistency, collaboration, and coordination at the federal, state and local levels” and “Development Community: Educate the development community, including developers, contractors, architects, and local government planners, engineers, and inspectors, on nonpoint source pollution problems associated with development and redevelopment and construction activities and involve them in problem definitions and solutions.”

The US EPA also supports education efforts for parties involved in construction, stating “technical information on how to incorporate storm water management with erosion and sediment control and other BMP training courses are recommended for municipal employees and construction site operators.”

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.2.j. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.3. EXISTING DEVELOPMENT COMPONENT

F.3. Existing Development Component of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall minimize the short and long-term impacts on receiving water quality from all types of existing development.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Discussion: CWA sections 402(p)(3)(B)(ii-iii) require each Copermittee to prohibit non-storm water discharges into its MS4 and to reduce the discharge of pollutants to the maximum extent practicable for all urban land uses. The purpose of these two broad requirements is to minimize the short and long-term impacts of urban runoff on receiving water quality. The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.3 of Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.a. MUNICIPAL (EXISTING DEVELOPMENT)

In addition to the underlying broad legal authority citations listed above in section VII. of this Fact Sheet/Technical Report, the following specific legal authority items also generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.a. Municipal (Existing Development) of Order No. R9-2002-0001. Other specific legal authority items applicable only to distinct directives of Jurisdictional Urban Runoff Management Program item F.3.a. are provided as necessary.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(1) provides that the proposed management program include "A description of maintenance activities and a maintenance schedule for structural controls to reduce pollutants (including floatables) in discharges from municipal separate storm sewers."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(3) provides that the proposed management program include "A description for operating and maintaining public streets, roads and highways and procedures for reducing the impact on receiving waters of discharges from municipal storm sewer systems, including pollutants discharged as a result of deicing activities."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(4) provides that the proposed management program include "A description of procedures to assure that flood management projects assess the impacts on the water quality of receiving water bodies and that existing structural flood control devices have been evaluated to determine if retrofitting the device to provide additional pollutant removal from storm water is feasible."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(5) provides that the proposed management program include "A description of a program to monitor pollutants in runoff from operating or closed municipal landfills or other treatment, storage or disposal facilities for municipal waste, which shall identify priorities and procedures for inspections and establishing and implementing control measures for such discharges."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(6) provides that the proposed management program include "A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides, and fertilizer which will include, as appropriate, controls such as educational activities, permits, certifications, and other measures for commercial applicators and distributors, and controls for application in public right-of-ways and at municipal facilities."

F.3.a. Municipal (Existing Development) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall implement a Municipal (Existing Development) Component to prevent or reduce pollutants in runoff from all municipal land use areas and activities. At a minimum the municipal component shall address:

- F.3.a.(1) Pollution Prevention*
- F.3.a.(2) Source Identification*
- F.3.a.(3) Threat to Water Quality Prioritization*
- F.3.a.(4) BMP Implementation*
- F.3.a.(5) Maintenance of Municipal Separate Storm Sewer System*
- F.3.a.(6) Management of Pesticides, Herbicides, and Fertilizers*
- F.3.a.(7) Inspection of Municipal Areas and Activities*
- F.3.a.(8) Enforcement of Municipal Areas and Activities*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A)(1,3,4,5, and 6) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.a. Municipal (Existing Development) of Order No. R9-2002-0001.

Discussion: CWA sections 402(p)(3)(B)(ii-iii) requires each Copermittee to prohibit non-storm water discharges into its MS4 and to reduce the discharge of pollutants to the maximum extent practicable for all urban land uses. The purpose of these two broad requirements is to minimize the short and long-term impacts of urban runoff on receiving water quality. Land used for municipal activities is clearly identified in the federal regulations as one of several high priority land uses from which pollutants in urban runoff discharges must be reduced to the maximum extent practicable by each Copermittee. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) requires the development of a proposed management program to reduce the discharge of pollutants in storm water to the maximum extent practicable. Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A)(1) and 40 CFR 122.26(d)(2)(iv)(A)(3-6) require that this program include components which address municipal areas and activities.

US EPA targets municipal areas and activities “to help ensure a reduction in the amount and type of pollution that (1) collects on streets, parking lots, open spaces, and storage and vehicle maintenance areas and is discharged into local waterways; and (2) results from actions such as environmentally damaging land development and flood management practices or poor maintenance of storm sewer systems” (2000). To reduce pollutant discharges from municipal areas and activities to the maximum extent practicable, BMPs must be implemented. Therefore, a municipal existing development component requiring BMPs must be developed and implemented as part of each Copermittee’s Jurisdictional URMP.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.3.a in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.a.(1) Pollution Prevention (Municipal) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall include and describe pollution prevention methods within its Municipal (Existing Development) Component. Each Copermittee shall require the use of pollution prevention methods by municipal departments, contractors, and personnel, where appropriate.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A)(1,3,4,5, and 6) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.a. Municipal (Existing Development) of Order No. R9-2002-0001.

Discussion: Each Copermittee must develop a program to reduce the discharge of pollutants to and from the MS4 to the maximum extent practicable for all urban land uses and activities, including municipal areas and activities. In order to achieve this level of pollution reduction, BMPs must be implemented. Pollution prevention, the reduction or elimination of pollutant generation at its source, is an essential aspect of BMPs. By limiting the generation of pollutants, less pollutants are available to be washed from municipal areas and activities, resulting in reduced pollutant loads in storm water discharges from these areas and activities. In addition, there is no need to control or treat pollutants that are not initially generated. Furthermore, pollution prevention BMPs are generally more cost effective than removal of pollutants by treatment facilities or cleanup of contaminated media. In the Pollution Prevention Act of 1990, Congress established a national policy that emphasizes pollution prevention over control and treatment. Since pollution prevention is an effective and efficient means for reducing pollutant loads in storm water runoff, pollution prevention methods are an important aspect of BMPs to be included in the municipal existing development component.¹⁰²

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.3.a.(1) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.a.(2) Source Identification (Municipal) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall develop, and update annually, a watershed-based inventory of the name, address (if applicable), and description of all municipal land use areas and activities which generate pollutants.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

¹⁰²National Association of Counties, 1995. Preventing pollution in Our Cities and Counties: A Compendium of Case Studies.

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv) (A)(1,3,4,5, and 6) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.a. Municipal (Existing Development) of Order No. R9-2002-0001.

Discussion: In order to prohibit non-storm water discharges, reduce municipal pollutant sources to the maximum extent practicable, and ensure that adequate BMPs are implemented, Copermittees must first identify all of the municipal areas and pollutant source activities within their jurisdiction. The municipal areas and pollutant source activities are to be inventoried on a watershed basis in order to help with prioritization of the sites. For example, municipal pollutant sources which are found to be located in a watershed with impaired receiving waters should be considered a high priority for BMP implementation, inspections, and monitoring. Regarding municipal pollutant source inventories, the US EPA states "The first step is to identify facilities that handle municipal waste and summarize their operations" (1992). The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.3.a.(2) of Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.a.(3)(a) Threat to Water Quality Prioritization (Municipal) of the Jurisdictional Urban Runoff Management Program states the following:

To establish priorities for oversight of municipal areas and activities required under this Order, each Copermittee shall prioritize each watershed inventory in F.3.a.2. above by threat to water quality and update annually. Each municipal area and activity shall be classified as high, medium, or low threat to water quality. In evaluating threat to water quality, each Copermittee shall consider (1) type of municipal area or activity; (2) materials used; (3) wastes generated; (4) pollutant discharge potential; (5) non-storm water discharges; (6) size of facility or area; (7) proximity to receiving water bodies; (8) sensitivity of receiving water bodies; and (9) any other relevant factors.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv) (A)(1,3,4,5, and 6) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.a. Municipal (Existing Development) of Order No. R9-2002-0001.

Discussion: Many municipal pollutant sources pose a high risk for pollutant discharges to storm water. By assessing information provided in the municipal pollutant source inventory (such as principal pollutants used or services provided by a municipal facility), sites can be prioritized by threat to water quality. Those sites which pose the greatest threat can then be targeted for BMP implementation, inspection, and monitoring. This will allow for limited resources to be most effective in reducing pollutant discharges from municipal sources.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.3.a.(3)(a) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.a.(3)(b) Threat to Water Quality Prioritization (Municipal) of the Jurisdictional Urban Runoff Management Program states the following:

At a minimum, the high priority municipal areas and activities shall include the following:

- i. Roads, Streets, Highways, and Parking Facilities.*
- ii. Flood Management Projects and Flood Control Devices.*
- iii. Areas and activities tributary to a Clean Water Act section 303(d) impaired water body, where an area or activity generates pollutants for which the water body is impaired. Areas and activities within or adjacent to or discharging directly to receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)vi. of this Order).*
- iv. Municipal Waste Facilities.*
 - *Active or closed municipal landfills;*
 - *Publicly owned treatment works (including water and wastewater treatment plants) and sanitary sewage collection systems;*
 - *Municipal separate storm sewer systems;*
 - *Incinerators;*
 - *Solid waste transfer facilities;*
 - *Land application sites;*
 - *Uncontrolled sanitary landfills;*
 - *Corporate yards including maintenance and storage yards for materials, waste, equipment and vehicles;*
 - *Sites for disposing and treating sewage sludge; and*
 - *Hazardous waste treatment, disposal, and recovery facilities.*
- v. Other municipal areas and activities that the Copermittee determines may contribute a significant pollutant load to the MS4.*
- vi. Municipal airfields.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A)(1,3,4,5, and 6) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.a. Municipal (Existing Development) of Order No. R9-2002-0001.

Discussion: Identification of high priority municipal pollutant areas and activities allows for limited pollution reduction resources to be most effective. Targeting high priority municipal areas and activities for BMP implementation, inspection, and monitoring provides the greatest reduction in risk of degrading receiving waters per expenditure.

Items (i), (ii), and (iv) above are considered to be high priority sources since they are specifically addressed in Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A)(3-5). Regarding roads, highways, and parking facilities, the US EPA states "Road maintenance practices, especially snow management and road repair, and traffic are significant sources of pollutants in storm water discharges. [...] Municipal equipment yards and maintenance shops that support road maintenance activities can also be significant sources of pollutants" (1992). Regarding flood management projects and flood control devices, the US EPA states "Storm water management devices and structures that focus solely on water quantity are usually not designed to remove pollutants, and may sometimes harm aquatic habitat and aesthetic values" (1992). Regarding

municipal waste facilities, the US EPA states “Applicants must describe programs that identify measures to monitor and reduce pollutants in storm water discharges from facilities that handle municipal waste, including sewage sludge. [...] The types of facilities that should be included are: active or closed municipal waste landfills; publicly owned treatment works, including water and wastewater treatment plants; incinerators; municipal solid waste transfer facilities; land application sites; uncontrolled sanitary landfills; maintenance and storage yards for waste transportation fleets and equipment; sites for disposing or treating sludge from municipal treatment works; and other treatment, storage, or disposal facilities for municipal waste” (1992).

Areas and activities included in item (iii) are considered high priority due to their location in relation to CWA section 303(d) water bodies. Pollutant loading of these water bodies must be avoided to aid in their recovery and ensure against their further degradation.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.3.a.(3)(b) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.a.(4)(a) and F.3.a.(4)(b) BMP Implementation (Municipal) of the Jurisdictional Urban Runoff Management Program state the following:

- (a) *Each Copermittee shall designate a set of minimum BMPs for high, medium, and low threat to water quality municipal areas and activities (as determined under section F.3.a.(3)). The designated minimum BMPs for high threat to water quality municipal areas and activities shall be area or activity specific as appropriate.*
- (b) *Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs (based upon the threat to water quality rating) at each municipal area or activity within its jurisdiction. If particular minimum BMPs are infeasible for any specific area or activity, each Copermittee shall implement, or require implementation of other equivalent BMPs. Each Copermittee shall also implement any additional BMPs as are necessary to comply with this Order.*
 - i. *Each Copermittee shall evaluate feasibility of retrofitting existing structural flood control devices and retrofit where needed.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A)(1,3,4,5, and 6) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.a. Municipal (Existing Development) of Order No. R9-2002-0001.

Discussion: Copermittees must reduce the discharge of pollutants to the MS4 to the maximum extent practicable. In order to achieve this level of pollution reduction in storm water discharges from municipal areas and activities, BMPs must be implemented. To ensure that adequate BMPs are utilized for various municipal areas and activities, each Copermittee shall designate and implement a set of minimum BMPs for high, medium, and low threat to water quality municipal

areas and activities. The designated minimum BMPs will provide guidance as to the level of water quality protection required for various municipal areas and activities.

The US EPA recommends that Copermittees include in the proposed management program BMP measures for addressing municipal area and activities. Regarding public street, road, or highway BMPs, the US EPA states that "proposed management programs must include a description of practices for operation and maintenance of public streets, roads, and highways, and procedures for reducing the impact of runoff from these areas on receiving waters. [...] Pollutants from traffic can be minimized by using nonstructural controls (e.g., traffic reduction and improved traffic management), structural controls (e.g., traditional and innovative BMPs), and changing maintenance activities" (1992).

Regarding flood management projects, the US EPA finds that flood management projects can be harmful to receiving waters, stating that "Storm water management devices and structures that focus solely on water quantity are usually not designed to remove pollutants, and may sometimes harm aquatic habitat and aesthetic values" (1992). As flood control structures and other elements of the MS4 age and retrofitting becomes necessary, opportunities for water quality improvements arise. Conveyance systems which take water quality consideration into account (such as grassed swales, vegetated detention ponds, etc.) can often cost less to construct than traditional concrete systems. Evaluation of the applicability of such systems during retrofitting must occur to ensure that pollutants in urban runoff are reduced to the maximum extent practicable. The US EPA supports utilizing BMPs for pollution reduction in flood management projects, stating that "The proposed management program must demonstrate that flood management projects take into account the effects on the water quality of receiving water bodies. [...] Opportunities for pollutant reduction should be considered" (1992).

Regarding municipal waste facility BMPs, the US EPA states that "Procedures to evaluate, inspect, monitor, and establish control measures for municipal waste sites over the term of the NPDES permit should be described" (1992).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.3.a.(4)(a) and F.3.a.(4)(b) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.a.(4)(c) BMP Implementation (Municipal) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall implement, or require implementation of, any additional controls for municipal areas and activities tributary to Clean Water Act section 303(d) impaired water bodies (where an area or activity generates pollutants for which the water body is impaired) as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for municipal areas and activities within or directly adjacent to or discharging directly to receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)vi. of this Order) as necessary to comply with this Order.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv) (A)(1,3,4,5, and 6) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.a. Municipal (Existing Development) of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

Discussion: CWA section 303(d) water bodies are water bodies which are not achieving the water quality objectives necessary to protect their beneficial uses. As discussed in Finding 3, urban runoff discharges from MS4s are a leading cause of receiving water quality impairment in the San Diego Region and throughout the United States. Since discharges which cause or contribute to an exceedance of water quality standards must be controlled and are prohibited (see section C.1. of Order No. R9-2002-0001), discharges to CWA section 303(d) waterbodies of pollutants for which the waterbody is impaired must be controlled and are prohibited. Therefore, municipal areas and activities tributary to these water bodies must implement additional controls to ensure that they are not discharging the pollutants which are causing or contributing to the impairment of these water bodies.

With regards to coastal lagoons and other sensitive water bodies, additional controls are needed to protect these valuable and unique resources. In their Nonpoint Source Program Strategy and Implementation Plan, the SWRCB and California Coastal Commission support additional controls for critical coastal areas, stating “the State will seek to attain and maintain applicable water quality standards, and protect waters threatened by land uses, or by substantial expansion of existing land uses, by implementing additional management measures.”

The SDRWQCB has the discretion to require Jurisdictional Urban Runoff Program item F.3.a.(4)(c) in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.3.a.(5) Maintenance of Municipal Separate Storm Sewer System (Municipal) of the Jurisdictional Urban Runoff Management Program states the following:

- (a) *Each Copermitttee shall implement a schedule of maintenance activities at all structural controls designed to reduce pollutant discharges to or from its MS4s and related drainage structures.*
- (b) *Each Copermitttee shall implement a schedule of maintenance activities for the municipal separate storm sewer system.*
- (c) *The maintenance activities must, at a minimum, include:*
 - i. *Inspection and removal of accumulated waste (e.g. sediment, trash, debris and other pollutants) between May 1 and September 30 of each year;*

- ii. *Additional cleaning as necessary between October 1 and April 30 of each year;*
- iii. *Record keeping of cleaning and the overall quantity of waste removed;*
- iv. *Proper disposal of waste removed pursuant to applicable laws;*
- v. *Measures to eliminate waste discharges during MS4 maintenance and cleaning activities.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv) (A)(1,3,4,5, and 6) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.a. Municipal (Existing Development) of Order No. R9-2002-0001.

Discussion: Maintenance is critical to the successful implementation of every URMP. The US EPA finds that "Lack of maintenance often limits the effectiveness of storm water structural controls such as detention/retention basins and infiltration devices. [...] The proposed program should provide for maintenance logs and identify specific maintenance activities for each class of control, such as removing sediment from retention ponds every five years, cleaning catch basins annually, and removing litter from channels twice a year. If maintenance activities are scheduled infrequently, inspections must be scheduled to ensure that the control is operating adequately. In cases where scheduled maintenance is not appropriate, maintenance should be based on inspections of the control structure or frequency of storm events. If maintenance depends on the results of inspections or if it occurs infrequently, the applicant must provide an inspection schedule. The applicant should also identify the municipal department(s) responsible for the maintenance program" (1992). The maintenance schedule included in this item is based on the above US EPA recommendations. This maintenance schedule will help ensure that structural controls are in adequate condition to be effective year round but especially at the beginning of and throughout the rainy season.

Maintenance of municipal facilities, control structures, and the MS4 is considered so essential by US EPA that the requirement to conduct a maintenance program is specifically directed in both the Phase I and Phase II storm water regulations. In both cases, the maintenance programs must include a training component and have the ultimate goal of preventing pollutant runoff from municipal operations. Municipal activities should set a good example for all non-municipal personnel and the public.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.3.a.(5) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.a.(6) Management of Pesticides, Herbicides, and Fertilizers (Municipal) of the Jurisdictional Urban Runoff Management Program states the following:

The Copermittees shall implement BMPs to reduce the contribution of pollutants associated with the application, storage, and disposal of pesticides, herbicides and fertilizers from municipal areas and activities to MS4s. Important municipal areas and activities include municipal facilities, public rights-of-way, parks, recreational facilities, golf courses, cemeteries, botanical or zoological gardens and exhibits, landscaped areas, etc.

Such BMPs shall include, at a minimum: (1) educational activities, permits, certifications and other measures for municipal applicators and distributors; (2) integrated pest management measures that rely on non-chemical solutions; (3) the use of native vegetation; (4) schedules for irrigation and chemical application; and (5) the collection and proper disposal of unused pesticides, herbicides, and fertilizers.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A)(1,3,4,5, and 6) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.a. Municipal (Existing Development) of Order No. R9-2002-0001.

Discussion: Regarding the municipal use of pesticides, herbicides, and fertilizers, the US EPA finds that “The proposed program should include educational measures for the public and commercial applicators, and should include integrated pest management measures that rely on non-chemical solutions to pest control. The program should also describe how educational materials will be developed and distributed. Applicants are encouraged to consider providing information for the collection and proper disposal of unused pesticides, herbicides, and fertilizers, or to establish their own program. [...] In addition, applicants must include a discussion of controls for the application of pesticides, herbicides, and fertilizers in public rights-of-way and at municipal facilities. Planting low-maintenance vegetation, such as perennial ground covers, reduces pesticide and herbicide use. Native vegetation is often preferable because there is less need to apply fertilizers and herbicides, and to perform other forms of maintenance, such as mowing” (1992). Based on these US EPA recommendations, the SDRWQCB included Jurisdictional Urban Runoff Management Program item F.3.a.(6) in Order No. R9-2002-0001.

The SDRWQCB has discretion to include Jurisdictional Urban Runoff Management Program item F.3.a.(6) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.a.(7) Inspection of Municipal Areas and Activities (Municipal) of the Jurisdictional Urban Runoff Management Program states the following:

At a minimum, each Copermittee shall inspect high priority municipal areas and activities annually. Based upon site inspection findings, each Copermittee shall implement all follow-up actions necessary to comply with this Order.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv) (A)(1,3,4,5, and 6) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.a. Municipal (Existing Development) of Order No. R9-2002-0001.

Discussion: The USEPA finds that the municipal areas and activities listed in section F.3.a.(3) of Order No. R9-2002-0001 can be a significant source of pollutants in urban runoff (see Discussion for F.3.a.(3) above). Since these municipal areas and activities can be a significant source of pollutants, annual inspections are necessary to ensure that proper measures are being undertaken to reduce pollutant discharges to the maximum extent practicable. The USEPA supports inspections of municipal areas and activities, stating "Applicants must describe programs that identify measures to monitor and reduce pollutants in storm water discharges from facilities that handle municipal waste, including sewage sludge. [...] The types of facilities that should be included are: active or closed municipal waste landfills; publicly owned treatment works, including water and wastewater treatment plants; incinerators; municipal solid waste transfer facilities; land application sites; uncontrolled sanitary landfills; maintenance and storage yards for waste transportation fleets and equipment; sites for disposing or treating sludge from municipal treatment works; and other treatment, storage, or disposal facilities for municipal waste" (1992). The USEPA further states that "Procedures to evaluate, inspect, monitor, and establish control measures for municipal waste sites over the term of the NPDES permit should be described" (1992).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.3.a.(7) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.a.(8) Enforcement of Municipal Areas and Activities (Municipal) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermitttee shall enforce its storm water ordinance for all municipal areas and activities as necessary to maintain compliance with this Order.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv) (A)(1,3,4,5, and 6) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.a. Municipal (Existing Development) of Order No. R9-2002-0001.

Discussion: When a Copermitttee determines a violation of its storm water ordinance, it must pursue correction of the violation. A critical aspect of the correction of violations is enforcement of ordinances. Enforcement increases the

probability of correction of a violation. Regarding inspection and enforcement measures, the US EPA states "Effective inspection and enforcement requires [...] penalties to deter infractions and intervention by the municipal authority to correct violations. Enforcement mechanisms [...] also must be described" (1992).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.3.a.(8) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.b. INDUSTRIAL (EXISTING DEVELOPMENT)

In addition to the underlying broad legal authority citations listed above in section VII. of this Fact Sheet/Technical Report, the following specific legal authority items also generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.b. Industrial (Existing Development) of Order No. R9-2002-0001. Other specific legal authority items applicable only to distinct directives of Jurisdictional Urban Runoff Management Program item F.3.b. are provided as necessary.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C) provides that the proposed management program include "A description of a program to monitor and control pollutants in storm water discharges to municipal systems from municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to section 313 of title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and industrial facilities that the municipal permit applicant determines are contributing a substantial pollutant loading to the municipal storm sewer system."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C)(1) provides that the Copermittee must "identify priorities and procedures for inspections and establishing and implementing control measures for such discharges."

F.3.b. Industrial (Existing Development) for the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall implement an Industrial (Existing Development) Component to reduce pollutants in runoff from all industrial sites. At a minimum the industrial component shall address:

- F.3.b.(1) Pollution Prevention*
- F.3.b.(2) Source Identification*
- F.3.b.(3) Threat to Water Quality Prioritization*
- F.3.b.(4) BMP Implementation*
- F.3.b.(5) Monitoring of Industrial Sites*
- F.3.b.(6) Inspection of Industrial Sites*
- F.3.b.(7) Enforcement Measures for Industrial Sites*
- F.3.b.(8) Reporting of Non-compliant Sites*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(C) and 40 CFR 122.26(d)(2)(iv)(C)(1) generally apply to all directives under

Jurisdictional Urban Runoff Management Program item F.3.b. Industrial (Existing Development) of Order No. R9-2002-0001.

Discussion: CWA sections 402(p)(3)(B)(ii-iii) require each Copermittee to prohibit non-storm water discharges into its MS4 and to reduce the discharge of pollutants to the maximum extent practicable for all urban land uses. The purpose of these two broad requirements is to minimize the short and long-term impacts of urban runoff on receiving water quality. Land used for industrial activities is clearly identified in the federal regulations as one of several high priority land uses from which pollutants in urban runoff discharges must be reduced to the maximum extent practicable by each Copermittee. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) requires the development of a proposed management program to reduce the discharge of pollutants in storm water to the maximum extent practicable. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C) requires that this program include a component which addresses industrial sites.

Due to their numerous potential pollutant sources, industrial sites are relatively high risk areas for pollutant discharges to storm water. In order to control the discharge of pollutants from industrial sites to the maximum extent practicable, implementation of BMPs is necessary. As discussed in Finding 12, BMPs effectively reduce pollutants in urban runoff by emphasizing pollution prevention and source controls, followed by treatment controls. The industrial existing development component will provide a program for the development and implementation of BMPs to address pollutants in storm water discharges from industrial sites. The US EPA supports such a program, stating "NPDES permits for MS4s will establish responsibilities for municipal system operators to control pollutants from industrial storm water discharged through their system" (1992).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.3.b. in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.b.(1) Pollution Prevention (Industrial) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall include and describe pollution prevention methods within its Industrial (Existing Development) Component. Each Copermittee shall require the use of pollution prevention methods by industry, where appropriate.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(C) and 40 CFR 122.26(d)(2)(iv)(C)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.b. Industrial (Existing Development) of Order No. R9-2002-0001.

Discussion: Each Copermittee must develop a program to reduce the discharge of pollutants to and from its MS4 to the maximum extent practicable for all urban land uses, including industrial land uses. In order to achieve this level of pollution

reduction, BMPs must be implemented. Pollution prevention, the reduction or elimination of pollutant generation at its source, is an essential aspect of BMPs. By limiting the generation of pollutants, less pollutants are available to be washed from industrial sites, resulting in reduced pollutant loads in storm water discharges from these sites. In addition, there is no need to control or treat pollutants which are not initially generated. Furthermore, pollution prevention BMPs are generally more cost effective than removal of pollutants by treatment facilities or cleanup of contaminated media.¹⁰³ In the Pollution Prevention Act of 1990, Congress established a national policy that emphasizes pollution prevention over control and treatment. Since pollution prevention is an effective and efficient means for reducing pollutant loads in storm water runoff, pollution prevention methods are an important aspect of BMPs to be included in the industrial existing development component.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.3.b.(1) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.b.(2) Source Identification (Industrial) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall develop and update annually a watershed-based inventory of all industrial sites within its jurisdiction regardless of site ownership. This requirement is applicable to all industrial sites regardless of whether the industrial site is subject to the California statewide General NPDES Permit for Storm Water Discharges Associated With Industrial Activities, Except Construction (hereinafter General Industrial Permit) or other individual NPDES permit.

The inventory shall include the following minimum information for each industrial site: name; address; and a narrative description including SIC codes which best reflects the principal products or services provided by each facility.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(C) and 40 CFR 122.26(d)(2)(iv)(C)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.b. Industrial (Existing Development) of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.26(d)(2)(ii) provides that the Copermittee "Provide an inventory, organized by watershed of the name and address, and a description (such as SIC codes) which best reflects the principal products or services provided by each facility which may discharge, to the municipal separate storm sewer, storm water associated with industrial activity."

Discussion: Due to their numerous potential pollutant sources, industrial sites are high risk areas for pollutant discharges to storm water. In order to prohibit non-storm water discharges, reduce industrial pollutant sources to the maximum extent practicable, and ensure that adequate BMPs are implemented, each

¹⁰³U.S. EPA, 1992. Storm Water Management of Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices

Copermittee must first identify all industrial sites within their jurisdiction. Development of an inventory of industrial sites within a watershed will help identify potential industrial sources of pollutants in storm water. By assessing information provided in the inventory (such as principal products, services provided, and location), sites with the highest risk to receiving water quality can be identified, and priority for inspection, monitoring, and enforcement can be placed on those sites. By focusing inspection and monitoring on high priority sites, the effectiveness of limited inspection and monitoring resources can be maximized.

The SDRWQCB has discretion to require inventories of industrial sites in Jurisdictional Urban Runoff Program item F.3.b.(2) of Order No. R9-2002-0001 under the broad and specific legal authority above.

F.3.b.(3) Threat to Water Quality Prioritization (Industrial) of the Jurisdictional Urban Runoff Management Program states the following:

- (a) *To establish priorities for industrial oversight activities under this Order, the Copermittee shall prioritize each watershed-based inventory in F.3.b.(2) above by threat to water quality and update annually. Each industrial site shall be classified as high, medium, or low threat to water quality. In evaluating threat to water quality each Copermittee shall consider (1) type of industrial activity (SIC Code); (2) materials used in industrial processes; (3) wastes generated; (4) pollutant discharge potential; (5) non-storm water discharges; (6) size of facility; (7) proximity to receiving water bodies; (8) sensitivity of receiving water bodies; (9) whether the industrial site is subject to the statewide General Industrial Permit; and (10) any other relevant factors.*
- (b) *At a minimum the high priority industrial sites shall include industrial facilities that are subject to section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA); industrial facilities tributary to a Clean Water Act section 303(d) impaired water body, where a facility generates pollutants for which the water body is impaired; industrial facilities within or directly adjacent to or discharging directly to receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)vi. of this Order); facilities subject to the statewide General Industrial Permit (excluding those facilities that have been approved for No Exposure Certification); and all other industrial facilities that the Copermittee determines are contributing significant pollutant loading to its MS4, regardless of whether such facilities are covered under the statewide General Industrial Permit or other NPDES permit.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(C) and 40 CFR 122.26(d)(2)(iv)(C)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.b. Industrial (Existing Development) of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.26(d)(2)(ii) provides that the Copermittee "Provide an inventory, organized by watershed of the name and address, and a description (such as SIC codes) which best reflects the principal products or services provided by each facility which may discharge, to the municipal separate storm sewer, storm water associated with industrial activity."

Discussion: Due to their numerous pollutant sources, industrial sites are high risk areas for pollutant discharges to storm water. Development of an inventory

of industrial sites within a watershed will help identify potential sources of pollutants in urban runoff. By assessing information provided in the inventory (such as principal products or services provided by the facility), sites can be prioritized by threat to water quality. Those sites that pose the greatest threat can then be targeted for inspection and monitoring. This will allow for limited inspection and monitoring time to be most effective. Regarding industrial site priority designation, the US EPA states that "When municipalities develop criteria for identifying additional priority industrial facilities, they are advised to consider, at a minimum:

- The type of industrial activity (SIC codes can help characterize the type of industrial activity);
- The use and management of chemicals or raw products at the facility and the likelihood that storm water discharge from the site will be contaminated; and
- The size and location of the facility in relation to sensitive watersheds" (1992).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.3.b.(3) in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.3.b.(4)(a) and F.3.b.(4)(b) BMP Implementation (Industrial) of the Jurisdictional Urban Runoff Management Program states the following:

- (a) *Each Copermittee shall designate a set of minimum BMPs for high, medium, and low threat to water quality industrial sites (as determined under section F.3.b.(3)). The designated minimum BMPs for high threat to water quality industrial sites shall be industry and site specific as appropriate.*
- (b) *Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs (based upon the site's threat to water quality rating) at each industrial site within its jurisdiction. If particular minimum BMPs are infeasible at any specific site, each Copermittee shall implement, or require implementation of, other equivalent BMPs. Each Copermittee shall also implement or require any additional site specific BMPs as necessary to comply with this Order including BMPs which are more stringent than those required under the statewide General Industrial Permit.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(C) and 40 CFR 122.26(d)(2)(iv)(C)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.b. Industrial (Existing Development) of Order No. R9-2002-0001.

Discussion: Copermittees must reduce the discharge of pollutants to the MS4 from industrial sites to the maximum extent practicable. In order to achieve this level pollution reduction in storm water discharges from industrial sites, BMPs must be designated and implemented. To ensure that adequate BMPs are utilized at the industrial sites, each Copermittee shall designate and require implementation of a set of minimum BMPs for high, medium, and low threat to water quality

industrial sites. The designated minimum BMPs will provide guidance on level of water quality protection required. The US EPA recommends that Copermitees provide BMP guidance to industrial facilities, stating “the applicant should suggest procedures for requiring pollutant control measures in runoff from priority industrial facilities. Applicants should provide information to the industrial facilities that discharge to the MS4s and industry-specific guidance on appropriate control measures that industries discharging to the systems should follow” (1992).

In order to adequately protect receiving water quality and allow Copermitees to meet their permit responsibilities under Order No. R9-2002-0001, additional BMPs may be required, including BMPs more stringent than those required under the state wide General Industrial Permit. Regarding additional BMP requirements of this type, the US EPA finds that “nothing in the Federal regulations would prohibit the municipality from requiring additional controls beyond the permit requirements for industrial activities. For this reason, the EPA recommends that municipal applicants incorporate a provision in the proposed storm water management program that allows the municipality to require priority industrial facilities to implement the controls necessary for the municipality to meet its permit responsibilities” (1992).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program items F.3.b.(4)(a) and F.3.b.(4)(b) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.b.(4)(c) BMP Implementation (Industrial) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall implement, or require implementation of, additional controls for industrial sites tributary to Clean Water Act section 303(d) impaired water bodies (where a site generates pollutants for which the water body is impaired) as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for industrial sites within or directly adjacent to or discharging directly to receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)vi. of this Order) as necessary to comply with this Order.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(C) and 40 CFR 122.26(d)(2)(iv)(C)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.b. Industrial (Existing Development) of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

Discussion: CWA section 303(d) water bodies are water bodies that are not achieving the water quality objectives necessary to protect their beneficial uses. As

discussed in Finding 3, urban runoff discharges from MS4s are a leading cause of receiving water quality impairment in the San Diego Region and throughout the United States. Since discharges which cause or contribute to an exceedance of water quality standards must be controlled and are also prohibited (see section C.1. of Order No. R9-2002-0001), discharges to CWA section 303(d) water bodies of pollutants for which the waterbody is impaired must be controlled and prohibited. Therefore, municipal areas and activities tributary to these water bodies must implement additional controls to ensure that they are not discharging the pollutants which are causing or contributing to the impairment of these water bodies.

Regarding coastal lagoons and other sensitive water bodies, additional controls are needed to protect these valuable and unique resources. In their Nonpoint Source Program Strategy and Implementation Plan, the SWRCB and California Coastal Commission support additional controls for critical coastal areas, stating "the State will seek to attain and maintain applicable water quality standards, and protect waters threatened by land uses, or by substantial expansion of existing land uses, by implementing additional management measures."

The SDRWQCB has the discretion to require Jurisdictional Urban Runoff Program item F.3.b.(4)(c) in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.3.b.(5) Monitoring of Industrial Sites (Industrial) of the Jurisdictional Urban Runoff Management Program states the following:

- (a) *Each Copermitttee shall conduct, or require industry to conduct, a monitoring program for runoff from each high threat to water quality industrial site (identified in F.3.b.(3) above). Group monitoring by multiple industrial sites conducted under group monitoring programs approved by the State Water Resources Control Board is acceptable.*
- (b) *At a minimum, the monitoring program shall provide quantitative data from two storm events per year on the following constituents:*
 - i. *Any pollutant listed in effluent guidelines subcategories where applicable;*
 - ii. *Any pollutant for which an effluent limit has been established in an existing NPDES permit for the facility;*
 - iii. *Oil and grease or Total Organic Carbon (TOC);*
 - iv. *pH;*
 - v. *Total suspended solids (TSS);*
 - vi. *Specific conductance; and*
 - vii. *Toxic chemicals and other pollutants that are likely to be present in storm water discharges.*
 - viii. *Any pollutant that may be used, stored, or generated at the facility, which may be discharged to a water body or a tributary of that water body that is listed as impaired under Clean Water Act Section 303(d) for that pollutant(s), unless the facility can demonstrate approval of No Exposure Certification.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(C) and 40 CFR 122.26(d)(2)(iv)(C)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.b. Industrial (Existing Development) of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C)(2) provides that the proposed management program shall “Describe a monitoring program for storm water discharges associated with the industrial facilities identified in paragraph (d)(2)(iv)(C) of this section, to be implemented during the term of the permit, including the submission of quantitative data on the following constituents: any pollutants limited in effluent guidelines subcategories, where applicable; any pollutant listed in an existing NPDES permit for a facility; oil and grease, COD, pH, BOD₅, TSS, total phosphorus, total Kjeldhal nitrogen, nitrate plus nitrite nitrogen, and any information on discharges required under 40 CFR 122.21(g)(7)(iii) and (iv).”

Discussion: The purpose of the monitoring program is to provide the information needed by each Copermittee to assess the effectiveness of its Industrial BMP Program. Quantitative data is required for two storm events per year in order to identify potential trends and/or anomalies in the data. The Copermittee may be able to obtain this monitoring information from some industrial sites by requesting submittal of the Annual Reports required under the General Industrial Storm Water Permit.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.3.b.(5) in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.3.b.(6) Inspection of Industrial Sites (Industrial) of the Jurisdictional Urban Runoff Management Program states the following:

- (a) *Each Copermittee shall conduct industrial site inspections for compliance with its ordinances, permits, and this Order. Inspections shall include review of BMP implementation plans.*
- (b) *Each Copermittee shall establish inspection frequencies and priorities as determined by the threat to water quality prioritization described in F.3.b.(3) above. Each Copermittee shall inspect high priority industrial sites, at a minimum:*
 - i. *Annually*

OR

 - ii. *Bi-annually for any site that the responsible Copermittee certifies in a written statement to the SDRWQCB all of the following (certified statements may be submitted to the SDRWQCB at any time for one or more sites):*
 - *Copermittee has record of industrial site’s Waste Discharge Identification Number (WDID#) documenting industrial site’s coverage under the statewide General Industrial Permit; and*
 - *Copermittee has reviewed the industrial site’s Storm Water Pollution Prevention Plan (SWPPP); and*
 - *Copermittee finds SWPPP to be in compliance with all local ordinances, permits, and plans; and*
 - *Copermittee finds that the SWPPP is being properly implemented on site.*

Each Copermittee shall inspect medium and low threat to water quality industrial sites as needed.

- (c) *Based upon site inspection findings, each Copermittee shall implement all follow-up actions necessary to comply with this Order.*

(d) To the extent that the SDRWQCB has conducted an inspection of a high priority industrial site during a particular year, the requirement for the responsible Copermittee to inspect this site during the same year will be satisfied.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(C) and 40 CFR 122.26(d)(2)(iv)(C)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.b. Industrial (Existing Development) of Order No. R9-2002-0001.

Discussion: Routine inspections provide an effective means by which Copermittees can evaluate compliance with their ordinances. Inspections are especially important at high risk areas for pollutant discharges, such as industrial and construction sites. Industrial site inspection frequencies are to be based on threat to water quality prioritization. For example, industrial sites that are considered a high threat to water quality are to be given a high priority for inspection. This allows for limited inspection resources to be most effective. Annual or bi-annual inspection of high threat sites is necessary to ensure that changes to the site that may be detrimental to water quality are identified and addressed.

Review of a facility's Storm Water Pollution Prevention Plan (SWPPP) can be an effective tool in inspecting the facility's storm water controls. The US EPA recommends that municipalities review SWPPPs during inspections when it states "Municipalities are urged to evaluate pollution prevention plans and discharge monitoring data collected by the industrial facility to ensure that the facility is in compliance with its NPDES storm water permit. Site inspections should include (1) an evaluation of the pollution prevention plan and any other pertinent documents, and (2) an onsite visual inspection of the facility to evaluate the potential for discharges of contaminated storm water from the site and to assess the effectiveness of the pollution prevention plan" (1992).

Regarding industrial site inspections, the US EPA finds that "The proposed management program should describe the inspection procedures that will be followed.[...] Proposed management programs should address minimum frequency for routine inspections. For example, how often, how much of the site, and how long an inspection may take are appropriate to explain in this proposed management program component. Applicants should also describe procedures for conducting inspections and provide an inspector's checklist" (1992). The US EPA also finds that follow-up actions are to be implemented based upon site inspection findings: "The results of inspection may be used as a basis for requiring storm water management controls and enhanced pollution prevention measures" (1992).

Due to the large number of industrial sites within the region, sites that have been inspected by the SDRWQCB do not need to be re-inspected by a Copermittee within the same year. This practice will increase collaboration between the SDRWQCB and the Copermittees for industrial site inspections. Collaboration

between the SDRWQCB and the Copermittees can provide for more efficient and effective overall inspection of industrial sites within the region. Regarding collaboration for inspection of industrial sites, US EPA states "The storm water regulations envision that NPDES permitting authorities and municipal operators will cooperate to develop programs to monitor and control pollutants in storm water discharges to municipal systems from various sites that handle waste and certain industrial facilities" (1992).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.3.b.(6) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.b.(7) Enforcement of Industrial Sites (Industrial) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall enforce its storm water ordinance at all industrial sites as necessary to maintain compliance with this Order. Copermittee ordinances or other regulatory mechanisms shall include sanctions to ensure compliance. Sanctions shall include the following or their equivalent: Non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(C) and 40 CFR 122.26(d)(2)(iv)(C)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.b. Industrial (Existing Development) of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that each Copermittee must demonstrate that it can control "through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from site of industrial activity."

Discussion: The Copermittee is ultimately responsible for discharges to and from their MS4. Each Copermittee must therefore develop and enforce storm water ordinances in order reduce pollutant discharges to the MS4 to the maximum extent practicable and comply with its permit responsibilities. These ordinances must be applied at all industrial sites to ensure that pollutant discharges to the MS4 are reduced to the maximum extent practicable and permit requirements are met. To this effect, the US EPA "recommends that municipal applicants incorporate a provision in the proposed management program that allows the municipality to require priority industrial facilities to implement the controls necessary for the municipality to meet its permit responsibilities" (1992). Regarding enforcement at industrial sites, the US EPA further states "The municipality, as a permittee, is responsible for compliance with its permit and must have authority to implement the conditions in its permit. To comply with its permit, a municipality must have the authority to hold dischargers accountable for their contributions to separate storm sewers" (1992).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.3.b.(7) in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.3.b.(8) Reporting of Non-compliant Sites (Industrial) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermitee shall provide oral notification to the SDRWQCB of non-compliant sites that are determined to pose a threat to human or environmental health within its jurisdiction within 24 hours of the discovery of noncompliance, as required under section R.1 (and B.6 of Attachment C) of this Order.

Each Copermitee shall develop and submit criteria by which to evaluate events of non-compliance to determine whether they pose a threat to human or environmental health. These criteria shall be submitted in the Jurisdictional Urban Runoff Management Program Document and Annual Reports for SDRWQCB review.

Such oral notification shall be followed up by a written report to be submitted to the SDRWQCB within 5 days of the incidence of non-compliance as required under section R.1 (and B.6 of Attachment C) of this Order. Sites are considered non-compliant when one or more violations of local ordinances, permits, plans, or this Order exist on the site.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(C) and 40 CFR 122.26(d)(2)(iv)(C)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.3.b. Industrial (Existing Development) of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that each Copermitee must demonstrate that it can control “through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from site of industrial activity.”

Federal NPDES regulation 40 CFR 122.44(l)(6) states “The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of non-compliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.”

Discussion: Follow-up with non-compliant industrial sites is essential to ensure that the site has taken adequate corrective measures to achieve compliance. To help ensure that compliance has been achieved, the Copermitees shall report non-compliant industrial sites to the SDRWQCB. The SDRWQCB can then

participate in follow-up efforts to assure that the industrial site is in compliance. The US EPA supports this type of collaboration when it states “the municipality will help EPA and authorized NPDES states: [...] Inspect and monitor industrial facilities to verify that the industries discharging storm water to the municipal systems are in compliance with their NPDES storm water permit, if required” (1992). Notification of non-compliant sites is a common requirement of all NPDES permits under Federal NPDES regulation 40 CFR 122.44(l)(6).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.3.b.(8) in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.3.c. COMMERCIAL (EXISTING DEVELOPMENT)

In addition to the underlying broad legal authority citations listed above in section VII. of this Fact Sheet/Technical Report, the following specific legal authority item also generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.3.c. Commercial (Existing Development) of Order No. R9-2002-0001. Other specific legal authority items applicable only to distinct directives of Jurisdictional Urban Runoff Management Program item F.3.c. are provided as necessary.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) provides that the Copermittee develop a proposed management program which includes “A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls.”

F.3.c. Commercial (Existing Development) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall implement a Commercial (Existing Development) Component to reduce pollutants in runoff from commercial sites. At a minimum the commercial component shall address:

- F.3.c.(1) Pollution Prevention*
- F.3.c.(2) Source Identification*
- F.3.c.(3) BMP Implementation*
- F.3.c.(4) Inspection of Commercial Sites and Sources*
- F.3.c.(5) Enforcement Measures for Commercial Sites and Sources*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.3.c. Commercial (Existing Development) of Order No. R9-2002-0001.

Discussion: CWA sections 402(p)(3)(B)(ii-iii) require each Copermittee to prohibit non-storm water discharges into its MS4 and to reduce the discharge of pollutants

to the maximum extent practicable for all urban land uses. The purpose of these two broad requirements is to minimize the short and long-term impacts of urban runoff on receiving water quality. Land used for commercial activities is clearly identified in the federal regulations as one of several high priority land uses from which pollutants in urban runoff discharges must be reduced to the maximum extent practicable by each Copermittee. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) requires the development of a proposed management program to reduce the discharge of pollutants in storm water to the maximum extent practicable. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) requires that this program include a component which addresses commercial sites and sources.

Commercial sites and sources have the potential to be significant sources of pollutants in urban runoff. To reduce the discharge of pollutants in urban runoff from commercial sites to the maximum extent practicable, BMPs must be implemented. As discussed in Finding 12, BMPs effectively reduce pollutants in urban runoff by emphasizing pollution prevention and source controls, followed by treatment controls. The commercial existing development component will provide a program for the development and implementation of BMPs to address pollutants in storm water discharges from commercial sites and activities.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.3.c. in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.c.(1) Pollution Prevention (Commercial) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall include and describe pollution prevention methods within its Commercial (Existing Development) Component. Each Copermittee shall require the use of pollution prevention methods by commercial facilities, where appropriate.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.3.c. Commercial (Existing Development) of Order No. R9-2002-0001.

Discussion: Each Copermittee must develop a program to reduce the discharge of pollutants to and from its MS4 to the maximum extent practicable. In order to achieve this level of pollution reduction, BMPs must be implemented. As discussed in Finding 12, pollution prevention (the reduction or elimination of pollutant generation at its source) is an essential aspect of BMP programs. By limiting the generation of pollutants, less pollutants are available to be washed from commercial sites and sources, resulting in reduced pollutant loads in storm water discharges from these sites and sources. In addition, there is no need to control or treat pollutants that are not initially generated. Furthermore, pollution prevention BMPs are generally more cost effective than removal of pollutants by treatment facilities or cleanup of contaminated media.¹⁰⁴ In the Pollution

¹⁰⁴Urban Runoff Technical Advisory Group, 1992. Urban Runoff Pollution Prevention Practices.

Prevention Act of 1990, Congress established a national policy that emphasizes pollution prevention over control and treatment. Since pollution prevention is an effective and efficient means for reducing pollutant loads in storm water runoff, pollution prevention methods are an important aspect of BMPs to be included in the commercial existing development component of the Jurisdictional URMP.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.3.c.(1) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.c.(2) Source Identification (Commercial) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermitttee shall develop and update annually an inventory of the following high priority threat to water quality commercial sites/sources listed below. (If any commercial site/source listed below is inventoried as an industrial site, as required under section F.3.b.(2) of this Order, it is not necessary to also inventory it as a commercial site/source).

- (a) *Automobile mechanical repair, maintenance, fueling, or cleaning;*
- (b) *Airplane mechanical repair, maintenance, fueling, or cleaning;*
- (c) *Boat mechanical repair, maintenance, fueling, or cleaning;*
- (d) *Equipment repair, maintenance, fueling, or cleaning;*
- (e) *Automobile and other vehicle body repair or painting;*
- (f) *Mobile automobile or other vehicle washing;*
- (g) *Automobile (or other vehicle) parking lots and storage facilities;*
- (h) *Retail or wholesale fueling;*
- (i) *Pest control services;*
- (j) *Eating or drinking establishments;*
- (k) *Mobile carpet, drape or furniture cleaning;*
- (l) *Cement mixing or cutting;*
- (m) *Masonry;*
- (n) *Painting and coating;*
- (o) *Botanical or zoological gardens and exhibits;*
- (p) *Landscaping;*
- (q) *Nurseries and greenhouses;*
- (r) *Golf courses, parks and other recreational areas/facilities;*
- (s) *Cemeteries;*
- (t) *Pool and fountain cleaning;*
- (u) *Marinas;*
- (v) *Port-a-Potty servicing;*
- (w) *Other commercial sites/sources that the Copermitttee determines may contribute a significant pollutant load to the MS4;*
- (x) *Any commercial site or source tributary to a Clean Water Act section 303(d) impaired water body, where the site or source generates pollutants for which the water body is impaired; and*
- (y) *Any commercial site or source within or directly adjacent to or discharging directly to a coastal lagoon or other receiving water within an environmentally sensitive area (as defined in F.1.b(2)(a)vi. of this Order).*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.3.c. Commercial (Existing Development) of Order No. R9-2002-0001.

Discussion: In order to prohibit non-storm water discharges, reduce commercial pollutant sources to the maximum extent practicable, and ensure that adequate BMPs are implemented, Copermittees must first identify all high priority threat to water quality commercial pollutant sources. Based on the number of complaints received by the SDRWQCB and the Copermittees, the types of commercial sites and activities listed in item F.3.c.(2) are potential high risk areas for pollutant discharges to storm water. The sites and activities are identified as such due to their frequent use of substances often found to be present as pollutants in urban runoff, combined with frequent mismanagement of runoff from the sites and activities. Therefore, development of an inventory of these commercial sites within a watershed will help identify the location of potential sources of pollutants in storm water. Pollutants found to be present in receiving waters can then be traced to the sites that frequently use such substances. In this manner an inventory of commercial sites can help in targeting commercial sites for inspection, monitoring, and potential enforcement. This will allow for limited inspection, monitoring, and enforcement time to be most effective.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.3.c.(2) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.c.(3)(a) and F.3.c.(3)(b) BMP Implementation (Commercial) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall designate a set of minimum BMPs for the high priority threat to water quality commercial sites/sources (listed above in section F.3.c.(2)). The designated minimum BMPs for the high threat to water quality commercial sites/sources shall be site and source specific as appropriate.

Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs at each high priority threat to water quality commercial site/source within its jurisdiction. If particular minimum BMPs are infeasible for any specific site/source, each Copermittee shall implement, or require the implementation of, other equivalent BMPs. Each Copermittee shall also implement or require any additional site specific BMPs as necessary to comply with this Order.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.3.c. Commercial (Existing Development) of Order No. R9-2002-0001.

Discussion: Copermittees must reduce the discharge of pollutants in storm water from commercial sites and activities to the maximum extent practicable. To achieve this level of pollutant reduction, BMPs must be implemented (see Finding 11). Designation of a set of minimum BMPs for high threat commercial sites will help ensure that appropriate BMPs are implemented at the sites. These minimum BMPs will also serve as guidance as to the level of water quality protection required. While minimum BMPs will be required at all high threat commercial sites, implementation of particular minimum BMPs will be site and source specific in

order to address different conditions at various sites. BMPs to be implemented must comply with Order No. R9-2002-0001. As such, additional site specific BMPs may be necessary to comply with other aspects of Order No. R9-2002-0001. The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program items F.3.c.(3)(a) and F.3.c.(3)(b) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.c.(3)(c) BMP Implementation (Commercial) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermitttee shall implement, or require implementation of, additional controls for commercial sites or sources tributary to Clean Water Act section 303(d) impaired water bodies (where a site or source generates pollutants for which the water body is impaired) as necessary to comply with this Order. Each Copermitttee shall implement, or require implementation of, additional controls for commercial sites or sources within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)vi. of this Order) as necessary to comply with this Order.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.3.c. Commercial (Existing Development) of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

Discussion: CWA section 303(d) water bodies are water bodies that are not achieving the water quality objectives necessary to protect their beneficial uses. As discussed in Finding 3, urban runoff discharges from MS4s are a leading cause of receiving water quality impairment in the San Diego Region and throughout the United States. Since discharges which cause or contribute to an exceedance of water quality standards must be controlled and are also prohibited (see section C.1. of Order No. R9-2002-0001), discharges to CWA section 303(d) water bodies of pollutants for which the waterbody is impaired must be controlled and prohibited. Therefore, commercial sites and activities tributary to these water bodies must implement additional controls to ensure that they are not discharging the pollutants which are causing or contributing to the impairment of these water bodies.

Regarding coastal lagoons and other sensitive water bodies, additional controls are needed to protect these valuable and unique resources. In their Nonpoint Source Program Strategy and Implementation Plan, the SWRCB and California Coastal Commission support additional controls for critical coastal areas, stating “the State will seek to attain and maintain applicable water quality standards, and

protect waters threatened by land uses, or by substantial expansion of existing land uses, by implementing additional management measures.”

The SDRWQCB has the discretion to require Jurisdictional Urban Runoff Program item F.3.c.(3)(c) in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.3.c.(4) Inspection of Commercial Sites and Sources (Commercial) and F.3.c.(5) Enforcement of Commercial Sites and Sources (Commercial) of the Jurisdictional Urban Runoff Management Program state the following:

Each Copermitttee shall inspect high priority commercial sites and sources as needed. Based upon site inspection findings, each Copermitttee shall implement all follow-up actions necessary to comply with this Order.

Each Copermitttee shall enforce its storm water ordinance for all commercial sites and sources as necessary to maintain compliance with this Order.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.3.c. Commercial (Existing Development) of Order No. R9-2002-0001.

Discussion: BMPs must be implemented for commercial sites and activities to reduce the discharge of pollutants from the sites and activities to the maximum extent practicable. Inspection of commercial sites is necessary to ensure that implemented BMPs are adequate. As discussed in Finding 24, inspections provide a necessary means by which Copermitttees can evaluate compliance with their ordinances and requirements of Order No. R9-2002-0001. Inspections are especially important for high risk commercial sites and activities, such as commercial sites and activities where urban runoff is not properly managed. If inspections identify noncompliance conditions, enforcement of storm water ordinance is also necessary to ensure adequate BMP implementation. Regarding inspection and enforcement measures, the US EPA states “Effective inspection and enforcement requires [...] penalties to deter infractions and intervention by the municipal authority to correct violations. Enforcement mechanisms [...] also must be described” (1992).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program items F.3.c.(4) and F.3.c.(5) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.d. RESIDENTIAL (EXISTING DEVELOPMENT)

In addition to the underlying broad legal authority citations listed above in section VII. of this Fact Sheet/Technical Report, the following specific legal authority item also generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.3.d. Residential (Existing Development) of Order No. R9-2002-0001. Other specific legal authority items applicable only to distinct directives of Jurisdictional Urban Runoff Management Program item F.3.d. are provided as necessary.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) provides that the Copermittee develop a proposed management program which includes "A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls."

F.3.d. Residential (Existing Development) of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall implement a Residential (Existing Development) Component to prevent or reduce pollutants in runoff from all residential land use areas and activities. At a minimum the residential component shall address:

- F.3.d.(1) Pollution Prevention*
- F.3.d.(2) Threat to Water Quality Prioritization*
- F.3.d.(3) BMP Implementation*
- F.3.d.(4) Enforcement of Residential Areas and Activities*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.3.d. Residential (Existing Development) of Order No. R9-2002-0001.

Discussion: CWA sections 402(p)(3)(B)(ii-iii) require each Copermittee to prohibit non-storm water discharges into its MS4 and to reduce the discharge of pollutants to the maximum extent practicable for all urban land uses. The purpose of these two broad requirements is to minimize the short and long-term impacts of urban runoff on receiving water quality. Land used for residential activities is clearly identified in the federal regulations as one of several high priority land uses from which pollutants in urban runoff discharges must be reduced to the maximum extent practicable by each Copermittee. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) requires the development of a proposed management program to reduce the discharge of pollutants in storm water to the maximum extent practicable. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) requires that this program include a component which addresses residential areas and activities.

Residential areas and activities have the potential to be significant sources of pollutants in urban runoff. In residential areas pollution sources conveyed by the MS4 include activities related to automobile maintenance, landscaping/gardening, home-improvement, pets, and others, including those described below in section F.3.d.(2). Through the DAMP, Orange County Copermittees have instituted or promoted residential pollution prevention BMPs, including street sweeping, household hazardous waste collections, and education. Nationally, education is increasingly being used as a tool for pollution prevention in residential areas, where the use of regulatory enforcement actions has traditionally been less than in other land use areas. Pollution prevention can encourage responsible residential nutrient management, such as proper fertilization rates and proper pet waste disposal, when a connection is established between such practices and local or regional water quality needs (see "A Survey of Residential Nutrient Behavior" in Nonpoint Source News Notes, July 2000). Similarly, source control is vital to protect urban watersheds from pesticides that are applied in residential areas and are transported to streams via the MS4. For example in a review, "Diazinon Sources in Runoff from the San Francisco Region," the Center for Watershed Protection concluded that, "the only real tool to control diazinon in urban watersheds is source control to either reduce the use of diazinon or to apply it in a safer manner." In addition, where structural BMPs or MS4 facilities are owned or operated by the residential community, pollution prevention activities taken by local governments can include maintenance guidance. For example, the Northern Virginia Regional Planning Commission offers maintenance guidance because after finding that reduced or improper maintenance by some private owners contributed to a higher failure rate of BMPs (see "Maintaining Your BMP: A guidebook for Private Owners and Operators in Northern Virginia").

To reduce the discharge of pollutants in urban runoff from residential areas and activities to the maximum extent practicable, BMPs must be implemented. As discussed in Finding 12, BMPs effectively reduce pollutants in urban runoff by emphasizing pollution prevention and source controls, followed by treatment controls. The residential existing development component will provide a program for the development and implementation of BMPs to address pollutants in storm water discharges from residential areas and activities.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.3.d. in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.d.(1) Pollution Prevention (Residential) for the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall include pollution prevention methods in its Residential (Existing Development) Component and shall encourage their use by all residents, where appropriate.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) generally applies to all directives under Jurisdictional Urban Runoff Management

Program item F.3.d. Residential (Existing Development) of Order No. R9-2002-0001.

Discussion: Each Copermittee must develop a program to reduce the discharge of pollutants to and from its MS4 to the maximum extent practicable. In order to achieve this level of pollution reduction, BMPs must be implemented. As discussed in Finding 12, pollution prevention (the reduction or elimination of pollutant generation at its source) is an essential aspect of BMP programs. By limiting the generation of pollutants, less pollutants are available to be washed from residential areas and activities, resulting in reduced pollutant loads in storm water discharges from these areas and activities. In addition, there is no need to control or treat pollutants that are not initially generated. Furthermore, pollution prevention BMPs are generally more cost effective than removal of pollutants by treatment facilities or cleanup of contaminated media.¹⁰⁵ In the Pollution Prevention Act of 1990, Congress established a national policy that emphasizes pollution prevention over control and treatment. Since pollution prevention is an effective and efficient means for reducing pollutant loads in storm water runoff, pollution prevention methods are an important aspect of BMPs to be included in the residential existing development component of the Jurisdictional URMP.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.3.d.(1) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.d.(2) Threat to Water Quality Prioritization (Residential) for the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall identify high priority residential areas and activities. At a minimum, these shall include:

- *Automobile repair and maintenance;*
- *Automobile washing;*
- *Automobile parking;*
- *Home and garden care activities and product use (pesticides, herbicides, and fertilizers);*
- *Disposal of household hazardous waste (e.g., paints, cleaning products, and other wastes generated during home improvement or maintenance activities);*
- *Disposal of pet waste;*
- *Disposal of green waste;*
- *Any other residential source that the Copermittee determines may contribute a significant pollutant load to the MS4; and*
- *Any residence tributary to a Clean Water Act section 303(d) impaired water body, where the residence generates pollutants for which the water body is impaired; and*
- *Any residence within or directly adjacent to or discharging directly to coastal waters or other receiving waters within an environmentally sensitive area (as defined in F. 1.b.(2)(a)vi. of this Order).*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

¹⁰⁵Center for Watershed Protection, 1998. Better Site: A Handbook for Changing Development Rules in Your Community.

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.3.d. Residential (Existing Development) of Order No. R9-2002-0001.

Discussion: The above residential areas and activities are identified as high priority threats to water quality due to their wide distribution, their association with pollutants of concern in urban runoff, and their historical mismanagement of associated urban runoff. Identification of high priority residential areas and activities will help focus BMP implementation efforts on these areas and activities. By focusing efforts on high priority areas and activities, the greatest potential for water quality improvements will result. Therefore, limited Copermittee staff time will be focused where it can be most effective.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.3.d.(2) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.d.(3)(a) and F.3.d.(3)(b) BMP Implementation (Residential) for the Jurisdictional Urban Runoff Management Program state the following:

- (a) *Each Copermittee shall designate a set of minimum BMPs for high threat to water quality residential areas and activities (as required under section F.3.d.(2)). The designated minimum BMPs for high threat to water quality residential areas and activities shall be area or activity specific.*
- (b) *Each Copermittee shall implement or require implementation of the designated minimum BMPs for high threat to water quality residential areas and activities. If particular minimum BMPs are infeasible for any specific site/source, each Copermittee shall require implementation of other equivalent BMPs. Each Copermittee shall also implement, or require implementation of, any additional BMPs as are necessary to comply with this Order.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.3.d. Residential (Existing Development) of Order No. R9-2002-0001.

Discussion: Copermittees must reduce the discharge of pollutants in storm water from residential areas and activities to the maximum extent practicable. To achieve this level of pollutant reduction, BMPs must be implemented (see Finding 11). Designation of a set of minimum BMPs for high threat residential areas and activities will help ensure that appropriate BMPs are implemented. These minimum BMPs will also serve as guidance as to the level of water quality protection required. While minimum BMPs will be required for all high threat residential areas and activities, implementation of particular minimum BMPs will be site and source specific in order to address different conditions for various areas and activities. BMPs to be implemented must comply with Order No. R9-2002-0001. As such, additional site specific BMPs may be necessary to comply with other aspects of Order No. R9-2002-0001.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program items F.3.d.(3)(a) and F.3.d.(3)(b) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.3.d.(3)(c) BMP Implementation (Residential) for the Jurisdictional Urban Runoff Management Program states the following:

- (c) *Each Copermittee shall implement, or require implementation of, any additional controls for residential areas and activities tributary to Clean Water Act Section 303(d) impaired water bodies (where a residential area or activity generates pollutants for which the water body is impaired) as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for residential areas within or directly adjacent to or discharging directly to coastal waters or other receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)vi. of this Order) as necessary to comply with this Order.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.3.d. Residential (Existing Development) of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

Discussion: CWA section 303(d) water bodies are water bodies that are not achieving the water quality objectives necessary to protect their beneficial uses. As discussed in Finding 3, urban runoff discharges from MS4s are a leading cause of receiving water quality impairment in the San Diego Region and throughout the United States. Since discharges which cause or contribute to an exceedance of water quality standards must be controlled and are also prohibited (see section C.1. of Order No. R9-2002-0001), discharges to CWA section 303(d) water bodies of pollutants for which the waterbody is impaired must be controlled and prohibited. Therefore, residential areas and activities tributary to these water bodies must implement additional controls to ensure that they are not discharging the pollutants which are causing or contributing to the impairment of these water bodies.

Regarding coastal lagoons and other sensitive water bodies, additional controls are needed to protect these valuable and unique resources. In their Nonpoint Source Program Strategy and Implementation Plan, the SWRCB and California Coastal Commission support additional controls for critical coastal areas, stating “the State will seek to attain and maintain applicable water quality standards, and protect waters threatened by land uses, or by substantial expansion of existing land uses, by implementing additional management measures.”

The SDRWQCB has the discretion to require Jurisdictional Urban Runoff Program item F.3.d.(3)(c) in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.3.d.(4) Enforcement of Residential Areas and Activities (Residential) for the Jurisdictional Urban Runoff Management Program states the following:

Each Copermitttee shall enforce its storm water ordinance for all residential areas and activities as necessary to maintain compliance with this Order.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) generally applies to all directives under Jurisdictional Urban Runoff Management Program item F.3.d. Residential (Existing Development) of Order No. R9-2002-0001.

Discussion: As discussed in Finding 24, enforcement of storm water ordinances, permits, and plans is an essential aspect of a Jurisdictional URMP. Enforcement measures increase the probability that non-compliance situations will not occur or will be corrected. Regarding enforcement measures, the US EPA states “Effective inspection and enforcement requires [...] penalties to deter infractions and intervention by the municipal authority to correct violations. Enforcement mechanisms [...] also must be described” (1992).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.3.d.(4) in Order No. R9-2002-0001 under the broad legal authority cited above.

F.4. EDUCATION COMPONENT

F.4. Education Component of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermitttee shall implement an Education Component using all media as appropriate to (1) measurably increase the knowledge of the target communities regarding MS4s, impacts of urban runoff on receiving waters, and potential BMP solutions for the target audience; and (2) to measurably change the behavior of target communities and thereby reduce pollutant releases to MS4s and the environment. At a minimum the education component shall address the following target communities:

- *Municipal Departments and Personnel*
- *Construction Site Owners and Developers*
- *Industrial Owners and Operators*
- *Commercial Owners and Operators*
- *Residential Community, General Public, and School Children*
- *Quasi-Governmental Agencies/Districts (i.e., educational institutions, water districts, sanitation districts, etc.)*

F.4.a. All Target Communities

The Education Program for each target audience may contain information on the following topics where applicable:

- *State and Federal water quality laws*
- *Requirements of local municipal permits and ordinances (e.g., storm water and grading ordinances and permits)*
- *Water conservation*
- *Impacts of urban runoff on receiving waters*
- *Watershed concepts (i.e., stewardship, connection between inland activities and coastal problems, etc.)*
- *Distinction between MS4s and sanitary sewers*
- *Importance of good housekeeping (e.g., sweeping impervious surfaces instead of hosing)*
- *Pollution prevention and safe alternatives*
- *Household hazardous waste collection*
- *Recycling*
- *BMPs: Site specific, structural and source control*
- *BMP maintenance*
- *Non-storm water disposal alternatives (e.g., all wash waters)*
- *Pet and animal waste disposal*
- *Proper solid waste disposal (e.g., garbage, tires, appliances, furniture, vehicles)*
- *Equipment and vehicle maintenance and repair*
- *Public reporting mechanisms*
- *Green waste disposal*
- *Integrated pest management*
- *Native vegetation*
- *Proper disposal of boat and recreational vehicle waste*
- *Traffic reduction, alternative fuel use*

F.4.b. Municipal, Construction, Industrial, Commercial, and Quasi-Governmental (educational institutions, water districts, sanitation districts, etc.) Communities

In addition to the topics listed in F.4.a. above, the Municipal, Construction, Industrial, Commercial, and Quasi-Governmental (Educational Institutions, Water Districts, Sanitation Districts) Communities may also be educated on the following topics where applicable:

- *Basic urban runoff training for all personnel*
- *Additional urban runoff training for appropriate personnel*
- *Illicit Discharge Detection and Elimination observations and follow-up during daily work activities*
- *Lawful disposal of catchbasin and other MS4 cleanout wastes*
- *Water quality awareness for Emergency/First Responders*
- *California's Statewide General NPDES Permit for Storm Water Discharges Associated with Industrial Activities (Except Construction).*
- *California's Statewide General NPDES Permit for Storm Water Discharges Associated with Construction Activities*
- *SDRWQCB's General NPDES Permit for Groundwater Dewatering*
- *401 Water Quality Certification by the SDRWQCB*
- *Statewide General NPDES Utility Vault Permit (NPDES No. CAG990002)*
- *SDRWQCB Waste Discharge Requirements for Dredging Activities*
- *Local requirements beyond statewide general permits*
- *Federal, state and local water quality regulations that affect development projects*
- *Water quality impacts associated with land development*
- *Alternative materials & designs to maintain peak runoff values*
- *How to conduct a storm water inspection*
- *Potable water discharges to the MS4*
- *Dechlorination techniques*
- *Hydrostatic testing*
- *Spill response, containment, & recovery*
- *Preventive maintenance*
- *How to do your job and protect water quality*

F.4.c. Residential, General Public, School Children Communities

In addition to the topics listed in F.4.a. above, the Residential, General Public, and School Children Communities may be educated on the following topics where applicable:

- *Public reporting information resources*
- *Residential and charity car-washing*
- *Community activities (e.g., "Adopt a Storm Drain, Watershed, or Highway" Programs, citizen monitoring, creek/beach cleanups, environmental protection organization activities, etc.)*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(6) provides that the proposed management program include "A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides, and fertilizer which will include, as appropriate, controls such as educational activities, permits, certifications, and other measures for commercial applicators and distributors, and controls for application in public right-of-ways and at municipal facilities."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(6) provides that the proposed management program include "A description of educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(4) provides that the proposed management program include "A description of appropriate educational and training measures for construction site operators."

Discussion: As discussed in Finding 23, implementation of an Education Component is a critical best management practice and an important aspect of the Jurisdictional URMP. The SWRCB Technical Advisory Committee "recognizes that education with an emphasis on pollution prevention is the fundamental basis for solving nonpoint source pollution problems." The US EPA finds that "An informed and knowledgeable community is critical to the success of a storm water management program since it helps ensure the following:

Greater support for the program as the public gains a greater understanding of the reasons why it is necessary and important. [...]

Greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters" (2000).

Regarding target audiences, US EPA states "The public education program should use a mix of appropriate local strategies to address the viewpoints and concerns of a variety of audiences and communities, including minority and disadvantaged

communities, as well as children” (2000). The target communities included in Education item 7 are based on recommendations of the TAC, which states:

“Target Audiences should include:

1. Government: Educate government agencies and officials to achieve better communication, consistency, collaboration, and coordination at the federal, state and local levels.
2. K-12/Youth Groups: Establish statewide education programs, including curricula, on watershed awareness and nonpoint source pollution problems and solutions, based on a state lead role building upon and coordinating with existing local programs.
3. Development Community: Educate the development community, including developers, contractors, architects, and local government planners, engineers, and inspectors, on nonpoint source pollution problems associated with development and redevelopment and construction activities and involve them in problem definitions and solutions.
4. Business and Industrial Groups.”

The required topics to be covered in the Education Component are based on topics of concern as discussed by the US EPA (1992) and the SWRCB Technical Advisory Committee. Additional education topics were also added based on the number of complaints received by the SDRWQCB and the Copermittees for various topics of concern.

US EPA identifies measurable goals for urban runoff education programs, including such goals as creation of a website, halting dumping of grease and other pollutants into the storm drain by a certain percentage of restaurants, and detecting a percent reduction in litter or animal waste in discharges (2000).

Public education was strongly emphasized in the 1993 DAMP implemented under the First and Second Term Permits. Consequently, the Copermittees already have well-developed education programs that may be readily reviewed and as necessary revised to satisfy the requirements of this Order. The specific detail provided in this section and other sections of the permit where education is identified as a necessary part of the Jurisdictional Program, is provided to establish a framework within which the Copermittees will review and as necessary update their already extensive programs.

The SDRWQCB has the discretion to require item F.4 of the Jurisdictional URMP in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.5. ILLICIT DISCHARGE DETECTION AND ELIMINATION COMPONENT

In addition to the underlying broad legal authority citations listed above in section VII. of this Fact Sheet/Technical Report, the following specific legal authority items also generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.5. Illicit Discharge and Detection Elimination Component of Order No. R9-2002-0001. Other specific legal authority items applicable only to distinct directives of Jurisdictional Urban Runoff Management Program item F.5. are provided as necessary.

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B) provides that the proposed management program “shall be based on a description of a program, including a schedule, to detect and remove (or require the discharger to the municipal storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(1) provides that the Copermittee include in its proposed management program “a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal storm sewer system.” This regulation excludes prohibition of those non-storm water discharges listed in Section B.1 of Order No. R9-2002-0001.

F.5. Illicit Discharge Detection and Elimination Component of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall implement an Illicit Discharge Detection and Elimination Component containing measures to actively seek and eliminate illicit discharges and connections. At a minimum the Illicit Discharge Detection and Elimination Component shall address:

- F.5.a Illicit Discharges and Connections*
- F.5.b Dry Weather Monitoring*
- F.5.c Investigation / Inspection and Follow-up*
- F.5.d Elimination of Illicit Discharges and Connections*
- F.5.e Enforce Ordinances*
- F.5.f Prevent and Respond To Sewage Spills (Including from Private Laterals and Failing Septic Systems) and Other Spills*
- F.5.g Facilitate Public Reporting of Illicit Discharges and Connections – Public Hotline*
- F.5.h Facilitate Disposal of Used Oil and Toxic Materials*
- F.5.i Limit Infiltration From Sanitary Sewer to MS4*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B) and 40 CFR 122.26(d)(2)(iv)(B)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.5. Illicit Discharge Detection and Elimination Component of Order No. R9-2002-0001.

Discussion: Illicit discharges and connections can constitute a significant portion of urban runoff discharges from MS4s. US EPA states “A study conducted in 1987 in Sacramento, California, found that almost one-half of the water discharged from a local MS4 was not directly attributable to precipitation runoff. A significant portion of these dry weather flows were from illicit and/or inappropriate discharges and connections to the MS4” (2000).

MS4 discharges attributable to illicit discharges and connections can be a significant source of pollutant loading to receiving waters. The NURP study concluded that the quality of urban runoff can be adversely impacted by illicit discharges and connections (US EPA, 1983). Furthermore, US EPA states that illicit discharges and connections result in “untreated discharges that contribute

high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria to receiving waterbodies. Pollutant levels from these illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic wildlife and human health” (2000).

For these reasons, CWA section 402(p)(3)(B)(ii) requires each Copermittee to prohibit non-storm water discharges into its MS4. The detection and elimination of illicit discharges and connections is also clearly identified in the federal regulations as a high priority (40 CFR 122.26(d)(2)(iv)(B) and 122.26(d)(2)(iv)(B)(1)). As guidance for detecting and eliminating illicit discharges and connections, the US EPA suggests “The proposed management program must include a description of inspection procedures, orders, ordinances, and other legal authorities necessary to prevent illicit discharges to the MS4” (1992).

The SDRWQCB has the discretion to require Jurisdictional Urban Runoff Management Program item F.5 in Order No. R9-2002-0001 under the broad legal authority cited above.

F.5.a. Illicit Discharges and Connections of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall implement a program to actively seek and eliminate illicit discharges and connections into its MS4. The program shall address all types of illicit discharges and connections excluding those non-storm water discharges not prohibited by the Copermittee in accordance with Section B. of this Order.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B) and 40 CFR 122.26(d)(2)(iv)(B)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.5. Illicit Discharge Detection and Elimination Component of Order No. R9-2002-0001.

Discussion: See discussion for F.5 Illicit Discharge Detection and Elimination Component above.

F.5.b. Dry Weather Monitoring of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall conduct dry weather inspections, field screening, and analytical monitoring of MS4 outfalls within its jurisdiction to detect illicit discharges and connections in accordance with Attachment E of this Order.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B) and 40 CFR 122.26(d)(2)(iv)(B)(1) generally apply to all directives under

Jurisdictional Urban Runoff Management Program item F.5. Illicit Discharge Detection and Elimination Component of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(2) provides that the Copermittee include in its proposed management program “a description of procedures to conduct on-going field screening activities during the life of the permit, including areas or locations that will be evaluated by such field screens.”

Discussion: Since illicit discharges and connections can be significant sources of pollutants in urban runoff, and can cause receiving water degradation, the locations of all illicit discharges and connections need to be identified. An effective means for achieving this is analytical monitoring of dry weather urban runoff flows. Through frequent, geographically widespread MS4 inspections, field screening and laboratory analysis of dry weather urban runoff, the Copermittees can identify locations potentially impacted by illicit discharges or connections. If results indicate that an illicit discharge or connection may be present, then follow-up procedures can be followed to pinpoint the source of the illicit discharge or connection. Once the illicit discharge or connection source is identified, steps may be taken to eliminate the discharge or connection. In this manner, dry weather analytical monitoring of urban runoff can lead to the elimination of illicit discharges and connections and the reduction of pollutants in urban runoff.

The Copermittees directed in Attachment E to review their Illegal Discharge and Illicit Connections programs and update them to include more frequent, geographically widespread inspections, field screening analysis, and laboratory analysis of specific parameters. Although the minimum number of inspections is set at twice during the period of May 1st to September 30th of each year, it is expected that more frequent inspections may be necessary. An emphasis is placed on designing a program with clear criteria and rationale. The programs designed should be flexible and implemented in a manner that will enable the Copermittees to identify illicit discharges and illegal connections, respond to citizen complaints, and follow-up on ongoing investigations to identify and eliminate sources.

The SDRWQCB has the discretion to require Jurisdictional Urban Runoff Management Program item F.5.b in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.5.c. Investigation/Inspection and Follow-up of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall investigate and inspect any portion of the MS4 that, based on dry weather monitoring results or other appropriate information, indicates a reasonable potential for illicit discharges, illicit connections, or other sources of non-storm water (including non-prohibited discharge(s) identified in Section B. of this Order). Each Copermittee shall establish criteria to identify portions of the system where such follow-up investigations are appropriate.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B) and 40 CFR 122.26(d)(2)(iv)(B)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.5. Illicit Discharge Detection and Elimination Component of Order No. R9-2002-0001.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(3) provides that the Copermittee include in its proposed management program “procedures to be followed to investigate portions of the separate storm sewer system that, based on the results of the field screen, or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources of non-storm water.”

Discussion: The quality of urban runoff can be adversely impacted by illicit discharges and connections (US EPA, 1983). Elimination of these sources of pollutants can therefore result in a dramatic improvement in the quality of urban runoff discharges from MS4s, which in turn can result in improved receiving water quality. If field screening results indicate the presence of illicit discharges to the MS4, that portion of the MS4 must be investigated to eliminate the illicit discharge and prevent further potential degradation of receiving waters. To determine when follow-up procedures should be undertaken, US EPA states “Applicants should propose criteria to identify portions of the system where follow-up investigations are appropriate” (1992).

Procedures to investigate priority locations for illicit connections include sampling for such constituents as Total Coliform Bacteria Fecal Coliform Bacteria, Enterococcus Bacteria, surfactants (MBAS), residual chlorine, oil and grease, selected dissolved metals, fluoride, phenolic compounds, and potassium. Inspection of the storm sewer system, use of remote-control cameras, on-site inspections, and dye testing at priority or suspect facilities, and additional discharge monitoring to pinpoint pollutant sources are also important elements of such programs.

The SDRWQCB has the discretion to require Jurisdictional Urban Runoff Management Program item F.5.c in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.5.d. Elimination of Illicit Discharges and Connections of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall eliminate all detected illicit discharges, discharge sources, and connections immediately.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B) and 40 CFR 122.26(d)(2)(iv)(B)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.5. Illicit Discharge Detection and Elimination Component of Order No. R9-2002-0001.

Water Quality Control Plan for the San Diego Basin Waste Discharge Prohibition 8 states "Any discharge to a storm water conveyance system that is not entirely composed of 'storm water' is prohibited unless authorized by the Regional Board." California Water Code Section 13263(a) provides that waste discharge requirements prescribed by the SDRWQCB implement the Basin Plan.

Discussion: Under CWA section 402(p)(3)(B)(ii) and Water Quality Control Plan for the San Diego Basin Waste Discharge Prohibition 8 non-storm water discharges are prohibited. By definition, illicit discharges and connections are non-storm water discharges. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B) also requires illicit discharges and connections to be detected and removed. Therefore, any detected illicit discharges or connections must be eliminated. US EPA supports elimination of detected illicit discharges and connections when it states "Once the source is identified, the offending discharger should be notified and directed to correct the problem. Education efforts and working with the discharger can be effective in resolving the problem before taking legal action."

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.5.d in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.5.e. Enforce Ordinances of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall implement and enforce its ordinances, orders, or other legal authority to prevent illicit discharges and connections to its MS4. Each Copermittee shall also implement and enforce its ordinance, orders, or other legal authority to eliminate detected illicit discharges and connections to it MS4.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B) and 40 CFR 122.26(d)(2)(iv)(B)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.5. Illicit Discharge Detection and Elimination Component of Order No. R9-2002-0001.

Discussion: To prevent and eliminate illicit discharges and connections, the Copermittee must implement and enforce its ordinance, orders, or other legal authority over illicit discharges and connections. The US EPA states that this "proposed management program component should describe how the prohibition on illicit discharges will be implemented and enforced. The description could include a schedule and allocation of staff and resources. A direct linkage should exist between this program component and the adequate legal authority requirements for the ordinances and orders to effectively implement the prohibition of illicit discharges" (1992).

The SDRWQCB has the discretion to require Jurisdictional Urban Runoff Management Program item F.5.e in Order No. R9-2002-0001 under the broad legal authority cited above.

F.5.f. Prevent and Respond to Sewage Spills (Including from Private Laterals and Failing Septic Systems) and Other Spills of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall prevent, respond to, contain and clean up all sewage and other spills that may discharge into its MS4 from any source (including private laterals and failing septic systems). Spill response teams shall prevent entry of spills into the MS4 and contamination of surface water, ground water and soil to the maximum extent practicable. Each Copermittee shall coordinate spill prevention, containment and response activities throughout all appropriate departments, programs and agencies to ensure maximum water quality protection at all times.

Each Copermittee shall develop and implement a mechanism whereby it is notified of all sewage spills from private laterals and failing septic systems into its MS4. Each Copermittee shall prevent, respond to, contain and clean up sewage from any such notification.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B) and 40 CFR 122.26(d)(2)(iv)(B)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.5. Illicit Discharge Detection and Elimination Component of Order No. R9-2002-0001.

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(4) provides that the Copermittee include in its proposed management program “a description of procedures to prevent, contain, and respond to spills that may discharge into the municipal separate storm sewer.”

Discussion: Sewage and other spills frequently enter the MS4, to be carried and discharged to receiving waters. Such spills into and from the MS4 can severely impair receiving water quality and pose a significant threat to public health. To avoid these negative impacts, the proposed management program must describe procedures that the Copermittee will implement to prevent, contain, and respond to spills that may discharge into the MS4. The US EPA states “The goal of a spill prevention program is to reduce the frequency and extent of spills of hazardous materials which can cause water quality impairment. Spill containment programs may establish minimum chemical storage and handling requirements, require users to submit prevention and control plans, and ensure site inspections. [...] Spill response teams should attempt to prevent or minimize contamination of surface water, groundwater, and soil. Spill response programs often require a coordinated response from a number of municipal departments. Municipalities should describe how response procedures within these programs attempt to mitigate potential pollutant discharges to surface waters and the MS4” (1992). Spills from private laterals have been identified in the San Diego Region as a significant source of illicit discharges to MS4s and must be addressed by the Copermittees. Failing private septic systems have also been identified as potential illicit discharges that should be addressed by Copermittees that may have septic systems within their jurisdictions. The Copermittees are directed to implement a program in which they are notified of all such spills. One mechanism to achieve compliance with this requirement is to update business licenses or permits of plumbers or other potential responders (e.g. apartment management agencies,

homeowners associations, etc) to these spills to report them to the Copermittee in whose jurisdiction the spill occurred.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.5.f in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.5.g. Facilitate Public Reporting of Illicit Discharges and Connections – Public Hotline of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall promote, publicize and facilitate public reporting of illicit discharges or water quality impacts associated with discharges into or from MS4s. Each Copermittee shall facilitate public reporting through development and operation of a public hotline. Public hotlines can be Copermittee-specific or shared by Copermittees. All storm water hotlines shall be capable of receiving reports in both English and Spanish 24 hours per day / seven days per week. Copermittees shall respond to and resolve each reported incident. All reported incidents, and how each was resolved, shall be summarized in each Copermittee's individual Jurisdictional URMP Annual Report.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B) and 40 CFR 122.26(d)(2)(iv)(B)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.5. Illicit Discharge Detection and Elimination Component of Order No. R9-2002-0001.

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(4) provides that the Copermittee include in its proposed management program “a description of a program to promote, publicize, and facilitate public reporting of the presence of illicit discharges or water quality impacts associated with discharges from municipal separate storm sewers.”

Discussion: Regarding public reporting of illicit discharges or water quality impacts associated with discharges from MS4s, the US EPA states “Timely reporting by the public of improper disposal and illicit discharges are critical components of programs to control such sources. To enhance public awareness, programs may include setting up a public information hotline number, educating school students, community and volunteer watchdog groups, using inserts into utility bills, and newspaper, radio, and television announcements to inform the public about what to look for and how to report incidents” (1992). As indicated in the Report of Waste Discharge and proposed DAMP, the Orange County Copermittees already have mechanisms in place to facilitate public reporting of potential illicit discharges that meet or exceed the requirements of this section.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.5.g in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.5.h. Facilitate Disposal of Used Oil and Toxic Materials of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall facilitate the proper management and disposal of used oil, toxic materials, and other household hazardous wastes. Such facilitation shall include educational activities, public information activities, and establishment of collection sites operated by the Copermittee or a private entity. Neighborhood collection of household hazardous wastes is encouraged.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B) and 40 CFR 122.26(d)(2)(iv)(B)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.5. Illicit Discharge Detection and Elimination Component of Order No. R9-2002-0001.

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(6) provides that the Copermittee include in its proposed management program “a description of educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials.”

Discussion: The US EPA states “If private individuals find the proper disposal of used oil or toxic materials difficult, incidents of improper disposal (such as into the MS4) increase” (1992). Therefore Copermittees are required to propose a program component that will facilitate the proper disposal of used oil and toxics from households by establishing municipally operated collection sites, or ensuring that privately operated collections sites are available. The US EPA suggests this program component “should describe outreach plans to handlers of used oil and to the public, and operating plans for oil and household waste collection programs” (1992). As indicated in the Report of Waste Discharge and proposed DAMP, the Orange County Copermittees already have mechanisms in place to facilitate the proper management and disposal of used oil and toxic materials that meets or exceed the requirements of this section.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.5.h in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.5.i. Limit Infiltration from Sanitary Sewer to MS4 / Provide Preventive Maintenance of Both of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall implement controls and measures to limit infiltration of seepage from municipal sanitary sewers to MS4s through thorough, routine preventive maintenance of the MS4. Each Copermittee that operates both a municipal sanitary sewer system and a MS4 shall implement controls and measures to limit infiltration of seepage from the municipal sanitary sewers to the MS4s that shall include overall sanitary sewer and MS4 surveys and thorough, routine preventive maintenance of both.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B) and 40 CFR 122.26(d)(2)(iv)(B)(1) generally apply to all directives under Jurisdictional Urban Runoff Management Program item F.5. Illicit Discharge Detection and Elimination Component of Order No. R9-2002-0001.

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(4) provides that the Copermittee include in its proposed management program “a description of controls to limit infiltration of seepage from municipal sanitary sewers to municipal separate storm sewer systems where necessary.”

Discussion: Regarding seepage from sanitary sewers, the US EPA states “Raw sewage can seep from sanitary sewage collection systems through leaks and cracks in aging pipes, poorly constructed manholes and joints, and main breaks. Sewage from a leaky sanitary system can flow to storm sewers or contaminate ground water supplies. Interaction between sanitary sewers and separate storm sewers may occur at manholes and where sanitary sewer laterals and storm sewer trenches cross. Separate storm sewers and sanitary sewers may share the same trench, which is generally filled with very porous material such as gravel” (1992). When raw sewage enters the storm water system, it can reach receiving waters untreated, posing a threat to water quality and public health. In order to prevent this condition, the Copermittees are directed to perform these inspection and maintenance activities. To the extent that a Copermittee operates both a MS4 and a sanitary sewer, the Copermittee is directed to coordinate the thorough, routine preventive maintenance of both systems. In cases where the Copermittee does not operate the sanitary sewer, the Copermittee is implicitly encouraged to coordinate the maintenance of the MS4 and sanitary sewer with the operator of the sanitary sewer, but must at a minimum ensure the thorough, routine preventive maintenance of the MS4 system.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.5.i in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.6. COMMON INTEREST AREAS AND HOMEOWNERS ASSOCIATIONS

F.6 Common Interest Areas and Homeowners Associations Component of the Jurisdictional Urban Runoff Management Plan states the following:

- a. *Each Copermittee shall develop and implement a plan for ensuring that urban runoff within common interest areas from private roads, drainage facilities, and other components of the storm water conveyance system, including those managed by associations, meets the objectives of this Order.*
- b. *As part of its individual Jurisdictional URMP Annual Report, each Copermittee shall describe the measures taken to ensure that urban runoff from common interest areas to the MS4 meets the objectives of this Order.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Discussion: Many residential neighborhoods and some commercial areas within the jurisdiction of the Copermittees are within common interest developments and are, therefore, subject to management of common areas by associations. The Declaration of the Covenants, Conditions and Restrictions (CC&Rs) contains the ground rules for the operation of such an association. CC&Rs are an appropriate method for protecting the common plan of developments and to provide for a mechanism for financial support for the upkeep of common areas including roads, storm drains, and other components of storm water conveyance systems.

In certain cases the Copermittees may neither own nor operate the storm water conveyance systems within common interest developments. Presently, some Copermittees have agreements with the responsible association(s) in which the association either allows the Copermittee to implement best management practices or the association agrees to uphold the intent of the DAMP. Rather than list the associations as Copermittees, this Order interprets common interest areas as property subject to the codes and ordinance and enforcement mechanisms of the city or county in which it resides and, therefore, holds the local government responsible for the discharge of wastes from private storm water conveyance systems.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.6 in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.7. PUBLIC PARTICIPATION COMPONENT

F.7. Public Participation Component of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermittee shall incorporate a mechanism for public participation in the implementation of the Jurisdictional URMP.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Discussion: Public participation can be an important tool for strengthening an urban runoff management program. US EPA strongly supports public participation when it states "An active and involved community is crucial to the success of a storm water management program because it allows for:

Broader public support since citizens who participate in the development and decision making process are partially responsible for the program and, therefore, may be less likely to raise legal challenges to the program and more likely to take an active role in its implementation;

Shorter implementation schedules due to fewer obstacles in the form of public and legal challenges and increased sources in the form of citizen volunteers;

A broader base of expertise and economic benefits since the community can be a valuable, and free, intellectual resource; and

A conduit to other programs as citizens involved in the storm water program development process provide important cross-connections and relationships with other community and government programs. This benefit is particularly valuable when trying to implement a storm water program on a watershed basis, as encouraged by EPA" (2000).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.7 in Order No. R9-2002-0001 under the broad legal authority cited above.

F.8. ASSESSMENT OF JURISDICTIONAL URMP EFFECTIVENESS COMPONENT

F.8. Assessment of Jurisdictional URMP Effectiveness Component of the Jurisdictional Urban Runoff Management Program states the following:

- a. *As part of its individual Jurisdictional URMP, each Copermittee shall develop a long-term strategy for assessing the effectiveness of its individual Jurisdictional URMP. The long-term assessment strategy shall identify specific direct and indirect measurements that each Copermittee will use to track the long-term progress of its individual Jurisdictional URMP towards achieving improvements in receiving water quality. Methods used for assessing effectiveness shall include the following or their equivalent: surveys, pollutant loading estimations, and receiving water quality monitoring. The long-term strategy shall also discuss the role of monitoring data in substantiating or refining the assessment.*
- b. *As part of its individual Jurisdictional URMP Annual Report, each Copermittee shall include an assessment of the effectiveness of its Jurisdictional URMP using the direct and indirect assessment measurements and methods developed in its long-term assessment strategy.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(v) provides that the Copermittees must include "Estimated reductions in loadings of pollutants from discharges of municipal storm sewer constituents from municipal storm sewer systems expected as the result of the municipal storm water quality management program. The assessment shall also identify known impacts of storm water controls on ground water." Under Federal NPDES regulation 40 CFR 122.42(c) applicants must provide annual reports on the progress of their storm water management programs.

Discussion: Regarding the assessment of the effectiveness of URMPs, the US EPA states that "At a minimum, applicants must submit estimated reductions in pollutant loads expected to result from implemented controls and describe known impacts of storm water controls on groundwater" (1992). The US EPA suggests that the assessments include direct and indirect measurements of effectiveness, stating that "Reductions in pollutant loads due to the implementation and maintenance of structural controls provide direct measurements of the effectiveness of the storm water management program. In addition, EPA encourages applicants to go beyond the minimum requirement and assess the

effectiveness of their storm water management program through other direct measurements as well as indirect measurements" (1992). The US EPA also recommends that monitoring data be used to substantiate or refine the assessment, suggesting that "the estimated removal efficiencies can be refined through the monitoring program. [...] Throughout the permit term, the municipality must submit refinements to its assessment or additional direct measurements of program effectiveness in its annual report" (1992). Finally, the US EPA suggests that the assessment be used for long-term assessment of progress when it states "The applicant should use direct measurements of program effectiveness as it begins to assess its long-term progress in improving water quality through storm water management practices. [...] [A]pplicants are encouraged to use direct measurements of program effectiveness, such as annual pollutant loads, event mean concentrations, and seasonal pollutant loadings, to begin to estimate long-term trends" (1992).

The SDRWQCB has discretion to require Jurisdiction Urban Runoff Management Program item F.8 in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

F.9. FISCAL ANALYSIS COMPONENT

F.9. Fiscal Analysis Component of the Jurisdictional Urban Runoff Management Program states the following:

Each Copermitttee shall secure the resources necessary to meet the requirements of this Order. As part of its individual Jurisdictional URMP, each Copermitttee shall develop a strategy to conduct a fiscal analysis of its urban runoff management program in its entirety. In order to demonstrate sufficient financial resources to implement the conditions of this Order, each Copermitttee shall conduct an annual fiscal analysis as part of its individual Jurisdictional URMP Annual Report. This analysis shall, for each fiscal year covered by this Order, evaluate the expenditures (such as capital, operation and maintenance, education, and administrative expenditures) necessary to accomplish the activities of the Copermitttee's urban runoff management program. Such analysis shall include a description of the source(s) of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(vi) provides that "[The Copermitttee must submit] for each fiscal year to be covered by the permit, a fiscal analysis of the necessary capital and operation and maintenance expenditures necessary to accomplish the activities of the programs under paragraphs (d)(2)(iii) and (iv) of this section. Such analysis shall include a description of the source of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds."

Discussion: A fiscal analysis can be an important planning tool. The US EPA finds that "examining the levels of proposed spending and funding allows the permitting authority to gauge the ability of the applicant to implement the program and predict its effectiveness. The fiscal analysis also will help the [SDRWQCB] determine whether the applicant has met the statutory requirement of reducing the discharge

of pollutants to the MS4 to the maximum extent practicable. Finally, the estimates help the applicant evaluate the feasibility and cost-effectiveness of its program” (1992).

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management item F.9 in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

G. IMPLEMENTATION OF JURISDICTIONAL URMP

G. Implementation of Jurisdictional URMP states the following:

*Each Copermittee shall have completed full implementation of all requirements of the Jurisdictional URMP section of this Order no later than **365 days after adoption** of this Order, except as stated as follows: Within 180 days of development of the model SUSMP, each Copermittee shall adopt its own local SUSMP, and amended ordinances consistent with the model SUSMP, and shall submit both (local SUSMP and amended ordinances) to the SDRWQCB.*

Following the adoption of the Order and prior to the full implementation of the Jurisdictional URMP, the Copermittees shall at a minimum implement the provisions and commitments of the proposed DAMP submitted in September 2000.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Discussion: The requirements of the NPDES regulations for urban runoff have been in place for many years. Falling under these regulations, the Copermittees should currently be implementing adequate urban runoff programs to be in compliance with the regulations. The requirements in Order No. R9-2002-0001 are based on the NPDES regulations; therefore, the vast majority of the requirements in Order No. R9-2002-0001 should already be implemented by the Copermittees. For this reason, implementation schedules of 180 days and 365 days should be more than adequate to meet the requirements of Order No. R9-2002-0001.

The SDRWQCB has discretion to require Implementation of Jurisdictional URMP item G. in Order No. R9-2002-0001 under the broad legal authority cited above.

H. SUBMITTAL OF JURISDICTIONAL URMP DOCUMENT

H. Submittal of Jurisdictional URMP Document states the following:

The written account of the overall program to be conducted by each Copermittee within its jurisdiction during the five-year life of this Order is referred to as the “Jurisdictional URMP Document”.

1. *Individual – Each Copermittee shall submit to the Principal Permittee(s) an individual Jurisdictional URMP document which describes all activities it has undertaken or is undertaking to implement the requirements of each component of the Jurisdictional URMP section F. of this Order.*
 - a. *At a minimum, the individual Jurisdictional URMP document shall contain the following information for the following components:*

(1) *Construction Component*

- (a) *Which pollution prevention methods will be required for implementation, and how and where they will be required*
- (b) *Updated grading ordinances*
- (c) *A description of the modified construction and grading approval process*
- (d) *Updated construction and grading project requirements in local grading and construction permits*
- (e) *A completed watershed-based inventory of all construction sites*
- (f) *A completed prioritization of all construction sites based on threat to water quality*
- (g) *Which BMPs will be implemented, or required to be implemented, for each priority category*
- (h) *How BMPs will be implemented, or required to be implemented, for each priority category*
- (i) *Planned inspection frequencies for each priority category*
- (j) *Methods for inspection*
- (k) *A description of enforcement mechanisms and how they will be used*
- (l) *A description of how non-compliant sites will be identified and the process for notifying the SDRWQCB, including a list of current non-compliant sites*
- (m) *A description of the construction education program and how it will be implemented*

(2) *Municipal (Existing Development) Component*

- (a) *Which pollution prevention methods will be required for implementation, and how and where they will be required*
- (b) *A completed watershed-based inventory of all municipal land use areas and activities*
- (c) *A completed prioritization of all municipal areas and activities based on threat to water quality*
- (d) *Which BMPs will be implemented, or required to be implemented, for each priority category*
- (e) *How BMPs will be implemented, or required to be implemented, for each priority category*
- (f) *Municipal maintenance activities and schedules*
- (g) *Management strategy for pesticides, herbicides, and fertilizer use.*
- (h) *Planned inspection frequencies for the high priority category*
- (i) *Methods for inspection*
- (j) *A description of enforcement mechanisms and how they will be used*

(3) *Industrial (Existing Development) Component*

- (a) *Which pollution prevention methods will be required for implementation, and how and where they will be required*
- (b) *A completed watershed-based inventory of all industrial sites*
- (c) *A completed prioritization of all industrial sites based on threat to water quality*
- (d) *Which BMPs will be implemented, or required to be implemented, for each priority category*
- (e) *How BMPs will be implemented, or required to be implemented, for each priority category*
- (f) *A description of the monitoring program to be conducted, or required to be conducted*
- (g) *Planned inspection frequencies for each priority category*
- (h) *Methods for inspection*
- (i) *A description of enforcement mechanisms and how they will be used*
- (j) *A description of how non-compliant sites will be identified and the process for notifying the SDRWQCB, including a list of current non-compliant sites*

(4) *Commercial (Existing Development) Component*

- (a) *Which pollution prevention methods will be required for implementation, and how and where they will be required*
- (b) *A completed watershed-based inventory of high priority commercial sites*

- (c) *Which BMPs will be implemented, or required to be implemented, for high priority sites*
 - (d) *How BMPs will be implemented, or required to be implemented, for high priority sites*
 - (e) *Planned inspection frequencies for high priority sites*
 - (f) *Methods for inspection*
 - (g) *A description of enforcement mechanisms and how they will be used*
- (5) *Residential (Existing Development) Component*
- (a) *Which pollution prevention methods will be encouraged for implementation, and how and where they will be encouraged*
 - (b) *A completed inventory of high priority residential areas and activities*
 - (c) *Which BMPs will be implemented, or required to be implemented, for high priority areas and activities*
 - (d) *How BMPs will be implemented, or required to be implemented, for high priority areas and activities*
 - (e) *A description of enforcement mechanisms and how they will be used*
- (6) *Education Component*
- (a) *A description of the content, form, and frequency of education efforts for each target community*
- (7) *Illicit Discharges Detection and Elimination Component*
- (a) *A description of the program to actively seek and eliminate illicit discharges and connections*
 - (b) *A description of dry weather monitoring to be conducted to detect illicit discharges and connections (see Attachment E)*
 - (c) *A description of investigation and inspection procedures to follow-up on dry weather monitoring results or other information which indicate potential for illicit discharges and connections*
 - (d) *A description of procedures to eliminate detected illicit discharges and connections*
 - (e) *A description of enforcement mechanisms and how they will be used*
 - (f) *A description of methods to prevent, respond to, contain, and clean up all sewage (including spills from private laterals and failing septic systems) and other spills in order to prevent entrance into the MS4*
 - (g) *A description of the mechanism to receive notification of spills from private laterals*
 - (h) *A description of efforts to facilitate public reporting of illicit discharges and connections, including a public hotline*
 - (i) *A description of efforts to facilitate proper disposal of used oil and other toxic materials*
 - (j) *A description of controls and measures to be implemented to limit infiltration of seepage from sanitary sewers to MS4s*
 - (k) *A description of routine preventive maintenance activities on the sanitary system (where applicable) and the MS4*
- (8) *Public Participation Component*
- (a) *A description of how public participation will be included in the implementation of the Jurisdictional URMP*
- (9) *Assessment of Jurisdictional URMP Effectiveness Component*
- (a) *A description of strategies to be used for assessing the long-term effectiveness of the individual Jurisdictional URMP.*

- (10) *Fiscal Analysis Component*
 - (a) *A description of the strategy to be used to conduct a fiscal analysis of the urban runoff management program.*
 - (11) *Land-Use Planning for New Development and Redevelopment Component*
 - (a) *Workplan for inclusion in General Plan (or equivalent plan) of water quality and watershed protection principles and policies*
 - (b) *Development project requirements in local development permits*
 - (c) *Participation efforts conducted in the development of the Model SUSMP*
 - (d) *Environmental review processes revisions*
 - (e) *A description of the planning education program and how it will be implemented*
 - (12) *Fire Fighting*
 - (a) *A description of a program to reduce pollutants from non-emergency fire fighting flows identified by the Copermittee to be significant sources of pollutants.*
 - (13) *Common Interest Areas and Homeowners Associations*
 - (a) *A description of the program that will be implemented to ensure that urban runoff within common interest areas from private roads, drainage facilities, and other components of the storm water conveyance system including those managed by associations meets the objectives of this Order.*
- b. *Each Copermittee shall submit to the Principal Permittee each part of its individual Jurisdictional URMP document by the dates specified by the Principal Permittee.*
 - c. *In addition to submittal of the Jurisdictional URMP document, each Copermittee shall submit to the SDRWQCB its own adopted local SUSMP consistent with the submitted Model SUSMP, as described in section F.1.b.(2). of this Order. Each Copermittee's own local SUSMP, along with its amended ordinances, shall be submitted to the SDRWQCB within 180 days of the submittal of the Model SUSMP to the SDRWQCB.*
2. *Unified – The Principal Permittee(s) shall submit the unified Jurisdictional URMP document to the SDRWQCB. The unified Jurisdictional URMP document shall be submitted in two parts (the collected Jurisdictional URMPs and the model SUSMP).*
- a. *The unified Jurisdictional URMP document submittal shall address the requirements of the entire Jurisdictional URMP sections F.1 – F.9. of this Order, with the exception of the local SUSMP requirements (which are to be implemented 180 days after approval of the model SUSMP by the SDRWQCB).*
 - b. *The unified Jurisdictional URMP document submittal shall contain a section covering common activities conducted collectively by the Copermittees including jointly developed reporting formats (section O.4), to be produced by the Principal Permittee(s), and the thirteen individual Jurisdictional URMP documents.*
 - c. *The Principal Permittee(s) shall be responsible for the development and production of a stand alone Model SUSMP document meeting the requirements of section F.1.b.(2) of this Order.*
 - d. *The Principal Permittee(s) shall submit the unified Jurisdictional URMP document, including the Model SUSMP, to the SDRWQCB within **365 days of adoption** of this Order.*
3. *Universal Reporting Requirements*
- All individual and unified Jurisdictional URMP document submittals shall include an executive summary, introduction, conclusion, recommendations, and signed certified statement. Each Copermittee shall submit its individual Jurisdictional Urban Runoff Management Program Document with a signed certified statement. The Principal Permittee(s) shall submit a signed*

certified statement referring to its individual Jurisdictional Urban Runoff Management Program Document, the section covering common activities conducted collectively by the Copermittees, and the Model SUSMP document meeting the requirements of section F.1.b.(2) of this Order as produced by the Principal Permittee(s).

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: California Water Code section 13267 provides that “the regional board may require than any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

Discussion: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv) require each Copermittee to develop and implement an urban runoff management program. The SDRWQCB must assess the urban runoff management program to ensure that it is adequate to prohibit non-storm water discharges and reduce pollutant discharges to and from the MS4 to the maximum extent practicable. In order for the SDRWQCB to assess the urban runoff management program, each Copermittee must submit to the SDRWQCB a description of their program. The description must detail all activities the Copermittee is undertaking to implement the requirements of each component of the Jurisdictional URMP section of Order No. R9-2002-0001.

The submittal schedule of 365 days for Jurisdictional URMP documents is designed to provide each Copermittee some time to develop its Jurisdictional URMP. However, this time is limited since the Jurisdictional URMP requirements are based on NPDES regulations that have been in place for many years. The vast majority of the requirements in the Jurisdictional URMP should already be implemented by each Copermittee. Therefore, the provided submittal schedule should be more than adequate for each Copermittee to rework its Jurisdictional URMP to meet the Jurisdictional URMP requirements of Order No. R9-2002-0001.

Compilation of the individual Jurisdictional URMP documents into a unified Jurisdictional URMP document by the Principal Permittee will ease the effort needed to assess and digest the information contained in the documents. The Principal Permittee’s provision of a summary covering common activities conducted collectively by the Copermittees will provide a useful overview of urban runoff management efforts within the County of San Diego. This type of compilation of the Copermittees’ documents has been recommended by the Copermittees in the past.

The SDRWQCB has discretion to require Submittal of Jurisdictional URMP Document item H. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

I. SUBMITTAL OF JURISDICTIONAL URMP ANNUAL REPORT

I. Submittal of Jurisdictional URMP Annual Report states the following:

1. *Individual - Each individual Jurisdictional URMP Annual Report shall be a documentation of the activities conducted by each Copermittee during the past annual reporting period. Each Jurisdictional URMP Annual Report shall, at a minimum, contain the following*
 - a. *Comprehensive description of all activities conducted by the Copermittee to meet all requirements of each component of the Jurisdictional URMP section of this Order;*
 - F.1. *Land-Use Planning for New Development and Redevelopment Component*
 - F.2. *Construction Component*
 - F.3. *Existing Development Component (Including Municipal, Industrial, Commercial, Residential, and Education)*
 - F.4. *Education Component*
 - F.5. *Illicit Discharge Detection and Elimination Component*
 - F.6. *Common Interest Areas and Homeowners Associations*
 - F.7. *Public Participation Component*
 - F.8. *Assessment of Jurisdictional URMP Effectiveness Component*
 - F.9. *Fiscal Analysis Component*
 - b. *Each Copermittee's accounting of all:*
 - (1) *Reports of illicit discharges (i.e., complaints) and how each was resolved (indicating referral source);*
 - (2) *Inspections conducted;*
 - (3) *Enforcement actions taken; and*
 - (4) *Education efforts conducted.*
 - c. *Public participation mechanisms utilized during the Jurisdictional URMP implementation process;*
 - d. *Proposed revisions to the Jurisdictional URMP;*
 - e. *A summary of all urban runoff related data not included in the annual monitoring report (e.g., special investigations);*
 - f. *Budget for upcoming year;*
 - g. *Identification of management measures proven to be ineffective in reducing urban runoff pollutants and flow; and*
 - h. *Identification of water quality improvements or degradation.*
2. *Unified - The unified Jurisdictional URMP Annual Report shall contain a section covering common activities conducted collectively by the Copermittees, to be produced by the Principal Permittee(s), and the thirteen individual Jurisdictional URMP Annual Reports. Each Copermittee shall submit to the Principal Permittee(s) an individual Jurisdictional URMP Annual Report by the date specified by the Principal Permittee(s). The Principal Permittee(s) shall submit a unified Jurisdictional URMP Annual Report to the SDRWQCB prior to **November 9, 2003 and prior to every November 9th thereafter**. The reporting period for these annual reports shall be the previous fiscal year. For example, the report submitted prior to November 9, 2003 shall cover the reporting period July 1, 2002 to June 30, 2003.*
3. *Universal Reporting Requirements*

All individual and unified Jurisdictional URMP submittals shall include an executive summary, introduction, conclusion, recommendations, and signed certified statement. Each Copermittee shall submit its individual Jurisdictional Urban Runoff Management Program Annual Report with a signed certified statement. The Principal Permittee(s) shall submit a signed certified statement referring to its individual Jurisdictional Urban Runoff Management Program Annual Report and

the section covering common activities conducted collectively by the Copermittees as produced by the Principal Permittee(s).

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.42(c) requires that "The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer system that has been designated by the director under § 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)(iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; (7) Identification of water quality improvements or degradation."

Discussion: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv) require each Copermittee to develop and implement an urban runoff management program. The SDRWQCB must assess the urban runoff management program to ensure that it is adequate to prohibit non-storm water discharges and reduce pollutant discharges to and from the MS4 to the maximum extent practicable. In order for the SDRWQCB to assess the urban runoff management program, each Copermittee must submit to the SDRWQCB an annual report describing all of the activities it undertook to meet the requirements of the Jurisdictional URMP section of Order No. R9-2002-0001.

The Jurisdictional URMP Annual Reports can also be useful tools for the Copermittees. They provide a focus to review, update, or revise the URMPs on an annual basis. Successful and unsuccessful measures can be identified, helping to focus efforts on areas or issues that provide the greatest results. Areas or issues that have received insufficient efforts can also be identified and improved.

The SDRWQCB has the discretion to require Submittal of Jurisdictional URMP Annual Report item I. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

J. WATERSHED URBAN RUNOFF MANAGEMENT PROGRAM

J.1. Watershed Urban Runoff Management Program states the following:

Each Copermittee shall collaborate with other Copermittees to identify, address, and mitigate the highest priority water quality issues/pollutants in the six (Table 4) watersheds in the San Juan Creek Watershed Management Area.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Discussion: Urban runoff does not follow municipality boundaries, and often travels through many municipalities while flowing towards receiving waters. The actions of various municipalities within a watershed regarding urban runoff can therefore have a cumulative impact upon shared receiving waters. Due to the interrelated nature of urban runoff management, Copermittee collaboration is necessary to minimize shared receiving water quality degradation (see Finding 31). Copermittee collaboration of this type focuses water quality protection on watersheds, which is effective because it “more clearly identif[ies] critical areas and practices which need to be targeted for pollution prevention and corrective actions” (SDRWQCB, 1994). The highest priority water quality issues/pollutants in each watershed can be identified and addressed, providing the greatest water quality improvements for the amount of effort. The SWRCB Urban Runoff Technical Advisory Committee recommends Copermittee collaboration for watershed based water quality protection, stating “Municipal permits should have watershed specific components.” Rather than duplicating requirements implemented at a Jurisdictional level, the watershed-level requirements of this section build upon and enhance the Jurisdictional programs and focus on water issues specific to each hydrologic unit of the San Juan Creek Watershed Management Area within Orange County.

The SDRWQCB has discretion to require Watershed Urban Runoff Management Program item J.1. in Order No. R9-2002-0001 under the broad legal authority cited above.

J.2. Watershed Urban Runoff Management Program states the following:

Each Copermittee shall collaborate with all other Copermittees discharging urban runoff into the same watershed to develop and implement a Watershed Urban Runoff Management Program (Watershed URMP) for the six watersheds in the San Juan Creek Watershed Management Area. The Watershed URMP shall, at a minimum contain the following:

- a. *An accurate map of the watersheds of the San Juan Creek Watershed Management Area in Orange County (preferably in Geographical Information System [GIS] format) that identifies all receiving waters (including the Pacific Ocean); all Clean Water Act section 303(d) impaired receiving waters (including the Pacific Ocean); existing and planned land uses; MS4s, major highways; jurisdictional boundaries; and inventoried commercial, construction, industrial, municipal sites, and residential areas.*
- b. *An assessment of the water quality of all receiving waters in the watershed based upon (1) existing water quality data; and (2) annual dry weather monitoring that satisfies requirements of section F.5 and Attachment E of this Order; and (3) watershed receiving water quality monitoring that satisfies the watershed monitoring requirements of Attachment B;*
- c. *An identification and prioritization of major water quality problems in the watershed caused or contributed to by MS4 discharges and the likely source(s) of the problem(s);*
- d. *An implementation time schedule of short and long-term recommended activities (individual and collective) needed to address the highest priority water quality problem(s) identified in section J.2.c of this Order. For this section, “short-term activities” shall mean those activities that are to be completed during the life of this Order and “long-term activities” shall mean those activities that are to be completed beyond the life of this Order;*

- e. *A mechanism for public participation throughout the entire watershed URMP process;*
- f. *A watershed-based education program that builds on and expands upon the education activities conducted by each Copermittee in a given watershed and that can focus on water quality issues specific to that watershed;*
- g. *A mechanism to facilitate collaborative “watershed-based” (i.e., natural resource-based) land use planning with neighboring local governments in the watershed.*
- h. *Short-term strategy for assessing the effectiveness of the activities and programs implemented under the Watershed URMP. The short term assessment strategy shall identify methods to assess the Watershed URMP effectiveness and include specific direct and indirect performance measurements that will track the immediate progress and accomplishments of the Watershed URMP towards improving receiving water quality impacted by urban runoff discharges. The short-term strategy shall also discuss the role of monitoring data collected by the Copermittees in substantiating or refining the assessment.*
- i. *Long-term strategy for assessing the effectiveness of the Watershed URMP. The long-term assessment strategy shall identify specific direct and indirect performance measurements that will track the long-term progress of Watershed URMP towards achieving improvements in receiving water quality impacted by urban runoff discharges. Methods used for assessing effectiveness shall include the following or their equivalent: surveys, pollutant loading estimations, and receiving water quality monitoring. The long-term strategy shall also discuss the role of monitoring data in substantiating or refining the assessment.*

Table 4. Orange County Copermittees by Watershed for the San Juan Creek Watershed Management Area

Watershed	Major Receiving Water Bodies	Copermittees Receiving Water Bodies
<i>Orange County Coastal Streams - Laguna</i>	<i>Moro Canyon Creek Emerald Canyon Creek Laguna Canyon Creek Blue Bird Canyon Creek Rim Rock Canyon Creek Hobo Canyon Creek</i>	<i>Aliso Viejo County of Orange Laguna Beach Laguna Woods Orange County Flood Control District</i>
<i>Aliso Creek</i>	<i>Aliso Creek English Canyon Creek Sulphur Canyon Creek Wood Canyon Creek</i>	<i>Aliso Viejo Laguna Beach Laguna Hills Laguna Niguel Laguna Woods Lake Forest Mission Viejo County of Orange Orange County Flood Control District</i>
<i>Dana Point Coastal Streams</i>	<i>Salt Creek Arroyo Salada Creek San Juan Canyon</i>	<i>Dana Point Laguna Niguel Orange County Flood Control District</i>
<i>San Juan Creek</i>	<i>San Juan Creek Trampas Canyon Creek Canada Gobernadora Canada Chiquita Horno Creek Arroyo Trabuco Creek Tijeras Canyon Creek Live Oak Canyon Creek Oso Creek La Paz Creek Lucas Canyon Creek Verdugo Canyon Creek Bell Canyon Creek</i>	<i>San Juan Capistrano Mission Viejo Laguna Hills Laguna Niguel Dana Point Rancho Santa Margarita County of Orange Orange County Flood Control District San Clemente</i>

<i>Watershed</i>	<i>Major Receiving Water Bodies</i>	<i>Copermittees Receiving Water Bodies</i>
	<i>Dove Canyon Creek Crow Canyon Creek</i>	
<i>Orange County Coastal Streams - San Clemente</i>	<i>Prima Deshecha Canada Segunda Deshecha Canada</i>	<i>San Clemente San Juan Capistrano County of Orange Orange County Flood Control District Dana Point</i>
<i>San Mateo Creek</i>	<i>Christianitos Creek Gambino Canyon Creek La Paz Canyon Creek Talega Canyon Creek</i>	<i>San Clemente County of Orange</i>

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Discussion: Management of urban runoff on a watershed basis is recommended by the SWRCB and the SDRWQCB. The SWRCB Urban Runoff Technical Advisory Committee (TAC) defines watershed based water quality protection as “the prevention/control of pollution and management of human activities in a geographically or other defined drainage area to protect, restore, and/or enhance the natural resources and beneficial uses within the watershed.” The TAC recommends that “All NPDES permits and Waste Discharge Requirements should be considered for reissuance on a watershed basis.” The SDRWQCB also recommends watershed based water quality protection, stating in its Basin Plan that “public agencies and private organizations concerned with water resources have come to recognize that a comprehensive evaluation of pollutant contributions on a watershed scale is the only way to realistically assess cumulative impacts and formulate workable strategies to truly protect our water resources. Both water pollution and habitat degradation problems can best be solved by following a basin-wide approach.” Moreover, under the First and Second Term Permits, the Orange County Copermittees implemented a Drainage Area Management Plan that embodied watershed concepts. However, in actual practice, most of the significant elements of the DAMP were implemented on a countywide basis rather than an actual watershed basis. The SDRWQCB has therefore required development of a Watershed URMP specific to the six hydrologic units of the San Juan Creek Watershed Management Area within Orange County by the Orange County Copermittees.

Development and implementation of the Watershed URMP will provide for more effective and focused receiving water quality protection. The Watershed URMP will provide for threatened or impaired receiving waters, including their pollutants or concern, to be identified. The entire watershed for the receiving water can then be assessed, allowing for critical areas and practices to be targeted for corrective actions. Known sources of pollutants of concern can be investigated for potential water quality impacts. Problem areas can then be addressed, leading to eventual improvements in receiving water quality. Management of urban runoff on a watershed basis allows for specific water quality problems to be targeted so that efforts result in maximized water quality improvements.

Regarding watershed-based land-use planning, see the discussion of Finding 30. For a more detailed discussion of the municipal storm water permitting and

SDRWQCB watershed management approach, see the discussion in Attachment 4 and the Watershed Management Approach Chapter for the San Diego Region.

The SDRWQCB has discretion to require Watershed Urban Runoff Management Program item J.2. in Order No. R9-2002-0001 under the broad legal authority cited above.

K. IMPLEMENTATION OF WATERSHED URMP

K. Implementation of Watershed URMP states the following:

Each Copermittee shall implement of all requirements of the Watershed URMP section of this Order by August 13, 2003 unless otherwise specified. Following the adoption of the Order and prior to the full implementation of the Watershed URMP, the Copermittees shall at a minimum collectively implement the provisions and commitments of the proposed DAMP submitted in September 2000.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Discussion: As discussed above in section J.2 and Attachment 4, the SDRWQCB finds watershed based urban runoff management to be an effective means for managing urban runoff. Watershed based urban runoff management focuses on the most pressing water quality concerns, so that management efforts result in the greatest water quality improvements. The SDWQCB is seeking to expand practical watershed based urban runoff management, including the potential for reissuance of municipal storm water permits on a watershed basis. In order to work towards this goal, the SDRWQCB is requiring implementation of a Watershed URMP by the Copermittees. The SWRCB Urban Runoff Technical Advisory Committee supports watershed management of urban runoff, stating "Municipal permits should have watershed specific components" and "All NPDES permits and Waste Discharge Requirements should be considered for reissuance on a watershed basis." The SDRWQCB foresees the shift to extensive watershed management of urban runoff to be gradual; it is therefore providing the Copermittees with several years before Watershed URMP implementation is required.

The SDRWQCB has discretion to require Watershed Urban Runoff Management Program item K. in Order No. R9-2002-0001 under the broad legal authority cited above.

L. SUBMITTAL OF WATERSHED URMP DOCUMENT

L. Submittal of Watershed URMP Document states the following:

The written account of the overall watershed program to be conducted by each Copermittee during the remaining life of this Order is referred to as the "Watershed URMP Document". The Watershed URMP is conducted concurrently with the Jurisdictional URMP.¹⁰⁶

¹⁰⁶As the Copermittees jointly revise and implement the submitted proposed DAMP and each Copermittee revises and implements its jurisdictional level program to satisfy the requirements of this Order, it is expected that many activities will

1. *The Watershed URMP document shall state how the member Copermittees within each watershed will develop and implement the requirements of the Watershed URMP section J. of this Order. The Watershed URMP document shall include:*
 - (1) *A completed watershed map*
 - (2) *A water quality assessment of the San Juan Creek Watershed Management Area within Orange County and watershed monitoring needed*
 - (3) *Prioritization of water quality problems within Orange County in the San Diego Region*
 - (4) *Recommended activities (short and long term) to be conducted jointly by the Copermittees and a timeline for implementation*
 - (5) *Individual Copermittee implementation responsibilities and time schedules for implementation*
 - (6) *A description of watershed public participation mechanisms*
 - (7) *A description of watershed education mechanisms*
 - (8) *A description of the mechanism and implementation schedule for watershed-based land use planning*
 - (9) *A strategy for assessing the short-term effectiveness of the Watershed URMP*
 - (10) *A strategy for assessing the long-term effectiveness of the Watershed URMP*
 - (11) *A program to address common interest areas and homeowners associations*
2. *The Principal Permittee(s) shall submit the Watershed URMP document to the SDRWQCB by August 13, 2003.*
3. *Universal Reporting Requirements.*

All Watershed URMP submittals shall include an executive summary, introduction, conclusion, recommendations, and signed certified statement. Each Copermittee shall submit a signed certified statement covering its responsibilities in the Watershed URMP Document. The Principal Permittee(s) shall submit a signed certified statement referring to its responsibilities in the Watershed URMP Document and the section covering common activities conducted collectively by the Copermittees as produced by the Principal Permittee(s).

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: California Water Code section 13267 provides that “the regional board may require than any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

Discussion: Order No. 200-128 requires each Copermittee to participate in the development and implementation of the Watershed URMP under Federal NPDES regulation 40 CFR 122.26(d)(2)(iv). The SDRWQCB must assess the Watershed URMP to ensure that it is adequate to assess and address the specific water quality problems within the six hydrologic units in the San Juan Creek Watershed Management Area within Orange County. In order for the SDRWQCB to assess the Watershed URMP, a detailed description of the Watershed URMP must be submitted to the SDRWQCB. The descriptions must detail all activities the applicable Copermittees have undertaken under the 1993 DAMP, the

be conducted on both a jurisdictional level (e.g., enforcement of local ordinances and permits) and a watershed level. Implementation of the Watershed URMP is not meant to replace, but to expand and complement implementation of the Jurisdictional URMP. For this reason, it is necessary to report management activities on both levels. This can be accomplished either by submitting both a Jurisdictional URMP Annual Report and a Watershed URMP Annual Report or by submitting a single Watershed URMP Annual Report that contains two separate sections (i.e., watershed activities and jurisdictional activities). Information need only be reported once (to the extent something is covered in the Watershed URMP Annual Report, it need not be covered again the Jurisdictional URMP Annual Report).

commitments of the proposed DAMP, and the new activities they are undertaking to implement the requirements of Watershed URMP section of Order No. R9-2002-0001.

The submittal schedule for Watershed URMP Document is designed to provide the Copermitees with adequate time to review and revise the proposed DAMP and develop, submit and implement the Watershed URMP. Based on their previous experience working at a watershed level under the First and Second Term Permits (i.e. the 1993 DAMP), the submittal schedule should be more than adequate for the Copermitees to collaborate for the development and implementation of the Watershed URMP.

The requirement for the Principal Permittee to provide a summary covering common activities conducted collectively by the Copermitees will provide a useful overview of watershed efforts within the San Juan Creek Watershed Management Area with Orange County. This type of compilation and submittal of the Copermitees' documents has been recommended by the Copermitees in the past.

The SDRWQCB has discretion to require Submittal of Watershed URMP Document item L. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

M. SUBMITTAL OF WATERSHED URMP ANNUAL REPORT

M. Submittal of Watershed URMP Annual Report states the following:

1. *Each Watershed URMP Annual Report shall be a documentation of the activities conducted by watershed member Copermitees during the previous annual reporting period to meet the requirements of all components of the Watershed URMP section of this Order. Each Watershed URMP Annual Report shall, at a minimum, contain the following:*
 - a. *Comprehensive description of all activities conducted by the watershed member Copermitees to meet all requirements of each component of Watershed URMP section J. of this Order*
 - b. *A section covering common activities conducted collectively by the Copermitees, to be produced by the Principal Permittee(s)*
 - c. *Public participation mechanisms utilized during the Watershed URMP implementation process;*
 - d. *Mechanism for watershed-based land use planning;*
 - e. *Assessment of effectiveness of Watershed URMP;*
 - f. *Proposed revisions to the Watershed URMP;*
 - g. *A summary of watershed effort related data not included in the annual monitoring report (e.g., special investigations); and*
 - h. *Identification of water quality improvements or degradation.*
2. *The Principal Permittee(s) shall submit the Watershed URMP Annual Report to the SDRWQCB prior to November 9, 2004 and prior to every November 9th thereafter. The reporting period for these annual reports shall be the previous fiscal year. For example, the report submitted prior to November 9, 2004 shall cover the reporting period July 1, 2003 to June 30, 2004.*
3. *Universal Reporting Requirements*

All Watershed URMP submittals shall include an executive summary, introduction, conclusion, recommendations, and signed certified statement. Each Copermitee shall submit a signed certified statement covering its responsibilities in the Watershed URMP Annual Report. The Principal Permittee(s) shall submit a signed certified statement referring to its responsibilities in the Watershed URMP Annual Report and the section covering common activities conducted

collectively by the Copermittees as produced by the Principal Permittee(s).

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: California Water Code section 13267 provides that “the regional board may require than any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

Federal NPDES regulation 40 CFR 122.42(c) requires that “The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer system that has been designated by the director under § 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)(iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; (7) Identification of water quality improvements or degradation.”

Discussion: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv) require the Copermittees to develop and implement urban runoff management programs, of which the Watershed URMP is a part. The SDRWQCB must assess the Watershed URMP to ensure that is adequate to assess and address the specific water quality problems within the six hydrologic units of the San Juan Creek Watershed Management Area within Orange County. In order for the SDRWQCB to assess the Watershed URMP, the Copermittees must submit to the SDRWQCB annual reports describing all of the activities undertaken to meet the requirements of the Watershed URMP section of Order No. R9-2002-0001.

The Watershed URMP Annual Reports can also be useful tools for the Copermittees. They provide a focus to review, update, or revise the URMPs on an annual basis. Successful and unsuccessful measures can be identified, helping to focus efforts on areas or issues that provide the greatest results. Areas or issues that have received insufficient efforts can also be identified and improved.

The SDRWQCB has the discretion to require Submittal of Watershed URMP Annual Report item M. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

N. PROGRAM MANAGEMENT

N. Program Management states the following:

The Copermittees shall implement the Program Management activities and commitments as described in section 2 (Program Management) of the proposed DAMP.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that "[The Copermittee must demonstrate that it can control] through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system."

Discussion: Storm water runoff does not follow municipality boundaries, and often travels through many municipalities while flowing towards receiving waters. Municipalities' actions towards storm water can therefore have a cumulative impact upon shared receiving waters. Due to the interrelated nature of storm water management, Copermittee collaboration is necessary.

Copermittee collaboration results in more effective storm water management, while also aiding the process of complying with permit requirements. For example, formal agreements between Copermittees can help define Copermittee roles and ensure that all permit requirements are addressed. Agreements can also be made to share the costs necessary to maintain compliance with the permit. In addition, designation of a Principal Permittee, through which reporting tasks can be coordinated, provides for standardization and compilation of required reports, thereby easing reporting efforts. This in turn improves digestion and assessment of report information, making the reports more useful to the Copermittees, which in turn can result in more effective urban runoff management.

The US EPA recommends Copermittee collaboration when it suggests "Coapplicants [...] may use interjurisdictional agreements to show adequate legal authority and to ensure planning, coordination, and the sharing of the resource burden of permit compliance. When more than one entity is submitting an application for a MS4 (either as coapplicants or as individual applicants for different parts of a system), the role of each party must be well defined. Each applicant or coapplicant must show the ability to fulfill its responsibilities, including legal authority for the separate storm sewers it owns or operates" (1992).

In recognition of these factors, the Copermittees included a Program Management structure and commitments in their proposed DAMP. This section requires the Copermittees, at a minimum, to implement those activities and commitments in developing and implementing the various components of their Jurisdictional and Watershed Urban Runoff Management Programs.

The SDRWQCB has discretion to require the Program Management section N. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

O. PRINCIPAL PERMITTEE RESPONSIBILITIES

O. Principal Permittee Responsibilities states the following:

Within 90 days of adoption of this Order, the Copermittees shall designate the Principal Permittee(s) and notify the SDRWQCB of the name(s) of the Principal Permittee(s). The Principal Permittee(s) may require the Copermittees to reimburse the Principal Permittee(s) for reasonable costs incurred while performing coordination responsibilities and other related tasks. The Principal Permittee(s) shall, at a minimum:

1. *Be responsible for implementing or coordinating the implementation of the Program Management activities and commitments described in section 2 (Program Management) of the proposed DAMP.*
2. *Serve as liaison(s) between the Copermittees and the SDRWQCB on general permit issues.*
3. *Coordinate permit activities among the Copermittees and facilitate collaboration on the development and implementation of programs required under this Order;*
4. *Coordinate the joint development by all of the Copermittees of standardized format(s) for all reports required under this Order (e.g., annual reports, monitoring reports, fiscal analysis reports, and program effectiveness reports, etc.). The standardized reporting format(s) shall be used by all Copermittees and shall include protocols for electronic reporting. The Principal Permittee(s) shall submit the standardized format(s) to the SDRWQCB as part of the unified Jurisdictional URMP document no later than **365 days after adoption** of this Order.*
5. *Integrate individual Copermittee documents and reports required under this Order into single unified documents and reports for submittal to the SDRWQCB as described below. If a reporting date falls on a non-working day or State holiday, then the report is to be submitted on the following working day.*
 - a. *Unified Jurisdictional URMP Document – The Principal Permittee(s) shall submit the unified Jurisdictional URMP document in its entirety (including the model SUSMP) to the SDRWQCB within 365 days of the adoption of this Order.*

The Principal Permittee(s) shall be responsible for producing the sections of the unified Jurisdictional URMP document submittals covering common activities conducted by the Copermittees. The Principal Permittee(s) shall be responsible for the development and production of a stand alone Model SUSMP document meeting the requirements of section F.1.b.(2). of this Order. The Principal Permittee(s) shall also be responsible for collecting and assembling the individual Jurisdictional URMP document submittals covering the activities conducted by each individual Copermittee.

- b. *Unified Jurisdictional URMP Annual Reports – The Principal Permittee(s) shall submit unified Jurisdictional URMP Annual Reports to the SDRWQCB prior to November 9th of each year, beginning on **November 9, 2003**. The reporting period for these annual reports shall be the previous fiscal year. For example, the report submitted prior to November 9, 2003 shall cover the reporting period July 1, 2002 to June 30, 2003.*

The Principal Permittee(s) shall be responsible for producing the section of the unified Jurisdictional URMP Annual Reports covering common activities conducted by the Copermittees. The Principal Permittee(s) shall also be responsible for collecting and assembling the individual Jurisdictional URMP Annual Reports covering the activities conducted by each individual Copermittee.

- c. *Watershed URMP Document – The Principal Permittee(s) shall prepare and submit the Watershed URMP document to the SDRWQCB by **August 13, 2003**.*
- d. *Watershed URMP Annual Report - The Principal Permittee(s) shall prepare and submit the Watershed URMP Annual Reports to the SDRWQCB prior to November 9th of each year, beginning on **November 9, 2004**. The reporting period for these annual reports shall be the previous fiscal year. For example, the report submitted prior to November 9, 2004 shall cover the reporting period July 1, 2003 to June 30, 2004.*
- e. *Receiving Waters Monitoring and Reporting Program - The Principal Permittee(s) shall be responsible for the production and submittal of the Previous Monitoring and Future Recommendations Report. The report shall be submitted to the SDRWQCB within 180 days of adoption of this Order.*
- f. *Receiving Waters Monitoring and Reporting Program - The Principal Permittee(s) shall be responsible for the development and production of the Receiving Waters Monitoring Program as it is outlined in Attachment B. The Principal Permittee(s) shall submit the Receiving Waters Monitoring Program to the SDRWQCB within 180 days of adoption of this Order.*
- g. *Receiving Waters Monitoring and Reporting Program – The Principal Permittee(s) shall be responsible for coordinating the joint development by all of the Copermittees of monitoring reporting formats (Section O.4) and for implementing the Receiving Waters Monitoring Program as outlined in Attachment B by August 13, 2002.*
- h. *Receiving Waters Monitoring and Reporting Program - The Principal Permittee(s) shall submit the Receiving Waters Monitoring Annual Report to the SDRWQCB prior to November 9th of each year, beginning on November 9, 2003.*
- i. *Formal Agreements/Standardized Formats - The Principal Permittee(s) shall submit to the SDRWQCB, within 365 days of adoption of this Order, a formal agreement between the Copermittees which provides a management structure for meeting the requirements of this Order (as described in section N.1.). The Principal Permittee(s) shall submit to the SDRWQCB, within 365 days of adoption of this Order, standardized formats for all reports and documents required under this Order.*
- j. *Dry Weather Monitoring - The Principal Permittee(s) shall collectively submit the Copermittees' dry weather monitoring maps and procedures to the SDRWQCB within 365 days of adoption of this Order.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(a)(3)(iii)(C) provides that "A regional authority may be responsible for submitting a permit application."

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that "[The Copermittee must demonstrate that it can control] through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system."

Discussion: Intergovernmental coordination is necessary in urban runoff management, given the transitory nature of urban runoff problems. A Principal Permittee will facilitate intergovernmental coordination, which will improve the development, implementation, and effectiveness of urban runoff management efforts within the region. One way in which a Principal Permittee will improve urban runoff management efforts is through the coordination of reporting tasks.

This provides for the standardization and compilation of required reports, which in turn increases the ease with which report information can be digested and assessed. Standardized documents provide for easier assessment and application of report data, making reports more useful for Copermittees, which can result in more effective storm water management. In section 2.2.3 of the proposed DAMP, the role of the Principal Permittee is further described to include providing program management, budgeting, developing public education materials, and conducting water quality monitoring.

The SDRWQCB has discretion to require Principal Permittee Responsibilities item O. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

P. RECEIVING WATERS MONITORING AND REPORTING PROGRAM

P. Receiving Waters Monitoring and Reporting Program states the following:

1. Pursuant to California Water Code section 13267, each Copermittee shall comply with the Receiving Waters Monitoring and Reporting Program for Order No. R9-2002-0001 contained in **Attachment B** of this Order.
2. Each Copermittee shall also comply with standard provisions, reporting requirements, and notifications contained in **Attachment C** of this Order.

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Copermittees must conduct a comprehensive monitoring program as required under Federal NPDES regulations 40 CFR 122.26(d)(2)(iii). Standard provisions, reporting requirements, and notifications included in Attachment C are consistent to all NPDES permits and are generally found in Federal NPDES regulation 40 CFR 122.41 (Federal NPDES regulation citations are provided in the Attachment).

Discussion: A comprehensive monitoring program is an important aspect of an urban runoff management program. The primary objectives of the monitoring program include:

- 1) Assessing compliance with Order No. R9-2002-0001;
- 2) Measuring the effectiveness of Urban Runoff Management Plans;
- 3) Assessing the chemical, physical, and biological impacts to receiving waters resulting from urban runoff; and
- 4) Assessing the overall health and evaluating long-term trends in receiving water quality.

Receiving waters monitoring programs are important and powerful regulatory and management tools. Using data collected from a monitoring program, urban runoff management efforts can be prioritized, helping limited resources be most effective in improving receiving water quality. For example, a monitoring program can provide data that can allow for specific receiving waters and watersheds to be targeted for urban runoff management efforts based on their need. Particular

pollutants, contaminants, stressors, and their respective sources can also be identified and targeted using monitoring data. In addition, monitoring data can be useful in assessing the effectiveness of an urban runoff management program. Successful efforts that have resulted in receiving water quality improvements can be analyzed for application elsewhere, while areas that need greater efforts can also be identified. In general, a comprehensive monitoring program can supply a wealth of data that can be used in a wide range of applications for improving water quality. In recognition of these facts, the Orange County Copermittees initiated the Orange County Water Quality Monitoring Program (99-04 Plan) in 1999 to assess the impact of urban runoff on receiving waters as well as to evaluate the methodologies underlying those assessments.

The Copermittees are directed to collaborate and prepare a technical report that summarizes and analyzes the water quality data collected under the previous Orders including the 99-04 Plan. This requirement is necessary to place the current monitoring program being implemented in the Orange County portion of the San Juan Creek Watershed Management Area into perspective. The 99-04 Plan was developed to assess urban runoff in Orange County as a whole, but a strong emphasis was placed on the northern parts of the County outside of the San Diego Region covered under this Order. Moreover, it is necessary to review and revise the 99-04 Plan and other monitoring efforts to include specific monitoring requirements of Attachment B. This technical report will provide the Copermittees as well as the public with an important summary and analysis of the monitoring data collected and a framework within which to develop a Receiving Waters Monitoring Program to be implemented under this Order.

The monitoring and reporting requirements in Attachment B and C of this Order address the need for a comprehensive, flexible, iterative monitoring approach that is focused on compliance issues relevant to the different conditions existing in Orange County within the San Diego Region. A number of monitoring tools and approaches are available to achieve the objectives of this compliance oriented monitoring program.

Order No. R9-2002-0001 may be modified for a specified period of time to direct the Copermittees to participate in comprehensive regional monitoring activities conducted in the Southern California Bight during the term of the permit. This provision is consistent with other NPDES permits issued by the SDRWCB. Such participation maximizes scientific and financial resources using a wide ranging and cost-effective monitoring design to assess the chemical, physical and biological impacts of urban runoff on receiving waters throughout the Southern California Bight.

The following is a discussion of each of the principal aspects of the proposed monitoring program required in Attachment B of Order No. R9-2002-0001:

Within 180 days of the adoption of this Order the Copermittees shall submit to the SDRWQCB a Receiving Waters Monitoring Program Document, subject to SDRWQCB review, that incorporates the following components:

- I. Previous Monitoring and Future Recommendations (Technical) Report; and

II. Receiving Waters Monitoring Program

I. Previous Monitoring and Future Recommendations (Technical) Report

The Orange County Copermittees have conducted dry and wet weather monitoring since 1990. Prior to the adoption of Order No. 90-38, Orange County routinely collected data from drainage facilities tributary to receiving waters. In addition, numerous other studies have been conducted in the Southern California Bight that bear on the issue of impacts to receiving waters resulting from municipal urban runoff discharges. Although significant historic data exists in Orange County to characterize discharges of urban runoff, Orange County has also changed significantly in the last ten years. Because land use has changed and continues to change dramatically in Orange County, historic trends and characterizations identified during the previous monitoring efforts may have also changed. To adequately assess compliance with this Order, assess the chemical, physical, and biological impacts of urban runoff discharges on receiving waters, and better characterize historic trends, the data collected and the methods utilized in the previous monitoring programs must be re-evaluated in the San Diego Region with respect to urban runoff and receiving waters in Orange County.

As identified in the 99-04 Plan, the Receiving Waters Monitoring Program implemented by the Orange County Copermittees should be based on a sound understanding of urban runoff issues and the results of previous monitoring efforts to avoid duplicative or unproductive monitoring and to ensure that the data collected is the most scientifically valid and useful as practicable. This requirement will help establish that the Receiving Waters Monitoring Program to be implemented in Orange County within the San Diego Region will achieve those goals.

II. Receiving Waters Monitoring Program

As described above, the objectives of this program are assessment of compliance and assessment of the physical, chemical, and biological impacts of the discharge of urban runoff on receiving waters. This section requires the Copermittees to utilize the findings of the Previous Monitoring and Future Recommendations Report and the most recent 99-04 Plan monitoring results to collaborate, develop, conduct, and report on a year round Receiving Waters Monitoring Program.

The Receiving Waters Monitoring Program, at a minimum shall include, but is not limited to the following components:

A. Urban Stream Bioassessment Monitoring.

Bioassessment is the direct measurement of the biological and physical condition of receiving waters, such as rivers and streams, using benthic macroinvertebrates. It is a direct measurement of the attainment or maintenance of the beneficial uses¹⁰⁷ of a water body. This methodology utilizes in-situ biological endpoints as an integrative measure of receiving water integrity. Bioassessment monitoring integrates the effects of both

¹⁰⁷ Specifically COLD or WARM, and to a lesser extent WILD or RARE beneficial uses.

water chemistry impacts and the physical habitat impacts (e.g. sedimentation or erosion) of various discharges on the biological community native to the receiving waters. Moreover, bioassessment is a direct measurement of the impact of cumulative, sub-lethal doses of pollutants or contaminants that may be below reasonable water chemistry detection limits, but that are not without biological affect.

Because bioassessment focuses on communities of living organisms as integrators of cumulative impacts resulting from water quality or habitat degradation, it defines the ecological risks resulting from urban runoff that are as important to human health and well-being as the more obvious threats of toxic pollution or pathogens. Bioassessment not only identifies that an impact has occurred, but also measures the affect of the impact and tracks recovery when control or restoration measures have been taken. These features make bioassessment a powerful tool to assess compliance, evaluate the effectiveness of BMPs (e.g. artificial wetlands), and to track both short term and long term trends.

B. Long Term Mass Loading

For purposes of evaluating long-term trends and assessing the effectiveness of urban runoff management programs, the Copermittees shall continue to implement the long term mass loading sampling and analysis initiated under the Orange County Water Quality Monitoring Program (99-04 Plan) in Orange County in the San Diego Region. The 99-04 Plan shall be revised as necessary to ensure more complete coverage of the six hydrologic units in the Orange County portion of the San Juan Creek Watershed Management area of the San Diego Region. The program shall also be revised to specify that when findings or observations indicate the possible presence of toxicity, a Toxicity Identification Evaluation (TIE) shall be conducted to determine the cause(s) of the toxicity.

Wet weather monitoring by the Copermittees has focused on estimations of pollutant loadings in storm water runoff. Although this approach has drawbacks, it continues to represent the best long-term trend assessment of pollutant discharges to receiving waters from municipal storm water sewer systems.

C. Coastal Storm Drain Outfall Monitoring

One of the primary impacts to coastal receiving waters is the loss of recreational beneficial uses resulting from urban runoff. This component of the monitoring program is meant to be integrated and coordinated with similar monitoring programs to address this issue. The Copermittees are provided with a significant degree of discretion in designing and implementing the Coastal Storm Drain Outfall Monitoring and are encouraged to collaborate with other agencies. The determination of the location of the sampling stations, frequency of sampling, and the criteria by which these factors are defined are left to the Copermittees and their collaborators in order to provide them with the flexibility to design the most

scientifically applicable program. The program must, however, monitor the principle indicators (Total and Fecal Coliform Bacteria and Enterococcus Bacteria) used in assessing the public health impacts of urban runoff on coastal receiving waters. It necessary to implement this program year-round in order to address the different seasonal recreational uses and potential public health impacts of urban runoff discharges. The Copermittees may also include any other pathogens or indicators that they conclude are useful to assess the recreational and public health impacts of urban runoff on coastal receiving waters.

D. Ambient Coastal Receiving Water Monitoring

This monitoring program component addresses the overall health of the receiving waters and assesses the impact on these water bodies from urban runoff. The Copermittees will develop a program for the coastal receiving waters that integrates measures of the physical, chemical, and biological conditions of the coastal waters as a function of urban runoff. Monitoring that is currently being performed under the 99-04 Plan may continue to be implemented under the Receiving Waters Monitoring Program, but the scope of the program will be significantly increased to include coverage of the entire coastline of the Orange County portion of the San Juan Creek Watershed Management area. The Ambient Coastal Receiving Waters Monitoring program may be required to include parameters and methods not presently part of the 99-04 Plan. The Copermittees have a wide degree of discretion in designing the Ambient Coastal Receiving Waters Monitoring component and are encouraged to collaborate with other agencies or organizations conducting similar monitoring.

Significant changes in the format and detail of the Receiving Waters Monitoring Program will be required to make the reports specific to the San Diego Region of Orange County and more readily useable by members of the public not familiar with the history and the specific details of water quality monitoring in Orange County. The monitoring reports shall provide the data and results, the methods of evaluating the data, graphical summaries of the data and an explanation and discussion of the data for each monitoring component listed above. The report will also provide an analysis of each component, prioritize water quality problems, identify the sources of the problems, and recommend future monitoring and BMP implementation measures. The Copermittees will be expected to make both long term and short term use of this data to refine and improve their Jurisdictional and Watershed Urban Runoff Management Programs. To this extent, the analysis shall also include an evaluation of the effectiveness of existing control measures with respect to water quality problems identified in the course of the review of previous monitoring methods and results as well as data collected under this Order. The Copermittees will also be required to clearly identify exceedances of receiving water quality objectives, provide ongoing analysis of short term and long term trends in urban runoff and receiving water quality, provide a three person committee review of the reports prior to submitting them to the SDRWQCB, and provide comprehensive interpretations and conclusions. These provisions are necessary to provide contextually and scientifically useful data regarding the

impact of urban runoff discharges on the receiving waters of Orange County within the San Juan Creek Watershed Management Area of the Diego Region.

The SDRWQCB has discretion to require Receiving Waters Monitoring and Reporting Program item P. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

Q. TASKS AND SUBMITTAL SUMMARY

Q. Tasks and Submittal Summary states the following:

The tasks and submittals required under this Order are summarized in Tables 5 and 6 below:

Table 5. Task Summary

Task No.	Task	Permit Section	Completion Date	Frequency
1	Identify discharges not to be prohibited and BMPs required for treatment of discharges not prohibited	B.3.	365 days after adoption of Order	One Time
2	Examine field screening results to identify water quality problems resulting from non-prohibited non-storm water discharges, including follow-up of problems	B.5.	Prior to November 9, 2003	Annually
3	Notify SDRWQCB of discharges causing or contributing to an exceedance of water quality standards	C.2.a.	Immediate	As Needed
4	Establish adequate legal authority to control pollutant discharges into and from MS4	D.1.	365 days after adoption of Order	One Time
5	Assess General Plan to incorporate water quality and watershed protection principles	F.1.a.	365 days after adoption of Order	One Time
6	Include Development Project Requirements in local permits	F.1.b.(1).	365 days after adoption of Order	One Time
7	Develop Model SUSMP	F.1.b.(2).	365 days after adoption of Order	One Time
8	Develop and adopt individual local SUSMP and amended ordinances	F.1.b.(2).	180 days after development of Model SUSMP	One Time
9	Implement individual jurisdictional SUSMP	F.1.b.(2).	180 days after approval of Model SUSMP by SDRWQCB	Continuous
10	Revise environmental review processes	F.1.c.(1).	365 days after adoption of Order	One Time
11	Conduct education program for municipal planning and development review staff, project applicants, developers, contractors, community planning groups, and property owners	F.1.d.(1). And F.1.d.(2).	365 days after adoption of Order	Ongoing
12	Implement all requirements of Construction Component of Jurisdictional URMP	F.2.a. – F.2.j.	365 days after adoption of Order	Ongoing
13	Notify SDRWQCB of non-compliant construction sites that pose a threat to human or environmental health	F.2.i.	Within 24 hours of discovery of noncompliance	As Needed
14	Implement all requirements of Municipal	F.3.a.(1). –	365 days after	Ongoing

Task No.	Task	Permit Section	Completion Date	Frequency
	<i>Existing Development Component of Jurisdictional URMP</i>	<i>F.3.a.(8).</i>	<i>adoption of Order</i>	
15	<i>Implement all requirements of Industrial Existing Development Component of Jurisdictional URMP</i>	<i>F.3.b.(1) – F.3.b.(8)</i>	<i>365 days after adoption of Order</i>	<i>Ongoing</i>
16	<i>Notify SDRWQCB of non-compliant industrial sites that pose a threat to human or environmental health</i>	<i>F.3.b.8.</i>	<i>Within 24 hours of discovery of noncompliance</i>	<i>As Needed</i>
17	<i>Implement all requirements of Commercial Existing Development Component of Jurisdictional URMP</i>	<i>F.3.c.(1) – F.3.c.(5)</i>	<i>365 days after adoption of Order</i>	<i>Ongoing</i>
18	<i>Implement all requirements of Residential Existing Development Component of Jurisdictional URMP</i>	<i>F.3.d.(1) – F.3.d.(4)</i>	<i>365 days after adoption of Order</i>	<i>Ongoing</i>
19	<i>Implement all requirements of Education Component of Jurisdictional URMP</i>	<i>F.4.a. – F.4.c.</i>	<i>365 days after adoption of Order</i>	<i>Ongoing</i>
20	<i>Implement all requirements of Illicit Discharge Detection and Elimination Component of Jurisdictional URMP</i>	<i>F.5.a. – F.5.i.</i>	<i>365 days after adoption of Order</i>	<i>Ongoing</i>
21	<i>Develop a plan to manage urban runoff from common interest areas, private roads, drainage facilities, and other components of the storm water conveyance system, including those managed by homeowners associations.</i>	<i>F.6.</i>	<i>365 days after adoption of Order</i>	<i>One Time</i>
22	<i>Implement all requirements of Public Participation Component of Jurisdictional URMP</i>	<i>F.7.</i>	<i>365 days after adoption of Order</i>	<i>Ongoing</i>
23	<i>Develop strategy for assessment of Jurisdictional URMP effectiveness</i>	<i>F.8.a.</i>	<i>365 days after adoption of Order</i>	<i>One Time</i>
24	<i>Assess Jurisdictional URMP effectiveness</i>	<i>F.8.b.</i>	<i>Prior to November 9, 2003</i>	<i>Annually</i>
25	<i>Develop strategy for fiscal analysis of urban runoff management program</i>	<i>F.9.</i>	<i>365 days after adoption of Order</i>	<i>One Time</i>
26	<i>Conduct fiscal analysis of urban runoff management program in entirety</i>	<i>F.9.</i>	<i>Prior to November 9, 2003</i>	<i>Annually</i>
27	<i>Develop and implement Watershed URMP</i>	<i>J.2.</i>	<i>August 13, 2003</i>	<i>Ongoing</i>
28	<i>Implement Program Management activities and commitments in proposed DAMP</i>	<i>N.1</i>	<i>Immediately</i>	<i>Ongoing</i>
29	<i>Develop standardized formats for all required reports of this Order</i>	<i>O.4.</i>	<i>365 days after adoption of Order</i>	<i>One Time</i>
30	<i>Develop Receiving Waters Monitoring Document</i>	<i>Attachment B</i>	<i>180 days after adoption of Order</i>	<i>One Time</i>
31	<i>Implement Receiving Waters Monitoring Program</i>	<i>Attachment B</i>	<i>180 days after adoption of Order</i>	<i>Continuous</i>
32	<i>Develop Dry Weather Monitoring Program Document</i>	<i>Attachment E</i>	<i>365 days after adoption of Order</i>	<i>One Time</i>
33	<i>Conduct Dry Weather Monitoring Program</i>	<i>Attachment E</i>	<i>Begins May 1, 2003 Thereafter conducted May 1st to September 30th</i>	<i>Annually</i>
34	<i>Complete NPDES applications for issuance of renewal watershed-based permits</i>	<i>Attachment C</i>	<i>At least 180 days prior to expiration of Order</i>	<i>One Time</i>
35	<i>Notify SDRWQCB of any incidence of non-compliance with this Order that</i>	<i>R.1, B.6 of Attachment C</i>	<i>Within 24 hours of discovery of non-</i>	<i>As Needed</i>

Task No.	Task	Permit Section	Completion Date	Frequency
	<i>poses a threat to human or environmental health.</i>		<i>compliance</i>	
36	<i>Designate Principal Permittee(s) and notify SDRWQCB</i>	O.	<i>90 days after adoption of the Order</i>	<i>One Time</i>

Table 6. Submittal Summary

Submittal No.	Submittal	Permit Section	Completion Date	Frequency
1	<i>Submit identification of discharges not to be prohibited and BMPs required for treatment of discharges not prohibited</i>	B.3.	<i>365 days after adoption of Order</i>	<i>One Time</i>
2	<i>Report on discharges causing or contributing to an exceedance of water quality standards, including description of BMP implementation</i>	C.2.a.	<i>With individual Jurisdictional URMP Annual Reports</i>	<i>As Needed</i>
3	<i>Submit Certified Statement of Adequate Legal Authority</i>	D.2.	<i>365 days after adoption of Order</i>	<i>One Time</i>
4	<i>Submit certified statement if particular high priority construction sites are to be inspected monthly rather than weekly in the rainy season</i>	F.2.g.(2).	<i>365 days after adoption of Order and as needed thereafter</i>	<i>As Needed</i>
5	<i>Submit report on non-compliant construction sites that pose a threat to human or environmental health.</i>	F.2.i.	<i>Within 5 Days of discovery of non-compliance</i>	<i>As Needed</i>
6	<i>Submit report on non-compliant industrial sites that pose a threat to human or environmental health.</i>	F.3.b.8.	<i>Within 5 days of discovery of non compliance</i>	<i>As Needed</i>
7	<i>Submit to Principal Permittee(s) individual Jurisdictional URMP document covering requirements for all Components</i>	H.1.a.	<i>Prior to 365 days after adoption of Order (Principal Permittee(s) specifies date of submittal)</i>	<i>One Time</i>
8	<i>(This space reserved).</i>			
9	<i>Principal Permittee(s) shall submit to SDRWQCB unified Jurisdictional URMP document covering requirements for all Components, including Model SUSMP</i>	H.2.a.	<i>365 days after adoption of Order</i>	<i>One Time</i>
10	<i>(This space reserved).</i>			
11	<i>Submit to SDRWQCB local SUSMP and amended ordinances</i>	F.1.b.(2). and H.1.d.	<i>180 days after development of Model SUSMP</i>	<i>One Time</i>
12	<i>Submit to Principal Permittee(s) individual Jurisdictional URMP Annual Report</i>	I.1.	<i>Prior to November 9, 2003 (Principal Permittee(s) specifies date of submittal)</i>	<i>Annually</i>
13	<i>Principal Permittee(s) shall submit 1st unified Jurisdictional URMP Annual Report to SDRWQCB</i>	I.2.	<i>Prior to November 9, 2003</i>	<i>One Time and Annually Thereafter</i>
14	<i>Submit to Principal Permittee(s) Watershed Specific URMP document</i>	L.1.	<i>Prior to August 13, 2003 (Principal Permittee(s) specifies date of</i>	<i>One Time</i>

Submittal No.	Submittal	Permit Section	Completion Date	Frequency
			submittal)	
15	Principal Permittee(s) shall submit Watershed URMP document to SDRWQCB	L.2.	August 13, 2003	One Time
16	Principal Permittee(s) shall submit 2nd unified Jurisdictional URMP Annual Report to SDRWQCB	I.2.	Prior to November 9, 2004	One Time
17	(This space reserved).			
18	Principal Permittee(s) shall submit 1st Watershed URMP Annual Report to SDRWQCB	M.2.	Prior to November 9, 2004	One Time and Annually Thereafter
19	Principal Permittee(s) shall submit 3rd unified Jurisdictional URMP Annual Report to SDRWQCB	I.2.	Prior to November 9, 2005	One Time
20	Principal Permittee(s) shall submit 2 nd Watershed URMP Annual Report to SDRWQCB	M.2.	Prior to November 9, 2005	One Time
21	Principal Permittee(s) shall submit 4 th unified Jurisdictional URMP Annual Report to SDRWQCB	I.2.	Prior to November 9, 2006	One Time
22	Principal Permittee(s) shall submit 3 rd Watershed URMP Annual Report to SDRWQCB	M.2.	Prior to November 9, 2006	One Time
23	Principal Permittee(s) shall submit 5 th unified Jurisdictional URMP Annual Report to SDRWQCB	I.2.	Prior to November 9, 2007	One Time
24	Principal Permittee(s) shall submit standardized formats for all reports required under this Order	O.4.	365 days after adoption of Order	One Time
25	Principal Permittee(s) submits Receiving Waters Monitoring Program Document	Attachment B	180 days after adoption of Order	One Time
26	Principal Permittee(s) submits Receiving Waters Monitoring Annual Report to SDRWQCB	Attachment B	Prior to July 9, 2003	Annually
27	Submit to Principal Permittee(s) Dry Weather Monitoring Program Document	Attachment E	Prior to 365 days after adoption of Order	One Time
28	Principal Permittee(s) submits collective Dry Weather Monitoring Program Documents	Attachment E	365 days after adoption of Order	One Time
29	Submit to Principal Permittee(s) Dry Weather Monitoring Program results as part of individual Jurisdictional URMP Annual Report	Attachment E	Prior to November 9, 2003, as part of individual Jurisdictional URMP Annual Report	Annually
30	Principal Permittee(s) shall submit NPDES applications for issuance of renewal watershed-based permits	Attachment C	At least 180 days prior to expiration of this Order	One Time
31	Submit reports of any incidence of non-compliance with this Order that poses a threat to human or environmental health.	R.1, B.6 of Attachment C	Within 5 days of discovery of non compliance	As Needed

Discussion: See the legal authority citations and discussions of the applicable permit sections.

R. STANDARD PROVISIONS, REPORTING REQUIREMENTS AND NOTIFICATIONS

R. Standard Provisions, Reporting Requirements and Notifications states the following:

1. *Each Copermitttee shall comply with Standard Provisions, Reporting Requirements, and Notifications contained in **Attachment C** of this Order. This includes 24 hour/5day reporting requirements for any instance of non-compliance with this Order as described in section B.6 of Attachment C.*
2. *All plans, reports and subsequent amendments submitted in compliance with this Order shall be implemented immediately (or as otherwise specified) and shall be an enforceable part of this Order upon submission to the SDRWQCB. All submittals by Copermitttees must be adequate to implement the requirements of this Order.*

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Standard provisions, reporting requirements, and notifications included in Attachment C are consistent to all NPDES permits and are generally found in Federal NPDES regulation 40 CFR 122.41 (Federal NPDES regulation citations are provided in the Attachment).

Federal NPDES regulation 40 CFR 122.44(l)(6) states "The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of non-compliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance."

Discussion: Implementation of plans, reports, and subsequent amendments by the Copermitttees is an important requirement of Order No. R9-2002-0001. Many of the requirements of Order No. R9-2002-0001 rely upon the Copermitttees' development and implementation of plans and programs. Without implementation, plans and programs will not improve water quality. For this reason, the plans must be implemented and shall be enforceable upon submission to the SDRWQCB. Incidences of noncompliance with the requirements of this Order must be reported to the SDRWQCB within 24 hours, as required for all NPDES permits under Federal NPDES regulation 40 CFR 122.44(l)(6).

The SDRWQCB has discretion to require Standard Provisions, Reporting Requirements and Notifications item R. in Order No. R9-2002-0001 under the broad and specific legal authority cited above.

VIII. REFERENCES

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Attachment 1

NPDES Municipal Storm Water Permit Justifications

Copermittee	Large or Medium MS4?	Contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the U.S'?
Aliso Viejo	No	Yes. Pacific Ocean Shoreline, Aliso Beach HA 901.13; Aliso Beach; Aliso Creek; Aliso Creek (Mouth)
Dana Point	No	Yes. Pacific Ocean Shoreline, Dana Point HA, Salt Creek (large), Salt Creek Service Rd, Dana Strand, North Beach Creek, Capo Beach, San Juan Creek(Lower), San Juan Creek (Mouth)
Laguna Beach	No	Yes. Pacific Ocean Shoreline, Laguna Beach HA 901.12; Laguna Beach, Irvine Cove-Riveria, Heisler Park-North, Main Beach (large), Laguna Ave., Cleo Street, Bluebird Canyon Rd., Ocean Way, Dumond Dr, Lagunita/Blue Lagoon, South Coast Hwy at Hospital, West St, Aliso Beach; Aliso Creek; Aliso Creek (Mouth)
Lake Forest	No	Yes. Pacific Ocean Shoreline, Aliso Beach HAS 901.13; Aliso Beach; Aliso Creek; Aliso Creek (Mouth)
Laguna Hills	No	Yes. Pacific Ocean Shoreline, Aliso Beach HAS 901.13; Aliso Beach; Aliso Creek; Aliso Creek (Mouth)
Laguna Niguel	No	Yes. Pacific Ocean Shoreline, Dana Point HA 901.14, Salt Creek (large), Salt Creek Service Rd, Dana Strand, North Beach Creek, Capo Beach, San Juan Creek(Lower), San Juan Creek (Mouth), Aliso Beach; Aliso Creek; Aliso Creek (Mouth)
Laguna Woods	No	Yes. Pacific Ocean Shoreline, Aliso Beach HAS 901.13; Aliso Beach; Aliso Creek; Aliso Creek (Mouth)
Mission Viejo	No	Yes. Pacific Ocean Shoreline, San Juan HU 901.10, San Juan Creek (Lower), San Juan Creek (Mouth), Aliso Beach, Aliso Creek; Aliso Creek (Mouth)
Rancho Santa Margarita	No	Yes. Pacific Ocean Shoreline, San Juan HU 901.10, San Juan Creek (Lower), San Juan Creek (Mouth)
San Juan Capistrano	No	Yes. Pacific Ocean Shoreline, San Juan HU 901.10, San Juan Creek (Lower), San Juan Creek (Mouth)
San Clemente	No	Yes. Pacific Ocean Shoreline, San Clemente HA 901.30; Poche Beach (large), Pico Drain (large), El Portal Stairs, Mariposa, Linda Lane, South Linda Lane, Lifeguard Headquarters, Trafalgar Canyon, Under Pier, La Ladera, Riveria Beach, Salem Tressel, , San Juan Creek (Lower), San Juan Creek (Mouth)
Orange, Co	Yes, by population. ²	Yes. See Attachment 2, 1998 Clean Water Act Section 303(d) List. San Juan Creek WMA and Aliso Creek WMA.
Orange County Flood Control District	Yes, Interrealionaship ¹ with Aliso Viejo, Dana Point, Laguna Beach, Lake Forest, Laguna Hills, Laguna Niguel, Laguna Woods, Mission Viejo, Rancho Santa Margarita, San Juan Capistrano, San Clemente, and Orange County.	Pacific Ocean Shoreline, San Juan HU 901.10, San Juan Creek (Lower), San Juan Creek (Mouth), Aliso Beach , Aliso Creek; Aliso Creek (Mouth)

¹ See 40 CFR 122.26(b)(4)(iii) and (7)(iii).

² See Attachment 3, Copermittee Populations.

Attachment 2 - 1998 Clean Water Act Section 303(d) Impaired Waterbody List

Waterbody ¹	Watershed Management Area	HU, HA, or HSA ²	Total Size ³	Non Support ⁴	Partially Support ⁵	Exceeds Standard ⁶	Sources ⁷	Impairment ⁸	Beneficial Uses ⁹	TMDL Priority ¹⁰	Level ¹¹	Start ¹²	End ¹³
Aliso Creek	Aliso Creek WMA	901.13	7.2 mi			1 mi	Point/Nonpoint	Coliform	Rec-1, Rec-2	Medium	1	7/97	7/01
Aliso Creek, mouth of	Aliso Creek WMA	901.13	0.3 ac			0.3 ac	Point/Nonpoint	Coliform	Rec-1, Rec-2	Medium	1	7/97	7/01
Pacific Ocean Shoreline, Aliso Beach HSA 901.13; Aliso Beach	Aliso Creek WMA	901.13	1 mi		0.01 mi		Point/Nonpoint	Coliform	Rec-1, Rec-2	Medium	1	7/97	7/01
Agua Hedionda Lagoon	Carlsbad WMA	904.31	320 ac		5 ac		Point/Nonpoint	Sediment	Aquatic life	Medium	3	7/04	7/07
						5 ac	Point/Nonpoint	Coliform	Rec-1, Rec-2	Low	2	7/99	7/09
					5 ac		Point/Nonpoint	Coliform	Shellfish harvest	Low	2	7/99	7/09
Buena Vista Lagoon	Carlsbad WMA	904.21	350 ac		350 ac		Point/Nonpoint	Sediment	Aquatic life	Medium	3	7/04	7/07
					150 ac		Point/Nonpoint	Nutrients	Aquatic life	Low	3	7/04	7/07
						350 ac	Point/Nonpoint	Coliform	Rec-1, Rec-2	Low	2	7/99	7/09
Loma Alta Slough	Carlsbad WMA	904.10	8 ac	8 ac			Nonpoint	Eutrophication	Aquatic life	Low	2	7/99	7/09
						8 ac	Nonpoint	Coliform	Rec-1, Rec-2	Low	2	7/99	7/09
Pacific Ocean Shoreline, Loma Alta HA 904.10; Loma Alta Creek Mouth	Carlsbad WMA	904.10	1.5 mi	0.01 to 1 mi*			Point/Nonpoint	Coliform	Rec-1, Rec-2, Shellfish harvest	Low	2	7/99	7/09
Pacific Ocean Shoreline, Buena Vista Creek HA 904.20; Pine Street (Carlsbad), Carlsbad Village Pkwy (Carlsbad)	Carlsbad WMA	904.20	2.2 mi	0.02 mi			Point/Nonpoint	Coliform	Rec-1, Rec-2, Shellfish harvest	Low	2	7/99	7/09
Pacific Ocean Shoreline, San Marcos HA 904.50; Moonlight State Beach	Carlsbad WMA	904.50	5.8 mi	0.01 mi			Point/Nonpoint	Coliform	Rec-1, Rec-2, Shellfish harvest	Low	2	7/99	7/09
Pacific Ocean Shoreline, Escondido Creek HA 904.60; Solana Beach, San Elijo Lagoon	Carlsbad WMA	904.60	3.0 mi	0.02 mi			Point/Nonpoint	Coliform	Rec-1, Rec-2, Shellfish harvest	Low	2	7/99	7/09

Attachment 2
SDRWQCB Order No. R9-2002-0001

Waterbody ¹	Watershed Management Area	HU, HA, or HSA ²	Total Size ³	Non Support ⁴	Partially Support ⁵	Exceeds Standard ⁶	Sources ⁷	Impairment ⁸	Beneficial Uses ⁹	TMDL Priority ¹⁰	Level ¹¹	Start ¹²	End ¹³
San Elijo Lagoon	Carlsbad WMA	904.61	330 ac	330 ac			Point/Nonpoint	Eutrophication	Aquatic life	Low	2	7/99	7/09
					150 ac		Point/Nonpoint	Sediment	Aquatic life	Medium	3	7/04	7/07
						150 ac	Point/Nonpoint	Coliform	Rec-1, Rec-2, Shellfish harvest, Fish consumption	Low	2	7/99	7/09
Famosa Slough	Mission Bay WMA	906.40	28 ac		28 ac		Nonpoint	Eutrophication	Aquatic life	Medium	3	7/05	7/08
Los Penasquitos Lagoon	Mission Bay WMA	906.10	385 ac	385 ac			Point/Nonpoint	Sediment	Aquatic life	Medium	3	7/05	7/08
Mission Bay	Mission Bay WMA	906.30	1540 ac	1 ac			Point/Nonpoint	Eutrophication, Lead	Aquatic life	Medium	3	7/05	7/08
		906.40	906.50	1540 ac			Point/Nonpoint	Coliform	Rec-1, Rec-2, Shellfish harvest	Low	2	7/99	7/09
Pacific Ocean Shoreline, Scripps HA 906.30, El Paseo Grande, Del Oro, Vallecitos, Avenida de la Playa, Coast Blvd, Children's Pool, Ravina, Vista de la Playa, Bonair, Playa del Norte, Palomar (La Jolla); Tourmaline, Grand Avenue (Pacific Beach)	Mission Bay WMA	906.30	13 mi	0.13 mi			Point/Nonpoint	Coliform	Rec-1, Rec-2, Shellfish harvest	Low	2	7/99	7/09
Tecolote Creek	Mission Bay WMA	906.50	6 mi		6 mi		Point/Nonpoint	Stormwater (Cadmium, Copper, Lead, Zinc, Toxicity)	Aquatic life	Medium	3	7/05	7/08
						6 mi	Point/Nonpoint	Coliform	Rec-1, Rec-2	Low	2	7/99	7/09
Chollas Creek	San Diego Bay WMA	908.22	4.8 mi		1 mi		Point/Nonpoint	Stormwater (Cadmium, Copper, Lead, Zinc, Toxicity)	Aquatic life	High	1	1/98	7/03
						1 mi	Point/Nonpoint	Coliform	Rec-1, Rec-2	Low	2	7/99	7/09

Attachment 2
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Waterbody ¹	Watershed Management Area	HU, HA, or HSA ²	Total Size ³	Non Support ⁴	Partially Support ⁵	Exceeds Standard ⁶	Sources ⁷	Impairment ⁸	Beneficial Uses ⁹	TMDL Priority ¹⁰	Level ¹¹	Start ¹²	End ¹³
Pacific Ocean Shoreline, Coronado HA 910.10; North Beach, Loma Avenue, Pine Street, Sunset Park (Coronado)	San Diego Bay WMA	910.00	10.2 mi	.04 mi			Point/ Nonpoint	Coliform	Rec-1, Rec-2, Shellfish harvest	Low	2	7/99	7/09
San Diego Bay; Near Sub Base	San Diego Bay WMA	900.00	12000 ac	16 ac			Point/ Nonpoint	Benthic community degradation*, Toxicity*	Aquatic life	High	1	1/98	7/03
San Diego Bay; Shelter Island Yacht Basin	San Diego Bay WMA	900.00	12000 ac			50 ac	Point/ Nonpoint	Dissolved copper	Aquatic life	High	1	1/98	7/03
San Diego Bay; Near Grape Street	San Diego Bay WMA	900.00	12000 ac	7 ac			Point/ Nonpoint	Benthic community degradation*, Toxicity*	Aquatic life	High	1	1/98	7/03
San Diego Bay; Downtown Piers	San Diego Bay WMA	900.00	12000 ac	10 ac			Point/ Nonpoint	Benthic community degradation*, Toxicity*	Aquatic life	High	1	1/98	7/03
San Diego Bay; Near Switzer Creek	San Diego Bay WMA	900.00	12000 ac	6 ac			Point/ Nonpoint	Benthic community degradation*, Toxicity*	Aquatic life	High	1	1/98	7/03
San Diego Bay; Near Coronado Bridge	San Diego Bay WMA	900.00	12000 ac	30 ac			Point/ Nonpoint	Benthic community degradation*, Toxicity*	Aquatic life	High	1	1/98	7/03
San Diego Bay; Near Chollas Creek	San Diego Bay WMA	900.00	12000 ac	14 ac			Point/ Nonpoint	Benthic community degradation*, Toxicity*	Aquatic life	High	1	1/98	7/03
San Diego Bay; San Diego Naval Station	San Diego Bay WMA	900.00	12000 ac	76 ac			Point/ Nonpoint	Benthic community degradation*, Toxicity*	Aquatic life	High	1	1/98	7/03
San Diego Bay; Seventh Street Channel	San Diego Bay WMA	900.00	12000 ac	9 ac			Point/ Nonpoint	Benthic community degradation*, Toxicity*	Aquatic life	High	1	1/98	7/03

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Waterbody ¹	Watershed Management Area	HU, HA, or HSA ²	Total Size ³	Non Support ⁴	Partially Support ⁵	Exceeds Standard ⁶	Sources ⁷	Impairment ⁸	Beneficial Uses ⁹	TMDL Priority ¹⁰	Level ¹¹	Start ¹²	End ¹³
San Diego Bay; North of 24th Street Marine Terminal	San Diego Bay WMA	900.00	12000 ac	10 ac			Point/Nonpoint	Benthic community degradation*, Toxicity*	Aquatic life	High	1	1/98	7/03
San Diego Bay Shoreline, Lindbergh HSA 908.21; G St, B St Pier	San Diego Bay WMA	908.21	8.7 mi	0.2 mi			Point/Nonpoint	Coliform	Rec-1, Rec-2	Low	2	7/99	7/09
San Diego Bay Shoreline, Telegraph HSA 909.11; Chula Vista Marina	San Diego Bay WMA	909.11	0.5 mi	0.01 mi			Point/Nonpoint	Coliform	Rec-1, Rec-2	Low	2	7/99	7/09
Pacific Ocean Shoreline, San Diego HU 907.00, San Diego River Mouth, (Ocean Beach)	San Diego River WMA	907.00	1.4 mi	0.02 to 0.5 mi*			Point/Nonpoint	Coliform	Rec-1, Rec-2, Shellfish harvest	Low	2	7/99	7/09
Pacific Ocean Shoreline, San Dieguito HU 905.00; Del Mar (Anderson Canyon), San Dieguito Lagoon Mouth	San Dieguito River WMA	905.00	3.0 mi	0.02 mi			Point/Nonpoint	Coliform	Rec-1, Rec-2, Shellfish harvest	Low	2	7/99	7/09
Pacific Ocean Shoreline, Laguna Beach HSA 901.12; Laguna Beach, Irvine Cove-Riveria, Heisler Park -North, Main Beach (large), Laguna Ave, Cleo Street, Bluebird Canyon Road, Ocean Way, Dumond Dr, Lagunita/ Blue Lagoon, South Coast Hwy at Hospital, West St, 1000 Steps, Table Rock	San Juan Creek WMA	901.12	2.5 mi		0.15 mi		Point/Nonpoint	Coliform	Rec-1, Rec-2, Shellfish harvest	Low	2	7/00	7/10
Pacific Ocean Shoreline, Dana Point HSA 901.14, Salt Creek (large), Salt Creek Service Rd, Dana Strand, North Beach Creek, Capo Beach	San Juan Creek WMA	901.14	6.5 mi		0.06 mi		Point/Nonpoint	Coliform	Rec-1, Rec-2, Shellfish harvest	Low	2	7/00	7/10
Pacific Ocean Shoreline, Lower San Juan HSA 901.27; San Juan Creek (large)	San Juan Creek WMA	901.3	1 mi		0.02 mi		Point/Nonpoint	Coliform	Rec-1, Rec-2, Shellfish harvest	Low	2	7/00	7/10

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Waterbody ¹	Watershed Management Area	HU, HA, or HSA ²	Total Size ³	Non Support ⁴	Partially Support ⁵	Exceeds Standard ⁶	Sources ⁷	Impairment ⁸	Beneficial Uses ⁹	TMDL Priority ¹⁰	Level ¹¹	Start ¹²	End ¹³
Pacific Ocean Shoreline, San Clemente HA 901.30; Poche Beach (large), Pico Drain (large), El Portal Stairs, Mariposa, Linda Lane, South Linda Lane, Lifeguard Headquarters, Trafalgar Canyon, Under Pier, La Ladera, Riveria Beach, Salem Tressel, Cypress Shores	San Juan Creek WMA	901.30	7 mi		0.15 mi		Point/ Nonpoint	Coliform	Rec-1, Rec-2, Shellfish harvest	Low	2	7/00	7/10
San Juan Creek, Lower	San Juan Creek WMA	901.20	3.4 mi			1 mi	Point/ Nonpoint	Coliform	Rec-1, Rec-2	Low	2	7/00	7/10
San Juan Creek, Mouth	San Juan Creek WMA	901.20	2 ac			2 ac	Point/ Nonpoint	Coliform	Rec-1, Rec-2	Low	2	7/00	7/10
Guajome Lake	San Luis Rey River WMA	903.11	25 ac	25 ac			Point/ Nonpoint	Eutrophication	Aquatic life	Medium	3	7/08	7/11
Pacific Ocean Shoreline, San Luis Rey HU 903.00; San Luis Rey River Mouth	San Luis Rey River WMA	903.00	1 mi	0.01 mi			Point/ Nonpoint	Coliform	Rec-1, Rec-2, Shellfish harvest	Low	2	7/99	7/09
Rainbow Creek	Santa Margarita River WMA	902.20	11 mi	5 mi			Point/ Nonpoint	Rec-1, Rec-2, Eutrophication	Aquatic life	High	1	7/98	7/00
Santa Margarita Lagoon	Santa Margarita River WMA	902.11	268 ac	1 ac			Point/ Nonpoint	Eutrophication	Aquatic life, Rec-1, Rec-2	High	2	7/96	7/05
Pacific Ocean Shoreline, Tijuana HU 911.00; Tijuana River	Tijuana River WMA	911.00	3.2 mi	3.2 mi			Point/ Nonpoint	Coliform	Rec-1, Rec-2	Low	2	7/98	7/11
			3.2 mi		3.2 mi		Point/ Nonpoint	Coliform	Shellfish harvest, Fish consumption	Low	2	7/98	7/11
Tijuana River	Tijuana River WMA	911.11	7 mi	7 mi			Point/ Nonpoint	Coliform	Rec-1, Rec-2, Fish consumption	Low	2	7/98	7/11

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Waterbody ¹	Watershed Management Area	HU, HA, or HSA ²	Total Size ³	Non Support ⁴	Partially Support ⁵	Exceeds Standard ⁶	Sources ⁷	Impairment ⁸	Beneficial Uses ⁹	TMDL Priority ¹⁰	Level ¹¹	Start ¹²	End ¹³
				7 mi			Point/ Nonpoint	Eutrophication , Low dissolved oxygen, Solids, Trace metals, Synthetic organics, Pesticides	Aquatic life	Low	3	7/98	7/11
				7 mi			Point/ Nonpoint	Eutrophication , Trash, Pesticides, Synthetic organics, Trace metals	Fish consumption	Low	3	7/98	7/11
Tijuana River Estuary	Tijuana River WMA	911.11	150 ac		1 ac		Point/ Nonpoint	Nickel, Thallium, Lead, Pesticides, Eutrophication , Trash	Aquatic life	Low	3	7/98	7/11
				1 ac			Point/ Nonpoint	Pesticides	Fish consumption	Low	3	7/98	7/11
				150 ac			Point/ Nonpoint	Coliform	Rec-1, Rec-2, Fish consumption, Shellfish harvest	Low	2	7/98	7/11

Attachment 3

Copermittee Populations (2000 U.S. Census Bureau)

Copermittee	Population
Aliso Viejo	40,200
Dana Point	35,100
Laguna Beach	23,750
Lake Forest	58,700
Laguna Hills	31,200
Laguna Niquel	61,900
Laguna Woods	16,500
Mission Viejo	93,100
Rancho Santa Margarita	47,200
San Clemente	49,950
San Juan Capistrano	33,800
County of Orange	2,846,300
Orange County Flood Control District	N/A

Attachment 4

Discussion of Municipal Storm Water Permitting and the Watershed Approach

Municipal Storm Water Requirements, Order No. R9-2002-0001

Under the municipal storm water requirements, municipalities are responsible for pollutant discharges into and out of storm water conveyance systems from land uses within their jurisdiction and watershed. This responsibility is based in large part on land use and permitting authority, and underscores the direct link between land use decisions and the resulting long-term water quality consequences of those decisions.

Accordingly, the municipal storm water requirements require municipalities to impose controls on existing and future development as necessary to reduce pollutant discharges. A critical provision of this Order is that Copermittees' required to obtain and enforce the legal authorities (i.e., local ordinances, permits) as necessary to maintain (or restore) compliance with the municipal storm water requirements contained in this Order.

Municipal storm water requirements contained in the Federal Regulations and this Order also specifically direct permittees to prohibit illicit discharges¹⁰⁸ from entering into their storm water conveyance systems. This means ongoing requirements to detect (actively seek out) polluted runoff entering the systems, identify the source(s) causing the problem, and eliminate the problem(s).

SDRWQCB's Watershed Approach

The term "watershed approach" can mean different things to different people. It often involves several agencies, organizations, and communities addressing numerous environmental concerns. When the SDRWQCB defines a watershed approach, as it has

¹⁰⁸ The term "illicit discharge" is defined in the federal storm water regulations at 40 CFR 122.26 in very broad terms. An illicit discharge is any discharge that is not composed entirely of "storm water". Storm water is one of two components of "urban runoff". Urban runoff is the correct term for any and all flows in a municipal storm water conveyance system. Storm water is defined as any flow that originated from precipitation only. Non-storm water is the "catch-all" phrase referring to all flows in the system that originated from any source other than precipitation.

Technically, uncontaminated rainwater is the only "allowable" flow in the storm water conveyance system. As a practical matter, we are currently assuming a rather lenient enforcement position against municipalities for discharging precipitation that has picked up urban pollutants. We have however assumed a much more aggressive enforcement position against municipalities that have failed to enforce their own legal authorities or implement appropriate source control and structural best management practices (BMPs) to the maximum extent practicable. Such BMPs must effectively reduce or eliminate pollutants that would otherwise be available for transport to receiving waters by precipitation. The SDRWQCB has also taken a much more stringent view of runoff originating from sources other than precipitation (e.g., excess irrigation, car washing, etc.) which convey urban pollutants. Such non-storm water flows are prohibited under the municipal storm water requirements. In all cases, the SDRWQCB looks to see if the responsible municipality(s) have truly demonstrated a "good faith" and thorough effort to find, reduce or eliminate pollutants, and their sources. Such good faith efforts must include enforcement of local ordinances and permits, education efforts that are focused on pollutant(s) of concern, and implementation of effective source control and structural BMPs. These efforts should concentrate on man-made, man-accelerated, or "controllable" sources, rather than on uncontrollable sources (e.g., focus on eliminating pet waste rather than wild animal waste).

in the document entitled “Watershed Management Approach for the San Diego Region,”¹⁰⁹ it is limiting its concerns exclusively to water quality issues.

The SDRWQCB’s watershed approach considers each geographic watershed (or subwatershed) as a whole and seeks to identify and mitigate all sources of pollutants (both point and non-point sources) throughout the watershed which contribute to the impairment of common downstream receiving waters. This definition emphasizes the important contribution (of pollutants and flow) from “inland sources” to “coastal problems”, such as those that have historically plagued San Diego and Orange County Beaches. Like the municipal storm water requirements, one of the most important steps in the SDRWQCB’s watershed effort is the identification and elimination of the sources causing such water quality impairments.

A word about what a watershed approach is “not” is also in order. The SDRWQCB’s (or any one else’s) watershed approach is not:

1. A reduction in the responsibility or authority of the SDRWQCB;
2. An abdication of responsibility or authority by the SDRWQCB;
3. A reduction in the tools at the disposal of the SDRWQCB;
4. A reduction in or limit on the discretion of the SDRWQCB; or
5. A substitution for compliance with regulatory requirements (i.e. NPDES permits or Waste Discharge Requirements).

Nexus Between Municipal Storm Water Permit and Watershed Approach

The municipal storm water requirements and the SDRWQCB’s watershed approach are fully consistent with each other. Both have the same overall objectives and both direct many of the same specific actions; for example identification and elimination sources of pollutants. The municipal storm water requirements is a traditional regulatory measure. These are addressed in the form of NPDES permits and Waste Discharge Requirements issued to dischargers. In actual practice, the “watershed approach” is, at the moment, largely a non-regulatory measure.

It should be emphasized that regulatory and non-regulatory measures are not mutually exclusive. The premise that the watershed approach “contrasts” with regulation is incorrect. The best way to explain the relationship between the two is to say that a “watershed approach” includes, but is not limited to, the issuance of regulatory requirements by the SDRWQCB and regulatory compliance on the part of permitted dischargers. Waste Discharge Requirements and NPDES Permits may or may not include a watershed effort. While a community watershed effort often involves issues beyond the scope of complying with waste discharge requirements, compliance with applicable requirements is always an essential component of any watershed effort. Furthermore, because urban runoff pollution is inextricably linked to cumulative pollutants in runoff contributed by all sources in a watershed, it makes a great deal of sense that Copermittees would choose to implement the requirements of the municipal storm water permit in the context of a watershed approach. This was the objective of the 1993 Drainage Area Management Plan (DAMP) implemented under the First and

¹⁰⁹ “Watershed Management Approach for the San Diego Region”; Sixth version (draft). Regional Water Quality Control Board, San Diego Region; January 7, 2000.

Second Term Permits. Nonetheless, a municipal storm water permit is issued to each Copermittee and each Copermittee is individually responsible for implementing the requirements of the permit. Within the context of a watershed effort (e.g. the Watershed Urban Runoff Management Plan or Watershed URMP), the watershed-wide efforts undertaken by a set of Copermittees in a given drainage builds upon and enhances the jurisdictional efforts of each Copermittee. Under the First and Second Term Permits, significant elements of the DAMP were actually implemented on a countywide basis in two watershed areas within two different Regional Boards with little actual emphasis on specific watershed issues or programs. The implementation of solid jurisdictional level programs, the program management component of the proposed DAMP, and the Watershed URMP focused on the San Juan Creek Watershed Management Area within Orange County, will bring the implementation of the concepts expressed in the proposed DAMP to fruition.

In addition to fully supporting a watershed approach for protecting water quality, the SDRWQCB is engaged in a gradual process to shifting its regulatory efforts towards a watershed (rather than programmatic¹¹⁰) basis. This means that in the future waste discharge requirements may be issued on a watershed basis. Indeed, the renewal of this Order represents a true watershed level application of the municipal storm water regulatory tool envisioned in the DAMP, since the provisions of this Order will be specifically applied by the Copermittees to that part of the San Juan Creek Watershed Management Area within Orange County. The remaining part of that watershed management area lies within Camp Pendleton and a small part of unincorporated San Diego County between Camp Pendleton and Orange County. These areas will be addressed in the future renewal of this Order under the Phase II storm water regulations.

At this time, a few waste discharge requirements “encourage” required activities to be conducted on a watershed basis. In the future, it is likely that waste discharge requirements will “require” that activities be conducted on a watershed basis by all dischargers within the watershed in order to address common water quality problems. The fact that many watershed efforts today are voluntary, but may soon be required under waste discharge requirements, illustrates the “three-tiered” watershed approach described in the SDRWQCB’s “Watershed Management Approach for the San Diego Region”. The three-tiered concept embodies the gradual shift from “tier one” stakeholder driven voluntary watershed efforts to “tier three” efforts mandated by waste discharge requirements.

To the extent that a watershed stakeholder is also subject to waste discharge requirements, a tier one, or voluntary watershed effort can only exist in conjunction with, and acknowledgment of, the mandatory requirements of the waste discharge requirements. This is the current situation for the Orange County Copermittees that will be emphasized under this Order. It is the responsibility of the SDRWQB to ensure that the Copermittees are complying with the municipal storm water requirements and to the extent that they are not, to take appropriate enforcement action.

¹¹⁰ Our office is currently organized into a combination of discrete program units (e.g. Land Discharge, Site Mitigation, and Tank Mitigation and Cleanup Units) and two watershed protection units (Northern and Southern Watershed Protection Units).

Attachment 5 - DAMP Analysis for Order No. R9-2002-0001

Order No. R9-2002-0001 Orange County Municipal Storm Water Permit Component	Order No. R9-2002-0001 Section	Proposed Orange County DAMP Section	Order No. R9-2002-0001 Orange County Permit Requirements	Proposed Orange County DAMP Discussion
Findings	1-43	Not Addressed	Findings	Not applicable
Prohibitions – Discharges	A.1	4.0 Appendix E1	Prohibit all discharges into and from MS4s that cause or threaten to cause conditions of pollution, contamination or nuisance in waters of the State.	Neither the DAMP nor the Model Water Quality Ordinance (Appendix E1 Water Quality Ordinance) adequately addresses this requirement. The Water Quality Ordinance should be updated to better detail the specific language as well as the intent already implied in sections II and IV of the ordinance.
Prohibitions – Discharges	A.2	4.0 Appendix E1	Prohibit all discharges from MS4s that cause or contribute to exceedances of receiving water quality objectives.	Neither the DAMP nor the Water Quality Ordinance (Appendix E1) adequately addresses this requirement. Sections II, III, and IV of the Water Quality Ordinance should be updated to better detail the specific language as well as the intent already implied in sections II and IV of the ordinance to include and implement this prohibition.
Prohibitions – Discharges	A.3	1.2; 4.0 Appendix E1	Prohibit all discharges containing pollutants not reduced to the MEP.	The DAMP does specifically address this prohibition requirement in several sections. The Water Quality Ordinance, however, does not address this requirement.
Prohibitions – Discharges	A.4	4.0 Appendix E1	Discharges from MS4s are subject to Basin Plan Prohibitions.	This prohibition is not addressed in either the DAMP or the Water Quality Ordinance. Both should be updated to include and implement this prohibition.

<p>Prohibitions – Non-Storm Water Discharges</p>	<p>B.1</p>	<p>1.2; 4.2; 4.3; 4.4; Appendix E1</p>	<p>Copermittees prohibit all non-storm water discharges into MS4s unless separately authorized by NPDES or are not prohibited as per B.2 or B.3.</p>	<p>DAMP and Water Quality Ordinance (Appendix E1) effectively prohibits all non storm water discharges not separately authorized by NPDES permits or that are not prohibited as per B.2 and B.3 of the Order No. R9-2002-0001.</p>
<p>Prohibitions – Non-Storm Water Discharges</p>	<p>B.2</p>	<p>1.2; 4.2; 4.3; 4.4; Appendix E1</p>	<p>Non-Storm Water, Non-Prohibited Discharges that are not a significant source of pollutants.</p>	<p>The list in the Water Quality Ordinance (App. E1) is incomplete and includes exemptions not identified in the Federal Regulations or the Order (e.g. sewage spills, roof runoff, agricultural irrigation runoff, and reclaimed water runoff).</p>
<p>Prohibitions – Non-Storm Water Discharges</p>	<p>B.3</p>	<p>1.2; 4.2; 4.3; 4.4; Appendix E1</p>	<p>Procedures to address non-storm, non-prohibited discharges that are a significant source of pollutants.</p>	<p>The DAMP and the Water Quality Ordinance do not adequately address the B.2 non-storm water discharges that are determined by the Copermittee(s) to be a significant source of pollutants. The Water Quality Ordinance (section IV.D) only addresses the prohibition of otherwise exempted discharges on a case by case basis as determined by an Authorized Inspector. The DAMP and the Water Quality Ordinance does not address the requirement that the discharge <u>category</u> be prohibited from entering the MS4; OR that the Copermittee shall not prohibit the discharge category and implement or require the implementation of BMPs; AND a file report with the SDRWQCB within 365 days of the adoption of the Order describing the discharge category and the BMPs to be required by the Copermittee.</p> <p>Section IV.D of the Water Quality Ordinance details only site specific instances in which B.2 allowable discharges may be prohibited, but does not discuss the permissible discharge conditions, the implementation of BMPs, nor the report to the SDRWQCB describing the above.</p>

				Both the DAMP and the Water Quality Ordinance should be updated to completely address this requirement.
Prohibitions – Non-Storm Water Discharges	B.4	1.2 4.0 5.0 10.0 Appendix E1	Emergency fire fighting flows are not prohibited. Copermittees develop and implement a program within 365 days to reduce pollutants from non-emergency fire fighting flows identified as significant sources of pollutants.	A program to reduce pollutants from non-emergency fire fighting flows identified by the Copermittees to be a significant source of pollutants is not specified in the DAMP. The Water Quality Ordinance does not specifically address the issue of non-emergency fire fighting activities. The Water Quality Ordinance should be revised to address this requirement.
Prohibitions – Non-Storm Water Discharges	B.5	4.0; 10.0; Appendix K	Examine all dry weather monitoring results collected in accordance with section F.5 and Attachment E to identify water quality problems resulting from non-storm water, non-prohibited discharges. Follow-up investigations to be conducted as necessary to identify and control such discharges when they are found to be significant sources of pollutants.	The DAMP discusses historical efforts conducted under the First and Second Term Permits, but does not specify how Dry Weather Monitoring will be performed and the data evaluated by each Copermittee as per section B.5 of the Order. Nor does Appendix K provide sufficient specific detail on the monitoring and inspections to be performed in each jurisdiction that would satisfy the requirements of section B.5 of the Order. See section F.5 for more discussion on the inadequacy of Dry Weather Monitoring Program to be implemented under the proposed DAMP.
Receiving Water Limitations	C.1	Not Addressed	Discharges from MS4s that cause or contribute to the violation of water quality standards are prohibited.	Neither the DAMP nor the Water Quality Ordinance specifically prohibits discharges that cause or contribute to exceedances of receiving water quality objectives. The DAMP and the Water Quality Ordinance should be updated to include and implement this prohibition.
Receiving Water Limitations	C.2	1.0; 1.2; 1.3; 1.4; 2.2;	Requirement that each Copermittee shall comply with section C.1 above through the timely implementation of the Jurisdictional Urban Runoff	The DAMP does not specifically address how the Copermittees will prohibit and respond to discharges that cause or contribute to exceedances of receiving water quality objectives. The DAMP sections that address discharge

		<p>2.3; 3.2; 3.3; 3.5; 4.0 4.1; 4.2; 4.3; 4.4</p>	<p>Management Program (i.e. BMPs and programs). Procedure to address MS4 discharges that are causing or contributing to an exceedance of receiving water quality objectives. The Copermittees are required to notify the SDRWQCB and thereafter submit a report that describes BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of water quality standards.</p> <p>Modifications to the report must be reported to the SDRWQCB within 30 days of notification.</p> <p>The requirement also includes a provision that the Copermittee(s) revise and implement the revised Jurisdictional Urban Runoff Management Program to incorporate the approved BMPs, the implementation schedule, and any monitoring required.</p> <p>The revised Jurisdictional Urban Runoff Management Program, monitoring program,</p>	<p>prohibitions, BMP implementation, legal authority, and regulatory requirements do not include or implement the requirement that discharges do not cause or contribute to receiving water quality objectives as a condition of the DAMP implementation and permit compliance. This section, which contains precedential language required by the State Board and USEPA, is a one of the most important components of the Order that is inadequately addressed in the DAMP.</p> <p>The DAMP provides only general discussions of iterative BMP implementation/evaluation that lack specific performance measures or time lines sufficient to address protection of beneficial uses and compliance with receiving water quality objectives. The DAMP describes limitations to their ability to evaluate BMPs and states that several years would be required to evaluate the effectiveness of BMPs (section 3.3.2).</p> <p>The DAMP does not specify how the requirements of section C of the Order, which contains precedential language required by the State Board and USEPA, will be implemented at a jurisdictional or a collective level by the Copermittees.</p>
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			and implementation schedule must be implemented within 30 days of approval by the SDRWQCB.	
Receiving Water Limitations	C.3	Not Addressed	SDRWQCB has authority to enforce any provision of the Order while the Copermittee prepares and implements the report required in C.2.	The DAMP does not address this provision of section C of the Order.
Legal Authority	D.1	4.0; 4.1; 4.2; Appendix E1	Each Copermittee establishes, maintains, and enforces adequate legal authority to control pollutant discharges into and from its MS4.	The DAMP and the Water Quality Ordinance generally satisfies the requirements of section D of the Order.
Legal Authority	D.1.a	4.2; 8.0; 8.1; 8.2; 8.3; 8.4; 8.6; 8.7; Appendix H	Legal authority to control contribution of pollutants to MS4 from construction and industrial sites.	<p>The DAMP addresses the requirement of each Copermittee to certify legal authority to control contribution of pollutants to the MS4 from industrial activity, but does not address construction (section 4.2).</p> <p>Section 8.2 of the proposed DAMP discusses the regulatory requirements pertaining to construction sites, but does not acknowledge Copermittee responsibility to certify legal authority to control the contribution of pollutants to the MS4 from construction sites apart from coordinating enforcement actions under the Water Quality Ordinance with the SDRWQCB.</p> <p>Section 8.3 discusses Public Works Construction Practices, but does not address the responsibility of the Copermittees to certify legal authority to control contribution of pollutants to the MS4.</p> <p>Section 8.4 discusses Copermittee oversight of private construction practices through enforcement of grading codes to protect slopes</p>

				<p>from erosion and failure, but does not adequately address the requirement of the Copermittees to certify legal authority to control the contribution of pollutants to the MS4 from construction sites.</p> <p>Appendix H and the new commitments of section 8.7 of the proposed DAMP do not adequately address the requirement of the Copermittees to certify their legal authority to control the contribution of pollutants to the MS4 from construction sites.</p>
Legal Authority	D.1.b		Prohibit all identified illicit discharges not exempted under B.2 including list of discharges 1-9.	<p>The DAMP and the Water Quality Ordinance adequately addresses the requirement to prohibit all illicit discharges not exempted under B.2.</p> <p>The DAMP, however, does not describe in sufficient detail how the Copermittees will address sewage, discharges of wash water resulting from the hosing or cleaning of gas stations, auto repair garages, or other types of automotive facilities; Discharges resulting from the cleaning, repair, or maintenance of any type of equipment, machinery, or facility including motor vehicles, cement-related equipment, and portable toilet servicing, etc.; Discharges of wash water from mobile operations such as mobile automobile washing, steam cleaning, power washing, and carpet cleaning, etc.;</p> <p>Discharges of wash water from the cleaning or hosing of impervious surfaces in municipal, industrial, commercial, and residential areas including parking lots, streets, sidewalks, driveways, patios, plazas, work yards and outdoor eating or drinking areas, etc.;</p> <p>Discharges of runoff from material storage areas</p>

				<p>containing chemicals, fuels, grease, oil, or other hazardous materials; Discharges of pool or fountain water containing chlorine, biocides, or other chemicals; discharges of pool or fountain filter backwash water;</p> <p>Discharges of sediment, pet waste, vegetation clippings, or other landscape or construction-related wastes; and Discharges of food-related wastes (e.g., grease, fish processing, and restaurant kitchen mat and trash bin wash water, etc.).</p>
Legal Authority	D.1.c	4.2	Prohibit all illicit connections to MS4.	<p>The DAMP and the Water Quality Ordinance adequately address the requirement to prohibit all illicit connections to MS4.</p> <p>With respect to Jurisdictional Urban Runoff Management Program requirements required under the Order, the DAMP, however, lacks the specificity necessary for successful implementation and assessment of compliance.</p>
Legal Authority	D.1.d	4.2	Control discharge of spills, dumping, or disposal of materials to MS4.	<p>The DAMP and the Water Quality Ordinance adequately address the requirement to control of discharges (i.e. spills, dumping, or disposal of materials) into the MS4.</p> <p>With respect to Jurisdictional Urban Runoff Management Program requirements required under the Order, the DAMP, however, lacks the specificity necessary for successful implementation and assessment of compliance.</p>
Legal Authority	D.1.e	4.2; Appendix E1	Require compliance with conditions of Copermitee ordinances, permits, contracts, or Orders.	<p>The DAMP includes the requirement of compliance with conditions in ordinances, permits, contracts or orders.</p> <p>Although, the Water Quality Ordinance (Appendix E1) generally implements the prohibitions of the Order, it lacks significant elements (see above)</p>

				<p>that should be included.</p> <p>The Enforcement Consistency Guide (Appendix E2) provides guidance for enforcement activities to be undertaken by Copermittee inspectors.</p> <p>The Water Quality Ordinance and the Enforcement Consistency Guide, however, are somewhat dated and should be updated to include and implement requirements of the Order.</p>
Legal Authority	D.1.f	4.2; Appendix E1	Utilize enforcement tools to require compliance with Copermittee ordinances, permits, contracts or orders.	<p>The DAMP includes the requirement of compliance with conditions in ordinances, permits, contracts or orders.</p> <p>Although, the Water Quality Ordinance (Appendix E1) generally implements the prohibitions of the Order, it lacks significant elements (see above) that should be included.</p> <p>The Enforcement Consistency Guide (Appendix E2) provides guidance for enforcement activities to be undertaken by Copermittee inspectors.</p> <p>The Water Quality Ordinance and the Enforcement Consistency Guide, however, are somewhat dated and should be updated to include and implement requirements of the Order.</p>
Legal Authority	D.1.g	2.2.9; 4.1; 4.2 Appendix C	Interagency agreements to control contribution of pollutants from one portion of a shared MS4 to another portion of the MS4.	<p>The DAMP adequately addresses the requirement, but fails to provide sufficient detail with regards to the implementation by the Copermittees of the interagency agreement that controls the contribution of pollutants from one portion of a shared MS4 to another portion of the MS4.</p>
Legal Authority	D.1.h	4.2	Carry out inspections, surveillance, and monitoring necessary to determine compliance and	<p>The DAMP adequately addresses the requirement for inspections, surveillance, and monitoring necessary to determine compliance and non-compliance with permit conditions. However, the</p>

			noncompliance with local ordinances and permits under the Order.	DAMP lacks specificity in regards to various program components, inspection frequencies, time-lines for implementation, assessment of program effectiveness, and follow-up activities by Copermittees individually and collectively.
Legal Authority	D.1.i	1.2; 1.3; 1.4; 3.1; 3.2; 3.3; 3.4; 3.5; 4.1; 4.2; 4.3	Require use of BMPs to prevent or reduce discharge of pollutants to MS4s.	The DAMP adequately addresses the requirement for BMP implementation, but lacks specificity in regards to BMP implementation, program components, time lines for implementation, assessment of program effectiveness, and follow-up activities by Copermittees individually and collectively.
Legal Authority	D.2	4.2	Submit statement within 365 days certified by chief legal counsel that the Copermittee has adequate legal authority to implement and enforce each of the requirements in 40 CFR 122.26(d)(2)(I)(A-F) and this Order.	<p>The DAMP states that the Copermittees submitted certification of legal authority to regulate the discharge of pollutants to the MS4 system (40 CFR 122.26(d)(2)(I)(A-F)) as of July 31, 1997.</p> <p>The DAMP does not commit the Copermittees to submitting an updated certification of legal authority that reflects the requirements of the Order.</p>
Technology Based Standards	E (Table 3)	Not Addressed	Copermittee implements or requires implementation of BMPs to ensure that pollutant discharges into and from its MS4 are reduced to the applicable technology based standard.	<p>The DAMP does not specify the Technology Based Standards applicable to pollutant discharges from industrial activities owned by the Copermittee, or general industrial and construction activity.</p> <p>The DAMP incorrectly identifies MEP as the standard for construction activity owned by the Copermittee (Appendix H.3.1). The standard to be applied under the terms of the Order is the BAT/BCT standard applicable to construction activities authorized under the Statewide General</p>

				<p>Construction Storm Water Permit. It should be noted, in fact, that Order No. 96-03 did not specifically exempt the Copermittees from implementing BMPs at the BAT/BCT level at municipal construction sites > 5 acres. The Order only exempted the Copermittees from applying for coverage under the statewide permit. Provision No. 24 stated "All other terms and conditions of the latest version of the State's General Construction Activity Storm Water Permit shall be applicable."</p> <p>Order No. R9-2002-0001 does not continue the provisions (Nos. 19-24) of Order No. 96-03 that exempted municipal construction activities from coverage under the Statewide General Construction Storm Water Permit.</p>
<p>Jurisdictional Urban Runoff Management Program</p>	<p>F</p>	<p>Sections 1-12</p>	<p>Each Copermittee reduces discharges of pollutants and runoff flow during each of the three major phases of urban development (planning, construction, and land-use phases).</p> <p>Each Copermittee shall implement the provisions and commitments of proposed DAMP until full implementation of the Jurisdictional Urban Runoff Management Program.</p>	<p>The proposed DAMP and appendices does not adequately address in specific detail how the Copermittees will reduce the discharge of pollutants and runoff flow during each of the three major phases of urban development. The various sections of the proposed DAMP provides general and over-arching discussion of the need to address these issues through the implementation of BMPs, but fails to provide sufficient detail and implementation timelines by which to assess compliance with the Order.</p> <p>The proposed DAMP also fails entirely to address the requirement to prevent or respond to <u>exceedances of receiving water quality objectives</u> resulting from the discharge of urban runoff from these three phases of land-use through the implementation of pollution prevention, source identification and elimination, enforcement, education, and other structural and non structural</p>

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				BMPs and programs. Specific deficiencies of the DAMP are discussed below with respect to the Order.
Land-Use Planning for New Development and Redevelopment Component	F.1	7.0; Appendix G	Minimize short-term and long-term impacts on receiving waters from new development and redevelopment.	
Land-Use Planning for New Development and Redevelopment Component	F.1.a	7.0; Appendix G	Assess General Plan	The DAMP does not indicate that the Copermittees will assess their general plans or equivalent to include watershed protection principles.
Land-Use Planning for New Development and Redevelopment Component	F.1.b.1	7.0; Appendix G	Modify Development Project Approval Processes	The DAMP has requirements for all projects to develop a water quality management plan that include BMPs to be used at the site. However, the DAMP does not require all projects meet the minimum requirements listed in the Order (e.g., source control).
Land-Use Planning for New Development and Redevelopment Component	F.1.b.2	7.0; Appendix G	Modify Development Project Approval Processes	The DAMP does not include the development of Standard Urban Storm Water Mitigation Plans on watershed (model) and jurisdictional (local) levels.
Land-Use Planning for New Development and Redevelopment Component	F.1.b.2.a	7.0; Appendix G	Standard Urban Storm Water Mitigation Plans (SUSMPs)	The DAMP does not include the priority development categories listed in the Order. The DAMP has BMP requirements at all development projects regardless of size or land use. However, the BMP requirements in the DAMP do not meet the minimum SUSMP requirements. The Copermittees do have discretion to require all projects meet SUSMP requirements.
Land-Use Planning for New Development and Redevelopment Component	F.1.b.2.b	7.0; Appendix G	SUSMPs - BMP Requirements	The BMPs listed in the DAMP are inadequate and do not meet the minimum requirements of this Section. The Copermittees must develop their own list of recommended source control and structural BMPs to be implemented at least the priority development projects listed in the order. The recommended BMPs must also meet

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				minimum performance criteria.
Land-Use Planning for New Development and Redevelopment Component	F.1.b.2.c	7.0; Appendix G	SUSMPs – Numeric Sizing Criteria	The DAMP does not include numeric sizing criteria for structural BMPs
Land-Use Planning for New Development and Redevelopment Component	F.1.b.2.d	7.0 Appendix G	SUSMPs – Equivalent Numeric Sizing Criteria	The DAMP does not include a process for developing as part of the Model SUSMP an equivalent method for calculating the volume or flow which must be mitigated (i.e. an equivalent method for calculating numeric sizing criteria) by post construction BMPs.
Land-Use Planning for New Development and Redevelopment Component	F.1.b.2.e	7.0; Appendix G	SUSMPs- Pollutants or Conditions of Concern	The DAMP does not include a specific procedure for identifying pollutants or conditions of concern.
Land-Use Planning for New Development and Redevelopment Component	F.1.b.2.f	7.0; Appendix G	SUSMPs – Implementation Process	The DAMP does not include a procedure for implementation of SUSMP requirements.
Land-Use Planning for New Development and Redevelopment Component	F.1.b.2.g	7.0 Appendix H	SUSMPs – Waiver Provision	The DAMP does not include a procedure for developing and implementing a waiver provision.
Land-Use Planning for New Development and Redevelopment Component	F.1.b.2.h	7.0; Appendix G	SUSMPs – Infiltration and Groundwater Protection	The DAMP does not include groundwater protection restrictions for use with infiltration structural BMPs.
Land-Use Planning for New Development and Redevelopment Component	F.1.b.2.i	7.0; Appendix G	SUSMPs – Downstream Erosion	The DAMP does not address downstream erosion from development and redevelopment projects.
Land-Use Planning for New Development and Redevelopment Component	F.1.c	7.0; Appendix G	Revise Environmental Review Processes	The DAMP does not include clear and specific language that indicates water quality and mitigation measures will be evaluated during the Copermittees environmental review processes.
Land-Use Planning for New Development and Redevelopment Component	F.1.d	7.0; Appendix G	Conduct Education Efforts Focused on New Development and Redevelopment	The DAMP adequately addresses the education requirements of the Order, but additional specific detail regarding implementation should be included with respect to the requirements of this section of the Order.
Construction Component	F.2	8.0 Appendix H	Implement a construction component of the Jurisdictional URMP to reduce	The Construction section of the DAMP is generally inadequate to address the requirements of Order No. R9-2002-0001. It focuses mainly on

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			pollutants in runoff from construction sites during all construction phases.	Public Works construction projects, and does not address requirements for private construction projects.
Construction Component	F.2.a	Not addressed	Pollution Prevention	The DAMP does not include pollution prevention methods for construction, and should be updated to include and implement these methods.
Construction Component	F.2.b	8.4 8.7	Grading Ordinance Update	The DAMP does include a new commitment to review grading/erosion control ordinances on an as needed basis to achieve consistency with other regulatory requirements, but it does not contain language requiring the implementation of BMPs to be include in the update.
Construction Component	F.2.c	Not addressed	Modify Construction and Grading Approval Process	The DAMP does not include clear and specific language that indicates the construction and grading approval process will be modified to ensure that pollutants will be reduced to MEP.
Construction Component	F.2.d	Not addressed	Source Identification	The DAMP does not address the development of a watershed-based construction site inventory of all sites within their jurisdiction.
Construction Component	F.2.e	Not addressed	Threat to Water Quality Prioritization	The DAMP does not address the threat to water quality prioritization of construction sites.
Construction Component	F.2.f	8.6; Appendix H	BMP Implementation	The DAMP does not set minimum BMP requirements based on threat to water quality prioritization. The DAMP does set minimum BMP requirements, but only for public works construction projects and not private construction sites.
Construction Component	F.2.g	8.4	Inspection of Construction Sites	Although the DAMP does address inspection frequencies of construction sites by construction and grading inspectors, these frequencies are not based on the threat to water quality prioritization, and are not adequate to comply with the requirements of Order No. R9-2002-0001.
Construction Component	F.2.h	8.2	Enforcement of Construction Sites	The DAMP includes provisions for coordination of enforcement efforts between Regional Board and the Copermittees. However, the DAMP lacks

				specific reference to the enforcement efforts of Copermittees' ordinances with respect to construction activities within their jurisdiction.
Construction Component	F.2.i	Not addressed	Reporting of Non-Compliant Sites	The DAMP does not include criteria for Copermittee evaluation and notification to the Regional Board of non-compliant construction sites.
Construction Component	F.2.j	8.7	Education Focused on Construction Activities.	The DAMP provides for adequate educational efforts for Municipal staff, developers and project proponents.
Existing Development Component	F.3		Minimize short-term and long-term impacts on receiving water quality from all types of existing development.	As the proposed DAMP attempts to broadly address countywide storm water discharges, the specificity required to manage discharges locally and on a watershed basis is compromised. As a result, for the region of Orange County subject to the San Diego Regional Water Quality Control Board, the DAMP does not result in a plan to reduce pollutants in urban runoff discharges from existing municipal, industrial, commercial, and residential areas to the maximum extent practicable (MEP). For instance, although the Permit allows for a BMP-based approach to reaching MEP, an assessment of BMP effectiveness (DAMP section 3.3) at the jurisdictional level is not effectively attainable under the current monitoring program.
Municipal (Existing Development)	F.3.a.1 F.3.a.2 F.3.a.3 F.3.a.4 F.3.a.5 F.3.a.6 F.3.a.7 F.3.a. 8	5.0; Appendix M	Pollution Prevention Source Identification Threat to Water Quality Prioritization BMP Implementation Maintenance of MS4 Management of Pesticides, Herbicides, and Fertilizers Inspection of Municipal Areas and Activities Enforcement of Municipal	Although the DAMP describes a Hazardous Waste Management/Environmental Performance Report (section 5.3.6), the program description does not provide sufficient detail to evaluate the pollution prevention and source identification (Inventory) components of this report. With respect to public agency (Municipal – Existing Development) land uses, the DAMP and Appendices F and M provide sufficient detail concerning the pollution prevention, source

			Areas and Activities	<p>identification, and threat to water quality prioritization for many of the categories identified in the Order. However, it is not apparent that the source identification included the active landfills, publicly owned treatment works, the MS4 systems, incinerators, land application sites, or uncontrolled sanitary landfills. To the extent that these public agency land use activities or areas are present, the DAMP and Appendix M should be updated to address these areas and activities. Also, it is not apparent in Appendix 3 of Appendix M that San Juan Capistrano, Rancho Santa Margarita, Laguna Woods, and Lake Forest have complied with this requirement of the DAMP.</p> <p>The BMP Reference Manual provided in Appendix 2 of Appendix M is dated and should be updated by the Copermittees.</p> <p>Furthermore, the DAMP and Appendices do not establish minimum required BMPs to be implemented by public agencies with respect to the municipal areas and activities. This section and the Appendices should be updated to address all of the municipal areas and activities identified as high priority categories and include the required designated minimum BMPs for the public agency areas and activities inventoried and identified as low, medium, or high priorities.</p> <p>The MS4 maintenance activities described by the Copermittees in sections 5.3.3 and 5.4 satisfy the requirements of section F.3.a.5. The new commitment by the Copermittees to annually inspect and clean out as necessary (to be determined by criteria under development) is in particular a significant commitment. The</p>
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				commitment to update MS4 maps both on paper and electronically following significant changes is also a noteworthy commitment that satisfies requirements in the Order.
Industrial (Existing Development)	F.3.b.1 F.3.b.2 F.3.b.3 F.3.b.4 F.3.b.5 F.3.b.6 F.3.b.7 F.3.b.8	9.0;	Pollution Prevention Source Identification Threat to Water Quality Prioritization BMP Implementation Monitoring of Industrial Sites Inspection of Industrial Sites Enforcement of Industrial Sites Reporting of Non-Compliant Sites	<p>The proposed DAMP is insufficient to effectively identify industrial sources of discharges to the municipal separate storm sewer system (MS4). The proposed DAMP commitment to assess the feasibility of establishing a mechanism to ensure coverage under the State’s Industrial General Permit prior to issuance of a business license does address an action (identification) that is required under Federal regulations (40 CFR 122.26(d)(2)(ii)), yet does not actually commit the Copermittees to providing an inventory of industrial facilities (DAMP section 9). Given the relatively small size and limited industrial activity within most of the municipalities subject to the Order, the DAMP commitment seems to unnecessarily delay compliance with the Federal regulations.</p> <p>The proposed DAMP does not provide for effective inspection, surveillance, and monitoring procedures to determine compliance with permit conditions, including illicit discharges to the MS4. Inspections of industrial facilities for local compliance are performed by various County agencies, but there is no documentation of visits, findings, monitoring, or follow-up actions, thus, there is no means for assessing whether high priority sites within a local jurisdiction are in compliance with prohibitions on illicit discharges (DAMP sections 9 and 10).</p>
Commercial (Existing Development)	F.3.c.1 F.3.c.2	3.0; 3.1;	Pollution Prevention Source Identification	The proposed DAMP does not base development of BMP guidance, education, or selection of target

	F.3.c.3 F.3.c.4 F.3.c.5	3.2; 10.0	BMP Implementation Inspection of Commercial Sites and Sources Enforcement of Commercial Sites and Sources.	<p>commercial activities on jurisdictional needs and does not propose to address many commercial activities known to be threats to water quality (DAMP section 6 and Appendix L). Commercial activities targeted for BMP guidance and education are selected on Countywide criteria, regardless of the threat a targeted commercial activity poses in a specific municipality.</p> <p>The proposed DAMP does not adequately ensure that high priority commercial activities are inspected for compliance with local storm water ordinances. Inspections of commercial facilities for local compliance are performed by various County agencies, but there is no documentation of visits, findings, or follow-up actions, thus, there is no means for assessing whether high priority sites within a local jurisdiction are being inspected or for assessing the effectiveness of the inspection procedures (DAMP sections 3.0 and 10.0).</p>
Residential (Existing Development)	F.3.d.1 F.3.d.2 F.3.d.3 F.3.d.4		Pollution Prevention Threat to Water Quality Prioritization BMP Implementation Enforcement of Residential Areas and Activities	<p>Although the proposed DAMP would continue a strong educational effort targeting residential activities, it neglects to prioritize particular residential activities for action (DAMP section 6). Furthermore, it does provide a framework from which to assess the need or feasibility of structural BMPs. Given the proliferation of residential development and the documented contribution of pollutants from residential activities that enter receiving waters via the MS4, the DAMP provides inadequate commitments for ensuring that pollutants in urban runoff from residential activities are reduced to the maximum extent practicable.</p>
Education Component	F.4	6.0; 6.3.2 6.4;	Implement the Education Component of the Jurisdictional URMP to	<p>The proposed DAMP continues a strong commitment to public education shown by the Copermittees during the first two Permit periods.</p>

		Appendix L	measurably increase the knowledge of target communities and change behavior of target communities.	<p>Two notable new commitments are the formation of a public education committee and the implementation of the Public and Business Education Strategy. The Copermittees should review the various educational programs to ensure that they satisfy all the requirements of the Order in sections F.1.d, F.2.j, F.4.a, F.4.b, and F.4.c., especially with respect to the target audiences and contents of the Educational Components.</p> <p>The DAMP correctly emphasizes “effective” education programs, but could provide more specific information regarding the criteria that have been found to characterize effective educational programs.</p>
Illicit Discharge Detection and Elimination Component	F.5.	10.0; Appendix K	Implement the Illicit Discharge and Elimination Component of the Jurisdictional URMP to actively seek and eliminate illicit discharges and connections.	<p>See comments regarding industrial and commercial facility inspections (DAMP section 10.3).</p> <p>In addition, investigation and enforcement measures in the proposed DAMP appear to be insufficient to implement and enforce means to prevent illicit discharges to the MS4 (DAMP section 10). For example, as reported in the Report of Waste Discharge and NPDES Annual Progress Reports, the overwhelming majority of enforcement actions consist of educational letters in response to complaints and actual observances of discharges that violate local ordinances. There is no proposed mechanism, however, for determining the effectiveness of such letters. For example, there is no attempt to assess whether a recipient of an educational letter understands the content of the letter, any enclosed storm water brochures, or the actual liability of continuing to discharge illegally to the MS4.</p>

				<p>The proposed DAMP calls for reviewing and revising coordinated spill response procedures with sewerage agencies, but there is no timeframe (DAMP section 10). In addition, although spills from private laterals are a threat to water quality, there is no indication of a plan to address this source of pollution.</p>
<p>Illicit Discharge Detection and Elimination Component</p>	F.5.a	10.0	<p>Illicit Discharges and Connections</p>	<p>Section 10.1 incorrectly identifies illicit discharges as “any <u>intentional</u> discharge...that is not entirely composed of storm water...” (emphasis added). The DAMP does not adequately address <u>unintentional</u> discharges not composed entirely of storm water that enter the MS4 system. In fact, the Water Quality Ordinance specifically provides an exception for accidental sewage spills, roof runoff, and reclaimed water runoff from enforcement as illicit discharges.</p>
<p>Illicit Discharge Detection and Elimination Component</p>	F.5.b	10.0; Appendix K	<p>Dry Weather Monitoring Program</p>	<p>The discussion of the dry weather monitoring component of the Orange County Water Quality Monitoring Program in Appendix K provides a general description of the program development and goals, but leaves unanswered, or insufficiently described, how the program will be implemented year by year at a jurisdictional level. The monitoring proposal in Appendix K is insufficiently detailed and where detail is provided, the program appears to be too rigid and focused on specific locations to detect episodic illicit discharges in a broader, watershed context.</p> <p>Only three “warm spot” stations and three “reconnaissance warm spot” sampling stations are located in the San Juan Creek Watershed Management Area covered under this Order. It is not clear in Appendix K from sections 5.1, 5.1.2, Table 5.1, and Figure 5.2 that these</p>

				<p>reconnaissance stations are included in the 5 year plan for Source Identification for Warm Spots and CARs (Critical Aquatic Resources). Furthermore, the San Juan Creek watershed, the largest hydrologic unit in the San Juan Creek Watershed Management Area, does not seem to be included in this program. Moreover, the section (5.1.4) of Appendix K discussing Aliso Creek is very dated (even with respect to information available in September 2000) and does not describe in any detail how the results of the previous investigations will be addressed in the Dry Weather Monitoring Program or the implementation of the proposed DAMP.</p> <p>Section 5.2.2 of Appendix K provides only very general description of monitoring tools and techniques that may be used to identify sources. Although the use of a mobile lab on a monthly basis is proposed, the section lacks clearly presented, specific information with respect to the sites to be sampled, parameters to be analyzed at each, and the follow-up mechanisms and investigative measures to be employed.</p> <p>The sampling parameters and frequencies are not sufficiently detailed, and where described, they may be insufficient to detect incidental, episodic, and short duration illicit discharges even in these drainages. The monitoring program described does not provide enough information to the Copermittees in a timely enough manner to result in the detection and elimination of illicit discharges and illegal connections. The monitoring program is insufficiently linked to the jurisdictional level program.</p>
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				<p>Where land use investigation studies are proposed, these focus only on various, select, BMPs (i.e. trash dumpster areas, street sweeping efficiencies, inlet trash racks, and motor fuel concrete dispensing area interruptible drainages). To the extent that land use investigations are performed, they should include each of the major categories of land use. Land use investigations may not provide adequate, timely information regarding episodic illicit discharges or illegal connections.</p> <p>Finally, the program reevaluation period of five years for this monitoring effort (ending June 2003) is too long to provide timely information and adaptive management opportunities to a Dry Weather Monitoring Program intended to detect and eliminate illicit discharges and illegal connections.</p> <p>The Dry Weather Monitoring Program should be extensively reviewed and revised to address the requirements of the Order and to provide a broader scope for reconnaissance and surveillance Dry Weather Monitoring that considers the entire San Juan Creek Watershed Management Area within Orange County.</p>
<p>Illicit Discharge Detection and Elimination Component</p>	<p>F.5.c F.5.d F.5.e</p>	<p>10.0; Appendix K</p>	<p>Investigation/Inspection and Follow-up</p> <p>Elimination of Illicit Discharges and Connections</p> <p>Enforce Ordinances</p>	<p>DAMP does not provide necessary detail for detection and elimination of Illicit Discharges and Illegal Connections (IC/IDs). It does provide for training of inspectors and regular meetings to discuss compliance inspections, but only for industrial inspections. This should be expanded to include municipal, residential, and commercial land uses and to address detection and elimination of IC/IDs. The dry weather monitoring program should be describe specific minimum</p>

				frequencies of inspections, monitoring requirements, trigger thresholds for further investigation, and minimum response and enforcement actions.
Illicit Discharge Detection and Elimination Component	F.5.f	10.0	Prevent and Respond to Sewage Spills (Including Private Laterals and Failing Septic Systems) and Other Spills	The New Commitment to coordinate with major sewerage agencies the review and revision of procedures and practices for sewage spill response does not have sufficient detail by which to evaluate the compliance by the Copermittees with the Order. For example, the new commitment does not address the Copermittee level prevention, response, and clean up of all sewage and other spills from any source, including private laterals and failing septic systems. Also, the new commitment does not address the prevention of entry of silts into the MS4 and contamination of surface water, ground water, and soil to the MEP. Finally, the new commitment and section 10 in general does not address in sufficient detail how the Copermittees will satisfy the requirement to coordinate spill prevention, containment, and response activities throughout all appropriate departments, programs, and agencies.
Illicit Discharge Detection and Elimination Component	F.5.g	10.0	Facilitate Public Reporting of Illicit Discharges and Connections – Public Hotline	The proposed DAMP includes very good countywide programs to facilitate public reporting of illicit discharges and connections. Additional specific detail is necessary at a jurisdictional level regarding the implementation of this requirement.
	F.5.h	5.1; 5.3.2; 5.3.7; 10.0	Facilitate Public Disposal of Used Oil and Toxic Materials	The DAMP adequately describes the programs implemented to facilitate the public disposal of used oil and toxic materials. These programs have been very successfully implemented by the Copermittees and should be continued.
	F.5.i	5.1; 5.4; 10.0	Limit Infiltration from Sanitary Sewer to MS4	Although the DAMP discusses the extensive inspection and clean out program proposed for the MS4 system, the DAMP does not adequately

				describe the measures undertaken by the Copermittees to limit infiltration from sanitary sewers to the MS4. For example, the DAMP proposes an annual inspection rate 80% of the MS4 system, but does not describe measures to be implemented that would provide for the thorough, preventative maintenance of the MS4. Moreover, the role of the Copermittees that own or operate both a sanitary sewer and a MS4 system is not adequately described in the DAMP.
Common Interest Areas and Homeowners Associations	F.6.a F.6.b	7.0; Appendix G	Each Copermittee develops and implements a plan to ensure that urban runoff originating within common interest areas meets the objectives of the Order. Each Copermittee describes in its Annual Report measures taken to ensure that urban runoff discharged from common interest areas into its MS4 meets the objectives of the Order.	The DAMP addresses new developments subject to ownership and management by common interest associations (DAMP section 7 and Appendix G), but does not provide adequate means for assuring that existing development in common interest areas are reducing pollutants to the MEP.
Public Participation Component	F.7	3.3.4	Each Copermittee incorporates a mechanism for public participation in the implementation of the Jurisdictional URMP.	The proposed DAMP encourages public participation in accordance with the NPDES Storm Water Permits, but does not specifically describe a mechanism for public participation in the implementation of the Jurisdictional Urban Runoff Management Program (or DAMP).
Assessment of Jurisdictional URMP Effectiveness Component	F.8.a F.8.b	Section 5.0 (ROWD); 3.1; 3.2; 3.3.1; 3.3.2; 3.4;	Each Copermittee develops a long-term strategy to assess the effectiveness of its Jurisdictional URMP. Strategy shall include direct and indirect measurements.	Although the DAMP relies on a BMP-based approach to reducing pollutants in storm water discharges to the maximum extent practicable, an assessment of BMP effectiveness (DAMP section 3.3) at the jurisdictional level is not effectively attainable under the current monitoring program (see comments for F.3 above).

		<p>3.5</p>	<p>Strategy shall consider the role of monitoring data in substantiating or refining the assessment.</p> <p>Each Copermittee shall include an assessment of the effectiveness of the Jurisdictional URMP in its Annual Report as described above.</p>	<p>Section 5.0 of the Report of Waste Discharge and section 3.3.2 of DAMP lacks specificity with regard to the assessment of the effectiveness of all of the general programs or individual BMP implemented to reduce pollutant loading to the MS4 and receiving waters. These sections, rather, discusses why the Copermittees feel they are unable to evaluate BMPs and a list of studies that have or will be performed, mostly by non-Copermittees. Section 3.3.2 refers to a number of programs that are currently contributing to the assessment of individual project BMP performance, but does not list, refer to, or describe these programs.</p> <p>Where the DAMP commits to the assessment BMP effectiveness, the DAMP fails to provide sufficient information regarding how the assessments will be performed, what the time lines for the assessments will be followed, and how the implementation of the DAMP will incorporate the data collected from the assessments.</p> <p>Section 3.3.3 of the DAMP states that the DAMP will be revised and submitted as the proposed plan for each Report of Waste Discharge. Section 3.5 includes as a new commitment the assessment and evaluation of data from site-specific BMPs in order to determine effectiveness of the BMP implementation. It is not clear from section 3.3.3 that the DAMP will be revised and updated as data from the assessments of program and BMP implementation is made available. The DAMP proposes to be a dynamic document subject to revision and improvement on</p>
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				<p>an annual basis, but review of previously submitted DAMPs does not indicate that this has in practice been accomplished. The 1993 DAMP and the 2001 DAMP are very similar in structure and content. Section 3.3.2 states that the BMPs implemented under the previous permits will be largely continued and indicates that in many instances, changes have been included to further improve the effectiveness over the Third Permit Term and to increase Copermittee commitment to their implementation. However, it is not clear in the subsequent sections of the DAMP where or how these changes have been made. Section 3.3.2 also includes two statements that make it appear unlikely that the DAMP will be significantly updated annually: "Assessing the cumulative effect of BMPs employed countywide on the water quality of receiving waters may take a number of years" and "it has not proven possible to characterize the effects of ...BMPs." Given the lack of specificity in these sections, and the apparent inability to assess the effectiveness of the BMPs implemented, the DAMP approaches to assessing program effectiveness as required in sections F.8 and J.2.h and J.2.i is considered inadequate.</p>
Fiscal Analysis Component	F.9	2.2.2; 2.2.5; 3.4; Appendix C; Appendix D	<p>Each Copermittee shall secure the resources necessary to meet the requirements of the Order</p> <p>Each Copermittee shall develop a strategy to conduct a fiscal analysis of its Jurisdictional URMP in its entirety.</p>	<p>Federal NPDES regulations require the Copermittees to estimate the funds required to carry out the capital and operations and maintenance activities of their programs and to provide a description of the source(s) of funds to be used. The DAMP calls for the Copermittees to report each year on their non-shared expenditures for the previous fiscal year, the budget for the current fiscal year and a description of the source of funds. In addition, shared costs fund activities performed by the County of Orange as Principal</p>

			<p>Each Copermittee shall conduct an annual fiscal analysis as part of its Jurisdictional URMP Annual Report.</p> <p>The fiscal analysis shall evaluate the expenditures necessary to accomplish the activities of the Jurisdictional URMP.</p> <p>The fiscal analysis shall include a description of the source(s) of funds that are proposed to meet the necessary expenditures including legal restrictions on the use of such funds.</p>	<p>Permittee on behalf of the Copermittees. In general this fiscal analysis approach satisfies the requirements of the Order.</p> <p>In the 2000 NPDES Annual Report, however, where 8 cities and the County of Orange provide fiscal analyses in a table format corresponding to DAMP section commitments, we are concerned about the following trends. "Drainage facility maintenance" is the only element projected for funding by every Copermittee. Four cities (50%) and the County project no funds for "public property and street chemical spill response." Six cities (75%) and the county project no spending on "environmental performance," which is an evaluation of municipal facilities. Four cities (50%) and the County project no spending on "nonpoint source pollution awareness" and six cities (75%) and the County project no spending on "household hazardous waste collection." Four cities (50%) and the County project no spending on "requiring new development BMPs (supportive of planning, etc.)," and "requiring construction BMPs (supportive of plan check and inspection)." In addition, three cities (38%) project no spending on "facility inspection," although this may presumably be attributed to some cities delegating inspection to the Principal Permittee. Yet, seven cities (88%) and the County project no spending on "other efforts to identify and eliminate illicit connections."</p> <p>Taken together, these spending projections imply that either the reporting system should be modified or there is a systemic lack of commitment to addressing DAMP elements at the jurisdictional level.</p>
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<p>Implementation of Jurisdictional URMP</p>	<p>G</p>		<p>Each Copermittee shall have completed full implementation of the requirements of the Jurisdictional URMP no later than 365 days following adoption of the Order.</p> <p>Full implementation does not include the implementation of the model SUSMP. Within 180 days of the development of the model SUSMP, each Copermittee shall adopt its own local SUSMP and amended ordinances consistent with the model SUSMP.</p> <p>Within 180 days of the development of the model SUSMP, each Copermittee shall submit its local SUSMP and amended ordinances consistent with the model SUSMP.</p> <p>Following the adoption of the Order and prior to the implementation of the Jurisdictional URMP, each Copermittee shall at a minimum implement the provisions and commitments of the proposed DAMP.</p>	<p>The DAMP does not adequately address the requirements of section G as described in the preceding section (F) of the Order.</p>
<p>Submittal of Jurisdictional URMP Document</p>	<p>H</p>	<p>Not Addressed</p>	<p>Each Copermittee shall submit to the Principal Permittee(s) an individual Jurisdictional URMP</p>	<p>The DAMP does not adequately address the requirements of section H of the Order since it is specific to the requirements of sections F and G of</p>

			<p>Document.</p> <p>The Jurisdictional URMP Document shall contain a written account of the overall program to be conducted by the Copermittee within its jurisdiction.</p>	<p>the Order. See discussion of these sections above.</p>
<p>Submittal of Jurisdictional URMP Annual Report</p>	I	Not Addressed	<p>Requirements for the submittal of each Copermittee's Jurisdictional URMP Report.</p>	<p>The DAMP does not adequately address the requirements of section I of the Order since it is specific to the requirements of sections F, G, and H of the Order. See discussion of these sections above.</p>
<p>Watershed Urban Runoff Management Program (Watershed URMP)</p>	J.1	1.3; 3.3.1; 11.4	<p>Copermittees collaborate to review and revise as necessary the proposed DAMP to identify, address, and mitigate the highest priority water quality issues/pollutants in the six hydrologic units in the San Juan Creek Watershed Management Area.</p>	<p>The DAMP indicates that water quality problems have been and will be identified and prioritized. However, the water quality planning initiatives referred to in section 1.3 and described in sections 3.3.1 and 11.4 consist primarily of monitoring activities Section 11.4 describes water quality planning initiatives underway in Orange County, only one of which is located in the San Juan Creek Watershed Management Area. The DAMP does not adequately address the other five hydrologic units. Moreover, most of the section discussing the Aliso Creek watershed focuses on the 205(j) grant study and the SDRWQCB directives for increased monitoring in the Aliso Creek watershed. The activities or plans of the Copermittees to identify and eliminate sources of the elevated bacteria levels and toxicity identified in the Aliso Creek watershed are not addressed. None of the new commitments in 11.5 address the requirement to identify and eliminate sources and to implement BMPs to reduce pollutants in the discharges.</p>
<p>Watershed Urban Runoff</p>	J.2	1.3;	<p>Copermittees collaborate to</p>	<p>The DAMP does not specifically address the</p>

Management Program (Watershed URMP)		3.3.1; 11.4	develop and implement a Watershed Urban Runoff Management program for the six hydrologic units of the San Juan Creek Watershed Management Area.	requirement to collaborate to develop and implement a Watershed URMP or equivalent for each of the six hydrologic units of the San Juan Creek Watershed Management Area within Orange County. See also the discussion above for section J.1.
Watershed Urban Runoff Management Program (Watershed URMP)	J.2.a	1.3; 3.3.1; 11.4	Prepare an accurate map of the watersheds in the San Juan Creek Watershed Management Area that identifies all receiving waters, all 303(d) listed water bodies, existing and planned land uses, MS4s, major highways, jurisdictional boundaries, and inventoried commercial, construction, industrial, municipal sites, and residential areas.	Although the Copermittees have prepared maps of the Aliso Creek watershed in response to directives from the SDRWQCB, the preparation of these maps as described in section J.2.a is not addressed in the DAMP.
Watershed Urban Runoff Management Program (Watershed URMP)	J.2.b	3.3.1; 3.3.2; 10.0; 11.0; 11.4; Appendix K	An assessment of water quality of all receiving waters in the watershed based on existing water quality data, annual dry weather monitoring, and watershed receiving water quality monitoring.	It is not apparent that the water quality monitoring program discussed in the DAMP and Appendix K will adequately assess water quality of all receiving waters in the San Juan Creek Watershed Management Area. The DAMP and monitoring programs should be updated to comply with this requirement of the Order.
Watershed Urban Runoff Management Program (Watershed URMP)	J.2.c	3.3.1; 3.3.2; 10.0; 11.0; 11.3.3 11.4; Appendix K	Identify and prioritize major water quality problems caused or contributed to by MS4 discharges and the likely source(s) of the problem(s).	This requirement is not adequately addressed in the DAMP or Appendix K. The DAMP states that one purpose of the monitoring is to determine the role "if any" that storm water discharges in the impairment of beneficial uses. However, it is not clear that the monitoring plan described in Appendix K and the DAMP is adequate in scope to address this question in the San Juan Creek Watershed Management Area. See the

<p>Watershed Urban Runoff Management Program (Watershed URMP)</p>	<p>J.2.d</p>		<p>Implementation time schedule for short and long term recommended activities (individual and collective) needed to address the highest priority water quality problems identified above.</p>	<p>discussion for section P below. The DAMP does not include an implementation time schedule for short or long term recommended activities (individual or collective) needed to address the highest water quality problems in the San Juan Creek Watershed Management Area. It should be noted here that many of the new commitments proposed in the DAMP are activities that were logically required under both the First Term and Second Term Permits (e.g. attendance at workshops, training seminars, and Copermittee TAC meetings) rather than implementation of specific BMPs to address either watershed level or jurisdictional level water quality impacts from MS4 discharges.</p>
<p>Watershed Urban Runoff Management Program (Watershed URMP)</p>	<p>J.2.e</p>		<p>Mechanism for public participation</p>	<p>The proposed DAMP encourages public participation in accordance with the NPDES Storm Water Permits, but does not specifically describe a mechanism for public participation in the implementation of the Watershed Urban Runoff Management Program (or the DAMP water quality planning initiatives such as the one on Aliso Creek).</p>
<p>Watershed Urban Runoff Management Program (Watershed URMP)</p>	<p>J.2.f</p>		<p>Watershed based education program that builds on and expands upon the education activities conducted by each Copermittee.</p>	<p>The proposed DAMP continues a strong commitment to public education shown by the Copermittees during the first two Permit periods. Two notable new commitments are the formation of a public education committee and the implementation of the Public and Business Education Strategy. The Copermittees should review the various educational programs to ensure that they satisfy all the requirements of the Order, especially with respect to the target audiences and contents of the Educational Component at both a jurisdictional as well as a</p>

				watershed level. The DAMP correctly emphasizes “effective” education programs, but does not provide more specific information regarding the criteria for effective educational programs.
Watershed Urban Runoff Management Program (Watershed URMP)	J.2.g	Not Addressed	A Mechanism to facilitate collaborative watershed-based land use planning with neighboring governments in the watershed.	The DAMP does not address this requirement of the Order.
Watershed Urban Runoff Management Program (Watershed URMP)	J.2.h	Not Addressed	Short-term strategy for assessing the effectiveness of the activities and programs implemented under the Watershed URMP. The short-term assessment strategy shall identify methods to assess Watershed URMP effectiveness and include specific direct and indirect performance measures that will track the immediate progress and accomplishments of the Watershed URMP towards improving water quality impacted by urban runoff discharges. The short-term strategy shall address the use of monitoring data collected by the Copermittees in substantiating and refining the assessment.	The DAMP does not address this requirement of the Order. As discussed above, the DAMP fails in most sections to adequately describe a detailed strategy for assessing program effectiveness on either a jurisdictional or watershed level.
Watershed Urban Runoff Management Program (Watershed URMP)	J.2.i		Long- term strategy for assessing the effectiveness of the activities and programs	The DAMP does not address this requirement of the Order. As discussed above, the DAMP fails in most sections to adequately describe a detailed

			implemented under the Watershed URMP. The long-term assessment strategy shall identify include specific direct and indirect performance measures that will track the long-term progress of the Watershed URMP towards improving water quality impacted by urban runoff discharges. The measures shall include surveys, pollutant loading estimations, and receiving water quality monitoring (or their equivalents). The long-term strategy shall address the use of monitoring data collected by the Copermitttees in substantiating and refining the assessment.	strategy for assessing program effectiveness on either a jurisdictional or watershed level.
Implementation of Watershed URMP	K	Not Addressed	Requirements for the implementation of the requirements of the Watershed URMP for the San Juan Creek Watershed Management Area.	The DAMP does not adequately address the requirements of section G as described in the preceding section (J) of the Order.
Submittal of Watershed URMP Document	L	Not Addressed	Requirements for the submittal of the Watershed URMP Document for the San Juan Creek Watershed Management Area.	The DAMP does not adequately address the requirements of section L of the Order since it is specific to the requirements of sections J and K of the Order. See discussion of these sections above.
Submittal of Watershed URMP Annual Report	M	Not Addressed	Requirements for the submittal of the Watershed URMP Annual Report for the San Juan Creek Watershed Management Area.	The DAMP does not adequately address the requirements of section L of the Order since it is specific to the requirements of sections J, K, and L of the Order. See discussion of these sections above.

Program Management	N	2.0; Appendix C; Appendix D	The Copermittees shall implement the Program Management activities and commitments as described in section 2 (Program Management) of the proposed DAMP.	The DAMP contains adequate information and commitments by the Copermittees with regard to program management. See also the discussion below regarding the Principal Permittee Responsibilities.
Principal Permittee Responsibilities	O	2.0; Appendix C;	Description of the designation of the Principal Permittee by the Copermittees and the responsibilities of the Principal Permittee.	The DAMP adequately describes the Principal Permittee Responsibilities, but does address the provision in the Order for the selection of more than one Principal Permittee.
Receiving Waters Monitoring and Reporting Program	P	10.0; 11.0; Appendix K	The Copermittees shall comply with the Receiving Water Monitoring and Reporting Program for Order No. R9-2002-0001 (Attachment B).	<p>The monitoring program described in the DAMP is not adequate to assess compliance with the Order. Section 11.0 of the DAMP describes the objectives of previous monitoring efforts and indicates that the results of the monitoring will be used to “provide technical information to support effective stormwater management program activities...”but does not sufficiently describe what technical information is being collected in the monitoring program or how that information will be used. Other sections of the DAMP where this information might be employed are also vague and non-committal. The DAMP should include specific detail in this regard, especially with respect to identifiable performance standards and time lines for implementation.</p> <p>Two of the four “new commitments,” in which the Copermittees propose to review and revise elements of the water quality monitoring program, are activities that should have been implemented and continue to be implemented as a matter of course. They do not represent significant new commitments.</p>

				<p>The new commitments to participate in the Southern California Bight Regional Monitoring Programs and Southern California Stormwater Monitoring/Research Cooperative Program are supportive of section B. 2.b.5 of Attachment B of the Order. The DAMP, however, should identify how role the Copermittees will specifically participate in these activities and what the anticipated products or results will be.</p> <p>Notably absent in section 11 as a whole, and sections 11.2 and 11.3 in particular, is the assessment of compliance objective of the monitoring program. Since the Second Term Permit monitoring program will carry over into the Third Term, it is necessary that the monitoring also be designed to assess compliance with the Order. This is a critical component of an NPDES and WDR Monitoring and Reporting Program and should be addressed in the DAMP and Appendix K.</p> <p>As discussed in section F.5, only three warm spots and three reconnaissance sites will be monitored under the program. The main effort of the monitoring program described in section 11 and Appendix K is focused in northern Orange County. Significant areas of the San Juan Creek Watershed Management Area covered under the Order are not adequately addressed in the Orange County Water Quality Monitoring Program as it is now described. Also, the monitoring to be performed will not adequately assess the biological, physical and chemical impacts to the receiving waters resulting from the discharge of urban runoff. In particular, coastal storm drain outfall monitoring, ambient coastal receiving</p>
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				<p>waters (apart from Dana Harbor) monitoring, and urban stream bioassessment are not adequately addressed in the DAMP and Appendix K.</p> <p>The DAMP and Appendix K should be updated to satisfy the requirements of section P and Attachment B of the Order.</p>
Task and Submittal Summary	Q	Not Addressed	Tables of Tasks and Submittals required specifically under Order No. R9-2002-0001.	The DAMP does not adequately specify the tasks and deliverables apart from the Annual Reports, next Report of Waste Discharge and submittal of the proposed DAMP at the end of the Third Term Permit cycle. Also, the DAMP does not adequately address reporting of events of non-compliance.
Standard Provisions, Reporting Requirements and Notifications	R	Not Addressed	Requirement for each Copermittee to comply with Standard Provisions, Reporting Requirements, and Notifications contained in Attachment C of the Order.	The DAMP does not adequately address all of the Standard Provisions and Reporting Requirements and Notifications. In particular, the DAMP fails to address the reporting of events of non-compliance. Also, it is not clear that the DAMP meets the requirements in section R.2 that all plans reports, and subsequent amendments submitted in compliance with the Order will be implemented immediately unless otherwise specified and that they will be an enforceable part of the Order upon submission to the SDRWQCB.
Attachment A – Basin Plan Prohibitions		Not Addressed		The DAMP does not adequately address implementation of the Basin Plan Prohibitions under the Third Term Permit as required in the Order.
Attachment B – Receiving Waters Monitoring and Reporting Program for Order No. R9- 2002-0001		10.0; 11.0; Appendix K		See discussion in section P above.
Attachment C – Standard Provisions, Reporting Requirements, and Notifications		Not Addressed		Not specifically addressed by the DAMP.

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Attachment D – Glossary		Glossary (pp. vi-ix)		The DAMP includes a glossary, but it does not define all of the terms contained in Attachment D of the Order.
Attachment E – Dry Weather Analytical and Field Screening Monitoring Specifications – Urban Runoff		10.0; Appendix K		See discussion in section F.5 above.

ATTACHMENT 6 - RESPONSE TO COMMENTS

(Please note, Tentative Order No. 2001-93 was renumbered to Order No. R9-2002-0001)

GENERAL COMMENTS.....	1
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GENERAL COMMENTS

Comment: California Coastal Commission appreciates the opportunity to comment on a subject that has long been of high priority to the Coastal Commission: contaminated storm water runoff and its prevention. We applaud your vision and leadership and strongly support the Waste Discharge Requirements. The Coastal Commission enthusiastically supports your work on the Waste Discharge Requirements, for they are an important step towards attaining the goal of healthy, clean watersheds and beaches. The Coastal Commission staff looks forward to our continued partnership with you on these issues, as we recognize that only through collaboration can we protect water quality to the greatest extent. *(California Coastal Commission)*

Response: Comment noted.

Comment: In the draft Technical Report it states that the permit is very prescriptive which helps with repeated requests from the Permittees about what they should be doing in order to comply. If this is the case, why does the permit not include the 69, measurable proactive performance commitments that the Permittees proposed in the 2000 DAMP? *(County of Orange)*

Response: Tentative Order is more prescriptive than Order 96-03 in that it clearly identifies the nature of actions that the copermitees must implement to address urban runoff from their jurisdictions. The performance measures proposed in the 2000 DAMP, where applicable, can be included in the JURMP and WURMP.

Comment: Bob Morris indicated that the proposed draft permit is very similar to the 1996 permit. One only has to read each permit to see that the 1996 and 2001 permits are totally different. If the Regional Board wanted to keep the permits similar, couldn't the suggested changes be worked out with the permittees in revising the DAMP? *(County of Orange)*

Response: The Tentative Order is similar to the 1996 permit in that both are based on applicable Federal and State law. The Tentative Order does, however, require more specific items to be addressed in each municipality's urban runoff management plan. This is intentional because the municipal management programs revised per each renewal of the 5-year NPDES permit need to be strengthened. Recognizing the effort put forth in the development of the revised DAMP to address countywide issues, the Tentative Order does not prohibit each copermitee from using the DAMP as a starting point from which to develop jurisdictional plans.

Comment: Response (to first comment, page 2 of Draft Response to Workshop 1) references a "review of technical and economic data that has determined what is broadly feasible." Will this review be provided to the Copermittees so we understand the basis of your assumptions? (*Laguna Niguel*)

Response: The Tentative Order represents the SDRWQCB's framework for MEP. The response to the comment cited above referred to the 10 years work reviewing reports, plans, monitoring data, and other information submitted by municipal storm water Copermittees throughout the San Diego Region. Additionally, a number of references, most of which are cited in the Fact Sheet/Technical Report, also provided information that was incorporated in the Tentative Order. These resources are available to the Copermittees and the public.

Comment: The Cities congratulate the Board Staff for a thorough and very detailed draft, one which attempts to clarify arcane points as well as spell out fundamental requirements in coming to grips with the most important issue of protection of the quality of the waters into which storm water and urban runoff flow. (*Lake Forest & Laguna Woods*)

Response: Comment noted.

Comment: Concerned about County Planning Commission in current Ladera runoff and proposals to add 25,000 new homes east of M.V. What mitigation is planned? (*Mission Viejo*)

Response: Comment noted. The Tentative Order would require new developments of the size mentioned in the comment to comply with SUSMP (Section F.1.b.(2)) criteria to mitigate the impacts of storm water on receiving waters.

Comment: Effluent-dependent (urban runoff) ephemeral streams (e.g. Aliso Creek) are being proposed as potential re-claimed water harvests. Who owns and who may treat and sell these discharges? (*Richard Gardner*)

Response: Aliso Creek meets the definition of both Waters of the State and Waters of the United States. As such, the water in Aliso Creek may be allocated for use by the SWRCB. A water right is a legal entitlement authorizing water to be diverted from a specified source and put to beneficial, nonwasteful use. Water rights are property rights, but their holders do not own the water itself, they possess the right to use it. The exercise of some water rights requires a permit or license from the State Water Resources Control Board, whose objective is to ensure that the State's waters are put to the best possible use and that the public interest is served. In making decisions, the Board must keep three major goals in mind: 1) developing water resources in an orderly manner; 2) preventing waste and unreasonable use of water; and 3) protecting the environment. Water right permits and licenses contain conditions for the use of the water. Water right permits carefully spell out the amounts, conditions, and construction timetables for the proposed water project. Before the Board issues a permit, it must take into account all prior rights and the availability of water in the basin. The Board considers, too, the flows needed to preserve instream uses such as recreation and fish and wildlife habitat. Records of water appropriation and use statewide are maintained by the State Board's Division of Water Rights.

Comment: "Fishable/Swimmable" is Rec-1, so why is there a Rec-2 standard that allows confusion via basin plans? Does Fed EPA recognize Rec-2? (*South Orange County Watershed Conservancy*)

Response: The REC-2 beneficial use includes the uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. The beneficial uses of waterbodies in the San Diego Region are designated by the SDRWQCB and are consistent with USEPA beneficial use categories. The USEPA includes a "secondary" water recreation beneficial use in addition to fishable and swimmable beneficial uses.

Comment: The RWQCB should state that they will provide assistance and support on issues that may arise between Copermittees when addressing jurisdictional issues (shared MS4's -what is coming in to one jurisdiction's MS4 from another's). (*Surfrider Foundation*)

Response: The Principal Permittee is identified in the Tentative Order as the liason(s) between the Copermittees and the SDRWQCB on general permit issues as well as the coordinator of permit activities among the Copermittees. Working with the Principal Permittee, the SDRWQCB will provide such assistance and support as appropriate on issues that may arise between Copermittees when addressing interjurisdictional issues related to the implementation and enforcement of the TentativeOrder.

Comment: We urge the State Board to fully fund and assist in the enforcement and implementation of this order. As you know, in Orange County alone last year there were 881 beach closings. We believe that this permit will help minimize pollution and urban runoff, which is directly impacting water quality along the Orange County coast. (*Surfrider Foundation*)

Response: Comment noted.

Comment: The Surfrider Foundation strongly supports the San Diego Regional Water Quality Control Boards draft Orange County Stormwater Permit which implements urban runoff and pollution control measures, as well as monitoring and assessment throughout southern Orange County.

We believe that this permit details appropriate actions that need to be taken by Copermittees, requiring them to develop and implement Urban Runoff Management Plans (URMP's) to reduce discharges of pollutants to the Maximum Extent Practicable through implementation of Best Management Practices for new development and redevelopment, construction activities, existing development (municipal, industrial, commercial and residential), discharge detection and elimination, and assessment of the effectiveness of the URMP. We also support the requirements for public education and participations part of the URMP development process.

While we are aware that many of the cities and other entities involved with this permit may cite budget constraints as reasons to delay or reduce the scope of the required programs, we believe that full implementation of this order should proceed according to the schedule proposed by the RWQCB.

The RWQCB has developed the framework for a comprehensive urban runoff control program that we believe is crucial to the environmental health of Orange County's beaches and the ocean. (*Surfrider Foundation*)

Response: Comment noted.

Comment: The costs to the Copermittees and the public to implement the requirements of the Tentative Order may be prohibitive.

Economic Considerations:

The proposed permit and the "Economic Issues" section in the draft Fact Sheet do not include any discussion of the costs to Copermitees to comply with the draft Order does not address the economic impacts that the Order would have on the City and the other Copermitees. Instead, the Technical Report focuses on the potential economic impacts to the Permittees of polluted beaches and other waters. These are economic costs of the status quo, not the economic costs of the Tentative Order. To the extent the Technical Report does discuss potential costs of the Tentative Order, it is only with respect to potential costs to developers to comply with the new development requirements of the Tentative Order. Water Code section 13241 only authorizes the Regional Board to require water quality "conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area." Without an adequate analysis of the costs of the proposed permit, the Regional Board cannot fulfill its obligation to take "economic considerations" into account when making its case-by-case determination of appropriate permit requirements meeting the maximum extent practicable standard and in issuing waste discharge requirements pursuant to state law. Therefore, the proposed permit fails to comply with Section 13241(d) of the Water Code and the Clean Water Act.

The Regional Board has both a legal and moral duty to consider the adverse impacts of its actions, together with the beneficial impacts, prior to acting. Water Code Section 13000 requires that: "...activities and factors which may affect the quality of the waters of the state shall be regulated to attain the highest water quality which is reasonable, considering all demands being made, and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible." This section generally has been interpreted to mean that, in the course of regulating water quality, Regional Boards must consider and balance various public interest factors and regulate in a reasonable manner consistent with the interests of the people of the State. This directive of the State Legislature should serve to guide all of the regulatory activities of the Regional Board, including the issuance of waste discharge requirements. Water Code Section 13263(a) requires the Regional Boards to address the factors specified in Section 13241 prior to adopting waste discharge requirements. Among other factors, Water Code Section 13241 requires the Regional Board to consider economic considerations prior to adopting water quality objectives that ensure the reasonable protection of beneficial uses:

Generally an assessment of "economic considerations" as required by the Water Code means an assessment and comparison of costs and benefits. See Economic Considerations Task Force Report to the State Board Regarding Development of the Inland Surface Waters Plan and the Enclosed Bays and Estuaries Plan, October 1995. The State Board's Chief Counsel has expressed the opinion that, when considering economics, the Regional Boards should not simply rely on economic information supplied by the regulated community. Rather the Regional Boards should independently assess economics. See January 4, 1994 Memorandum from William R. Attwater, Chief Counsel, State Water Resources Control Board, to Regional Water Board Executive Officers and Regional Water Board Attorneys entitled: "Guidance on Consideration of Economics in the Adoption of Water Quality Objectives."

MEP Standard:

Under Section 402(p)(3) of the CWA, permits for MS4s must require controls to reduce the discharge of pollutants to the maximum extent practicable. 33 U.S.C. § 1342(p)(3). EPA has not developed effluent guidelines for this MEP standard, and both EPA and the State Board have determined to use BMPs to implement the MEP standard in MS4 permits. In the absence of effluent guidelines, Section 402(a) requires a case-by-case determination of what is practicable, taking into account technical feasibility, cost and affordability.² Accordingly, the State Board has acknowledged that the MEP standard requires the rejection of BMPs when they are not technically feasible or the "cost would be

prohibitive.” See State Board Order WQ 2000- 11 at 20. Similarly, Section 13263(a) of the Water Code requires the Regional Board to consider all of the factors enumerated in Section 13241 when issuing a MS4 permit. The Technical Report does not indicate that any of the required factors have been adequately considered.

“MEP” means to the maximum extent practicable, taking into account considerations of synergistic, additive, and competing factors, including but not limited to, gravity of the problem, technical feasibility, fiscal feasibility, public health risks, societal concerns, and social benefits. See Regional Board Order No. 96-03 (current permit), p. 2, fn. 1; Santa Ana Regional Board Order No. 01-20 (Interim Draft, June 15, 2001), p. 7, fn. 7; Los Angeles Regional Board Order No. 01-XXX (Second Draft, June 29, 2001), Part 5, Definitions, p. 50. See also State Board Office of Chief Counsel, Memorandum dated February 11, 1999, interpreting MEP to include technical feasibility, cost, and benefit.

Cost Estimates and Analyses:

The County of Orange (County) is providing the following analysis of the potential costs and impacts of Tentative Order No. 2001-193 (Tentative Order) for consideration by the San Diego Regional Water Quality Control Board (Regional Board or RWQCB). The analysis addresses: (1) the costs that the citizens and businesses of the County may be required to incur as a result of the Tentative Order; (2) the adverse environmental impacts which may result from adoption of the Tentative Order; (3) the legal exposure which the County and the cities may face if the Tentative Order were to be adopted as proposed; and (4) the potential secondary impacts of the increased costs on the County’s economy and citizens.

The purpose of this analysis is to demonstrate that adoption of the Tentative Order could result in significant costs and adverse impacts, which the Regional Board needs to consider, together with the beneficial impacts, prior to acting on the Tentative Order. The analysis is not intended to be exhaustive or complete, but rather indicative of the costs and impacts that could occur if the Tentative Order were to be adopted. The County believes that, on the basis of this analysis, the Regional Board should conduct its own independent analysis of costs and impacts, beneficial and detrimental, weigh the costs and relative impacts, and modify the Tentative Order accordingly. The impact analysis addresses only the most significant of the new requirements proposed in the Tentative Order, including the following requirements:

1. The requirements to immediately comply with water quality standards, as contained in Prohibition A.2, Receiving Water Limitation C.1, and numerous references in Jurisdictional Urban Runoff Management Plan Section F.
2. The replacement of the current Drainage Area Management Plan (DAMP), with the prescriptive Jurisdictional Urban Runoff Management Program (JURMP), as contained in Section F.

The Impact Analysis is organized as follows. First, there are summaries of the overall costs and impacts of the Tentative Order. Second, there is a discussion of the duty of the Regional Board to consider such costs and impacts prior to adoption of the Tentative Order. Finally, there is a detailed analysis of the costs and impacts of the two major new requirements of concern listed above.

The draft permit imposes several requirements resulting in excessive financial burdens for both program and management costs on municipalities. Under the current NPDES permit, the County and cities are required to implement the DAMP, which was approved by the Regional Board in 1996. For fiscal year 2002-2003, the County estimates that implementation of the DAMP will require an annual expenditure of \$4 million per year. For the same fiscal year, the County estimates that performance of the new tasks necessary under the prescriptive program would require an additional \$14 million per

year to administer. This includes many new full time equivalent employees and additional outside consultant costs that would increase annual implementation costs incurred by the County and the cities under the DAMP by 100%.

Compliance with the Tentative Order would require the County and the cities to incur the following costs:

- It would require construction of a massive system to collect and treat urban runoff, estimated to cost on the order of \$1.4 billion.
- It would require the County and the cities to add many new full time equivalent employees and increase use of outside consultants to administer the program, at an additional cost of \$14 million per year.

Increased Costs to Local Residents and Businesses

In order to finance the construction and operation of the urban runoff treatment system and the increased administrative costs, it would be necessary to increase residential and business costs:

- Residential costs for urban drainage service would have to be increased by approximately \$65 per month (\$59 per month for the urban runoff treatment system and \$6 per month for increased administrative costs).
- The average business costs for urban drainage would have to be increased by approximately \$208 per month (\$190 per month for the urban runoff treatment system and \$18 per month for increased administrative costs).

Adverse Secondary Impacts of Additional Costs

The imposition of additional costs on the citizens and business within the area covered by the Tentative Order could also have a number of adverse secondary impacts. For example, it could adversely impact employment, new development, and the economy of the area. It could also adversely impact public health in lower income families by causing them to divert discretionary income from health care to urban drainage.

Weighing of Beneficial and Adverse Impacts

Although the Tentative Order would result in a number of beneficial impacts, it would also result in a number of adverse impacts. A weighing of the beneficial and adverse impacts leads to the unavoidable conclusion that adoption of the Tentative Order would result in more harm than good. This should cause the RWQCB to amend the Tentative Order prior to adoption to remove the problematic requirements and replace them with requirements that are based on a balancing of public interest factors and which result in more good than harm. The most significant costs and adverse impacts are attributable to the requirement to immediately comply with water quality standards, but significant impacts also result from the requirement to implement a prescriptive management program. The costs and impacts associated with each of these requirements are discussed later in this analysis.

As previously stated, the Tentative Order requires that discharges from the MS4s immediately comply with water quality standards. The County's analysis of the costs and impacts of this requirement is presented below.

Costs of Requirement to Achieve Water Quality Standards Required Treatment Controls

The County and cities currently implement best management practices (BMPs) in accordance with the Regional Board-approved Drainage Area Management Plan (DAMP), as required by the current NPDES permit. With respect to attainment of water quality standards, Section C of the current permit establishes an iterative process for investigating and addressing exceedances of water quality

standards, with the intent that continued refinement of BMPs will eventually lead to compliance with standards. However, if BMPs ultimately prove insufficient to achieve current water quality objectives, federal and State policies provide for the development of alternative water quality objectives that provide reasonable protection of beneficial uses based on local site-specific conditions. Such policies exist because most of the current water quality objectives are based on US EPA national water quality criteria, or a one-size fits all approach, rather than on local water quality uses and conditions. US EPA acknowledges that the national criteria may not be appropriate in all situations.¹ In this regard, it should be noted that many of the inland surface waters within the area are not naturally perennial streams and, but for the discharge of urban runoff, would not contain flow through most of the year. It would be reasonable, therefore, to apply less stringent standards to these streams than natural perennial streams, just as the State Board is presently considering in drafting its "Effluent Dependent Waters" Policy. The Receiving Water language that the State Board adopted in Order No. 99-05 and which was subsequently incorporated into Section C of our current NPDES permit allows consideration of alternative site-specific objectives prior to the requirement of controls that go beyond practicable BMPs. That is one reason the County is willing to accept similar language in the new permit, even though the Ninth Circuit Court of Appeals has clarified that the Clean Water Act does not require that discharges from MS4s strictly comply with water quality standards. The Tentative Order, however, does not comport with Order No. 99-05, and in Prohibition A.2 requires that all urban runoff discharges immediately comply with all water quality standards, irrespective of whether they are achievable with practicable BMPs and irrespective of whether they are appropriate for the types of streams in the area covered by the Tentative Order.

Based on current evidence, the County has to assume that current standards for certain constituents, including but not limited to fecal coliform bacteria, copper, lead, zinc, and nickel, are not going to be achievable through practicable BMPs. For example, the applicable objectives for copper, lead, and other metals are based on US EPA-recommended national water quality criteria for protection of aquatic life developed from laboratory studies. US EPA acknowledges that its metals criteria may be overly conservative in natural waters and has developed processes to adjust the criteria on a site-specific basis. Based on site-specific studies performed in other streams similar to those in the area, it is reasonable to expect that the site-specific copper objective that would be protective of water in local streams would be three to ten times the currently applicable objective.

Thus, pursuant to the Tentative Order, additional controls beyond BMPs would have to be implemented to achieve strict compliance with water quality standards. In the County's judgment, strict compliance with water quality standards would necessitate implementation of structural controls to treat all urban runoff discharges prior to discharge to any local stream or water body. The exact level of treatment necessary to assure compliance with these standards cannot be determined with any degree of certainty. Chemical coagulation, sedimentation, filtration, and disinfection (processes similar to those employed in a conventional water treatment plant) would likely be necessary. Advanced treatment processes, such as carbon treatment or membrane filtration, may also be necessary. In order to ascertain the exact treatment controls needed for compliance with water quality standards, it would be necessary to gather more information and conduct pilot studies. This was not possible within the time frame allowed for commenting on the Tentative Order. An important element of the urban runoff treatment system is a system to intercept the urban runoff before it reaches local streams and to convey it to one or more central locations for treatment. This element is required because it is infeasible to place treatment plants at every point where a storm drain discharges to streams. Moreover, because of the nature of storm events and runoff, it is necessary to provide equalizing storage prior to treatment in order to minimize the size of the treatment plant. Within this particular area, it would be most logical to construct interceptor lines along the length of each creek to convey the storm water to the coast. At a point at or near the coast, equalizing storage would be provided and the storm water could either be treated at individual, watershed treatment plants, or pumped to one or more central plants. Most likely the treated storm water would be discharged to the

ocean. The nature of the Orange County coastal area would present considerable challenges to siting storage facilities of the size necessary to trim storm water peaks and treatment plants. All in all, the system would be a massive, unprecedented undertaking. The County is unaware of any MS4 in the country that has collected and treated all its urban runoff to a level necessary to achieve water quality standards prior to discharge.

Irrespective of this, a prudent person would have to conclude that the only actions that could be taken to assure consistent compliance with current water quality standards, and therefore the proposed permit requirement, would be to collect and treat all urban runoff prior to discharge. The time required to plan, design, finance, and construct a system of this size and complexity would be between ten and twenty years. In the interim, before the system became operational, the County and cities would be in violation of this requirement and subject to enforcement action, fines, and other penalties.

Treatment Costs

The County has not had sufficient time to conduct the engineering studies necessary to determine the exact nature and cost of the collection, storage and treatment facilities that would be necessary to achieve strict compliance with water quality standards. Instead the County has relied for this purpose on a 1997 analysis performed by the County of Sacramento. That analysis assessed the controls and costs necessary to bring urban runoff from the Sacramento metropolitan area into compliance with water quality standards proposed and later adopted in the California Toxics Rule (CTR). The CTR standards are currently applicable to all inland surface waters and enclosed bays and estuaries in California, including such waters within Orange County. Since the Tentative Order requires the discharges from MS4s to comply with all applicable standards, including the CTR standards, it is reasonable to rely on the Sacramento analysis to estimate the costs necessary to bring discharges from local MS4s into compliance with water quality standards. Although the Sacramento County analysis only addressed compliance with CTR standards, a similar system of collection, storage and treatment, and therefore similar costs, would be necessary to achieve certain other applicable standards, including the current Basin Plan objectives for fecal coliform.

Sacramento did a thorough analysis of the reductions that may be achievable through aggressive implementation of BMPs, determined that such BMPs would be insufficient to achieve standards for a number of constituents, and then sized facilities to collect, store, and treat urban runoff from the metropolitan area prior to discharge to the Sacramento River. Based on this analysis (See Appendix B-1), Sacramento determined that it would cost the metropolitan area of approximately 1 million people on the order of \$2.54 billion (in 1997 dollars) to construct the facilities necessary to comply with water quality standards. The annual costs, including amortized capital costs at 7% over twenty years and annual operation and maintenance costs, were estimated to be \$258 million per year. Updating these costs to 2001 dollars, the capital costs would be \$2.9 billion and the total annual cost would be \$295 million per year.

The Orange County population within the San Diego Region is approximately 500,000 people. Therefore, on a strict proportional basis, one could assume that it would cost the County and cities subject to the Tentative Order on the order of \$1.4 billion to construct the necessary collection and treatment facilities and on the order of \$148 million per year to pay for the construction and the ongoing operation and maintenance costs. A comparison of the climatic characteristics of the Sacramento and Orange County areas suggests that this strict proportional-based estimate is reasonable. Sacramento's mean rainfall (16.7 inches per year) is comparable with the mean annual rainfall in the Orange County area covered by the Tentative Order (13.5 inches at the coast and 20.5 inches in the foothills). There are a number of factors, however, that suggest Orange County's costs under the Tentative Order could be greater than those calculated on a proportional basis. First, Sacramento based its estimates on a 2.33-year return storm, whereas to eliminate violations even for one permit term, Orange County would have to design for at least a five-year storm. Second,

Sacramento's estimate was based on placing storm water collection lines along the two major rivers through the metropolitan area, whereas Orange County would have to place collection lines along each of the urban streams, for what appears to be a total length greater than that which formed the basis of the Sacramento cost estimate. Finally, Sacramento had considerable, low-cost agricultural land available next to the Sacramento River upon which to site large equalizing storage ponds and treatment facilities. Orange County does not have large amounts of low-cost land available along the coast for this purpose. For the purpose of these comments, it is reasonable to apply Sacramento's estimated costs for compliance with water quality standards, updated to year 2001 costs, on a strict proportional basis to that portion of Orange County covered by the Tentative Order. (On that basis, as previously stated, it would cost the County and cities subject to the Tentative Order on the order of \$1.4 billion to construct the necessary collection and treatment facilities and on the order of \$148 million per year to fund the construction and the ongoing operation and maintenance costs.) Detailed engineering studies of collection and treatment facilities sizing and alternatives, and pilot studies, would be necessary to develop more accurate cost estimates. However, the above costs represent the best possible engineering estimate based on the available information.

Adverse Impacts of Requirement to Achieve Water Quality Standards Increased Costs to Local Residents and Businesses

Implementation of the necessary treatment controls would have a significant impact on urban drainage costs paid by the area's residents and businesses. Based on a total annual cost of \$148 million per year and 500,000 residents, and assuming that local residents would be responsible for 80% of the total annual cost and local businesses would be responsible for the remaining 20%, the average household would be required to pay an additional \$59 per month (based on a population of 500,000, 3.0 persons per household, and 80% of the costs spread among those households). Assuming that the remaining 20% of the treatment costs would be divided between 13,000 businesses, the average business would be required to pay an additional \$190 per month as a result of this requirement. The estimated number of businesses is based on allocating the number of private non-farm establishments in Orange County as determined in the 2000 Census (75,154), to the southern portion of the County in proportion to the respective populations (500,000 for the southern portion and 2,846,289 for the entire County).

Adverse Secondary Impacts of Compliance Costs

The increased residential and business fees necessary to construct and operate the urban runoff treatment system could have adverse secondary impacts, as discussed below. Adverse impacts on the local economy. The increased residential and business costs required to achieve strict compliance with water quality standards could have a potential adverse impact on employment, personal and discretionary income, new development, and the general economy of the area. An economic impact analysis performed by the State of Ohio estimated that significant adverse economic impacts would occur if per capita costs were raised by about \$91 per year. The State of Ohio estimated that imposing effluent limitations in municipal wastewater and industrial permits requiring reverse osmosis would have had economic impacts well beyond just the increase in rates needed to pay for the additional treatment. Based on an estimated annualized cost of \$1 billion per year, Ohio, with a population on the order of 11 million people, estimated that real output would have decreased in all sectors of the State's economy, approximately 47,000 jobs would have been lost, total personal income would have fallen by 0.8%, and real discretionary income would have been reduced by 1.2%. The area of Orange County impacted by the Tentative Order has a population of about 500,000 people, and this population is facing a per capita cost increase of about \$296 per year to collect and treat urban runoff (total annual cost of \$148 million per year divided by 500,000 people), or about three times the per capita costs assumed in the Ohio study. The County has not attempted to estimate the adverse economic impacts that would occur as a result of the requirement to achieve strict compliance with water quality standards.

However, it is reasonable to assume, based on the Ohio study, that there would be adverse economic impacts as a result of this requirement. The Regional Board needs to independently evaluate the potential for adverse economic impacts before acting on the Tentative Order.

Adverse Impacts of the Prescriptive Program.

Implementation of the prescriptive program would have a significant impact on urban drainage costs paid by the area's residents and businesses. Based on a total annual cost of \$14 million per year and 500,000 residents, and assuming that local residents would be responsible for 80% of the total annual cost and local businesses would be responsible for the remaining 20%, the average household would be required to pay an additional \$6 per month (based on a population of 500,000, 3.0 persons per household, and 80% of the costs spread among those households). Assuming that the remaining 20% of the increased drainage costs would be divided between 13,000 businesses, the average business would be required to pay an additional \$18 per month.

Based on estimates by cities under the San Diego permit, the City of Lake Forest's storm water budget during the second year of the permit could easily approach \$500,000. The City understands the need to reinforce our efforts with respect to storm water quality management; however, the proposed permit takes an alarmingly expansive view of the role of the Regional Board in mandating the manner in which to achieve these objectives.

The Tentative Order would require resources intended for implementation of the DAMP be spent on some lower priority drainage issues as well as other high priority community needs.
(Lake Forest, Aliso Viejo, MJF Consulting, Rancho Santa Margarita, Mission Viejo, County of Orange, Richard Watson & Associates)

Response: The public adoption process for the Tentative Order enables to the SDRWQCB to consider all potential impacts, both beneficial and detrimental, consistent with the public interest.

The regional board is not required to undertake a formal Cost/Benefit Analysis, or other comprehensive economic analysis for the issuance of waste discharge requirements. While regional boards are required to consider economic factors in the development of basin plans (W.C. 13241), regional boards are not specifically required to undertake Cost/Benefit Analysis. Neither do federal regulations compel reliance on any particular form of economic analysis in the implementation of requirements based on the MEP performance standard; the admonition quoted from 64 Fed. Reg. 68722 & 68732 calls for flexible interpretation of MEP based on site-specific characteristics and "cost considerations as well as water quality effects...." Thus, while the regional board is advised to consider costs as a factor in determining the reasonableness or practicability of requirements, there is no state or federal mandate for a more formal economic analysis involving the development of Cost/Benefit or Cost-Effectiveness relationships.

The SDRWQCB considers factors that balance environmental protection with job creation, housing construction and affordability, and maintain a healthy economy during the process of adoption of the Tentative Order. It is the responsibility of the SDRWQCB to protect the beneficial uses of receiving waters within the San Diego Region through the implementation and enforcement of waste discharge requirements and permits while considering the costs required to protect or restore those waters. It is the responsibility of the Copermittees, however, to secure the resources and implement and enforce the programs necessary to meet the requirements of the Tentative Order.

The SDRWQCB has considered the costs associated with implementation of requirements for discharges to MS4 as well as the costs incurred as a result of exceedances of receiving water quality objectives associated with discharges from MS4. While there will be, undoubtedly, increased costs to municipalities to implement requirements of the Tentative Order, the increased burden associated

with these requirements is not unreasonable in view of the following factors: municipalities can pass costs for planning and permitting on to permit applicants; municipalities can impose fees on persons who use MS4 infrastructure or require services from the municipality; municipalities can incorporate pollution prevention and control planning into existing planning activities; and municipalities can incorporate pollution and control implementation into existing regulatory functions.

The Copermittees estimate that the Tentative Order will require an additional \$14 million (over DAMP costs) per year to achieve with the Tentative Order. However, it is the responsibility of the Copermittees to develop and implement a balanced program in compliance with the Tentative Order that will minimize costs and maximize benefits. The Copermittees have used an analysis by the County of Sacramento to estimate costs of compliance with the Tentative Order to be \$1.4 billion to construct a system to collect and treat all runoff. This analysis represent only one highly engineered alternative to achieve compliance and additional alternatives should be considered that may reduce costs.

Several of the commenters assert that the provisions of section 13241 of the CWC directly apply to the adoption of the Tentative Order. While the provisions of section 13241 may apply to the Tentative Order, they do not apply in the direct manner proposed by commenters. Section 13241 clearly applies to the development of water quality objectives. It includes a list of "factors to be considered by a regional board in establishing water quality objectives." Therefore, section 13241 may only apply to the Tentative Order's application of the water quality objectives designated in the Basin Plan. These water quality objectives are developed during the Basin Plan's planning process, not during adoption of permits meant to implement the Basin Plan (see section D.1 for further discussion). As such, the provisions of 13241 are met by the SDRWQCB during the process of adoption and re-issuance of the Basin Plan, as well as during the Triennial Review of water quality standards the SDRWQCB conducts pursuant to the Clean Water Act. Because the Tentative Order implements the Basin Plan's water quality objectives, these efforts to meet the provisions of 13241 during the Basin Plan planning process also apply to the Tentative Order. Therefore, the SDRWQCB has met the requirements of 13241 with respect to both the Basin Plan and the Tentative Order.

While the provisions of section 13241 do not directly apply to the adoption of the Tentative Order, the SDRWQCB has an adequately process in which to include "economic considerations" into its decision to adopt the Tentative Order. The Draft Fact Sheet/Technical Report for the Tentative Order contains a four page discussion of economic issues regarding the regulation and management of urban runoff. The Staff Report for Standard Urban Storm Water Mitigation Plans and Numerical Sizing Criteria for Best Management Practices for Order No. 2001-01 also includes calculations for estimated costs for compliance with the Tentative Order's SUSMP provisions. Information regarding the costs and benefits of implementing the SUSMP provisions were also provided to the SDRWQCB during a March 8, 2000 SUSMP workshop. In addition, the SDRWQCB received, reviewed, and responded to many comments regarding the cost of implementing the permit. Furthermore, largely effective urban runoff management programs, such as by the City of Encinitas, have been implemented with some success and have not been found to be cost prohibitive. At the time this response was prepared, the 20 Copermittees in San Diego County have spent eight months allocating and developing resources, hiring staff, and developing and implementing programs required under Order No. 2001-01, the model permit for the San Diego Region. Nearly all of these Copermittees argued that the costs would be prohibitive, but have not communicated to the SDRWQCB that they have found this to be the case.

The commenters assert that the SDRWQCB failed to consider the need for developing housing within the region in the Tentative Order. While the SDRWQCB is not strictly required to consider this issue in adopting permits, in actuality it has considered the Tentative Order's potential for impacting housing costs. The SDRWQCB has estimated that implementation of the SUSMP requirements would constitute less than 1% of total project construction costs. Moreover, the SWRCB has found that an

increase in cost of 1-2% for new development (including housing) is reasonable. As noted in a SDRWQCB response to another comment regarding the cost of housing in Southern California, other factors such as supply and demand have far more significant impact on the availability of affordable housing in Orange County. In light of these cost calculations and SWRCB guidance, it is clear that the SDRWQCB considered the need for developing housing with the region.

It should also be noted that by the County of Orange's estimate, annual costs for the program implemented under the status quo (i.e. the existing DAMP programs) will only increase by about 4 million dollars per year. This has been the case since the first term permit. However, it is apparent from the Copermittees own monitoring reports and comments submitted regarding the Tentative Order that very significant exceedances of receiving water quality exist and that deleterious impacts to the beneficial uses of those receiving waters is common. So common are these exceedances in the Aliso Creek watershed, that the entire flow of the creek in the summer months is diverted into a sanitary sewer outfall. Clearly the resources allocated thus far by the Copermittees in this watershed in particular, and in Orange County in general, in implementing their current programs and protecting the beneficial uses of the receiving waters has been far from satisfactory. While the implementation of the requirements of the Tentative Order will require greater resources than merely implementing the current programs, including the DAMP, the benefits to be derived merit the increased costs. While the SDRWQCB has not performed a cost analysis, the costs cited by the Copermittees appear to be excessive and based on engineering solutions that constitute only a limited, and very expensive cross section of the available alternatives. The Tentative Order provides the Copermittees with a framework of minimum requirements and standards and does not specify the manner of compliance. Within that framework, the Copermittees have a wide degree of flexibility and latitude to select the BMP programs that are the most cost effective to prevent or reduce pollutants to the MEP and to protect receiving water quality and beneficial uses.

Finally, it should be noted that in it's draft Order on the petition by the Building Industry Association and Western States Petroleum Association for the review of Order No. 2001-01, in which this assertion was prominently stated, the SWRCB has thus far declined to address this issue.

COMMENTS ON MULTIPLE SECTIONS

Comment: Tentative Order No. 2001-193 is basically a clone of the recently issued San Diego Permit and requires the Copermitees to develop new Jurisdictional and Watershed Urban Runoff Management Programs.

Regional Board staff has prepared an all-encompassing Tentative Order that marks a significant departure from the direction taken by the Regional Board in the first two permits issued to Orange County. The Tentative Order is inappropriate for south Orange County and should be significantly revised. The Tentative Order essentially requires the preparation of thirteen (13) Jurisdictional URMPs and one (1) Watershed URMP. This is not practical, cost-effective or prudent. The Copermitees will be required to spend hundreds of thousands of dollars and an enormous amount of staff and consultant time to produce new plan documents. This time and money would be much better spent on real projects and activities that improve water quality. If the Regional Board staff feels that the Draft DAMP requires more detail or specificity in certain areas, or if additional requirements are to be imposed, the DAMP should be amended as necessary.

The JURMP requirements should not be adopted unless and until the Permittees have been given an opportunity to revise the 2000 DAMP. When the Tentative Order was issued, the Regional Board staff dismissed the 2000 DAMP out of hand stating, "The SDRWQCB has determined the implementation of [sic] proposed DAMP would be inadequate to reduce pollutants in the discharge of urban runoff to the maximum extent practicable (MEP) and to protect the beneficial uses of the receiving waters of Orange County within the San Diego Region." Likewise, in the Technical Report, staff repeated its claim that the 2000 DAMP would not satisfy the MEP standard and protect beneficial uses, but failed to provide any real support for this assertion. Staff instead cited to perceived inadequacies in the prior DAMP as the main basis for rejecting the 2000 DAMP. Finding 10 is, in fact, a directive causing us to abandon the Drainage Area Management Plan developed on a regional basis in favor of a Jurisdictional Urban Runoff Management Program. This directive disregards the benefits of the DAMP and causes this relatively homogeneous region to create unnecessary individual URMPs for each jurisdiction. Enhancement of the existing DAMP should be the collaborative approach for this Order.

The Tentative Order should not be imposed until the Copermitees until have had sufficient time to review and analyze staff's comments on and concerns with the 2000 DAMP and have been provided with an adequate opportunity to address such comments and concerns. Even if the Regional Board staff's conclusions concerning the adequacy of the 2000 DAMP were accurate, its proposal to unilaterally impose JURMP requirements in its stead clearly puts the cart before the horse. Such requirements should not be imposed unless and until the Permittees have had sufficient time to review and analyze staff's comments on and concerns with the 2000 DAMP and have been provided with an adequate opportunity to address such comments and concerns. The obligation to provide this opportunity for review and revision is not only a component of the Permittees' existing permit, but also a requirement of all MS4 permits, as set forth in State Board Order WQ 98-01. Finally, staff's approach gives short shrift to the significant efforts the Permittees already have made to develop a comprehensive program for managing municipal storm water runoff. As acknowledged by staff, "[C]opermitees have been pro-active in developing [and] implementing a storm water management program, and have stated their intention to continue the development and implementation of storm water management programs." Transcript of Regional Board Hearing adopting Order 96-03, August 8, 1996, p. 20:20-24. That stated intent has been acted upon. The 2000 DAMP documents a program for improving water quality which the Permittees believe is both reasoned and reasonable, in light of the technical and economic exigencies municipalities face in dealing with the problems associated with storm water runoff. Nonetheless, if the Regional Board staff feels that the 2000 DAMP is deficient,

then it has an obligation to explain to the Permittees exactly what those deficiencies are and to provide the Permittees with an opportunity to correct them.

The JURMP requirements in the Tentative Order conflicts with the unified countywide storm water program developed in the DAMP that covers two Regional Board jurisdictions. In Orange County, we do not think a "one size fits all" approach is warranted, considering that we have made great strides in refining and strengthening our program. The Orange County program has a Drainage Area Management Plan (DAMP) that was adopted in 1993. The DAMP has guided the activities of our City and other Orange County cities within the jurisdictions of both Regional Boards. Furthermore, the 2000 DAMP contains many new commitments to strengthen our integrated NPDES program. We respectfully request continuation and enhancement of the DAMP. The DAMP continuation will provide a more beneficial program than to change management practices mid-stream and form separate, individual Jurisdictional Urban Runoff Management Programs (JURMP). The County of Orange, our Principal Permittee, has created a new Watershed & Coastal Resources Division that includes the Storm Water Program and provides a new framework for our watershed-based efforts. A new watershed structure imposed by your Board would confuse the issue and could undermine the existing Division.

Instead of requiring separate Watershed Urban Runoff Management Programs, why doesn't the Regional Board require a watershed section of the DAMP similar to the State Board's requirement that the CALTRANS Statewide Storm Water Management Plan contain a section describing location-specific requirements? Since the DAMP currently has a focus on developing watershed specific chapters that focus in on pollutants of concern, what not simply update the DAMP to include a chapter on each of the watersheds that incorporate the elements of the WURMP program that is in the Tentative Order?

The Revised DAMP should serve as the basis for the new NPDES Permit. The Copermitees have spent considerable time, money, and effort to develop and implement the DAMP which will provide a more beneficial program than to than the Jurisdictional Urban Runoff Management Programs (JURMP) required by the Tentative Order. The Copermitees estimates that DAMP implementation would cost \$9.5 to \$10.5 million annual cost to municipalities from 02/03 to 05/06 as opposed to \$23 to \$25 million annual cost for the Tentative Order. The Regional Board staff's evaluation of the adequacy of the 2000 DAMP was completely skewed since it compared the components of the 2000 DAMP to the requirements of the Tentative Order and, on the basis of that comparison, concluded that the 2000 DAMP was inadequate. It is not surprising, and perhaps expected, that the 2000 DAMP would not meet all of the new detailed and prescriptive requirements of an order which has yet to be adopted by the Regional Board

The Permittees are required to comply with the terms of their current permit though timely implementation of the approved DAMP and any required modifications, revisions, or amendments to the DAMP. See Order No. 96-03 § V.1. If the Executive Officer ("EO") determines that a discharge from an MS4 is causing or contributing to continuing or recurring impairment of beneficial uses or exceedances of water quality objectives, then the EO is required to evaluate the adequacy of the approved DAMP. If the EO finds the DAMP to be adequate, then the Permittees continue implementing the DAMP. If the EO finds the DAMP not adequate, then the EO may require the Permittees to revise the DAMP. Order No. 96-03 § IV.

The Regional Board never informed the Copermitees that the DAMP was inadequate as required by the second term permit Order 96-03. The original DAMP was approved by the Regional Board in 1996 and, since then, there has been no indication from Regional Board staff that the program was in any way inadequate until the July 2, 2001 Tentative Order was circulated for review and comment. On August 23 (one week before the deadline for submission of these comments), staff issued a Revised

Tentative Order, a Revised Technical Report and its analysis of the 2000 DAMP. While language referring to the SDRWQCB finding the DAMP to be inadequate was removed from the Tentative Order it was retained in the Fact Sheet/Technical Report. The Copermittees disagree that the 2000 DAMP is inadequate to satisfy the applicable MEP standard or that it lacks the specificity necessary to ensure that BMPs designed to achieve compliance with the MEP standard are properly implemented. Indeed, the Copermittees find this conclusion surprising given that the components of the 2000 DAMP are in many respects similar to those staff is mandating for inclusion in the JURMP.

The Regional Board should not base the Tentative Order on the area wide Storm Water Permit developed by and for San Diego County Copermittees and should not impose the Standard Urban Storm Water Mitigation Plan designed by and for the Los Angeles County Copermittees. Rather, the Regional Board should allow the Permittees to further develop the 2000 DAMP to serve the intents and purposes of the JURMP and WURMP requirements envisioned in the Tentative Order.

Ironically, the Regional Board staff previously recognized the inappropriateness of utilizing the San Diego Storm Water Permit as the template for the southern Orange County permit, noting that the 1996 Tentative Order should be modeled on the Santa Ana Regional Board's permit for Orange County (Order No. 96-31). The SUSMP requirements were not developed with regional considerations in mind. Rather, they were taken almost verbatim from the SUSMP developed for the Los Angeles County MS4 permit. Contrary to the guidance provided by Congress and EPA, the SUSMP requirements in the Tentative Order are not flexible nor are they site-specific. Furthermore, contrary to staff's apparent understanding, the State Board has not mandated SUSMPs in MS4 permits. Permittees should have the flexibility to develop programs for new development and significant redevelopment that are designed to meet the needs of their own jurisdictions. In fact, SUSMPs may be less effective in protecting overall water quality than the current approach reflected in the 2000 DAMP for reducing the discharge of pollutants from new development and significant redevelopment. The SUSMP approach would require the Permittees to focus solely on priority sites, to the exclusion of all other sites that may be contributing to water quality impairment.

The DAMP focuses on solving water quality problems in receiving waters, i.e. starts at the water being impacted and looks upstream at causes of such impacts. The Tentative Order does not prioritize water bodies for corrective action, but instead requires simultaneous action even for those without listed impairments. The Fact Sheet concludes the DAMP would no longer be an adequate basis of a storm water management program for Orange County, thus the Regional Board staff has effectively thrown out the DAMP, a program that has been in place and built upon for the past decade. The Permittees strongly believe that the DAMP forms a firm foundation for the Orange County storm water program and should not be disrupted or effectively thrown out by the Tentative Order. Therefore, the Permittees request that the DAMP continue to form the basis of future program development and ultimately the Tentative Order. The DAMP establishes a baseline program consisting of proven and cost-effective BMPs that are applicable to all areas countywide. The Tentative Order establishes an intensely prescriptive program for all types of land-use assessment and controls. The DAMP focuses on solving water quality problems in receiving waters, i.e. starts at the water being impacted and looks upstream at causes of such impacts. The Tentative Order focuses on addressing all urban land uses that may affect receiving waters i.e. starts at the land use and applies controls based on perceived threat to the receiving waters. The DAMP prioritizes waterbodies for corrective action with those listed as impaired having a higher priority. The Tentative Order does not prioritize waterbodies for corrective action, but instead requires simultaneous action even for those without listed impairments. The DAMP promotes watershed-level approach and regional BMPs that may also address non-urban sources. The Tentative Order is tightly focused on urban land-use controls and inter-municipal watershed plans, not recognizing watershed-scale restoration.

The existing Drainage Area Management Plan (DAMP) should be revised in place of developing a Jurisdictional Urban Runoff Management Program (URMP). Then, each Copermittee shall implement a DAMP Implementation Program that addresses the DAMP components shown below and described in Sections F. 1 through F.8. Since the Permittees feel strongly that the DAMP is an adequate stormwater program and embodies a holistic approach for dealing with countywide issues as well as specific receiving water impairments and pollutants of concern, a comparison of the updated 2000 Draft DAMP and Tentative Order was completed in order to better illustrate how many of the permit requirements the DAMP currently includes. In addition, the comparison also illustrates how many commitments and program elements the DAMP includes that go beyond the Tentative Order, illustrating the significant program commitment in Orange County. Attachment C compares the Draft 2000 DAMP to the Tentative Order and then provides an analysis as to whether the DAMP program element 1) is not included in the Tentative Order; 2) already partially meets the Tentative Order requirement; 3) already fully meets the Tentative Order requirement; or 4) the Tentative Order requirement is new and therefore, not currently a program element. Accordingly, the Permittees strongly believe that the DAMP forms a firm foundation for the Orange County stormwater program and should not be disrupted or effectively thrown out by the Tentative Order. Therefore, the Permittees request that the DAMP continue to form the basis of future program development and ultimately the Tentative Order. (*Laguna Niguel, San Juan Capistrano, Rancho Santa Margarita, Laguna Hills, County of Orange, San Clemente, Richard Watson and Associates, County of Orange Flood Control District, Dana Point*)

Response: Summary:

The Tentative Order represents the second renewal of a storm water permit in place for eleven years. Significant progress has been made since 1990, but even more significant progress must be made in order to protect receiving water quality and beneficial uses. This is the objective of the Tentative Order. The DAMP, as written, is not adequate, but may be revised to achieve the objectives of the Tentative Order. The following points summarize the more detailed response discussion provided below:

- The Tentative Order contains the framework for the minimum requirements considered necessary by the SDRWQCB to achieve the Maximum Extent Practicable (MEP) standard and to protect the beneficial uses of receiving waters.
- The plans and programs developed by the Copermittees, including the DAMP, are developed and implemented to ensure compliance with the requirements of the permits, not the other way around. The SDRWQCB does not have to wait upon the continued analysis and revision of the DAMP to adopt the Tentative Order.
- The Copermittees may revise and continue implementation of the Drainage Area Management Plan to meet all of the requirements and provisions of the Tentative Order. It is not necessary, however, that the Tentative Order direct them to do so.
- Each Copermittee is accountable for compliance with the Tentative Order and must have a jurisdictional level program tailored to the conditions, land use activities, receiving water quality, and urban runoff issues specific to its jurisdiction. These requirements are based upon the land use authority of each Copermittee.
- The DAMP, as written, does not currently satisfy these requirements, but certainly may serve as a starting point. The Copermittees were informed of this fact and of the opportunity to submit a revised DAMP in several communications.

- The Tentative Order is not a departure from the approach under previous permits and the DAMP, but rather it is more detailed and includes specific requirements, many of which are being implemented at some level under the DAMP. The Tentative Order builds upon and refines the approach taken heretofore under the previous permits and the DAMP.
- The Tentative Order supports a holistic, watershed approach in that it requires full assessment and consideration of all land use activities that contribute pollutants to urban runoff throughout the watershed rather than just in prioritized receiving waters. Sources of pollutants throughout the watershed must be addressed by the Copermittees. It is very important that in focusing on prioritizing water bodies that are already impacted for corrective action, that the Copermittees do not neglect to implement BMPs elsewhere in the watershed to protect other water bodies from becoming impacted and thus candidates for expensive corrective action.

Discussion:

The Tentative Order contains the framework for the minimum requirements considered by the SDRWQCB to be necessary to achieve MEP. The requirements in the Tentative Order are based on the Federal NPDES regulations and USEPA and SWRCB guidance. Where the Tentative Order is more specific than the Federal NPDES regulations, it is based on USEPA and SWRCB guidance. The SDRWQCB has authority to include more specific requirements than the Federal regulations under CWA section 402(p)(3)(B)(iii) and CWC section 13377. USEPA supports the approach of increasingly detailed storm water permits, stating "The interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards" (USEPA, 1996). The Federal NPDES regulations, CWC, USEPA and SWRCB guidance do not require that a particular program or approach be mandated. None of the aforementioned authorities preclude or prohibit the SDRWQCB from adopting a new approach that it determines is necessary to achieve the MEP standard and to protect the beneficial uses of receiving waters.

As discussed in Finding 17 and the Fact Sheet/Technical Report, the Tentative Order requires more detailed and specific BMP programs to address all three phases of urban development (Land use planning, construction, and existing development). Because the Tentative Order is issued to each Copermittee, each Copermittee must have a program to manage urban runoff within its jurisdiction. The program must be tailored to address the specific urban runoff management issues within its jurisdiction and it must be specific enough as structured in the Tentative Order to ensure fair, uniform implementation and enforcement throughout the region.

As discussed in the Fact Sheet/Technical Report, the DAMP programs require refinement and revision to provide sufficient specificity and to better address these areas and activities in order to achieve the MEP standard and to protect beneficial uses of receiving waters. The Tentative Order does not conflict with the unified countywide storm water program developed and implemented in the Drainage Area Management Plan (DAMP) during the previous two permits.

As discussed during the workshops, it was the intent of the SDRWQCB since 1995 to develop a template Tentative Order that would be revised as necessary and issued throughout the San Diego Region including Orange and Riverside counties. Furthermore, it is evident from the comments received from several Orange County Copermittees during the adoption process for Order 2001-01 that it was common knowledge in Orange County that this was the case. With the benefit of eleven years of storm water permitting, the SDRWQCB has defined the minimum program components and standards it considers necessary for the San Diego Region municipal storm water Copermittees to achieve compliance with the MEP standard, discharge prohibitions, and receiving water limitations. This is embodied in the Tentative Order for which the DAMP, as written, is not satisfactory as the principal tool for implementation of those requirements and provisions. Finally, the Tentative Order

was drafted to ensure regional consistency throughout the San Diego Region when these NPDES Permits and Waste Discharge Requirements are issued on a watershed basis in this region.

The mission of the RWQCBs and SWRCB is to preserve and enhance the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations. Unlike county boundaries, the RWQCB Regions were drawn to be inclusive of watersheds of a homogeneous nature. The "benefit" to which the mission statement refers is expressed in terms of the beneficial uses designated in regional Water Quality Control Plans (Basin Plans). Each RWQCB develops its Basin Plan for its own region, in keeping with California Water Code § 13240 et seq. Since the mission of the RWQCBs involves protecting beneficial uses that are designated by region or portion thereof, it is appropriate for the actions of a RWQCB to be specific to its region or portions thereof and consistent within that region. In other words, in carrying out its mission, it is more important that the SDRWQCB take actions as necessary and appropriate to consistently protect beneficial uses in the San Diego region than it is to achieve multi-regional or statewide permit consistency. Furthermore, NPDES permits and Waste Discharge Requirements are required to implement the Basin Plan requirements and provisions. It is argued that a "one size fits all approach" is not warranted. The Tentative Order provides a framework within which significant discretion and flexibility are provided. A common framework is not a "one size fits all approach" and is at least as justifiable as the strict adherence to a program structure established when comparatively little was known about urban runoff management. The Tentative Order is intended first and foremost to protect beneficial uses in the area to which it applies, not to be consistent with permits adopted in the past or that are applicable to other areas. It should be noted that the requirements of Tentative Order 2001-193 are not mutually exclusive of the requirements of Tentative Order 2001-20 proposed for adoption by the Santa Ana RWQCB. Furthermore, implementation of the requirements of Tentative Order 2001-193 would support compliance with the Santa Ana RWQCB Tentative Order and should not constitute substantial hardship to those Copermitees whose jurisdictions extend into both regions.

The Tentative Order does not render the water management plan developed by the County and cities with substantial stakeholder involvement (the DAMP) irrelevant. Nor did it dismiss the DAMP out of hand. In developing and implementing the DAMP under the first and second term permits, the Copermitees developed programs that may be revised and continued under the Tentative Order. However, the previous development and approval of any one or all of the programs, including the DAMP, does not preclude the SDRWQCB from requiring more detailed, more stringent, or differently structured program requirements under future permits. The Tentative Order does not require the Copermitees to discard the programs developed, but to improve upon and expand them as necessary. Moreover, many of the requirements of the Tentative Order are already being implemented at some level by the Copermitees. Nearly all of the performance commitments in the proposed DAMP would at least in part satisfy requirements of the Tentative Order simply because most of these were also required under Order No. 96-03 or are logical extensions of those programs. Nonetheless, the DAMP as written contains significant gaps, a lack of specificity, and should be accordingly updated to conform to the SDRWQCB's definition of the minimum programs and activities necessary to achieve MEP and protect beneficial uses of receiving waters.

The plans and programs developed by the Copermitees, including the DAMP, are developed and implemented to ensure compliance with the requirements of the permits, not the other way around. The Copermitees have the discretion to revise the DAMP and/or develop a model Jurisdictional Urban Runoff Management Program (Jurisdictional URMP) to meet or exceed the requirements of the Tentative Order. The Tentative Order does not "recognize" the DAMP because it is not necessary that it do so.

Contrary to the assertion in the comment above, SWRCB Order WQ 98-01 does not require review and revision of the DAMP prior to the adoption of a new permit beyond the review and revision conducted by the Copermittees in the preparation of their proposed DAMP and Report of Waste Discharge (ROWD). In fact, Order WQ 98-01 ordered the Receiving Water Limitations language in Order No. 96-03 to be interpreted following precedential language contained in Order WQ 98-01. The precedential language in Order WQ 98-01 did not include the language cited in the comment to the effect that the Executive Officer must determine that exceedances are occurring, must evaluate the adequacy of the approved DAMP, and only upon determining that the DAMP was inadequate, may require the revision of the DAMP. SWRCB Order WQ 98-01 effectively removed these requirements in Order No. 96-03.

The SDRWQCB has reviewed the proposed DAMP and the ROWD and has determined the continued implementation of the DAMP would be inadequate to meet the MEP standard and protect receiving water beneficial uses. Thus the SDRWQCB need not wait for the Copermittees to conduct a revision of the DAMP before adopting the Tentative Order, but rather, following the adoption of the Tentative Order, the Copermittees should make the revisions to the DAMP that are necessary. The language of Finding 41 was revised not because the DAMP was determined to be any more adequate, but rather because the original language was unnecessary to the Tentative Order. The analysis of the DAMP with respect to the SDRWQCB's definition of MEP and the discussion of the inadequacy of the DAMP as written and currently implemented was retained in the Fact Sheet/Technical Report to provide additional relevant information.

With respect to the previous approval of the DAMP, that approval was based on limited information and was relevant only to the five-year term of the permit that approved the DAMP Order No. 96-03. Order No. 96-03 made the DAMP an enforceable component of the Order, but did not make the preclude the SDRWQCB from issuing a permit that did not make the DAMP an enforceable component of the Order. Moreover, as discussed above, SWRCB Order WQ 98-01 effectively removed language that placed the burden upon the Executive Officer of the SDRWQCB to determine that exceedances of receiving water quality objectives were occurring and that the DAMP was inadequate prior to requiring revision of the DAMP. No provision, including those cited by the commenters, precluded the SDRWQCB from issuing or adopting a more specific, more detailed, or differently structured permit. The approval of the DAMP in Order No. 96-03 was based on a cursory review of the DAMP that resulted from very limited SDRWQCB resources. Moreover, given that the DAMP had only been developed as recently (then) as three years, it was determined to be good policy that the DAMP be approved as the principal tool for the implementation of the requirements of Order 96-03 until more information that would better define the programs and activities necessary to achieve MEP and protect beneficial uses of receiving waters was available.

Since 1996, the SDRWQCB has better defined its framework for compliance with the MEP standard and protection of receiving water quality in the form of the template that was adopted for San Diego County as Order No. 2001-01. In addition, as reported in the Copermittees monitoring reports and since 1996, water quality in receiving waters like Aliso Creek and San Juan Creek has continued to be degraded; a result at least in part due to the discharge of urban runoff. With exceedances of receiving water quality objectives, the diversion of a major stream into the sanitary sewer, and subsequent enforcement actions, it is clear that the implementation of the DAMP in practice has not achieved the objectives of Order No. 96-03. The commenters have cited elsewhere in their comments their concern that implementation of the requirements of the Tentative Order would not result in improved water quality, but it has not been demonstrated that continued implementation of the DAMP as written would be any more effective in protecting water quality than it has heretofore. The water quality problems facing Orange County are very similar to those elsewhere in the San Diego Region and merit the same management approach adopted elsewhere in the region.

Furthermore, the revised DAMP does not represent a significant advance beyond what was required under Order No. 96-03. Approximately 78% of the "New Performance Commitments" are commitments to implement or evaluate programs that were required under Order No. 96-03 or are logical extensions of those programs. For example 22% of the new commitments are for the evaluation and revision, if necessary, of programs or BMPs implemented under Order No. 96-03. Findings 21, 22 and 24 identify these activities as being integral to the DAMP as a "dynamic document." Section V.29 of the Order required the submittal of a Report of Waste Discharge that incorporated any revisions to the DAMP, including evaluation of BMPs. Also, another 18% of the new commitments are commitments for the Copermitees to attend meetings or trainings coordinated by the Principal Permittee, which is generally required under section II part 4 of Order No. 96-03 "Participate in committees or subcommittees formed by the principal permittee to address storm water related issues to comply with the Order." Mere evaluation of existing programs and attendance at meetings, which were required under the previous permit, are not new commitments that will demonstrably achieve compliance with receiving water quality objectives or the MEP standard. Thus, because of the ongoing exceedances of receiving water quality objectives, the limited nature of the new commitments, a lack of specificity in the DAMP, and the fact that the DAMP overall does not adequately address the requirements and activities considered by the SDRWQCB to be necessary to meet MEP and protect receiving water beneficial uses, the proposed DAMP was not considered adequate to be the foundation for the new permit.

Contrary to the assertion by several commenters that the SDRWQCB never informed the Copermitees that the DAMP was inadequate, the Copermitees were informed on several occasions that the DAMP was inadequate to be the basis for the new permit and that the San Diego template would be the model for the Orange County municipal storm water permit renewal. During the November 3, 2000 Santa Ana Basin MS4 Permit Renewal Coordination Meeting in Riverside, SDRWQCB staff verbally informed the Principle Permittee representative, Mr. Christopher Crompton, that the DAMP, as written, was inadequate and would not be the basis for the Tentative Order. During this meeting, several points were clearly made and discussed: 1) The San Diego County MS4 permit would be the model for the renewal of the Orange County permit; 2) The permit would be tied to meeting receiving water quality objectives; 3) That consistency with permits in other regions was not a priority; and 4) The DAMP could be revised. Although revisions were made to the DAMP and submitted to the SDRWQCB in a letter dated February 9, 2001, the revisions were not considered significant and the DAMP was determined to be inadequate as the basis for the new permit. This assessment of the DAMP was confirmed and communicated to the Copermitees in a letter sent February 20, 2001 addressed to Mr. Crompton which stated "Please review these comments as the DAMP, in its current form, has been found as to be inadequate to serve as the foundation for a new permit by this Regional Board." The Copermitees were invited to submit a revised DAMP and despite a meeting with Orange County staff on March 29, 2001, in which the DAMP was discussed, no revision was submitted. Furthermore, the Copermitees were again formally notified that the DAMP in its current form was inadequate in a 13225 Directive addressed to Mr. Crompton on March 2, 2001 that stated the "...RWQCB review of the Proposed DAMP finds that, in its current form, will be inadequate to serve as the foundation for a program to correct the impairment of Aliso Creek." These communications alone were sufficient to inform the Copermitees that the DAMP as written was inadequate to serve as a foundation for the Tentative Order. This information was included in the draft Tentative Order and Fact Sheet/Technical Report released on July 2, 2001. While the preparation of a detailed document describing the inadequacies of the DAMP was delayed while preparing the Tentative Order for release and the performance of the workshops, it is important to note that the basic, necessary information regarding the DAMP had been communicated. Furthermore, opportunities to meet again with SDRWQCB staff to discuss the DAMP and to revise and resubmit an updated DAMP were not exercised by the Copermitees.

Nonetheless, it is important again to note that the Tentative Order does not prohibit or preclude the revision and implementation of the DAMP, or equivalent document, as the primary means for compliance with each of the requirements of the Tentative Order. It should be stressed that the requirement for a specific, tailored JURMP Document from each Copermittee is necessary in any revised DAMP and will be subject to review and comment by the SDRWQCB. The reporting requirements of the Tentative Order were included to better track the progress of the development, implementation, and assessment of effectiveness of the required programs and were consolidated as much as possible. These requirements must also be included in a revision of the DAMP.

The development of the Tentative Order has been conducted with substantial review and comment since 1995 and significant changes have been made during its development to improve the implementation and enforcement of the Order by the Copermittees. Including 1500 comments received on the version of the Tentative Order adopted in San Diego County and the 684 comments received in 2001 on the Tentative Order, over 2,184 comments have been addressed. Apart from consideration of the DAMP, most of the comments for the two Orders were duplicative and addressed common issues.

The issues of appropriateness, flexibility, and specifics of the Standard Urban Storm Water Mitigation Plans are addressed specifically elsewhere in this document. With respect to the estimated costs of the implementation of the Tentative Order vs. that of the DAMP, the specified programs included in the Tentative Order must be implemented by the Copermittees in order to carry out the CWA requirements. Optimization of costs associated with implementation of the requirements of the Tentative Order is the responsibility of the Copermittees. The Tentative Order provides significant latitude and flexibility to the Copermittees to determine the most cost effective means of compliance. The requirements of the Tentative Order are intended to build upon the programs already developed by the Copermittees under the previous permits. Wherever possible, the RWQCB has attempted to provide this discretion and flexibility to the Copermittees, especially with regard to already developed programs such as the program management system developed by the Copermittees. Any specified programs in the Tentative Order are made all the more necessary by the exclusion of numerical effluent limits from the permit. Reliance on BMPs as opposed to numerical effluent limits requires specification of those programs that are relied upon to reduce pollution. The issue of estimated costs to implement the requirements of the Tentative Order is addressed in more detail elsewhere in this document. It should be noted here that the San Diego County Copermittees are developing the same programs and required under the Tentative Order and have thus far found it possible to allocate the necessary resources and meet the deadlines. Given that the Orange County program is eleven years along and that the DAMP is a "living document," it is reasonable to conclude that the Orange County Copermittees will, if they choose, be able to successfully revise the DAMP and implement it to comply with the requirements of the Tentative Order.

Finally, the one of the comments above cites one of the more significant weaknesses of the DAMP approach: that of a flawed "watershed approach." The Copermittees frequently cite the statement that the DAMP focuses on problems in receiving waters and that it starts at the water being impacted and looks upstream. The commenters have frequently criticized the Tentative Order for focusing also on land uses and source identification and control. Yet watersheds are by definition the sum of the land, waters, and activities or processes within them. A holistic approach must include all of the processes in the watersheds, not just conditions in the receiving waters. The condition of the receiving waters cannot be considered or protected in isolation from land uses and without positive action with respect to the various land uses tributary to the receiving waters. This seems to be the practice, though clearly not the intent, in some of the programs implemented under the DAMP. Contrary to the comment that the Tentative Order does not prioritize water bodies for corrective action, the Tentative Order does in fact require the Copermittees to address and prioritize urban land use activities authorized within their jurisdictions that may cause or contribute to the degradation of those same

water bodies. This is especially true with respect to water bodies listed as impaired on the 303(d) list. The Tentative Order in no way precludes the Copermittees from prioritizing water bodies for “corrective action.” Furthermore, the Tentative Order does not require that Copermittees abandon their prioritization of water quality issues or their mechanisms to optimize the use of their resources, but rather to review and as necessary revise them. The prioritization and approaches to water quality issues related to the management of urban runoff, however, must address all of the receiving waters in the San Juan Creek Watershed Management Area in Orange County subject to the discharge of urban runoff under the Tentative Order. Furthermore, it is very necessary that the programs be broadly designed and implemented to ensure that water bodies that are not currently a high priority by virtue of impairment do not become impaired and then require “corrective action.” The emphasis on solving water quality problems in receiving waters and prioritizing water bodies for “corrective action” seems to overlook this aspect of urban runoff management. Finally, it should be noted here, that “corrective action” cannot simply consist of engineering the receiving water bodies to accommodate urban runoff without the adequate and required consideration of the sources of that urban runoff. It is not appropriate to convert receiving waters into BMPs. Rather, the Copermittees should implement programs and BMPs to protect the receiving waters and to the extent necessary and desirable, restore or rehabilitate receiving waters impacted by urban runoff discharges.

As discussed above and elsewhere in this document, the restoration or rehabilitation of damaged or lost habitat that resulted from the previous discharges of urban runoff is not a substitute for the implementation of BMPs that prevent or reduce the MEP pollutants in urban runoff. This is an important part of the DAMP approach that warrants additional discussion. With respect to the U.S. Army Corps of Engineers (Corps) Watershed Studies of San Juan Creek and Aliso Creek, the Copermittees may include findings and plans developed during the course of this work in the development and implementation of the Jurisdictional and Watershed Urban Runoff Management Programs. However, the structural management measures proposed in these studies are limited in scope by the Corps jurisdiction to instream projects. These studies have provided only cursory recommendations for source identification and control and other activities that should be expected from a watershed management approach and compliance with the storm water permit. This has been a major weakness in the implementation of these programs under the DAMP and a contributing factor in the determination of the inadequacy of the DAMP. Moreover, although the Aliso Creek Watershed Management Study was submitted in May 1999 and included at least two activities (Watershed Education Plan and Non-Point Source Awareness Plan) that were compatible with provisions of Order No. 96-03 and the Drainage Area Management Plan, it is not yet apparent that these recommended activities have been implemented by the Copermittees in the Aliso Creek watershed. Furthermore, it should be again stated that the improvements, however beneficial to water quality, are not substitutes for the implementation of the types of BMPs and programs included in the Tentative Order. While the stabilization, rehabilitation, or restoration of impaired aquatic and riparian habitat are important activities that may help protect the Copermittees from exceedances of receiving water quality objectives through the restoration of the assimilative capacity of the receiving waters, this approach cannot be conducted in lieu of source identification and elimination of illicit discharges or the implementation of BMPs to prevent or reduce pollutants in urban runoff to the MEP. It is not clear that this approach is adequately represented in the DAMP or the programs it includes that are implemented by the Copermittees. The Tentative Order is intended to build upon this work and fill the gaps to ensure achievement of the MEP standard and protection of beneficial uses of receiving waters.

One comment above refers to the JURMP approach as diametrically opposed to the “holistic approach that the Copermittees have been pursuing for over a decade.” In fact, the approach defined in the Tentative Order is fully supportive of a holistic approach since it emphasizes the importance of the whole program and interdependence of its parts (i.e. the jurisdictional level programs) rather than a simple summation or a focus on the parts. A holistic approach is not a generalized approach that

neglects key parts of the whole, but rather an approach that seeks to understand the importance of individual components and their relationship to one another. A major weakness that is apparent in the implementation of the DAMP is a lack of consistent understanding and implementation of some of programs at a municipal level. That is, although the parts are tied together holistically within the document, they do not appear to be implemented in an interdependent manner in practice. For example, it is apparent from reports received from the Copermittees that despite the enforcement consistency guidance implemented under the DAMP, there are very different approaches to enforcement from municipality to municipality. Furthermore, as demonstrated in some of the comments received on the prohibitions on non-storm water discharges, there is a widespread lack of understanding among the Copermittees regarding some of the most basic requirements of the two previous permits as implemented through the DAMP. Also, there is an apparent disconnection between land-use planning and urban runoff management as embodied in the DAMP. Although the DAMP is discussed as a drainage or watershed based approach, it has for eight years neglected important tools such as watershed level land-use planning that actually does incorporate a holistic understanding of watershed morphology and processes. This is a key provision of the watershed approach of the Tentative Order. Building on the work of the last eleven years and filling some important gaps, the Tentative Order is fully supportive of the holistic approach the Copermittees having been pursuing under the storm water program.

The Tentative Order is a third term permit that is intended to build upon, expand, and improve as necessary the programs developed and implemented under the previous permits. However, the fact that the Copermittees have been permitted twice before does not necessarily constitute the achievement attributed to it in several comments. As discussed above, the review the previous DAMP and the draft Order No. 96-03, written by staff at the Santa Ana RWQCB, prior to and following the adoption of the DAMP in Order No. 96-03 was cursory due to very limited SDRWQCB resources. Despite concerns regarding the DAMP and draft permit, those resources were directed instead at the development of the San Diego Region template municipal storm water permit, adopted in February 2001 by the SDRWQCB, from which the Tentative Order is derived. Furthermore, Order No. 96-03 did not represent a major improvement or advance from Order No. 90-38. It principally required the continuation of programs developed under Order No. 90-38 with the addition of requirements for municipal facilities and activities. Nonetheless, the Copermittees have made advances and refinements in their programs that this Tentative Order now properly seeks to improve and build upon. This process of increasing stringency and detail in NPDES permits is clearly the intent expressed by the USEPA in the Federal NPDES regulations and subsequent guidance. This is made all the more necessary due to the continued degradation of receiving water quality and the ongoing and anticipated urban growth in Orange County. If extensively revised to meet or exceed the requirements of the Tentative Order, the DAMP, subject to review and comment by the SDRWQCB, may continue to be utilized by the Copermittees as the guiding document to implement the requirements of the Tentative Order. This does not require the specific direction in the Tentative Order sought by the commenters. The SDRWQCB has the discretion to require the provisions and format of the Tentative Order under the broad and specific legal authority cited in the Fact Sheet/Technical Report.

Comment: What training, technical resource, and educational programs will the State or Regional Board be offering or developing to assist the Copermittees with implementation of the education, prioritization, and BMP designation requirements? What resources and technical assistance are available to identify potential significant pollutants normally associated with industrial activities? Has the Board prepared training materials for use at the staff and public levels for all of the topics listed Sections F.4.a, b and c? It seems that there should be a series of consistent materials and information available to provide for continuity in staff and public education efforts throughout the county rather

than relying on each Copermitee to come up with something different. Will the Regional Board act as a clearinghouse for transfer of technical information available from other agencies such as copies of studies, testing data and guidelines for compliance already completed or in progress?

The SDRWQCB Should Model the EPA and Provide Technical Information, Education Programs and Materials, and Compliance Assistance. While we are sensitive to your regulatory role and responsibilities, it is essential that the State and Regional Boards also partner with the Copermitees in working towards water quality protection and improvement. Water Code Section 13167 requires the State Board to implement a public information program on matters involving water quality, and to maintain an information file on water quality research and other pertinent matters. (*Laguna Niguel, Mission Viejo*)

Response: The Regional Boards and State Water Resources Control Board (SWRCB) have been and will continue to be partners with the local governments, businesses, organizations, and individuals in the effort to preserve and enhance the quality of California's water resources. The SWRCB maintains a web site at <http://www.swrcb.ca.gov/stormwtr/> with information pertaining to storm water. The Regional Board has information available regarding many of the water quality issues under section F.4 of the Tentative Order. Regional Board staff will continue to be available to participate in educational or training sessions with the copermitees. Where resources permit, the Regional Board and SWRCB may help fund particular training sessions. An example is the Stormwater Quality Task Force, which produces guidance on storm water quality issues. In addition, grants are periodically offered that can be used to develop regionwide or municipal educational or training programs regarding stormwater issues. The municipalities may wish to cooperatively develop educational and training materials.

Comment: Does the Board have a program with incentives for those industrial and commercial businesses that choose to implement BMPs? (*Laguna Niguel*)

Response: Businesses that do not use BMPs risk violating State and local laws to protect water quality and public health. Under the Industrial NPDES program, the no-exposure certification is one incentive to implementing BMPs. The Regional Board does not currently have a monetary incentive program to implement BMPs, and the Regional Board considers it the obligation of the industrial and commercial partners to implement BMPs to preserve and enhance our water resources. We are interested in discussing options with the municipalities. for the development of various types of incentives, and we encourage the municipalities to develop incentive-based approaches in conjunction with education and enforcement efforts to achieving water quality objectives.

Comment: Item F.3.a.(3).a identifies municipal roads, streets, highways and parking facilities as high priority municipal activities that threaten water quality. Please provide additional information (i.e. scientific, empirical, other) for each of the municipal areas and activities. Why is each area/activity a high threat to water quality? What are the specific pollutants of concern associated with each municipal area/activity?

Only for high priority water bodies should the Permittees be required to categorize industrial sites as posing either a high, medium, or low threat to water quality, based on the criteria set for in this section.

Item F.3.c.(2) and item F.3.d.(2) commercial and residential activities that are considered to be high priority threats to water quality. These specific commercial sites/sources are not found in the Clean Water Act, the applicable Federal Regulations, the Porter-Cologne Act, or EPA guidance documents.

The Draft Fact Sheet/Technical Report provides no specific rationale for the selection of these commercial sites/sources. Please provide additional information (i.e. scientific, empirical, other) for each of the priority project categories. Why is each project category a high threat to water quality? What specific pollutants of concern are normally associated with each project category? (*Laguna Niguel, County of Orange*)

Response: The Federal NPDES regulations clearly place an emphasis on the prioritization of sites of various land uses. The Tentative Order's requirements regarding site prioritization are more detailed than those in the Federal NPDES regulations, and the SDRWQCB has increased the detail of the site prioritization requirements under Clean Water Act section 402(p)(3)(b)(iii), which states that a storm water program "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." This increased detail is necessary due to the continued degradation of the region's receiving waters caused by urban runoff.

In some cases, the SDRWQCB has identified high priority areas and activities based on USEPA guidance and experience with enforcement. Threat to Water Quality Prioritization allows the Copermittee to rate which site (construction, municipal, industrial, residential) will receive more of their oversight resources due to the site's ability to cause an greater negative impact to the receiving water quality in the event of a discharge. This inventory will help the Copermittee determine which sites are high priority and it will also be an important tool in watershed planning and management.

Regarding Municipal priority sites: Municipal roads, streets, highways and parking facilities are considered to be high priority sources since they are specifically addressed in Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A). Regarding roads, highways, and parking facilities, the US EPA states "Road maintenance practices, especially... road repair, and traffic are significant sources of pollutants in storm water discharges."

Regarding industrial priority sites: The designation of high priority industrial sites is reasonable and justified. Industrial sites that are subject to section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) are identified in the Federal NPDES regulations as sites for which the Copermittees must provide oversight. USEPA has also placed high priority on industrial sites subject to the General Industrial Permit by requiring them to receive coverage under the permit. Industries are also considered high priority due to their location in relation to CWA section 303(d) water bodies and environmentally sensitive areas. Pollutant loading of these water bodies must be avoided to aid in their recovery and ensure against their further degradation. The intent of this requirement was not to include all sites which were tributary to any 303(d) water body, but rather to include sites which had pollutants on-site which were tributary to 303(d) water bodies impaired for those same pollutants. In addition, the intent regarding environmentally sensitive areas was to provide these areas protection from industrial sites within or directly adjacent to the environmentally sensitive areas.

Regarding commercial priority sites: The assignment of high priority to the commercial sites and sources is based on several factors (as discussed in the draft Fact Sheet/ Technical Report). The primary factor considered was the presence of pollutants at the commercial sites/sources listed. All of the commercial sites/sources are associated with the use or generation of pollutants commonly found in urban runoff. These included oil, grease, and metals for categories a-h and u; Pesticides for categories i, o, p, q, r, and s; coliform for categories j and v; construction byproducts for categories l - n; detergents for category k; and chlorine for category t. In addition, the choice of categories was bolstered by years of professional experience receiving and reviewing complaints regarding illicit discharges. Other considerations included number of sites/sources and size of site/sources.

Regarding residential priority areas and activities: SDRWQCB believes it is well established that these residential activities generate pollutants which find their way to surface waterways. The residential areas and activities are identified as high priority threats to water quality due to their wide distribution, their association with pollutants of concern in urban runoff, and their historical mismanagement of associated urban runoff. By mere virtue of the materials and chemicals involved with these activities, the cumulative impact of hundreds of thousands of households are detrimental if done without water quality protection in mind.

Comment: Regarding commercial and residential land use, how is the Copermittee to implement or require implementation of BMPs on existing developed property if there is no development application or request for a building permit? (*Laguna Niguel*)

Response: The Tentative Order requires the Copermittees to designate and implement or require the implementation of minimum BMPs for high priority threats to water quality from municipal, commercial, and residential areas. Options for achieving these requirements may be assessed based on the natural and developed landscape, land use, type of activity, and capacity to retrofit. Site or activity-specific options may include, but are certainly not limited to, enforcement of current ordinances, development of new ordinances, negotiated agreements with property owners or users, and implementation by the municipalities.

Comment: What land use authority does City have to require BMP retrofits on existing residential development that is not being redeveloped? Does permit require structural BMP retrofits in this case? What authority do Copermittees have to impose BMPs on existing industrial and commercial projects? (*Laguna Niguel*)

Response: Each copermittee has adopted a storm water ordinance that prohibits pollutants from entering the storm drains. The Tentative Permit does not require BMP retrofits on existing residential development, but rather provides copermittees the flexibility to designate BMPs (Best Management Practices) appropriate to residential activities and areas that present high threats to receiving water quality.

The Copermittee is ultimately responsible for discharges to and from their MS4. Each Copermittee must therefore develop and enforce storm water ordinances in order reduce pollutant discharges to the MS4 to the maximum extent practicable and comply with its permit responsibilities. These ordinances must be applied at all industrial and high priority commercial sites to ensure that pollutant discharges to the MS4 are reduced to the maximum extent practicable and permit requirements are met. Due to their numerous potential pollutant sources, industrial sites are relatively high risk areas for pollutant discharges to storm water. In order to control the discharge of pollutants from industrial sites to the maximum extent practicable, implementation of BMPs is necessary. To this effect, the US EPA "recommends that municipal applicants incorporate a provision in the proposed management program that allows the municipality to require priority industrial facilities to implement the controls necessary for the municipality to meet its permit responsibilities" (1992). Regarding enforcement at industrial sites, the US EPA further states "The municipality, as a permittee, is responsible for compliance with its permit and must have authority to implement the conditions in its permit. To comply with its permit, a municipality must have the authority to hold dischargers accountable for their contributions to separate storm sewers" (1992).

Pursuant to the federal regulations implementing the stormwater program, municipalities are required to certify that they have ordinances that enable them to, among other things, prohibit discharges to

their ms 4 systems. Dischargers covered under the current permit, including the City of Laguna Niguel, have already made this assertion.

Comment: Municipal service and inspection levels are established at the discretion of city and county governing boards. What is the authority of the Copermittee to inspect existing properties without a search warrant if there is no visible sign of a violation? Please eliminate F.3.b.(6)(b) from the Tentative Order. What authority do Copermittees have to go onto high priority commercial sites and sources as needed and search for potential violations? Copermittees may have authority to either go onto a site or obtain a search warrant to go onto the site if they determine that a violation is taking place. What is the legal basis for reviewing municipalities to inspect commercial sites? (*Laguna Niguel, Richard Watson and Associates,*)

Response: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B) requires a program to detect and remove illicit discharges and improper disposal into the storm sewer. This program is required to include inspections to implement and enforce a municipal ordinance, order or other means to prevent illicit discharges to the MS4. Further, BMPs must be implemented for commercial sites and activities to reduce the discharge of pollutants from the sites and activities to the maximum extent practicable, and inspection of commercial sites is necessary to ensure that implemented BMPs are adequate. As discussed in Finding 24, inspections provide a necessary means by which Copermittees can evaluate compliance with their ordinances and requirements of Order No. 2001-193. Inspections are especially important for high risk commercial sites and activities, such as commercial sites and activities where urban runoff is not properly managed.

Comment: We ask the Board to acknowledge that tributary to” (as used in Sections F.1.c., F.2.f.(4), F.3.a.(3)(b), F.3.b.(3)(b) and F.3.c.(3)(c).) is defined as “directly adjacent to or discharging directly to” as detailed in Section F.1.b.(2).(vii)

In various sections of the Tentative Order, the Regional Board makes reference to sites as being “tributary” to water bodies. For example, Item F.2.e, requires the Permittees to prioritize construction sites based on the level of threat they pose to water quality and states that “high priority” construction sites include any sites that that are “tributary to a Clean Water Act section 303(d) water body impaired for sediment.” The use of the term “tributary” in this manner is incorrect. A “tributary” refers to a stream or other water course that enters or contributes flow to another water course or water body. Moreover, by using this term, the Regional Board staff is, in effect, extending the WQS applicable to the receiving waters for the Permittees’ MS4s all the way upstream to the actual runoff coming from the industrial, construction and other sites that drain into the MS4s. The Basin Plan specifically states that “[b]eneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.” Basin Plan, Table 2-2, p. 2-13. Whether the Regional Board staff intended this result is unclear. But in any event, it must be corrected. The Tentative Order therefore should be revised to delete the reference to “tributaries” throughout and indicate that storm water runoff from a site may enter into a water course or water body, either directly or via the Permittees’ MS4. (*Rancho Santa Margarita, County of Orange*)

Response: Tributary, as referred to in the Tentative Order, is purposely separate from the phrase “directly adjacent to or discharging directly to,” which is coupled with environmentally sensitive areas. Runoff that is not discharged directly to 303(d) listed water body may still be tributary to that water body as it commingles with other tributary streams. The term “tributary” refers to runoff from sites that may flow into a 303(d) listed water body, thus in the Tentative Order the phrase is placed within the context of 303(d) listed waterbodies.

The more stringent BMP requirements for discharges tributary to 303(d) listed water bodies refers specifically to activities that may be a source of those pollutants for which the water body is listed. Not all activities in the watershed tributary to a 303(d) listed water body generate pollutants impairing the waterbody. Activities that do not generate pollutants for which a 303(d) listed water body is listed would not be subject to the more stringent BMP requirements. CWA section 303(d) water bodies are impaired water bodies which are not achieving the water quality objectives necessary to protect their beneficial uses. As discussed in Finding 3, urban runoff discharges from MS4s are a leading cause of receiving water quality impairment in the San Diego Region and throughout the United States. Since discharges which cause or contribute to an exceedance of water quality standards are prohibited (see section C.1. of Order No. 2001-193), any discharges to CWA section 303(d) waterbodies of pollutants for which the waterbody is impaired are prohibited. Therefore, sites and activities tributary to these water bodies must implement additional controls to ensure that they are not discharging the pollutants which are causing or contributing to the impairment of these water bodies.

Furthermore, US EPA supports additional controls for construction sites tributary to impaired or sensitive water bodies, stating "The proximity and sensitivity of the receiving water to which the construction site discharges is an important consideration. For construction sites that discharge to receiving waters that do not support their designated use or other waters of special concern, additional construction site controls are probably warranted and should be strongly considered" (1992).

The Environmentally Sensitive Area (ESA) priority development project category is meant to apply to projects which have the potential to cause a direct impact to an ESA. In other words, the inclusion of the ESA category in the Tentative Order is designed to provide additional protection of ESAs. For this reason, the ESA category is limited to projects which are "within or directly adjacent or discharging directly to" an ESA, where "discharging directly to" means flows that are "not commingled."

Comment: The Tentative Order requires municipalities to develop and implement an extremely comprehensive program (through inspection and enforcement efforts) to address industrial, construction, commercial and residential storm water discharges into the MS4 system. This approach is too prescriptive and improperly limits the Copermittees flexibility and discretion. EPA guidance documents state that the operator of a MS4 has the flexibility to determine the BMPs for each storm water management program minimum control measure that are most appropriate for their system. While the content of the Tentative Order is helpful in understanding the Regional Board's thinking on possible components of a comprehensive storm water management program, such information should be offered as "guidance", not prescription or mandate.

The Tentative Order is overwhelming in its demands for reporting and paperwork and jeopardizes our ability to make timely gains in receiving water quality improvements. Also, this approach would not reflect the efforts by Orange County Copermittees to prioritize their water quality issues and optimize the use of their resources to address these issues to achieve the overall goals of its DAMP.

The Tentative Order prescribes a very detailed storm water program that goes beyond the provisions of the Clean Water Act, Porter-Cologne Act and the EPA measures and guidance outlined in section 122.26 for storm water management programs. In setting the NPDES municipal storm water regulations in 1990, EPA indicated that the permits would be flexible and coordinated with the discharger. This process seems to have been omitted in the development of this permit since numerous discussions with the San Diego region Board staff failed to achieve meaningful changes in the drafting of this permit from that issued to the county and cities of San Diego.

The Tentative Order establishes a prescriptive storm water management plan developed for San Diego County that abandons the approach of current and earlier permits, which require the County and cities to develop and implement a storm water management plan that meets certain general specifications. In previous hearings Board staff has indicated that a prescriptive permit was needed because the Permittees lacked a cohesive and implementable storm water management plan. However, this is not the case in Orange County and the same prescriptive permit is being issued even though a storm water management plan has been in existence since 1993. Under the Tentative Order, the storm water management plan developed by the County and cities with substantial stakeholder involvement (the DAMP) and approved by the Regional Board, essentially becomes irrelevant.

The incorporation into the NPDES permit of a prescriptive program means that any change in the program would require a formal amendment of the NPDES Permit. This is in contrast with the current permit, wherein the County and cities are authorized to deviate from the program set forth in the DAMP for good cause. Under the Tentative Order the County and cities would face enforcement action and/or citizen suits if they deviated in any respect from the detailed program specified in the permit. This will have two affects. First, even if there is agreement with Regional Board staff that a specified activity is no longer considered necessary, the County and/or cities must continue to perform that activity until such time that a permit amendment can be processed. Thus, local resources would be wasted on activities acknowledged to be nonproductive or unnecessary. Second, considerable Regional Board and local resources would be required to process permit amendments. If the Regional Board determines it has insufficient resources to process an amendment, then the County and cities would be stuck for the remainder of the permit term with implementing activities that all agree are unnecessary. For these reasons alone, a prescriptive approach is bad public policy.

The Clean Water Act regulations were designed to preserve flexibility and allow municipal permittees to fashion storm water management programs meeting their local needs and circumstances. When enacting the 1987 amendments to the CWA that added the municipal storm water permit requirements, Congress was aware of the difficulties in regulating discharges from MS4s solely through traditional end-of-pipe treatment. See 55 Fed. Reg. 47990, 48037-38 (Nov.16, 1990) (“Phase I Storm Water Rulemaking”). In earlier rulemakings, much of the criticism of the concept of subjecting discharges from MS4s to NPDES permits focused on the perception that “the rigid regulatory program applied to industrial process waters and effluents from [POTWs] was not appropriate for the site-specific nature and sources which are responsible for the discharge of pollutants from [MS4s].” Id. at 48038. The water quality impacts of discharges from MS4s depend on a wide range of factors, including: the magnitude and duration of rainfall events, the time period between events, soil conditions, the fraction of land that is impervious to rainfall, land use activities, the presence of illicit connections, and the ratio of the storm water discharge to receiving water flow. Id. In enacting the 1987 amendments, Congress recognized that: permit requirements for [MS4s] should be developed in a flexible manner to allow site-specific permit conditions to reflect the wide range of impacts that can be associated with these discharges. ...“All types of controls listed in subsection [402(p)(3)(C)] are not required to be incorporated into each permit.” Id. (quoting from 132 Cong.Rec. H10576 (daily ed. Oct. 15, 1986). Consistent with this Congressional intent, the Phase I Storm Water regulations “set[] out permit application requirements that are sufficiently flexible to allow the development of site-specific permit conditions.” Id. While EPA believed that all municipalities should face essentially the same responsibilities and commitments for achieving the goals of the CWA, it “agree[d] that as much flexibility as possible should be incorporated into the [MS4] program.” Id. The prescriptive, cookie-cutter approach mandated by the Tentative Order clearly is at odds with both Congress’ intent in enacting the municipal storm water program and with EPA’s intent in implementing it. Rather than allowing the Permittees the flexibility to develop and implement their own storm water management programs within the broad parameters set forth by EPA, the Tentative

Order would dictate to the Permittees what to include in their programs and how and when to implement them. (*County of Orange, Laguna Niguel, Aliso Viejo*)

Response: The Tentative Order contains the framework for the minimum requirements considered by the SDRWQCB to be necessary to achieve MEP. The requirements in the Tentative Order are based on the Federal NPDES regulations and USEPA and SWRCB guidance. Where the Tentative Order is more specific than the Federal NPDES regulations, it is based on USEPA and SWRCB guidance. The SDRWQCB has authority to include more specific requirements than the Federal regulations under CWA section 402(p)(3)(B)(iii) and CWC section 13377. USEPA supports the approach of increasingly detailed storm water permits, stating "The interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards" (USEPA, 1996). The reporting requirements of the Tentative Order were included to better track the progress of the development and implementation of the required programs and were consolidated as much as possible. The Tentative Order does not require that Copermitees abandon the prioritization of water quality issues or their mechanisms to optimize the use of their resources, but rather to review and as necessary revise them. The prioritization and approaches to water quality issues related to the management of urban runoff, however, must address all of the receiving waters in the San Juan Creek Watershed Management Area in Orange County subject to the discharge of urban runoff. The development of the Tentative Order has been conducted with substantial review and comment and significant changes have been made to improve the implementation and enforcement of the Order by the Copermitees.

The Tentative Order does not go beyond the legal authorities cited in the comment and does provide the Copermitees with a wide range of flexibility and discretion. CWA section 402(p)(3)(B)(iii) provides that municipal storm water permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." To meet this requirement of the CWA, the Tentative Order requires the implementation of BMPs, as required under Federal NPDES regulation 40 CFR 122.44(k). While the Tentative Order includes requirements for widespread BMP implementation for specific categories of existing and planned land use, it does not require use of any particular BMPs. The Tentative Order actually encourages implementation of combinations of BMPs, and further does not preclude any particular BMPs or other means of compliance. A permit which allows for seemingly infinite means for achieving compliance does not 'specify the design or manner of compliance' in violation of California Water Code section 13360.

The specified programs included in the Tentative Order must be implemented by the Copermitees in order to carry out the CWA requirements. These are intended to build upon the programs already developed by the Copermitees under the previous permits. Any specified programs in the Tentative Order are made all the more necessary by the exclusion of numerical effluent limits from the permit. Reliance on BMPs as opposed to numerical effluent limits requires specification of those programs that are relied upon to reduce pollution.

With respect to the need for flexibility and coordination, the Tentative Order provides a framework within which the Copermitees may develop the programs, activities, and measures that will satisfy or exceed the requirements of the Tentative Order. Wherever possible, the RWQCB has attempted to provide discretion and flexibility to the Copermitees, especially with regard to already developed programs such as the program management system developed by the Copermitees.

The Tentative Order does not render the water management plan developed by the County and cities with substantial stakeholder involvement (the DAMP) irrelevant. As discussed during the workshops, it

was the intent of the SDRWQCB to develop a template Tentative Order that would be revised as necessary and issued throughout the San Diego Region. More importantly, the Tentative Order contains the framework for the minimum requirements considered by the SDRWQCB to be necessary to achieve MEP. The Tentative Order was drafted to ensure regional consistency throughout the San Diego Region when these NPDES Permits and Waste Discharge Requirements are issued on a watershed basis in this region. In developing and implementing the DAMP under the first and second term permits, the Copermittees developed programs that may be revised and continued under the Tentative Order. However, the previous development of any one or all of the programs, including the DAMP, does not preclude the SDRWQCB from requiring more detailed or more stringent requirements under future permits. The Tentative Order does not require the Copermittees to discard the programs developed, but to improve upon them. Moreover, many of the requirements of the Tentative Order are already being implemented at some level by the Copermittees. Because the Tentative Order is issued to each Copermittee, each Copermittee must have a program to management urban runoff within its jurisdiction. The program must be tailored to address the specific urban runoff management issues within its jurisdiction and it must be specific enough to ensure fair, uniform implementation and enforcement throughout the region. The Copermittees have the discretion to revise the DAMP and/or develop a model Jurisdictional Urban Runoff Management Program (Jurisdictional URMP) to meet or exceed the requirements of the Tentative Order.

Finally, the Tentative Order represents the definition of MEP adopted by the SDRWQCB. Within that framework, the Copermittees have significant opportunity and flexibility to develop and implement effective programs and to improve and modify these programs as necessary to achieve and maintain compliance with the Tentative Order and receiving water quality objectives. Moreover, the Copermittees are required to evaluate the effectiveness of JURMP programs and to revise the programs as necessary to comply with the Tentative Order and receiving water quality objectives. The contention that the Tentative Order would have to be amended to provide the Copermittees with the flexibility to modify activities is without merit. The requirements contained in the framework provided in the Tentative Order are sufficiently broad and inclusive to provide the Copermittees with largely the same degree of latitude in developing and implementing programs. Within this framework, the Copermittees will not be required to implement unnecessary or non-productive activities.

Comment: Although partially exempted from the Chapter 3 Environmental Impact Reporting (“EIR”) process pursuant to Water Code §13389, the remaining non-exempted parts of CEQA require all Regional Boards to consider the environmental consequences of their permitting actions, and to explore feasible alternatives and mitigation measures prior to the adoption of waste discharge requirements. See e.g., Pub. Res. Code §21002; 23 C.C.R. §3733. CEQA evidences an intent to have the RWQCB “identify, at the earliest possible time in the environmental review process, potential significant effects of the project, alternatives, and mitigation measures which would substantially reduce the effects.” Pub. Res. Code §21103.1. Once environmental consequences are identified, “a public agency may use discretionary powers provided by such other law for the purpose of mitigating or avoiding a significant effect on the environment.” Pub. Res. Code §21004. Public agencies, like the Regional Board, should not approve a project if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such a project. Pub. Res. Code §21002.

The Regional Board staff apparently has failed to consider the limitation that Section 13372 places on Section 13389. As noted in *Committee for a Progressive Gilroy v. State Water Resources Control Bd.*, 192 Cal. App. 3d 847, 862 (1987), Section 13372 “provides that the ‘provisions of this chapter [which includes section 13389] shall apply only to actions required under the Federal Water Pollution Control Act, as amended.’” (emphasis added). See also *San Francisco Civil Serv. Ass’n. v. Superior Court*, 16 Cal. 3d 46, 50 (1976). Therefore, Section 13389 only exempts compliance with CEQA if the CWA

requires the provisions of the permit. In this case, federal law does not require the contested provisions of the Tentative Order. Section 402(p)(3) of the CWA does give the Regional Board the discretion to include certain provisions in the Tentative Order that it deems appropriate. 33 U.S.C. § 1342(p)(3). However, to the extent the contested provisions are discretionary and not required under the CWA, Section 13389 does not exempt the Regional Board from complying with CEQA. The CEQA exemption only applies to actions required under the CWA. Because the Tentative Order contains numerous provisions beyond what is required by the CWA, the Regional Board must comply with CEQA before issuing the Tentative Order. Accordingly, Finding No. 39 should be deleted and the SDRWQCB must comply with CEQA requirements before adoption of the Tentative Order.

The Regional Board correctly cites the provision of the California Water Code exempting waste discharge requirements from Chapter 3 of the California Environmental Quality Act ("CEQA"); however, CEQA does apply to Regional Board permits to the extent that they contain provisions not required by the Clean Water Act.[12] The Clean Water Act does not require that municipal stormwater meet Water Quality Based Effluent Limits (WQBELs). Since the permit includes provisions not required by the Clean Water Act, the Regional Board cannot issue the permit without first conducting environmental review under CEQA. Where, as here, the action triggering CEQA compliance is a permit of countywide applicability with significant environmental implications, the Regional Board should prepare an Environmental Impact Report, including an alternatives analysis.

The Tentative Order May Not Be Adopted Without Review under the California Environmental Quality Act. It is the City's understanding that the Regional Board intends to adopt the Tentative Order without conducting any review pursuant to the California Environmental Quality Act ("CEQA"). Apparently, staff of the Regional Board is taking the position that CEQA review is not required because of the exemption contained in Water Code section 13389. Water Code section 13389 is, on its face, not applicable to Regional Board actions which impose "requirements for new sources as defined in the Federal Water Pollution Control Act." A "new source" is a source constructed after the standards applicable to the source are promulgated. The Tentative Order imposes requirements on new sources because it not only will apply to parts of the municipal separate storm sewer system ("MS4") constructed in the future, but also will apply to discharges into the MS4 from sources constructed in the future. Therefore, the Tentative Order imposes requirements for new sources and is not exempt from CEQA review.

Second, Water Code section 13389 only applies to actions which are required under the Clean Water Act. (See Water Code § 13372.) As Committee for a Progressive Gilroy v. State Water Resources Control Board (1987) 192 CalApp. 847, 862 makes clear, the exemption contained in Water Code section 13389 is a limited exemption and does not insulate discretionary acts of the Regional Board from the requirements of CEQA. The Tentative Order goes beyond the requirements of the Clean Water Act and imposes requirements which are discretionary, not mandatory. Therefore, adoption of the Tentative Order may only occur after the appropriate CEQA review has been performed. (*County of Orange, Laguna Niguel, Construction Industry Coalition on Water Quality, Aliso Viejo*)

Response: Discharges of urban runoff in municipal separate storm sewer systems (MS4s) involve discharges of pollutants from point sources to waters of the United States that are subject to regulation under federal Clean Water Act (CWA) and Chapter 5.5 of Porter Cologne Water Quality Control Act (PC). Chapter 5.5 of PC commencing with section 13370 provides additional water quality control authority specifically applicable to such discharges in order to ensure the consistency of California's state program for water quality with the federal NPDES programs as set forth in Water Code (WC) 13372.

Water Code 13389 relieves the RWQCB of its obligation to prepare environmental impact documentation under the California Environmental Quality Act (CEQA) prior to issuing waste

discharge requirements (WDRs) for discharges subject to regulation under Chapter 5.5, such as waste discharge requirements for MS4s. Issuance of requirements for discharges of urban runoff in MS4s is required by Section 402 (d) of the CWA. The fact that some of the specific requirements of a regional board order may exceed the nationwide minimum standards for MS4 regulation prescribed by the CWA and NPDES regulations in 40CFR 122.26 does not abrogate this exception. The "project" in this case is issuance of requirements for discharges in MS4s, an action required by the CWA and NPDES regulations. The comment contends that WC 13389 is not applicable to MS4s because the requirements will be applicable to sources that will be constructed in the future. This interpretation of the meaning of "new source" under the CWA misrepresents the definition of that term. The criterion for a "New Source" includes the promulgation of "national standards of performance" under CWA Section 307 (i.e. technology-based effluent limits for industrial source categories). MS4s are not within any of the promulgated industrial source categories and the USEPA has not promulgated national standards of performance for MS4s. Therefore, MS4s cannot be New Source at this time, regardless of when constructed. The comment contends that many provisions in Tentative Order are not required by the CWA or federal NPDES regulations; however, all provisions are intended to implement or clarify specific requirements in applicable federal regulations to protect water quality of waters of the United States within the San Diego Region. The comment also misrepresents the import of Progressive Gilroy by suggesting that reliance on the state statutory authority precludes reliance on the CEQA exemption in WC 13389.

In fact, all regulatory actions taken by the state to satisfy the requirements of the CWA rely on the state's independent authority to regulate activities affecting water quality. U.S. EPA authorization for California to implement the NPDES program depends upon the state's demonstration of independent authority to accomplish under state law what would be required under the federal CWA and NPDES regulations; Chapter 5.5 of PC ensures consistency between state and federal regulations for discharges subject to the CWA. Accordingly, WC 13389 provides exemption from environmental documentation under CEQA for any action that would be required for implementation of NPDES programs in California. Issuance of WDRs for MS4 is required for implementation of the CWA and NPDES program in California.

There are no alternatives to regulation of discharges in MS4 under WDRs implementing Basin Plan and NPDES regulations for storm water.

Finally, it should be noted that in its draft Order on the petition by the Building Industry Association and Western States Petroleum Association for the review of Order No. 2001-01, in which this issue was prominently raised, the SWRCB has stated "As we have stated in several prior orders, the provisions of CEQA requiring adoption of environmental documents do not apply to NPDES permits. BIA contends that the exemption from CEQA contained in section 13389 applies only to the extent that the specific provisions of the permit are required by the federal Clean Water Act. This contention is easily rejected without addressing whether federal law mandated all of the permit provisions. The plain language of section 13389 broadly exempts the Regional Water Board from the requirements of CEQA to prepare environmental documents when adopting 'any waste discharge requirement' pursuant to Chapter 5.5 (13370 et seq, which applies to NPDES permits). BIA cites the decision in Committee for a Progressive Gilroy v. State Water Resources Control Board (1987) 192 Cal.App.3d847. That case upheld the State Board's view that section 13389 applies only to NPDES permits, and not to waste discharge requirements that are adopted pursuant only to state law. The case did not concern an NPDES permit, and does not support BIA's argument." This discussion in the draft SWRCB Order strongly supports the SDRWQCB response to this issue.

Comment: The Tentative Order is Prescriptive and Violates CWC 13360: Many of the proposed requirements in the draft permit would be administratively and operationally overwhelming to

implement and would be an attempt to expand Regional Board control over City policies and procedures. In its current form, the Tentative Order, including its five separate attachments, is almost 80 pages in length, nearly three times as long as its predecessor. The principal reason for this length is that the Regional Board staff specifies in excruciating detail what the Permittees must do to comply with the substantive standards imposed under the Tentative Order. The Tentative Order, both generally and particularly with respect to the JURMP/SUSMP requirements, is unlawfully prescriptive under the Section 13360 of the Water Code and does not provide the flexibility envisioned by the CWA and its implementing regulations.

The Regional Board does not have the authority to dictate to municipalities the form or content of any ordinances, statutes, permits, contracts or similar means. The cities and counties have jurisdiction over these things. The Regional Board may not mandate or prescribe how compliance with discharge prohibitions shall be achieved. The Water Code prohibits this practice. Water Code section 13360(a) provides that: "No waste discharge requirement or other order of a regional board or the state board or decree of a court issued under this division shall specify the design, location, type of construction, or particular manner in which compliance may be had with that requirement, order, or decree, and no person so ordered shall be permitted to comply with the order in any lawful manner." How does the Regional Board justify telling Copermittees the manner in which they will comply with the requirement to control the quality of discharges from their MS4s? Clearly, the method or methods of achieving compliance are up to the City-not the Regional Board.

As one court has stated, Section 13360 permits the Regional Board to identify the "disease and command that it be cured" but prohibits the Regional Board from "dictating the cure." (Tahoe Sierra Preservation Council v. State Water Resources Control Board (1989) 210 Cal.App.3d 1421, 1438.)

The Tentative Order violates Water Code section 13360 because it dictates how the Copermittees must comply with the requirements contained in the Tentative Order--i.e., it dictates the cure. As the City has pointed out in its separate letter to the Regional Board, there are over 87 major tasks the Copermittees must perform to comply with the Tentative Order. Such a prescriptive approach, particularly one which may prevent regional solutions and tie the hands of the Copermittees, is beyond the Regional Board's authority.

As can be seen, Section 13360 grants a Copermittee unlimited authority to determine how best to meet the substantive obligations imposed under its storm water permit. This flexibility enables a Copermittee to ensure that its resources are used in the most efficient manner possible and thus is an essential component of the storm water permit. Ironically, this issue already has been addressed by the Regional Board's own legal counsel. As noted in the County of San Diego's comments on Tentative Order No. 2001-01 ("San Diego Comments"), in December 1997, the Regional Board staff sought advice concerning the permissible level of detail for municipal storm water permits. See San Diego Comments, p. A-3. In response, the Regional Board's legal counsel stated that while storm water permits could set forth certain performance goals, they could not specify the manner of complying with such goals. Id. Similarly, legal counsel advised that storm water permits could not prescribe the particular pollution control strategies to be used by the Copermittees. The Regional Board cannot and should not ignore either its statutory obligations or the advice of its legal counsel. While the Regional Board may tell the Permittees what they must do, it cannot tell the Permittees how they must do it.

Standard Urban Storm Water Mitigation Plans Violate CWC 13360:

The anti-regional-solution aspects of the permit proscribe lawful compliance options. The Regional Board has further invaded the discretion of the Copermittees by making it extremely difficult, if not impossible, for them to comply with the Permit through regional BMPs, at in-stream collection points where such BMPs could capture and treat large volumes of storm water. The Permit requires strict

compliance with receiving water standards before storm water and dry weather flow enter receiving waters. Since regional solutions generally would be located downstream of where runoff enters receiving waters, the Permit does not facilitate or promote such solutions; rather, it prevents them, at least where the receiving waters are impaired—precisely the situation calling out for regional solutions.

This anti-regional-solution bias can also be seen in the Permit's Standard Urban Storm Water Mitigation Plan ("SUSMP"). The SUSMP requires the construction of BMPs, "prior to . . . discharge to any receiving water body supporting beneficial uses." This location requirement will make it difficult in most cases for shared BMPs since the location of shared BMPs presumably would be downstream at some common drainage point, most likely in the receiving waters themselves. Thus, although the Permit states that BMPs may be shared by "multiple new development projects," there may be very few instances where such sharing is feasible.

Regional BMPs were heralded by the SWRCB in the Los Angeles SUSMP decision." They certainly represent a "lawful manner" with which to reach MEP. The Permit's anti-regional BMP provisions therefore violate Section 13360 (as well as MEP).

The volume and flow-based design standards for structural BMPs clearly run afoul of Section 13360. Both standards specify that, "BMPs shall be designed," in accordance with prescribed criteria. Permit, section F.1.b.2.c. The design standards dictate that MEP for "all priority development projects" corresponds to infiltrating, treating or filtering the runoff from a design storm or design rainfall intensity (Permit, section F. 1 .b.2.c), further limiting the "lawful manner" with which Copermittees might satisfy MEP. The Tentative Order, at Part F.1.b.(2)(c), starting on page 17, would impose "Numeric Sizing Criteria" in order to reduce the flow of water, whether or not it carries any "pollutants," off of real estate. We believe that the Board's authority under the Clean Water Act does not extend to the regulation of the rate of discharge of water, rather than regulating the discharges which the Congress addressed in the Clean Water Act, i.e., the discharge of pollutants. We are also particularly concerned that the "Numerical Sizing Criteria" exceed the Board's authority to prescribe how the Clean Water Act's goals of reducing the discharge of pollutants to waters of the United States are to be achieved, and in so doing, violate the limitations of section 13360 of the California Water Code. In particular, we are concerned that contrary to § 13360(a) of the California Water Code, the permit specifies numeric design criteria for post-construction BMPs that are more stringent than the criteria in the San Diego permit (BMPs designed to mitigate [infiltrate, filter, or treat] the runoff produced by a 0.8-inch rain event rather than a 0.6-inch rain event in San Diego). (*Richard Watson & Associates, Laguna Niguel, Mission Viejo, Aliso Viejo, Dana Point, County of Orange, Construction Industry Coalition on Water Quality, Lake Forest, Laguna Woods*)

Response: The Tentative Order does not "dictate the cure" but does provide a framework and a standard that the Copermittees must meet. As discussed in more detail elsewhere in this document, this represents the SDRWQCB's definition of the minimum standards necessary to meet MEP and protect receiving water beneficial uses.

California Water Code (CWC) section 13360 generally prohibits the Regional Boards from specifying the manner of compliance with state waste discharge requirements. However, CWC section 13377 provides that the Regional Boards shall issue waste discharge requirements which apply and ensure compliance with all applicable provisions of the Federal Water Pollution Control Act (33 U.S.C. §1251 et seq.), as amended, also known as the federal Clean Water Act (CWA). Since Tentative Order No. 2001-193 is written to implement CWA requirements, it does not violate section 13360 for the SDRWQCB to include specified programs of Best Management Practices (BMPs) to be implemented by the municipalities in order to carry out CWA requirements. Specificity is even more crucial in waste discharge requirements for storm water discharges given their lack of numerical effluent limits. In order to reduce storm water pollution to the maximum extent practicable (MEP), the Tentative Order

must require specific styles of BMPs (i.e., structural or source control), but that is not to say that the SDRWQCB is dictating one specific BMP to accomplish the task. The municipalities often have many BMPs available to get the job done.

Finally, with respect to the SUSMP requirements, it should be noted that in its draft Order on the petition by the Building Industry Association and Western States Petroleum Association for the review of Order No. 2001-01, in which this issue was prominently addressed, the SWRCB stated "The San Diego permit incorporates numeric design standards for runoff from new construction and redevelopment similar to those considered in the LA SUSMP order. In addition, the permit addresses programmatic requirements in other areas. The LA SUSMP order was a recedential decision, and we will not reiterate our findings and conclusions from that decision."

Comment: We are also concerned that the Tentative Order, as currently written, will not be practicable to implement and could expose the Copermittees that are attempting in good faith to comply with permit requirements to legal actions that are not preventable. The prohibition against violation of water quality standards is effective immediately. However, the County believes it would take ten to twenty years to construct the collection and treatment facilities necessary to comply with the prohibition. Until the construction of these facilities is completed, the County and cities would be in daily violation of several water quality standards at multiple locations throughout the area. These violations would expose the County and cities to a number of potential legal actions including enforcement action, third-party lawsuits, fines, and criminal sanctions. The citizens and businesses in the affected area would ultimately be required to pay these fines. (*County of Orange, Lake Forest, San Clemente, Aliso Viejo*)

Response: The requirements of the Tentative Order are based on the federal regulations and USEPA and SWRCB guidance and are practicable for the Copermittees to implement. The Tentative Order is a third term permit rather than a first or second term permit and is intended to build upon the programs developed during the first two permits. If BMPs have been implemented to MEP and exceedances of water quality standards still exist, an iterative process of additional BMP implementation must be implemented, per SWRCB Order WQ 99-05.

The requirements of the Tentative Order are not designed to ensure that the Copermittees are in compliance in all circumstances, thereby protecting them from any liability. The requirements in the Tentative Order are designed to protect receiving water quality from discharges of urban runoff from MS4s. The iterative process defined in section C of the Tentative Order ensures, without precluding any enforcement actions the SDRWQCB considers necessary, that Copermittees that are working in good faith to implement the requirements of the Order are not subject to unnecessary enforcement or legal actions.

Furthermore, the prohibition against violation of receiving water quality objectives is itself not a new requirement. It has been in effect during the five years of the second term permit Order No. 96-03. Order No. 96-03 included the following receiving water limitations: "The discharge of urban storm water, or non-storm water, from a municipal storm water conveyance system for which the permittees are responsible under the terms of this Order shall not cause continuing or recurring impairment of beneficial uses or exceedances of water quality objectives." Moreover, SWRCB Orders WQ 91-03, WQ 98-01, and most recently WQ 99-05 have clearly defined over period of 10 years the Copermittees' responsibility to ensure that discharges from their MS4s do not cause or contribute to exceedances of receiving water quality objectives. On October 14, 1999, the SWRCB issued a legal opinion on the federal appellate decision and provided advice to the Regional Boards on how to proceed in the future. In the memorandum, the SWRCB concludes that the recent Ninth Circuit

opinion upholds the discretion of US EPA and the State to (continue to) issue permits to MS4s that require compliance with water quality standards through iterative BMPs. Moreover, the memorandum states that “[...] because most MS4 discharges enter impaired water bodies, there is a real need for permits to include stringent requirements to protect those water bodies. As total maximum daily loads (TMDLs) are developed, it is likely that MS4s will have to participate in pollutant load reductions, and the MS4 permits are the most effective vehicles for those reductions.” In summary, the SWRCB concludes that the Regional Boards should continue to include the Receiving Water Limitations language established in SWRCB Order WQ 99-05 in all future permits. Accordingly, the SDRWQCB has required in the Tentative Order that discharges from MS4s meet receiving water quality objectives.

Finally, the collection and treatment facilities referred to in the comment have not been demonstrated by the Copermittees to be the only means by which they can reduce pollutants in the discharge of urban runoff to the MEP and prevent the discharges from causing or contributing to the exceedance of the receiving water quality objectives. Implementation of the requirements of the Tentative Order in good faith by the Copermittees does not expose the Copermittees unnecessarily to enforcement or legal action.

Comment: The Tentative Order requires municipalities to develop and implement an extremely comprehensive program (through inspection and enforcement efforts) to address industrial, construction, commercial and residential storm water discharges into the MS4 system. This approach is too prescriptive and improperly limits the Copermittees flexibility and discretion. EPA guidance documents state that the operator of a MS4 has the flexibility to determine the BMPs for each storm water management program minimum control measure that are most appropriate for their system. While the content of the Tentative Order is helpful in understanding the Regional Board’s thinking on possible components of a comprehensive storm water management program, such information should be offered as “guidance”, not prescription or mandate.

The Tentative Order is overwhelming in its demands for reporting and paperwork and jeopardizes our ability to make timely gains in receiving water quality improvements. Also, this approach would not reflect the efforts by Orange County Copermittees to prioritize their water quality issues and optimize the use of their resources to address these issues to achieve the overall goals of its DAMP.

The Tentative Order prescribes a very detailed storm water program that goes beyond the provisions of the Clean Water Act, Porter-Cologne Act and the EPA measures and guidance outlined in section 122.26 for storm water management programs. In setting the NPDES municipal storm water regulations in 1990, EPA indicated that the permits would be flexible and coordinated with the discharger. This process seems to have been omitted in the development of this permit since numerous discussions with the San Diego region Board staff failed to achieve meaningful changes in the drafting of this permit from that issued to the county and cities of San Diego.

The Tentative Order establishes a prescriptive storm water management plan developed for San Diego County that abandons the approach of current and earlier permits, which require the County and cities to develop and implement a storm water management plan that meets certain general specifications. In previous hearings Board staff has indicated that a prescriptive permit was needed because the Permittees lacked a cohesive and implementable storm water management plan. However, this is not the case in Orange County and the same prescriptive permit is being issued even though a storm water management plan has been in existence since 1993. Under the Tentative Order, the storm water management plan developed by the County and cities with substantial stakeholder involvement (the DAMP) and approved by the Regional Board, essentially becomes irrelevant.

The incorporation into the NPDES permit of a prescriptive program means that any change in the program would require a formal amendment of the NPDES Permit. This is in contrast with the current permit, wherein the County and cities are authorized to deviate from the program set forth in the DAMP for good cause. Under the Tentative Order the County and cities would face enforcement action and/or citizen suits if they deviated in any respect from the detailed program specified in the permit. This will have two affects. First, even if there is agreement with Regional Board staff that a specified activity is no longer considered necessary, the County and/or cities must continue to perform that activity until such time that a permit amendment can be processed. Thus, local resources would be wasted on activities acknowledged to be nonproductive or unnecessary. Second, considerable Regional Board and local resources would be required to process permit amendments. If the Regional Board determines it has insufficient resources to process an amendment, then the County and cities would be stuck for the remainder of the permit term with implementing activities that all agree are unnecessary. For these reasons alone, a prescriptive approach is bad public policy.

The Clean Water Act regulations were designed to preserve flexibility and allow municipal permittees to fashion storm water management programs meeting their local needs and circumstances. When enacting the 1987 amendments to the CWA that added the municipal storm water permit requirements, Congress was aware of the difficulties in regulating discharges from MS4s solely through traditional end-of-pipe treatment. See 55 Fed. Reg. 47990, 48037-38 (Nov.16, 1990) ("Phase I Storm Water Rulemaking"). In earlier rulemakings, much of the criticism of the concept of subjecting discharges from MS4s to NPDES permits focused on the perception that "the rigid regulatory program applied to industrial process waters and effluents from [POTWs] was not appropriate for the site-specific nature and sources which are responsible for the discharge of pollutants from [MS4s]." Id. at 48038. The water quality impacts of discharges from MS4s depend on a wide range of factors, including: the magnitude and duration of rainfall events, the time period between events, soil conditions, the fraction of land that is impervious to rainfall, land use activities, the presence of illicit connections, and the ratio of the storm water discharge to receiving water flow. Id. In enacting the 1987 amendments, Congress recognized that: permit requirements for [MS4s] should be developed in a flexible manner to allow site-specific permit conditions to reflect the wide range of impacts that can be associated with these discharges. ... "All types of controls listed in subsection [402(p)(3)(C)] are not required to be incorporated into each permit." Id. (quoting from 132 Cong.Rec. H10576 (daily ed. Oct. 15, 1986)). Consistent with this Congressional intent, the Phase I Storm Water regulations "set[] out permit application requirements that are sufficiently flexible to allow the development of site-specific permit conditions." Id. While EPA believed that all municipalities should face essentially the same responsibilities and commitments for achieving the goals of the CWA, it "agree[d] that as much flexibility as possible should be incorporated into the [MS4] program." Id. The prescriptive, cookie-cutter approach mandated by the Tentative Order clearly is at odds with both Congress' intent in enacting the municipal storm water program and with EPA's intent in implementing it. Rather than allowing the Permittees the flexibility to develop and implement their own storm water management programs within the broad parameters set forth by EPA, the Tentative Order would dictate to the Permittees what to include in their programs and how and when to implement them. (*County of Orange, Laguna Niguel, Aliso Viejo*)

Response: The Tentative Order contains the framework for the minimum requirements considered by the SDRWQCB to be necessary to achieve MEP. The requirements in the Tentative Order are based on the Federal NPDES regulations and USEPA and SWRCB guidance. Where the Tentative Order is more specific than the Federal NPDES regulations, it is based on USEPA and SWRCB guidance. The SDRWQCB has authority to include more specific requirements than the Federal regulations under CWA section 402(p)(3)(B)(iii) and CWC section 13377. USEPA supports the approach of increasingly detailed storm water permits, stating "The interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-

tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards" (USEPA, 1996). The reporting requirements of the Tentative Order were included to better track the progress of the development and implementation of the required programs and were consolidated as much as possible. The Tentative Order does not require that Copermittees abandon the prioritization of water quality issues or their mechanisms to optimize the use of their resources, but rather to review and as necessary revise them. The prioritization and approaches to water quality issues related to the management of urban runoff, however, must address all of the receiving waters in the San Juan Creek Watershed Management Area in Orange County subject to the discharge of urban runoff. The development of the Tentative Order has been conducted with substantial review and comment and significant changes have been made to improve the implementation and enforcement of the Order by the Copermittees.

The Tentative Order does not go beyond the legal authorities cited in the comment and does provide the Copermittees with a wide range of flexibility and discretion. CWA section 402(p)(3)(B)(iii) provides that municipal storm water permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." To meet this requirement of the CWA, the Tentative Order requires the implementation of BMPs, as required under Federal NPDES regulation 40 CFR 122.44(k). While the Tentative Order includes requirements for widespread BMP implementation for specific categories of existing and planned land use, it does not require use of any particular BMPs. The Tentative Order actually encourages implementation of combinations of BMPs, and further does not preclude any particular BMPs or other means of compliance. A permit which allows for seemingly infinite means for achieving compliance does not 'specify the design or manner of compliance' in violation of California Water Code section 13360.

The specified programs included in the Tentative Order must be implemented by the Copermittees in order to carry out the CWA requirements. These are intended to build upon the programs already developed by the Copermittees under the previous permits. Any specified programs in the Tentative Order are made all the more necessary by the exclusion of numerical effluent limits from the permit. Reliance on BMPs as opposed to numerical effluent limits requires specification of those programs that are relied upon to reduce pollution.

With respect to the need for flexibility and coordination, the Tentative Order provides a framework within which the Copermittees may develop the programs, activities, and measures that will satisfy or exceed the requirements of the Tentative Order. Wherever possible, the RWQCB has attempted to provide discretion and flexibility to the Copermittees, especially with regard to already developed programs such as the program management system developed by the Copermittees.

The Tentative Order does not render the water management plan developed by the County and cities with substantial stakeholder involvement (the DAMP) irrelevant.

As discussed during the workshops, it was the intent of the SDRWQCB to develop a template Tentative Order that would be revised as necessary and issued throughout the San Diego Region. More importantly, the Tentative Order contains the framework for the minimum requirements considered by the SDRWQCB to be necessary to achieve MEP. The Tentative Order was drafted to ensure regional consistency throughout the San Diego Region when these NPDES Permits and Waste Discharge Requirements are issued on a watershed basis in this region. In developing and implementing the DAMP under the first and second term permits, the Copermittees developed programs that may be revised and continued under the Tentative Order. However, the previous development of any one or all of the programs, including the DAMP, does not preclude the SDRWQCB from requiring more detailed or more stringent requirements under future permits. The Tentative Order does not require the Copermittees to discard the programs developed, but to improve

upon them. Moreover, many of the requirements of the Tentative Order are already being implemented at some level by the Copermittees. Because the Tentative Order is issued to each Copermittee, each Copermittee must have a program to management urban runoff within its jurisdiction. The program must be tailored to address the specific urban runoff management issues within its jurisdiction and it must be specific enough to ensure fair, uniform implementation and enforcement throughout the region. The Copermittees have the discretion to revise the DAMP and/or develop a model Jurisdictional Urban Runoff Management Program (Jurisdictional URMP) to meet or exceed the requirements of the Tentative Order.

Finally, the Tentative Order represents the definition of MEP adopted by the SDRWQCB. Within that framework, the Copermittees have significant opportunity and flexibility to develop and implement effective programs and to improve and modify these programs as necessary to achieve and maintain compliance with the Tentative Order and receiving water quality objectives. Moreover, the Copermittees are required to evaluate the effectiveness of JURMP programs and to revise the programs as necessary to comply with the Tentative Order and receiving water quality objectives. The contention that the Tentative Order would have to be amended to provide the Copermittees with the flexibility to modify activities is without merit. The requirements contained in the framework provided in the Tentative Order are sufficiently broad and inclusive to provide the Copermittees with largely the same degree of latitude in developing and implementing programs. Within this framework, the Copermittees will not be required to implement unnecessary or non-productive activities.

Comment: The Tentative Order will result in a divided regulatory system for Orange County. As noted above, The Tentative Order is copied also verbatim from the NPDES Permit the Regional Board issued for San Diego County. As the City has pointed out in its separate comment letter, this one-size-fits-all “San Diego Model” does not apply to the issues faced by Orange County cities and will derail progress toward water quality objectives. In addition, the “San Diego Model” is substantially different than the permit being considered by the Santa Ana Regional Board. Applying the “San Diego Model” to the southern portion of Orange County, while the Santa Ana Regional Board considers a more flexible model in northern Orange County, creates a divided regulatory system which threatens to undermine attempts to achieve the water quality objectives we all share.

As previously communicated to the Regional Board, Permittees believe the Santa Ana Regional Board in Order No. 01-20 (Interim Draft – June 15, 2001) establishes a better framework and a more reasonable approach to municipal storm water management than the Tentative Order. Similarly, Permittees submit that the Los Angeles Regional Board Order No. 01-XXX (Second Draft – June 29, 2001) is also better structured and more reasonable than the Tentative Order. Accordingly, Permittees strongly recommend that San Diego Regional Board consider these draft permits as models for revising the Tentative Order. (*Mission Viejo, San Juan Capistrano, Aliso Viejo, County of Orange,*)

Response: The model Permit, on which the Tentative Order 2001-193 is based, provides the additional detail for pollution prevention measures, source identification and elimination/control, inspection frequencies, education, enforcement, and structural and non structural BMPs that constitutes the definition of the SDRWQCB of what is necessary to achieve MEP.

The DAMP was reviewed with respect to the preparation of a template Tentative Order under development that was intended by the RWQCB to be revised as necessary and applied in each of the three counties in the San Diego Region. Part of the rationale for developing a template Tentative Order was to prepare San Diego Region Municipal Storm Water NPDES Copermittees in the three counties for the eventual issuance of these NPDES Permits and Waste Discharge Requirements on a watershed basis rather than a county basis while ensuring regional consistency within the San Diego Region. During workshops and public meetings conducted during adoption process for the first of

these permits (Order No. 2001-01), the RWQCB repeatedly affirmed this intention. Some of the preliminary results of that review were communicated to the Orange County Copermittees in February and March of 2001. A more detailed discussion of the Drainage Area Management Plan and the Copermittee's discretion to revise and implement it under the Tentative Order is provided elsewhere in this document.

Comment: The Draft Response to Workshop 1 (page 1) states that SDRWQCB has interpreted what MEP means. Isn't this the responsibility of the Copermittees under the process of JURMP development? If it is up to the Board to define MEP, then there must be some method of defining public policy for MEP, given the competing needs for public safety, air quality, education and other public issues. How can this public policy discussion not include city councils, County Boards of Supervisors, and other key elected officials?

With respect to managing fecal coliform bacteria loads to meet the REC-1 standards in receiving waters, it is quite possible that implementation of BMPs to the MEP still will not achieve these water quality objectives for existing developments. At that point permittees (cities) will be faced with diversion or end-of-pipe treatment as the only feasible way to achieve Receiving Water Limitations. The cost of diversion or end-of-pipe treatment for all storm drains in a watershed would surely be beyond the economic burden expected under MEP, yet this may be the only way of meeting REC- 1 standards. EPA's Phase I Storm Water regulations require municipalities to develop management programs to control discharges of pollutants (i.e., what is practicable) rather than requiring end-of-pipe treatment (i.e., what is not practicable). The Basin Plan calls for municipal storm water discharges to meet the MEP standard, but not any stricter end-of-pipe standards. To the extent that the Tentative Order attempts to hold the Permittees to a standard stricter than MEP, the Regional Board would not be implementing the Basin Plan and therefore would be in violation of Water Code section 13263(a).

The Tentative Order violates the MEP standard in several ways. The Tentative Order, on its face, is based upon a "receiving water quality objective" centered policy of "zero contribution" rather than MEP. Section A.2 flatly states that "[discharges from MS4s that cause or contribute to exceedances of receiving water quality objectives for surface water or groundwater are prohibited." This is an impossible standard to achieve and violates MEP. The Tentative Order and supporting documents fail to consider the factors which must be considered in developing an order based upon the MEP standard. Both federal and state directives require that developing an MEP standard requires consideration of specific factors, including cost and alternative approaches to resolving the problem. The Tentative Order's "zero contribution" policy is inconsistent with MEP because it will lead to selective enforcement of this unattainable policy. To actually monitor whether discharges from the each of the copermittees' MS4s are contributing in any manner to exceedances of receiving water quality objectives is impossible. What is likely to happen is that enforcement of the Tentative Order will be inconsistent, and enforcement, when it occurs, will likely lead to remedies which far exceed the provable violation. Such a policy (which essential means that all of the copermittees are always out of compliance) violates MEP.

The [Defenders of Wildlife v. Browner] court opined that while compliance with WQS was not required, Section 402(p)(3)(B)(iii) did provide EPA with discretion to require such compliance where necessary to control pollutants. Id. at 166-67. Misreading the court's dicta, the Regional Board staff finds support for the statement in the Technical Report that municipal storm water discharges must meet the MEP standard and any stricter standard necessary to meet WQS.¹ However, as noted, the court in Defenders expressly rejected this, saying that the CWA does not require municipal discharges to meet WQS. The court did not expressly address whether the EPA had discretion to require strict compliance with WQS where to do so was beyond the limits of practicability. However, the legislative

history is clear that Congress intended for MEP to be the only standard applicable to MS4 discharges, not MEP and any stricter standard necessary to meet WQS.

In short, to the extent the CWA provides the Regional Board with any discretion to impose obligations on the Permittees, that discretion must be exercised consistent with and within the confines of the MEP standard. The Regional Board does not have unlimited authority to require the Permittees to reduce the discharge of pollutants to the maximum extent practicable and to do “whatever else is needed,” nor can either Section 402(p)(3) or the court’s decision in *Defenders* be read to provide such authority. Ultimately, the only real authority provided to regional boards under Section 402(p)(3) is the authority to require a program to reduce the discharge of pollutants to the maximum extent practicable by using certain best management practices (“BMPs”) and “such other provisions as . . . the State determines appropriate for the control of such pollutants. (*Laguna Niguel, Aliso Viejo, County of Orange*)

Response: First, MEP has been defined in the Tentative Order. See Attachment D Glossary, Page D-3. Second, see the final portion for clarification of the criteria for which the Regional Board will determine if MEP has been met. Third, this portion also clarifies that the Regional and State Boards have the final responsibility of assessing whether MEP has been met.

Water Code 13263 & 13377 give RWQCB authority to regulate discharges to preserve highest reasonable water quality and water quality needed to sustain beneficial uses, including aquatic habitat, etc. NPDES regulations mandate reduction of pollutants in storm water that cause or contribute to pollution to MEP by municipalities; evidence establishes risk of unreasonable degradation and pollution associated with urban runoff and support’s RWQCB imposition of requirements implementing “MEP” performance standards. While CWA does not require municipalities to satisfy receiving water standards; [*Defenders of Wildlife v Browner* (9th c, 1999), 191F3d 1159] WQ sections 13263 & 13377 requires WDRs functioning as NPDES permits to implement water quality objectives (i.e., water quality standards) in basin plans and provisions of the CWA and NPDES regulations needed to protect beneficial uses, and to prevent nuisance.

The impacts urban runoff causes to receiving waters within our region makes the necessity for the inclusion of water quality standards in the Tentative Order clear. Findings 3, 4, 5, 6, and 9, as well as their corresponding discussions in the draft Fact Sheet/Technical Report, all discuss the impacts of urban runoff to the region’s receiving waters. Urban runoff is a leading cause of water quality impairment in the San Diego Region. To prevent urban runoff from continuing to be a leading cause of receiving water impairment, water quality standards are necessary in the Tentative Order. Compliance with water quality standards provides the necessary tool to ensure that water quality standards are achieved when implementation of BMPs to MEP are unsuccessful. The Copermittees efforts to date to implement BMPs to the MEP have not been sufficient to adequately protect receiving waters. The inclusion of requirements for compliance with water quality standards in the Tentative Order corrects this deficiency.

The issue of whether storm water discharges from MS4s must meet water quality standards has been intensely debated for the past five years. The argument arises because Clean Water Act section 402(p) fails to clearly state that municipal dischargers of storm water must meet water quality standards. On the issue of industrial discharges of storm water, the statute clearly indicates that industrial dischargers must meet both (1) the technology-based standard of “best available technology economically achievable (BAT)” and (2) applicable water quality standards. On the issue of municipal discharges however, the statute states that municipal dischargers must meet (1) the technology-based standard of “maximum extent practicable (MEP)” and (2) “such other provisions that the Administrator or the State determines appropriate for the control of such pollutants.” The statute fails, however, to specifically state that municipal dischargers must meet water quality standards. As a

result, the municipal storm water dischargers have argued that they do not have to meet water quality standards; and that they only are required to meet the MEP standard. Environmental interest groups maintain that not only do MS4 discharges have to meet water quality standards, but that MS4 permits must also comply with numeric effluent limitations for the purpose of meeting water quality standards. On the issue of water quality standards, the US EPA, the SWRCB, and the SDRWQCB have consistently maintained that MS4s must indeed comply with water quality standards.

SWRCB rationale: In addition to relying on US EPA's legal opinion concluding that MS4s must meet MEP and water quality standards, the SWRCB also relied on the Clean Water Act's explicit authority for States to require "such other provisions that the Administrator or the State determines appropriate for the control of such pollutants" in addition to the technology-based standard of MEP. To further support its conclusions that MS4 permit dischargers must meet water quality standards, the SWRCB relied on provisions of the California Water Code that specify that all waste discharge requirements must implement applicable Basin Plans and take into consideration the appropriate water quality objectives for the protection of beneficial uses.

The SWRCB first formally concluded that permits for MS4s must contain effluent limitations based on water quality standards in Order WQ 91-03. In that Order, the SWRCB also concluded that it was appropriate for Regional Boards to achieve this result by requiring best management practices, rather than by inserting numeric effluent limitations into MS4 permits. In Order WQ 98-01, the SWRCB prescribed specific precedent setting Receiving Water Limitations language to be included in all future MS4 permits. This language specifically requires that MS4 dischargers meet water quality standards and allows for the use of narrative BMPs (increasing in stringency and implemented in an iterative process) as the mechanism by which water quality standards can be met.

In Order WQ 99-05, the SWRCB modified its receiving water limitations language found in Order WQ 98-01 to meet specific objections by the US EPA (the modifications resulted in stricter compliance with water quality standards). SWRCB Order WQ 99-05 states "In Order WQ 98-01, the State Water Resources Control Board (State Water Board) ordered that certain receiving water limitation language be included in future municipal storm water permits. Following inclusion of that language in permits issued by the San Francisco Bay and San Diego Regional Water Quality Control Boards (Regional Water Boards) for Vallejo and Riverside respectively, the United States Environmental Protection Agency (EPA) objected to the permits. The EPA objection was based on the receiving water limitation language. The EPA has now issued those permits itself and has included receiving water limitation language it deems appropriate.

"In light of EPA's objection to the receiving water limitation language in Order WQ 98-01 and its adoption of alternative language, the State Water Board is revising its instructions regarding receiving water limitation language for municipal storm water permits. It is hereby ordered that Order WQ 98-01 will be amended to remove the receiving water limitation language contained therein and to substitute the EPA language. Based on the reasons stated here, and as a precedent decision, the following receiving water limitation language [which is found in Receiving Water Limitations item C. of Order No. 2001-01] shall be included in future municipal storm water permits." In a late 1999 case involving MS4 permits issued by US EPA to several Arizona cities (*Defenders of Wildlife v. Browner*, 1999, 197 F. 3d 1035), the United States Court of Appeals for the Ninth Circuit upheld US EPA's requirement for MS4 dischargers to meet water quality standards, but it did so on the basis of US EPA's discretion rather than on the basis of strict compliance with the Clean Water Act. In other words, while holding that the Clean Water Act does not require all MS4 discharges to comply strictly with state water quality standards, the Court also held that US EPA has the authority to determine that ensuring strict compliance with state water quality standards is necessary to control pollutants. On the question of whether MS4 permits must contain numeric effluent limitations, the court upheld US EPA's use of iterative BMPs in place of numeric effluent limits.

SWRCB's final position: On October 14, 1999, the SWRCB issued a legal opinion on the federal appellate decision and provided advice to the Regional Boards on how to proceed in the future. In the memorandum, the SWRCB concludes that the recent Ninth Circuit opinion upholds the discretion of US EPA and the State to (continue to) issue permits to MS4s that require compliance with water quality standards through iterative BMPs. Moreover, the memorandum states that "[...] because most MS4 discharges enter impaired water bodies, there is a real need for permits to include stringent requirements to protect those water bodies. As total maximum daily loads (TMDLs) are developed, it is likely that MS4s will have to participate in pollutant load reductions, and the MS4 permits are the most effective vehicles for those reductions." In summary, the SWRCB concludes that the Regional Boards should continue to include the Receiving Water Limitations language established in SWRCB Order WQ 99-05 in all future permits.

Accordingly, the SDRWQCB has required in the Tentative Order that discharges from MS4s meet receiving water quality objectives.

With respect to coliform discharges, structural diversion and end-of-pipe treatment is currently used as a short-term method to protect REC 1 uses while source identification efforts are conducted and best management practice options are developed and evaluated. We agree that costly diversion and end-of-pipe treatment points is not practicable at all discharge points. They, however, have not been demonstrated to be the only methods to reduce fecal coliform discharges to meet the REC 1 objective.

Finally, it should be noted that in its draft Order on the petition by the Building Industry Association and Western States Petroleum Association for the review of Order No. 2001-01, in which this issue was prominently raised, the SWRCB has stated "The Regional Water Board appropriately required compliance with water quality standards and included requirements to achieve reduction of pollutants to the maximum extent practicable." The specific recommendations for changes in the language identified in this draft resolution will be incorporated in the revised draft of the Tentative Order.

Comment: Weighing of Beneficial and Adverse Impacts In order to fulfill its responsibilities under the Water Code and CEQA and to the public, the Regional Board must consider the adverse impacts of the proposed requirement to achieve water quality standards in relation to the benefits. There is considerable evidence that, while the requirement to comply with water quality standards would provide a number of desirable benefits, inclusion of this requirement in the final NPDES permit would result in more harm than good. For this reason, the Regional Board should amend the Tentative Order prior to adoption and remove the prohibition requiring immediate compliance with water quality standards. In its place, the Regional Board should impose requirements that are based on a balancing of public interest factors and which provide more good than harm. The County believes the Receiving Water Limitations language in the current permit, with its iterative process of BMP implementation and assessment, does this.

Based on a comparison of costs, adverse impacts, and benefits, the prescriptive program incorporated into the Tentative Order is neither reasonable nor in the public interest. The costs to local residents and businesses would be significant. No public benefit would result from the program, which essentially mandates a stepping up of activities on low priority water quality issues. On the contrary, the requirement to expend equal effort on high and low priority issues would slow the pace at which water quality would otherwise be improved under the DAMP. The requirement to implement, enforce and expand coverage of the State General Permits for Industrial and Construction Activities would result in duplication of State activities and a waste of public funds. The prescriptive program would

reduce public resources available for higher priority, but discretionary community activities and therefore have an adverse impact on public health and welfare. Finally, the necessity of obtaining a formal permit amendment for any modification of any aspect of the prescriptive program before making such modification is wasteful of State and local resources and clearly not in the public interest. Thus, there is considerable evidence that inclusion of the prescriptive program in the final NPDES permit would result in more harm than good. For this reason, the Regional Board should amend the Tentative Order prior to adoption and remove the prescriptive program and, instead, require appropriate modifications to the DAMP. (*County of Orange*)

Response: Some of the major impacts in the region associated with the discharge of pollutants in urban runoff and unmitigated storm water include, beach closures, aquatic and riparian habitat stress, channel instability, flooding and toxicity. By reducing pollutants in storm water to the maximum extent practicable, enforcing prohibitions on illicit discharges, and mitigating flows from new development, the public will benefit from a reduction in the current impacts associated with storm water and urban runoff.

As discussed in response to other comments on receiving waters limitations, the SWRCB concludes that the Regional Boards should continue to include the Receiving Water Limitations language established in SWRCB Order WQ 99-05 in all future permits. An extensive discussion regarding the comments on the receiving water limitations is provided in response to comments elsewhere in this document. It should be noted that the discharge prohibitions and receiving waters limitations are in effect now irrespective of the adoption of the Tentative Order and that the Tentative Order carries forward these necessary and mandated requirements. Accordingly, the SDRWQCB has required in the Tentative Order that discharges from MS4s meet receiving water quality objectives.

Regarding prioritization, the SDRWQCB has the authority to assign site priorities for oversight by the Copermittees. The Federal NPDES regulations clearly place an emphasis on the prioritization of sites of various land uses. Per the Federal NPDES regulations, the Copermittees must control pollutants from construction, municipal, commercial, residential, and industrial land uses. BMPs must be implemented for all of these land uses. Since BMPs must be implemented for each land use, prioritization of sites falling under each land use category is an effective means for focusing efforts. The Tentative Order's requirements regarding site prioritization are more detailed than those in the Federal NPDES regulations. This increased detail is necessary due to the continued degradation of the region's receiving waters caused by urban runoff. Identification of high priority pollutant areas and activities allows for limited pollution reduction resources to be most effective. Prioritization will help the Copermittee determine which sites are high priority and it will also be an important tool in watershed planning and management. The same level of effort is not required for high and low priority sites. It is the Copermittees' discretion which BMPs are implemented for the various prioritized sites. Finally, the SWRCB upheld in Order WQ 2000-11 prioritization of sites by a Regional Board in the LARWQCB SUSMP. The LARWQCB SUSMP identified various priority development project categories which are high priority. The SWRCB found that identification of high priority sites was appropriate.

The requirements in the Tentative Order are based on the Federal NPDES regulations and USEPA and SWRCB guidance. Where the Tentative Order is more specific than the Federal NPDES regulations, it is based on USEPA and SWRCB guidance. The SDRWQCB has authority to include more specific requirements than the Federal regulations under CWA section 402(p)(3)(B)(iii) and CWC section 13377. The Tentative Order provides adequate flexibility to the Copermittees to implement their urban runoff management programs. The Copermittees are provided wide discretion in the implementation of BMPs. The Tentative Order does not prohibit each copermittee from modifying the proposed revised DAMP in order to develop a jurisdictional urban runoff management plan. Please see Attachment 5 of the Fact Sheet/Technical Report for a comparison of the proposed revised DAMP and the Tentative Order.

With respect to the comment that the SDRWQCB should amend the Tentative Order prior to adoption and remove the prescriptive program and, instead, require appropriate modifications to the DAMP, the question as to the prescriptive nature of the Tentative Order is addressed elsewhere in this document. Also, as discussed in the Fact Sheet/Technical Report and this document, while the DAMP as written is considered inadequate to achieve compliance with the MEP standard and receiving water quality objectives, the Copermittees have the discretion to revise the DAMP to meet the requirements of the Tentative Order.

Comment: The two workshops held by Regional Board staff have provided important feedback at a staff level, but only one Board member was in attendance to hear these comments. The SDRWQCB should hold a public workshop on Tentative Order 2001-193. Public workshops make for better public policy in that there are fewer restrictions, more time may be available, and the public and Copermittees may be more comfortable. The participants could be required to prepare topics in coordination to reduce repetitions, explain the ramifications of Tentative Order on the Copermittees, and that the participants provide productive, constructive alternatives if they are critical of a portion of Tentative Order.

There has been no detailed briefing on the Orange County municipal storm water permit in front of the Regional Board since 1996 and none of the Board members from that time are still in office. There is ample precedent for the Regional and State Boards to have multiple workshops on important issues, as is evidenced by the three workshops scheduled on the north Orange County permit by the Santa Ana Regional Board. A number of issues in the Tentative Order reflect major policy shifts from 1996 that need significant public consideration, which would be best accommodated by a workshop. *(MJF Consulting, Judy Johnson, County of Orange)*

Response: The SDRWQCB will conduct a public hearing to receive comments on the Tentative Order on November 14, 2001. The hearing has been scheduled to allow as much time as necessary to receive these comments. Moreover, the Tentative Order is based on Order No. 2001-01 and is intended to build upon the programs developed and implemented by the Copermittees under the first and second term permits. Extensive comments were received on Order 2001-01, including some from Copermittees in Orange County including the City of San Clemente, the City of San Juan Capistrano, and the County of Orange Public Facilities and Resources Department. Also, representatives of some Orange County Copermittees attended the three workshops held in San Diego in 2000. Based on the extensive review and comment period that has been available to the Copermittees, the SDRWQCB has determined that at this time the review and comment process for Tentative Order 2001-193 is sufficient to provide the SDRWQCB with information to consider the adoption of the Tentative Order. The SDRWQCB may consider requests during the public hearing for additional public hearings or workshops to gather and consider additional information on the Tentative Order.

Comment: The Tentative Order exceeds the limits imposed by the cwa by regulating the manner in which cities exercise land use authority. Contrary to the provisions of the Clean Water Act and California law, the Tentative Order, in numerous places, but especially Part F, would regulate land use, rather than simply requiring the Co-permittees to reduce the discharge of pollutants to the maximum extent practicable. Neither the Clean Water Act nor Porter Cologne gives the Regional Board authority to unduly influence this duty. Under California law, it is local governments, cities and counties, and not state executive agencies, which exercise land use authority. The authority of cities and counties to regulate land use comes from the California Constitution. Article XI, 57 confers on local governments the authority to regulate land use, through the exercise of the "police power." Case

law confirms the authority of cities and counties, recognizing that in their intrinsic character and by express declaration, state laws on county and city zoning are designed as standardizing limitations over local zoning practices, not as specific grants of authority to legislate. *Scrutton v. Sacramento County*. 275 Cal.App.2d 412 (1969).

The Tentative Order requires each municipality to revise its General Plan in order to meet the requirements being imposed by the Regional Board. The Tentative Order does not merely to recommend that the Permittees incorporate such plans and policies in their land use planning processes, but specifically requires the Permittees to incorporate them as part of their land use planning processes. These include requirements that the Permittees: (1) amend their General Plans; (2) modify their project approval processes to require new development and redevelopment projects adhere to the SUSMP (which in turn sets numerical design criteria for BMPs); (3) forbid the washing of driveways and patios, even in residential areas; (4) restrict the disposal of lawn clippings from the mowing of residential yards and public recreation areas; and (5) limit the ability of citizens to walk their pets outdoors. In doing so, the Regional Board would be impermissibly intruding on the local land use authority of the Permittees and violating the strictures of the CWA, the California Constitution and state law. See *supra* General Comments § VI. Accordingly, the County recommends that Finding No. 18 be deleted from the Tentative Order.

Part F.1 of the Tentative Order would require consideration of conditions for new development that take away local land use prerogatives from local government. Part F.1 .b.(l)(b), on page 14, for example, would require the City to subject development project land use approvals to the condition that the project proponent “. . . minimize impervious land coverage for all development approvals.” (Just where “minimize ” leaves off and “prohibit” begins is not spelled out in the Tentative Order.)

We suggest that the US EPA’s position on this issue is clear. In promulgating the Phase II storm water regulations, EPA said flatly “EPA recognizes that land use planning is within the authority of local governments.” 64 Fed.Reg. 68761, December 8, 1999. Furthermore, in the very first section of the Clean Water Act, CWA 9 101(b), 33 U.S.C. f, 1251(h), Congress made it clear that the CWA, including the NPDES program, is not meant to infringe on local land use authority: “It is the policy of the Congress to recognize, preserve, and protect the primary responsibilities and rights of States . . . to plan the development and use (including restoration, preservation, and enhancement) of land and water resources. . .”

This policy was relied on recently by the Supreme Court of the United States in a case in which the Court limited federal authority under the CWA over local land use matters. In *Solid Waste Agency of Northern Cook County v. Army Corps of Engineers*, 531 U.S. 159 (2001), the Court struck down a rule of the Army Corps of Engineers under which the Corps claimed jurisdiction over isolated intrastate wetlands. The Court found that the rule: “would result in a significant impingement of the States’ traditional and primary power over land and water use. See, e.g., *Hess v. Port Authority Trans-Hudson Corporation*, 513 U.S. 30, 44 (1994) (“[Regulation of land use [is] a function traditionally performed by local governments”). Rather than expressing a desire to readjust the federal-state balance in this manner, Congress [through the CWA] chose to ‘recognize, preserve, and protect the primary responsibilities and rights of States . . . to plan the development and use . . . of land and water resources’ 33 U.S.C. § 1251(b).

In summary, the Tentative Order’s encroachments upon local land uses and land use authority not only violate the CWA, and are contrary to EPA policy, they are contrary to California law, which places land use control firmly in the hands of local governments, not state agencies. The Tentative Order’s attempt to dictate land use decisions (e.g., “minimize impervious land coverage for all development projects” as required by F.1.b.(l)(b), page 14) to local governments is contrary to the separation of powers doctrine, as the California Constitution and the Legislature have placed Land use decisions in

the hands of local governments. Neither the California Constitution nor the Legislature assign any land use authority to Regional Water Quality Control Boards.

Recommendation: Convert the provisions Part F into an option to be considered by Co-permittees in the exercise of their discretion over land use matters, but do not make the adoption of the requirements now imposed by Part F mandatory. Focus the Permit on conditions which require the Co-permittees to reduce the discharge of pollutants to the maximum extent practicable. (*Rancho Santa Margarita, County of Orange, Lake Forest, Dana Point, Laguna Woods, Construction Industry Coalition on Water Quality*)

Response: The requirements of the Tentative Order implement the Federal NPDES regulations. These regulations require the Copermittees to enact ordinances to address particular situational discharges. The regulations also require General Plans to include urban runoff considerations (40 CFR 122.26(d)(2)(iv)(A)(2)). The Tentative Order has been written to provide the Copermittees discretion in how they include such considerations in their General Plans. Therefore, the Tentative Order does not supercede the authority local government.

California Water Code (CWC) section 13377 provides that the Regional Boards shall issue waste discharge requirements which apply and ensure compliance with all applicable provisions of the Federal Water Pollution Control Act (33 U.S.C. §1251 et seq.), as amended, also known as the federal Clean Water Act (CWA). Section 402(p)(3)(B)(iii) of the CWA requires municipalities to implement “controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.” The SDRWQCB’s responsibility is to translate this section of the CWA into the form of waste discharge requirements. Therefore the SDRWQCB has the authority to require specified programs to be implemented by the municipalities in order to carry out CWA requirements. Furthermore, a program involving land use is specifically addressed at 40 CFR 122.26(d)(2)(iv)(A)(2), “[a] description of planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment.” The Tentative Order solely requires Copermittees to exercise their planning power in a manner that takes into account potential water quality impacts and furthermore, for Copermittees to facilitate the smooth implementation of applicable provisions of the CWA.

Regarding specific activities that result in illicit discharges, the copermittees are not required to prohibit the activity (e.g., driveway washing, pet walking, etc.), only the discharge of waste to the MS4. There is no connection between the prohibition of these non-storm water discharges and land use. These non-storm water discharge prohibitions simply implement the Clean Water Act, which states that “permits for discharges from municipal storm sewers shall include a requirement to effectively prohibit non-storm water discharges into the storm sewers” (CWA section 402(p)(3)(B)). Therefore, the Permit must include such prohibitions in order to be in compliance with the Clean Water Act.

The Tentative Order does not attempt to provide the SDRWQCB with land use authority. The Tentative Order does not restrict the location or type of development. This authority resides with the Copermittees. The Tentative Order merely requires that developments within the Copermittees' jurisdictions consider water quality, and implement measures as necessary to achieve receiving water quality standards.

Finally, it should be noted that in its draft Order on the petition by the Building Industry Association and Western States Petroleum Association for the review of Order No. 2001-01, in which this issue was prominently raised, the SWRCB has thus far declined to respond to this issue.

Comment: Regional Board staff issued a revised Tentative Order and a revised Technical Report in the afternoon of August 24, barely four working days before the August 30 deadline. The County's comments have therefore necessarily been based on the original July 2 Tentative Order, and we have not been able to comprehensively assess the implications of the changes found in the revised Tentative Order and revised Technical Report, the latter of which includes over 50 new pages of analysis of the 2000 DAMP.

The County requested documents pertaining to Regional Board staff assessment of the 2000 DAMP in a Public Records Act request on August 7, 2001. On August 28, 2001, well beyond the ten-day period required by the Act, the County received some records and an invitation to copy additional documents at the Regional Board's offices. These documents therefore were not received in sufficient time to allow adequate analysis of key findings and conclusions concerning the 2000 DAMP, which underpin many of the conditions in the Tentative Order. (*County of Orange*)

Response: The second draft of the Tentative Order, released on August 23, 2001, contained primarily editorial changes and did not significantly alter the requirements of the Tentative Order. Changes in the Fact Sheet were made to provide greater clarification regarding issues raised during the public workshops. The Tentative Order is not based on the proposed DAMP and contains a framework for programs and BMPs that meet the SDRWQCB's interpretation of maximum extent practicable. Furthermore, the analysis of the DAMP was provided to describe in greater detail the earlier criticism by the SDRWQCB rather than as justification for the requirements of the Tentative Order. The adoption of the Tentative Order is neither dependent on the review of the DAMP nor is it based on specific commitments or plans contained within the DAMP. Thus, continued analysis and discussion of the DAMP is not necessary for the adoption of the Tentative Order. The hearing on the Tentative Order has been scheduled to provide the Copermitees and interested parties with sufficient time to review the Tentative Order and Fact Sheet prior to the hearing. Additional changes will be made based on a review of the comments submitted by August 30, 2001 as well as comments made in the hearing before the SDRWQCB.

Comment: The Tentative Order is an unfunded mandate that will burden the Copermitees with additional costs and take money away from other priorities. The provisions of the Tentative Order based on federal law giving discretion to the Regional Board or on state law pursuant to Water Code section 13377, cannot be considered federal mandate. Accordingly, the Regional Board must provide reimbursement to the Permittees for any and all requirements of the Tentative Order that exceed what is mandated by the CWA. (*Lake Forest, County of Orange, Rancho Santa Margarita, Laguna Hills*)

Response: As stated in the Draft Fact Sheet/Technical Report, the requirements of the Tentative Order are not within the definition of an "unfunded mandate" that would require reimbursement of costs under the California Constitution. The Tentative Order is not an unfunded mandate by the state since it is derived from the federal Clean Water Act and not state law. In addition, the Tentative Order is derived from federal USEPA regulations and guidance. The comment contends that many provisions in Tentative Order are not required by the CWA or federal NPDES regulations; however, all provisions are intended to implement or clarify specific requirements in applicable federal regulations to protect water quality of waters of the United States within the San Diego Region. As stated in

SWRCB Order No. 2000-11, the constitutional provisions regarding state mandates do not apply to NPDES permits like the Tentative Order.

Finally, it should be noted that in its draft Order on the petition by the Building Industry Association and Western States Petroleum Association for the review of Order No. 2001-01, in which this issue was prominently raised, the SWRCB has thus far declined to respond to this issue.

Comment: The prohibition would not be expected to have any net benefit with respect to the aquatic life beneficial use in San Juan Creek, Aliso Creek, or other inland streams. That is because the only certain method of complying with standards would be to remove the discharges from local waterways and streams, and that more than likely would have a negative impact on aquatic life.

The contact recreational use and the aquatic life use are the uses that potentially stand to benefit from the requirement to achieve water quality standards. The degree to which these uses will benefit depends on the degree to which water quality standards are exceeded and/or the uses are currently impaired. Based on the 303(d) List, the most apparent benefit of achieving water quality standards would be protection of the water contact recreational use, and specifically the public health of those who come into contact with the listed waters. The County's water quality studies are in agreement with the Section 303(d) List that impairment of the water contact recreation use due to high coliform bacteria levels is a major water quality issue in the area. But the County studies also identify potential impairment of the aquatic habitat use due to toxic constituents as another significant water quality issue. The County studies identify the source of coliform bacteria as urban runoff, wildlife, and sewer overflows, and the source of toxics as urban runoff, agriculture, urban development, and recreational boating. From the County's studies, it would appear that requiring urban runoff discharges to achieve water quality standards would reduce, but not necessarily eliminate the impairment of local waters for water contact recreational and aquatic habitat uses.

Because the relative contributions of pollutants of concern from the various sources have not yet been quantified, it is not possible to conclude with any degree of certainty that bringing urban runoff discharges into compliance with water quality standards would result in attainment of the impaired beneficial uses identified in the Section 303(d) List or in the County's studies. Nor is it possible to quantify the improvement in use that would occur as a result of this requirement in the Tentative Order. A case in point is Huntington Beach, where recent studies have shown that wildlife in the Talbert Marsh, rather than urban runoff, is the likely source of bacterial contamination. In addition, there is a question of whether compliance with water quality standards for toxics would reduce the impairment of aquatic habitat uses, in that the only certain method of achieving these standards would be to remove the discharge from local receiving waters, thereby removing the primary source of water from these local waters through much of the year. (*County of Orange*)

Response: The Tentative Order does not require the elimination of all discharges through the MS4, but sets the conditions under which discharges are permitted. The use of best management practices (BMPs) will reduce the risk to both public health and aquatic species by reducing the amount of pollutants discharged to the receiving waters. The storm water permit is one tool in watershed management. Please refer to Attachment 4 of the Fact Sheet/Technical Report for a discussion of municipal storm water permitting and the watershed approach to preserving and enhancing the quality of water resources.

In the case of Talbert Marsh, it appears the marsh was not engineered to provide adequate residence time for the volume and characteristics of the water. Other wetlands, including ones located closer to

the sources of urban runoff, such as those being constructed to treat urban runoff in the city of Laguna Niguel, significantly reduce levels of fecal coliform.

Studies conducted by the County on Aliso Creek in 1998 and 1999 that were funded by a section 205(j) watershed study grant from the State Water Resources Control Board indicated significant mortality to test organisms during wet weather flows. Recreational boating is not a contributor to toxicity in Aliso Creek, and agricultural land use is not identified on a watershed land use map prepared during the 205(j) watershed study. The Tentative Order would reduce the amount of toxics discharged from urban development, which can significantly reduce the amount of toxicity in the stream because urban development is currently, and will remain, the dominant land use in the drainage area.

Comment: There is a need to revise the policy interaction in the Tentative Order between watershed planning and Jurisdictional URMP requirements. The Tentative Order implies that all of the requirements for Jurisdictional SUSMPs will be applied to future development even if a Watershed URMP provides for more effective treatment systems using a broader scale geomorphologic and hydrologic scope. For example, technical studies completed for the Baseline Conditions Report undertaken for the Southern Orange County SAMP demonstrate the need for a complete understanding of the geology and hydrology of specific terrains within both the San Juan Creek watershed and the San Mateo Creek watershed in order to be able to fashion water quality strategies that can address the physical attributes of each watershed. Moreover, as reviewed in the Baseline Conditions Report, it is particularly important to understand the unique or distinctive attributes of each subwatershed in order to devise combined water quality/hydrology measures that address and respect the geomorphologic characteristics of each subwatershed and as each subwatershed contributes to overall stream course flows and characteristics.

In many cases, it is likely that project-oriented BMPs such as the 14 BMP requirements for SUSMPs may not be effective or workable when applied at a watershed or sub watershed level. For instance, the requirement to “minimize directly connected impervious areas, where feasible” may be counter-productive when siting development from a sub watershed perspective. In sandy terrains, it may be more effective to concentrate development on ridgelines in order to minimize impervious surfaces in valley floor drainage areas.

Sub-watershed plans must have the flexibility to devise water quality strategies that, in some instances, may replace Jurisdictional SUSMP requirements. If the Board is committed to encouraging watershed scale water quality planning, then the Board needs to modify its policies to reflect the likelihood that watershed policies may in some instances replace the Jurisdictional SUSMP requirements. Otherwise, the current proposals will not carry out the State NPS Plan Management Measure and policies emphasizing watershed approaches to water quality planning. We request that the Board explicitly acknowledge the benefits of undertaking water quality planning at the sub watershed level in conjunction with large-scale new development proposals so that storm water treatment and infiltration systems can be devised which use natural systems that are feasible and that respect the geomorphologic conditions found to be unique or distinctive within each sub watershed.

There is a need to recognize that watershed planning may be carried out more effectively within portions of complex watersheds at different times rather than the entire watershed at one time. Due to the physical and jurisdictional diversity of southern Orange County watersheds, it is desirable to encourage water quality planning to proceed within distinct hydrologic units rather than waiting for planning to proceed on the basis of the entire watershed. In furtherance of the Board’s above Finding 18, we request that the Board explicitly indicate that general plan and zoning measures for

undeveloped lands may be addressed from a water quality perspective in portions of watersheds so long as the planning area is coherent from a hydrologic and geomorphologic perspective.

There is a need to specifically allow alternative sub-watershed water quality strategies to be adopted either before or after the submittal of the model SUSMP and/or the Jurisdictional local SUSMP and amended ordinances. Due to the complexities of integrating land use planning and water quality planning in undertakings such as the southern Orange County SAMP, we request that the Board explicitly acknowledge that alternative strategies using the sub-watershed approach can be adopted independently of the SUSMP schedule and, at the time of final approval (e.g. County land use, 401 programmatic certification), the watershed or sub-watershed plan will define the BMP water quality requirements for the area subject to the sub-watershed plan. (*Rancho Mission Viejo*.)

Response: Watershed principles are not in conflict with the Tentative Order's Land Use Planning for New Development component and its SUSMP process. As discussed in Attachment 4 to the Fact Sheet, municipal storm water requirements are a traditional regulatory measure. These are addressed in the form of NPDES permits and Waste Discharge Requirements issued to dischargers. In actual practice, the "watershed approach" is, at the moment, largely a non-regulatory measure. Nonetheless, compliance with applicable requirements is always an essential component of any watershed effort. The federal requirement for municipal stormwater permittees is to develop a program that will reduce pollutants being washed by storm water into the MS4 then discharged into local waterbodies to the maximum extent practicable (MEP). The Tentative Order represents the definition of MEP adopted by the SDRWQCB. Within that framework, the Copermittees have significant opportunity and flexibility to develop and implement effective programs and to improve and modify these programs as necessary to achieve and maintain compliance with the Tentative Order and receiving water quality objectives.

The Tentative Order directs copermittees to include watershed protection principles and policies to direct land-use decisions and require implementation of consistent water quality protection measures. USEPA supports addressing urban runoff problems in General Plans (or equivalent plans) when it states "Runoff problems can be addressed efficiently with sound planning procedures. Master Plans, Comprehensive Plans, and zoning ordinances can promote improved water quality by guiding the growth of a community away from sensitive areas and by restricting certain types of growth (industrial, for example) to areas that can support it without compromising water quality" (USEPA, 2000). While the SDRWQCB has the legal authority to require the Copermittees' General Plans to include considerations of the water quality impacts caused by urban runoff, the Tentative Order provides the Copermittees with more discretion regarding the General Plans' contents. The Tentative Order only includes examples of the types of principles and policies which should be in a General Plan, instead of specific requirements. In addition, the Copermittees will be allowed to develop their own work plan and time schedule for any changes to their General Plans they find necessary. The copermittees must also modify their development project approval processes to ensure that pollutants and runoff from the development will be reduced to MEP and will not cause or contribute to an exceedance of receiving water quality objectives. The SUSMPs (section F.1.b.(2)) must include requirements for implementation of minimum source control and structural treatment BMPs at certain priority project categories, including the activity of large-scale development which is a potential significant source of pollutants.

The Tentative Order encourages copermittees to recognize local land and water resource conditions in the development of appropriate planning, review and BMP requirements. The General Plan review guidance and SUSMP provision only requires the site design/landscape characteristics where it is feasible. If the Copermittees determine that such measures are not feasible, they need not require them. While the Tentative Order includes requirements for widespread BMP implementation for specific categories of existing and planned land use, it does not require use of any particular BMPs. The Tentative Order actually encourages implementation of combinations of BMPs, and further does

not preclude any particular BMPs or other means of compliance. Copermitees have discretion in the methods to be developed and implemented to control post-development peak flow rates and downstream erosion. Furthermore, the Copermitees can develop and implement different methods to be applied in different watersheds or different areas of a watershed, provided that the different methods are effective in adequately reducing post-development peak flow rates to control erosion. In addition, while onsite BMPs provide many benefits, there may be cases where offsite structural BMPs, implemented on a “neighborhood” or “sub-watershed” basis, may be more feasible. This is particularly the case for existing development, where opportunities for innovative site design do not exist. To allow more flexibility in BMP implementation, the Tentative Order SUSMP requirements regarding structural treatment BMPs allows BMPs to be shared by multiple new development projects on a “neighborhood” or “sub-watershed” level. The SWRCB supports this approach in Order WQ 2000-11, which states “We do note that there could be further cost savings for developers if the permittees develop a regional solution to the problem.” It should be noted, however, that shared BMPs will be required to be implemented upstream from any receiving water supporting beneficial uses.

The commenters also refer to the Special Area Management Plan (SAMP) process. The Los Angeles District Corps of Engineers - Regulatory Branch is developing a SAMP for the San Juan / San Mateo Creek Watersheds of Orange County, California. The Los Angeles District is conducting the SAMP in coordination with the existing and the proposed amendment to the Southern Subregion Natural Community Conservation Plan (NCCP). The goal of the SAMP is to develop and implement a watershed-wide aquatic resource management plan and implementation program, which will include preservation, enhancement, and restoration of aquatic resources, while allowing reasonable and responsible economic development and activities within the watershed-wide study area. To achieve this goal, the aquatic resources within the San Juan / San Mateo Creek Watersheds are being identified, characterized, delineated, and assessed at a planning level. To date, the USACE has completed a baseline assessment of riparian ecosystem integrity in the watersheds under current conditions. The next task will be to compare several alternative development scenarios for impacts to riparian ecosystem integrity in the watershed. Alternatives to be considered include the USACE’s preferred alternative, in which certain areas identified in the baseline conditions report are proposed as set-aside areas, restoration areas, critical corridor linkage areas, and areas that are deemed suitable for development. Presumably, the landowner would also propose a preferred alternative, and a negotiated process would then result in the final SAMP.

There are several issues relevant to the Tentative Order and Jurisdictional Urban Runoff Management Plans. First, the SDRWQCB does not plan to exempt any landowner from municipal jurisdiction or federal regulations. A landowner in the SAMP watershed has asked the SWRCB for an exemption from the requirements of Municipal NPDES Storm Water Permits, and the SDRWQCB has not seen a response.

In fact, both the Tentative Order and the SAMP recognize and address the inherent importance to manage land-use activities in order to protect aquatic beneficial uses. To assess riparian habitat condition, models in the SAMP process rely on a set of land-based indicators, including the potential to contribute pesticides, nutrients, hydrocarbons and sediments to the stream reach. This is used to identify riparian reaches in which high ecosystem integrity should be maintained in the SAMP. Since reaches are assessed in the context of the local drainage basin, the SAMP will require that any development in these local drainage areas would be subject to relatively strict management measures.

Next, while the Tentative Order provides flexibility to the copermitee to select appropriate BMPs, the SAMP will require specific management measures at development locations. The USACE will seek guidance to determine specific management measures in certain priority areas. While this is more stringent than the requirements of the Tentative Order, the SUSMP BMP requirements (Section

F.1.b.(2)(b)) can provide a foundation for local site-specific options in these drainage areas, while ensuring that development in all the sub-watersheds meets certain minimum BMP criteria to support the beneficial uses throughout the entire stream network. The Tentative Order and the SAMP are, thus, complementary in the watershed management process. The Tentative Order provides the regulatory minimum measures to meet MEP, and the SAMP represents a collaborative process to identify and preserve the most critical riparian reaches from the effects of urbanization.

Finally, it is unacceptable to rely solely on a programmatic 401 certification to address federal and state regulations for urban runoff and storm water. The SDRWQCB has not made a determination whether a programmatic 401 certification will be issued for any project in the SAMP area. In addition, a 401 programmatic certification would be limited to subject to USACE jurisdiction, and would, therefore, not have authority over all the surface water resources in the SAMP area. Furthermore, to ensure the protection of aquatic resources, 401 certifications require compliance with local storm water ordinances and programs, including SUSMPs.

The SDRWQCB appreciates all efforts at watershed-based planning, but that does not relieve the necessity for compliance with the Clean Water Act, the California Water Code, and local storm water programs.

Comment: The Regional Board staff does not appear to have considered and taken into account the limitations imposed by Section 13377. First, many, if not most, of the requirements set forth in the Tentative Order are not effluent standards or limitations or even discharge-related obligations. For example, the Discharge Prohibitions and Receiving Water Limitations (“RWLs”) set forth in the Tentative Order purport to apply to discharges into and from the Permittees’ MS4. See Tentative Order, Items A-C. Clearly, the application of these provisions to storm water flows into the MS4 cannot be construed as effluent limitations or standards. See also General Comments § VII. Likewise, few of the Jurisdictional Urban Runoff Management Program (“JURMP”) requirements imposed under the Tentative Order constitute effluent standards and limitations. See, e.g., Tentative Order, Item F.1 (focusing solely on land-use planning for new development and redevelopment and including obligations to assess General Plans and to modify and revise development approval and environmental review processes); *id.*, Items F.4 & F7 (setting forth obligations pertaining to public participation and education); *id.*, Item F.9 (requiring each Copermittee to “conduct fiscal analysis of its urban runoff management program in its entirety.”) Second, even if these requirements could somehow be construed as effluent standards and limitations, the Regional Board staff still has not shown that they are “necessary” to implement water quality control plans, protect beneficial uses, or prevent nuisance. As the court made clear in the Southern California Edison case, it is not sufficient for the Regional Board simply to assert that it has the authority under Water Code section 13377 to impose more stringent effluent limitations and standards on the Permittees. It also must “enunciate its reasoning” for imposing such limitations and standards on the Permittees and demonstrate that its reasoning is “supported by the evidence.” In the Tentative Order, staff repeatedly cites the Regional Board’s authority for imposing obligations on the Permittees, but rarely provides any reasoning or evidentiary support. Third, in order for any more stringent effluent standards and limitations to be imposed, they must be consistent with the CWA. Thus, any more stringent standards or limitations must be within the limits of practicability. (*County of Orange*)

Response: Water Code 13263 & 13377 give RWQCB authority to regulate discharges to preserve highest reasonable water quality and water quality needed to sustain beneficial uses, including aquatic habitat, etc. NPDES regulations mandate reduction of pollutants in storm water that cause or contribute to pollution to MEP by municipalities; evidence establishes risk of unreasonable degradation and pollution associated with urban runoff and support’s RWQCB imposition of requirements implementing “MEP” performance standards. While CWA does not require

municipalities to satisfy receiving water standards; [Defenders of Wildlife v Browner (9th c, 1999), 191F3d 1159] WQ sections 13263 & 13377 requires WDRs functioning as NPDES permits to implement water quality objectives (i.e., water quality standards) in basin plans and provisions of the CWA and NPDES regulations needed to protect beneficial uses, and to prevent nuisance.

Finally, it should be noted that in it's draft Order on the petition by the Building Industry Association and Western States Petroleum Association for the review of Order No. 2001-01, in which this issue was prominently raised, the SWRCB has thus far declined to respond to this issue. Where the draft resolution has identified language that should be changed in Order No. 2001-01, the language has also been changed in the Tentative Order (e.g. Section C.1).

Comment: Recognizing the time and resources the San Diego Regional Board staff has invested in the structure and approach of the Tentative Order, Permittees have prepared the following strikeout version of the Tentative Order. The strikeout version shows revisions designed to address some of the more objectionable findings and significant shortcomings of the Tentative Order. It does not reflect all of the changes that Permittees believe should be made to the Tentative Order. Rather, it reflects a version of the Tentative Order that would be more acceptable to Permittees than the current draft. Although as noted above we ultimately believe the current efforts by the Santa Ana or Los Angeles Regional Boards are more appropriate models for permitting Orange County stormwater management program. Please note that the fact certain language or an entire provision has not been stricken or revised in the strikeout version should not be interpreted to mean that Permittees agree with the unrevised language or the provisions in the Tentative Order.

Attached for your review is a copy of the California Regional Water Quality Control Board (RWQCB) San Diego Region, Tentative Order No. 2001-193, NPDES No. CASO108740 draft permit for Orange County within the San Diego Region. This draft permit copy has been modified to include revising the existing Drainage Area Management Plan (DAMP) and implementing a Drainage Area Management Program in place of a Jurisdictional Urban Runoff Management Program (URMP). (*County of Orange, San Juan Capistrano*)

Response: The proposed changes in the Tentative Order are representative of the collective comments of the commenters that have been addressed in the SDRWQCB responses to comments. This includes comments concerning the Drainage Area Management Plan and receiving water quality limitations. The Tentative Order as drafted by the SDRWQCB represents the framework for MEP for the San Diego Region. Where appropriate, specific changes have been made to the Tentative Order and the Fact Sheet/Technical Report in response to the comments submitted.

Comment: The County is deeply concerned that the approach proposed in the Tentative Order, if implemented, will divert available funds away from important, ongoing watershed restoration initiatives in south Orange County towards a compliance program driven by land-use controls. If this occurs, much of the valuable watershed-level cooperation that has been achieved over the past few years will be replaced by municipal efforts to improve water quality in the gutters and catch basins on an individual jurisdiction basis. This will result in a loss of focus on the water problems that need to be solved in the true receiving waters, which are affected by more than just urban runoff. (*County of Orange*)

Response: The SDRWCB encourages a watershed-based approach to preserving and enhancing water quality, but using such an approach is not a substitution for compliance with NPDES permits or Waste Discharge Requirements. Rather, the municipal storm water requirements and the

SDRWQCB's watershed approach are fully consistent with each other. Both have the same overall objectives and both direct many of the same specific actions; for example identification and elimination sources of pollutants. The municipal storm water requirements is a traditional regulatory measure. These are addressed in the form of NPDES permits and Waste Discharge Requirements issued to dischargers. In actual practice, the "watershed approach" is, at the moment, largely a non-regulatory measure.

The SDRWQCB recognizes that receiving waters are affected by more than urban runoff. Please see Attachment 4 of the Fact Sheet/Technical Order for a more thorough discussion of the nexus between the Municipal Storm Water Permit and the watershed approach for preserving and enhancing water quality.

A watershed approach recognizes that sources of pollution from throughout the drainage area can affect downstream receiving waters and, therefore, all such sources should be identified and mitigated. By implementing jurisdictional-level management programs, pollution can be prevented at the source, which is ultimately more cost-effective than treating the effects of water pollution and restoring quality to the waters.

The watershed approach encouraged by the SDRWQCB is not one in which independent local governments voluntarily resign their individual responsibilities to prevent pollution throughout the watershed in order to cooperatively restore discrete units of a degraded stream. Rather, the Storm Water Permit requires those parties responsible for pollution to identify and eliminate the sources of pollution. and the SDRWQCB encourages responsible parties to restore water resources which they have degraded.

The physical stream channel network is a manifestation of hydrology and sediment supply from land surfaces. The Tentative Order recognizes that the three phases of urban land development each pose significant threats to water quality from storm water runoff, and therefore requires the copermittees to each create and implement a management program to control pollutants from these land-use activities.

Comment: The JURMP requirements are contrary to the watershed approach to water quality management embraced by the Regional Board. As acknowledged in its Draft Watershed Management Approach, such an approach "is based on the premise that many water quality problems are best solved at the watershed level rather than at the individual waterbody or discharger level." Indeed, the benefits of a watershed approach are recognized by the Regional Board staff in the proposed findings on both the Tentative Order and the Revised Tentative Order. Yet, by requiring each Copermittee to prepare and implement a separate JURMP, the Regional Board staff is encouraging a piecemeal approach that will hinder, rather than help, progress toward improving water quality. Although the Tentative Order also requires the Permittees to collectively develop and implement a WURMP, this obligation is almost certain to be overshadowed by the more onerous JURMP requirement. In addition, resources that the Permittees could devote to implementing a regional watershed management program, will now have to be directed to implementing their individual JURMPs. Perhaps the County's greatest concern with the Tentative Order is that it embodies an approach to water quality management that is diametrical to the holistic approach that the Permittees have been pursuing for over decade. The Regional Board staff have rejected this holistic approach in a favor of one that is disjointed, lacks focus and will ultimately be far more costly. The 2000 DAMP focuses on identifying and prioritizing water quality problems, understanding the source of those problems, and then developing and implementing solutions to address such problems. In contrast, the JURMP essentially requires the Permittees to create and maintain an elaborate, detailed inventory of all sources that could potentially impact receiving waters and mandates that the Permittees takes steps

to address all such “problems,” with little or no emphasis on prioritizing those areas requiring the most urgent attention. (*County of Orange*)

Response: The Tentative Order, and the JURMP requirements in particular, are not contrary to the watershed management approach. The relationship and subsidiarity of the Municipal Storm Water Permit to watershed management are described in Attachment 4 of the Fact Sheet, which states in part that the SDRWQCB’s watershed approach considers each geographic watershed (or subwatershed) as a whole and seeks to identify and mitigate all sources of pollutants (both point and non-point sources) throughout the watershed which contribute to the impairment of common downstream receiving waters. This definition emphasizes the important contribution (of pollutants and flow) from “inland sources” to “coastal problems”, such as those that have historically plagued San Diego and Orange County Beaches. Like the municipal storm water requirements, one of the most important steps in the SDRWQCB’s watershed effort is the identification and elimination of the sources causing such water quality impairments.

The watershed approach involves the recognition that sources of pollutants generated upstream can impact downstream water bodies. Thus, it is vital that each copermittee develop a management program to reduce pollutants to MEP within its individual jurisdiction. This involves place-based education, BMP implementation, monitoring, and illicit discharge identification and elimination. The JURMP allows each copermittee to identify sources of pollutants that may be contributing to downstream areas of concern. In fact, the prioritization criteria specifically allows for limited pollution reduction resources to be most effective by focusing on high priority areas, including those that may impact water bodies of regional concern. Prioritization, therefore, will help the Copermittee determine which sites are high priority and is an important tool in watershed planning and management. The W-URMP (watershed urban runoff management program) then facilitates the resolution of water quality problems that are contributed to by multiple copermittees.

Within the context of a watershed effort (e.g. the Watershed Urban Runoff Management Plan or Watershed URMP), the watershed-wide efforts undertaken by a set of Copermittees in a given drainage builds upon and enhances the jurisdictional efforts of each Copermittee. Under the First and Second Term Permits, significant elements of the DAMP were actually implemented on a countywide basis in two watershed areas within two different Regional Boards with little actual emphasis on specific watershed issues or programs. The implementation of solid jurisdictional level programs, the program management component of the proposed DAMP, and the Watershed URMP focused on the San Juan Creek Watershed Management Area within Orange County, will bring the implementation of the concepts expressed in the proposed DAMP to fruition.

Comment: The requirement to immediately comply with water quality standards would have significant adverse impacts on the environment. The mandate to immediately comply with quality standards would require the County and cities to divert public resources from discretionary activities aimed at addressing high priority water quality issues in the area to the construction of the urban runoff treatment system necessary to comply with the mandate. Thus, in the ten to twenty-year interim, prior to the completion of the urban runoff treatment system, the water quality in local streams would be improved at a slower pace than would otherwise occur. In order to comply with water quality standards, it would be necessary to intercept all runoff prior to its reaching waters of the State (including any stream or estuary or the ocean) and to transport it to one or more central locations for treatment prior to discharge to the ocean. Currently, urban drainage is the primary source of water in local streams throughout much of the year. As a result of water being present year round in these streams, they support aquatic life, riparian habitat, and wildlife. Removal of the urban runoff from local streams would cause them to be dry throughout most of the year, thereby destroying the aquatic life, riparian habitat, and wildlife that presently exist.

Construction of the urban runoff collection and treatment system that would be necessary to comply with water quality standards would likely take on the order of ten to twenty years. During that period, the construction would disrupt the activities of local citizens and businesses (by the closing or restricting of streets and sidewalks), increase noise levels, and increase traffic. These impacts would adversely impact businesses in the vicinity of the construction and inconvenience and delay local citizens as they try to conduct their personal activities. Considerable fuel and energy would be required to construct the necessary storm water collection and treatment system and, once constructed, to operate the system. The increased demands for fuel and energy would further stress the already limited supplies. Moreover, the additional demands for fuel and energy, would have secondary environmental and economic impacts on the State as a whole.

In mandating that the County and cities implement low priority activities at considerable cost, the Tentative Order could have the effect of diverting limited public resources from other, higher priority community needs, including, but not necessarily limited to law enforcement, fire protection, and health and welfare activities. Thus, the proposed requirement that the County and the cities implement a prescriptive program could have an adverse impact on the health and welfare of local citizens.

The requirement to implement a prescriptive program would have the effect of delaying the incremental improvement in water quality that would otherwise occur in the absence of this requirement. That is because, under the DAMP, the County and cities were focusing effort on critical aquatic resources and pollutants that, based on monitoring, appear to present the greatest threat to beneficial uses in these waters. The Tentative Order does not recognize this approach and, instead, requires, under penalty of enforcement action, that the County and cities undertake numerous specified activities which, in the County's opinion, are of lower priority. Faced with limited public resources and the threat of enforcement action for failure to perform specifically required functions, it is likely that more emphasis will be placed on those low priority activities and less on activities deemed to be of higher priority with respect to improvement of water quality and enhancement of beneficial uses. As a result, it is likely that this requirement would have an adverse impact on water quality. (It should be noted that although the Tentative Order requires that urban runoff discharges achieve strict compliance with water quality standards and compliance with that requirement would ultimately improve water quality, implementation of the facilities necessary to achieve strict compliance would take between 10 and 20 years. In the interim, there are considerable water quality improvements that could be achieved through the present iterative process of BMPs, were it not for specific requirements in the Tentative Order that would cause staff resources to be diverted from those iterative efforts.

Response: Certain inconveniences, such as infrastructure maintenance may be unavoidable. An urban runoff management program based on the elements in the Tentative Order will improve water quality by detecting and eliminating non-storm discharges to receiving waters, reducing pollutants in runoff from municipal, industrial, commercial, residential, and construction areas, and control storm water discharges from new development and redevelopment areas.

The Tentative Order does not require a collection and treatment system as speculated. That assumption is based on an analysis of one option considered by another county to meet the criteria in the California Toxics Rule. The copermitees to this Tentative Order may consider other options for achieving the objectives of the Tentative Order, including source identification and elimination, implementation of best management practices, and the approaches outlined for new development and redevelopment that would create an urban runoff management program tailored to the land use and geography of the region. The local geography, in fact, makes it highly unlikely that elimination of dry-weather urban runoff will cause catastrophic changes in aquatic and riparian ecosystems because certain stream systems in the region receive baseflows from subsurface groundwater discharges.

Additionally, the use of on-site best management practices for source reduction and pollution prevention would decrease the need for costly and energy intensive treatment alternatives.

With respect to prioritization, the Tentative Order requires the southern Orange County municipalities to prioritize water quality concerns in their jurisdictions, rather than countywide, as has been the previous approach. The current urban runoff management approach based on incremental steps to address water quality issues throughout the entire county has not resulted in satisfactory water quality in many of the jurisdictions of south Orange County. Additionally, the management programs developed pursuant to section F.3 of the Tentative Order will develop priorities for water quality based on more extensive and pertinent data than the current level of monitoring effort, and should, therefore, result in more efficient water quality improvements in the short and long-terms.

Comment: The Tentative Order is Prescriptive and Violates CWC 13360: Many of the proposed requirements in the draft permit would be administratively and operationally overwhelming to implement and would be an attempt to expand Regional Board control over City policies and procedures. In its current form, the Tentative Order, including its five separate attachments, is almost 80 pages in length, nearly three times as long as its predecessor. The principal reason for this length is that the Regional Board staff specifies in excruciating detail what the Permittees must do to comply with the substantive standards imposed under the Tentative Order. The Tentative Order, both generally and particularly with respect to the JURMP/SUSMP requirements, is unlawfully prescriptive under the Section 13360 of the Water Code and does not provide the flexibility envisioned by the CWA and its implementing regulations.

The Regional Board does not have the authority to dictate to municipalities the form or content of any ordinances, statutes, permits, contracts or similar means. The cities and counties have jurisdiction over these things. The Regional Board may not mandate or prescribe how compliance with discharge prohibitions shall be achieved. The Water Code prohibits this practice. Water Code section 13360(a) provides that: "No waste discharge requirement or other order of a regional board or the state board or decree of a court issued under this division shall specify the design, location, type of construction, or particular manner in which compliance may be had with that requirement, order, or decree, and no person so ordered shall be permitted to comply with the order in any lawful manner." How does the Regional Board justify telling Copermittees the manner in which they will comply with the requirement to control the quality of discharges from their MS4s? Clearly, the method or methods of achieving compliance are up to the City-not the Regional Board.

As one court has stated, Section 13360 permits the Regional Board to identify the "disease and command that it be cured" but prohibits the Regional Board from "dictating the cure." (Tahoe Sierra Preservation Council v. State Water Resources Control Board (1989) 210 Cal.App.3d 1421, 1438.)

The Tentative Order violates Water Code section 13360 because it dictates how the Copermittees must comply with the requirements contained in the Tentative Order--i.e., it dictates the cure. As the City has pointed out in its separate letter to the Regional Board, there are over 87 major tasks the Copermittees must perform to comply with the Tentative Order. Such a prescriptive approach, particularly one which may prevent regional solutions and tie the hands of the Copermittees, is beyond the Regional Board's authority.

As can be seen, Section 13360 grants a Copermittee unlimited authority to determine how best to meet the substantive obligations imposed under its storm water permit. This flexibility enables a Copermittee to ensure that its resources are used in the most efficient manner possible and thus is an essential component of the storm water permit. Ironically, this issue already has been addressed by the Regional Board's own legal counsel. As noted in the County of San Diego's comments on

Tentative Order No. 2001-01 (“San Diego Comments”), in December 1997, the Regional Board staff sought advice concerning the permissible level of detail for municipal storm water permits. See San Diego Comments, p. A-3. In response, the Regional Board’s legal counsel stated that while storm water permits could set forth certain performance goals, they could not specify the manner of complying with such goals. Id. Similarly, legal counsel advised that storm water permits could not prescribe the particular pollution control strategies to be used by the Copermitees. The Regional Board cannot and should not ignore either its statutory obligations or the advice of its legal counsel. While the Regional Board may tell the Permittees what they must do, it cannot tell the Permittees how they must do it.

Standard Urban Storm Water Mitigation Plans Violate CWC 13360:

The anti-regional-solution aspects of the permit proscribe lawful compliance options. The Regional Board has further invaded the discretion of the Copermitees by making it extremely difficult, if not impossible, for them to comply with the Permit through regional BMPs, at in-stream collection points where such BMPs could capture and treat large volumes of storm water. The Permit requires strict compliance with receiving water standards before storm water and dry weather flow enter receiving waters. Since regional solutions generally would be located downstream of where runoff enters receiving waters, the Permit does not facilitate or promote such solutions; rather, it prevents them, at least where the receiving waters are impaired—precisely the situation calling out for regional solutions.

This anti-regional-solution bias can also be seen in the Permit’s Standard Urban Storm Water Mitigation Plan (“SUSMP”). The SUSMP requires the construction of BMPs, “prior to . . . discharge to any receiving water body supporting beneficial uses.” This location requirement will make it difficult in most cases for shared BMPs since the location of shared BMPs presumably would be downstream at some common drainage point, most likely in the receiving waters themselves. Thus, although the Permit states that BMPs may be shared by “multiple new development projects,” there may be very few instances where such sharing is feasible.

Regional BMPs were heralded by the SWRCB in the Los Angeles SUSMP decision.” They certainly represent a “lawful manner” with which to reach MEP. The Permit’s anti-regional BMP provisions therefore violate Section 13360 (as well as MEP).

The volume and flow-based design standards for structural BMPs clearly run afoul of Section 13360. Both standards specify that, “BMPs shall be designed,” in accordance with prescribed criteria. Permit, section F.1.b.2.c. The design standards dictate that MEP for “all priority development projects” corresponds to infiltrating, treating or filtering the runoff from a design storm or design rainfall intensity (Permit, section F. 1 .b.2.c), further limiting the “lawful manner” with which Copermitees might satisfy MEP. The Tentative Order, at Part F.1.b.(2)(c), starting on page 17, would impose “Numeric Sizing Criteria” in order to reduce the flow of water, whether or not it carries any “pollutants,” off of real estate. We believe that the Board’s authority under the Clean Water Act does not extend to the regulation of the rate of discharge of water, rather than regulating the discharges which the Congress addressed in the Clean Water Act, i.e., the discharge of pollutants. We are also particularly concerned that the “Numerical Sizing Criteria” exceed the Board’s authority to prescribe how the Clean Water Act’s goals of reducing the discharge of pollutants to waters of the United States are to be achieved, and in so doing, violate the limitations of section 13360 of the California Water Code. In particular, we are concerned that contrary to § 13360(a) of the California Water Code, the permit specifies numeric design criteria for post-construction BMPs that are more stringent than the criteria in the San Diego permit (BMPs designed to mitigate [infiltrate, filter, or treat] the runoff produced by a 0.8-inch rain event rather than a 0.6-inch rain event in San Diego).

(Richard Watson & Associates, Laguna Niguel, Mission Viejo, Aliso Viejo, Dana Point, County of Orange, Construction Industry Coalition on Water Quality, Lake Forest, Laguna Woods)

Response: The Tentative Order does not "dictate the cure" but does provide a framework and a standard that the Copermittees must meet. As discussed in more detail elsewhere in this document, this represents the SDRWQCB's definition of the minimum standards necessary to meet MEP and protect receiving water beneficial uses.

California Water Code (CWC) section 13360 generally prohibits the Regional Boards from specifying the manner of compliance with state waste discharge requirements. However, CWC section 13377 provides that the Regional Boards shall issue waste discharge requirements which apply and ensure compliance with all applicable provisions of the Federal Water Pollution Control Act (33 U.S.C. §1251 et seq.), as amended, also known as the federal Clean Water Act (CWA). Since Tentative Order No. 2001-193 is written to implement CWA requirements, it does not violate section 13360 for the SDRWQCB to include specified programs of Best Management Practices (BMPs) to be implemented by the municipalities in order to carry out CWA requirements. Specificity is even more crucial in waste discharge requirements for storm water discharges given their lack of numerical effluent limits. In order to reduce storm water pollution to the maximum extent practicable (MEP), the Tentative Order must require specific styles of BMPs (i.e., structural or source control), but that is not to say that the SDRWQCB is dictating one specific BMP to accomplish the task. The municipalities often have many BMPs available to get the job done.

Finally, with respect to the SUSMP requirements, it should be noted that in it's draft Order on the petition by the Building Industry Association and Western States Petroleum Association for the review of Order No. 2001-01, in which this issued was prominently addressed, the SWRCB stated "The San Diego permit incorporates numeric design standards for runoff from new construction and redevelopment similar to those considered in the LA SUSMP order. In addition, the permit addresses programmatic requirements in other areas. The LA SUSMP order was a precedential decision, and we will not reiterate our findings and conclusions from that decision."

Comment: The SDRWQCB may be expanding control over local government in a manner not prescribed by the Clean Water Act. The Findings in the draft permit, the discussion of Underlying Broad Legal Authority for Order No. 2001-193 in the Fact Sheet/Technical Report, and the discussions of the broad and specific legal authority for the various draft permit provisions appear to be designed to justify expanded authority. It appears that certain aspects of the Tentative Order may exceed the limits imposed by the Congress when it enacted the Clean Water Act, by the EPA when it issued regulations implementing the Clean Water Act, and even more fundamentally, the limits imposed by the U.S. Constitution and by state law on the authority of cities with respect to the development and use of private property. The proposed permit seems to have blended actual authorities with "expanded" authorities to justify this expanded control. For example, we are troubled by the phrase "and Whatever Else is Needed" in the headings for three sections of the Directives Discussion (see pages 71-72 of the Fact Sheet/Technical Report).

The Regional Board Cannot Impose Any More Stringent Standards Except Within The Limited Authorization Of California Water Code Section 13377. As discussed, Section 402(p)(3) provides the Regional Board with limited discretion to include in MS4 permits "such other provisions as . . . the State determines appropriate for the control of such pollutants," as long as such provisions are consistent with the MEP standard. See 33 U.S.C. § 1342(p)(3). However, it is important to note that the discretion provided under this section is not, in and of itself, a grant of any specific powers to the state agencies responsible for issuing MS4 permits. The Regional Board's authority to issue MS4 permits pursuant to the CWA must have a basis in state law. In this regard, the Regional Board staff cites to Water Code section 13377 as the source of its authority to require the Permittees to meet the MEP standard and to do "whatever else is needed." See Technical Report, pp. 74-75. But once again, staff has overstated the scope of the Regional Board's powers.

California Water Code Section 13377 states: Notwithstanding any other provision of this division, the state board or the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge requirements and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act . . . together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance. Cal. Water Code § 13377 (emphasis added). As can be seen, the first part of Section 13377 merely authorizes the Regional Board to carry out the provisions of the CWA. It does not give the Regional Board the power to go beyond the requirements of federal law.

Likewise, the second part of Section 13377 also is limited in scope, authorizing the Regional Board to impose more stringent effluent standards or limitations in certain limited circumstances. Specifically, the Regional Board must demonstrate that such standards or limitations are necessary to implement water quality control plans, protect beneficial uses, or prevent nuisance. In addition, the Regional Board's authority is limited by the requirements of Water Code section 13372, which allows the application of state law provisions only to the extent that such provisions are consistent with the federal act. Finally, in order to impose any limitations more stringent than the CWA, the Regional Board must "first enunciate its reasoning, which must in turn be supported by the evidence." See *Southern California Edison Co. v. State Water Resources Control Board*, 116 Cal. App. 3d 751, 759 (1981).

As discussed in the General Comments, the Permittees disagree with staff's expansive reading of its authority under state and federal law, as well as its conclusion regarding the scope of the MEP standard.

It is clear from even a cursory reading of the Tentative Order that it includes numerous requirements that go well beyond those mandated by the CWA. As noted, the Tentative Order applies water quality objectives to storm water discharges into the Permittees' MS4s, despite the fact that the CWA only speaks in terms of controlling such discharges from MS4s. See 33 U.S.C. § 1342(p)(3)(B); see also General Comments § VII. The Tentative Order also obligates the Permittees to individually develop and implement comprehensive JURMPs and to collectively develop and implement a Watershed Urban Runoff Management Program ("WURMP"). Indeed, nearly 50% of the Tentative Order is devoted to detailing the specifications for the JURMPs and WURMP. Yet, neither of these two programs is a specific requirement of the CWA. Rather, the CWA mandates only that the Permittees prepare and implement a management program that includes "a comprehensive planning process . . . to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate." 40 C.F.R. § 122.26(d)(2)(iv). Many of the programmatic elements required for the JURMP also are more extensive than those mandated by the CWA for inclusion in MS4 permits. For example, the CWA and its implementing regulations contain no requirements pertaining to land use planning for new developments and redevelopment. Compare Tentative Order, Item F.1, with 40 C.F.R. § 122.26(d)(2).

Likewise, the CWA does not specify the specific legal mechanism that the Permittees must use to ensure that discharges to their MS4s comply with applicable requirements. Compare Tentative Order, Items F.1.a – F.1.c (requiring Permittees to review and make specific revisions to their General Plans, as well as to their development approval and environmental review processes, in order to "reduce pollutants and runoff flow from new development and redevelopment to the maximum extent practicable"), with 40 C.F.R. § 122.26(d)(2)(i) (requiring only "a demonstration that the [permittee] can operate pursuant to legal authority established by statute, ordinance or series of contracts . . .") As yet another example, the Tentative Order imposes extensive obligations on the Permittees to "reduce

pollutants in runoff from all industrial sites.” Tentative Order, Item F.3.b. (emphasis added). However, under the CWA, the Permittees are only required to monitor and control pollutants in storm water discharges from those industrial facilities that: (1) are subject to Section 313 of the Superfund Amendments and Reauthorization Act of 1986 (“SARA”) or (2) the Permittees “determine[] are contributing a substantial pollutant loading to the municipal storm sewer system.” 40 C.F.R. § 122.26(d)(2)(iv)(C) (emphasis added).

As discussed in the prior comment and in the comments that follow, the County believes that in many instances the Regional Board would exceed its authority if it were to impose all of the requirements set forth in the Tentative Order. Moreover, to the extent the Regional Board were to exercise discretion, as authorized under state and federal law, it would be acting outside the scope of the mandates imposed by the CWA. Thus, the Regional Board cannot issue the Tentative Order unless and until it: (1) takes into consideration the economic impacts associated with adoption of the permit, as required by the CWA and the Porter Cologne Act; (2) subjects the permit to environmental review under the California Environmental Quality Act (“CEQA”); and (3) complies with the prohibition against unfunded mandates set forth in the California Constitution. (*Dana Point, County of Orange, San Juan Capistrano*)

Response: Water Code 13263 & 13377 give RWQCB authority to regulate discharges to preserve highest reasonable water quality and water quality needed to sustain beneficial uses, including aquatic habitat, etc. This does not constitute expanding control over local government in a manner nor prescribed by the Clean Water Act (CWA). NPDES regulations mandate reduction of pollutants in storm water that cause or contribute to pollution to MEP by municipalities; evidence establishes risk of unreasonable degradation and pollution associated with urban runoff and support’s RWQCB imposition of requirements implementing “MEP” performance standards.

While CWA does not require municipalities to satisfy receiving water standards; [Defenders of Wildlife v Browner (9th c, 1999), 191F3d 1159] WQ sections 13263 & 13377 requires WDRs functioning as NPDES permits to implement water quality objectives (i.e., water quality standards) in basin plans and provisions of the CWA and NPDES regulations needed to protect beneficial uses, and to prevent nuisance.

In fact, such regulation is not only allowed by the CWC, it is required. CWC section 13377 provides that the SDRWQCB issue waste discharge requirements as required by the Clean Water Act, “together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance.” Where the requirements of the Tentative Order may be more stringent than the CWA, the SDRWQCB has enunciated its reasoning in the Fact Sheet/Technical Report.

Since the Permit is a set of waste discharge requirements issued under the California Water Code (which happens to implement the NPDES program), the NPDES program is only a set of minimum standards for the Permit. The NPDES program requirements are not a limitation on the contents of the Permit, as it is a set of waste discharge requirements under the California Water Code. Nor do the NPDES storm water regulations set a maximum limit on States’ individual implementation of the NPDES program. As such, the State of California can include specific requirements in an NPDES permit that need not be specifically addressed in the NPDES storm water regulations. However, to the extent that inclusion of such requirements is meant to implement and clarify the NPDES storm water program to protect the region’s receiving waters, such requirements do not exceed the NPDES program.

Contrary to the commenters assertions, the provisions of the Permit are required by the CWA and CWC. The CWA requires the discharge of pollutants from MS4s to be reduced to the maximum extent

practicable. The SDRWQCB has defined the requirements of the Tentative Order constitute the minimum requirements necessary to meet MEP. This determination has been made by the SDRWQCB in light of the continued degradation of the region's receiving waters due to the Copermittees' urban runoff discharges. The SDRWQCB's determination of MEP is consistent with SWRCB guidance, which states "the final determination regarding whether a municipality has reduced pollutants to the maximum extent practicable can only be made by the Regional or State Water Boards, and not by the municipal discharger." Requirements in the Permit which are more detailed than those in the federal NPDES regulations are also consistent with USEPA's Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits, which states "the interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards."

Furthermore, the Permit's requirement that urban runoff discharges do not cause or contribute to an exceedance of water quality standards is required under both the federal NPDES regulations and CWC. Federal NPDES regulation 40 CFR 122.44(d)(1) requires NPDES permits to include any requirements necessary to "achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality."

Section 13377 of Porter-Cologne also states:

the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge requirements and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, **together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance.** (emphasis added)

Therefore, the Permit's requirements are necessary to be in compliance with the CWA, the federal NPDES regulations, and CWC.

Contrary to the commenters assertions that the requirements for urban runoff management programs are not specific requirements of the CWA or Federal NPDES storm water regulations, the legal authorities cited throughout the Fact Sheet/Technical Report provide the SDRWQCB with ample underlying authority to require each of the directives. The SDRWQCB will not exceed its authority through the adoption of the Tentative Order and the implementation of its requirements and provisions by the Copermittees. The SDRWQCB, in exercising its discretion as authorized under State and Federal law, is not acting outside the scope of the mandates imposed by the CWA, but rather more fully implementing those mandates than it has heretofore. With respect to the consideration of economic impacts the requirement for environmental review under the California Environmental Quality Act, and the prohibition against unfunded mandates, these issues are addressed specifically elsewhere in this document.

Finally, it should be noted that in it's draft Order on the petition by the Building Industry Association and Western States Petroleum Association for the review of Order No. 2001-01, in which these issues were prominently raised, the SWRCB has thus far declined to respond to these issues.

Comment: Some of these comments also focus on concerns regarding strict legal interpretation of the Tentative Order as written versus the Board Staffs stated intent as expressed at the two workshops on the Tentative Order and in their responses to questions submitted at these workshops. In some cases the Board staff's responses to concerns about these issues have indicated that they would offer the permittees some flexibility in interpretation during implementation, however, such flexibility if not structured in the permit itself does not provide adequate legal protection for the permittees in the event of third-party law suits or a change in Board staff (*Aliso Viejo*)

Response: The Tentative Order contains the framework of minimum requirements for the Copermittees to develop and implement urban runoff management programs. Within that framework, the Copermittees have significant discretion and flexibility with regard to the programs and specific BMPs that are developed and implemented. The specific provisions of these programs and BMPs will be included in the Jurisdictional and Watershed Urban Runoff Management Program Documents, which are subject to SDRWQCB review and comment. Finally, the requirements of the Tentative Order are not designed to ensure that the Copermittees are in compliance in all circumstances, thereby protecting them from any liability. The requirements in the Tentative Order are designed to protect receiving water quality from discharges of urban runoff from MS4s. The iterative process defined in section C of the Tentative Order ensures, without precluding any enforcement actions the SDRWQCB considers necessary, that Copermittees that are working in good faith to implement the requirements of the Order are not subject to unnecessary enforcement or legal actions. To this extent, the Tentative Order provides adequate protection from differing interpretations of the Tentative Order that could result in third-party law suits or a changes in SDRWQCB staff.

Comment: The Tentative Order is invalid because the Regional Board has not complied with the Administrative Procedures Act. In developing regulations, orders or standards of general application, the Regional Board must comply with the express rule-making requirements of the Administrative Procedures Act ("APA"). (Gov. Code § 11342(g).) Although styled as a permit, the Tentative Order sets forth a set of regulations and establishes standards of general application which require compliance with the APA. Regulations promulgated without complying with the requirements of the APA are without legal effect. (*Grier v. Kizer* (1990) 219 Cal.App.3d 422,431.) In developing the Tentative Order, the Regional Board has not followed the public review and related requirements of the APA. Therefore, adoption of the Tentative Order is invalid. (*Aliso Viejo*)

Response: The development and adoption of the Tentative Order is exempt from the APA. The APA explicitly excludes the "issuance of [WDRs] and permits pursuant to section 13263" from its ambit (California Government Code section 11352(b)). The SWRCB has found this to be true stating in Order No. 2000-11: "the Administrative Procedure Act exempts the adoption of permits from its requirements." The provisions of the Tentative Order are required by the CWA and CWC. The CWA requires the discharge of pollutants from MS4s to be reduced to the maximum extent practicable.

The SDRWQCB has found that the requirements of the Tentative Order constitute MEP. This determination has been made by the SDRWQCB in light of the continued degradation of the region's receiving waters due to the Copermittees' urban runoff discharges. The SDRWQCB's determination of MEP is consistent with SWRCB guidance (February 11, 1993 Memorandum: Definition of Maximum Extent Practicable), which states "the final determination regarding whether a municipality has reduced pollutants to the maximum extent practicable can only be made by the Regional or State Water Boards, and not by the municipal discharger." SWRCB, 1993. Requirements in the Tentative Order which are more detailed than those in the federal NPDES regulations are also consistent with USEPA's Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water

Permits, which states “the interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards.” Furthermore, the Tentative Order’s requirement that urban runoff discharges do not cause or contribute to an exceedance of water quality standards is required under both the federal NPDES regulations and CWC. Federal NPDES regulation 40 CFR 122.44(d)(1) requires NPDES permits to include any requirements necessary to “achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.” Section 13377 of Porter-Cologne also states: “the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge requirements and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance.” Therefore, the Tentative Order’s requirements are necessary to be in compliance with the CWA, the federal NPDES regulations, and CWC. For this reason, the Tentative Order is exempt from the APA under California Government Code section 11352(b).

Comment: The Board in its concern for receiving water quality has brought two conflicting remedies to bear on the problem simultaneously-this is the source of our concern. On the one hand, the Board is pressing for water quality-focused, receiving water-driven remedies through its Aliso Creek Directive and its stated long-term strategy of moving toward watershed-based permits in the next permit cycle. On the other hand the Board through the URMP/JURMP process laid out in this order is seeking to impose at the front end a highly prescriptive set of standards which are to apply to all jurisdictions. This places the Aliso Creek cities between the proverbial “rock and a hard place.” We want to press forward with water quality/watershed action to improve receiving water quality, yet we will be forced to divert our energy toward immediate development of a written plan for all the elements of the URMP regardless of their relative potential to improve the water quality problems in Aliso Creek. The one-size-fits-all “San Diego Model NPDES Permit” threatens to derail progress toward water quality objectives, especially for the Aliso Creek cities which comprise seven of the eleven incorporated cities identified as municipal co-permittees in the order. The Aliso Creek co-permittees are being driven more quickly than are other areas under the Board’s jurisdiction toward a watershed-based solution to water quality problems via the Board’s Aliso Creek Directive. Yet we are still being ordered to comply with all the programmatic elements of the URMP/JURMP program along the same schedule as other permittees not yet in this position. Aliso Viejo environmental staff have begun work planning efforts to address the requirements of this draft order as well as respond to emerging results of dry weather monitoring stemming from the Aliso Creek Directive. There are an additional 51 major tasks beyond the 36 identified by Board staff that will be required in order to implement the full provisions of this draft order. The combined list of 87 major tasks is attached to assist the Board staff in understanding our concerns. (*Aliso Viejo*)

Response: The Aliso Creek Directive was issued under Order No. 96-03 as a result of persistent exceedances of receiving water quality objectives that have necessitated the diversion of Aliso Creek and the JO3PO2 conveyance into the sanitary sewer. The planning efforts of the Copermitees to address the requirements of this draft order and the response to the results of the dry weather monitoring should be not mutually exclusive. The programmatic requirements of Tentative Order 2001-193 require the Copermitees in this watershed to address the sources of the bacteria causing or contributing to these exceedances, eliminate illicit discharges, and to implement BMPs to the MEP. It is anticipated that the implementation of the Jurisdictional and Watershed Urban Runoff Management Programs in this watershed will mitigate the present condition of Aliso Creek. To the extent that the exceedances continue despite the implementation of BMPs to the MEP, the directives of section C of the Tentative Order provide the Copermitees with an iterative process to address

these exceedances. It should be noted that pollutant discharges which have the potential to cause or contribute to an exceedance of water quality objectives (such as discharges to Clean Water Act section 303(d) water bodies) may require implementation of BMPs beyond the “maximum extent practicable” standard (40 CFR 122.44(d)(1)(i)).

Comment: Public health and environmental quality are of great concern to the City of Aliso Viejo. In the area of water quality, the City would like very much to focus its resources on identifying the sources of receiving water quality problems and developing solutions to these problems so that we can be responsive to the Board’s Aliso Creek Directive, provide beneficial recreational opportunities for our citizens and, most fundamentally, be good stewards of the environment. (*Aliso Viejo*)

Response: Comment noted.

Comment: Please correct the pagination on the Table of Contents. (*Anonymous*)

Response: Comment noted.

Comment: BIA/SC asks that you consider the following items that set forth many, but not all, of the concerns that the building industry has with the proposed Permit (please reference the Construction Industry Coalition on Water Quality’s letter for a more detailed analysis of our concerns).

BIA/SC asks that you consider the following items that set forth many, but not all, of the concerns that the building industry has with the proposed Permit (please reference the Construction Industry Coalition on Water Quality’s letter for a more detailed analysis of our concerns). We are very interested in working with you to address these concerns and ensure that the Permit is modified in such a way as to protect jobs, housing and good water quality for all residents in the region.

1. The definition of all urban runoff as “waste”.
- 2 . The inclusion of strict receiving water limitation compliance language that would most likely create a situation where all dischargers would be in non-compliance of the Permit from day one of implementation.
- 3 . The unjustified selection of priority development categories and thresholds requiring SUSMP compliance that are not likely to provide environmental benefit in relation to the high construction and maintenance costs involved.
- 4 . The Permit does not distinguish between land use and project location with regard to the appropriate level of regulation. It promotes a one-size-fits-all approach to regulation, most likely due to the lack of scientific foundation needed to set more appropriate regulations for different project types and locations.
- 5 . The attempt of the Regional Board to regulate stormwater flows in this Permit, regardless of what constituents are in the stormwater.
- 6 . The Permit’s non-compliance with the Maximum Extent Practicable (MEP) implementation standard.
- 7 . The attempt of the Regional Board to control local land use decisions even when they do not have authority to do so.
- 8 . The expansion of the SUSMP to include Environmentally Sensitive Areas (ESA’s), where the definition of ESA will prompt almost all new development to mitigate storm water runoff, even though the State Water Resources Control Board stated that ESA’s are already heavily regulated and removed them as a priority SUSMP development category.

9. The Permit's attempt to override all operative provisions of the General Construction Activity Storm Water Permit.

10. The requirement to limit grading during the wet season.

11. The requirement for all construction projects to prepare a local S WPPP. (*Building Industry Association of Southern Californ*)

Response: These subjects are each addressed individually throughout the SDRWQCB response to comments.

In addition, many of these subjects have been previously addressed by the SDRWQCB in the Fact Sheet/Technical Report for Tentative Order 2001-193, during the process for adoption of Order No. 2001-01, and the SDRWQCB response to the petitions for Review of the Regional Water Quality Control Board - San Diego Region's February 21, 2001 Approval of the San Diego Municipal Storm Water Permit Order No. 2001-01 filed by the Building Industry Association and the Western States Petroleum Association.

Comment: How do you propose to enforce requirements based on words such as minimize, maximize, etc? (*Building Industry Association of Southern Californ*)

Response: The RWQCB will enforce the requirements of the Tentative Order based in part on the submitted Jurisdictional Urban Runoff Management Program Documents submitted by the Copermittees within 365 days of the adoption of the Tentative Order. In these documents, which are subject to review and comment by the SDRWQCB, the Copermittees will propose BMPs and activities that constitute "minimum" or "maximum" BMPs or activities that satisfy the requirements of the Tentative Order.

Comment: While CICWQ appreciates the Board's well-intentioned regulatory efforts to improve water quality, the proposed Permit could have significant detrimental effects on every CICWQ member employee - and more specifically - California's shrinking middle- and working-class. According to an August 6, 2001 Los Angeles Times article entitled, "Middle-Class Families Put in Economic Bind," a shrinking middle class and high housing costs represent key challenges to the state's economy and quality of life.

This Permit will most likely yield a number of unintended consequences that could further exacerbate the shrinking middle-class and increasing housing costs. These regulations will result in fewer, but more expensive residential projects being completed in the future, due to additional costs and restrictions involved in complying with these regulations. This will, in turn, compromise job growth, housing production and the ability of residents to own their own home. These factors can have a significant negative effect on the regional economy. (*Construction Industry Coalition on Water Quality*)

Response: A number of factors, most significantly supply and demand, affect the cost of housing in Southern California. The fact that homes in many areas of Riverside County have a median price in the low \$100,000's while homes in Orange County have a median price in the \$300,000's, while both are subject to the same environmental regulations, demonstrates the small impact such environmental regulations have on the price of housing relative to the other factors.

Comment: We are very concerned about the cost effectiveness of the Permit in relation to specifically, what the anticipated efficacy is of this Permit in terms of improving overall water quality? The Permit should provide actual improvement of water quality, not simply attempts at incremental

decreases in future contributions. As to the maximum extent practicable consideration, both the Regional and State Boards have not properly addressed key elements of the “practicality” component - i.e., technical and cost feasibility. While cleaning up a problem decades in the making certainly must be a priority, it will not be accomplished on the back of other critical social needs in California, such as housing. Even with the marginal cost estimates relied upon by Regional Board staff (figures we vigorously dispute), there is no consideration as to the effect of those marginal costs on driving the availability of housing further out of the reach of those residents of our state most in need.

We urge you to thoroughly review the comments provided by CICWQ and ask yourselves at what point water quality improvement efforts should be allowed to compromise the economic livelihoods of our working families, diminish new home production, increase housing costs, and jeopardize our regional economic strength. (*Construction Industry Coalition on Water Quality*)

Response: It is implementation of actions required by the permit, not the permit itself, that will meet MEP and improve water quality. That implementation is the responsibility of the Permittees. Regarding housing costs and water quality, briefly, there is no basis to the implied claim that the Tentative Order will compromise the economic livelihood of working families. The Tentative Order will protect beneficial uses of water resources, including uses that promote economic activity. The Tentative Order will also help to preserve the opportunity for economic gain through beneficial uses of water resources in the future. The cost of housing in Southern California is primarily driven by location and proximity to desirable features. Regarding the cost of implementing structural treatment BMPs at SUSMP priority development projects, the SDRWQCB and LARWQCB have demonstrated in past SUSMP documents that the cost of construction of structural treatment BMPs generally constitutes less than 1% of total project cost. Regarding costs of structural treatment BMPs, the SWRCB states in Order WQ 2000-11 “The Regional Board found that the cost to include BMPs that will meet the mitigation criteria will be one to two percent of the total development cost. This amount appears reasonable, especially in light of the amount of impervious surface already in Los Angeles County and the impacts on impaired water bodies.”

Comment: The JURMP Requirements Would Unravel The Permittees’ Existing Storm Water Management Programs. The tenor of the Tentative Order suggests that, in the Regional Board staff’s view, the JURMP requirements can easily be incorporated into the Permittees’ existing program for water quality management. As such, the Permittees are given only one year following adoption of the Tentative Order to “have completed full implementation of all requirements of the Jurisdictional URMP.” Tentative Order, Item G. However, as discussed above, the 2000 DAMP and its predecessor are based on a holistic approach that emphasizes managing water quality on a county-wide, watershed basis. All of the Permittees’ storm water management programs have been structured around this approach. To that end, the Permittees prepared a model storm water ordinance which was approved by the Regional Board in 1996 and then individually adopted by the Permittees. These ordinances form both the procedural and substantive framework for the Permittees’ jurisdictional storm water management programs.

The JURMP requirements would now require each Copermitttee to completely re-write, re-adopt and re-implement its storm water ordinances. Indeed, this administrative burden is one of the greatest costs associated with the proposed JURMP requirements. Moreover, it is unlikely that the Permittees could complete this effort within one year, especially since these revised storm water ordinances would require CEQA review. Finally, this effort would necessarily require the Permittees to redirect scarce resources away from their other components of their storm water management programs, including those that focus on managing water quality on a jurisdictional, rather than watershed, basis. In short, it is fallacious for the Regional Board staff to believe that the proposed JURMP requirements will simply augment the Permittees’ existing programs for managing storm water. Likewise, it is

ludicrous for staff to expect and demand that the major re-structuring of these programs which the JURMP requirements would necessitate could be accomplished in only one year (*County of Orange*)

Response: Rather than addressing urban runoff concerns on a countywide basis, the Tentative Order is designed to ensure that each municipality in the region covered by the SDRWQCB has a storm water management program sufficient to address the areas, land-use activities and concerns within its jurisdiction. This approach reflects a prioritization of pollution prevention over treatment of pollution, and can be efficiently incorporated into a watershed approach to managing urban runoff. Please see Attachment 4 of the Fact Sheet for a discussion of municipal storm water permitting and the watershed approach.

The JURMPs are based on requirements largely derived from Order 90-38, Order 96-03 and the NPDES regulations which have been in place for many years. The Tentative Order requires the Copermittees to modify the building and development codes and ordinances as necessary to comply with the Tentative Order. The Tentative Order states "Within 180 days of approval of the model SUSMP in the public process by the SDRWQCB, each Copermittee shall adopt its own local SUSMP, and amended ordinances consistent with the approved model SUSMP, and shall submit both (local SUSMP and amended ordinances) to the SDRWQCB." The Copermittees are provided 365 days to develop the model SUSMP and an additional 180 days for the local SUSMP. One and a half years should be sufficient to develop the necessary ordinances. Schedules for the implementation of the requirements of the Tentative Order should be adequate for CEQA review.

Comment: However, the County recently received a revised version of the Tentative Order ("Revised Tentative Order") and a revised Fact Sheet/Technical Report ("Revised Technical Report") both dated August 23, 2001. The latter document includes the Regional Board staff's analysis of the Permittees' Drainage Area Management Plan, as revised and submitted with their permit application ("2000 DAMP"). The County believes that these comments on the Tentative Order are also relevant and applicable to the Revised Tentative Order. Nonetheless, the County has not had an adequate opportunity to review the Revised Tentative Order in detail and has not yet had sufficient time to evaluate the recently received staff analysis of the 2000 DAMP. Accordingly, the County reserves the right to submit additional comments relating to Tentative Order No. 2001-193 and the supporting Fact Sheet/Technical Report to the Regional Board in the future. (*County of Orange*)

Response: The second draft of the Tentative Order, released on August 23, 2001, contained primarily editorial changes and did not significantly alter the requirements of the Tentative Order. Changes in the Fact Sheet were made to provide greater clarification regarding issues raised during the public workshops. The hearing has been scheduled to provide the Copermittees and interested parties with sufficient time to review the Tentative Order and Fact Sheet prior to the hearing. Additional changes will be made based on a review of the comments submitted by August 30, 2001 as well as comments made in the hearing before the SDRWQCB.

Comment: We believe the period for written comments should be extended by 30 days in order to allow a full airing of issues on both sides concerning this important Order, and to address two specific procedural concerns... (*County of Orange*)

Response: The second draft of the Tentative Order, released on August 23, 2001, contained primarily editorial changes and did not significantly alter the requirements of the Tentative Order. Changes in the Fact Sheet were made to provide greater clarification regarding issues raised during the public workshops. The Tentative Order is not based on the proposed DAMP and contains a framework for programs and BMPs that meet the SDRWQCB's interpretation of maximum extent

practicable. Furthermore, the analysis of the DAMP was provided to describe in greater detail the earlier criticism by the SDRWQCB rather than as justification for the requirements of the Tentative Order. The adoption of the Tentative Order is neither dependent on the review of the DAMP nor is it based on specific commitments or plans contained within the DAMP. Thus continued analysis and discussion of the DAMP is not necessary for the adoption of the Tentative Order. The hearing on the Tentative Order has been scheduled to provide the Copermittees and interested parties with sufficient time to review the Tentative Order and Fact Sheet prior to the hearing. Additional changes will be made based on a review of the comments submitted by August 30, 2001 as well as comments made in the hearing before the SDRWQCB.

Comment: Irrespective of any legal requirements, the Regional Board has a moral duty to conduct its activities in a manner consistent with the public interest. This, in turn, requires that the Regional Board consider and weigh all potential impacts, both beneficial and detrimental, prior to acting. (*County of Orange*)

Response: The public adoption process for the Tentative Order enables to the SDRWQCB to consider all potential impacts, both beneficial and detrimental, consistent with the public interest.

Comment: While the requirement to comply with water quality standards would benefit public health by reducing the risk of gastrointestinal and other water borne illnesses, there is evidence that the increased costs to residents to achieve the requirement would increase the risk of illnesses and even death. In analyzing US EPA's proposed drinking water standard for arsenic, the AEI-Brookings Joint Center for Regulatory Studies concluded that while the arsenic standard would likely save eleven lives per year due to reduced arsenic levels in drinking water, it would likely result in a net loss of ten lives per year. See Appendix B-3. As stated in the AEI-Brookings report: "The reason is that the costs of complying with the rule reduce the amount of private resources that people have to spend on a wide range of activities, including health care, children's education, and automobile safety. When people have fewer resources, they spend less to reduce risks." (*Ibid*, page 8.) The arsenic rule was estimated to cause about 10 million people nationally to incur increased costs of about \$21 per year, which is less than 1/10 th the \$296 per capita per year increase which the 500,000 people affected by the Tentative Order would face if the Order were adopted with a requirement for strict compliance with water quality standards. As in the case of adverse economic impacts, the Regional Board needs to independently evaluate the potential for adverse public health impacts before acting on the Tentative Order. (*County of Orange*)

Response: A comparison of the costs between implementation of the US EPA's Arsenic Rule and the RWQCB Tentative Order is not entirely appropriate. The arsenic rule is a drinking water standard mandated by the Safe Drinking Water Act while the Tentative Order is a NPDES permit and Waste Discharge Requirement. The two are directed toward different regulatory contexts - the drinking water standard is a numeric treatment standard based on a contaminant's threat to human health, whereas the Tentative Order is a BMP-based permit to discharge wastes that protects the beneficial uses of receiving waters and does not contain numeric effluent standards.

The use of the AEI-Brookings study to support the assertion that increased costs to comply with the requirements of the Tentative Order could lead to adverse health or economic effects is questionable. First, the study was restricted to short term costs and benefits. Second, the results of the study are incorrect - the cost-benefit analyses in the study were based on health risk estimates that have since been determined to be significantly underestimated. The National Academy of Sciences recently reported that USEPA significantly underestimated health risks associated with low level exposure to arsenic, such that even the new, lower standard proposed for drinking water may not be low enough

to protect the public health. This new information provides strong support for more stringent regulation in the case of arsenic; a fact that was recognized by the USEPA when it reinstated the proposed arsenic standard criticized by the study.

Furthermore, even if one could disregard the new information, the results of the AEI-Brookings study cannot be convincingly applied to the Tentative Order. The study was concerned with a drinking water standard so, by design, did not include some information in its analyses that would be pertinent. For instance, it did not include the benefit of individual health care savings that would result from less contaminant exposure or increased individual health care costs that could result from increased contaminant exposure. Moreover, the study could not consider the benefit of increased personal savings that would result from continued employment and/or tourism due to uncontaminated beaches or low incidence of water borne illness, which is the context of the comment that cited this study. In addition, it did not consider the potential loss of program supporting revenue to municipalities resulting from a reduction in the tax base due to a loss of business taxes or lower property taxes that could result from increased contaminant levels, continuing beach closures, and the loss of other beneficial uses. As a waste discharge requirement and NPDES permit, the Tentative Order presents economic opportunities concomitant with the increased costs. Consequently, although the implementation and enforcement of the Tentative Order may entail increased costs for the Copermittees, the critical use of the study in the context of the Tentative Order is neither useful nor appropriate.

Comment: In order to use our limited resources wisely and better effect water quality improvements, the Copermittees, with stakeholder approval, have developed priorities that address significant water quality problems first. The Tentative Permit would not allow us to do that. Is it the staff's intention that we address all of our stormwater problems at once, and if so, is this practicable? *(County of Orange)*

Response: The Tentative Order requires the copermittees to identify, address and mitigate the highest priority water quality issues/pollutants in the six watersheds as part of the watershed urban runoff management program. The copermittees shall develop an implementation time schedule of short and long-term recommended activities to address these priorities. Staff considers this approach reasonable and that the actions taken by the copermittees to comply with all requirements specified in the Tentative Order will provide an effective water quality improvement program.

Comment: Based upon the comments that you receive in the first and second workshops, when will the second version of the draft permit be released? *(County of Orange)*

Response: The second draft of the Tentative Order was released on August 23, 2001. The changes in the second draft were primarily editorial corrections and did not significantly alter the requirements of the Tentative Order. Additional changes will be made based on a review of the comments submitted by August 30, 2001 as well as comments made in the hearing before the SDRWQCB.

Comment: The City request that following revision of the Tentative Order after the comment period closes on August 30th, public comment be again solicited on the Revised Tentative Order. The City asks that this letter be included in the administrative record of this matter. *(Dana Point)*

Response: The SDRWQCB has the discretion to reopen the comment period based on its review of the Tentative Order and the comments received.

Comment: The City of Dana Point is very pleased to see that the Regional Board has taken such a proactive stance with respect to cleaning up the receiving waters in this area. Over the past several years the issue of water quality impairment has had a profound effect on coastal cities like Dana Point, both, with respect to citizens' quality of life, as well as from an economic standpoint. (*Dana Point*)

Response: Comment noted.

Comment: The beaches in Dana Point have regularly experienced postings and closures due to high bacteria levels emanating, principally, from the two creeks that enter the city and discharge into the ocean. And, while the waters from these creeks have a very direct impact on this community, very little of that water originates in Dana Point. This city has, thus, become the recipient of many communities' urban runoff that contributes to the degradation of our coastal waters. Dana Point's beaches and harbor are a principal attraction to our residents and visitors. For our citizens and visitors the beauty of these features would be worth little if they could no longer be enjoyed, but only viewed from afar. The irony in this is what so many of our residents (present, as well as future) and visitors come from those upstream, contributing communities. This situation has become a particular frustration for the City of Dana Point over the past few years in light of the efforts that we, as a community, have expended toward helping to clean up the creeks, beaches and the ocean. Despite our investment in public education programs, the installation of filters in our storm drain inlets, the diversion of nuisance waters to the sanitary sewer, weekly street sweeping, and the testing and monitoring included in those programs, we continue to see an increase in beach postings and closures as well as in the amounts of trash and debris washing up on our shores. We do realize, however, that it will take some time to restore these elements of our environment, just as it has taken many years to create the conditions with which we now live, and it will require the commitment and cooperation of all communities who have, in one way or another, contributed to the degradation of our waters.

It is for these reasons that we applaud the Regional Board for its intentions in drafting the proposed new Municipal Storm Water Permit for Orange County and Cities. (*Dana Point*)

Response: Comment noted.

Comment: There are numerous solutions available that can and will be implemented around and throughout an MS4, in conjunction with an ongoing education program, that will constitute a total Urban Runoff Management Program specifically designed to clean up the discharges from the MS4. This URMP will necessarily be unique to each community that it serves. However, by mandating the focus of resources and efforts on specific prohibitions and controls of discharges into an MS4, the Tentative Order unnecessarily limits the flexibility needed by the Copermittees to use the iterative process referenced in Finding 14 to tailor their individual programs to their specific circumstances. Furthermore, it limits their creativity to use the developing technologies to their best advantage, which has been the key to our City's successes thus far, and it would be our desire to continue on that path. In addition, it appears that failing to prevent some pollutants from entering our MS4 could, and would, subject the City to fines, regardless of what may be accomplished in cleaning up what is discharged from the system. We very strongly, therefore, recommend that the permit be crafted to at least distribute the focus uniformly from source to receiving water. (*Dana Point*)

Response: The Tentative Order contains the framework for the minimum requirements considered by the SDRWQCB to be necessary to achieve MEP. The requirements in the Tentative Order are

based on the Federal NPDES regulations and USEPA and SWRCB guidance, including the requirements to effectively prohibit non-storm water discharges to the MS4 and to develop a program to identify and eliminate sources and implement BMPs. Where the Tentative Order is more specific than the Federal NPDES regulations, it is based on USEPA and SWRCB guidance. The SDRWQCB has authority to include more specific requirements than the Federal regulations under CWA section 402(p)(3)(B)(iii) and CWC section 13377. USEPA supports the approach of increasingly detailed storm water permits, stating "The interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards" (USEPA, 1996). The Copermittees must implement the specified programs included in the Tentative Order in order to carry out the CWA requirements. These are intended to build upon the programs already developed by the Copermittees under the previous permits. Any specified programs in the Tentative Order are made all the more necessary by the exclusion of numerical effluent limits from the permit. Reliance on BMPs as opposed to numerical effluent limits requires specification of those programs that are relied upon to reduce pollution. The Tentative Order has been drafted to provide additional uniformity in balancing the management of urban runoff by addressing both its sources as well as its impacts on receiving waters.

With respect to the need for flexibility and coordination, the Tentative Order provides a framework within which the Copermittees have the opportunity to utilize creativity and other resources to develop or improve upon the programs, activities, and measures that will satisfy or exceed the requirements of the Tentative Order. Wherever possible, the SDRWQCB has attempted to provide discretion and flexibility to the Copermittees, especially with regard to programs that the Copermittees have already developed and implemented. The Tentative Order has been structured to accommodate the iterative process referred to in Finding 15 and section C for the development and implementation of BMP programs while ensuring that the requirements can be implemented and enforced uniformly throughout the San Diego Region.

The Tentative Order was drafted to ensure regional consistency with the MEP approach adopted by the SDRWQCB throughout the San Diego Region when these NPDES Permits and Waste Discharge Requirements are issued on a watershed basis in this region. Nonetheless, as the commenter discussed above, because the Tentative Order is issued to each Copermittee, each Copermittee must have a program to management urban runoff within its jurisdiction. The program must be tailored to address the specific urban runoff management issues within its jurisdiction and it must be specific enough to ensure fair, uniform implementation and enforcement throughout the region.

Enforcement action related to the discharge of some pollutants to the MS4 will be appropriately tailored to the specific conditions related to the discharge and will take into consideration the implementation of the URMP, particularly in regards to the pollution prevention, source identification, BMP implementation and enforcement activities conducted by the discharger in accordance with the Tentative Order.

Comment: Failure to comment on other points in the Tentative Order or the Draft Fact Sheet/Technical Report should not be construed to give rise to any inference that the City waive objections to such other items. The City reserves the right to offer further comments. (*Dana Point*)

Response: Comment noted.

Comment: The City congratulates the Board Staff for a thorough and very detailed draft, one which attempts to clarify arcane points as well as spell out fundamental requirements in coming to

grips with the most important issue of protection of the quality of the waters into which storm water and urban runoff flow. By any standard, the Staffs efforts are most impressive. (*Dana Point*)

Response: Comment noted.

Comment: The City of Laguna Niguel is committed to working with the Regional Board and the Copermittees to develop and implement an expanded storm water management program that includes reasonable and practical approaches to improving the water quality of receiving waters in the South Orange County area. (*Laguna Niguel*)

Response: Comment Noted.

Comment: A table of contents would be very helpful in dealing with this document. Can you prepare one and attach it to the draft permit and its exhibits? (*Laguna Niguel*)

Response: A table of contents has been prepared and was distributed at the second workshop, public hearing, and on the SDRWQCB web site.

Comment: We request that both the Revised Order and Revised Fact Sheet documents be made available for public review prior to the closure of the public comment period. In recognition of the amount of work involved and recognizing that the Board meeting has been rescheduled to October, we also request that the comment period be extended by 15 to 30 days after distribution to allow affected parties sufficient opportunity to comment on the revised language. (*Laguna Niguel*)

Response: The second draft of the Tentative Order was released on August 23, 2001. The changes in the second draft were primarily editorial corrections and did not significantly alter the requirements of the Tentative Order. Additional changes will be made based on a review of the comments submitted by August 30, 2001 and presented in the hearing before the SDRWQCB. The hearing has been scheduled to provide the Copermittees and interested parties with sufficient time to review the Tentative Order and Fact Sheet.

Comment: Many of the proposed requirements in the draft permit would be administratively and operationally overwhelming to implement and would be an attempt to expand Regional Board control over City policies and procedures. We are concerned in particular that the permit requires a heavy workload by the City and several submittals within the first 365 days after adoption of the order. The City of Lake Forest is considering seeking federal funds to assist with the implementation of some of the components of the proposed permit. However, the timeline for application and potential receipt of federal grants is much longer than the Board's timeline for completion. As such, the Regional Board's implementation schedule may effectively lock out the City from the ability to obtain grant funds to offset the cost of these required programs. (*Lake Forest*)

Response: The requirements of the Tentative Order are based on the federal regulations and USEPA and SWRCB guidance and are practicable for the Copermittees to implement. The Tentative Order is a third term permit rather than a first or second term permit and is intended to build upon the programs developed during the first two permits. The Copermittees have the discretion to seek various funding sources to support their programs, but the requirement to implement the programs is not dependent on the successful application for Federal or other funding sources. Rather, the Copermittees are required to secure the resources necessary to meet the requirements of the

Tentative Order. As part of its individual Jurisdictional Urban Runoff Management Program, each Copermittee is required to develop a strategy to conduct a fiscal analysis of its urban runoff management program in its entirety. A fiscal analysis can be an important planning tool. The USEPA finds that "examining the levels of proposed spending and funding allows the permitting authority to gauge the ability of applicant to implement the program and predict its effectiveness." Conducting this analysis will better enable the Copermittees to project costs and secure the necessary funding.

The Regional Board has considered the costs associated with implementation of requirements for discharges to MS4 as well as the costs incurred as a result of pollution associated with discharges from MS4; while there will be, undoubtedly, incremental costs to municipalities to implement requirements for MS4, the increased burden associated with the tentative requirements is not unreasonable in view of the following factors: municipalities can pass costs for planning and permitting on to permit applicants; municipalities can impose fees on persons who use MS4 infrastructure or require services from the municipality; municipalities can incorporate pollution prevention and control planning into existing planning activities; and municipalities can incorporate pollution and control implementation into existing regulatory functions.

Comment: Will the Regional Board assist the copermittees in the form of grants or loans to cover the expenses associated with preparing the Urban Runoff Management Plan which must be prepared within 365 days of the date of the order, and the preparation and implementation of the Watershed Urban Runoff Management Program by April 2003? (*Mission Viejo*)

Response: Limited funding is available to the Copermittees through the State Revolving Fund loan program, Proposition 13 grant program and Clean Beaches Initiative program. Funds are also available for planning through the 205(j) program. The Copermittees have successfully applied to these programs for funding of specific projects (e.g. Aliso Creek Water Quality Enhancement 205(j) grant, the City of Laguna Niguel WETCAT Proposition 13 grant, City of Dana Point Clean Beach Initiative grant funding project) related to urban runoff management. However, this funding is limited to specific projects. The Copermittees are required to develop sufficient funding to develop and implement the programs necessary to comply with the Tentative Order.

Comment: The timeline for application and potential receipt of federal grants is much longer than the Board's timeline for completion. As such, the Regional Board's implementation schedule will effectively lock out the City from the ability to obtain grant funds to offset the cost of these required programs. (*Mission Viejo*)

Response: The Tentative Order sets the requirements under which discharges are permitted during the 5-year term of the renewed Permit. As such, there will be several years in which the copermittees may solicit and obtain Federal funds to implement various provisions.

Comment: The City of Rancho Santa Margarita has reviewed the Tentative Order 2001- 193 and discussed it with our Principal Permittee, the County of Orange. Like our fellow Permittees, we are committed to improving water quality in our region and we are open to programs which lead us together in that direction. As a Co-permittee with the County, we are also in general agreement with the County's concerns regarding Tentative Order 2000-193 and are submitting this letter to provide our review comments. (*Rancho Santa Margarita*)

Response: Comment Noted.

Comment: The Tentative Order may be an inappropriate model for the third permit. (*Rancho Santa Margarita*)

Response: Comment noted. Specific concerns are addressed elsewhere.

Comment: The Tentative Order expands RWQCB control over local government. For example, we are troubled by the phrase “and Whatever Else is Needed” in several of the headings in the fact sheet. (*Rancho Santa Margarita*)

Response: As described elsewhere, the Regional Board does have the legal authority to require municipalities to regulate urban runoff flow to protect beneficial uses of receiving waters.

The Clean Water Act requires in section 402(p)(3)(B)(iii) that permits for discharges from municipal storm sewers “shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.”

In a memo dated February 11, 1993, entitled "Definition of Maximum Extent Practicable," Elizabeth Jennings, Senior Staff Counsel, SWRCB addressed the achievement of the MEP standard as follows: “To achieve the MEP standard, municipalities must employ whatever Best Management Practices (BMPs) are technically feasible (i.e., are likely to be effective) and are not cost prohibitive. The major emphasis is on technical feasibility. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the cost would be prohibitive.”

California Water Code section 13377 provides that “Notwithstanding any other provision of this division, the state board or the regional boards shall, as required or authorized by the Federal Water Pollution Control Act (Clean Water Act), as amended, issue waste discharge requirements and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with anymore stringent effluent standards or limitation necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance.”

The Tentative Order describes the minimum components necessary to develop a program to reduce pollutants to the maximum extent practicable

Comment: Assuming many issues in some watersheds are unacceptable (quality, habitat, erosion, etc.), the existing condition is the result of the current governance (sewer districts, cities, county, etc.). Shouldn't the governance be changed to make these improvements? (*Richard Gardner*)

Response: Comment noted. The Tentative Order does not attempt to address the structure of local governance, but does require the municipalities, as the governing land-use body, to exercise authority and control over the discharge of pollutants to the MS4 system.

Comment: San Diego copermitees have indicated that there is a potential problem with the Regional Board staff's interpretation of the term "Tributary to" in relation to 303(d) listed water bodies;

where does that term appear in draft order 2001-193, and how do you interpret it? (*Richard Watson and Associates*)

Response: The term "tributary to" in relation to 303(d) water bodies appears in the "prioritization" steps of section F.3 under each of the existing land use components. The term also appears in F.1.C.1 as an example of an issue to consider during a project's environmental review. The intent, whether during prioritization of existing development sites or environmental review, is to determine if the expected runoff patterns from the activity would likely contribute pollutants to the 303(d) listed water body.

Comment: How would the results of the appeal of the San Diego Permit relate to the content of the new Orange County permit? (*Richard Watson and Associates*)

Response: If the appeal results in an order to change portions of the San Diego Permit (Order 2001-01) that are applicable to the proposed Orange County Permit (Tentative Order 2001-193), then appropriate changes would be made.

Comment: Many of the proposed requirements in the draft permit would be administratively and operationally overwhelming to implement and would be an attempt to expand Regional Board control over City policies and procedures. We are concerned in particular that the permit requires a heavy workload by the City and several submittals within the first 365 days after adoption of the order. The City of Lake Forest is considering seeking federal funds to assist with the implementation of some of the components of the proposed permit. However, the timeline for application and potential receipt of federal grants is much longer than the Board's timeline for completion. As such, the Regional Board's implementation schedule may effectively lock out the City from the ability to obtain grant funds to offset the cost of these required programs. (*Lake Forest*)

Response: The requirements of the Tentative Order are based on the federal regulations and USEPA and SWRCB guidance and are practicable for the Copermittees to implement. The Tentative Order is a third term permit rather than a first or second term permit and is intended to build upon the programs developed during the first two permits. The Copermittees have the discretion to seek various funding sources to support their programs, but the requirement to implement the programs is not dependent on the successful application for Federal or other funding sources. Rather, the Copermittees are required to secure the resources necessary to meet the requirements of the Tentative Order. As part of its individual Jurisdictional Urban Runoff Management Program, each Copermittee is required to develop a strategy to conduct a fiscal analysis of its urban runoff management program in its entirety. A fiscal analysis can be an important planning tool. The USEPA finds that "examining the levels of proposed spending and funding allows the permitting authority to gauge the ability of applicant to implement the program and predict its effectiveness." Conducting this analysis will better enable the Copermittees to project costs and secure the necessary funding.

The Regional Board has considered the costs associated with implementation of requirements for discharges to MS4 as well as the costs incurred as a result of pollution associated with discharges from MS4; while there will be, undoubtedly, incremental costs to municipalities to implement requirements for MS4, the increased burden associated with the tentative requirements is not unreasonable in view of the following factors: municipalities can pass costs for planning and permitting on to permit applicants; municipalities can impose fees on persons who use MS4 infrastructure or require services from the municipality; municipalities can incorporate pollution prevention and control planning into existing planning activities; and municipalities can incorporate pollution and control implementation into existing regulatory functions.

COMMENTS ON SPECIFIC SECTIONS

Section: Findings

Comment: The findings in the Order do not provide a legally adequate basis for the Tentative Order.

The Regional Board's regulations must be adequately supported by the Findings in the Tentative Order, and the Findings must be supported by the evidence in the Technical Report. (See, e.g., *Southern California Edison Co. v. State Water Resources Control Board*(1981) 116 Cal.App.3d 75 1, 759 (holding that a regional board must "annunciate its reasoning" and support that reasoning by evidence.) As explained in this letter, in the City's separate letter to the Regional Board and in the comment letters from the other copermitees, the Findings are inadequate and unsupported by appropriate evidence. This is especially true because the Tentative Order is taken almost verbatim from the San Diego NPDES Permit, and because the Regional Board has refused to recognize the value of the existing Drainage Area Management Plan ("DAMP") designed specifically for Orange County. The issues facing Orange County are significantly different than those faced in San Diego, and the Regional Board cannot merely copy (and rely upon) the Findings from the San Diego Permit without making specific findings as to the issues in Orange County and supporting those findings with appropriate evidence. (*Aliso Viejo*)

Response: Comments related to specific Findings are addressed elsewhere. Each Finding is supported in the Fact Sheet/Technical Report, and where necessary, references are made to conditions in southern Orange County. Conditions of impaired water quality and impacts of urban runoff in the region are documented in the Fact Sheet. The Findings that are similar to those in the San Diego Municipal NPDES Permit (Order 2001-01) were reviewed for applicability to the region of southern Orange County and were modified where appropriate. For instance, Finding 40 (Common Interest Areas and Homeowners Associations) was added because of the prevalence of common interest developments in the region. The DAMP is also recognized where suitable, such as Finding 23 (Education). For an assessment of the proposed revised DAMP in relation to the Tentative Order, please see Attachment 5 of the Fact Sheet. Although the DAMP was designed for conditions throughout Orange County, the Tentative Order requires the copermitees to develop urban runoff management plans tailored to the drainage areas in which the copermitees are located.

Section: Finding 1

Comment: What is the beneficial use of MS4s and how does that use compare with the beneficial use of the receiving waters? (*Lake Forest*)

Response: Municipal Separate Storm Sewer Systems (MS4) do not themselves have designated beneficial uses except in situations in which a stream segment that does have beneficial uses is a part of the MS4 (refer to Finding 8). In these cases, the stream segment can be both a MS4 and a receiving water with applicable beneficial uses.

Section: Finding 1

Comment: Finding 1 presupposes that each agency within the jurisdiction of the Board contributes to a violation of water quality standards. That statement has not been established and the term “may” should be inserted within sentence numbered (3) and (4). (*Laguna Hills*)

Response: Finding 1 identifies the copermitttees subject to the Tentative Order. The justification of inclusion for the copermitttees comes from the federal Phase 1 NPDES regulations (40 CFR 122.26). The MS4s for each copermitttee falls into one or more, but not necessarily all, of the criteria listed by the numbered sentences in Finding 1. The justification for each copermitttee is provided in Attachment 1 of the Fact Sheet/Technical Report. The majority of the copermitttees cannot be classified as operators or owners of large or medium MS4s, but do operate MS4s that are interrelated to the large MS4 of the County, contribute to a violation of water quality standards, and/or are significant contributors of pollutants to waters of the United States. Several surface waters, including much of the Pacific Ocean Shoreline, in the region are listed as impaired under section 303(d) for coliform. The MS4s from each copermitttee discharge into surface waters that are tributary to impaired surface waters.

Section: Finding 2

Comment: What is the legal justification or precedent for determining that the storm water component of urban runoff is a waste in and of itself? While much (far too much) urban runoff does contain pollutants, neither the SWRCB nor any court interpreting the California Water Code has ever held that storm water or urban runoff are “wastes,” in and of themselves. The definition of urban runoff as a waste is an oversimplified conclusionary statement that does not take into consideration the source of urban runoff and its pollutant, if any. These broad generalizations are made regardless of whether the pollutants are present at concentrations above or below water quality objectives. The definition of urban runoff as a waste would include storm water whether it reaches the storm drain by flowing over undeveloped land, or a parking lot, whether or not it intercepts waste materials on its way to the storm drain, and whether it contains any pollutants or is clean. The same is true for dry weather flow, regardless of its source or concentration. Urban runoff that is “clean” is clearly not a waste. This gross extension of the term “waste” turns rainfall into wastewater without any specific consideration of the actual contents of the runoff produced. Storm water and other forms of urban runoff become “wastes” or “pollutants” if they carry “sewage and any and all other waste substances..” or a pollutant. This is significant, as Section 402(p)(3)(B)(iii) of the CWA, 33 U.S.C. §1342(p)(3)(B)(iii) requires MS4 Copermitttees to reduce the discharge of “pollutants” to the “maximum extent practicable.” If all urban runoff is found to contain pollutants, it could be argued that MS4 Copermitttees are obligated to reduce the discharge of urban runoff to the maximum extent practicable. This finding condemns all public agencies as polluters when many sources of pollutants are not within the jurisdictional control of a municipality. This over broad construction of the law in which the permit attempts to expand SDRWQCB control over City policies and procedures is invalid and would be administratively and operationally overwhelming to implement.

Legislative History

The legislative history of the term “waste” confirms that it does not encompass urban runoff and storm water. The current definition of the term “waste” was enacted in 1969, in legislation streamlining the Water Code by combining two prior definitions, neither of which included urban runoff or storm water within their ambit. Further evidence of legislative intent is the fact that the legislation pre-dated by many years modern storm water regulation, coming at a time when application of the concept of “waste” to rainfall and urban runoff was simply unthinkable.

The 1969 changes to the Water Code arose out of a study by the SWRCB, commissioned by the Legislature.[3] The definition of “waste” recommended by the SWRCB represented a combination of the former definitions of “sewage” and “other waste,” neither of which included either urban runoff or storm water. Prior to the 1969 legislation, “sewage” and “other waste” were defined as follows: “Sewage” means any and all waste substance, liquid, or solid, associated with human habitation, or which contains or may be contaminated with human or animal excreta or excrement, offal, or any feculent matter.

“Other waste” means any and all liquid or solid waste substance, not sewage, from any producing, manufacturing, or processing operation of whatever nature. (Cal. Water Code §j 13005 (1967) (repealed 1969)) [Footnote 3: See Study Panel, California State Water Resources Control Board, Recommended Changes in Water Quality Control: Final Report of the Study Panel to the California State Water Resources Control Board (March 1969) (recommended legislative changes in Appendix A of the Final Report were adopted by the SWRCB on March 20, 1969).

Storm water is not sewage. Nor is it the kind of industrial waste encompassed by the prior definition of “other wastes.” Absent from these definitions are the terms “urban runoff,” “storm water,” or “dry weather flows.”

Importantly, the SWRCB said that, in combining these definitions: The proposed new definition of waste is intended to be as all-inclusive as the present definition of ‘sewage’ and ‘other waste.’

Thus, the combined definition was intended to simply merge the two prior definitions, with one exception. The SWRCB specifically identified that it was proposing to add gaseous and radioactive substances to the definition. The SWRCB identified no other ways in which the new definitions departed from the two it replaced.

In enacting the new definition of waste, the Legislature had before it interpretations of the prior definitions made by the California Attorney General, as well as the SWRCB’s report. The Attorney General had not interpreted the prior definitions as covering storm water or urban runoff. According to the Attorney General, the old definitions covered: leachate from mines, debris and sediment from logging operations, solid waste from dumps, irrigation return flow from agricultural operations, wastes produced from water or oil wells, and discharges from hydroelectric plants.[5] Storm water and urban runoff containing or consisting of such substances could be subject to discharge requirements. However, in the absence of a finding that statutorily covered “waste” is contained in storm water and urban runoff, they are not “waste” themselves. The Regional Board skips this essential link and simply declares runoff to be “waste.” Pointing to the presence of pollutants in the runoff does not relieve the Regional Board of its burden to determine whether these pollutants are present because the runoff has mixed with a category of “waste” within the ambit of the statute. “Pollutants” is a term defined in the federal CWA and does not occur in the Porter-Cologne definition of “waste.”

Legal Definition – CWC: The definition of waste in Section 13050(d) of Porter-Cologne does not specify urban runoff and seems to preclude the inclusion of storm water. This definition does not expressly include the term “urban runoff,” nor does it refer to “storm water” or “dry weather flows.” Rather, the definition refers to wastes generated by process, by products of human action, whether industrial or sanitary. In contrast, storm water itself is a natural occurrence, resulting from the forces of Nature, regardless of “human habitation” or “waste substances . . . of human or animal origin.” To the extent that storm water contains pollutants, generally their presence is related to the natural passage of rainfall runoff across the ground—not the active introduction by man of such pollutants. Thus, the plain language of the statute indicates that urban runoff, and most clearly storm water, is not “waste” for purposes of the Water Code.’ Runoff may pick up wastes, but it is not a waste in and of itself.

Legal Definition – CWA: The CWA defines the analogous term “pollutant” as follows: The term “pollutant” means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. CWA § 502(6), 33 U.S.C. § 1362(6). This definition clearly does not encompass “urban runoff.” Rather, a “pollutant” as defined may, for the most part, be contained in urban runoff. To interpret the term “waste” to include urban runoff would be inconsistent with the CWA and therefore such an interpretation is impermissible under Water Code section 13372.

Although urban runoff may contain and/or transport “wastes” or “pollutants” as defined under state and federal law, urban runoff is not, in and of itself, a “waste” as defined in the Porter Cologne Act. This point is made clearly (albeit inadvertently) by the Regional Board itself in its Response in Opposition to Petitions of Review of the Regional Board’s Tentative Order No. 2001-01 (“Opposition”). In that brief, in response to the same point the County is raising here, the Regional Board states: [T]he California Water Code . . . equates the discharge of pollutants (as required under the NPDES program) with the discharge of waste. Since the California Code provides that discharges of pollutants are analogous to discharges of waste, and since discharges of urban runoff have been found to contain pollutants, the California Water Code finds discharges of urban runoff to be discharges of waste. Opposition, p. 15 (emphasis added). With the exception of the last clause, the County agrees entirely with this statement. We submit, however, that the conclusion to be drawn from this statement is not that urban runoff is a waste, but rather, more logically, that since urban runoff has been found to contain pollutants, urban runoff may also contain waste. This point is essentially conceded in numerous places in the Technical Report. This conclusion that urban runoff may contain “waste” or “pollutants” (but is not, in and of itself, a waste or pollutant) is supported by the definitions of “waste” and “pollutant” in the Water Code and the CWA. The Water Code definition of “waste” is as follows: “Waste” includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal. Water Code § 13050(d). This definition is very broad but it certainly does not appear to include “urban runoff” within its scope.

Legal Definition – 40CFR 122.26(b)(13): 40 CFR 122.26(b)(13) states that “Storm water means storm water runoff, snow melt runoff, and surface runoff and drainage.” Therefore, urban runoff that is surface runoff and drainage by definition is storm water and not wastewater. Additionally, the County notes that by defining urban runoff as a waste, the Tentative Order also effectively defines “storm water” as a waste. This is because the Tentative Order defines “urban runoff” as “all flows in a storm water conveyance system” consisting of storm water and dry weather flows. Tentative Order, Appendix D, p. D-7. However, defining “storm water” as a waste would be inconsistent with the federal definition of “storm water” as “storm water runoff, snow melt runoff, and surface runoff and drainage.” 40 C.F.R. § 122.26(b)(13). Under this definition, “urban runoff” (surface runoff and drainage) is “storm water,” not a “waste.”

Agency and Judicial Interpretations of the waste: Where industrial or municipal activity resulted in the introduction of “waste” into storm water, that specific storm water could be subject to discharge requirements. (Aluminum Co. of Am., SWRCB Order No. WQ 93-9 (1993); Lake Madrone Water Dist. v. State Water Res. Control Bd., 209 Cal.App. 3d 163, 166 (1989). These cases are distinguishable from the broad sweep of the Regional Board’s finding which proposes to classify every drop of rain water in San Diego County reaching a public storm drain as “waste.”

Recommendations: We recommend that Finding 2 be deleted from the permit.

Finding 2 should be revised as provided in the Los Angeles Regional Board's current draft permit. See, e.g., Finding B, Nature of Discharges and Sources of Pollutants ("The quality of [storm water] discharges varies considerably and is affected by the hydrology, geology, land use, season, and sequence and duration of hydrologic events." Finding B.1. "These compounds [in storm water] can have damaging effects . . ." Finding B.3.); Part 5, Definitions ("The term 'pollutant' shall not include uncontaminated storm water. The term 'pollutant' also shall not include any substance identified in this definition, if through compliance with the [BMPs] available, the discharge of such substance has been eliminated to the maximum extent practicable.")

Revise Finding 2 to read, in pertinent part: "Storm water and other forms of urban runoff become "wastes" or "pollutants" if they carry "sewage and any and all other waste substances.. ." or a pollutant."

The sentence in Finding 2, "The discharge of urban runoff from an MS4..." would read better as "The discharge of untreated urban runoff from an MS4..." because, as with nuisance water diversions to a sewage treatment plant, the subsequent discharge of the treated waste water to the receiving waters is permitted under the treatment authority's discharge permit. (*Richard Watson and Associates, Laguna Niguel, San Juan Capistrano, Mission Viejo, Laguna Hills, Rancho Santa Margarita, County of Orange, Construction Industry Coalition on Water Quality, Lake Forest, Dana Point, Laguna Woods*)

Response: The commenters assert that the California Water Code definition of "waste" does not apply to urban runoff. This assertion is incorrect. The California Water Code defines "waste" as "sewage and **any and all other waste substances**, liquid, solid, gaseous, or radioactive, **associated with human habitation** [...]" (emphasis added). The language of this definition clearly indicates the broad nature of its application. The inclusion of the terms "any and all" into the definition exhibits that the definition is not to be used to exclude certain substances from being defined as a waste, as the commenters attempt to do with urban runoff. Rather, these terms provide for the definition to be all-encompassing. In addition, the use of the words "associated with human habitation" in the definition indicates that the waste need not be generated by human activity, but merely be related with human habitation.

Contrary to the commenters assertions, urban runoff certainly meets this broad definition. Urbanization (human habitation) unequivocally alters the characteristics of runoff that would otherwise leave undeveloped land in a natural condition. As discussed in the Tentative Order's Findings and Fact Sheet/Technical Report, urban development increases the pollutant loads, volume, and velocity of runoff. These changes to runoff indicate that the physical and chemical attributes of urban runoff are caused by urbanization, thereby exhibiting that urban runoff is "associated" with human habitation. In fact, the increase in volume of urban runoff caused by urbanization's impervious surfaces not only changes the characteristics of the runoff, but actually generates the urban runoff as well by increasing its volume.

Furthermore, the very fact that MS4s have been constructed with the sole purpose of disposing of urban runoff exhibits that urban runoff is a waste. The MS4s are designed to dispose of the increased volumes of runoff generated by urbanization's impervious surfaces. The act of generating increased runoff, designing a system to collect the urban runoff, and discharging the urban runoff exhibits that urban runoff is a waste. MS4s would be unnecessary if urban runoff was not a waste and was not treated as such.

Nor does the extensive historical discussion provided by one commenter of the development of the definition of "waste" refute the categorization of urban runoff as a "waste." The commenter asserts that since the development of the definition of "waste" did not include a discussion of urban runoff, the definition cannot be applied to urban runoff. However, no such restriction exists. The same

argument was raised in the petition to the SWRCB for review of Order No. 2001-01. In fact, this petition exhibited SWRCB's intention that waste be defined broadly when they cite the SWRCB as stating: "The proposed new definition of waste is intended to be as **all-inclusive** as the present definition of 'sewage' and 'other waste'" (emphasis added). Rather than be a restriction on the types of discharges that can be identified as waste, such commentary indicates that the definition of waste was instead intended to be wide-ranging. The lack of information or knowledge on urban runoff and its impacts at the time the definition was developed in the late 1960s cannot be construed as intent on the part of the SWRCB to exclude any and all such discharges. Such an approach could severely limit any new types of discharges from being regulated under waste discharge requirements. For example, definition of waste has been applied in the form of Waste Discharge Requirements for such discharges as potable water discharges, utility vault discharges, etc that were not specifically described in the CWA or CWC. While the CWA and CWC did not specifically define urban runoff as a waste, neither did these authorities preclude this definition. The concept that the definition of waste can only include things precisely specified in the CWA and CWC is incorrect and goes against the intent of the CWA and CWC.

Moreover, the California Water Code (CWC) provides that discharges permitted under the federal NPDES program (such as discharges from MS4s) are analogous with discharges of waste. Chapter 5.5 of the California Water Code consolidates the federal NPDES program with the State of California's waste discharge requirement program. Since the State of California is authorized by USEPA to issue NPDES permits, which implement and enforce the requirements of the Clean Water Act (CWA), in California, NPDES permits within California are also Waste Discharge Requirements. Section 13376 requires "any person discharging **pollutants**" (emphasis added) (such as under an NPDES MS4 permit) to file a report of the discharge in compliance with the procedures set forth in section 13260. Section 13260 then proceeds to apply waste discharge requirements on "any person discharging waste" (emphasis added). As can be seen, despite the contradictory opinion of one commenter, the California Water Code in these two sections clearly equates the discharge of pollutants (as regulated under the NPDES program) with the discharge of **waste** (i.e. a discharger of pollutants is in fact a discharger of waste). In regards to the statement that "Storm water and other forms of urban runoff become 'wastes' or 'pollutants' if they carry 'sewage and any and all other waste substances...' or a pollutant," this is a clear misreading of the CWC. The CWC does not support the statement and makes no mention of the statement that a discharge must "carry" waste. Since the California Water Code provides that discharges of pollutants are analogous to discharges of waste, and since discharges of urban runoff have been found to contain pollutants, the California Water Code finds discharges of urban runoff to be discharges of waste. Thus, the legal requirements and definitions of the Clean Water Act and Federal Regulations, as implemented by the State of California through NPDES permits and Waste Discharge Requirements, support the definition of urban runoff as a "waste" and a "point source discharge of pollutants."

The legal definition of "waste" can be found in California Water Code (CWC) section 13050(d), which states "'Waste' includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal." Numerous studies, including those conducted within the jurisdictions of the Copermittees have demonstrated that the storm water, or wet-weather, component of urban runoff carries pollutants derived from human habitation through the MS4 into receiving waters.

The definition of urban runoff as a waste is not an oversimplified or "conclusionary" statement. The assertion that it does not take into consideration the sources of urban runoff and pollutants is also incorrect. The Finding supports the Tentative Order that throughout requires the Copermittees, as dischargers of urban runoff, to comprehensively take into consideration the sources of urban runoff

and pollutants within their jurisdictions and to implement programs to manage the discharges of urban runoff through the timely implementation of BMPs to the MEP. Furthermore, the finding that urban runoff is a “waste” and a “point source discharge of pollutants” does not condemn all public agencies as polluters. The Finding supports the Tentative Order, which is a Waste Discharge Requirement and NPDES permit for the discharge of urban runoff, and does not condemn the Copermittees or public agencies as dischargers. Rather it sets the framework for compliance by the Copermittees with the MEP standard and the protection of the beneficial uses of receiving waters.

In response to the comment that defining the discharge of urban runoff as a discharge of waste is “an attempt to expand the SDRWQCB control over City policies and procedures,” it is unclear how this definition accomplishes this feat. The statement is not supported by evidence that the definition of the discharge of urban runoff as a discharge of “waste” and a “point source discharge of pollutants” results in any more infringement upon City policies and procedures than similar definitions applied to other NPDES discharges that may be under the administrative authority of a municipality (e.g. sewage discharges).

With respect to the comment that many sources of pollutants are not within the jurisdictional control of a municipality, it would seem that, in fact, the great majority of pollutants do originate within the jurisdictions of the Copermittees from land use activities authorized by the Copermittees. To the extent that sources of pollutants are not within the jurisdictional control of a municipality, the Tentative Order again sets the framework within which the Copermittees shall address these discharges. In response to the statement by one commenter that “Urban runoff that is ‘clean’ is clearly not a waste,” it should be noted that clean discharges from industrial processes are still considered to be a discharge of waste. Clearly then, the discharge of clean urban runoff should still be considered a discharge of waste.

Furthermore, the statement by commenter that the Copermittees are obligated to reduce the discharge of urban runoff to the maximum extent practicable may be correct when the sources of the urban runoff includes non-storm water, non-prohibited discharges that are found to be significant sources of pollutants. For example, the Tentative Order includes water conservation as an important public education topic to be included when appropriate. These provisions have been required in both previous permits in Orange County and are solidly based on the broad and specific legal authorities cited above and in the Fact Sheet/Technical Report.

Finally, there is specific precedent at the SWRCB for the definition of urban runoff as a waste. In a memo dated May 14, 1991, Sheila K. Vasey, Senior Staff Counsel of the State Water Resources Control Board, in referring to the discharge of urban runoff to San Diego Bay, described the Copermittees as “...point source dischargers of waste...” In addition, there is precedent within the Orange County storm water permitting history for the definition of urban runoff as waste. The first permit for southern Orange County, Order No. 90-38 included a finding that urban runoff constituted a discharge of waste. Finding 5 was revised in response to comments to include the statement “since stormwater and urban runoff contains “waste”, as defined in California Water Code (CWC Section 13050, stormwater and urban runoff discharges constitute a discharges of waste.” This language was also included in the San Diego Municipal Storm Water Permit Order No. 90-42, San Diego Municipal Storm Water Permit Order No. 2001-01, and the Riverside Municipal Storm Water Permit Order No. 90-46. Under these permits, the Copermittees of the San Diego Region have been required to manage urban runoff, including both wet weather and dry weather discharges, since 1990. Finally, it should be noted that in it's draft Order on the petition by the Building Industry Association and Western States Petroleum Association for the review of Order No. 2001-01, in which this issue was prominently raised, the SWRCB has stated "Using state terminology, it is appropriate that the Regional Water Board made a finding that urban runoff constitutes "waste."

For these reasons, the language in Finding 2 is correct and appropriate and pending a decision regarding the petition for review of Order No. 2001-01 by the SWRCB, the language of Finding 2 will remain unrevised in this Tentative Order.

Section: Findings 2, 6, 8

Comment: The Permit attempts to expand Regional Board control over City policies and procedures by asserting in the Findings that: Urban Runoff is a waste (Finding 2), urban runoff is a human health threat (Finding 6), urban streams that receive urban runoff are part of the municipal separate storm sewer system (Finding No. 8). (*Mission Viejo*)

Response: These concerns are addressed in other responses to comments.

Section: Finding 3

Comment: The premise that urban development is ordinarily insignificant in its impact on the environment is without foundation. It is in the very nature of human activity to modify the environment- it is well documented in historical literature that even Native Americans had a significant impact on their environment. We suggest that the Board strike this sentence to improve the clarity of the finding. (*Aliso Viejo*)

Response: The statement in Finding 3 that "...urban development that is ordinarily insignificant in its impact on the environment may, in a particularly sensitive environment, be significant" refers to the potential impact of discharges on sensitive water bodies, which may have lower capacity to assimilate pollutants.

The requirement for additional controls for these areas is a necessary layer of protection for these valuable resources. Each 303(d) water body or environmentally sensitive area (ESA) is either a valuable receiving water resource that should be protected from the impacts of urban runoff, or a degraded receiving water resource that should be protected from additional impacts. A sensitive habitat has a much lower capacity to withstand pollutant shocks than might be acceptable in the general circumstance, and so deserves attention. In essence, a project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant (LARWQCB, 2000). USEPA, in discussing storm water controls, notes: "Sensitive area protection is an important element of conservation design [...] These areas are particularly susceptible to degradation by storm water runoff" (USEPA, 1999a). Finally, the Office of Chief Counsel for State Water Resources Control Board noted in its October 14, 1999 discussion of the *Defenders v. Browner* decision that "...because most MS4 discharges enter impaired water bodies, there is a real need for permits to include stringent requirements to protect those water bodies."

This condition is additionally recognized in the San Diego Region in Areas of Special Biological Significance (ASBS) in which it was recognized that there are some "biological communities of such extraordinary...value that no acceptable risk of change in their environment as a result of man's activities, can be entertained." Heisler Park Ecological Reserve in the coastal waters off Laguna beach is an ASBS.

Section: Finding 3

Comment: We are concerned that the Permit does not distinguish between land uses or project location, with regard to the appropriate level of regulation. It is apparent that the goal of the Permit should be to establish BMPs that can be implemented to the maximum extent practicable (MEP), and also that promote further progress toward meeting water quality standards. To reach this goal, the Permit should focus on establishing pollutants of concern for the various receiving waters (not just one size fits all), causes of these pollutants of concern and then the implementation of BMPs that actually address these pollutants of concern. We feel that the Permit should recognize distinctions in the various land uses and regulate accordingly. (*Construction Industry Coalition on Water Quality*)

Response: The Tentative Order recognizes differences between land uses by requiring different components in the management programs (see F.1 through F.3). Project location is also considered as each copermittee develops a specific management program tailored to the municipality by considering factors unique to the location, such as proximity to sensitive areas. Pollutants of concern may vary between water bodies based on a variety of factors including decisions made by the copermittee, such as the types of projects approved in the area, and designated beneficial uses of the receiving waters. The SDRWQCB establishes beneficial uses, which can be considered by the copermittees in the evaluation of appropriate BMPs. The prioritization process outlined in the Tentative Order specifically calls for BMPs to be designated based on the threat posed by a particular activity and its location. The Tentative Order gives the copermittees the flexibility of designing and selecting appropriate BMPs. Finally, the monitoring requirements of the Tentative Order should help to define location-specific pollutants of concern.

Section: Finding 3

Comment: Under Finding 3, the word “untreated” again should be added before “Urban runoff” in the first sentence. The third sentence confirms this by stating that “These pollutants...are conveyed and discharged to receiving waters...without treatment.” (*Dana Point*)

Response: The language of Finding 3 of the Tentative Order is appropriate. Even when treated, urban runoff remains a waste and can still contain pollutants. Moreover, even when some treatment BMPs are implemented in a watershed, the greater volume of urban runoff discharged from MS4s remains untreated and contains pollutants.

Section: Finding 4

Comment: Finding 4 - This paragraph fails to recognize the circumstance of saturated soil conditions that result from repetitive patterns of rainfall. Under these circumstances, even natural ground becomes impervious to additional water and runoff is increased. Urbanization is not the sole cause of an increase of quantity and/or velocity of runoff. This paragraph also fails to recognize natural sources of pollutants such as wild animals that are prevalent in this region and whose wastes runoff into the streams causing pollutant loading. The last paragraph of this finding is overbroad, vague, and ambiguous and it is not suitable as a finding. (*Laguna Hills*)

Response: The increases in quantity and/or velocity of runoff following urbanization are well documented. The decrease in impervious surfaces resulting from urbanization decreases the capacity of the soil to retain stormwater, thereby increasing the rate at which runoff occurs relative to a given rain event. The last paragraph of the Finding describes the relationship between size of a development and the potential for impact to receiving waters based on relative changes to the

physical environment. The last paragraph of the finding also states that the types of pollutants that cause threats to receiving waters and the potential for pollutants to be transported off-site are a function of land-use activities. The paragraph then gives examples of land uses that typically contain significant amounts of pollutants or have an increased potential for pollutants to be transported off-site. These statements are consistent with fact and will remain in the findings.

Section: Finding 4

Comment: Under Finding 4, the fourth (last) paragraph states that larger projects generally have greater potential than smaller projects to significantly impact receiving waters. However, that is not necessarily true when one looks at the cumulative impacts of a number of smaller projects, as have been the rule rather than the exception, in the more built-out areas of the San Diego Region, including South Orange County. The potential for significant impact is more relevant to the density of development than to overall size. Perhaps amending the statement to read “. . . *larger, more densely developed projects...” would lend more credibility to it. Finding 5 bears this out. (*Dana Point*)

Response: The Finding recognizes that there are other factors besides size of project for determining the significance of the impacts of urban development. Incremental development for various land use activities as described above may create the same post-construction condition relative to the density of development and the percentage of impervious surfaces as a single large development. However, when comparing projects that are identical except for size, large develop sites would present a greater source of pollutants.

Section: Finding 5

Comment: While we recognize the superficial conclusion that more imperviousness may mean more deposit of contaminants (such as car exhaust) and less natural absorption of runoff, to brand imperviousness as categorically negative ignores some significant planning and environmental objectives. There cannot be increased density development without some increase in imperviousness. However, it is specifically higher density that is the key to concepts such as “smart growth” and more concentrated urban centers. This is not density for density’s sake, but density for the sake of concentrating development and increasing the potential for conservation. To inhibit imperviousness across the board, without sufficient acknowledgment and consideration of density’s potential to result in increased open space and conservation elsewhere is, at best, short sighted and counter-productive. The Permit must allow for and encourage a more comprehensive consideration as to whether density and imperviousness are in reality an exchange for greater undisturbed preservation elsewhere. (*Construction Industry Coalition on Water Quality*)

Response: An abundance of scientific literature documents impacts to the flow regime and aquatic habitat of streams as urbanization converts open space to imperviousness surfaces. Such changes are discussed for the Aliso Creek watershed in a recent watershed Reconnaissance Report by the U.S. Army Corps of Engineers. Minimizing the amount of impervious surfaces and directly connected impervious surfaces in areas of new development and redevelopment where feasible is a valid principle for water quality protection. While the SDRWQCB supports minimization of impervious surfaces to foster natural infiltration, it is not required. If site restrictions exist, the development, or redevelopment, can forgo infiltration and use filtration BMPs instead. Infiltration BMPs can frequently be constructed underground to conserve space. In addition, F.1.b.(2).(g) of the Tentative Order describes a waiver condition under which structural BMPs can be waived if site conditions render them infeasible. Therefore, the Tentative Order does not require reductions in development densities.

Section: Finding 6

Comment: There is inadequate research and studies to draw the conclusion that urban runoff is a threat to human health. The Santa Monica Bay study referenced in the Draft Fact Sheet Technical has had some scientific criticism and a recent Huntington Beach Study question the validity of the widely reported linkage between beach closures and urban runoff. The wording in the finding should be changed to be less conclusionary and indicate urban runoff may be a threat to human health. The bioaccumulation/biomanification wording in the finding does not take into account the potential for other sources. While bioaccumulation may occur, what types of fate and transport studies have been done with regard to these types of pollutants in urban runoff to support this finding? (*County of Orange, South Orange County Watersheds Conservancy, City of Laguna Niguel, Mission Viejo, Laguna Hills, Construction Industry Coalition on Water Quality, Dana Point, Lake Forest*)

Response: There is sufficient evidence to support that urban runoff is a threat to human health. The USEPA (Phase II Rules and Regulations) not only cites the Santa Monica Bay study, but also and cites other studies that document a relationship between gastrointestinal illness and swimmers and water quality. Furthermore, to the extent that the Santa Monica study has had "some scientific criticism," the results of that study have not been invalidated. In addition, a preliminary report from another epidemiology study currently under peer review has estimated that out of the 5.5 million people of visit Orange County beaches possibly as many as 100,000 people may develop gastrointestinal infections after swimming at those beaches. Nonetheless, additional studies and characterization of the discharges of urban runoff into receiving waters are needed. To that extent the SDRWQCB is in the process of funding an epidemiological study for Mission Bay in San Diego through a Supplemental Environmental Project. Moreover, this Tentative Order, through its requirements for Dry Weather Monitoring and Receiving Waters Monitoring, addresses the need for more specific information regarding the health threat resulting from the discharge of urban runoff into receiving waters. The finding simply points out that human illnesses have resulted that were clearly linked to recreational activity around discharging storm drains and that bioaccumulation/biomanification of pollutants in urban runoff can occur. Both of these statements are supported by USEPA Phase II Guidance. The SDRWQCB has not performed fate and transport studies to support this finding, but the Copermittees have the discretion to propose that type of monitoring in their Receiving Waters Monitoring Program.

Furthermore, MS4 discharges attributable to illicit discharges and connections can be a significant source of pollutant or contaminant loading to receiving waters. The NURP study concluded that the quality of urban runoff can be adversely impacted by illicit discharges and connections (US EPA, 1983). Furthermore, US EPA states that illicit discharges and connections result in "untreated discharges that contribute high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria to receiving waterbodies. Pollutant levels from these illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic wildlife and human health" (2000). One of the most significant problems in Orange County, as evidenced by numerous recent reports in the media, is the incidence of sewage spills and the delivery of sewage through the MS4 system to receiving waters. There certainly is no question that the pathogens contained in untreated sewage discharged from broken or leaking sewerage collection systems are a significant threat to public health. The County of Orange Health Care Agency automatically imposes a swimming closure at potentially affected coastal beaches if a sewage spill reaches the ocean in the vicinity.

For these reasons, CWA section 402(p)(3)(B)(ii) requires each Copermittee to prohibit non-storm water discharges into its MS4. The detection and elimination of illicit discharges and connections, including sewage spills, is also clearly identified in the federal regulations as a high priority (40 CFR

122.26(d)(2)(iv)(B) and 122.26(d)(2)(iv)(B)(1)). As guidance for detecting and eliminating illicit discharges and connections, the US EPA suggests "The proposed management program must include a description of inspection procedures, orders, ordinances, and other legal authorities necessary to prevent illicit discharges to the MS4" (1992). These are a central components of the Tentative Order that has been commented on extensively.

It should also be noted that the public clearly associates urban runoff with increased public health risks in the recreational use of receiving waters. This perception is evident in an article published in the Orange County Register on August 20, 2001 "Sewers: Health Is On The Line- Environment: Businesses, beaches, and bodies are at risk from epidemic failures in the county's underground network." As noted in the article "Microbes are the main disease-causing components in the mass of contaminants that washes into the ocean from cities every day." This public perception has been translated into public support for more stringent recreational waters monitoring by public health agencies and strong support (and increased resources) for more stringent regulatory action to reduce pollutants and contaminants in discharges like urban runoff.

Section: Finding 8

Comment: Provide a clear definition for waters of the U.S., waters of the state, MS4, and how they relate to receiving waters. Urban streams, as defined by the Tentative Order, should not be considered part of the MS4 system. Defining urban streams which convey urban runoff as both an MS4 and a receiving water removes them as for use as a structural treatment BMP (e.g., regional measure). (*Laguna Niguel, Laguna Hills, Lake Forest, San Juan Capistrano, Rancho Santa Margarita, Mission Viejo, San Clemente, Dana Point, County of Orange*)

Response: Waters of the state, waters of the U.S., MS4 are defined in Attachment D of the Tentative Order. Receiving waters are surface waters (including tributaries) that have beneficial uses designated by the Water Quality Control Plan for the San Diego Region. Natural drainages and urban streams are included in this definition, but can also be part of the MS4 when they are used to convey urban runoff regardless if they have been altered by the municipality or not. The system of conveyance (including roads, curbs, catch basins, and underground storm drain pipes) are considered part of the MS4, but are not considered receiving waters. The Tentative Order does not allow the use receiving waters to convey untreated urban runoff or to be used as a BMP.

Finally, it should be noted that in it's draft Order on the petition by the Building Industry Association and Western States Petroleum Association for the review of Order No. 2001-01, in which this issue was prominently raised, the SWRCB has stated "We also agree with the Regional Board's concern, stated in its response, that there may be instances where MS4s use 'waters of the United States' as part of their sewer system, and that the Board is charged with protecting all such waters. In reality, it is often difficult to define what is a water of the United States, especially in Southern California, where 'streams' may consist solely of urban runoff, especially in the dry season."

Section: Finding 9

Comment: What is the beneficial use of the receiving waters? Aliso Creek, especially. (*Lake Forest*)

Response: The beneficial uses of receiving waters subject to this Order can be found in Chapter 2 of the Water Quality Control Plan for the San Diego Basin (Basin Plan), available from the Regional Board office and on-line at <http://www.swrcb.ca.gov/rwqcb9/>. The beneficial uses of waterbodies in

the San Diego Region are designated by the SDRWQCB and are consistent with USEPA beneficial use categories. The designated beneficial uses for the inland waters of Aliso Creek are agriculture (AGR), non-contact recreation (REC 2), warm freshwater habitat (WARM), and wildlife habitat (WILD), with contact recreation (REC 1) as a potential beneficial use. In addition, designated beneficial uses for the Aliso Creek mouth are REC 1, REC 2, WILD, RARE (rare, threatened, or endangered species), and MAR (marine habitat). Finally, designated beneficial uses for the ground waters in the Aliso Creek watershed include AGR, and MUN (municipal and domestic supply).

Section: Finding 9

Comment: Finding No. 9 states that urban runoff causes beneficial use impairment. This broad conclusion is unsupported. At most, it can be said that urban runoff may cause (or contribute to) beneficial use impairment. Accordingly, the County recommends that Finding No. 9 be revised to reflect that urban runoff may (or may not) cause beneficial use impairment depending on site-specific factors. (*County of Orange*)

Response: The finding is supported. As noted in the Fact Sheet/Technical Report, the association between urban runoff and water quality impairment is acknowledged in EPA literature and the Basin Plan. It is also suggested in monitoring reports submitted by the copermittees under the NPDES program. Furthermore, habitat degradation depicted in the Aliso Creek 205(j) watershed study and reports by the U.S. Army Corps of Engineers implicate urban runoff as sources of the degradation.

Section: Finding 10

Comment: Reference Finding 10 Copermittees Implement Urban Runoff Management Programs: Where, that is, in what specific instances or watersheds, has it been shown that Urban Runoff Management Programs (URMPs) designed to reduce discharges of pollutants and flow into and from MS4s to the maximum extent practicable (MEP) can protect receiving water quality by promoting attainment of water quality objectives necessary to support designated beneficial uses. It is quite possible that URMPs implemented to MEP will not result in attainment of water quality objectives. The Board staff in their draft fact sheet acknowledges this in the last sentence of the discussion which accompanies this finding (p. 52 of fact sheet). The finding would be more accurate if the phrase to the maximum extent practicable were deleted. (*Aliso Viejo*)

Response: Maximum Extent Practicable (MEP) is the statutory standard that establishes the level of pollutant reductions that operators of regulated MS4s must achieve. The requirements of the Jurisdictional and Watershed Urban Runoff Management Programs targets the same land uses and categories (new development and significant redevelopment, construction, municipal, commercial, residential, and industrial) which have been identified by USEPA as major sources of pollutants in the Federal NPDES storm water regulations.

As discussed in the Fact Sheet/Technical Report, US EPA finds that a "satisfactory proposed management program will address: management practices; control techniques and systems; design and engineering methods; and other measures to ensure the reduction of pollutants to the maximum extent practicable (MEP)." The US EPA further states that "at a minimum, the proposed management program must include: [...] Identification of structural control measures to be included in these proposed programs." These statements indicate that it is expected that URMPs be developed by the Copermittees that contain both structural and non-structural BMPs for the purpose of reducing pollutants in MS4 discharges to the maximum extent practicable. When pollutants in MS4 discharges

are treated to the maximum extent practicable, receiving water quality and beneficial uses are typically protected through the attainment of water quality objectives. However, it should be noted that pollutant discharges which have the potential to cause or contribute to an exceedance of water quality objectives (such as discharges to Clean Water Act section 303(d) water bodies) may require implementation of BMPs beyond the "maximum extent practicable" standard (40 CFR 122.44(d)(1)(i)).

To the extent that BMPs implemented to the MEP have not been effective in preventing the discharge from causing or contributing to exceedances of receiving water quality objectives, section C of the Tentative Order provides precedential SWRCB direction to the Copermittees.

Section: Finding 11

Comment: Finding 11: This finding is inconsistent with other findings within the Order with regards to the discussion of (end of pipe) treatment control BMPs to remove pollutants from urban runoff. The Order is clear that general treatment control beyond the source is not acceptable to the Board. Therefore, either treatment control downstream of the MS4 must be embraced or this BMP should be removed. As a practical matter, however, in an urbanized area, end of pipe treatment control BMPs may be the only practical method to address pollutant loading and should be highly supported by the Board. Land area availability for development of grassy swales and constructed wetlands should also be acknowledged as unavailable in most urbanized areas, which necessarily leads to end of pipe treatment technologies as likely the most appropriate method of pollutant control prior to receiving waters. (*Laguna Hills*)

Response: In order to provide the Copermittees with flexibility and discretion, under Tentative Order the Copermittees will specify which BMPs they will implement or require to be implemented to reduce pollutants in urban runoff discharges to the MEP. End-of-pipe treatment control, such as diversions to the sanitary sewer or through on-site filtration devices, are typically only effective for dry-weather flows, and wet-weather flows must be treated to the maximum extent practicable.

Section: Finding 11

Comment: Paragraph 11 "Best Management Practices" recognizes constructed wetlands as a BMP. In a developed city, stormwater will have to be transported to scarce lands where wetlands are developed. Will you allow "polluted" urban runoff into a storm drain in order to treat it at a wetland before it goes to a regional receiving water? (*Laguna Hills*)

Response: The Tentative Order allows structural treatment BMPs (constructed wetlands) to be shared by multiple developments. The Tentative Order also requires, however, that the Copermittees prohibit the discharge of pollutants into and from the MS4 that cause or threaten to cause a condition of pollution, contamination, or nuisance. The Tentative Order does not permit the use of receiving waters for the conveyance of polluted runoff. Provided receiving waters are not used to convey untreated stormwater and sufficient source control BMPs are used, the proposed structural BMP would likely meet MEP.

Section: Finding 11

Comment: Is diversion of storm water (or dry weather urban runoff) to a sewer system considered by the Reg. Brd. as an acceptable structural BMP to meet the reqts. of the permit? If considered an "interim" measure only then how long will such diversions be permitted under the permit? (*SOCWA*)

Response: Which types of BMP are to be implemented is left largely to the Copermitees. The only type of BMP required by the Tentative Order for existing land uses is pollution prevention BMPs. The Tentative Order requires their use at sites as determined by the Copermitees. Relying solely on diversions of urban runoff, however, may not be sufficient to meet the requirements to reduce discharges to the maximum extent practicable. End-of-pipe diversions to the sanitary sewer or through on-site filtration devices are only effective for dry-weather flows, and wet-weather flows must be treated to the maximum extent practicable.

Section: Finding 13

Comment: The contention that CWA 402(p)(3)(B)9iii) statement, that a stormwater program "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants," can be equivalently translated to mean "Reduce to MEP and whatever else is needed" is not a reasonable or proper interpretation of the meaning of the CWA sentence. Clearly, the intent is to give the Administrator or State ability to determine where or if other provisions beyond those listed are appropriate to reduce discharges to MEP. This "and whatever else is needed" phrase should be deleted from the Fact Sheet, because it is clearly not a "Fact". This same CWA clause is quoted in support of Finding #13 as justification for stating that MS4 discharges must necessarily numerical water quality objectives of receiving waters. The 9th Circuit (or at least, the pieces of it paraphrased in various places in the Fact Sheet) also supports the interpretation that "the Clean Water Act does not require all MS4 discharges to comply strictly with state water quality standards", but determinations might be made by the EPA (or RWQCB) in specific cases and locations, given specific evidence, that strict compliance with numerical water quality standards might be necessary. A blanket requirement is inappropriate. (*Laguna Niguel*)

Response: In response to the comment regarding the phrase "and whatever else is needed" cited in the Fact Sheet/Technical Report, the phrase is a plain language paraphrase used in the descriptive titles of three broad legal authorities supporting the directives of Section F of the Tentative Order. The phrase is not inappropriate. It should be noted that the phrase itself is an accurate, plain language interpretation of precisely the assertion made in the comment that "the intent is to give the Administrator or State ability to determine where or if other provisions beyond those listed are appropriate to reduce discharges to MEP." This is clearly the intent in the respective contexts of the three legal authorities cited: the State has the ability and the discretion to require additional controls, provisions, standards, or limitations necessary to achieve compliance with MEP or receiving water quality objectives. This is necessary because the Tentative Order is, in fact, a water quality based permit that requires the implementation of BMPs. The Copermitees, as dischargers of urban runoff permitted under the Federal NPDES storm water regulations and CWC Waste Discharge Requirements, are required to implement BMPs to prevent or reduce pollutants to the MEP and assure compliance with discharge prohibitions and receiving water quality objectives.

Water Code 13263 & 13377 give RWQCB authority to regulate discharges to preserve highest reasonable water quality and water quality needed to sustain beneficial uses, including aquatic habitat, etc. NPDES regulations mandate reduction of pollutants in storm water that cause or contribute to pollution to MEP by municipalities; evidence establishes risk of unreasonable degradation and pollution associated with urban runoff and support's RWQCB imposition of requirements implementing "MEP" performance standards. While CWA does not require municipalities to satisfy receiving water standards; [Defenders of Wildlife v Browner (9th c, 1999), 191F3d 1159] WQ sections 13263 & 13377 requires WDRs functioning as NPDES permits to

implement water quality objectives (i.e., water quality standards) in basin plans and provisions of the CWA and NPDES regulations needed to protect beneficial uses, and to prevent nuisance.

For the reasons cited above, the use of the paraphrase, plain language titles in the Fact Sheet/Technical Report is considered appropriate and will not be deleted.

Section: Finding 13

Comment: Finding 13: This finding should acknowledge that priority for pollution control should be given to locations of known recreational contact with water sources. A multi-year time frame should be offered for attainment of receiving water limitations at all other locations of receiving waters. (*Laguna Hills*)

Response: Recreation (REC-1 and REC-2) are not the only beneficial uses that the Tentative Order seeks to protect through the management of urban runoff. The Tentative Order requires the Copermittees to prioritize activities. Section C of the Tentative Order provides sufficient flexibility to the Copermittees to implement an iterative BMP program to address discharges that are found to cause or contribute to exceedances of receiving water quality objectives through the implementation of their Jurisdictional Urban Runoff Management Programs.

Section: Finding 14

Comment: Finding 14: This finding reasonably acknowledges the importance of an iterative process of BMP development, implementation, monitoring and assessment. Therefore, a multi-year strategy for permit compliance should be incorporated into the issuance of the Order. Expecting, for example, that an experimental BMP can be implemented and evaluated in a scientific manner in less than one-year is not realistic. And, should such a BMP found not to be effective, a jurisdiction may then be found in violation of the Order despite great efforts to comply. Such a violation is counter-productive to the iterative process and a collaborative approach to implementing receiving water limitation compliance strategies.

This Finding should embrace the co-permittees status as stakeholders in the U.S. Army Corps of Engineers Watershed Studies of San Juan Creek and of Aliso Creek and that funding of improvements identified in these studies are the priority for water quality improvements leading to protection of existing beneficial uses. Otherwise, financial resources will have to be shifted away from these improvements if this Order is implemented as written. (*Laguna Hills*)

Response: As discussed in the Fact Sheet/Technical Report discussion for Finding 13 and Finding 14, the US EPA and SWRCB have discretion to issue municipal storm water permits that require compliance with water quality standards. To ensure that MS4 discharges comply with water quality standards, the SWRCB has adopted US EPA language in SWRCB Order WQ 99-05 that dictates implementation of an iterative BMP process when water quality standards are not met. This language is included in Order No. 2001-193 in Receiving Water Limitations item C. The iterative BMP process requires the implementation of increasingly stringent BMPs until receiving water standards are achieved. This is necessary because implementation of BMPs alone cannot ensure attainment of receiving water quality objectives. For example, a BMP that is effective in one situation may not be applicable in another. An iterative process of BMP development, implementation, and assessment is needed to promote consistent compliance with receiving water quality objectives. If assessment of a given BMP confirms that the BMP is ineffective, the iterative process should be restarted, with redevelopment of a new BMP which is anticipated to result in compliance with receiving water quality

objectives. However, this process as described does not authorize the Copermitees to defer implementation of the requirements of the Tentative Order until some later date. It should be noted that while implementation of the iterative BMP process is a means to achieve compliance with water quality objectives, it does not shield the discharger from enforcement actions for continued non-compliance with water quality objectives.

With respect to the U.S. Army Corps of Engineers Watershed Studies of San Juan Creek and Aliso Creek, the Copermitees may include findings and plans developed during the course of this work in the development and implementation of the Jurisdictional and Watershed Urban Runoff Management Programs. However, the structural management measures proposed in these studies are limited in scope by the Corps jurisdiction to instream projects. These studies have provided only cursory recommendations for source identification and control and other activities that should be expected from a watershed management approach. Moreover, although the Aliso Creek Watershed Management Study was submitted in May 1999 and included at least two activities (Watershed Education Plan and Non-Point Source Awareness Plan) that were compatible with provisions of Order No. 96-03 and the Drainage Area Management Plan, it is not apparent that these recommended activities have been implemented by the Copermitees in the Aliso Creek watershed. Furthermore, it should be understood that the improvements, however beneficial to water quality, are not substitutes for the implementation of the types of BMPs and programs included in the Tentative Order. While the stabilization, rehabilitation, or restoration of impaired aquatic and riparian habitat are important activities that may help protect the Copermitees from exceedances of receiving water quality objectives through the restoration of the assimilative capacity of the receiving waters, this approach cannot be conducted in lieu of source identification and elimination of illicit discharges or the implementation of BMPs to prevent or reduce pollutants in urban runoff to the MEP.

Finally, it should be noted that compliance with the Tentative Order is not an iterative process. Compliance with the Tentative Order requires the achievement of MEP with respect to the removal or reduction of pollutants from discharges and the implementation of the Jurisdictional Urban Runoff Management Program to achieve compliance with Section C.1 of the Tentative Order. The iterative process phrase refers specifically to the Copermitees' process of BMP development, implementation, monitoring, and assessment in response to the implementation of BMPs that do not prove as effective as anticipated, with the result that a discharge is causing or contributing to an exceedance of receiving water quality objectives. This process is necessary to assure that an Urban Runoff Management Program is sufficiently comprehensive and effective to achieve compliance with receiving water quality objectives and the Tentative Order. Furthermore, the Tentative Order is a third term permit that builds upon programs developed and implemented under the previous permits.

Section: Finding 14

Comment: Finding 14 indicates that implementation of BMPs cannot ensure attainment of receiving water quality objectives under all circumstances. Does the Board intend to require implementation of BMPs beyond the maximum extent practicable standard if necessary to meet designated beneficial uses? (*Aliso Viejo*)

Response: Under Section 402(p) of the Clean Water Act, municipalities are required to reduce the discharge of pollutants from their storm water conveyance systems to the maximum extent practicable (MEP). MEP is the critical technology-based performance standard which municipalities must attain in order to comply with their municipal storm water permits. The MEP standard establishes the level of pollutant reductions the municipality must achieve. MEP generally emphasizes pollution prevention and source control BMPs (as the first line of defense) in combination with treatment methods serving as a backup (additional line of defense).

To achieve the MEP standard, municipalities must employ whatever BMPs are technically feasible (i.e., are likely to be effective) and are not cost prohibitive. The major emphasis is on technical feasibility. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the cost would be prohibitive.

If a municipality reviews a lengthy menu of BMPs and chooses to select only a few of the least expensive BMPs, it is likely that MEP has not been met. On the other hand, if a municipal discharger employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost is prohibitive, it would have met the standard. Where a choice may be made between two BMPs that should provide generally comparable effectiveness, the discharger may choose the least expensive alternative and exclude the more expensive BMP. However, it would not be acceptable either to reject all BMPs that would address a pollutant source, or to pick a BMP base solely on cost, which would be clearly less effective. In selecting BMPs the municipality must make a serious attempt to comply and practical solutions may not be lightly rejected. In any case, the burden would be on the municipal discharger to show compliance with its permit. After selecting a menu of BMPs, it is the responsibility of the discharger to ensure that all BMPs are implemented.

It is the SDRWQCB's responsibility to evaluate the proposed programs and specific BMPs to determine what constitutes MEP, using the above guidance and the court's decision in *NRDC v. California Department of Transportation*, Federal District Court, Central District of California (1994). The court stated that a permittee must evaluate and implement BMPs except where (1) other effective BMPs will achieve greater or substantially similar pollution control benefits; (2) the BMP is not technically feasible; or (3) the cost of BMP implementation greatly outweighs the pollution control benefits. In the absence of a proposal acceptable to the SDRWQCB, the SDRWQCB will define MEP by requiring implementation of additional measures by the Copermitees.

As discussed in the Fact Sheet/Technical Report discussion for Finding 13 and Finding 14, the US EPA and SWRCB have discretion to issue municipal storm water permits that require compliance with water quality standards. To ensure that MS4 discharges comply with water quality standards, the SWRCB has adopted US EPA language in SWRCB Order WQ 99-05 that dictates implementation of an iterative BMP process when water quality standards are not met. This language is included in Order No. 2001-193 in Receiving Water Limitations item C. The iterative BMP process requires the implementation of increasingly stringent BMPs until receiving water standards are achieved. This is necessary because implementation of BMPs alone cannot ensure attainment of receiving water quality objectives. For example, a BMP that is effective in one situation may not be applicable in another. An iterative process of BMP development, implementation, and assessment is needed to promote consistent compliance with receiving water quality objectives. If assessment of a given BMP confirms that the BMP is ineffective, the iterative process should be restarted, with redevelopment of a new BMP which is anticipated to result in compliance with receiving water quality objectives. Regarding BMP assessment, the SWRCB Urban Runoff Technical Advisory Committee states "The [Storm Water Pollution Prevention Plan] SWPPP must be revised if an inspection indicates a need to alter the BMPs: drop ineffective BMPs, add new BMPs, or modify a BMP that is to remain in the SWPPP." It should be noted that while implementation of the iterative BMP process is a means to achieve compliance with water quality objectives, it does not shield the discharger from enforcement actions for continued non-compliance with water quality objectives. Thus, the SDRWQCB does not require implementation of BMPs beyond the maximum extent practicable standard, but rather it determines whether the MEP standard has been attained and requires that the Copermitee address exceedances of receiving water quality objectives through the iterative process described in section C of the Tentative Order. However, it should be noted that pollutant discharges which have the potential to cause or contribute to an exceedance of water quality objectives (such as discharges to Clean

Water Act section 303(d) water bodies) may require implementation of BMPs beyond the “maximum extent practicable” standard (40 CFR 122.44(d)(1)(i)).

Finally, it should be noted that compliance with the Tentative Order is not an iterative process. Compliance with the Tentative Order requires the achievement of MEP with respect to the removal or reduction of pollutants from discharges and the implementation of the Jurisdictional Urban Runoff Management Program to achieve compliance with Section C.1 of the Tentative Order. The iterative process phrase refers specifically to the Copermitees’ process of BMP development, implementation, monitoring, and assessment in response to the implementation of BMPs that do not prove as effective as anticipated, with the result that a discharge is causing or contributing to an exceedance of receiving water quality objectives. This process is necessary to assure that an Urban Runoff Management Program is sufficiently comprehensive and effective to achieve compliance with receiving water quality objectives and the Tentative Order.

Section: Finding 14

Comment: Finding 14 is self-contradictory. Modify second sentence of Finding 14, page 4 to read: “An iterative process of BMP development, implementation, monitoring, and assessment may be necessary to assure that an Urban Runoff Management Program is sufficiently comprehensive and effective to achieve compliance with receiving water quality objectives to the maximum extent practicable.” In reality, every line of the Order is going to be quoted someday as a specific legal requirement, so “to MEP” should be added wherever that is what is really meant and most definitely in the Findings, which form the basic standard. Otherwise, there will be conflicts over interpretation, because there is certainly a perceived difference, and potentially a legally enforceable one, between the phrases “remove pollutants” and “remove pollutants of concern to MEP.” (*Laguna Niguel*)

Response: Finding 14 is not self-contradictory. The receiving water limitations requirements for BMPs to be implemented to achieve water quality standards is not guided by the MEP standard. Achievement of water quality standards is a separate and distinct goal for the NPDES municipal storm water program. It is not a subset of the MEP requirement to be overridden by the MEP standard. This is exhibited when USEPA states: “Today’s rule specifies that the “compliance target” for the design and implementation of municipal storm water control programs is “to reduce pollutants to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the CWA.” (64 FR 68753) Where necessary, the Tentative Order does identify where the MEP standard applies.

Section: Finding 15

Comment: The regional board is without authority to regulate third parties’ private property under the municipal permit. At issue herein is a municipal permit regulated under the NPDES provisions of the Clean Water Act. (See 33 U.S.C. § 1342(p)(3)(B).) The subject of the regulation is the MS4 itself and discharges there from. The permittee/copermittee (i.e., regulated entity) is the operator of the MS4. The permittee/copermittee (i.e., regulated entity) is the operator of the MS4. Notwithstanding this relatively straightforward regulatory concept, the proposed Permit far exceeds the bounds of permissible regulation thereunder. Specifically, under the guise of this municipal NPDES permit, the Regional Board asserts jurisdiction over third parties’ private property. (*Construction Industry Coalition on Water Quality*)

Response: The Tentative Order holds the copermitees responsible for illicit discharges from third parties, and the Copermitees are responsible for discharges both into and from their MS4.

Copermittees cannot passively receive and discharge pollutants from third parties. As US EPA states, “The operator of a small MS4 that does not prohibit and/or control discharges into its system essentially accepts ‘title’ for those discharges. At a minimum, by providing free and open access to the MS4s that convey discharges to the waters of the United States, the municipal storm sewer system enables water quality impairment by third parties” (USEPA, 1999b). Discharges of pollutants to the MS4 must therefore be controlled, and an important means for a municipality to achieve this is through the development and enforcement of municipal legal authority.

Order No. 2001-193 holds the local government accountable for the direct link between its land use decisions and water quality degradation. The permit recognizes that each of the three major stages in the urbanization process (development planning, construction, and the use or operational stage) is controlled by and must be authorized by the local government. Accordingly, this permit requires the local government to implement, or require others to implement, appropriate best management practices to reduce pollutant discharges and increased flow during each of the three stages of urbanization.

Section: Finding 15

Comment: For water utilities that already report directly to RWQCB staff with information and data for dewatering and construction activities, will they now report to affected copermittees and/or both? (*Irvine Ranch Water District*)

Response: The Tentative Order neither requires nor prohibits Copermittees to collect such information. However, agencies or organizations conducting such dewatering activities that discharge into MS4s may be required by the Copermittees to implement BMPs to reduce pollutants in the discharges to the MEP.

Section: Finding 15

Comment: Finding No. 15 is incorrect. It is based on a statement in the Final Rule for the Phase II regulations designed to encourage the Phase II communities to be more proactive than the regulations require. As the staff recognizes on page 54 of the Fact Sheet/Technical Report, if a municipality does not prohibit non-storm water discharges, it must accept responsibility for the water quality consequences of its decision. In other words, the municipality is responsible for the quality of discharges from its MS4. The staff goes on to say that, “For these reasons, each Co-permittee must prohibit and/or control discharges from third parties to its MS4.” This is an extrapolation of existing law. A municipality is responsible for the quality of the discharges from its storm drain system, with the methods of achieving compliance up to the municipality. The proposed approach may lead to appeals and possibly litigation. (*San Juan Capistrano*)

Response: Finding 15 is correct and appropriate. USEPA supports the concept that Copermittees cannot passively receive and discharge pollutants from third parties. As US EPA states, “The operator of a small MS4 that does not prohibit and/or control discharges into its system essentially accepts ‘title’ for those discharges. At a minimum, by providing free and open access to the MS4s that convey discharges to the waters of the United States, the municipal storm sewer system enables water quality impairment by third parties” (USEPA 1999b). Federal NPDES regulations clearly provide the SDRWQCB with the legal authority to require municipalities to control discharges from third parties into their MS4. 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in urban runoff from commercial, residential, industrial, and construction land uses or activities. Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(A - D) also require municipalities to

have legal authority to control various discharges to their MS4. This concept is further supported in the Preamble to the Phase II Final Rule NPDES storm water regulations, which states “The operators of regulated small MS4s cannot passively receive and discharge pollutants from third parties” (USEPA, 1999b). Due to the greater water quality concerns generally experienced by larger municipalities, Phase II Final Rule findings for small municipalities are also applicable to larger municipalities such as the Copermittees. Again, underlying the Federal NPDES storm water regulations is the Clean Water Act, which states in section 402(p)(3)(B)(ii) that municipalities shall “effectively prohibit non-stormwater discharges into the storm sewers.”

As discussed in the Fact Sheet/Technical Report, Clean Water Act section 402(p) requires operators of MS4s to prohibit non-storm water into their MS4s. This is necessary because pollutants that enter the MS4 generally are conveyed through the MS4 to be eventually discharged into receiving waters. If a municipality does not prohibit non-storm water discharges, it is providing the pathway (its MS4) which enables pollutants to reach receiving waters. Since the municipality’s storm water management service can result in pollutant discharges to receiving waters, the municipality must accept responsibility for the water quality consequences resulting from this service. Furthermore, third party discharges can cause a municipality to be out of compliance with its permit, exposing it to enforcement action and litigation. Since pollutants from third parties that enter the MS4 will eventually be discharged from the MS4 to receiving waters, the third party discharges can result in a situation of municipality non-compliance if the discharges lead to an exceedance of water quality standards. For these reasons, each Copermittee must prohibit and/or control discharges from third parties to its MS4.

It is important to note the SWRCB also supports control of discharges into MS4s. The SWRCB recently upheld the LARWQCB SUSMP requirements in Order WQ 2000-11. These requirements place significant restrictions on discharges from third parties into MS4s. In fact, the SUSMP provisions included in the Tentative Order, as upheld by the SWRCB, represent the most stringent and specific requirements in the Tentative Order regarding the control of discharges into the MS4. Finally, the requirement for municipal storm water dischargers to have, and exercise, local governmental authority in order to comply with water quality control obligations is analogous to the requirement for Publicly Owned Treatment Works to have and exercise legal authority to require pretreatment of industrial wastes being discharged to their sewage collections systems (CWA 402(b)(8)).

Section: Finding 15

Comment: Finding 8 of the existing permit, Order No. 96-03, has been dropped from this order. We respectfully request that this finding be reinstated, and we suggest some revised wording that may satisfy the Board: "The Regional Board recognizes that the permittees should not be held responsible for such facilities and/or discharges and it is imperative that these Federal and State agencies work cooperatively with the permittees to solve water quality problems on a watershed-wide basis." For instance, Caltrans is not a party to this permit yet they discharge their water from their property into the Copermittee MS4s. Do they take ultimate responsibility and liability all the way to the ocean? What recourse do the Copermittees have against other State and Federal owned lands, or other exempt agencies such as Native American Tribes?

The Tentative Order improperly imposes responsibility on Copermittees for the acts of private parties. Simply because a municipality has an obligation to establish and enforce prohibitions against illicit discharges does not mean they are “responsible for” such discharges. Nor does anything in the Porter Cologne Act or the CWA support such a contention. The imposition of “vicariously liability” on the copermittees for acts of third parties is inconsistent with state and federal law. The NPDES permit program is designed to control the discharge of pollutants from the MS4 “to the maximum extent practicable.” It cannot legally be used to hold copermittees “responsible” for the failure of private

parties to follow storm water runoff regulations. Rather, the Permittees only have the power to establish and enforce prohibitions against illicit discharges and to pursue violations of such prohibitions when they are identified. Accordingly, the County recommends that Finding No. 15 be deleted from the Tentative Order. (*Aliso Viejo, County of Orange, Laguna Niguel*)

Response: Finding 31 (Intergovernmental Coordination) notes that copermittee coordination regarding water quality protection and land use planning activities with other watershed stakeholders, especially Caltrans and the Department of Defense, is critical to achieve the greatest protection of receiving water bodies.

Municipalities cannot arrogate to themselves the authority to regulate discharges from facilities or activities beyond their jurisdiction, e.g., discharges from state and federal facilities including highways and Indian reservations directly to waters of the state that are not part or tributary to the municipality's MS4. Municipalities are required, however, to have or develop legal authority to regulate storm water discharges and urban runoff within their jurisdictions, including discharges that may be subject to concurrent regulation by the state and federal governments. In addition, where municipalities control access to MS4 infrastructure for the accommodation of discharges from entities within their jurisdiction (including school districts, state and federal facilities, construction sites and industrial facilities) municipalities must exercise such control in a manner consistent with their obligation under the Regional Board's requirements to reduce pollutants in their MS4 to the maximum extent practicable.

Federal NPDES regulations clearly provide the SDRWQCB with the legal authority to require municipalities to control discharges from third parties into their MS4. Municipalities required in 40 CFR 122.26(d)(2)(iv)(A - D) to implement controls to reduce pollutants in urban runoff from commercial, residential, industrial, and construction land uses or activities. Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(A - D) also require municipalities to have legal authority to control various discharges to their MS4. This concept is further supported in the Preamble to the Phase II Final Rule NPDES storm water regulations, which states "The operators of regulated small MS4s cannot passively receive and discharge pollutants from third parties." Due to the greater water quality concerns generally experienced by larger municipalities, Phase II Final Rule findings for small municipalities are also applicable to larger municipalities such as the Copermittees. Finally, underlying the Federal NPDES storm water regulations is the Clean Water Act, which states in section 402(p)(3)(B)(ii) that municipalities shall "effectively prohibit non-stormwater discharges into the storm sewers"

The municipal Copermittees under Order No. 2001-193 are responsible for discharges into and out of their storm water conveyance systems because (1) they own and operate the MS4; and (2) they have the legal authority that authorizes the very development and land uses which generate the pollutants and increased flows in the first place. Order No. 2001-193 holds the local government accountable for this direct link between its land use decisions and water quality degradation. The permit recognizes that each of the three major stages in the urbanization process (development planning, construction, and the use or operational stage) is controlled by and must be authorized by the local government. Accordingly, this permit requires the local government to implement, or require others to implement, appropriate best management practices to reduce pollutant discharges and increased flow during each of the three stages of urbanization.

Section: Finding 16

Comment: Can you be more specific about what land use authority that cities have over existing properties?

While municipalities do regulate development occurring within their jurisdiction, there are constitutional limits on such regulation. The conditions imposed by a municipality must have a nexus with, and be reasonably proportional to, the impacts caused by a proposed development. Moreover, a municipality cannot impose restrictions on development that preclude the landowner from having an economically viable use of its land. As the recent Supreme Court decision in *Palazollo v. Rhode Island* makes clear, this prohibition applies even where the municipality imposes the restrictions before the landowner purchases the land. See *Palazollo v. Rhode Island*, 121 S.Ct. 2448 (2001). Thus, it is inaccurate for the Regional Board staff to assert that the Permittees have carte blanche control of all aspects of urban development within their boundaries. The County recommends that Finding No. 16 be deleted from the Tentative Order. (*County of Orange, Laguna Niguel*)

Response: Each copermitttee has adopted a storm water ordinance that prohibits pollutants from entering the storm drains. The nexus between construction and post-construction land uses identified in the Tentative Order and impacts to water quality from runoff are well documented. The SUSMP requirements on new development and redevelopment will not preclude a landowner from having an economically viable use of land. Finding 16 will remain.

Section: Finding 17

Comment: Finding 17 should be deleted or revised to strike the word "profit" from the Copermittes authorization of urban development. Although the Copermittes may receive tax revenues from residential, commercial and industrial development that occurs within their boundaries, they do not necessarily "realize benefits" in the common sense of that phrase. The tax revenues collected by most municipalities are rarely sufficient to cover the demand for municipal services.

Finding 17 of the Tentative Order reflects a failure to appreciate the role and duties of local governments to exercise authority over land use, and the limitations imposed on the exercise of that authority. The authority of cities and counties to regulate land use comes from the California Constitution. Article XI, 97, confers on local governments the authority and the duty to regulate land use, through the exercise of the "police power." Cities exercise land use authority not for the purpose of "profiting" from the exercise of their constitutional duty, but because the exercise of control over land use is their duty.

For the Tentative Order to attempt to impose a duty to protect water quality, without reference to any Constitutional provision or specific enactment of the legislature, based on this misunderstanding of the duty of cities is inappropriate and without legal basis. The Cities are aware of no legislation in which the California Legislature imposed a duty to protect water quality based on local governments' exercise of their Constitutional duty to regulate land use. (*Laguna Hills, County of Orange, Dana Point, Rancho Santa Margarita, Lake Forest, Laguna Woods*)

Response: The word "profit" should have read "realize benefits." It was inadvertently left in Finding 17 of the draft Tentative Order during editing. Since the Copermittes permit, authorize, and realize benefits from urban development within their jurisdictions, Tentative Order No. 2001-193 holds the Copermittes responsible for the short and long-term water quality consequences of their land use decisions. "Profit" in this case refers to benefitting, financial or otherwise, from land use decisions. Municipalities retain land use authority for the purpose of realizing benefits, financial or otherwise, from decisions to urbanize. Furthermore because water quality degradation is the direct result of the urbanization process, Copermittes must implement (or require others to implement) controls to reduce the flow and pollutants generated from each of the three major phases of urbanization that they authorize; namely the (1) land use planning, (2) construction; and (3) use or existing development phase.

While the Copermittees may not “profit” from land development according to the common definition and use of the word, the Copermittees do realize, or intend to realize, net benefits that are not exclusively financial from the residential, commercial, industrial, and other activities proposed by private parties that they authorize within their jurisdiction. Because Copermittees have the land use authority to regulate these activities, which can be a source of pollutants and runoff that impair receiving waters, so the Copermittees must also exercise their legal authority to ensure that the resulting increased pollutant loads and flows do not further degrade receiving waters. Nonetheless, Finding 17 will be revised to use the words “realize benefits” in place of “profit.”

Section: Finding 19

Comment: Finding No. 19 states that construction activities are a significant cause of receiving water impairment. While siltation and sediment runoff may be a significant problem in the nation as a whole, there are no water bodies in the County within the jurisdiction of the Regional Board that are impaired by sediment. See Finding No. 28 (listing Section 303(d) impaired water bodies and noting that the only pollutant of concern for such water bodies is coliform bacteria); see also Attachment D (discussing impaired water bodies within jurisdiction of Regional Board).

Accordingly, the County recommends that Finding No. 19 be revised to reflect that construction activities may (or may not) cause receiving water impairment and that at present they are not a significant source of impairment in that portion of the County covered by the Tentative Order. (*County of Orange*)

Response: The finding is correct and justified because construction activities are a significant cause of receiving water impairment. Although at this point there are no water bodies in the County within the jurisdiction of the Regional Board that are listed as impaired by sediment, there are water bodies listed for sediment that are within the areas served by the DAMP. This suggests that the DAMP may not be sufficient to protect water bodies from the impacts of sediment. In addition, the listing process is not finite, and more reaches may become listed as additional data becomes available.

Section: Finding 19

Comment: Finding 19 fails to recognize the Drainage Area Management Plan currently in place in this region that includes construction activity controls. No new actions on the part of the co-permittees should be required, rather, previous control efforts that have successfully addressed these issues should be acknowledged. (*Laguna Hills*)

Response: The DAMP is recognized elsewhere in the Tentative Order and Fact Sheet. New actions by the copermittees are required in order to meet the technology-based MEP standard that is required in the federal regulations. Please see Attachment 5 of the Fact Sheet for an analysis of the proposed revised DAMP. There are a number of deficiencies with respect to construction activities. For instance, the DAMP does not set minimum BMP requirements based on threat to water quality prioritization, and minimum BMP requirements are only set for public works construction projects and not private construction sites. In addition, the DAMP does address inspection frequencies of construction sites by construction and grading inspectors and these frequencies are not based on the threat to water quality prioritization. The Tentative Order does not prohibit each copermittee from using information in the DAMP in the development of a jurisdictional urban runoff management plan.

Section: Finding 20

Comment: Finding 20 is incorrect based upon data generated by the County of Orange. Further, there is no evidence that the URMPs will, in fact, reduce pollutant loadings over the long term in any better form than the Drainage Area Management Plan. (*Laguna Hills*)

Response: Finding 20 states that monitoring data shows substantial pollutants loads are delivered to receiving waters in runoff from existing development. This is confirmed by the data submitted to the Regional Board by the copermittees pertaining to the municipal storm water permit, the Aliso Creek 205(j) study, Cleanup and Abatement Order 99-211, and the Aliso Creek 13225 Directive. In particular, elevated levels of fecal coliform at the outfalls are consistently reported. Additionally, in the latest NPDES Annual Progress Report (2000) data shows that 2 of 3 channels monitored for dissolved metals exceed California Toxics Rule Criteria for multiple constituents. Furthermore, wet-weather monitoring during the Aliso Creek 205(j) watershed study showed significant toxicity to aquatic test organisms.

Section: Finding 22

Comment: Does the Tentative Order require the Copermittees to have the legal authority to enforce the Industrial and Construction General Permits? Requiring the Copermittees to duplicate and/or expand the State programs regulating storm water discharges from industrial and construction sites is contrary to the Clean Water Act. Requiring the Copermittees enforce the MEP standard at construction and industrial sites would subeject the sites to different standards (BAT/BCT for General Statewide Permits). (*Aliso Viejo, Mission Viejo, Laguna Hills, County of Orange, MJF Consulting*)

Response: The Copermittees are not responsible for enforcing or overseeing the General Statewide Industrial or Construction Permits. The SDRWQCB will oversee and enforce the General Statewide Industrial and Construction Permits. The Copermittees are however, responsible for enforcing their ordinances(e.g. the Water Quality Ordinance) that implement the Tentative Order, including the prohibitions against illicit discharges. The Copermittees are responsible for ensuring that, at a minimum, discharges from industrial and construction sites meet the MEP standard of the Tentative Order. The Copermittees do have the discretion to require BMPs at construction sites that exceed MEP where appropriate. In some cases, the Copermittees may be required to implement or require the implementation of BMPs at construction or industrial sites that exceed the minimum requirements of the General Statewide Industrial or Construction Permits in order to achieve compliance with the requirements of the Tentative Order. USEPA supports this approach, clearly placing responsibility for the control of discharges from construction and industrial sites with municipalities. The USEPA notes in the preamble to the Storm Water Regulations that municipalities are in the best place to enforce compliance with storm water discharge requirements:

“Because storm water from industrial facilities may be a major contributor of pollutants to MS4s, municipalities are obligated to develop controls for storm water discharges associated with industrial activity through their system in their storm water management program...The CWA provides that permits for municipal separate storm sewers shall require municipalities to reduce pollutants to the maximum extent practicable. Permits issued to municipalities for discharges from municipal separate storm sewers will reflect terms, specified controls, and programs that achieve that goal.”

As noted in the Fact Sheet/Technical Report, the USEPA felt it so important to control the discharge of pollutants from construction and industry that it established a double system of regulation over construction and industrial sites. Two parallel regulatory systems were established with the same

common objective of keeping pollutants from construction and industrial sites out of the MS4. A structure was created where local governments must enforce their local ordinances and permits as required under their municipal storm water permits, while the SDRWQCB (state) must enforce its statewide general construction and industrial storm water permits. The two regulatory systems were designed to complement and support each other in the shared goal of minimizing pollutant discharges in runoff from construction and industrial sites.

Local governments have regulatory authority over the majority of construction and industrial sites since they issue the development and land use permits for the sites. In other words, the Copermittees are responsible for the water quality consequences of their planning, construction, and land use decisions.

Regarding construction sites, USEPA also places enforcement responsibility on municipalities, requiring small municipalities to develop and implement “[a]n ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance [...]” (40 CFR 122.34(b)(4)(ii)(A)). In its guidance for the Phase II regulations, US EPA goes on to support increased municipality responsibility, stating “Even though all construction sites that disturb more than one acre are covered nationally by an NPDES storm water permit, the construction site runoff control minimum measure for the small MS4 program is needed to induce more localized site regulation and enforcement efforts, and to enable operators of regulated small MS4s to more effectively control construction site discharges into their MS4s.” While these above citations refer to small municipalities under Phase II of the NPDES program, USEPA recommendations to small municipalities are applicable to larger municipalities such as the Copermittees, due to the typically more serious water quality concerns attributed to such larger municipalities.

The language of the Tentative Order has been drafted to carefully describe the requirements of the Tentative Order with regard to the dual regulation of construction and industrial sites as discussed above. With the recent addition of resources and staff from budget augmentations in several programs, including storm water, the SDRWQCB is vigorously administering and enforcing the General Statewide Industrial and Construction permits. The SDRWQCB will enforce the General Statewide Construction and Industrial Permits; the Copermittees are required to enforce their own storm water ordinances.

Section: Finding 22

Comment: A portion of Finding 22 does not read as a “Finding”. Rather, it is worded as an “Order”, and, as such, should be placed in the Order section. As written, the latter portion of the first paragraph, beginning with “Pursuant to this Order...”, purports to be based on the Tentative Order. Yet, until the Tentative Order is adopted by the Board, there is no Order on which to base this portion of the finding. A finding must be based on existing facts. Therefore, that sentence, to include sub-parts (a) and (b), should be deleted from the finding. (*Dana Point*)

Response: The language of Finding 22 is that of a tentative Finding that refers to the directives contained within the Tentative Order. The language of a finding does not preclude reference to requirements contained within the Order. For example, Finding 19 of Order No. 96-03 contains references of tasks to be performed under Order 96-03. Moreover, the statements in Finding 22 that local permits, plans, and ordinances must prohibit the discharge of pollutants and non-storm water into the MS4 and require the routine use of BMPs to reduce pollutants in site runoff are based on the Federal Phase I storm water regulations and on language in the current municipal storm water permit

Order No. 96-03 (Finding 27, Finding 31, sections 3.1 and 3.2,). Consequently, the language of the Finding is appropriate and further revision is not necessary.

Section: Finding 24

Comment: What is the Board's definition of the frequency of "routine inspections"? (*Laguna Hills*)

Response: The frequency of routine inspections that are necessary to determine compliance with local permits and ordinances is determined by each copermitee. However, the Tentative Order does specify minimum inspection frequencies for the following categories of activities:

1. Construction - Section F.2.g;
2. High priority municipal existing development - Section F.3.a(7); and
3. High priority industrial sites - Section F.3.b(6).

Copermittees are given discretion in establishing frequency of inspections for all medium and low priority municipal and industrial sites, as well as all commercial sites.

Section: Finding 26

Comment: Finding 26 references the Basin Plan and quotes from it as follows: All waters shall be free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant animal, or aquatic life The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge... The finding then goes on to say that: Urban runoff discharges from MS4s are considered toxic when (1) the toxic effect observed in an acute toxicity test exceeds zero Toxic Units Acute (TUA=O) or (2) the toxic effect observed in a chronic toxicity test exceeds one Toxic Unit Chronic (TUC=I).

In responding to our question about this finding at the first Board workshop, the Board staff wrote: "Bioassessment not only identifies that an impact has occurred, but also measures the effect of the impact and tracks recovery when control or restoration measures have been taken, Bioassessment does not, however identify the sources of the impact. The toxicity testing requirement is necessary to identify the sources of impact to the benthic macroinvertebrate community to enable the Copermittees to adequately address these sources in their programs."

We are in concurrence with this statement by the Board staff that an appropriate use of toxicity testing is to identify the sources of toxicity once bioassessment monitoring has identified an impact. However, that is not the substance of Finding 26 that establishes the toxicity testing itself as the means for identifying impact.

The final sentence in the finding needs to clarify that where bioassessment data have indicated a significant impairment, toxicity testing is to be performed on a sample of the receiving water and must be compared against a control consisting of a similar receiving water unaffected by any other discharge in order to identify the presence of toxicity.

Finally, the case for establishing toxicity based on a TUA=O or TUC=I has not been adequately supported by Board staff in the Draft Fact Sheet/Technical Report for the Tentative Order. On page 64 of the Fact Sheet/Technical Report under finding 26 the staff makes the key assumption that the Basin Plan narrative objective of 'no toxics in toxic amounts' corresponds to 100% survival of test organisms in an acute toxicity study (Tua=O) and for a critical life stage toxicity test the absence of

observable effects in undiluted test water (should read receiving water) or a $TU_c=1$. This is the only basis given for establishing the $TU_a=0$ and $TU_c=1$ as the measure of toxicity. This is an extremely stringent requirement. Scientific assessment may lead to 85%, 90%, 95% or some other statistically significant outcome as the standard when considering MEP. We ask that the Board remove the last sentence of Finding 26 for there has been no significant analysis of what the potential outcome and implications of this finding could be. (*Aliso Viejo*)

Response: The requirements for the Copermittees to conduct toxicity monitoring are appropriate and necessary to determine the biological impact resulting from the discharge of urban runoff. As discussed in the comment, the Monitoring and Reporting Requirements of the Tentative Order include a requirement for the Copermittees to develop a program for standardized toxicity and Toxicity Identification Evaluation analyses to be performed at urban stream bioassessment stations where the bioassessment data indicates significant impairment. In this context, toxicity testing and TIE analysis are follow-up tools to identify potential causative factors for an observed impact on the benthic community. However, toxicity testing and TIE analysis is also an appropriate means for identifying the impact of the discharge of urban runoff in and of itself, which is the focus of Finding 26. The Tentative Order properly includes toxicity and TIE analysis as a primary assessment procedure as well as a follow-up procedure for stations in which benthic bioassessment data that indicate an impact has occurred.

The presence of toxicity in urban runoff discharged from MS4s that causes or contributes to an exceedance of receiving water quality objectives or constitutes a threat to human or environmental health is a violation of Order 90-42 and the Tentative Order. The Toxicity requirement is derived from the Ocean Plan and is properly supported. The Copermittees have the responsibility to ensure that the discharge from their MS4s does not cause or contribute to exceedances of receiving water quality objectives nor constitutes a threat to human or environmental health. Toxicity is a measurement of the impact of MS4 discharges to human and environmental health.

Section: Finding 26

Comment: Finding No. 26 states that urban runoff discharges from MS4s “often” contain pollutants that cause toxicity and implies that effluent toxicity limits apply to discharges of urban runoff from MS4s. The County disagrees. First, although discharges from MS4s “often” contain pollutants that can cause toxicity, the question is whether such pollutants are present in concentrations that in fact do cause toxicity. Second, as stated elsewhere in these comments, MS4s are not required to meet WQS. They are instead required to reduce the discharge of pollutants to the maximum extent practicable. Third, the numeric toxicity limits identified in this Finding are only applicable to certain discharges to ocean waters of the state, not to all waters of the state, and the limits are applicable to the receiving waters, not urban runoff discharges from MS4s. (*County of Orange*)

Response: Significant toxicity was found during storm events during the Aliso Creek 205(j) watershed study in 1998 and 1999. A majority of the cases resulted in zero percent survival during the acute 48-hour Ceriodaphnia test. Thus it is reasonable to conclude that pollutants conveyed by the MS4 to receiving waters are present in concentrations that in fact do cause toxicity.

The Copermittees have the responsibility to ensure that the discharge from their MS4s does not cause or contribute to exceedances of receiving water quality objectives nor constitutes a threat to human or environmental health. Toxicity is a measurement of the impact of MS4 discharges to human and environmental health

Section: Finding 27

Comment: Finding indicates that the Order is not meant to control background or naturally occurring pollutants and flows. Has the Board established that non-anthropogenic sources of fecal coliform do not naturally cause violations of designated uses (REC1 and REC 2)? *(Aliso Viejo)*

Response: The Regional Board has not established that naturally occurring pollutants and flows (containing fecal coliform) cause violations of REC 1 and REC 2 beneficial uses. In some cases DNA analysis has shown this to be true, but in most cases it is assumed that indicator coliform bacteria may be of human origin.

Section: Finding 27

Comment: The Tentative Order ostensibly applies to storm water flows both into and from the Permittees' MS4. The resulting effect is that the Permittees will be required to address runoff from many other non-urban sources. Indeed, under the Tentative Order, the Permittees will be forced to address non-point sources of runoff that would otherwise be exempt from regulation under the CWA, such as runoff from silviculture and agriculture. Thus, notwithstanding the "focus" of the Tentative Order as stated in Finding No. 27, the Permittees are being asked to mitigate more than simply those "urban runoff pollutants and flows" that are "generated or accelerated by human activities." It is both impermissible and impracticable for the Regional Board to saddle the Permittees with this obligation. *(County of Orange)*

Response: The copermitees are not held responsible for impacts from flows resulting from activities exempted from the Federal Clean Water Act regulations, but are held accountable for flows allowed to be conveyed through their MS4.

Section: Finding 27

Comment: Finding 27 should be expanded to acknowledge that urban runoff pollutants include those deposited upon roadways by motor vehicles over which the co-permittees have no jurisdictional authority. Should this Order continue to establish that no pollutants may enter into the storm drains that are being defined as receiving waters, then the co-permittees will automatically not be in compliance with this Order and will also have no ability to control the source of the pollutants. The maximum extent practical standard for Best Management Practices and control of pollutants should acknowledge that there are certain generators of pollutants over which the co-permittees have absolutely no authority or control. *(Laguna Hills)*

Response: As described elsewhere, the copermitees are responsible for discharges into and out of their MS4s, and they must treat storm water flows to the maximum extent practicable. BMPs are required to reduce the pollutant loads of storm water, including storm water that picks up pollutants deposited by motor vehicles. In order to provide the Copermitees with flexibility and discretion, under Tentative Order the Copermitees will specify which BMPs they will implement or require to be implemented to reduce pollutants in urban runoff discharges to the MEP.

Section: Finding 28

Comment: Finding No. 28, page 6: Table 2 under this Finding is misleading. Although it is true that the waterbodies identified in Table 2 have been listed for Coliform bacteria, the 303(d) list maintained

by the SWRCB indicates that most of these waterbodies are considered only a low priority, some a medium priority, and none a high priority. Table 2 in this Finding should reflect this prioritization. (*San Clemente*)

Response: The prioritizations given the 303(d) listed impaired water bodies are based on a number of factors including the severity of the impact, utilization of the beneficial uses impaired, available resources, and planned or anticipated actions by the Copermitees to reduce pollutants in the discharge of urban runoff to the MEP and to prevent discharges from causing or contributing to exceedances of receiving water quality objectives. Furthermore, the prioritization of 303(d) listed water bodies may be subject to revision as additional information and resources are made available. The prioritization of these water bodies was not included in the table for these reasons.

Section: Finding 29

Comment: There is no scientific basis for Finding 29 suggesting that each and every co-permittee are contributors to the cumulative pollutant loading of downstream receiving waters. The County disagrees with this unsupported and simplistic generalization. Simply because a watershed drains into a common coastal water body and the drainage contributes to water quality degradation of that water body, it does not follow that each inland MS4 in the watershed necessarily contributes to the impairment of the water body. Those MS4 discharges that have relatively good water quality may in fact help to reduce the impairment that may be caused by other sources. There are many sound technical reasons why a watershed management approach is needed in the Tentative Order to improve the quality of watershed receiving water bodies. The County strongly supports the watershed approach. However, simplistic generalizations have no place in the watershed rationale. Accordingly, Finding No. 29 should be revised and clarified.

Some MS4s may discharge into receiving waters miles upstream from an area of coastal impairment; however, at the point of discharge, the receiving water may consistently meet water quality objectives for its beneficial uses. How does an inland Copermitees determine whether a MS4 contributes to coastal impairments? By what criteria? Please clarify and provide a practical example(s). The Board should support regional studies to evaluate this circumstance prior to establishing a finding.

Furthermore, SDRWQCB staff Responses to Other Comments have acknowledged that receiving waters have assimilative capacity for many pollutants, so that total pollutant load going into the system is not necessarily (probably normally is not) equal by weight-or by concentration!-- to the total pollutants going out the downstream end. The pollutants are not cumulative with respect to the concentrations that define impairment or degradation. Therefore, this Finding should be eliminated or rephrased. (*Laguna Hills, County of Orange, Laguna Niguel*)

Response: As noted in the Fact Sheet discussion of Finding 29, a watershed is the drainage basin, outlined by topographic divides, which drain to a common outlet, such as a stream, lake, estuary, enclosed bay, or ocean. Therefore, when various MS4s discharge into the same watershed, the discharges eventually flow into a common receiving water body. In this manner, individual MS4s that share the same watershed contribute to cumulative pollutant loading in the watershed's receiving water body.

Attachment 2 of the Fact Sheet lists the 1998 Clean Water Act Section 303(d) Impaired Waterbody List. This list includes, and is not limited to, the Pacific Ocean shoreline at the major creek/river mouths, including Laguna Canyon, Aliso Creek, San Juan Creek, and those in San Clemente. The MS4 from each copermitee, therefore, is hydrologically connected to one or more impaired waterbodies. While some pollutants may be assimilated, or cause impairment in upstream areas,

Finding 29 recognizes the pollutant load in a waterbody augments by addition, and that downstream receiving waters are affected by the delivery of pollutants upstream.

Monitoring data collected to date in Aliso Creek, for which the lower mile, the mouth, and adjacent shoreline are listed as 303(d) impaired for fecal coliform, shows elevated levels of fecal coliform from outfalls from every municipality in the watershed and throughout the stream. Monitoring programs conducted under the Tentative Order should be designed to identify and evaluate contributing sources of this and other potential pollutants from the copermitees.

Section: Finding 30

Comment: Finding 30 fails to recognize the authority of local jurisdictions to establish their communities consistent with the will of the people without regard to other jurisdictions in the same watershed. It is inappropriate to make a finding that political boundaries should not be recognized in land use planning. (*Laguna Hills*)

Response: The Tentative Order recognizes the authority of local jurisdictions to establish and govern their communities consistent with the will of its citizens. The Tentative Order recognizes that water quality issues transcend political boundaries and can be best addressed through joint efforts. The Tentative Order does not require watershed level planning that ignores local jurisdictional issues, but does strongly recommend that the Copermitees address watershed level planning by identifying a mechanism to facilitate this activity. Developing a mechanism to facilitate watershed level planning is not inappropriate and does not require that political boundaries not be recognized in land use planning.

Section: Finding 31

Comment: Finding 31 should support and recognize the co-permittee structure established by the County of Orange approximately 10 years ago. Through the NPDES Technical Advisory Committee within the County of Orange, intergovernmental coordination has been achieved and is an on-going basis of dialogue and cooperation among agencies. (*Laguna Hills*)

Response: Finding 31 will be revised to recognize the Copermitee Program Management structure implemented under the previous permits.

Section: Finding 33

Comment: Finding 33 fails to recognize the fully built out condition of many of the jurisdictions in south Orange County. In this case, the storm water management approach and infrastructure planned and implemented over the last 30 years cannot possibly be changed until there is area-wide wholesale redevelopment that will likely not occur in the next 100 years. Furthermore, it should be recognized that the existing infrastructure was implemented to protect life and property from the hazards of storm flows and slope failures of unstable geologic formations prevalent in south Orange County. The suggested approach that, as a finding is actually a directive, may be unsafe and cause soil movement and land slides. (*Laguna Hills*)

Response: Finding 33 supports the encouragement of a storm water management approach from the disposal of rainfall to the protection of beneficial uses of receiving water. This approach is consistent with the objectives of the federal NPDES regulations that have been in effect since 1990

and the California Water Code, which stresses the prevention of pollution. The Tentative Order does not require wholesale dismantling of existing infrastructure in developed areas, and Finding 33 recognizes that the greatest opportunities for changing the approach to storm water management occur during the land use planning phase. Accordingly, the Tentative Order requires different components in the municipal programs for addressing storm water in new development and areas of existing development.

Section: Finding 33

Comment: Paragraphs 33 and 34 call for onsite water retention and infiltration. The addition of water to hillside development in south Orange County overlying the Capistrano Formation fractured bedrock may promote landslides. How do you propose we balance the public safety public threat? (*Laguna Hills*)

Response: Both retention and infiltration structural BMPs can be used to mitigate urban runoff, but are not required by the Tentative Order. The Tentative Order has infiltration restrictions to protect groundwater quality based on EPA guidance. However, the Copermittees may develop alternative infiltration restrictions they consider appropriate.

Section: Finding 41

Comment: The Revised Technical Report still contains the staff's conclusions that implementation of the 2000 DAMP would be inadequate to reduce pollutants in the discharge from MS4s to the maximum extent practicable and to protect the beneficial uses of receiving waters, and the Revised Tentative Order is still based on that conclusion. Finding No. 41 (and the entire Tentative Order) should be revised to reflect that the Permittees will be provided with an opportunity to revise the 2000 DAMP to address any perceived deficiencies and that implementation of the 2000 DAMP must meet the MEP standard. (*County of Orange*)

Response: The Tentative Order does not prohibit the copermittees from revising elements of the DAMP in the development of jurisdictional urban runoff management programs. Please see Attachment 5 of the Fact Sheet/Technical Report for an a discussion of the proposed DAMP relative to the Tentative Order. This analysis outlines the deficiencies of the DAMP and can be used during the development of jurisdictional programs.

Section A

Comment: The Tentative Permit does not contain the mandatory BMP language of State Board Order 99-05. Does the staff intend to enforce the Discharge Prohibitions without regard to the iterative BMP process required by State Board Order 99-05? (*County of Orange*)

Response: The Tentative Permit does contain the mandatory language contained in State Board Order 99-05. State Board Order 99-05 required mandatory receiving water limitation language to be included in future municipal storm water permits. This mandatory language can be found in Tentative Order 2001-193 Section C. Staff intends to enforce all discharge prohibitions. However, the iterative BMP process required by State Board Order 99-05 is applicable to only those prohibitions regarding receiving water quality.

Section: A

Comment: The Permit's prohibitions in Section A that MS4 discharges do not cause or contribute to a violation of water quality standards are preempted by recent controlling authority and agency guidance, including State Board Order 99-05, which expressly struck the "cause or contribute" phrase. In addition, the receiving water limitations language in Section C is preempted by the Ninth Circuit Court of Appeals *Defenders of Wildlife v. Browner*, 191 F.3d 1159, 1164-66 (9th Cir. 1999) decision.

Numerical limits on stormwater have been deemed infeasible by U.S. EPA and the SWRCB. The Tentative Order must include the iterative BMP provisions mandated by State Board Order 99-05. Unfortunately, despite a claim to the contrary, the Tentative Order does not contain the State Board's mandatory language. Instead, the Tentative Order provides language similar to the required language, which significantly limits its application and effect. First, the iterative BMP process applies only to compliance with the Receiving Water Limitations (Section C), not to compliance with the Discharge Prohibitions (Section A). Second, while the language in Item C.2 purports to allow the Permittees to comply with the Receiving Water Limitations by developing and implementing appropriate BMPs (as mandated by the State Board), this safe harbor is really a mirage. This is because the Tentative Order prohibits any discharges that cause or contribute to exceedances of receiving water quality objectives under both Item A.2 (Discharge Prohibitions) and Item C.1 (RWLs). Thus, although the Permittees can comply with the Item C RWLs through the iterative BMP process, the Permittees are strictly prohibited from exceeding receiving water quality objectives in Item A of the Tentative Order.

Further, our legal analysis indicates that requirement that discharges from MS4s that cause or contribute to exceedances of receiving water quality objectives for surface or groundwater are prohibited is beyond the Maximum Extent Practicable Standard which governs MS4s and, as such, would be a discretionary action by the Regional Board.

There is no consideration of whether prohibition A.2 "could reasonably be achieved" through coordinated control of the factors that affect water quality in the area. This failure to consider what is reasonably achievable violates Sections 13263(a) and 13241(c) of the Water Code. (*Construction Industry Coalition on Water Quality, Dana Point, County of Orange, Laguna Niguel, Lake Forest, Laguna Woods, San Juan Capistrano, Mission Viejo*)

Response: The Permit's requirements regarding exceedances of water quality standards are directly based on State and Federal NPDES regulations and SWRCB and EPA guidance.

The comment that SWRCB Order WQ 99-05 "struck the 'cause or contribute to' phrase" is false. SWRCB Order WQ 99-05 affirmed the "cause or contribute to" phrase as precedential language to be included in all future municipal storm water permits and removed language objected to by the USEPA. Since the Order specifically states "...**the following receiving water limitation language shall be included in future municipal storm water permits** [...] a. Upon a determination by either the permittees or the Regional Water Board that **discharges are causing or contributing to an exceedance of an applicable WQS...**" (emphasis added), it is unclear how the SWRCB position on the "cause or contribute" language could be interpreted any differently than stated above. Moreover, the "cause or contribute to" phrase is central to the Receiving Waters Limitations language of the SWRCB Statewide General Storm Water Permits for the Construction Program, the Industrial Program, the CALTRANS Program, the Aquatic Pesticide General Permit, and the Updated Statewide NPDES Utility Vault Permit.

A number of commenters have confused Prohibition A.1 and A.2 (Prohibitions - Discharges). Prohibition A.1 refers to the prohibition against discharges into and from MS4s in a manner causing or threatening to cause a condition of pollution, contamination, or nuisance. Prohibition A.2 refers to the

prohibition against discharges from MS4s that cause or contribute to exceedances of receiving water quality objectives for surface water or groundwater. Furthermore, most of the commenters expressed concern that the Copermittees " ...would essentially be out of compliance (with the Tentative Order) on the first day the Tentative Order goes into effect."

It should be noted that with respect to both prohibitions A.1 and A.2 the Copermittees may, in fact, be out of compliance at this time without regard to the adoption of the Tentative Order. With respect to Prohibition A.1, this prohibition exhibits a major component of the SDRWQCB's mission, and is specifically included in its Basin Plan. The Basin Plan Waste Discharge Prohibition No. 1 found on p. 4-17 states: "The discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination, or nuisance as defined in California Water Code Section 13050, is prohibited." This prohibition is a standard Waste Discharge Prohibition that can also be found in each of the SWRCB General Permits listed above as well all SDRWQCB Waste Discharge Requirements. In fact, although this prohibition appears to be lacking in Order No. 96-03, it was included in Order No. 90-38 in section XV part A. This prohibition is in effect under the Basin Plan and applies to discharges permitted under Order No. 96-03. Thus, to the extent that discharges from the Copermittees' MS4s are causing, or threatening to cause a condition of pollution, contamination, or nuisance as defined in California Water Code Section 13050, these discharges are in violation of the Basin Plan and subject to enforcement action. The adoption of the Tentative Order is irrelevant to the condition of vulnerability of the Copermittees to enforcement action or third party litigation with respect to Prohibition A.1.

With respect to Prohibition A.2, this prohibition is currently embodied in Order No. 96-03 through section IV of that Order and the SWRCB Order WQ 99-05 and Order WQ 98-01. Furthermore, it can also be stated that this prohibition generally implements the Basin Plan Waste Discharge Prohibition No. 5 found on p. 4-17 and 4-18 that states: "The discharge of waste to inland surface waters, **except in cases where the quality of the discharge complies with applicable receiving water quality objectives**, is prohibited" (emphasis added). More importantly, the language contained in Section IV of Order No. 96-03, although not specifically amended, was directed by the SWRCB to be interpreted as discussed in Order WQ 98-01. SWRCB Order WQ 98-01 states in Section IV "1. The federal regulations implementing CWA section 401(p) requires NPDES permits to prohibit discharges of pollutants that 'cause or contribute' to exceedances of water quality standards and the permit (Order No. 96-03) will be so interpreted." Moreover, SWRCB Order WQ 99-05 did not amend or strike this language (i.e. the "cause or contribute" phrase), but affirmed that it be included in future municipal storm water permits. Thus, the precedential phrase "causing or contributing to an exceedance of an applicable water quality standard..." applies to the Orange County Copermittees under Order No. 96-03.

Consequently, to the extent that the Copermittees have determined (or the SDRWQCB has found) that discharges from their MS4s are causing or contributing to an exceedance of an applicable water quality standard, they may be in violation of Order No. 96-03 and may be subject to enforcement action depending on the circumstances. Despite the comments to the contrary, the adoption of the Tentative Order in no way alters this fact. The adoption of the Tentative Order is irrelevant to the condition of vulnerability of the Copermittees to enforcement action or third party litigation with respect to Prohibition A.2 or the provisions of Section C of the Tentative Order. These prohibitions and provisions are already in effect.

Furthermore, several commenters have asserted that the Prohibitions in Section A of the Tentative Order preempt the precedential provisions of Section C and that the "safe harbor" language of Section C is a "mirage." These comments are incorrect. First of all, the Prohibitions in Section A and the provisions of Section C of the Tentative Order are both equally applicable and enforceable. As discussed above, the Prohibitions in Section A implement the Basin Plan and are consistent with

Section C of the Tentative Order, without having to reiterate the precedential language contained in Section C. The iterative BMP implementation process applies to both. Section C will be revised to clarify this intent and conform to the draft SWRCB Order regarding the petition to review Order No. 2001-01. Secondly, the provisions of Section C are not a “safe harbor” to pollute receiving waters, but rather a module for the iterative implementation of more stringent BMPs to return the Copermitees to compliance with both the Discharge Prohibitions and Receiving Water Limitations. As noted by the SWRCB Chief Counsel in the letter of October 14, 1999, the SWRCB “...prescribed specific language that should be in receiving water limitations in order to protect water quality objectives.” No mention was made either in SWRCB Order WQ 99-05 or the subsequent guidance of the need to provide the Copermitees with a “safe harbor.” More to the point, the provisions of Section C do not provide authorization for the discharge of urban runoff that causes or contributes to the exceedances of receiving water quality objectives, but rather, it provides the Copermitees with a process to ensure their return to compliance with the requirements of the Tentative Order, including discharge prohibitions and receiving water quality objectives. This should not, however, be interpreted as it has by several commenters, that compliance with receiving water limitations and discharge prohibitions is iterative. The implementation of more stringent BMPs by the Copermitees is iterative; compliance with the discharge prohibitions and receiving waters limitations is not iterative.

This is clearly the intent of the SWRCB as evidenced in its statement in the precedential language “If exceedances of water quality objectives or water quality standards persist notwithstanding implementation of the SWMP and other requirements of this permit, the **permittees shall assure compliance with Discharge Prohibitions [] and Receiving Water Limitations...**” (Emphasis added). This language is consistent with the language in the Tentative Order found at Section C.2.

Furthermore, it is evident that the USEPA does not agree with the incorporation “safe harbor” clauses in the receiving water limitations language of municipal storm water permits. In its letter of January 21, 1998 to the Walt Petit, Executive Director of the SWRCB, the USEPA objected to language in Order No. 96-03 that stated “permittees will not be in violation of this provision...(if certain steps are taken to evaluate and improve the effectiveness of the Drainage Area Management Plan (DAMP)).” In objecting to this language USEPA stated this language was “of the greatest concern to EPA...we feel that it is necessary to state our disagreement with Conclusion 2 of the proposed Order (WQ 98-01), which would find that the quoted phrase, as used in the Orange County permit, complies with the CWA. **The Orange County permit includes the requirement that the discharges meet WQS in the receiving water.** That requirement was included in the Orange County permit in order to satisfy Section 301(b)(1)(C) of the CWA. **Excusing the discharger from violations of that requirement effectively negates the requirement, a result which is inconsistent with CWA Section 301(b)(1)(C)**”(Emphasis added). The USEPA went on to state that “This requirement clearly applies to all excursions above the WQS.”(Emphasis original). Following the adoption of SWRCB Order WQ 98-01, the USEPA again stated its disagreement with Conclusion 2 of the Order regarding the consistency of the existing RWLs (receiving water limitations) language in the Orange County permit with the CWA stating “The CWA does not provide for such an exception to compliance with standards.”

The absence of a “safe harbor” is confirmed in Section C.3 of the Tentative Order. At no time is a discharger whose discharge causes or contributes to an exceedance of receiving water quality objectives or that constitutes a threat to human or environmental health “immunized” from future enforcement actions by virtue of complying with standard NPDES Permitting BMP implementation and reporting requirements. Continuing the argument raised above, several commenters have asserted that the inclusion of Section C.3 of the Tentative Order violates the spirit and intent of SWRCB Order WQ 99-05. This interpretation is incorrect and is based on the erroneous interpretation of SWRCB Order WQ 99-05 as providing a “safe harbor.” SWRCB Order WQ 99-05 amended Order WQ 98-01 and did not carry over discussion previously included in Order WQ 98-01 that provided that

“Permittees will not be in violation of this provision so long as they are in compliance with the requirements’ specifying the process for evaluating and improving the effectiveness of the DAMP.”

It was in response to the objections cited above by the USEPA that the SWRCB did not include this language in Order WQ 98-01. However, other language that the USEPA determined “would unacceptably increase the burden of proof in establishing permit violations” was retained in the precedential language of Order WQ 98-01. It was in response to this language, incorporated in municipal storm water permits issued by the San Diego RWQCB for Riverside County and the San Francisco Bay RWQCB for the City of Vallejo, that the USEPA, following and citing the correspondence discussed above, chose to veto these NPDES permits and issue its own NPDES permits for these areas. Following the USEPA's objection to the receiving water limitation language in Order WQ 98-01 and its adoption of alternative language in its own permits, the SWRCB revised its instructions regarding receiving water limitation language in favor of the USEPA language and mandated its use in all future municipal storm water permits (Order WQ 99-05). It was in this context that the SWRCB issued Order WQ 99-05 without the “safe harbor” discussion and burden of proof language previously included in Order No. 96-03 and SWRCB Order WQ 98-01.

The SWRCB Order WQ 99-05, which instituted the use of language acceptable to USEPA, clearly does not preclude the SDRWQCB from enforcing any provision of the Tentative Order it considers necessary while the Copermittee prepares and implements the referenced report in Section C.2.a. This is confirmed in two Statewide General Permits (CALTRANS – Section C-2.3.c, Construction – Section B.3.c) issued by the SWRCB in which the exact language contained in Tentative Order section C.3 is included with the Receiving Waters Limitations language. Nonetheless, cooperative, responsible actions on the part of the discharger in attempt to comply with the Tentative Order are recognized as critical to resolving violations and protecting the beneficial uses of receiving waters and will be favorably considered prior to taking such enforcement action(s).

In addition, as discussed in part above, the Receiving Water Limitations language in Section C of the Tentative Order is taken directly from SWRCB Order WQ 99-05. Contrary to comments that the SDRWQCB has changed the SWRCB's mandatory language, the differences in language is insignificant. In its draft Order regarding the petition for review of Order No. 2001-01, which includes the same receiving waters limitations language included in the Tentative Order, the SWRCB stated “The language in the permit in Receiving Water Limitation C.1 and C.2 is consistent with the language in Board Order WQ 99-05, our most recent direction on this issue.”

The language in Section C.1 and C.2 is fully supportive of the intent and language of the SWRCB Order WQ 99-05. This language requires that MS4 discharges do not violate water quality standards, and that an iterative BMP process must be implemented to correct any violations of water quality standards. It should again be noted that the language allows for an iterative BMP implementation approach to return to compliance with water quality standards and discharge prohibitions. It is worth repeating that the precedential language of SWRCB Order WQ 99-05 states “the permittees shall **assure compliance with Discharge Prohibitions {} and Receiving Water Limitations...**” (Emphasis added). In response to the draft SWRCB Order on the petition to review Order No. 2001-01 and to better clarify the relationship between the Discharge Prohibitions and Receiving Water Limitations, Prohibition A.2 will be cited in section C.2. by adding “and Part A.2” following every instance of “Part C.1.”

The comment that the receiving waters limitations language is Section C of the Tentative Order is preempted by the Ninth Circuit Court of Appeals *Defenders of Wildlife v. Browner* is incorrect. The *Defenders of Wildlife* case addressed the question of whether CWA section 402(p) requires the establishment of water quality-based numeric effluent limits for municipal storm water discharges. The Court upheld USEPA's requirement for MS4 dischargers to meet water quality standards, but it did so

on the basis of USEPA's discretion rather than on the basis of strict compliance with the Clean Water Act. In other words, while holding that the Clean Water Act does not require all MS4 discharges to comply strictly with state water quality standards, the Court also held that USEPA has the authority to determine that ensuring strict compliance with state water quality standards is necessary to control pollutants. On the question of whether MS4 permits must contain numeric effluent limitations, the court upheld USEPA's use of iterative BMPs in place of numeric effluent limits.

On October 14, 1999, the SWRCB issued a legal opinion on the federal appellate decision in the Defenders of Wildlife case and provided advice to the Regional Boards on how to proceed in the future. In the memorandum, the SWRCB concludes that the recent Ninth Circuit opinion upholds the discretion of USEPA and the State to (continue to) issue permits to MS4s that require compliance with water quality standards through iterative BMPs. Moreover, the memorandum states that "[...] because most MS4 discharges enter impaired water bodies, there is a real need for permits to include stringent requirements to protect those water bodies. As total maximum daily loads (TMDLs) are developed, it is likely that MS4s will have to participate in pollutant load reductions, and the MS4 permits are the most effective vehicles for those reductions."

Contrary to the comment above, the receiving water limitations requirements for BMPs to be implemented to achieve water quality standards is not guided by the MEP standard. Achievement of water quality standards is a separate and distinct goal for the NPDES municipal storm water program. It is not a subset of the MEP requirement to be overridden by the MEP standard. This is exhibited when USEPA states: "Today's rule specifies that the "compliance target" for the design and implementation of municipal storm water control programs is "to reduce pollutants to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the CWA." (64 FR 68753) In summary, the Permit's requirements that MS4 discharges do not cause or contribute to a violation of water quality standards are not subject to the MEP standard, and therefore do not exceed MEP.

Finally, California Water Code section 13241 states that in establishing water quality objectives, regional boards must consider "(c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area". The language "coordinated control of all factors" indicates the stringent standards to which water quality objectives are subject. Note that the language does not state "control of factors to the maximum extent practicable." It should also be noted that the water quality monitoring reports submitted by the Copermittees demonstrates that while significant exceedances of receiving water quality objectives are common, compliance with receiving water quality is sometimes achieved. That the Copermittees have sometimes achieved compliance with the receiving water quality objectives with the current urban runoff management program exhibits that receiving water limitations in the Tentative Order can be reasonable achieved. Furthermore, USEPA exhibits its belief that compliance with water quality standards for wet weather discharges is achievable when it states "EPA anticipates that a permit for a regulated small MS4 operator implementing BMPs to satisfy the six minimum control measures will be sufficiently stringent to protect water quality, including water quality standards [...]" (64 FR 68753).

Section A (Prohibitions - Discharges) and Section C (Receiving Waters Limitations) of the Tentative Order, therefore, together provide the clear objective of Tentative Order 2001-193 and clear guidance regarding the procedure to be followed by the Copermittee in order to return to compliance. The Copermittees return to compliance with receiving water quality objectives and discharge prohibitions through a process of the development and implementation of more stringent BMPs. The objectives, guidance, and procedures to be followed by the Copermittees are entirely consistent with the SWRCB Order WQ 99-05, the Clean Water Act, and California Water Code.

In summary, both the SWRCB and the USEPA conclude that the Regional Boards should continue to include the Receiving Water Limitations language that is now established in SWRCB Order WQ 99-05 in all future permits. Accordingly, the SDRWQCB has the discretion to include the Discharge Prohibitions items A.1, A.2, and A.3 in Prohibitions Discharges Section A and has included the precedential SWRCB Order WQ 99-05 Receiving Water Limitations language in Receiving Water Limitations Section C of Tentative Order No. 2001-193 under the broad and specific legal authority cited in the Fact Sheet/Technical Report.

Section A Subsection A.2

Comment: Regional Board staff agreed at the first Workshop on this Tentative Order that REC-1 and REC-2 standards do not distinguish between human and animal sources of bacteria. Therefore Prohibition A.2, which prohibits discharges from MS4s containing pollutants that cause or contribute to exceedances of receiving water quality objectives for surface water does indeed control naturally occurring pollutants that are not Man-Made. The City of Aliso Viejo is proud of our open spaces. Could these areas be contributing to bacterial counts in runoff and if so is it reasonable to regulate open space? (*Aliso Viejo*)

Response: While sources of bacteria, including those that are naturally occurring, are variable, it is the anthropogenic sources of bacteria that cause or contribute to exceedances of receiving water quality objectives that the Copermittees are responsible for preventing. While open spaces that support habitat and associated wildlife may be sources of background bacteria, these sources in their naturally occurring condition are far less likely to cause or contribute to exceedances of receiving water quality objectives than are anthropogenic sources. The derivation of the receiving water quality standards and the beneficial uses they are intended to protect include consideration of background levels of the constituents. Moreover, the certain bacterial indicators utilized (i.e. *Enterococcus* sp.) are generally more indicative of anthropogenic sources. Finally, maintenance of open spaces in most contexts maintains the assimilative capacity of the aquatic, riparian, and upland habitats that provide a buffer against exceedances of receiving water quality objectives.

Sections A, B

Comment: While the permit contains specific reporting and monitoring requirements, we believe that numerical parameters for any pollutants should be set. This would allow the RWQCB to more easily enforce and supervise Copermittees, as well as provide supporting data on the effectiveness of BMP's. (*Surfrider Foundation*)

Response: Although NPDES permits must contain conditions to ensure that water quality standards are met, this does not require the use of numeric effluent limitations. Under the Clean Water Act and federal NPDES regulations, permitting authorities may employ a variety of conditions and limitations in storm water permits, including best management practices, performance objectives, narrative conditions, monitoring triggers, actions levels (e.g., monitoring benchmarks, toxicity reduction evaluation action levels), etc., as the necessary effluent limitations, where numeric effluent limitations are determined to be unnecessary or infeasible.

Neither the Clean Water Act nor the federal NPDES regulations require numeric effluent limitations for municipal storm water discharges. Section 301 of the Clean Water Act requires that discharger permits include effluent limitations necessary to meet water quality standards. Section 502 defines "effluent limitations" to mean any restriction on quantities, rates, and concentrations of constituents

discharged from point sources. The Clean Water Act does not say that effluent limitations need be numeric. As a result, US EPA and States have flexibility in terms of how to express effluent limitations.

US EPA has, through the federal NPDES regulations, interpreted the Clean Water Act statute to allow for non-numeric effluent limitations (e.g., best management practices) to replace numeric effluent limitations where numeric effluent limitations are infeasible (40 CFR 122.44(k)). US EPA has found numeric effluent limitations infeasible because storm water discharges are highly variable both in terms of flow and pollutant concentrations, and the relationships between discharges and water quality can be complex. The current use of system-wide permits and a variety of jurisdiction-wide BMPs, including educational and programmatic BMPs, does not easily lend itself to the existing methodologies for deriving numeric effluent limitations.

It should be noted that while the Tentative Order does not specify numeric effluent limitations for municipal urban runoff discharges, it does not preclude numeric effluent limitations from applying to municipal urban runoff discharges into impaired water bodies. Where impaired water bodies are not meeting their water quality standards, numeric effluent limitations may be placed on municipal urban runoff discharges through the implementation of total maximum daily loads (TMDLs) or other means. Furthermore, methods utilized to calculate waste load allocations for TMDLs may eventually be used to develop numeric effluent limitations for urban runoff in municipal storm water permits.

Section B

Comment: B.2 & B.3. Section B.2. lists certain non-storm water discharges that are considered Page 9 by federal regulation to be “de minimis” discharges. Section B.3. seems to suggest that the Copermittees must initially evaluate all of the categories of non-storm water discharges in B.2. and determine which ones are and are not significant sources of pollutants. It appears that the discharges identified in this section only are prohibited if the Copermittee determines it to be a “significant source of pollutants”. How will the Copermittee make this determination? What process will be followed, support data needed, and detailed studies required for each discharge before each discharge is deemed acceptable? Can other discharges be allowed if determined to not be a “significant source of pollutants”?

At the August 8th public workshop in Laguna Niguel, Regional Board staff indicated that this evaluation was to be done in conjunction with normal, dry weather, screening and monitoring activities. Task #1 in Section Q (Page 49) requires that the Copermittees must identify all of the discharges in B.2 that will not be prohibited within 365 days following adoption of the Order. Task #2 requires examination of field screening results to identify water quality problems result from non-prohibited non-storm water discharges by January 3 1,2003. Task #33 does not require the Dry Weather Monitoring Program to be conducted until May 2003. Please clarify what is being required and when. (*Laguna Niguel,*)

Response: As described in 40 CFR 122.26(d)(2)(iv)(B)(1), the categories of non-storm water discharges listed in section B.2 (B.2 discharges) need only be prohibited from entering the MS4 if such discharges are identified by the Copermittees as a significant source of pollutants. This is not a change from the 1st or 2nd term Permits. The dry weather, screening and monitoring activities are tools for identifying “de minimis” non-prohibited discharge category(ies) (de minimis discharges) that may cause or contribute to an exceedance of water quality objectives when discharged to receiving waters. Copermittees should use any means reasonably available during the first 365 days to identify B.2 discharges that are a significant source of pollutants (i.e., Task 1) . One available tool is existing

monitoring data, including, but not limited to, data collected from prior and current dry-weather monitoring activities. An evaluation of de minimis discharges as potential sources of pollutants using available water quality information is required within 365 days. Rather than proving that the de minimis discharge category(ies) are not a significant source of pollutants, the Copermittees are required to review their data to identify any de minimis discharge categories that are significant sources of pollutants. To the extent that water quality problems may be tied to a non-prohibited discharge category, the Copermittee is directed to address the discharge through prohibition or the implementation of BMPs to MEP as described in section B.3. The Tentative Order requires that the Copermittees identify any de minimis non-prohibited discharge categories that may be a significant source of pollutants and the activities that will be initiated to address these discharges in their Jurisdictional Urban Runoff Management Program (JURMP) Document (Task 1). As with the identification and elimination of illicit discharges, this is an ongoing assessment rather than a single event (Task 2). Task 2 indicates that this information is submitted as part of the JURMP Annual Report. The Copermittees may address any future identifications of de minimis non-prohibited discharge category(ies) as significant source of pollutants following the procedure detailed in section B.3 of the Tentative Order in its JURMP Annual Report. Task 33 describes the implementation of the Dry Weather Monitoring Program as required in section F.5 and Attachment E of the Tentative Order. Dry Weather Monitoring is conducted between May 1st and September 30th of each year beginning in May 1, 2003. Between the time of adoption of the Tentative Order and the implementation of this requirement, the Copermittees are directed to continue the implementation of the Orange County Water Quality Monitoring Program (99-04 Plan) that includes dry weather monitoring at selected sites. Task 33 has been revised in Table 5 to more clearly define this requirement. The SDRWQCB has the discretion to require Prohibition item B.5 and the Dry Weather Monitoring Program requirements in Section F.5 of the Tentative Order under the broad and specific legal authority cited in the Fact Sheet/Technical Report.

Section B

Comment: Multiple municipalities may contract with a single Fire Authority for service. Would it not be more appropriate to require copermittees to require that their Fire Authority develop and implement a program for reducing pollutants training and maintenance activities?

Fire Fighting Flows: We suggest that the wording in this section be changed so that instead of each co-permittee being required to develop and implement a program for reducing pollutants from non-emergency tire fighting flows, each co-permittee should require that the Fire Authority in their jurisdiction do so. This will allow Fire Authorities that serve multiple municipalities and jurisdiction to prepare a single program.

Item B.4 Fire Fighting Flows

Page 9 Reference is made that Emergency Fire Fighting Flows need not be prohibited. Non-Emergency Fire Fighting Flows should be also be listed separately in Item B.2 and subject to the same process to determine if it is a significant source of pollutants as provided for in Item B.3.

In section B.4 Fire Fighting Flows, the Tentative Order requires the development and implementation of a program to reduce pollutants from non-emergency fire fighting flows. The Tentative Order requires the involvement and cooperation of one or more agencies that are not Copermittees and are not under the jurisdiction of a Copermittee. The Tentative Order does not have a provision or a mechanism to either waive or extend to time for compliance with the requirement in these instances. In our specific case, the water system and fire hydrants are owned and maintained by South Coast Water District while the Orange County Fire Authority provides fire protection services to the City. The City has authority over neither and would, under the permit, be responsible for a required program

with no administrative authority over the principal participants. In such cases, it may be impossible to comply with this portion of the Order. We request that this situation be addressed in the permit. (*Aliso Viejo, Laguna Niguel, Dana Point*)

Response: The Tentative Order does not discourage such an approach. The Copermittees are required to develop or require the development of a program (e.g. by a Fire Authority) to reduce the discharge of pollutants resulting from training and maintenance activities to the MEP.

The Tentative Order adequately addresses these issues. The requirement that the Copermittees shall develop and implement a program as part of the Jurisdictional Urban Runoff Management Programs to reduce pollutants from non-emergency fire fighting activities identified by the Copermittees to be significant sources of pollution may not be waived. The Tentative Order provides the Copermittees a year in which to address discharges from these activities through a program that implements or requires the implementation of BMPs. One mechanism available to the Copermittees in the Tentative Order is the encouragement of third party agreements to implement the requirements of the Tentative Order. Such agreements can specify that BMPs that meet the MEP standard are employed by the Fire Fighting agencies during non-emergency fire fighting activities. Furthermore, under their land-use authority, the Copermittees have the authority to prohibit illicit discharges and to regulate activities that may result in discharges to their MS4s. In the above example, the Copermittee has the authority to require the Water District and Fire Authority to implement BMPs for non-emergency activities.

Section B

Comment: Section B.5 requires that each Copermittee “examine all dry weather analytical monitoring results collected in accordance with section F.5 and Attachment E of this Order to identify water quality problems which may be the result of any non-prohibited discharge category(ies) identified above in Non-Storm Water Discharges to MS4s ProhibitionB.2.” The Regional Board does not have the authority to require this monitoring. Please identify the statute or other legal authority which you believe allows the Regional Board to require dry weather analytical monitoring by Copermittees.

For those categories of non-storm water discharges that are not prohibited from entering an MS4, Item B.5 of the Tentative Order requires the Permittees to conduct certain follow-up investigations where such allowed non-storm water discharges are determined to be causing “water quality problems.” However, the County already completed its dry weather monitoring during the first permit term. As such, Item B.5 is superfluous and should be deleted from the Tentative Order.

Do Copermittees have to prove that B-2 discharges are not significant sources of pollution or only investigate if field screening identifies a potential problem? (*Laguna Niguel, County of Orange*)

Response: The requirement to assess the dry weather monitoring data to identify water quality problems that may be the result of any non-prohibited discharge is an ongoing requirement based on the 1990 Federal NPDES storm water regulations (40 CFR 122.26(d)(2)(iv)(B)(1-4) and is not superfluous. The quality of urban runoff can be adversely impacted by illicit discharges and connections (US EPA, 1983). Land use activities in a watershed may change over time and new sources of non-prohibited discharges or illicit prohibited discharges may develop. Elimination of these sources of pollutants can therefore result in a dramatic improvement in the quality of urban runoff discharges from MS4s, which in turn can result in improved receiving water quality. Thus, the requirement for municipal storm water Copermittees to conduct dry weather monitoring to detect and eliminate illicit discharges is an “ongoing” requirement rather a single event restricted to a first or second term permit (40 CFR 122.26(d)(2)(iv)(B)(2). Dry weather monitoring is also necessary to

identify these sources and evaluate the pollutant source potential of “de minimis” non-prohibited discharge categories (de minimis discharges) listed in section B.2 of the Tentative Order. Non-prohibited discharges can be significant sources of pollutants. These discharges can reach receiving waters causing negative impacts to receiving water quality. Follow-up investigations shall be conducted as necessary to identify and eliminate illicit discharges and control any de minimis discharge category(ies) that are found to be a significant source of pollutants. Rather than “proving” that the de minimis discharge category(ies) are not a significant source of pollutants, the Copermittees are required to review their data to identify any de minimis discharge categories that are significant sources of pollutants. To the extent that water quality problems may be tied to a non-prohibited discharge category, the Copermittee is directed to address the discharge through prohibition or the implementation of BMPs to MEP as described in section B.3. The Tentative Order requires that the Copermittees identify any de minimis non-prohibited discharge categories that may be a significant source of pollutants and the activities that will be initiated to address these discharges in their Jurisdictional Urban Runoff Management Program (JURMP) Document. As with the identification and elimination of illicit discharges, this is an ongoing assessment rather than a single event. The Copermittees may address any future identifications of de minimis non-prohibited discharge category(ies) as significant source of pollutants following the procedure detailed in section B.3 of the Tentative Order in its JURMP Annual Report. The SDRWQCB has the discretion to require Prohibition item B.5 and the Dry Weather Monitoring Program requirements in Section F.5 of the Tentative Order under the broad and specific legal authority cited in the Fact Sheet/Technical Report.

Section B

Comment: Section B.1, page 9, should be re-phrased to read, “Each Copermittee shall effectively prohibit all types of non-stormwater discharges into its Municipal Separate Storm Sewer System (MS4) unless such discharges are either authorized by a separate NPDES permit; not prohibited in accordance with B.2 and B.3 below, and/or have been treated to the Maximum Extent Practicable to remove pollutants.” For consistency, the SDRWQCB staff clarification described above for Section D. 1 .b would also apply to B. 1.

B.1. Prohibits all types of non-stormwater discharges unless authorized by separate NPDES permit or not prohibited in B.2. and B.3 - this does not allow for treatment BMPs of discharges not listed in B.2 unless have separate NPDES permit. Are car washes by youth or non profit groups where the wash water enters a street or a parking lot a prohibited activity? (*Laguna Niguel, Aliso Viejo, County of Orange*)

Response: Illicit discharges to the MS4 must be prohibited per federal regulations (40 CFR122.26(d)(2)(i)(B)). An illicit discharge is defined in the federal regulations as “any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.” Discharges from activities listed in section B.2 of the Tentative Order are later specifically exempted with the conditions described therein. As a result of the federal regulations, all other non-storm water discharges must be prohibited from entering the municipal separate storm sewer system.

Because non-storm water discharges other than those described in Section B.2 are prohibited, treatment BMPs, as discussed in the Tentative Order, are to be used to remove pollutants from storm water discharges to the maximum extent practicable. As a result, wash water from car washes other than individual residential car washing activities must be prohibited from entering the MS4.

Section B

Comment: Section B.4, page 9: a program to reduce pollution from non-emergency fire fighting flows is required only when identified as significant. Therefore, a completion date for this program should not be linked to the Order adoption date, but rather to the point at which such a determination is made. (*San Clemente*)

Response: Emergency fire fighting discharges do not require BMPs and are not prohibited. However, non-emergency fire fighting activities may be a significant source of pollutants and should be evaluated in the JURMP Document. To the extent that these discharges are identified by the Copermittee(s) as a significant source of pollutants, the Copermittee shall develop and implement a program within 365 days to reduce pollutants from non-emergency fire fighting activities. Section 122.26(d)(2)(iv)(B)(1) allows for permit conditions that either require municipal to prohibit or to otherwise control any of these types of discharges where appropriate. There may be instances where specified management practices are appropriate where these discharges do occur (e.e controlled blazes). Because the Tentative Order is a third term permit, it is appropriate that the Copermittees be directed to make a evaluation and determination on non-emergency fire fighting activities as a source of pollutants and require a program to reduce pollutants in these discharges should they be determined to be a significant source of pollutants.

Section B

Comment: Section B.3.c, page 9: The completion date specified in this section is inconsistent with the stated intent of this section. Section B.3 requires specific actions only when a discharge category listed in Section B.2 "is identified as a significant source of pollutants to waters of the United States." RWQCB staff reiterated in the August 8, 2001 public workshop that Section B.3 is intended only to trigger a response in the event that a Section B.2 discharge was determined to be a problem. Therefore, a completion date that is tied to the date of adoption of the Order is inappropriate as a discharge may be identified as a problem well after the specified completion date. Instead, the following text change is recommended:

"For each discharge category not prohibited, the Copermittee shall submit the following information to the SDRWQCB within 60 days of determining that the discharge category is a significant source of pollutants to waters of the United States:" (*San Clemente*)

Response: The completion date requirement in section B.3.c is appropriate. The requirement refers to non-prohibited, non-storm water discharge categories that a Copermittee has determined to be a significant source of pollutants. Since the Tentative Order is a third term permit, the Copermittees may have individually or collectively determined that one or more of these discharge categories may be a significant source(s) of pollutants. In that event, the Copermittees may prohibit the discharge category or not prohibit the discharge category and implement or require the implementation of BMP(s) to prevent or reduce pollutants to the MEP.

Section B Subsection B.2

Comment: Add a new item "r" to Section B.2, page 10: "B.2.r: Water being purposefully conveyed through MS4 facilities to a structural treatment site." (*Laguna Niguel*)

Response: Section B.2 includes only categories of non-storm water discharges listed in 40 CFR 122.26(d)(2)(iv)(B)(1) that do not have to be prohibited unless identified by the Copermittee as a significant source of pollutants. The Copermittees do not have the discretion to allow illicit discharges into the MS4 even if a structural BMP is implemented at some site removed from the discharge point. Storm water conveyed through MS4 facilities to a structural treatment site is not prohibited under the Tentative Order.

Section B Subsection B.2

Comment: Is reclaimed water included in the category of irrigation water and so therefore is it a non-prohibited discharge under B.2 unless it is determined to be a significant source of pollution?
(Aliso Viejo)

Response: Yes, reclaimed water being used for irrigation is included in the category of irrigation water. The use of recycled water within the jurisdiction of the South Orange County Wastewater Authority is regulated by this Regional Board under Order No. 97-052. Pollutants in discharges to recycled water use sites are reduced to meet body contact recreation criteria. In addition, facilities to be operated in accordance with best management practices (BMP's) to prevent direct human consumption of recycled water and to minimize misting, ponding, and runoff.

Section B Subsection B.2

Comment: If the Board staff think that the current water quality monitoring program needs to be revised, why not simply have the Permittees revise their existing 99-04 plan to include some additional comments? (The Permittees are already going to revise the program in 2002-2003 which would provide an opportune time to review the elements of the program). (County of Orange)

Response: The Copermittees are directed in Attachment B to collaborate to review and revise as necessary the 99-04 Plan and to include additional specific monitoring components for Orange County within the San Diego Region. The Fact Sheet /Technical Report recognizes the advanced monitoring work and commitment of the Orange County Copermittees. It is necessary, however, that the Receiving Waters Monitoring Program implemented under the Tentative Order address each of the hydrologic units in the San Juan Watershed Management Area within Orange County and assess the compliance of the Copermittees with the Tentative Order as well as the impact of the discharge of urban runoff on the physical, chemical and biological integrity of these receiving waters.

Section B Subsection B.2.b.8.a

Comment: In section B.2.b.8.a item d states that a professional environmental laboratory shall perform all sampling.....Why is this section this specific? Why are the Permittees not allowed to use trained staff to do the sampling if they so chose? (County of Orange)

Response: The definition of a professional environmental laboratory is inclusive of trained Copermittee staff that utilize standard methods and have any necessary certifications. Section B.2.b.8.a is specific with respect to the performance of sampling and analysis of bioassessment samples to clearly require that the work be performed at a professional level by trained staff. Aquatic bioassessment is a developing field with substantial analyst dependent variables in which citizen

volunteers currently play a significant role. Citizen volunteers, while an important resource, should not be relied upon by the Copermittees to perform this work.

Section B Subsection B.2.p

Comment: Please reword B.2.p. (individual residential car washing) with D.1.b.5 (washing or hosing of impervious surfaces). (*Laguna Niguel*)

Response: Individual residential car washing is identified as a non-storm water, non-prohibited discharge in 40 CFR 122.26(d)(2)(iv)(B)(1). This discharge does not have to be prohibited unless the Copermittee(s) determine it to be a significant source of pollutants. Washing or hosing of impervious surfaces as identified in section D.1.b.5 of the Tentative Order are illicit discharges and must be prohibited by the Copermittees as required in 40 CFR 122.26(b)(2). Consequently, the language of sections B.2.p and D.1.b.5 will not be revised. The SDRWQCB has discretion to require Prohibition item B.2. and the Legal Authority item D.1.b in Order No. 2001-193 under the broad and specific legal authority cited in the Fact Sheet/Technical Report.

Section B Subsection B.3

Comment: If a BMP prevents pollution of a B.2 discharge from entering the waterway, are there any further restrictions or prohibitions on the B.2 discharge? (*Clear Creek Systems*)

Response: The Tentative Order does not prohibit the discharge categories listed in Section B.2. The discharges listed in section B.2 were identified in 40 CFR 122.26(d)(2)(iv)(B)(1) as "de minimis" discharges that are considered to be acceptable discharges to the MS4 only when found by the Copermittees to not be a significant source of pollutants. Regarding these discharges, USEPA states "While EPA does not consider these flows to be innocuous, they are only to be regulated by the storm water program to the extent that they may be identified as significant sources of pollutants to waters of the United States under certain circumstances" (USEPA 1992). Thus, the Tentative Order only requires that these discharge categories be directly addressed by the Copermittees, individually or collectively, when they find that they are a significant source of pollutants. In such instances, the Copermittees may prohibit the discharge category or not prohibit the discharge category and implement or require the implementation of BMPs to reduce pollutants to the MEP and submit a report to the SDRWQCB regarding the discharge category. Nonetheless, for some of these discharge categories (e.g. landscape irrigation and lawn watering), general BMP programs like public education may provide opportunities for the Copermittees to address these discharges and prevent them from becoming significant sources of pollutants. For example, the public education requirements of section F.4.a of the Tentative Order includes water conservation as a topic to be included where appropriate. To the extent that the Copermittees determine that these discharge categories are not a significant source of pollutants, additional restrictions or prohibitions may be implemented by the Copermittees at their discretion, but are not required for these discharge categories.

Section D Subsection D.1

Comment: All requirements to control the quality of storm water discharges into the MS4 should be deleted from the permit. Federal regulations require permittees to effectively prohibit non storm

water discharges into the storm drain system and to have legal authority to take action to control the quality of storm water discharges into the storm drain system. The regulations do not mandate that the quality of all storm water discharges into the MS4 be controlled. A municipality is responsible for the quality of the discharges from its storm drain system, and methods of compliance are also the City's responsibility.

Finding No. 15 is incorrect. It is based on a statement in the Final Rule for the Phase II regulations designed to encourage the Phase II communities to be more proactive than the regulations require. As the staff recognizes on page 54 of the Fact Sheet/Technical Report, if a municipality does not prohibit non-storm water discharges, it must accept responsibility for the water quality consequences of its decision. In other words, the municipality is responsible for the quality of discharges from its MS4. The staff goes on to say that, "For these reasons, each Co-permittee must prohibit and/or control discharges from third parties to its MS4." This is an extrapolation of existing law. A municipality is responsible for the quality of the discharges from its storm drain system, with the methods of achieving compliance up to the municipality. The proposed approach may lead to appeals and possibly litigation.

It appears that the Regional Board may be attempting to expand authority over local government in a manner not prescribed by the Clean Water Act. 40 CFR 122.26(d)(2)(i) only requires that permittees demonstrate that they operate pursuant to legal authority to take certain actions. The draft permit dictates that municipalities control the quality of storm water entering their storm drains. These requirements are clearly contrary to both state and federal law and should be deleted from the permit.

The permit, by regulating flow both into and out of the MS4, exceeds the jurisdiction of the NPDES program. Neither federal nor state law provides the Regional Board with the authority to regulate discharges into the MS4. Clean Water Act Section 402(p)(3)(B)(iii) is limited to "discharges from municipal storm sewers". The statute does not authorize the regulation of discharges into MS4s. Congress likely refrained from regulating discharges into MS4s because any such regulation would impinge upon the authority of local officials to regulate land use and development.

The first prohibition eliminating discharges into and from MS4s is an inconsistent requirement with the Clean Water Act. The Order should strike the term "into" and rely upon Best Management Practices to minimize pollutants from Urban runoff, if any, into an MS4 recognizing many pollutant sources are not under the control of the co-permittee. Urbanization will necessarily result in some pollutants entering into the MS4 but, efforts can be made to reduce the pollutants prior to the drainage entering the receiving waters. The prohibition into the MS4 is inconsistent with the definition of receiving water and should be revised. (*Mission Viejo, Laguna Hills, Richard Watson and Associates, Dana Point, County of Orange, Lagna Niguel, Construction Industry Coalition on Water Quality*)

Response: The Clean Water Act is clear that Copermitees must prohibit non-storm water discharges into its MS4. It states at section 403(p)(3)(B)(iii) that Copermitees shall "prohibit non-storm water discharges into the storm sewers." The requirement for control of discharges into the MS4 is also currently clearly required of the Copermitees in Order No. 96-03. Section III.3 of Order No. 96-03 states "The permittees shall prohibit illicit/illegal discharges from entering into the municipal separate storm sewer systems... and require controls to reduce the discharge of pollutants to the maximum extent practicable." Moreover, the same language was included in Order No. 90-38 in Section III.A. Section III.6 is more direct when it states: "The permittees shall reduce the discharge of pollutants to the storm water conveyance systems to the maximum extent practicable." This requirement was also generally addressed in Order No. 90-38 in section III.C. Because of the risk to receiving waters resulting from the discharge of urban runoff and given that the Tentative Order is a third term permit and the requirement has been included during both previous permits it not warranted to eliminate this requirement.

USEPA supports the concept that Copermittees cannot passively receive and discharge pollutants from third parties. As US EPA states, “The operator of a small MS4 that does not prohibit and/or control discharges into its system essentially accepts ‘title’ for those discharges. At a minimum, by providing free and open access to the MS4s that convey discharges to the waters of the United States, the municipal storm sewer system enables water quality impairment by third parties” (USEPA, 1999b).

Discharges of pollutants to the MS4 must therefore be controlled, and an important means for a municipality to achieve this is through the development and enforcement of municipal legal authority. USEPA states “A crucial requirement of the NPDES storm water regulation is that a municipality must demonstrate that it has adequate legal authority to control the contribution of pollutants in storm water discharged to its MS4. [...] In order to have an effective municipal storm water management program, a municipality must have adequate legal authority to control the contribution of pollutants to the MS4. [...] ‘Control,’ in this context, means not only to require disclosure of information, but also to limit, discourage, or terminate a storm water discharge to the MS4” (USEPA, 1992).

Since discharges which enter the MS4 are generally discharged unimpeded directly into receiving waters, the Copermittee’s legal authority is to apply to both discharges into and from MS4s. Federal NPDES regulations clearly provide the SDRWQCB with the legal authority to require municipalities to control discharges from third parties into their MS4. 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in urban runoff from commercial, residential, industrial, and construction land uses or activities. Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(A - D) also require municipalities to have legal authority to control various discharges to their MS4. This concept is further supported in the Preamble to the Phase II Final Rule NPDES storm water regulations, which states “The operators of regulated small MS4s cannot passively receive and discharge pollutants from third parties” (USEPA, 1999b). Due to the greater water quality concerns generally experienced by larger municipalities, Phase II Final Rule findings for small municipalities are also applicable to larger municipalities such as the Copermittees. Finally, underlying the Federal NPDES storm water regulations is the Clean Water Act, which states in section 402(p)(3)(B)(ii) that municipalities shall “effectively prohibit non-stormwater discharges into the storm sewers.”

It is important to note the SWRCB also supports control of discharges into MS4s. The SWRCB recently upheld the LARWQCB SUSMP requirements in Order WQ 2000-11. These requirements place significant restrictions on discharges from third parties into MS4s. In fact, the SUSMP provisions included in the Tentative Order, as upheld by the SWRCB, represent the most stringent and specific requirements in the Tentative Order regarding the control of discharges into the MS4.

Finally, the requirement for municipal storm water dischargers to have, and exercise, local governmental authority in order to comply with water quality control obligations is analogous to the requirement for Publicly Owned Treatment Works to have and exercise legal authority to require pretreatment of industrial wastes being discharged to their sewage collections systems (CWA 402(b)(8)).

Section: C

Comment: Does the discharge from a MS4 have to meet the water quality objectives for the beneficial uses of the receiving water if the receiving water is already in compliance? (I.e., Receiving water meets REC 1 or REC 2 objective for fecal coliform, but MS4 discharge does not).

Under the Tentative Order, does the discharge from an MS4 have to meet the water quality objectives for all beneficial uses of the receiving water? What about potential beneficial uses? (*Laguna Niguel*)

Response: The discharges from the MS4 cannot cause or contribute to an exceedance of water quality objectives. It is understood that receiving waters may assimilate some pollutants and the Basin Plan prohibitions implemented under this Tentative Order allow for dilution of contaminants in receiving waters. The Tentative Order is intended to protect both existing and potential beneficial uses of waterbodies as identified in the Basin Plan. The issue of the receiving water quality limitations language in the Tentative Order is extensively discussed elsewhere in this document.

Section: D

Comment: The legal authority provision should follow the requirements of the Phase 1 regulations (40 CFR 122.26(d)(2)(i)(A-F)), which provide the coverage as well as the flexibility in implementing a BMP program. Thus we suggest that Provision D.1.b be deleted and in its place the Phase 1 requirements be included. Alternatively, we would recommend that the provision be modified to allow non stormwater discharges if BMPs are implemented.

The lead sentence in D.1.b, page 12, should be adjusted to read, "Prohibit all identified illicit discharges not otherwise allowed pursuant to section B.2 from which pollutants have not been removed to the Maximum Extent Practicable, including but not limited to: " At the second workshop SDRWQCB staff clarified that the Prohibitions in Section D.1.b, page 12, relating to "illicit discharges" refer to discharges from which pollutants have not been removed to the maximum extent practicable. This is an extremely important clarification with respect to the practical feasibility of creating ordinances and achieving compliance with this Order. (*Laguna Niguel,*)

Response: The federal Phase 1 regulations (40 CFR 122.26(d)(2)(i)(B)) state that legal authority must authorize or enable the copermittees to "prohibit through ordinance, order or similar means, illicit discharges to the municipal separate storm sewer." Accordingly, section D.1.b of the Tentative Order requires the copermittees to "prohibit all illicit discharges, including but not limited to..." Several illicit discharges are subsequently listed. California Water Code The federal regulations in 40 CFR 122.26(b) define illicit discharge as "any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities." Thus, non-stormwater discharges are prohibited. In order to provide the Copermittees with flexibility and discretion, under Tentative Order the Copermittees will specify which BMPs they will implement or require to be implemented to reduce pollutants in urban runoff discharges to the MEP.

Section: D

Comment: Is the washing down of individual driveways a prohibited activity? The prohibition of residential hosing of impervious surfaces (Section D.1.b(5)) should be eliminated from the Order and replaced with educational efforts to encourage residential property owners to sweep their property in lieu of hosing with water. It is entirely impractical to enforce such a prohibition, another directive. A prohibition that cannot be enforced is not appropriate. With over 10,000 homes in our small community, it is infeasible to establish a policing force to eliminate this occurrence.

The permit contains conflicting provisions that will make compliance difficult, such as initially permitting individual car washing in Section B.2.p. while prohibiting discharges of wash water from

residential driveways in Section D.1.b(5). How does the Regional Board envision the municipalities enforcing the no hosing down of residential driveways? Section D.1.b(5) prohibits hosing of impervious areas from residential areas. Realistically, how do you expect that cities can prevent residents from hosing off driveways and sidewalks, etc.? Would the city or the resident be liable (assume City is conducting appropriate public education)? (*County of Orange, City of San Clemente, Laguna Hills, Mission Viejo, Lake Forest, Laguna Niguel*)

Response: Washing down of individual driveways is a prohibited activity for eleven years under both the first and second term permits. Federal NPDES regulation 40 CFR 122.26 (b)(2) defines an illicit discharge as "any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities." Individual residential car washing, however, is specifically exempted from prohibition under the Federal regulations and is included in the list of non-prohibited non-storm water discharges in section B.2 of the Tentative Order.

In southern Orange County, hosing of impervious surfaces in residential areas has been identified as an activity that can contribute a significant amount of pollutants to the MS4. Many municipalities in the region are currently citing property owners and contractors who wash down impervious surfaces containing materials such as oil and grease, sand, masonry materials, and others for violations of local storm water ordinances. To date, educational letters have comprised the majority of enforcement actions, and violators are warned that fines will result from repeat occurrences. As violations of this nature are reported, we refer the case to the local municipality for enforcement under local ordinances. If a municipality does not adequately take actions, we would consider both the municipality and the landowner to be responsible.

Section D Subsection D.1

Comment: This paragraph requires "Each Copermitee shall establish, maintain and enforce adequate legal authority..." The discussion on Page 47, third paragraph, of the Draft Technical Report/Fact Sheet clarifies that this section requires the Copermitees to have legal authority, but "does not require the discharges to be prohibited in all instances, but rather requires the Copermitees to have the legal authority to prohibit such discharges in the event that prohibition is determined to be necessary." This clarification is useful, but the Permit language itself needs to be modified to assure that this interpretation is clear. The first sentence of paragraph D.1 should be revised to delete the words "and enforcement." Enforcement requirements are addressed elsewhere in the document, and to leave the words here is confusing. (*Laguna Niguel*)

Response: The discussion cited inadvertently confused non-storm water discharges that are not required to be prohibited (section B.2) with prohibited illicit discharges specifically identified in section D.1.b. The discharges listed in section D.1.b are illicit discharges that must be prohibited. The discussion concerned the broader issue of dry weather flows, some of which originate from the non-storm water, non-prohibited discharge categories cited in section B.2 of the Tentative Order. It is in reference to these non-prohibited, non-storm water discharge categories that comment cited refers when it states that the Tentative Order "does not require the discharges to be prohibited in all instances..." The non-storm, non-prohibited discharge categories listed in section B.2 do not need to be prohibited unless they are found to be significant sources of pollutants. In that even, the Copermitees have the discretion to not prohibit the discharge and implement or require the implementation of BMPs to prevent or reduce the pollutants to the MEP. The Fact Sheet/Technical Report for Tentative Order 2001-193 has been revised to clarify the intent of the discussion.

Section D Subsection D.1

Comment: Item D.1 of the Tentative Order should be accordingly revised to comport with the relevant CWA regulations at 40 C.F.R. § 122.26(d)(2)(i)(A-F). (*County of Orange*)

Response: The requirements of section D.1 of the Tentative Order fully support the federal regulations cited at 40 CFR 122.26(d)(2)(i)(A-F).

Section D Subsection D.1

Comment: Add a Citation to Authority to Prohibit Illicit Discharges. Parts D.1.b and h, on page 11, implement the requirement of 40 CFR § 122.26(d)(2)(i)(B) and (F) that Co-permittees are to possess the legal authority to prohibit “Illicit Discharges” and to conduct inspections, but fails to cite or refer to 40 CFR § 122.26(d)(2)(i)(B) or (F).

Recommendation: To improve the Order, change the “P” in “Prohibit” to lower case and add the following: “In accordance with the requirements of 40 CFR § 122.26(d)(2)(i)(B) and 40 CFR § 122.26(d)(2)(i)(F), prohibit...” (*Lake Forest & Laguna Woods*)

Response: The Fact Sheet/Technical Report provides sufficient citation of the broad and specific legal authority for the Leagl Authority items D.1.b and D.1.h cited in the comment.

Section D Subsection D.1.B

Comment: Many of the proposed requirements in the draft permit would be administratively and operationally overwhelming to implement and would be an attempt to expand Regional Board control over City policies and procedures. We are concerned in particular that the permit contains conflicting provisions that will make compliance difficult, such as initially permitting individual car washing in Section B.2.p. while prohibiting discharges of wash water from residential driveways in Section D.1.b(5).

The new permit is proposing to impose a number of unanticipated unfunded mandates on local government. Inspection costs would be extremely burdensome. The requirement to prohibit “Discharges of wash water from the cleaning or hosing of impervious surfaces in municipal, industrial, commercial, and residential areas including parking lots, streets, sidewalks, driveways, patios, plazas, work yards and outdoor eating or drinking areas, etc.” is administratively overwhelming. Taken to the extreme, this provision will require the deployment of a storm water police force. (*Mission Viejo, Lake Forest, San Juan Capistrano*)

Response: Individual residential car washing is specifically exempted from prohibition under the Federal regulations, and municipal inspectors should be able to differentiate between a car-washing activity and wash down of a residential driveway.

In southern Orange County, hosing of impervious surfaces in residential and commercial areas has been identified as an activity that contributes a significant amount of pollutants to the MS4. Many municipalities in the region are currently citing property owners and contractors who wash down

impervious surfaces containing materials such as oil and grease, sand, masonry materials, and others for violations of local storm water ordinances. To date, educational letters have comprised the majority of enforcement actions, and violators are warned that fines will result from repeat occurrences.

Section D Subsection D.1.B

Comment: Legal Authority 1.b. (2), (4), (5), (6) These are all prohibited discharges which result from washing down exterior areas. The Board does not distinguish between existing development and new development in this section. This provision will effectively force the cities to require that all existing commercial or industrial developments that need to perform these types of activities for the proper function of their business obtain an NPDES permit from the Board for their discharges. A more workable provision would be to require the permittees to prohibit these discharges from new development so that new facilities can be designed to avoid such discharges. However, for existing development the discharges should be prohibited by the permittees unless appropriate BMPs are implemented in accordance with B.3. (*Aliso Viejo*)

Response: The discharges cited by the commenter in section D.1.b are illicit discharges that were prohibited under the Phase I storm water regulations promulgated in 1990 (40 CFR 122.26(b)(2) and apply irrespective of new or existing development. The Copermittees are required to effectively prohibit these illicit discharges; the option to implement BMPs for non-storm water discharges apply only to the non-storm water, non-prohibited discharges identified in section B.2 of the Tentative Order. Both the first term permit Order No. 90-38 (section III) and the second term permit Order No. 96-03 (section III) required the Copermittees to effectively prohibit these discharges. The Tentative Order will not effectively require that all existing commercial or industrial developments that need to perform these types of activities for the proper function of their business obtain an NPDES permit from the SDRWQCB for their discharges.

Section D Subsection D.1.B

Comment: PART D.1.h Should be Revised to Conform to EPA Regulations as to "Reasonable Times." Part D.1.b, on inspection and copying of records, on page 11, fails to mention the limitation imposed by 40 CFR § 122.41(i), which provides that that access to all documents as may be required by law shall be conducted at "reasonable times."

Recommendation: PART D.1.b, on page 11, would be improved if it were revised to read as follows: "review, at reasonable times, and copy any records required by this Order, in accordance with 40 CFR § 122.41(i)." (*Lake Forest & Laguna Woods*)

Response: Section D.1.h requires that the Copermittees submit a certified statement of adequate legal authority to carry out all inspections, surveillance, and monitoring necessary to determine compliance and noncompliance with local ordinances and permits and with this Order, including the prohibition on illicit discharges to the MS4. It is assume that the legal document authorizing the Copermittees to perform these tasks will specify "reasonable times".

Section D Subsection D.1.b

Comment: Legal Authority Item D.1.b should be revised to delete the “examples” of illicit discharges. The legal authority requirements relating to illicit discharges should comport with the requirements of the CWA regulations at 40 C.F.R. § 122.26(d)(2)(i)(B). This will allow for greater flexibility in Permittee programs by allowing them to permit certain non-storm water discharges through the development and implementation of source control/treatment control BMPs for such discharges. (*County of Orange*)

Response: The Copermitees do not have the discretion to permit illicit discharges. The requirements of section D.1 of the Tentative Order fully support the federal regulations cited at 40 CFR 122.26(d)(2)(i)(A-F). The Copermitees are required under 40 C.F.R. § 122.26(d)(2)(i)(B) to "prohibit through ordinance, order, or similar mean, illiict discharges to the municipal separate storm sewer." The list of illicit discharges in section D.1.b include illicit discharges found to be significant problems in the San Diego Region. For example, sewage (D.1.b.1) discharges into MS4s is a major problem in Orange County and has been identified as contributing to impairment of receiving water quality. The SDRWQCB has the discretion to require the Legal Authority item D.1.b in the Tentative Order under the broad and specific legal authority cited in the Fact Sheet/Technical Report.

Section D Subsection D.1.B

Comment: In response to a question, Dave clarified that the "illicit discharges" that are prohibited refers to "discharges not treated to MEP." This verbage should be included in the sentence for clarity. (*Laguna Niguel*)

Response: Comment noted. All non-storm discharges, except those allowed pursuant to section B.2 of the Tentative Order, are prohibited. Pollutants in all permitted discharges to a MS4 must be reduced to MEP.

Section D Subsection D.1.b

Comment: Section D.1.b.2,4,5, and 6: These are all prohibited discharges which result from washing down exterior areas. Does the Board intend for commercial or industrial entities that need to perform these types of activities to obtain an NPDES permit from the Board? (*Aliso Viejo*)

Response: No, it is not likely that such discharges would comply with receiving water standards. Commercial and industrial entities must clean exterior areas without allowing discharges of washwater to a MS4.

Section D Subsection D.1.g

Comment: Shouldn't control of contribution of pollutants occur as part of the TMDL process? Why not simply include the requirement that the copermitees will comply with the TMDLs as they are promulgated? (*Aliso Viejo*)

Response: As total maximum daily loads (TMDLs) are developed, it is likely that MS4s will have to participate in pollutant load reductions. Currently there are no TMDLs for the receiving waters that are

targeted in this Tentative Order. In the interim, the use of iterative BMPs in place of numeric effluent limits has been approved by the Ninth Circuit Court of Appeals (*Defenders of Wildlife v. Browner*, 1999, 197 F. 3d 1035).

Section D Subsection D.1.h

Comment: This section requires the Copermittees to carry out inspections, surveillance, and monitoring necessary to determine compliance and non-compliance with local ordinances and permits and, this Order. The section requires the Copermittees to have the authority to enter, sample, inspect, review, and copy records from industrial facilities and construction sites. This section may conflict with Constitutional prohibitions against unlawful search and seizure. How can the Copermittee have the power and authority to enter property and search records of existing industrial sites without a search warrant? Please cite the specific legal authority which the Board believes the Copermittees possess to implement this provision. (*Laguna Hills*)

Response: Local governments, like state and federal governments, are precluded from unreasonable searches for and seizure of evidence, and, absent extraordinarily exigent circumstances, must obtain warrants before inspecting private property to enforce local ordinances. Nevertheless, it is common governmental practice to require persons who must obtain governmental authorization for their activities, or whose activities are subject to governmental regulation, to consent to reasonable inspection by the regulatory officials of the government. Thus, persons who discharge waste that could affect the quality of the waters of the state are required as a condition of their waste discharge requirements to allow inspection and sampling by the Regional Board. Similarly, local governments regulate development, construction, and industrial and commercial uses of property within their jurisdiction. Commercial food service establishments are subject to inspection by local health officials as a routine matter and construction sites are visited by building inspectors. Municipalities are required by federal NPDES regulations to have or develop legal authority to implement regulatory programs needed to reduce the discharge of pollutants to MS4, including the authority to inspect sources of pollutants that are discharged to MS4. Given the routine nature of local governmental inspections to enforce local health and building ordinances, it is not unreasonable to expect municipalities to provide authority for such inspections as may be necessary to reduce pollutants in MS4 by the consent of persons subject to the municipalities' regulatory authority. The SDRWQCB has the broad legal authority to require Legal Authority D.1.h cited in the fact Sheet/Technical Report: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Section D Subsection D.2

Comment: Section D.2 requires the Chief Legal Counsel of each Copermittee to certify that the Copermittee "has adequate legal authority to implement and enforce" each of the requirements of the Order. This certification must cite the "urban runoff related ordinances" adopted by the Copermittee and explain why they are enforceable. The Copermittee's enforcement procedures must be described. The Regional Board has no authority to require such a certification. The Regional Board has no authority to require that specific ordinances or statutes be adopted. The municipalities have the jurisdiction to determine what ordinances to adopt to ensure compliance with discharge requirements, (*Laguna Niguel*)

Response: The SDRWQCB is justified in requiring the Copermitees to submit a certified statement of adequate legal authority. California Water Code section 13377 provides that the Regional Boards shall issue waste discharge requirements which apply and ensure compliance with all applicable provisions of the Federal Water Pollution Control Act (33 U.S.C. §1251 et seq.), as amended, also known as the federal Clean Water Act (CWA). Tentative Order No. 2001-01 is written to implement CWA requirements, therefore the SDRWQCB can require the municipalities to demonstrate that they have adequate legal authority to implement the Tentative Order's requirements. The legal authority requirements can be found at 40 CFR (Code of Federal Regulations) 122.26(d)(2)(i). This section states that Copermitees must demonstrate that they "can operate pursuant to legal authority established by statute, ordinance or series of contracts which authorizes or enables the applicant at a minimum to: (A) Control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity; (B) Prohibit through ordinance, order or similar means, illicit discharges to the municipal storm sewer; (C) Control through ordinance, order or similar means the discharge to a municipal separate storm sewer of spills, dumping or disposal of materials other than storm water; (D) Control through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system; (E) Require compliance with conditions in ordinances, permits, contracts or orders; and (F) Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and non-compliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer." The SDRWQCB has discretion to require Legal Authority item D.2 in Order No. 2001-193 under the broad and specific legal authority cited in the Fact Sheet/Technical Report.

Section D Subsection D.2

Comment: Legal Authority Item D.2 calls for each Permittee's chief legal counsel to certify a statement that the Permittee has adequate legal authority to implement and enforce the requirements of 40 C.F.R. § 122.26(d)(2)(i)(A-F) and the Tentative Order. The County's County Counsel has no objection to certifying such a statement. However, to the extent that the required statement includes items on which the County Counsel is not qualified to provide a legal opinion, or on which the County Counsel has no expertise, the County objects to the required items. For example, Item D.2.a calls for facts that are not within the knowledge or expertise of the County Counsel. Similarly, Items D.2.b and d call for the County Counsel to certify as to the reasons certain ordinances are enforceable and how they are implemented. Generally, the County and other Permittees have discretion as to how to enforce and implement a particular ordinance. Accordingly, these requirements would require the County Counsel to speculate as to how a particular department would implement and enforce an ordinance. Legal Authority Item D.2 should be revised accordingly to reflect these concerns. (*County of Orange*)

Response: Section D.2 of the revised Tentative Order is consistent with 40 CFR 122.26(d)(2)(1). Section D.2 requires each Copermitees' chief legal counsel certify and submit to the SDRWQCB a statement that the Copermitee has adequate legal authority to implement and enforce each of the requirements of the 40 CFR 122.26 (d)(2)(I)(A-F) and the Tentative Order. This is not a certification of the Jurisdictional Urban Runoff Management Program itself and does not require the Copermitees to speculate as to reasons certain ordinances are implementable or enforceable. The Copermitees have 365 days in which to compile and consolidate the information necessary for the requirements of section D.2 of the Tentative Order.

Section E

Comment: "Maximum extent practicable" is a vague term to me. What are the extent of an MEP?
(*Michael Hazzard*)

Response: MEP is described in the Glossary (Attachment D) of the Tentative Order. It is a technology-based standard without a strict definition because it is dynamic. The Regional Board follows an opinion of MEP articulated by the Senior Staff Council of the SWRCB. It describes factors that may be useful to consider when selecting BMPs to achieve MEP, and states in part that to achieve MEP municipalities must employ whatever BMPs are technically feasible and are not cost prohibitive. The Copermittees will propose their definition of MEP via the BMPs selected in Urban Runoff Management Plans. The final determination regarding whether a municipality has reduced pollutants to the MEP can only be made by the Reigonal or State Boards.

Section E

Comment: Why are industrial and construction activities owned by the Copermittee subject to the BAT/BCT performance standards while all other industrial and construction activities are only subject to the MEP standard? (*Laguna Niguel*)

Response: Industrial and construction activities subject to statewide NPDES permits are subject by Federal regulations to meet BAT/BCT as a technology-based performance standard. The municipalities must control pollutants in storm water to and from the MS4 for all other urban land use activities, including construction and industrial activities not subject to the statewide general NPDES permits, to the maximum extent practicable in order to meet the Federal requirements of the Municipal NPDES storm water permit.

Section E.4 Subsection E.4.d.1.e

Comment: In Section E.4.d.1.e of Attachment E of the Dry Weather Monitoring list Enterococcus bacteria twice within the analytical monitoring parameters. What did you actually want? Fecal coliform, acute or chronic toxicity, or (dare I say) virus? (*Irvine Ranch Water District*)

Response: The second Enterococcus should read Fecal Coliform. The Tentative Order has been revised to correct this error.

Section F

Comment: We believe that the Board and co-permittees have similar goals for this permit-to obtain as much water quality improvement as possible as quickly and efficiently as possible. To spend a year writing the specified plans that will sit on the shelf is counterproductive. The City of Aliso Viejo prefers to spend less time and effort on program writing and documentation and more effort on program development and implementation while still providing for accountability to the Board. The City of Aliso Viejo would like the flexibility to prioritize the required elements of the urban runoff management

plan and begin immediate development and implementation of those elements and the corresponding tasks that are likely to address most directly the specific water quality problems of the watershed. Staggered implementation of other elements will allow us to be most responsive to the Board's Directive for Aliso Creek

One way for the Board to oversee this process while still allowing the co-permittees the flexibility to deal with watershed-specific priorities is to group the URMP requirements into cohesive elements. Allow 24 months to fully develop and implement all elements of the JURMP, and require that a minimum number of elements be developed and implemented within the first year. Let the permittees prioritize implementation of the elements based on water quality priorities. Permittees would be required to develop and implement the remaining elements of the URMP during the second year. At the end of the second year the JURMP will be complete and furthermore, because it has been field tested, it will be a functional program from an implementation standpoint. For example, in jurisdictions where excess sediment is a high water quality concern the Construction elements of the JURMP may be among the prioritized elements, while in jurisdictions where bacterial pollutants are of highest concern the permittees may focus on existing land use-based elements in areas of greatest concern such as commercial/industrial elements or residential elements, depending on what land use areas are causing the greatest exceedances. As the prioritized elements are developed they can be shared with other co-permittees who may have prioritized other elements of the URMP. Furthermore, experience gained in implementing prioritized plan elements can be parlayed into streamlining implementation of other plan elements. (*Aliso Viejo*)

Response: The SDRWQCB appreciates the efforts of the recently incorporated (July 2001) City of Aliso Viejo to respond to the water quality concerns in Aliso Creek and to submit thoughtful comments on the Tentative Order. Based on the longevity of storm water management in Orange County and the progress made to date by the copermittees to the San Diego Municipal Storm Water Permit (Order 2001-01), the development and implementation of the Tentative Order's requirements are realistic and achievable. The SDRWQCB also appreciates that the City recognizes that an adaptive management approach is critical for addressing water quality concerns. However, allowing an additional year to develop components of the Jurisdictional Urban Runoff Management Program (JURMP) would not ensure that those elements would be "field tested," but rather would allow each copermittee to delay consideration of potentially significant sources of pollutants.

The SDRWQCB and the City of Aliso Viejo (and the federal EPA) do share an interest in the use of prioritization to efficiently use limited resources for preserving and enhancing water quality. Rather than a land-use based prioritization process, however, the federal NPDES regulations and the Tentative Order call for a pollutant and waterbody-based prioritization process. For instance, sites and activities are to be prioritized based on the threat to water quality so that resources expended accordingly. For existing development, therefore, the Tentative Order requires activities within each of the land uses (municipal, industrial, commercial, residential) to be assessed within one year so that priorities can be set and implementation at can begin. The City does not need to postpone implementation of the JURMP or any of its components until 365 days after adoption of the Tentative Order, and is encouraged to implement components as they are developed.

In addition, the SDRWQCB encourages the sharing of information between copermittees during the development of the JURMP and other tasks of the Tentative Order. The copermittees to the San Diego Municipal Storm Water Permit (Order 2001-01) have been cooperatively developing model components, and SDRWQCB staff have been providing support. As the model components are developed, they are being posted on-line by the County of San Diego, and they can be viewed at http://www.co.san-diego.ca.us/cnty/cntydepts/landuse/env_health/pcw/.

Section F

Comment: Requirements for a proposed management plan to reduce the discharge of pollutants to the maximum extent practicable are described in 40 CFR 122.26(d)(2)(iv). Management programs may impose controls on a system-wide basis, a watershed basis, a jurisdiction basis, or on individual outfalls. The programs “shall describe priorities for implementing controls.” These programs are to be based on a number of factors with the mix of controls and the priorities established by the permittees. It appears that the proposed permit interprets the meaning of this section of the regulations to enable the Board staff to prescribe how local governments are to use their authorities to comply with the provisions of the Clean Water Act. It is the responsibility of the permittee to determine the most appropriate mix of source controls and treatment controls to control discharges from its storm drain system to the maximum extent practicable. (*San Juan Capistrano*)

Response: The SDRWQCB has the authority to assign site priorities for oversight by the Copermittees. The Federal NPDES regulations clearly place an emphasis on the prioritization of sites of various land uses. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(3) provides that the proposed management program include “A description of procedures for identifying priorities for inspecting sites and enforcing control measures which consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality.” Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(5) provides that the proposed management program include “A description of a program to monitor pollutants in runoff from operating or closed municipal landfills or other treatment, storage or disposal facilities for municipal waste, which shall identify priorities and procedures for inspections and establishing and implementing control measures for such discharges.” Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C)(1) provides that the Copermittee must “identify priorities and procedures for inspections and establishing and implementing control measures for such discharges.”

The Tentative Order’s requirements regarding site prioritization are more detailed than those in the Federal NPDES regulations. The SDRWQCB has increased the detail of the site prioritization requirements under Clean Water Act section 402(p)(3)(b)(iii), which states that a storm water program “shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.”

Furthermore, the SWRCB upheld in Order WQ 2000-11 prioritization of sites by a Regional Board in the LARWQCB SUSMP. The LARWQCB SUSMP identified various priority development project categories which are high priority. The SWRCB found that identification of high priority sites was appropriate.

With respect to the comment concerning the SDRWQCB authority to prescribe how local governments are to use their authorities to comply with the provisions of the Clean Water Act, the Tentative Order contains the framework for the minimum requirements considered by the SDRWQCB to be necessary to achieve MEP. The requirements in the Tentative Order are based on the Federal NPDES regulations and USEPA and SWRCB guidance. Where the Tentative Order is more specific than the Federal NPDES regulations, it is based on USEPA and SWRCB guidance. The SDRWQCB has authority to include more specific requirements than the Federal regulations under CWA section 402(p)(3)(B)(iii) and CWC section 13377. USEPA supports the approach of increasingly detailed storm water permits, stating “The interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards” (USEPA, 1996). The Tentative Order does not require that Copermittees abandon the prioritization of water quality

issues or their mechanisms to optimize the use of their resources, but rather to review and as necessary revise or expand them. The prioritization and approaches to water quality issues related to the management of urban runoff, however, must address all of the receiving waters in the San Juan Creek Watershed Management Area in Orange County subject to the discharge of urban runoff. The development of the Tentative Order has been conducted with substantial review and comment and significant changes have been made to improve the implementation and enforcement of the Order by the Copermittees.

The specified programs included in the Tentative Order must be implemented by the Copermittees in order to carry out the CWA requirements. While the Tentative Order includes requirements for widespread BMP implementation for specific categories of existing and planned land use, it does not require use of any particular BMPs. The Tentative Order actually encourages implementation of combinations of BMPs, and further does not preclude any particular BMPs or other means of compliance. These are intended to build upon the programs already developed by the Copermittees under the previous permits. Any specified programs in the Tentative Order are made all the more necessary by the exclusion of numerical effluent limits from the permit. Reliance on BMPs as opposed to numerical effluent limits requires specification of those programs that are relied upon to reduce pollution

Finally, the Tentative Order represents the definition of MEP adopted by the SDRWQCB. Within that framework, the Copermittees have significant opportunity and flexibility to prioritize water quality problems, develop and implement effective programs, and to improve and modify these programs as necessary to achieve and maintain compliance with the Tentative Order and receiving water quality objectives. Moreover, the Copermittees are required to evaluate the effectiveness of JURMP programs and to revise the programs as necessary to comply with the Tentative Order and receiving water quality objectives.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program items in section F in Order No. 2001-193 under the broad and specific legal authority cited in the Fact Sheet/Technical Report.

Section: F.1

Comment: The Regional Board and Tentative Order lack the authority to regulate increased urban runoff peak flow rates and velocities since they do not constitute a discharge of pollutants as defined in the CWA or waste as defined by the CWC. While it is true that urbanization affects hydrology, such effects on the flow regime occur regardless of what pollutants are present in stormwater or, indeed, regardless of whether or not any pollutants are added to stormwater as it traverses the land. While such effects may constitute "pollution" as that term is defined in the Clean Water Act, they do not constitute the "discharge of pollutants," as that phrase is defined in the Clean Water Act. "EPA does not consider flow to be a pollutant." The public storm drain program is limited to controls on pollutant discharges. Other Clean Water Act programs not administered by the Regional Board are designed to address general pollution problems, such as might result from bank erosion and widening of channels. Water per se, regardless of what constituents are in it, is not a "pollutant" regulated under the NPDES program, within the statutory definition. Thus, the regulation of stormwater flows in this Permit is void under the Clean Water Act to the extent it is regulating flow velocities, flow volumes and flow durations.

Revisions to the Water Quality Planning and Management Regulation and Revisions to the National Pollutant Discharge Elimination System Program in Support of Revisions to the Water Quality Planning and Management Regulation, 65 Fed. Reg. 43586,43619 (July 13,2000). Case law

interpreting the Clean Water Act uniformly has found the definition of “pollutant” to not include downstream erosion. See e.g., *National Wildlife Fed’n. v. Gorsuch*, 693 F.2d 156, 171-172 (D.C. Cir. 1982) (holding that discharges from dams were not discharges of pollutants, but rather were discharges that altered water quality conditions - namely scouring the downstream channel - and as such, did not fall under the definition of “pollutant” and did not require an NPDES permit); *Missouri, ex rel. Ashcroft v. Department of the Army*, 672 F.2d 1297, 1303 (8th Cir. 1982) (finding that fluctuations in flow rates of water that created downstream erosion did not result in the “discharge of a pollutant” under the CWA and the relevant permit was void to the extent it regulated downstream erosion (*Lake Forest, Laguna Woods, Construction Industry Coalition on Water Quality*))

Response: MS4 discharges with increased urban runoff peak flow rates and velocities resulting from new development and significant redevelopment are regulable under the NPDES program and California Water Code. This is supported in the response to the petition to the SWRCB of the San Diego Municipal Permit Order No. 2001-01:

1. MS4 Discharges with Increased Urban Runoff Peak Flow Rates and Velocities Resulting from New Development and Significant Redevelopment are Regulable Under the NPDES Program

Petitioners assert that the Permit cannot regulate increased urban runoff flow volumes, rates, velocities, and durations as they are caused by new development and redevelopment. The basis for their argument is that urban runoff flow is not regulable under the NPDES program. In this argument, they are incorrect. As discussed in the Draft Fact Sheet/Technical Report, NPDES permits must protect receiving water quality standards. Federal NPDES regulation 40 CFR 122.44(d)(1) requires municipal storm water permits to include any requirements necessary to “achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.” The administrative record includes ample evidence that altered flow regimes resulting from new development and significant redevelopment can negatively impact water quality standards. As such, the Permit includes requirements for the management of flow in order to protect receiving water beneficial uses and water quality objectives, as it is required under the federal NPDES storm water regulations.

Indeed, the Permit’s approach in this respect follows SWRCB guidance. The SWRCB states in Order WQ 98-01 “to comply with CWA section 301, municipal storm water permits must include effluent limitations where necessary to meet [...] water quality standards” (at pg. 4). In fact, the municipal storm water receiving water limitations language, as drafted by the SWRCB, requires MS4 discharges to be in compliance with water quality standards. This requirement stands irregardless of whether the MS4 discharge is causing or contributing to violations of water quality standards through altered flow regimes or pollutant discharges.

Furthermore, the Permit’s language regarding regulation of urban runoff discharge peak flow rates and velocities is virtually identical to that of the LARWQCB’s SUSMP. This SUSMP was predominantly upheld by the SWRCB in Order WQ 2000-11. The SWRCB has found that the LARWQCB SUSMP requirements collectively constitute MEP for urban runoff from new development and significant redevelopment. Therefore, the SWRCB has found that requirements to control increases in peak flow rates and velocities resulting from new development and significant redevelopment are an appropriate provision of MEP for MS4 discharges. Moreover, the SWRCB has instructed that subsequent municipal storm water permits “must be consistent with the principles set forth [in Order WQ 2000-11].” In order to be consistent with this SWRCB guidance, the SDRWQCB has included in the Permit regulation of urban runoff peak flow rates and velocities resulting from new development and significant redevelopment.

Petitioners specifically argue that increased urban runoff peak flow rates and velocities resulting from new development and significant redevelopment are not regulable under an NPDES permit because urban runoff flow does not meet the CWA definition of pollutant (CWA section 502(a)). In fact, the opposite is true. The CWA definition of pollutant includes “municipal waste.” As discussed above in section E, the increased volumes and flows of urban runoff resulting from new development and significant redevelopment meet the definition of a municipal waste. New development and redevelopment, as approved by municipalities, generate increased urban runoff peak flow rates and velocities through the construction of impervious surfaces. Municipalities then collect this increased urban runoff and discharge it to receiving waters by use of their MS4s. This generation, collection, and disposal of urban runoff by municipalities reflects urban runoff’s condition as a municipal waste.

Nor is the CWA definition of pollutant as limiting as Petitioners assert. The list of substances included in the CWA definition of pollutant cannot be construed to be exclusive. For example, the definition lists rock and sand as pollutants, but makes no mention of clay or silt (e.g., suspended solids). Surely suspended solids such as clay or silt can be found to be pollutants, even though they are not specifically designated as such in the CWA definition of pollutant. Indeed, they commonly are found to be pollutants. In a similar manner, simply because urban runoff increased flow rates and velocities are not specifically listed in the CWA definition of pollutant, they are not limited from being regulated as such in an NPDES permit.

Furthermore, the Permit’s regulation of increased urban runoff peak flow rates and velocities resulting from new development and significant redevelopment is a direct attempt to control the discharge of conventional pollutants in urban runoff to the MEP. Typical BMPs which control urban runoff peak flow rates and velocities (such as detention basins and grass swales) can greatly reduce the amount of pollutants (suspended solids, nutrients, and metals) in urban runoff. Control of these pollutants in such a manner is certainly within the purview of the NPDES program. USEPA supports this approach, stating “in many cases, consideration of the increased flow rate, velocity and energy of storm water discharges following development unavoidably must be taken into consideration in order to reduce the discharge of pollutants.”

In addition, the downstream erosion caused by increased urban runoff peak flow rates and velocities constitutes a discharge of pollutants to receiving waters which needs to be reduced to the MEP. The increased volume, flow rate, velocity, and duration of runoff resulting from new development and redevelopment can increase sediment transport, stream bed scouring, shoreline erosion, stream bank widening, and changes in stream morphology. All of these impacts can negatively impact water quality through their discharge of sediment into receiving waters. Unnaturally elevated levels of sediment suspension and transport can cause extended violations of water quality objectives for turbidity, total suspended solids, color, and floating material. Moreover, since sediment is often a transport mechanism for other pollutants, discharge of such sediment can lead to introduction of pollutants into the water column, further impacting receiving water quality. Due to the increased discharge of pollutants to receiving waters resulting from the increased peak flow rate and velocity of MS4 urban runoff discharges, regulation of urban runoff peak flow rate and velocity is applicable for an NPDES permit. It constitutes reduction to the MEP of pollutant discharges to receiving waters.

It is also worth noting that Petitioners’ exclusion of the NPDES program from the regulation of peak flow rates and velocities defeats the intent of the Clean Water Act. The NPDES storm water program for MS4 discharges is designed to implement the Clean Water Act, which has the primary purpose to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters” (33 U.S.C. section 1251(a)). As exhibited in the administrative record, increased urban runoff peak flow rates and velocities resulting from new development and significant redevelopment can greatly impact receiving water quality. As such, in order for the NPDES storm water program to adequately protect the chemical, physical, and biological integrity of receiving waters, as it was intended, it must address

increased urban runoff peak flow rates and velocities resulting from new development and significant redevelopment.

Finally, control of runoff to prevent downstream erosion has previously been included in many NPDES storm water permits, both within the State of California and nationwide. For example, the SWRCB's Statewide General Construction Storm Water Permit (Order No. 99-08-DWQ) directly requires control of runoff velocity to prevent downstream erosion when it states "the outflow of a sediment basin that discharges into a natural drainage **shall be provided with outlet protection to prevent erosion and scour of the embankment and channel**" (emphasis added) (section A.8, pg. 15). The LARWQCB has also included requirements to control flow for erosion prevention in its SUSMP for the cities of Los Angeles County, as well as in its municipal storm water permit for Ventura County (Order No. 00-108). Moreover, states such as Washington and Maryland have similar NPDES storm water permit requirements.

2. MS4 Discharges with Increased Urban Runoff Peak Flow Rates and Velocities Resulting from New Development and Significant Redevelopment are Regulable Under the California Water Code

While the Clean Water Act is not explicit regarding the regulation of peak flow rates and velocities, the CWC clearly provides the SDRWQCB discretion to regulate flow in order to protect beneficial uses. In fact, such regulation is not only allowed by the CWC, it is required. CWC section 13377 provides that the SDRWQCB issue waste discharge requirements as required by the Clean Water Act, "together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance."

Findings 4 and 9 discuss the impacts of MS4 discharges on beneficial uses resulting from altered flow regimes caused by new development and significant redevelopment. As discussed in section L.1 above, increased urban runoff peak flow rates and velocities resulting from new development and significant redevelopment can cause elevated levels of sediment in receiving waters through downstream erosion. This sediment can also introduce other pollutants into receiving waters as a transport mechanism. In order to protect beneficial uses against these water quality impacts resulting from downstream erosion caused by altered flow regimes, the Permit regulates urban runoff peak flow rates and velocities from new development and significant redevelopment, as required by CWC section 13377.

Since the Permit is a set of waste discharge requirements issued under the California Water Code (which happens to implement the NPDES program), the NPDES program is only a set of minimum standards for the Permit. The NPDES program requirements are not a limitation on the contents of the Permit, as it is a set of waste discharge requirements under the California Water Code. Nor do the NPDES storm water regulations set a maximum limit on States' individual implementation of the NPDES program. As such, the State of California can include specific requirements in an NPDES permit which need not be specifically addressed in the NPDES storm water regulations. However, to the extent that inclusion of such requirements is meant to implement and clarify the NPDES storm water program to protect the region's receiving waters, such requirements do not exceed the NPDES program.

If the appeal results in an order to change portions of the San Diego Permit (Order 2001-01) that are applicable to the proposed Orange County Permit (Tentative Order 2001-193), then appropriate changes would be made.

Finally, it should be noted that in its draft Order on the petition by the Building Industry Association and Western States Petroleum Association for the review of Order No. 2001-01, in which the issue was prominently raised, the SWRCB has upheld the SDRWQCB's position stating "While this

argument was not specifically addressed in our prior Order (Order 2000-11), it is obvious that the most serious concern with runoff from construction is the potential for increased erosion. It is absurd to contend that the permit should have ignored this impact from urban runoff." Furthermore, in its discussion of urban runoff as a waste in the draft resolution, the SWRCB referred to "Other early Attorney General Opinions determined that 'waste' includes drainage and erosion from logging operations and drainage water from construction sites." The direct SWRCB response to the issue of regulating flow as well as its silence on other aspects of the issue can be interpreted as support for the SDRWQCB position that it has the authority to regulate increased urban runoff peak flow rates and velocities as written in the Order No. 2001-01 and the Tentative Order.

Section F Subsection F.1.b.2

Comment: The current new development/significant redevelopment program, which has been in place for 4 years, focuses in on all development regardless of size, and includes an inspection/verification component which is actually more comprehensive than what is suggested in the permit. Why would the staff not want to look at revising the current program to see if there might be an alternative solution? (*County of Orange*)

Response: The new development and redevelopment section of the proposed DAMP does not include many of the important provisions of the Tentative Order as indicated in Appendix 5 of the Draft Fact Sheet/Technical Report. Examples include the lack of a comprehensive list of structural BMPs and numeric design criteria for these BMPs to meet. The Tentative Order provides minimum requirements for new development and significant redevelopment (including SUSMPs) that must be met and a framework for the Copermittees to work within. However, the Tentative Order does not preclude the Copermittees from using their DAMP to develop programs that meet or exceed these requirements.

Section F Subsection F.1.b.2

Comment: The Tentative Order would require the municipalities to develop a model SUSMP. In the proposed DAMP the Permittees committed to overhauling their new development program based upon a variety of approaches including SUSMPs, Start at the Source Planning, etc. and have already started that process. Since the Permittees would have this new model program by the end of next year, why would the Board staff not consider an approach that may be more comprehensive than the one suggested in the Tentative Order? (*County of Orange*)

Response: The new development and redevelopment section of the proposed DAMP does not include many of the important provisions of the Tentative Order as indicated in Appendix 5 of the Draft Fact Sheet/Technical Report. The Tentative Order provides minimum requirements for new development and significant redevelopment (including SUSMPs) that must be met and a framework for the Copermittees to work within. However, the Tentative Order does not preclude the Copermittees from using their DAMP to develop a program that meets or exceed these requirements.

Section: F.1

Comment: The definition of infeasibility for which a waiver of a structural BMPs could be granted is unclear. The provisions in the Tentative Order make it almost impossible to obtain a waiver. (*County of Orange, Laguna Hills, Construction Industry Coalition on Water Quality*)

Response: What constitutes infeasibility and whether to include the waiver provision in their SUSMPs is at the discretion of the Copermittees. However, since the structural BMP implementation has been shown to less than 1% of the total project costs, infeasibility cannot be based on costs. It is anticipated that the list of structural BMPs that the Copermittees will develop will be complete and wide ranging. The list is not designed to exclude the use of any applicable BMPs, it should be adequate to assess the feasibility of BMP implementation at a site. Requiring projects proponents to show infeasibility of all BMPs in existence may be impractical. Examples of situations for infeasibility could include extreme limitations of space and unfavorable/unstable soil conditions. It up to the discretion of Copermittees to set up and administer a storm water mitigation fund to transfer costs savings generated by the waivers.

Section: F.1

Comment: The Regional Board has no authority to direct municipalities on matters of land use authority and cannot dictate the contents of the Copermittees General Plan. The Tentative Order requires each municipality to revise its General Plan in order to meet the requirements being imposed by the Regional Board. This requirement hamstrings the Copermittees' ability to control land use decisions on a day-to-day basis and represents an unlawful infringement of the local land use authority that is reserved for municipalities under the CWA, the California Constitution and state law. (*Laguna Niguel, County of Orange, Laguna Hills, Dana Point, Lake Forest, Laguna Woods, Construction Industry Coalition on Water Quality*)

Response: The SDRWQCB has the legal authority to require the Copermittees General Plans to include considerations of the water quality impacts caused by urban runoff. Under Federal NRDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) provides that Copermittees develop and implement a proposed management program which is to include "a description of planning procedures including a comprehensive master plan to develop, implement, and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment. Such plan shall address controls to reduce pollutants in discharges from municipal separate storm sewers after construction in completed." USEPA finds that the Copermittees "must thoroughly describe how the municipality's comprehensive plan is compatible with the storm water regulations". To achieve this, the Copermittee shall incorporate water quality and watershed protection principles and policies into its General Plan (or equivalent plan). USEPA also supports addressing urban runoff problems in General Plans (or equivalent) when it states "Runoff problems can be addressed efficiently with sound planning procedures. Master Plans, Comprehensive Plans, and zoning ordinances can promote improved water quality by guiding the growth of a community away from sensitive areas and by restricting certain types of growth (industrial, for example) to areas that can support it without compromising water quality". While the SDRWQCB has the legal authority to require the Copermittees' General Plans to include considerations of the water quality impacts caused by urban runoff, the Tentative Order gives the Copermittees discretion in determining the contents of their General Plans. The Tentative Order includes only examples of principles and policies to be considered and not specific requirements. The Copermittees will be allowed to develop their own work plan and time schedule for any changes to their General Plans they find necessary.

Finally, it should be noted that in it's draft Order on the petition by the Building Industry Association and Western States Petroleum Association for the review of Order No. 2001-01, in which this issue was prominently raised, the SWRCB has thus far declined to respond to this issue.

Section F.1

Comment: Application of the SUSMPs to Non-Discretionary Approvals Could Create Practical Problems. The Board Staff may not appreciate the practical difficulties presented by what appears to be a well intentioned attempt to apply the development approval process not only to projects subject to local discretionary approvals (“discretionary projects”), but also apparently to projects that have been processed to the point that they have already obtained all locally-required discretionary approvals (“non-discretionary projects”). Ordinarily, the authority of an official such as a Building Official, who issues building permits, would not extend to land use design decisions already approved by a planning commission or a city council. Therefore, it would appear that matters such as imposing a requirement to “minimize impervious cover” would not be within the authority of a building official at the building permit stage. Generally, developers pull building permits only after all other approvals have been received, and only for the lots they are going to build upon immediately. If the Regional Board intends the SUSMPs to apply to the issuance of building permits, after all other approvals have been received, this would put the local jurisdiction in the position of having to alter its development standards after development has been approved, for projects that had already achieved all required discretionary approvals when the SUSMPs were adopted, by requiring an official such as a building official to refer an application for building permits back to a planning commission or city council. The Cities suggest that it is entirely possible that a court might regard this last minute referral back to the start, or at least the middle, of the approval process as a compensable temporary taking based on needless bureaucratic re-referrals.

The Cities submit that the takings issues presented by the SUSMP have not been examined in prior SUSMP proceedings, and respectfully request that the Board carefully reconsider the SUSMPs, and that the matter be referred to Board Counsel.

Recommendation: Convert the SUSMP provisions into an option to be considered by Copermitees in the exercise of their discretion over land use matters, but do not make the adoption of SUSMPs mandatory. Focus the Permit on conditions which require the Co-permittees to reduce the discharge of pollutants to the maximum extent practicable. (*Lake Forest & Laguna Woods*)

Response: The SUSMP requirements apply only to discretionary and non-discretionary projects falling under the priority project categories after the adoption of the Tentative Order. A project's designation as a non-discretionary project does not ensure that it will not be a significant source of pollutants in urban runoff. The Copermitees are required to use the 18-month SUSMP implementation period to ensure that projects undergoing approval processes include application of the SUSMP requirements. However, if the Copermitees determine that lawful prior approval of a project exists, whereby the SUSMP requirements are not feasible, then the requirements need not apply.

In addition, the requirements to minimize impervious surfaces for all development projects (including SUSMPs) are where feasible as determined by the Copermitees.

Section: F.1

Comment: The proof of mechanism requirement to ensure long term structural BMP maintenance should be removed and is a unreasonable burden on project proponents since they have no control over the property once it is sold. (*Laguna Niguel, Construction Industry Coalition on Water Quality*)

Response: Proof of a mechanism for ongoing long term BMP maintenance can provided by either the project proponent or the Copermittee. If a Copermittee finds that it shall have difficulty ensuring maintenance, it can require proof of a mechanism of BMP maintenance from the project proponent. This does not mean that the project proponent must be responsible for the BMP maintenance in perpetuity, but rather will be responsible for providing a mechanism which will ensure BMP mainatance in perpetuity. Example from the LARWQCB SUSMP states in part:

"The Permittee shall require that the applicant provide verification of mainatance provisions through such means as may be appropriate, including, but not limited to legal agreements, covenents, CEQA mitigation requirements and/or Conditional Use Permits....."

Section F.1

Comment: Watershed Planning Appears to be Subordinate to the Project-Oriented SUSMP Requirements. The subordinate role ascribed to watershed planning seems to be inconsistent with the emphasis in the State NPS Plan on community-based watershed planning within the framework of the three-tiered approach to water quality defined in the State NPS. If watershed planning is not recognized as a co-equal alternative to SUSMP BMP principles, it will not be possible to further the goal of changing the stormwater approach from the conventional conveyance approach to a more natural approach that is articulated in Finding 33 of the Regional Board's Tentative Order. (*Rancho Mission Viejo*)

Response: The Tentative Order is not inconsistent with the Plan for California's Nonpoint Source Pollution Control Program. Watershed planning is supported in section J.2.g of the Tentative Order. The SUSMP requirements are applicable to new development and significant redevelopment, both of which present opportunities for new approaches such as watershed based planning. Watershed based planning and the SUSMP requirements of the Tentative Order are not mutually exclusive. Moreover, the SUSMP requirements are consistent with Finding 33 and watershed planning in that the intent of these requirements is to preserve and restore the natural hydrologic cycle. This is a departure from the conventional conveyance approach and can be fully supported by watershed level planning. It should be noted that because the development of the Model SUSMP and Watershed Urban Runoff Management Program proceed within approximately the same time frame, the Copermittees have the opportunity and flexibility to coordinate the two activities and maximize the watershed level effectiveness of both.

Section F.1

Comment: Consistent with your requirements to assess and amend, as necessary, General Plans to include water quality provisions, we suggest requiring permittees to revise, if applicable, their Local Coastal Programs to include such water quality language, provisions, and watershed protection principles. (*California Coastal Commission*)

Response: The requirements in the Tentative Order to assess their General Plan, also gives the Copermittees the discretion and flexibility to assess their Local Coastal Programs as needed to include water quality protection principles.

Section F.1

Comment: Will the issue of water damage to downstream resources be addressed? I.e., erosion damage to non-renewable resources such as archaeology sites and endangered species habitats? (*County of Orange*)

Response: The Tentative Order requires that Copermitees ensure that discharges from priority development and significant redevelopment categories maintain or reduce pre-development downstream erosion and protect stream habitat.

Section F.1

Comment: Item F.1 of the Tentative Order requires the Permittees to take appropriate action “to reduce discharges of pollutants and runoff flows” from all phases of urban development to the maximum extent practicable. First, the Tentative Order should not apply standards and limitations applicable to discharges from MS4s to runoff from urban development that flows into the MS4s. See *supra* General Comments § VII; Comments on Finding No. 10. Second, it is not clear on what basis staff is purporting to have the Regional Board regulate “flows.” There does not appear to be any authority for application of the MEP standard to the reduction of “runoff flows.”

None of the authorities cited in the Technical Report appear to support such regulation. Further in this regard, the Regional Board staff has not provided any discussion of or support for its implicit contention that reducing such flows effectively reduces pollutants. Nor does it address the potential adverse impacts of reducing flows on the aquatic habitats supported by urban runoff and other storm water flows. Item F.1 therefore should be revised to delete the words “and runoff flows” from its text. (*County of Orange*)

Response: The appropriateness for regulating discharges into the MS4 is discussed elsewhere in this document.

Based on analyses conducted in the region by the copermitees as part of the Aliso Creek Watershed 205(j) study and the U.S. Army Corps of Engineers in Reconnaissance Reports for the Aliso and San Juan Creek Watersheds, a change in flow regime resulting from urban development has contributed to the degradation of aquatic and riparian habitat.

The SDRWQCB has the legal authority to regulate flows from new development. The SWRCB has upheld this legal authority in adopting its Order WQ 2000-11. The Final LARWQCB SUSMP, upheld by SWRCB Order WQ 2000-11, states “Post-development peak storm water runoff discharge rates shall not exceed the estimated pre-development rate for developments where the increased peak storm water discharge rate will result in increased potential for downstream erosion.”

The legal authority to regulate flows from new development is further explained in Issue 3 of Section V (Common Municipal Storm Water Permit Issues) of the Draft Fact Sheet/Technical Report for the Tentative Order, which states:

Federal NPDES regulation 40 CFR 122.44(d)(1) requires municipal storm water permits to include any requirements necessary to “[a]chieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.” The term “water quality standards” in this context refers to a water body’s beneficial uses and the water quality objectives necessary to protect those beneficial uses. The negative impact of urban runoff flow on the beneficial uses of receiving waters has been widely documented. Increases in flows from impervious surfaces associated with

urbanization can result in (1) increases in the number of bankfull events and increased peak flow rates; (2) sedimentation and increased sediment transport; (3) frequent flooding; (4) stream bed scouring and habitat degradation; (5) shoreline erosion and stream bank widening; (6) decreased baseflow; (7) loss of fish populations and loss of sensitive aquatic species; (8) aesthetic degradation; and (9) changes in stream morphology (USEPA, 1999a). USEPA finds that the level of imperviousness resulting from urbanization is strongly correlated with the water quality impairment of nearby receiving waters (USEPA, 1999b). USEPA further attributes much of this water quality impairment to changes in flow conditions from urbanization, stating “[I]n many cases, the impacts on receiving streams due to high storm water flow rates or volumes can be more significant than those attributable to the contaminants found in storm water discharges” (USEPA, 1999a). Therefore, in order to protect the beneficial uses and water quality objectives of waters receiving urban runoff flows (as required by 40 CFR 122.44(d)(1)), the SDRWQCB has under certain circumstances placed limits on urban runoff flows in the tentative permit.

In addition, the authority of states to regulate flow in order to protect water quality standards has been addressed by the U.S. Supreme Court in *PUD No. 1 v. Washington Department of Ecology*, 511 U.S. 700 (1994). In this case the U.S. Supreme Court found that the Clean Water Act applies to water quantity as well as water quality, stating “[p]etitioners also assert more generally that the Clean Water Act is only concerned with water ‘quality’ and does not allow the regulation of water ‘quantity.’ This is an artificial distinction. In many cases, water quantity is closely related to water quality.” The U.S. Supreme court goes on to refer to the Clean Water Act’s definition of pollution (“the man-made or man induced alteration of the chemical, physical, biological, and radiological integrity of water” 33 U.S.C. 1362(19)) and states “[t]his broad conception of pollution – one which expressly evinces Congress’ concern with the physical and biological integrity of water – refutes petitioners’ assertion that the Act draws a sharp distinction between the regulation of water ‘quantity’ and water ‘quality.’” In this context, the U.S. Supreme Court held that the state’s regulation of flow was “a limitation necessary to enforce the designated use of the River as a fish habitat.” Finally, it was held that the state’s regulation of flow was “a proper application of the state and federal antidegradation regulations, as it ensures that an ‘existing instream water use’ will be ‘maintained and protected.’ 40 CFR 131.12(a)(1) (1992).

Section: F.1

Comment: What if the groundwater protection policies in the Tentative Order are not appropriate for some developments and situations? Infiltration and groundwater protection is beyond the authority and control of the co-permittees and is an inappropriate Order requirement. The use of infiltration structural treatment BMPs to meet the requirements of the SUSMP are made in a good faith effort to remove contaminants from surface runoff and prevent ground water contamination, however there can be no guarantees that the use of these infiltration BMPs will not lead to an exceedance of groundwater water quality objectives. (*San Juan Capistrano, County of Orange, Laguna Hills, Rancho Mission Viejo, Construction Industry Coalition on Water*)

Response: Focusing large amounts of water into a small area has the potential to impact groundwater and the restrictions for structural BMPs used to infiltrate runoff were based on USEPA guidance. The Tentative Order allows the Copermittees the discretion to develop alternatives to these restrictions as the Copermittees find appropriate. However, if the Copermittees find that use of a infiltration structural BMP will cause an exceedance of groundwater quality objectives, then the BMP should not be used.

Section F.1 Subsection F.1.A

Comment: F.1.a. Assess General Plan: Requirements #5 and 8 are duplicative, as one would have to calculate pollutant loading in order to determine whether a water quality objective is exceeded. Delete requirement #5. (*Rancho Mission Viejo*)

Response: Items 1-8 in Provision F.1.a are examples of water quality and watershed protection principles and policies to be considered by each copermitttee when reviewing and updating its General Plan. Each copermitttee has discretion on using the specified examples.

Section F.1 Subsection F.1.A

Comment: Item 8 is an example of a water quality based effluent limit (WQBEL) requirement and is without legal standing and merit (see General Issues section (page 31) for detailed analysis). (*Construction Industry Coalition on Water Quality*)

Response: The copermitttees have discretion on determining the contents of their General Plans. The noted item is an example of something that the Copermitttees should consider when reviewing and updating General Plans.

Section F.1 Subsection F.1.A

Comment: Item 7 attempts to regulate traffic resulting from development. This is another example of the regional board's attempt to supercede local land use control. Traffic considerations, as well as water quality and environmental concerns are already addressed through the CEQA process and are unnecessary, and in fact illegal, in this Permit. (*Construction Industry Coalition on Water Quality*)

Response: The Copermitttees have discretion on determining the contents of their General Plans. This sections contains examples which the Copermitttees may implement at their discretion. In reviewing and updating a General Plan, each copermitttee could consider the potential water quality impacts caused by vehicle pollutants by new development or redevelopment and amend the plan if reasonable considering all factors that go into a General Plan. Proximity of residences to job sites or availability of rapid transit are examples of how General Plan decisions could reduce pollutants caused by increased traffic resulting from new development.

Section F.1 Subsection F.1.A

Comment: F.1.a. Assess General Plan: The logic behind requirement #7 appears to be "less vehicles on the road equals less pollution." Please explain how a copermitttee would implement requirement #7 and document its effect on pollutant loads. (*Rancho Mission Viejo*)

Response: Items 1-8 in Provision F.1.a are examples of water quality and watershed protection principles and policies to be considered by each copermitttee when reviewing and updating its General Plan. Each copermitttee has discretion on using the specified examples.

In reviewing and updating a General Plan, it is suggested that each copermitttee consider the potential water quality impacts caused by vehicle pollutants by new development or redevelopment and amend the plan if reasonable considering all factors that go into a General Plan. Proximity of residences to

job sites or availability of rapid transit are examples of how General Plan decisions could reduce pollutants caused by increased traffic resulting from new development.

Section F.1 Subsection F.1.a.1

Comment: What is the actual amount of impervious surface that would be acceptable under the suggested general plan language to minimize impervious surfaces and direct connections? These General Plan polices would need to be implemented through the water quality ordinance or other specific zoning development standards. There is no threshold for maximum impervious surface in the Permit. The amount of impervious surface is typically related to the amount of open space or landscaping and varies between zoning districts and type of development. (*Laguna Niguel*)

Response: This item is an example of a watershed protection principle and policy to be considered for inclusion in the Copermittees General Plan. It is the left to the discretion of the Copermittee on whether to include the item and define the appropriate level of impervious.

Section F.1 Subsection F.1.a.6

Comment: What is meant by “Avoid development of areas that are particularly susceptible to erosion or sediment loss...”? As a General Plan policy, it seems that one would want to reduce the amount of area susceptible to erosion or sediment loss by making improvements, landscaping or developing consistent with BMPs. Otherwise the erosion and sediment continues to go unchecked. (*Laguna Niguel*)

Response: This item is an example of a watershed protection principle and policy to be considered for inclusion in the Copermittees General Plan. It is the left to the discretion of the Copermittee on whether to include the item and define what areas are susceptible to erosion or sediment loss.

Section F.1 Subsection F.1.a.7

Comment: How does the Copermittee have authority through its General Plan to reduce pollutants associated with vehicles? This seems to be within the jurisdiction of other state and federal agencies. In addition, the Congestion Management Plan does not focus on traffic reduction and is not an appropriate reference. The CMP focuses on mitigating traffic impact of new development by requiring detailed traffic studies and street and roadway improvements to accommodate existing and proposed traffic. (*Laguna Niguel*)

Response: This item is an example of a watershed protection principle and policy to be considered for inclusion in the Copermittees General Plan. While this problem can be partially addressed at the state level, through inspections and vehicle registration requirements, the Copermittees have the discretion to address this source of pollutants in the JURMP.

Section F.1 Subsection F.1.b

Comment: Item F.1.b requires the Permittees to ensure that all development will be in compliance with “all other applicable ordinances and requirements.” An NPDES permit cannot and should not be used as a vehicle to enforce legal obligations that are unrelated to the Copermittee’s storm water management program. Presumably, this is not what the Regional Board staff intended. Item F.1.b

should be revised to delete the reference to “all other applicable ordinances and requirements.”
(*County of Orange*)

Response: As discussed in Finding 18, incorporating post-construction BMPs into new development and redevelopment during project planning and approval is an effective means for controlling pollutants in urban runoff. US EPA finds review of development plans during the project approval process necessary, stating: “Proposed storm water management programs should include planning procedures for both during and after construction to implement control measures to ensure that pollution is reduced to the maximum extent practicable in areas of new development and redevelopment. Design criteria and performance standards may be used to assist in meeting this objective. Further, storm water management program goals should be reviewed during planning processes that guide development to appropriate locations and steer intensive land uses away from sensitive environmental areas. [...] A municipality should describe how it plans to implement the proposed standards (e.g., through an ordinance requiring approval of storm water management programs, a review and approval process, and adequate enforcement.

Furthermore, in its Phase II Final Rule, US EPA requires small municipalities to “Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects [...]” (1999). Due to the greater water quality concerns generally experienced by larger municipalities, Phase II Final Rule requirements for small municipalities are also applicable to larger municipalities such as the Copermittees.

Section F.1 Subsection F.1.b

Comment: Pages 14 - 17 Modify Development Project Approval Processes It appears that the provisions of this Permit apply to all development projects. This includes the issuance of everything including simple building permits for room additions and accessory structures, such as swimming pools and patios. What type (criteria - size, land use, etc..) of project approval and issuance of local permits is included under this requirement to add conditions of approval for BMP? Cities issue all types of project approvals and issuance of permits. Example - would these requirements be applicable to the project approval of a Variance/Coastal Development Permit for a custom single-family home on a flat pre-graded lot. If so, does the simple fact that a project requires a discretionary permit (variance request) versus ministerial permit (building permit for a custom single-family home) justify applying a different level of review and standard? Does a Copermittee have a discretion under the permit to decide which projects to apply these requirements? (*Laguna Niguel*)

Response: The requirements of this section are basic requirements which should be met by all development projects. However, these requirements are broad and flexible to give discretion to the Copermittees. An example is that source control BMPs are required for all "applicable" projects as determined by the Copermittees.

Section F.1 Subsection F.1.b

Comment: Worse, they might require developers to create places that would serve as breeding grounds for vectors, including mosquitoes carrying the West Nile and other viruses. I am sure that you would agree, it is important in working to solve one environmental problem that we not create new ones. (*Lake Forest*)

Response: The implementation of certain structural BMPs or other urban runoff treatment systems can result in significant vector problems in the form of increased breeding or harborage habitat for mosquitoes, rodents or other potentially disease transmitting organisms. The implementation of BMPs that retain water may provide breeding habitat for a variety of mosquito species, some of which have the potential to transmit diseases such as Western Equine Encephalitis, St. Louis Encephalomyelitis, and malaria. Recent BMP implementation studies by CALTRANS in District 7 and District 11 have demonstrated mosquito breeding associated with some types of BMPs. The CALTRANS BMP Retrofit Pilot study cited lack of maintenance and improper design as factors contributing to mosquito production. However, a Watershed Protection Techniques article describes management techniques to select, design and maintain structural treatment BMPs for urban runoff to minimize mosquito production. State and local urban runoff management programs that include structural BMPs with the potential to retain water have been implemented in Florida and the Chesapeake Bay region without resulting in significant public health threats from mosquitoes or other vectors. The finding identifies the potential vector issues related to BMP implementation and the role of collaborative program development between municipalities and vector control agencies in addressing and minimizing vector production in the implementation of the Jurisdictional Urban Runoff Management Program.

Section F.1 Subsection F.1.b

Comment: May we modify the priority development project categories to match our priorities? (*Mission Viejo*)

Response: The Tentative Order allows Copermittees to add project categories to meet their priorities. The 10 priority project categories listed in the Tentative Order could not be removed.

Section F.1 Subsection F.1.b

Comment: Eric Becker said permit partially based on State Board WQ 2000-11. Do you mean the order or the Dec. 26, 2000 Craig Wilson memo? (*Richard Watson and Associates*)

Response: Both SWRCB WQ 2000-11 and the December 26, 2000 memorandum from Craig Wilson were considered during the development of the Tentative Order.

Section F.1 Subsection F.1.b.1

Comment: Item F.1.b(1) requires each Copermittee to include development project requirements in local permits to ensure that "receiving water quality objectives are not violated throughout the life of the project." Here again, the Tentative Order would impose limitations applicable to discharges from the MS4 to runoff from development projects into the MS4. The RWLs should be set forth in Item C of the Tentative Order and not repeated in other sections relevant to Permittee programs which are designed to meet the Item C RWLs.

JURMP Item F.1.b.(1) also requires the Permittees to ensure that all development will be in compliance with Copermittee storm water ordinances, local permits, all other applicable ordinances and requirements, and this Tentative Order." It is not clear how the Permittees can require "all development" to be in compliance with "this Tentative Order." Private developers are not dischargers

subject to the terms and conditions of “this Tentative Order.” Item F.1.b(1) of Tentative Order should be revised to delete the reference to “this Tentative Order.” (*County of Orange*)

Response: The Findings in the Tentative Order provide a clear link between runoff from development and the exceedence of receiving water quality objectives. The Tentative Order requires the Copermittees ensure that all development projects (not just priority development projects) reduce pollutant discharges and runoff flows to MEP.

Section F.1 Subsection F.1.b.1

Comment: The Provisions of F.I.b.(1)(b), page 14, Requiring Developers to “minimize impervious land coverage for all development projects” could be Argued to Violate the “Takings Clause” of the U.S. Constitution. (*Dana Point, Lake Forest, Laguna Woods*)

Response: The Regional Board has authority to require municipalities to exercise local planning and permitting authority in a manner that will reduce discharges of pollutants in MS4 to MEP in a manner consistent with state and regional water quality control plans and policies. Discharges of pollutants from development and other activities pursuant to municipalities' planning and subject to local permitting constitute a significant source of pollutants discharged to MS4. It is practicable for municipalities to exercise their authority over development projects and other regulated activities in a manner that will implement BMPs to control urabn runoff that does not represent a "Takings". In addition, the provision only requires the site design/landscape characteristics where it is feasible. If the Copermittees determines that such measures are not feasible, they need not require them.

Section F.1 Subsection F.1.b.1

Comment: Section F.I.b.(l) identities six (6) specific requirements that each Copermittee shall include in development project approvals. The imposition of development conditions is a discretionary act of city and county Planning Commissions and governing boards. The Regional Board has no regulatory authority over the content of development permits issued by municipalities, and may not prescribe the process by which development projects are approved. Sections F.I .b.(l)(a) through (f) should be eliminated, or offered only as examples for consideration by the Copermittees. (*Laguna Niguel*)

Response: The SDRWQCB has the authority to require Section F.1.b.1 of the Tentative Order under the broad and specific authority cited in the draft Fact Sheet/Techncial Report. The requirements in the section are broad and flexible to provide discretion to the Copermittees

Section F.1 Subsection F.1.b.1.c

Comment: Section F.I.b(l)(c) refers to “lighting restrictions” related to buffer zones. Please explain what lighting restrictions have to do with water quality. This reference should be eliminated. (*Laguna Niguel*)

Response: The reference in the project approval requirements to lighting restrictions in areas where buffer zones are infeasible is included because lighting infrastructure requires maintenance, roads, related equipment, easements, etc that may have associated water quality impacts.

Section F.1 Subsection F.1.b.2

Comment: Environmentally Sensitive Areas should be removed as a priority development category from the Tentative Order for the reasons it was overturned by SWRCB Order No. 2000-11 on appeal of the LA SUSMP. (*San Juan Capistrano, Richard Watson and Associates, Aliso Viejo, Laguna Hills, Construction Industry Coalition on Water Quality*)

Response: The SWRCB removed the Environmentally Sensitive Areas (ESAs) category from the LA SUSMP due to its poor definition, lack of a size threshold, extensively regulated, and is a location category, not a development category. However, SWRCB allowed for this category to be considered in future permits. In the Tentative Order, the ESA category is clearly defined as development which has the potential to impact ESAs and given specific size thresholds. The category only applies to development within or adjacent to the four specific types identified in the Tentative Order and gives the Copermittees discretion to define additional ESAs. The Tentative Order has been revised to include only areas that are designated as preserves or equivalent in the Natural Community Conservation Planning Program. Although ESA may be regulated by other agencies, this regulation does not necessary relate to water quality and urban runoff. This development category was included in the SD Municipal Permit No. 2001-01 that received extensive public comments.

Section F.1 Subsection F.1.b.2

Comment: Section F.1.b(2)(a), Item ix, page 16: This item should be clarified to indicate that only those roadways within the Copermittee's jurisdiction are subject to the SUSMP requirement of this Order, For example, on a CALTRANS highway project within the City's limits, the City cannot impose this SUSMP requirement because it has no jurisdiction over CALTRANS activities within CALTR4NS right-of-way. (*San Clemente*)

Response: The streets, roads, highways, and freeways category of priority development category only applies to projects for which the Copermittees have approval authority. It is implied in the Tentative Order that Copermittees do not have to require SUSMP requirements on state highway and freeways that are regulated by a seperate stormwater permit. However, the Copermittees cannot passively receive pollutants from urban runoff from projects outside their control that have not been reduced to MEP. The Fact Sheet will be amended to clarify this issue.

Section F.1 Subsection F.1.b.2

Comment: Section F.1.b.2.a.viii lists "Parking lots 5000 square feet or more with 15 or more parking spaces and potentially exposed to urban runoff" as a category of concern. It is unclear why the San Diego RWQCB staff chose to decrease the threshold of 25 parking spaces used in the LA SUSMP to 15 parking spaces in this Permit. There is no justification given for lowering this threshold, therefore it should be changed to 25 parking spaces. (*Construction Industry Coalition on Water Quality*)

Response: The change to 15 parking spaces was based on public comments during adoption of the San Diego Municipal Stormwater Permit. The comments indicated that a 5,000 square feet parking lot corresponds more closely to 15 parking spaces than 25 spaces.

Section F.1 Subsection F.1.b.2

Comment: Would the Regional Board please clarify that the "streets, roads, highways, and freeways" priority development project category does not include state highways and freeways that are regulated under a separate NPDES permit issued by the State Board. (*San Juan Capistrano*)

Response: The streets, roads, highways, and freeways category of priority development category only applies to projects for which the Copermittees have approval authority. It is implied in the Tentative Order that Copermittees do not have to require SUSMP requirements on state highway and freeways that are regulated by a separate stormwater permit. However, the Copermittees cannot passively receive pollutants from urban runoff from projects outside their control that have not been reduced to MEP. The Fact Sheet will be amended to clarify this issue.

Section F.1 Subsection F.1.b.2

Comment: The Application of Standard Urban Storm Water Mitigation Plans ("SUSMPs") to non-discretionary, or ministerial, approvals could be said to violate the "Takings Clause." Not only are the SUSMPs (Part F.1.b.(2)., p. 15), to be applied to the copermittees discretionary land use decisions, apparently the Tentative Order contemplates that the copermittees will apply the SUSMPs to non-discretionary, or ministerial decisions [footnote 4: Finding on page 13, in the last sentence provides, "For water quality purposes, the Regional Board considers that all new development and significant redevelopment activity in specified categories that receive approval or a permit from a local government are subject to storm water mitigation measures.]

Consider another example: a property owner already has satisfied all requirements for discretionary approvals for construction of homes in a 100-home subdivision, through the approval of a "vesting tentative map" [footnote 5: A vesting tentative map, if granted, will confer a vested right to proceed with the development in accordance with ordinances, policies, and standards in effect at the time the application for approval of the vesting tentative map is complete. California Gov't Code § 66498.1; see *Kaufman & Broad Central Valley, Inc. v. City of Modesto*, 25 Cal.App.4th 1577 (1994)] and now seeks to pull building permits for construction of a last phase of 10 homes on contiguous lots. Absent the SUSMP, a City, typically through its Building Official, would be required to issue the building permits if the Building Official determines that the permit application meets fixed, defined requirements, e.g., single family residences on lots zoned for single family. Imposition of a new requirement, to "minimize impervious cover" for the last ten single family homes in the development, conceivably by leaving nine lots undisturbed, and placing all ten homes on one one-acre lot, could be argued to be a "taking" of private property (the nine lots which now must be left undisturbed), for public use without just compensation. It is one thing to condition the issuance of a building permit on adherence to a new building code requirement. It is another thing altogether to require a landowner to leave nine out of ten lots undisturbed, in order to 'minimize impervious cover.'" (*Lake Forest & Laguna Woods*)

Response: The SUSMP requirements apply only to discretionary and non-discretionary projects falling under the priority project categories after the adoption of the Tentative Order. The Copermittees are required to use the 18-month SUSMP implementation period to ensure that projects undergoing approval processes include application of the SUSMP requirements. However, if the Copermittees determine that lawful prior approval of a project exists, whereby the SUSMP requirements are not feasible, then the requirements need not apply.

In addition, the requirements to minimize impervious surfaces for all development projects (including SUSMPs) are where feasible as determined by the Copermittees.

Section F.1 Subsection F.1.b.2

Comment: Even assuming one percent is the correct amount, the actual, absolute value of the investment incurred before the SUSMP has the potential to result in any meaningful water quality improvement is likely to be very high. Estimates for the San Diego region, assuming 20 years of SUSMP-type construction adding a one percent increment to each new development, were on the order of one to two billion dollars. (*Construction Industry Coalition on Water Quality*)

Response: The intent of SUSMP requirements is to implement developmental control on new development and significant redevelopment to ensure that urban runoff problem does not get worse. USEPA states in the preamble to the Phase II regulations, that "minimum measures identified for small MS4s should significantly reduce pollutants in urban storm water compared to existing levels in a cost effective manner". Since the smaller communities covered the Phase II regulations will realize these benefits, it is reasonable to assume that these same benefits will be realized by the larger communities covered by Phase I regulations and the Tentative Order. In addition, SWRCB found in Order No. 2000-11 that a one percent of total development costs was reasonable especially considering the costs of impairment (e.g. beach closure).

Section F.1 Subsection F.1.b.2

Comment: How is the phrase "or increases the area of imperviousness of a proposed project site to 10% or more of its naturally occurring conditions" to be interpreted for redevelopment of a previously developed site? (*San Juan Capistrano*)

Response: If the redevelopment project results in the increase of impervious area of a project site to 10% or more of the naturally occurring conditions (predevelopment), then SUSMP requirements apply. If the existing previously developed site has more than 10% impervious area, then the 2,500 square foot criteria applies.

Section F.1 Subsection F.1.b.2

Comment: The Regional Board Should Not Impose The Standard Urban Storm Water Mitigation Plan Designed By And For The Los Angeles County Permittees. Item F.1.b(2) of the Tentative Order requires the Permittees to collectively develop a model Standard Urban Storm Water Mitigation Plan ("SUSMP") for new development and significant redevelopment, and then to each adopt their own local SUSMP. The SUSMP provision, comprising six full pages of the Tentative Order, includes prescriptive, detailed requirements for BMPs, numeric sizing criteria, infiltration and groundwater protection, and downstream erosion. Moreover, the SUSMP requirements were not developed with regional considerations in mind. Rather, they were taken almost verbatim from the SUSMP developed for the Los Angeles County MS4 permit ("LA County Permit"). Thus, contrary to the guidance provided by Congress and EPA, the SUSMP requirements in the Tentative Order are not flexible nor are they site-specific.

Furthermore, contrary to staff's apparent understanding, the State Board has not mandated SUSMPs in MS4 permits. In Order WQ 2000-11, the State Board concluded that the SUSMPs contained in the LA County Permit, as revised by the Order, were consistent with MEP (Order, p. 15) and that the "Final SUSMPs reflect a reasonable interpretation of development controls that achieve reduction of pollutants in storm water discharges to the maximum extent practicable." (Order, p. 28.) As noted above, the CWA requires MS4 permit applicants to propose certain management programs. These

include “[a] description of planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from [MS4s], which receive discharges from areas of new development and significant redevelopment. 40 C.F.R. §122.26(d)(2)(iv)(A)(2). The State Board in WQ 2000-11 merely determined that the SUSMP included in the LA County Permit (as proposed by the permittees and modified by the Regional Board and the State Board) met this requirement for the Los Angeles MS4 permittees.

However, the State Board did not say that this was the only way to satisfy such requirements. In other words, while the LA County SUSMP meets the MEP standard, it is not the only way to meet the MEP standard. “EPA has intentionally not provided a precise definition of MEP to allow maximum flexibility in MS4 permitting. MS4s need the flexibility to optimize reductions in storm water pollutants on a location-by-location basis.” 64 Fed. Reg. 68722 (Dec. 8, 1999). Thus, consistent with the need for flexibility in municipal storm water permitting, MS4 permittees should have the flexibility to develop programs for new development and significant redevelopment that are designed to meet the needs of their own jurisdictions. Moreover, there is no reason to believe that the SUSMP requirements proposed in the Tentative Order will be any more effective in reducing the discharge of pollutants from new development and significant redevelopment than the current approach reflected in the 2000 DAMP. In fact, SUSMPs may be less effective in protecting overall water quality. Section 7.0 and Appendix G of the 2000 DAMP set forth the Permittees’ current approach for reducing the discharge of pollutants from new development and significant redevelopment. The general approach requires implementation of routine structural and non-structural BMPs at all new private development and significant redevelopment. “Special” structural BMPs are required at new developments and significant redevelopments to address specific water quality problems identified through the water quality monitoring program and water quality planning process. In other words, all development and significant redevelopment is subject to BMPs to reduce the discharge of pollutants; “priority” sites that present specific water quality problems are addressed with additional structural BMPs. Thus each site would be subject to appropriate BMPs. The SUSMP approach would require the Permittees to focus solely on priority sites, to the exclusion of all other sites that may be contributing to water quality impairment. The Permittees should, accordingly, be allowed to continue addressing discharges from new development and significant redevelopment through implementation of the 2000 DAMP rather than SUSMPs. (*County of Orange*)

Response: The SUSMPs requirements are necessary, reasonable, will be effective in improving water quality, and will prevent the current situation from getting worse. This is a third term permit and the Copermittees are expected to build upon and improve on the requirements of the first and second term. This in line with USEPA guidance that states that BMPs should be expanded and better tailored in subsequent permits to attain water quality standards. The proposed DAMP represents the status quo and contains essentially the same requirements for new development/significant redevelopment that were developed during the first term. The program proposed in the DAMP could be modified to comply with Tentative Order including development of a comprehensive structural BMP list and numeric sizing criteria for these BMPs. The new development and redevelopment section of the proposed DAMP does not include many measures as noted in Appendix 5 of the Draft Fact Sheet/Technical Report.

Section F.1 Subsection F.1.b.2

Comment: The Definition of "Redevelopment" in the Tentative Order is Inconsistent with the Controlling EPA Definition of "Redevelopment." In PART F. 1 .b.(2)(a). on page 15, “Significant redevelopment” is defined to mean “the creation or addition of at least 5,000 square feet of impervious surfaces area on an already developed site.” The definition further provides that “Significant redevelopment” includes exterior remodeling. These aspects of the definition of “Redevelopment”

conflict with the EPA's definition of the term. In promulgating the Phase II final rules, EPA stated EPA intends the term "redevelopment" to refer to alterations of a property that change the "footprint" of a site or building in such a way that results in the disturbance of equal to or greater than 1 acre of land. The term is not intended to include such activities as exterior remodeling, which would not be expected to cause adverse storm water quality impacts and offer no new opportunity for storm water controls.64 Fed.Reg. 68760,

December 8, 1999. The Cities are aware of no evidence to support the use of a 5,000 square foot, rather than EPA's one acre, threshold, or to apply the re-development requirements to remodeling. Similarly, the Cities are aware of no authority for the proposition that the EPA's one acre threshold, or exemption for remodeling, are not binding for purposes of this Order.

Recommendation: The definition of "Significant redevelopment" should be changed to alterations of a property that change the "footprint" of a site or building in such a way that results in the disturbance of equal to or greater than 1 acre of land. The term is not intended to include such activities as exterior remodeling, which would not be expected to cause adverse storm water quality impacts and offer no new opportunity for storm water controls. (*Lake Forest & Laguna Woods*)

Response: The SDRWQCB does have the authority to include more specific requirements than those stated in the federal NPDES regulations. When relating specifically to storm water, Clean Water Act section 402(p)(3)(B)(iii) clearly provides states with wide-ranging discretion, stating that municipal storm water permits "[s]hall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." Please refer to item 4 in section V of the Fact Sheet/Technical Report (Common Municipal Storm Water Permit Issues) for a further discussion of whether the SDRWQCB can include in the Tentative Order more specific requirements than those stated in the federal NPDES regulations. The 5,000 square feet requirement for redevelopment was developed during the LA municipal storm water permit process. This threshold was upheld on appeal by SWRCB Order No. 2000-11 and SWRCB defined redevelopment subject to SUSMP requirements if it results in the creation or addition of 5,000 square feet of impervious surfaces. If a redevelopment project involves exterior remodeling that adds 5,000 square feet of impervious surface, then SUSMP apply to the remodeling. If the remodel results in an increase in more than fifty percent of the impervious surface of the existing development, then SUSMP apply to the whole development.

Section F.1 Subsection F.1.b.2

Comment: Priority project categories that fall under SUSMP: a project that could impact environmentally sensitive areas and which increases the area of imperviousness of a proposed project site to 10% or more of it naturally occurring condition. Where in the permit is "naturally occurring condition" defined? (*Aliso Viejo*)

Response: Naturally occurring condition is defined as predevelopment condition.

Section F.1 Subsection F.1.b.2

Comment: Item F.1.b(2), with minor changes, the Regional Board staff has essentially cut and pasted the SUSMP developed pursuant to the Los Angeles County NPDES permit into the Tentative Order for the County, thereby imposing a storm water management program designed for new development in Los Angeles County on new development in Orange County. The Tentative Order

would ignore the unique circumstances of the County and its municipalities. As discussed in detail above, this cut and paste approach to municipal storm water permitting is inconsistent with policies established by Congress and EPA in the CWA and its implementing regulations which emphasize flexibility and site specific, case-by-case determinations for each permit. See supra General Comments § V. Even the Los Angeles Regional Board, where the SUSMP originated, has now recognized that the SUSMP may not be appropriate for everyone. The current draft of the LA County MS4 permit allows a Permittee or Permittee group to substitute a regional or sub-regional storm water mitigation program for the SUSMP. See Los Angeles Regional Water Quality Control Board, Order No. 01-XXX (NPDES No. CAS001001) (Second Draft, June 29, 2001), Part 4, Section D.10. The Tentative Order should, accordingly, be revised to delete the mandatory SUSMP requirements and, instead, build on the new development programs included in the 2000 DAMP. See supra General Comments § IV. (*County of Orange*)

Response: The new development and redevelopment section of the proposed DAMP does not include many of the important provisions of the Tentative Order as indicated in Appendix 5 of the Draft Fact Sheet/Technical Report. The Tentative Order provides minimum requirements for new development and significant redevelopment (including SUSMPs) that must be met and a framework for the Copermittees to work within. However, the Tentative Order does not preclude the Copermittees from using their DAMP to develop a program that meets or exceed these requirements.

Section F.1 Subsection F.1.b.2

Comment: Section F. 1 .b.(2): The Tentative Order defines environmentally sensitive areas as including “areas in the Natural Community Conservation Planning Program.” The Southern Subregion NCCP includes the communities of Mission Viejo, San Juan Capistrano, Rancho Santa Margarita, Coto de Caza and others. According to the definition, all urban and non-urban land uses with the subregion would be “environmentally sensitive areas”, when significant portions of the subregion are plainly not environmentally sensitive. A more appropriate definition of environmentally sensitive areas in an NCCP context would be the areas designated as reserves. This would also be consistent with the San Diego County permit. (*Rancho Mission Viejo*)

Response: The section F.1.b.2.a.vii of the Tentative Order has been changed to include only areas designated as preserves or equivalent under the NCCP Program.

Section F.1 Subsection F.1.b.2

Comment: The requirement in the new permit is to require post development to maintain predevelopment flow discharges and velocities. What storm event is this referring to? Is it 2yr, 5yr or other? (*County of Orange*)

Response: The Tentative Order does not specify a predevelopment storm event, but instead leaves establishment of such an event standard to the discretion of the Copermittees.

Section F.1 Subsection F.1.b.2

Comment: Section F.1.b(2)(a), Items i and ii, page 15: These two items together effectively require home subdivisions of 10 or more units to be subject to SUSMP requirements. Is there a specific reason that the “home subdivisions” category has been subdivided, or can these two items be combined? (*San Clemente*)

Response: Please see latest Tentative Order. The two categories will be combined into one.

Section F.1 Subsection F.1.b.2

Comment: Section F. 1 .b.(2): The Tentative Order defines the applicability of the SUSMP requirements as applying to “all priority projects or phases of priority projects that have not yet begun grading or construction activities.” RMV is currently constructing the planned community of Ladera Ranch. The entire site has been graded and residents are living in the first phase. RMV therefore views Ladera Ranch as vested under the language cited above. (*Rancho Mission Viejo*)

Response: Comment noted.

Section F.1 Subsection F.1.b.2

Comment: This Section requires that a SUSMP be implemented for the listed categories of development. We object to the Permit’s “one size fits all” approach to implementation of the SUSMP. Lumping all of these development categories into the same regulatory program ignores obvious thresholds that would result in development and regulatory savings without compromising the efficacy of the program. Although it might be appropriate to focus on certain categories of development for addressing water quality concerns, the selection of these categories should be based on tangible scientific data that determines these categories to be of higher concern or requiring additional attention than other development categories. It is not clear why residential development is even included as a priority development category when the water quality data collected to date has not shown residential land use to be of a high concern. Furthermore, even if residential development is included as a priority development, there is no reason why it should have a lower threshold (10 housing units) than industrial/commercial development (100,000 square feet) when the water quality data (Los Angeles County Flood Control District 1994-2000 Integrated Receiving Water Impacts Report) has not shown residential land use to be of higher concern. Also, the inclusion of residential development, as a category in the SUSMP, with a threshold of 10 housing units, is helping to prevent “smart growth” by creating a disincentive to high density, infill development that is needed to responsibly increase housing supply and affordability in urban, job rich areas. With the existing housing and affordability crisis, low or moderate-income housing should be exempt from these requirements anyway. (*Construction Industry Coalition on Water Quality*)

Response: The Tentative Order including SUSMPs provides a minimum framework for Copermittees to work within, but gives them broad discretion in determining what BMPs are appropriate at all developments (not only SUSMP). The priority development categories included in the Tentative Order will result in either a large increase in impervious area or are potential significant sources of pollutants and therefore are subject to SUSMP requirements. All of the categories were included in the SD Municipal Storm Water Permit Order No. 2001-01 and no information provided supports their removal from the Orange County permit. In contrast to comment, the Tentative Order does include specific thresholds for application of SUSMPs to prevent insignificant projects from having these requirements. The fact that a project is low or moderate income does not mean that it is less of a water quality threat than a similar more expensive project.

Section F.1 Subsection F.1.b.2

Comment: The Waste Discharge Requirements are a great step towards the mitigation of nonpoint source pollution and urban runoff, and towards the eventual restoration of the ecological integrity of our coastal waters. The inclusion of retail gasoline outlets, environmentally sensitive areas, and roads and highways to the development projects necessitating permits is critically important. Moreover, we support the incorporation of both flow-based and volume-based calculations of storm events. (*California Coastal Commission*)

Response: Comment noted.

Section F.1 Subsection F.1.b.2

Comment: We encourage the San Diego Regional Water Quality Control Board to continue to look for ways to mitigate runoff from all development projects, including those that are exempt in this review. Just as we believe all developments, no matter how small, may contribute to urban runoff and nonpoint source pollution, we also believe there are common sense, simple means of reducing runoff from small developments, such as the development projects of fewer than ten unit homes, less than 100,000 square feet industrial/commercial development, and parking lots of less than 5,000 square feet or 25 parking spaces. Moreover, the Coastal Commission would encourage you to periodically assess the cumulative impact of development not currently covered under the permit. (*California Coastal Commission*)

Response: Comment noted. The assessment of the cumulative impact resulting from discharges from development not currently covered under the permit is implicitly required throughout the Jurisdictional Urban Runoff Management Program (JURMP) and the assessment of effectiveness component of the JURMP Annual Reports.

Section F.1 Subsection F.1.b.2

Comment: In light of these issues, we suggest that the 10-99 housing units and the 100 housing units or more categories be combined with the commercial category to read, "A commercial or residential development with 100,000 or more square feet of directly connected impervious area which is not considered low or moderate income housing." Directly connected impervious area can be defined as follows: "the area covered by a building, impermeable pavement, and/or other impervious surfaces, which drains directly into the storm drain without first flowing across permeable land area (e.g. lawns)." It is clear throughout this Proposed Permit that the Regional Board is trying to promote natural drainage and less impervious area. This proposed category definition provides the incentive to help promote this approach. (*Construction Industry Coalition on Water Quality*)

Response: Sections F.1.b.2.a.i and F.1.b.2.a.ii will be combined into one home subdivision category and will remain separate from the criteria for commercial developments. Please see changes in Tentative Order.

Section F.1 Subsection F.1.b.2

Comment: Why doesn't the Regional Board specify the 80th percentile runoff event in the numeric sizing criteria since the 80th percentile runoff event is now considered by municipalities in the semi-arid southwest "as cost effective for stormwater quality management and is viewed as the design

event that achieves MEP..." (WEF Manual of Practices No. 23, page 174)? (*Richard Watson and Associates*)

Response: The 80th percentile reference is what size storm event the City of Denver has chosen to capture. This is not considered appropriate for the San Diego Region because using the 80th percentile storm event would ignore the point of diminishing returns. The 85th percentile storm event required in the Tentative Order represent the knee of the precipitation probability curve from which it is no longer cost effective to treat runoff. In addition, SWRCB Order No. WQ-2000-11 states that the 85th percentile storm event constitutes MEP.

Section F.1 Subsection F.1.b.2

Comment: The blanket application of the San Diego SUSMP requirements is inappropriate and poses some technical and regulatory difficulties for new development...We also submit that the permit should reflect the efforts taken to date and provide flexibility for the County to address the SUSMP requirements. With that in mind we recommend replacing the San Diego provision F. 1 .b.2 in its entirety and replacing it with the following [see letter for suggested replacements]. (*County of Orange*)

Response: The Tentative Order contains the framework of minimum requirements (Including SUSMPs) for the Copermittees to develop and implement urban runoff management programs. Within that framework, the Copermittees have significant discretion and flexibility with regard to the programs and the specific BMPs that are developed and implemented. The SUSMP requirements have been upheld by SWRCB in Order No. 2000-11. These requirements have also been adopted by the SDRWQCB in San Diego Municipal Storm Water Permit No. 2001-01 and represent what the Board considers MEP for the Region.

Section F.1 Subsection F.1.b.2.

Comment: The hillside development category should be deleted, as there have been no studies to justify its inclusion as a priority development category requiring SUSMP compliance. The pollutant loading from hillside developments are minimal when compared to other development categories. It is our belief that this category was originally placed as a priority planning category in the current Los Angeles Municipal Storm Water Permit due to the confusion between post-construction and construction phase. This development category is obviously of high concern during the construction phase due to the high potential for slope erosion, however the post-construction pollutant loading from these hillside developments is minimal when compared to other development categories due to slope stabilization being required in the State General Construction Permit prior to obtaining a Notice of Termination. It could also be structurally dangerous to divert roof runoff and surface flow to vegetated areas before discharge. One has to ask, "What are the benefits of implementing these requirements in comparison to the cost and potential risks involved?" Especially considering that a single-family hillside residence has not been shown to contribute substantially to water quality impairments. What is the purpose of this requirement, if it is not to address potential water quality impairment? Could it be to stop hillside development? (*Construction Industry Coalition on Water Quality*)

Response: The hillside development SUSMP priority category is necessary due to the high potential for erosion both on-site and downstream resulting from changes in the flow regime caused by this type of development. On-site and downstream erosion can be a significant source of pollutants and need structural treatment BMPs to prevent. The 5,000 square foot size threshold was

used in the Tentative Order is based on SWRCB guidance in Order 2000-11 and the SDRWQCB Order No. 2001-01.

Section F.1 Subsection F.1.b.2.a

Comment: Sub-paragraph “F. 1 .B. (2)” “Standard Urban Storm Water Mitigation Plan (SUSMPs)” in sub-paragraph (a). is overly prescriptive as to the application of these plans. In particular, sub-paragraph V regarding restaurants is so small in area that no restaurant facility could be created without the use of a SUSMP regardless of the location or type of facility being proposed. The restaurant limitation should be revised to where the land development is at least 20,000 sq. ft. (*Laguna Hills*)

Response: The 5,000 size threshold for restaurants that are subject to SUSMP requirements was defined in the LARWQCB SUSMP and upheld in SWRCB Order WQ 2000-11. In addition, this threshold was adopted in SDRWQCB Order No. 2001-01.

Section F.1 Subsection F.1.b.2.a

Comment: [Section F.1.B.2] Sub-paragraph VIII regarding parking lots is much too restrictive and inappropriate as there is not direct scientific linkage to the 5,000 square feet of a parking lot and adverse urban runoff. A parking lot of one acre or more in size should be the maximum criteria as being a reasonable size development that should be burdened with a SUSMP. Similarly, sub-paragraph IX inappropriately defines any road surface as having to comply with an SUSMP and is overly restrictive at 5,000 square feet. This requirement should be revised to match construction site limitations of 5 acres or more. (*Laguna Hills*)

Response: The 5,000 square foot size threshold was used in the Tentative Order is based on SWRCB guidance in Order 2000-11 and the SDRWQCB Order No. 2001-01. Streets, roads, highways, freeways, and parking lots are SUSMP priority development catagoreis due to their potential significant source of pollutants in urban runoff.

Section F.1 Subsection F.1.b.2.a

Comment: Section F.1.b.(2)(a) identifies ten (10) priority development project categories for new development and significant redevelopment. These specific project categories are not specifically found in the Clean Water Act, the applicable Federal Regulations, the Porter-Cologne Act, or EPA guidance documents. The Draft Fact Sheet/Technical Report provides no specific rationale for the selection of the priority project categories. Please provide additional information (i.e. scientific, empirical, other) for each of the priority project categories. Why is each project category a threat to water quality? What are the specific pollutants of concern associated with each project category? Why is there no category for new industrial uses? (*Laguna Niguel*)

Response: The SDRWQCB has the authority to include the priority development project categories Section F.1.b.2.a of the Tentative Order under the broad and specific authority cited in the draft fact sheet/technical report. As indicated in the draft fact sheet/technical report, the 10 priority development project categories either result in a large increase of impervious surfaces or are potential significant sources of pollutants. The inclusion of SUSMP priority development categories was upheld in SWRCB Order No. WQ 2000-11 and were included in the San Diego Municipal Storm Water Permit . All ten categories in the SDRWQCB Order No. 2001-01 are included in the Tentative Order and are

projects that will likely occur in Orange County. The Tentative Order requires the Copermittees to develop a procedure to identify the pollutants or conditions of concern for each development and significant project falling under the 10 priority categories. If a new industrial development or significant redevelopment projects falls under one of the 10 catagories listed in the Tentative Order, the SUSMP requirements apply.

Section F.1 Subsection F.1.b.2.a

Comment: Sections F.1.b.(2)(a)i and ii should be combined into one category to read as follows: ‘Home subdivisions of 10 housing units or more’. (*Laguna Niguel*)

Response: Sections F.1.b.2.a.i and F.1.b.2.a.ii of the Tentative Order will combined to be one priority development project category. Please see changes to Tentative Order.

Section F.1 Subsection F.1.b.2.a

Comment: [Section F.1.B.2] Sub-paragraph VI limiting hillside development to anything greater than 5,000 sq. ft. is an overly broad restriction and will create unnecessary development of a SUSMP for such facilities as an out building or barn and not a significant development. The size limitation should be revised to all hillside development greater than one acre in size. (*Laguna Hills*)

Response: The hillside development SUSMP priority category is necessary due to the high potential for erosion both on-site and downstream resulting from changes in the flow regime caused by this type of development. On-site and downstream erosion can be a significant source of pollutants and need structural treatment BMPs to prevent. The 5,000 square foot size threshold was used in the Tentative Order is based on SWRCB guidance in Order 2000-11 and the SDRWQCB Order No. 2001-01.

Section F.1 Subsection F.1.b.2.a

Comment: Retail establishments, including gasoline outlets, are not covered by the CWA MS4 regulations. Parts F.1.b.(2)(a).v and x on page 16 of the Tentative Order, would require each Co-permittee to apply the SUSMPs to commercial developments, including restaurants and Retail Gasoline Outlets. However, in the preamble to the promulgation of the Phase I regulations, the U.S. EPA stated that “EPA views gas stations as retail commercial facilities not covered by this regulation. It should be noted that SIC classifies gas stations as retail.” 55 Fed.Reg. 48013-14, Nov. 16,1990.

Recommendation: In view of EPA’s statement that gas stations, as they are retail facilities, are not covered by the Phase I regulations, Parts F.1.b.(2)(a).v. and x, on page 16 of the Tentative Order, should be revised to cite specific authority for the proposition that gas stations and restaurants may be covered by the Tentative Order, or Parts F.1.b..(2)(a).v. and x, on page 16 of the Tentative Order, should be deleted. (*Lake Forest & Laguna Woods*)

Response: In compliance with the Phase I section referred to by the comment, the Regional Board does not regulate retail gasoline outlets(RGOs) as industrial facilities that require separate industrial storm water permits. The Tentative Order considers RGOs to be commercial and are included in the SUSMP requirements due to their potential as a significant source of pollutants in urban runoff.

Section F.1 Subsection F.1.b.2.a

Comment: Section F.1.b.(2)(a)viii and rjr lists parking lots (5,000 sq. ft. or 15 spaces), streets and roads (5,000 sq. t?.) as high priority development that are subject to SUSMPs requirements. Listing the number of units in a residential project or the size of a commercial project site as a threshold for SUSMP requirements while at the same time listing the sizes and types of impermeable surfaces (parking lots and roads) as another threshold, is confusing. For example; is a 5-unit single-family residential development with a new private cul-de-sac street (larger than 5,000 sq. ft.) subject to SUSMP requirements? If the answer is yes, what is the criteria for sizing the BMP? Is the BMP sized to treat the runoff from the street or from both the street and the 5 residential lots? The same confusion results under Subsection iii. for commercial development. A viable new commercial development, no matter its site acreage (plus or minus 2.5 acres), is going to have a parking lot of at least 15 parking spaces; therefore, is Subsection viii. intended to apply to isolated fi-eestanding parking lots or roads/streets that are not directly associated with a new residential or commercial development project? (*Laguna Niguel*)

Response: SUSMP requirements would only apply to the project or portion of a project that falls within the priority development catagories listed in the Tentative Order. However, a road or parking lot would also be included in the total size of the project. For example, a 15,000 square foot parking lot for a 90,000 square foot commercial development would trigger SUSMP requiremnts for both the lot and development.

Section F.1 Subsection F.1.b.2.a.x

Comment: Section F.1.b.(2)(a)x refers to retail gasoline outlets. Does the 5,000 sq. ft. criteria for a gasoline outlet refer to the size of the building/canopy, impervious surface or land area? (*Laguna Niguel*)

Response: The 5,000 square feet criteria refers to impervious area.

Section F.1 Subsection F.1.b.2.b

Comment: Section F.1.b.(2)(b) requires all new development and significant redevelopment projects to implement a combination of BMPs including at least one (1) source control BMP and two (2) structural treatment BMPs. These minimum standards are arbitrary and inappropriate. The appropriate BMPs will vary from project to project. In some cases, the implementation of one (1) source control or structural treatment BMP may be sufficient to mitigate all water quality impacts of a project. The imposition of development conditions is a discretionary act of city and county Planning Commissions and governing boards. Please eliminate this part of Section F.1.b.(2)(b). (*Laguna Niguel*)

Response: The BMP requirements in the section apply only to SUSMP project catagories and which BMPs that are to be implemented is left to the discretion of the Copermittees. The intent of the criteria is to define what minimum performance standards that the selected BMPs must meet. The SUSMP provision requiring source control BMPs and structural BMPs has been upheld in SWRCB Order No. WQ 2000-11 and was included in the SDRWQCB Order No. 2001-01.

Section F.1 Subsection F.1.b.2.b

Comment: Second, in consecutive minimum requirements, the Permit directs permittees to “minimize storm water pollutants of concern in urban runoff,” as well as, “remove pollutants of concern from urban runoff.” Regardless of which standard is actually controlling, neither considers feasibility, costs, or any other factor used to define MEP. A literal reading of this requirement orders permittees to produce pristine drinking water from its MS4. (*Construction Industry Coalition on Water Quality*)

Response: Controlling the discharge of pollutants to the MEP is a basic standard of the Tentative Order and not repeated in every line. Both requirements, minimizing storm water pollutants of concern and removing pollutants of concern, are to this MEP standard. However, neither of these requirements require the removal of all pollutants of concern.

Section F.1 Subsection F.1.b.2.b

Comment: Section F.1.b.(2)(b)(i. through xiv.) also lists fourteen (14) specific areas which must be addressed by BMPs. These items should be eliminated as requirements, and offered only as examples for consideration by the Copermittees. (*Laguna Niguel*)

Response: The BMP requirements in the section apply only to SUSMP project categories and which BMPs that are to be implemented is left to the discretion of the Copermittees. The intent of the criteria is to define what minimum performance standards that the selected BMPs must meet. The SUSMP provision requiring source control BMPs and structural BMPs has been upheld in SWRCB Order No. WQ 2000-11 and was included in the SDRWQCB Order No. 2001-01. Many of the criteria are listed in the section as where feasible to give the Copermittee flexibility.

Section F.1 Subsection F.1.b.2.b

Comment: Section F.2.B.2.B - The Regional Board has made no showing that any of these unqualified directives are consistent with MEP. Thus, these unqualified, absolute directives should be stricken from the Permit or somehow made to conform with the MEP standard. (*Construction Industry Coalition on Water Quality*)

Response: Section F.2.B.2.B contains criteria for the Copermittees to apply in developing their recommended source control and structural treatment BMPs. Items ii,iii, v, vii, viii, ix, xi, xii, xiii, xiv are qualified measures. Items i, iv, and vi are objectives of BMPs and Items vii and x are common sense measures. Using this criteria, Copermittees will be able to develop recommended source control and structural treatment BMPs that do not exceed the MEP standard.

Section F.1 Subsection F.1.b.2.b

Comment: Section F. 1 .b.(2): The first BMP offered requires the “control of post development peak storm water runoff discharge rates and velocities to maintain or reduce pre-development downstream erosion, and to protect stream habitat.” Requiring peak flow control for smaller storms can actually lead to more damage in streams and open channels from physical impacts than doing nothing (e.g. reducing post -development peaks to be equal with pre-development one or two year peaks will result in the stream flowing at a near bank-full rate for extended time periods, instead of letting some of the flows and energy go over bank, hence the steam will down-cut faster, depending of course on the channel bed and side materials). The approach should be to minimize the increase in

flows and volumes by use of BMPs that retain waters on-site and then work with the receiving waters to ensure that they can adapt to changing hydrology (e.g., stream stabilization measures) that occurs with development.

Such flow requirements (peak control) for smaller storms only make sense from a physical habitat perspective when discharging to receiving waters that are potentially sensitive to such changes in runoff. For example, a concrete lined channel that discharges directly to the ocean should not have issues with in-stream instability. Reducing volumes, however, would reduce pollutant loads. (*Rancho Mission Viejo*)

Response: It is the intent of the requirement to control peak flow rates and velocities as necessary to maintain downstream erosion and protect stream habitat. Where there is not a potential for increased downstream erosion, then this requirement need not apply.

Section F.1 Subsection F.1.b.2.b.1

Comment: First, permittees are directed to “control the post development peak storm water runoff discharge rates and velocities to maintain or reduce pre-development downstream erosion and to protect stream habitat.” In other words, if a development project places concrete where grass once grew, permittees must somehow use concrete that has the same runoff discharge rate and velocity as “grassland,” or otherwise trick Nature into producing the same response to a storm as existed in the natural state. Of course, the Regional Board does not lend any suggestions as to how this impossible feat could actually be achieved (much less, achieved in a reasonably cost-effective manner). (*Construction Industry Coalition on Water Quality*)

Response: The Tentative Order does not require that concrete have the same runoff rates and velocities as grass. By replacing grass with impervious surfaces, the assimilative capacity of the ground is lost and there is an increase in both runoff rates and velocities. The Tentative Order simply requires that appropriate BMPs are implemented at SUSMP projects to control these increases and prevent additional downstream erosion and to maintain stream habitat. Urban impoundments, parking lot storage, rooftop runoff disposal, cistern storage, infiltration pits and trenches, concrete grid and modular pavement, porous asphalt pavement, grassed waterways, filter strips and seepage areas are some examples of BMPs for stormwater runoff detention/retention.

Section F.1 Subsection F.1.b.2.b.6

Comment: The Permit directs permittees to “protect slopes and channels from eroding.” Once again, the Permit prescribes an unqualified mandate in violation of MEP. As the Regional Board is well aware, it is a simple fact of nature that many slopes and channels do erode over time. This is a natural phenomenon that occurs with or without the presence of urban development and MS4s. A literal reading of this requirement actually requires permittees to alter the Earth’s natural cycle of erosion. As such, it should be qualified. (*Construction Industry Coalition on Water Quality*)

Response: BMPs are required to protect slopes and channels from erosion due to new development and significant redevelopment. Copermittees are not required to prevent erosion from naturally occurring conditions.

Section F.1 Subsection F.1.b.2.c

Comment: These requirements are inconsistent with the MEP standard because they are inflexible and bear no relationship to actual pollutant reduction and realized water quality benefits. Permittees are directed to treat an arbitrary amount of site runoff, regardless of its contents, and regardless of the treatment's effects on receiving water quality. This mandate is unfounded because, in many cases, treating 85% of site runoff may not result in significant water quality benefits over that which would be achieved by treating a much lesser percentage.[17] The amount of money needed to meet these requirements is clearly unreasonable, if the same water quality benefits could be achieved by BMPs that cost significantly less. The Regional Board has not made any showing that forcing specific permittees and developers to treat 85% of all site runoff is in fact reasonable, taking into consideration the relative costs and relative water quality benefits to be achieved.

These numeric sizing criteria run afoul of MEP because they are not applied in a site-specific and flexible manner. To comply with MEP, the Regional Board must consider the many variables that may change with respect to each new development site, as well as each permittee.

This inflexible standard leaves no room for these site-by-site determinations; developers and permittees will not have the needed flexibility to concentrate resources where they are most needed. In effect, this standard ties the hands of local government and discourages innovative and regionalized watershed solutions.

MEP (as well as the SWRCB's enforcement policy and due process and equal protection considerations)" requires the Regional Board to promulgate standards that can be applied in a fair and consistent manner. The Regional Board's one-size-fits-all standard will undoubtedly create unfair results. Many developers and permittees may unjustly be forced to comply with an "85% volume-based treatment standard" that produces no significant water quality benefits over a less expensive option. Control measures adopted in the storm water program should not create such disparate results." For the foregoing reasons, the flow and volume based BMP requirements are inconsistent with MEP and should be stricken. (*Construction Industry Coalition on Water Quality*)

Response: SWRCB Order No. 2000-11 finds that SUSMPs (including Numeric Sizing Criteria) that require the mitigation of 85% of runoff from new development and significant reflects a reasonable interpretation of developmental controls that achieve reduction of pollutants to the MEP. The Numeric Sizing Criteria included the Tentative Order were based on staff review of the LA Municipal permit, SWRCB Order. 2000-11, public comments, and the San Diego Municipal permit to determine applicability to the Tentative Order. In particular, the San Diego Municipal permit (including Numeric Sizing Criteria requirements) represents the Board's interpretation of what meets MEP within the San Diego Region. The sizing criteria is based on the point where it is no longer cost effective to treat urban runoff.

Section F.1 Subsection F.1.b.2.c

Comment: Many of the proposed requirements in the draft permit would be administratively and operationally overwhelming to implement. We are concerned in particular that the permit: Specifies numeric design criteria for post-construction BMPs that are more stringent than the criteria in the San Diego permit (BMPs designed to mitigate [infiltrate, filter, or treat] the runoff produced by a 0.8-inch rain event rather than a 0.6 inch rain event in San Diego). (*Mission Viejo*)

Response: The 24-hour 85th percentile storm event of 0.8 inch was calculated using County of Orange historical rainfall data and represents an average for the area covered by the Tentative Order.

The 0.6 inch event in the San Diego permit was calculated using historical rainfall data from San Diego County.

Section F.1 Subsection F.1.b.2.c

Comment: May we have copies of the calculations used to determine that the average 24-hour 85th percentile storm for Orange County is 0.8 inch? (*Richard Watson and Associates*)

Response: The calculations are listed in Attachment C of the Draft Staff Report for SUSMPs and Numeric Sizing Criteria for Best Management Practices.

Section F.1 Subsection F.1.b.2.e

Comment: Many of the proposed requirements in the draft permit would be administratively and operationally overwhelming to implement and would be an attempt to expand Regional Board control over City policies and procedures. We are concerned in particular that the permit requires post-development runoff into a Clean Water Act 303(d) water body containing any pollutants (for which the water body is already impaired) does not contain the same pollutants in levels exceeding pre-development levels. (*Lake Forest*)

Response: The requirements of the Tentative Order are based on the federal regulations and USEPA and SWRCB guidance and are practicable for the Copermittees to implement. The Tentative Order is a third term permit rather than a first or second term permit and is intended to build upon the programs developed during the first two permits. With respect to post-development runoff into impaired water bodies, the SDRWQCB has legal authority to require additional controls for 303(d) water bodies and ESAs under the Clean Water Act and the California Water Code. The CWA requires in section 402(p)(3)(B)(iii) that permits for discharges from municipal storm sewers “shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.” California Water Code section 13377 provides that “Notwithstanding any other provision of this division, the state board or the regional boards shall, as required or authorized by the Federal Water Pollution Control Act (Clean Water Act), as amended, issue waste discharge requirements and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with anymore stringent effluent standards or limitation necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance.”

The requirement for additional controls for these areas is a necessary layer of protection for these valuable resources. Each 303(d) water body or environmentally sensitive area (ESA) is either a valuable receiving water resource that should be protected from the impacts of urban runoff, or a degraded receiving water resource that should be protected from additional impacts. A sensitive habitat has a much lower capacity to withstand pollutant shocks than might be acceptable in the general circumstance, and so deserves attention. In essence, a project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant (LARWQCB, 2000). USEPA, in discussing storm water controls, notes: “Sensitive area protection is an important element of conservation design [...] These areas are particularly susceptible to degradation by storm water runoff” (USEPA, 1999a). Finally, the Office of Chief Counsel for State Water Resources Control Board noted in its October 14, 1999 discussion of the *Defenders v. Browner*

decision that "...because most MS4 discharges enter impaired water bodies, there is a real need for permits to include stringent requirements to protect those water bodies."

The requirements of the Tentative Order are based on the federal regulations and USEPA and SWRCB guidance and are practicable for the Copermittees to implement.

Section F.1 Subsection F.1.b.2.j

Comment: The County is experiencing the loss of mature riparian oak woodland within regional parks from stream downcutting resulting from sediment removal by various BMPs. Is this impact addressed? (*County of Orange*)

Response: Staff is not aware of damage to riparian vegetation from urban runoff BMPs, but has received reports of severe channel downcutting in southern Orange County watersheds. It is unlikely that BMPs have had much impact on the stream downcutting and loss resiliency of the riparian zone because BMPs were largely non-existent during the urbanization of the watersheds. The U.S. Army Corps of Engineers in a Reconnaissance Study of the San Juan and Aliso Creek watersheds attributed loss of riparian habitat primarily to channel degradation problems which have manifested during the past two decades. Channel degradation and the lack of recovery by riparian vegetation following large storm events corresponds to the large scale urbanization of the watersheds. For instance, the Corps found that degradation of lower Aliso Creek began as the upstream developments of Lake Forest, Leisure World (now mostly Laguna Woods), and Laguna Hills were built. Additionally they note that with intense development of the watersheds beginning in the 1980's there has been accelerated and dramatic stream channel bed degradation. The Tentative Order seeks to eliminate the practices of urbanization that have led to major modifications of the flow regime, and in turn should result in a decrease of further downcutting.

Section F.1 Subsection F.1.c

Comment: This section requires the Copermittees to revise their current environmental review processes to include requirements for evaluation of water quality effects and identification of appropriate mitigation measures. The provision sets forth eleven (11) questions that Copermittees should consider in addressing increased pollutants and flows from proposed projects. The State Legislature has enacted the California Environmental Quality Act and the State Office of Planning and Research has developed an environmental check list for use by local planning agencies. Item F.1.c. of the Tentative Order is preemptive, unnecessary, and should be eliminated. (*Laguna Niguel*)

Response: The section is included so the Copermittes ensure that their environmental review process addresses not only CEQA guidelines, but also the more specific requirements of the Tentative Order as it relates to urban runoff.

Section: F.2

Comment: F.2.b requires each Copermittee to review and update its grading ordinances. The section identifies nine (9) specific BMPs to be implemented during all construction grading activities. The imposition of grading permit conditions is a discretionary act of city and county building and planning officials. Appropriate conditions will vary from project to project. These items should be eliminated as requirements, and offered only as examples for consideration by the Copermittees. Section F.2.c.(1) lists eleven (11) requirements that shall be included in local grading and construction

permits. The imposition of grading permit conditions is a discretionary act of city and county building and planning officials. Appropriate conditions will vary from project to project. These items should be eliminated as requirements, and offered only as examples for consideration by the Copermittees.
(Laguna Niguel)

Response: Copermittees must reduce pollutant discharges in storm water from construction sites to the maximum extent practicable. In order to achieve this level of pollution reduction, BMPs must be implemented. An effective means for ensuring BMP implementation at construction sites is through the development and implementation of grading ordinances and grading permit approval processes which require pollution prevention, source control, and structural treatment BMPs. Updated grading ordinances and grading permit approval processes that adequately address water quality considerations will provide Copermittees with the necessary tools to require effective BMPs at construction sites.

The US EPA suggests that local ordinance be used to require implementation of BMPs, stating that “A description of the local erosion and sediment control law or ordinance is needed to satisfy this requirement [i.e., Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(2)]” (1992). Regarding Copermittee approval of construction activities, the US EPA further states that “applicants must propose site review and approval procedures that address sediment and erosion controls, storm water management, and other appropriate measures. Approvals should be clearly tied to commitments to implement structural and nonstructural BMPs during the construction process” (1992)

During approval and issuance of grading and construction permits, each Copermittee must review construction and grading plans to ensure that the conditions of approval are met. US EPA states that to determine if a construction site is in compliance with construction and grading ordinances and permits, the “MS4 operator should review the site plans submitted by the construction site operator before ground is broken” (2000). Furthermore, in its Phase II Final Rule, US EPA requires small municipalities to develop and implement for construction sites “Procedures for site plan review which incorporate consideration of potential water quality impacts” (1999). Due to the greater water quality concerns generally experienced by larger municipalities, Phase II Final Rule requirements for small municipalities are also applicable to larger municipalities such as the Copermittees.

Section F.2.b & F.2.c of the Tentative Order allows the Copermittees the discretion to develop their own equivalent BMPs and measures in the update of their grading ordinances and approval processes, which will be reviewed by the Regional Board for their adequacy upon their submittal as part of the Copermittees JURMP. The requirements set forth in these sections provide the minimum requirements necessary to reduce pollutant discharges in storm water from construction sites to the maximum extent practicable, and therefore do not need to be removed from the language of the Tentative Order.

Section F.2

Comment: Part F-2, the "Construction Component," Would Be Enhanced if it Were Revised to Recognize the ISTEA Exemption. Section 1068(c) of the Intermodal Surface Transportation and Efficiency Act of 1991 ("ISTEA") granted an exception for certain facilities, (e.g., power plants, uncontrolled sanitary landfills) that are owned or operated by a municipality with a population under 100,000, an exception extended by the EPA when it promulgated the Phase II final rules. 64 Fed.Reg. 68780, December 8, 1999.

Recommendation: Revise Part F.2, the "Construction Component," to add the following, in substance "except that, pursuant to § 1068(c) of the Intermodal Surface Transportation and Efficiency Act of

1991, until March 10, 2003, storm water discharges associated with industrial activity, including construction, that are owned or operated by a municipality with a population under 100,000 are exempt from the need to apply for or obtain a storm water discharge permit. See 40 C.F.R. 1262.26(e)(1)(ii), 64 Fed.Reg. 68780, December 8, 1999." (*Lake Forest & Laguna Woods*)

Response: The Tentative Order does not continue the coverage of municipal construction sites greater than 5 acres. For municipal construction sites greater than 5 acres, the Copermittees will be expected to file a Notice of Intent (NOI) and comply with the requirements of the latest version of the State's General Construction Activity Storm Water Permit.

The Copermittees have been under a Phase I Storm Water Permit since 1990 and do not qualify for the Phase II exemption for small municipalities with populations less than 100,000. This finding was based on the Federal Regulations identification of physically interconnected MS4s in which small municipalities with populations less than 100,000 own or operate MS4s that substantially contribute to the pollutant loadings of a physically interconnected MS4s of larger Phase I communities regulated under the NPDES program for storm water discharges. Municipalities incorporated since the First and Second Term Permits were adopted assumed the responsibilities for the discharge of urban runoff from their MS4s.

Under Order No. 96-03, the second term permit, the Copermittees were required to comply with all "terms and conditions of the latest version of the State's General Construction Activity Storm Water Permit that are applicable" except filing a NOI. This including preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP) and a monitoring program consistent with the State's General Construction Activity Storm Water Permit. Under the Tentative Order, the Copermittees will continue to comply with the State's General Construction Activity Storm Water Permit by filing the NOI and preparing and implementing a monitoring program and SWPPP. Furthermore, as stated on page 137 of the Fact Sheet/Technical Report, the municipalities should set a good example for all non-municipal personnel and the public in the conduct of municipal level programs and activities.

Section F.2

Comment: Provision number 19 of Order No. 96-03 currently covers municipal construction permits over 5 acres. This provision eliminates the requirement to submit annual fees for coverage under the state's general construction permit. We are however required to comply with all general construction permit requirements. The proposed permit does not have language to cover municipal construction permits 5 acres and more. Is it the regional board's intent to require that we now have to pay the annual fee? (*County of Orange*)

Response: The Tentative Order does not continue the coverage of municipal construction sites greater than 5 acres. For municipal construction sites greater than 5 acres, the Copermittees are required to file a Notice of Intent (NOI) and comply with the requirements of the latest version of the State's General Construction Activity Storm Water Permit.

The Copermittees have been under a Phase I Storm Water Permit since 1990 and do not qualify for the Phase II exemption for small municipalities with populations less than 100,000. This finding was based on the Federal Regulations identification of physically interconnected MS4s in which small municipalities with populations less than 100,000 own or operate MS4s that substantially contribute to the pollutant loadings of a physically interconnected MS4s of larger Phase I communities regulated under the NPDES program for storm water discharges. Municipalities incorporated since the First and Second Term Permits were adopted assumed the responsibilities for the discharge of urban runoff from their MS4s.

Under Order No. 96-03, the second term permit, the Copermitees were required to comply with all "terms and conditions of the latest version of the State's General Construction Activity Storm Water Permit that are applicable" except filing a NOI. This including preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP) and a monitoring program consistent with the State's General Construction Activity Storm Water Permit. Under the Tentative Order, the Copermitees will continue to comply with the State's General Construction Activity Storm Water Permit by filing the NOI and preparing and implementing a monitoring program and SWPPP. Furthermore, as stated on page 137 of the Fact Sheet/Technical Report, the municipalities should set a good example for all non-municipal personnel and the public in the conduct of municipal level programs and activities.

Section F.2 Subsection F.2.c

Comment: The Grading Requirements are Unduly Restrictive. Part F.2.c.(1)(b), on page 22, imposing severe limitations on grading during the wet season, are unduly restrictive, especially as applied to construction sites smaller than five acres, and in light o the EPA Phase II regulations.

Recommendation: Delete Part F.2.c.(1)(b), page 22. (*Lake Forest & Laguna Woods*)

Response: Section F.2.c requires project proponents to minimize the extent of grading activities during the rainy season to the extent feasible, thus greatly reducing the potential for erosion on-site. This is a basic principle of site planning for erosion and sediment control as discussed for example in "San Diego County, Best Management Practices for Erosion and Sediment Control & Storm Water Detention/Retention". Grading activities should be undertaken during the dry months whenever possible. When grading is necessary during the rainy season, additional BMPs will be needed by construction sites no matter the size to prevent erosion and discharge of pollutants to the MS4.

Section F.2 Subsection F.2.c.1.a

Comment: Item F.2.c.(1)(a) implies that all construction projects, regardless of size, type or threat to water quality need to prepare a plan to manage storm water and non-storm water discharges. This requirement is overly burdensome due to the economic impact of smaller, low-priority sites needing to prepare a storm water management plan. The need for these plans should be based on threat to water quality, not just a blanket requirement for all sites. Also, what does it mean to manage discharges? Does this mean to prevent, treat, reduce? As a matter of fact, non-storm water discharges are already required to be eliminated, so does this mean that storm water discharges must also be eliminated. If this were the case, then this prohibition would make no allowance for naturally occurring baseline discharges from the site. Natural, undisturbed open space will cause a certain amount of sediment to be discharged to receiving waters under natural conditions. In addition, this prohibition would actually have the unintended consequence of upsetting the natural sediment allowance needed for a healthy environment. The prohibition would also ignore the fact that 100% removal of all sediment may actually be detrimental to downstream habitats by increasing the flow rate of the water entering the streams and, among other things, increasing downstream scouring and erosion. Sediment in receiving waters actually has been shown to slow down the flow rate of water moving downstream. Thus the Permit may actually mandate in some instances what it generally tries to prevent, i.e., downstream erosion. There is nothing practicable or even logical about such a mandate. (*Construction Industry Coalition on Water Quality*)

Response: The form of the channel network is a function of the hydrology and sediment supply from the land surface. Excessive erosion and sedimentation from the construction phase of

development deteriorates both water quality and the physical aquatic habitat. Wet weather flows are not prohibited, but municipalities must ensure that discharges, including those that carry sediment, are treated to MEP. The cumulative impact of smaller projects can cause an impact to water quality in receiving waters. The cost of developing a storm water management plan should be related to the size of the project, thus managers of smaller construction sites should not be excessively burdened.

Section F.2 Subsection F.2.c.1.b

Comment: {Section F.2.C.1.B} - How will this be enforced anyway?

Although there may be a higher potential of sediment runoff from grading construction sites during the rainy season, it should not be assumed that these sites would automatically result in water quality violations. These sites should require the implementation of BMPs necessary to keep sediments on site, but should not be restricted from grading during the rainy season. If grading were disallowed during the rainy season, it would have a major impact to the building and construction industries. (*Construction Industry Coalition on Water Quality*)

Response: Section F.2.c.(1)(b) requires that local construction and grading permit requirements include a provision to minimize to the extent feasible grading during the wet season and require additional BMPs for rain events if grading does occur during the wet season. Thus, grading is not prohibited during the wet season, but the Tentative Order seeks to minimize the threat of pollutant discharges from such events. Enforcement of local construction and grading permit requirements is the responsibility of the copermittees, most, if not all, of which have authorized construction site inspectors. In addition, each copermittee has reported to the Regional Board that code enforcement officers for stormwater ordinances have been established.

Section F.2 Subsection F.2.d

Comment: JURMP Item F.2.d. requires each Copermittee to prepare an annual inventory of all construction sites within its jurisdiction. However, the Permittees may not be aware of sites that are operating without permits, whether lawfully or unlawfully. Given this, the Permittees should only be required to prepare an inventory of sites for which grading permits or building permits have been issued. JURMP Item F.2.d should be revised accordingly. (*County of Orange*)

Response: Copermittees are required to enforce their local ordinances, including those that mandate permits. Using grading and/or building permit applications may be a reasonable approach to developing the initial inventory, and other means, such as attempts to locate non-filers, may also be necessary to develop a reasonably complete inventory.

Section F.2 Subsection F.2.e

Comment: Threat to Water Quality Prioritization (Construction). This section requires each Copermittee to inventory construction sites and classify each site as a high, medium, or low threat to water quality. Please provide a practical example(s) of how a Copermittee might classify a construction site as a high threat to water quality. (*Laguna Niguel*)

Response: Construction sites are high risk areas for pollutant discharges to storm water. By assessing information provided in the watershed based inventory of construction sites required (such as site topography and site proximity to receiving waters), sites can be prioritized by threat to water

quality. Those sites that pose the greatest threat can then be targeted for inspection and monitoring. This will allow for limited inspection and monitoring time to be most effective.

Section F.2.e of the Tentative Order provides the minimum criteria a Copermittee shall use to define whether a construction site poses a high threat to water quality. This framework provides the Copermittees the discretion to further define their own prioritization criteria. The Copermittees are allowed discretion in determining the criteria for medium and low threat sites.

A practical example of classifying a construction site as a high threat to water quality would be any site that met the minimum criteria established by the Tentative Order No. 2001-193 :

- (a) The site is 50 acres or more and grading will occur during the wet season; OR
- (b) The site is (1) 5 acres or more and (2) tributary to a Clean Water Act section 303(d) water body impaired for sediment or is within or directly adjacent to or discharging directly to a receiving water within an environmentally sensitive area (as defined in section F.1.b.(2)(a)vii of this Order).

Section F.2 Subsection F.2.f

Comment: Do I understand correctly that all new construction, regardless of size, will require some BMPs? (*Laguna Beach*)

Response: Yes, under the Tentative Order, the copermittees are required to enforce implementation of minimum BMPs at all construction sites to ensure pollutants and runoff will be reduced to MEP.

Section F.2 Subsection F.2.f.3

Comment: JURMP Item F.2.f(3) would require implementation of construction site BMPs “year round.” This is an unnecessary burden for those construction site operators who will not be operating during any part of the rainy season and should be revised to distinguish between dry and wet weather BMPs. (*County of Orange*)

Response: BMP implementation requirements can vary based on wet and dry seasons. BMPs must be implemented at construction sites year round to reduce the discharge of pollutants in storm water to the maximum extent practicable. Construction sites that have been graded in the dry season, but at which no operations would occur during the wet season, for instance, may pose threats to water quality if BMPs are not in place for exposed areas.

Section F.2 Subsection F.2.g

Comment: Item F.2.g is an example of the overly prescriptive requirements that characterize this permit. The Regional Board staff specifies in great detail how and how often the Permittees must inspect construction sites to determine whether they pose a threat to water quality. This approach hamstring the Permittees’ ability to determine which sites require the most attention and, in turn, will result in an unnecessary expenditure of resources at sites that do not pose a threat to water quality. Subparagraph (2) beginning with “During the wet season. . .” therefore should be deleted in its entirety. (*County of Orange*)

Response: The Tentative Order, under section F.2.e, allows the copermitees to prioritize construction sites based on the threat posed to water quality. Construction site inspection frequencies are to be based on threat to water quality prioritization. This will allow for limited inspection and monitoring time to be most effective. Inspections provide a necessary means by which Copermitees can evaluate compliance with their municipal ordinances. Inspections are especially important at high-risk areas for pollutant discharges, such as construction sites. The minimum wet season inspection frequencies in the Tentative Order are necessary to ensure compliance with local ordinances and implementation of BMPs.

Section F.2 Subsection F.2.g

Comment: Section F.2.g establishes minimum inspection frequencies for high priority construction sites. Establishing the level of municipal services is a discretionary action of city and county governing boards. Section F.2.g.(2) of the Tentative Order should be eliminated. (*Laguna Niguel*)

Response: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(3) provides that the proposed management program include "A description of procedures for identifying priorities for inspecting sites and enforcing control measures which consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality." Thus, construction site inspection frequencies are to be based on threat to water quality prioritization. This will allow for limited inspection and monitoring time to be most effective. Weekly to monthly inspection of high threat sites is necessary due to the dynamic nature of construction activities. Medium and low threat construction sites can be inspected less frequently, due to their reduced risk of negatively impacting receiving waters. Review of SWPPPs can be one effective tool for determining frequency of site inspections. Construction sites which effectively implement the measures of a comprehensive SWPPP may not need to be inspected as frequently as less diligent sites.

Section F.2 Subsection F.2.g.2

Comment: The definition of "Environmentally Sensitive Areas" includes all Clean Water Act Section 303(d) impaired water bodies. So for example, the entire Aliso Creek Watershed would be so labeled. In that case any construction site of five acres or more falls into the high priority construction site category so the Board is essentially requiring the cities in the watershed to do weekly monitoring of all the board's general construction permit sites for them. (*Aliso Viejo*)

Response: Section F.2.g (Inspection of Construction Sites) of the Tentative Order describes conditions under which high priority construction sites may qualify for monthly monitoring. Weekly inspections of high priority sites during the wet season until such time that the site provides the necessary erosion and sediment control measures is reasonable.

Section F.2 Subsection F.2.i

Comment: This question is on Immediate Reporting of Non-Compliant Construction Sites. It seems to be a waste of effort for each copermitee to develop and submit criteria by which to evaluate events of non-compliance to determine whether they pose a threat to human or environmental health. Why should this criteria be different from copermitee to copermitee? It should be defined in the permit.

Item F.2.i requires the Permittees to make certain oral notifications to the Regional Board regarding any non-compliant sites that “are determined to pose a threat to human and environmental health.” This section further requires that the Permittees submit written reports to the Regional Board concerning such non-compliant sites within five days after they have been discovered by the Permittees. However, the requirement for submittal of written reports appears to apply to any non-compliant site, even those that do not pose a threat to human health or the environment. This is an unnecessary requirement that forces the Permittees to generate needless paperwork. As with the oral notification requirement, the requirement to submit written reports should apply only to those sites that are determined to pose a threat to human health and the environmental. (*Aliso Viejo, County of Orange*)

Response: The requirement within the Tentative Order that the Copermittees shall report events of non-compliance is a standard reporting requirement of the NPDES program. Reporting of these events is necessary and an effective tool to ensure compliance with the Tentative Order. In order to provide the maximum degree of flexibility, the Copermittees have been given the discretion to define the criteria by which to evaluate events of non-compliance that constitute a threat to human or environmental health. There is no requirement in the Tentative Order that these criteria be different from Copermittee to Copermittee. These criteria shall be submitted in the Copermittees Jurisdictional Urban Runoff Management Program Documents and Annual Reports.

Section F.2 Subsection F.2.j

Comment: Since San Diego has had a storm water permit for a few months, are there model JURMPs, local ordinances for implementation and an educational training program that have been approved by the Regional Board and can be used as a sample for communities to use as a good example or sample model to be tailored to meet a local municipality requirement? If not available yet, when is their deadline? (*MJF Consulting*)

Response: The San Diego Copermittees (under Order 2001-01) have until February 2002 to implement their JURMPs. Model components are currently being developed, and some of these may be available from the County of San Diego's web site. Additionally, when the San Diego Copermittees submit to the Regional Board their JURMPs, these will be available for public review from our office.

Section: F.3

Comment: Public education and voluntary compliance should be the primary emphasis of the permit. While the Tentative Order includes an Education Component that provides helpful guidance on target communities and educational program content, the Order tends to emphasize prohibition, legal authority, and enforcement. Even the placement of the Education Finding (No. 23 of 43 Findings) diminishes its significance. The hiring of water police, threats of citations and prosecution will not materially improve water quality. The mere specter of such programs causes most reasonable people to simply shake their heads and question the governmental agencies and officials responsible for such decisions. Enforcement should be used as a last resort after all reasonable attempts at voluntary compliance have failed, and then only be used for the most egregious and/or deliberate violations. The Tentative Order should be modified to clearly embrace this philosophy.

We agree, wholeheartedly, that the public education program is the single-most important element of eventually eliminating the sources of most of the components of urban runoff pollution, and the City of Dana Point, as a Co-permittee, intends to continue, ad infinitum, with its education programs, or, at

least, until the health of our local beaches and the ocean is restored (*Laguna Niguel, Dana Point, County of Orange*)

Response: The SDRWQCB considers public education a vital to the preservation and enhancement of water quality, and the Tentative Order places a high priority on education. The breadth of topics outlined in section F.4. (Education Component) of the Tentative Order underscores the need for public education and its value. Enforcement of local urban runoff related ordinances, permits, and plans, however, is an essential component of every urban runoff management plan and is specifically required in the federal storm water regulations and this Order. For instance, 40 CFR 122.26(d)(2)(iv)(B)(1) requires the copermittees to include in their proposed management program, "A description of a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal separate storm sewer system..."

The Phase II guidance documents are targeted at municipalities primarily without existing stormwater management programs. Tentative Order 2001-193 is a third-term permit that assumes the copermittees have been conducting educational efforts for 10 years, and thus, places an appropriate emphasis on management and enforcement.

Assessments for compliance with ordinances, permits, and plans are essential for a municipality to ensure that third parties are not causing the municipality to be in violation of its municipal storm water permit. When conditions of non-compliance are determined, enforcement is necessary to ensure that violations of municipality ordinances and permits are corrected. Enforcement increases the probability of correction of a violation. Without enforcement, third parties do not have incentive to correct violations. US EPA (1992) supports inspections and enforcement by municipalities when it states "Effective inspection and enforcement requires [...] penalties to deter infractions and intervention by the municipal authority to correct violations. Enforcement mechanisms [...] also must be described."

Section F.3

Comment: Must cities (or other copermittees) implement grease interceptor monitoring, permitting, and inspection programs? (*Irvine Ranch Water District*)

Response: The Tentative Permit allows each Copermittee to designate BMPs for High Priority commercial activities.

Section F.3

Comment: Laguna Niguel is 99% developed. Source control and prevention will take a long time to be effective. Structural BMPs at the end of the pipe can achieve much faster water quality improvements to the receiving waters. Is this strategy acceptable for the City's JURMP along with source control? (*Laguna Niguel*)

Response: The Regional Board has repeatedly raised concerns about the use of short-term end-of-pipe treatment systems, such as end of pipe diversions into sanitary sewers, that are effective only for dry weather flows. Additionally, it is important to note that in 2000, Governor Davis opposed increasing funding for regional diversion BMPs. In his veto message of a \$6.9 million bill that would have funneled money to Orange County to help curb urban runoff and clean beaches, Davis said the legislation "focuses on a temporary, seasonal fix and does not provide for identification and elimination of the sources of contamination."

In addition, there is no need to control or treat pollutants that are not initially generated. Furthermore, pollution prevention BMPs are generally more cost effective than removal of pollutants by treatment facilities or cleanup of contaminated media. In the Pollution Prevention Act of 1990, Congress established a national policy that emphasizes pollution prevention over control and treatment. Since pollution prevention is an effective and efficient means for reducing pollutant loads in storm water runoff, pollution prevention methods are an important aspect of BMPs to be included in the residential existing development component of the Jurisdictional URMP.

While onsite BMPs provide many benefits, there may be cases where offsite structural BMPs, implemented on a "neighborhood" or "sub-watershed" basis, may be more feasible. This is particularly the case for existing development, where opportunities for innovative site design do not exist.

As a result, structural BMPs at the end of the pipe that are proposed in a jurisdictional urban runoff management program will be reviewed for their context within the overall program to reduce pollutants to the maximum extent practicable. Among other factors, such a review may assess the proposed role of receiving waters and associated impacts, viability of the technique in wet weather, justification for relying on end or pipe measures for short term results, and commitments to implement and encourage source control to the maximum extent reasonable.

Section F.3

Comment: We extend our enthusiastic support of the sections requiring existing development to minimize the short and long-term impacts of stormwater runoff on receiving water quality, and we applaud your proactive efforts to mitigate runoff from the entire watershed. (*California Coastal Commission*)

Response: Comment noted.

Section F.3 Subsection F.3.a

Comment: If the Regional Board is suggesting that existing development and certain non-storm water discharges are highly pollutant, doesn't this require that NPDES permit be obtained by the discharger instead of the municipality? Since section 402 does not allow the discharge of pollutants into waters of the U.S. (*County of Orange*)

Response: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(1) provides that the Copermittees shall prevent all types of illicit discharges into the MS4 except for the non-storm water discharges listed in Prohibition item B.2., provided that these discharges are not found to be a significant source of pollutants. Pursuant to 40 CFR 122.26(d)(2)(iv)(B)(1), those categories of non-storm water discharges need to be prohibited from entering an MS4 if such categories of discharges are identified by the Copermittee as a significant source of pollutants to waters of the United States. The intent of EPA, therefore, was not to require separate NPDES permits for dischargers of the listed activities, but rather for municipalities to address such discharges through the Municipal Storm Water Permit, where necessary.

Section F.3 Subsection F.3.A

Comment: The requirement in the Tentative Order to apply BMPs to municipal waste facilities such as POTWs, landfill and HW facilities is redundant with pre-existing, highly restrictive regulatory schemes. Part F.3.a.(4), on page 26, the Tentative Order would require each co-permittee to designate a set of BMPs for, inter alia, Publicly Owned Treatment Works, Solid Waste Transfer Facilities, Sanitary Landfills, sites for disposing of sewage sludge, and hazardous waste treatment, disposal and recovery facilities. Each of these operations is already subject to rigorous regulatory schemes. Any BMPs for such facilities would be redundant with the regulatory schemes which already govern those facilities.

Recommendation: In Part F.3.a.(3)(b)iv, on page 26, delete the items regarding Publicly Owned Treatment Works, Solid Waste Transfer Facilities, Sanitary Landfills, sites for disposing of sewage sludge, and hazardous waste treatment, disposal and recovery facilities. (*Lake Forest & Laguna Woods*)

Response: The requirements for Copermittees to establish priorities for oversight municipal areas and activities by threat to water quality and to implement BMPs is supported by the federal NPDES regulations, as well as USEPA guidance. With respect to the high priority municipal areas and activities cited in the comment:

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(5) provides that the proposed management program include "A description of a program to monitor pollutants in runoff from operating or closed municipal landfills or other treatment, storage or disposal facilities for municipal waste, which shall identify priorities and procedures for inspections and establishing and implementing control measures for such discharges."

Identification of high priority municipal pollutant areas and activities allows for limited pollution reduction resources to be most effective. Targeting high priority municipal areas and activities for BMP implementation, inspection, and monitoring provides the greatest reduction in risk of degrading receiving waters per expenditure.

Item (iv) in section F.3.a.3.b of the Tentative Order above is considered to be high priority sources since these areas and activities are specifically addressed in Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A)(3-5). Regarding municipal waste facilities, the USEPA states "Applicants must describe programs that identify measures to monitor and reduce pollutants in storm water discharges from facilities that handle municipal waste, including sewage sludge. [...] The types of facilities that should be included are: active or closed municipal waste landfills; publicly owned treatment works, including water and wastewater treatment plants; incinerators; municipal solid waste transfer facilities; land application sites; uncontrolled sanitary landfills; maintenance and storage yards for waste transportation fleets and equipment; sites for disposing or treating sludge from municipal treatment works; and other treatment, storage, or disposal facilities for municipal waste" (USEPA, 1992).

Section F.3 Subsection F.3.a.4.b.I

Comment: The last word in item F.3.a.(4)(b)i (BMP Implementation Municipal) should be revised from "needed" to "feasible" to read: "Each Copermittee shall evaluate feasibility of retrofitting existing structural flood control devices and retrofit where feasible." (*Laguna Niguel*)

Response: In the phrase "where needed," SDRWQCB is giving the Permittees the opportunity to develop a schedule based on their needs. Determination of necessity of retrofitting is left to the discretion of the Copermittees. Problem areas need to be both identified and evaluated for how they might be retrofitted. The provision does require an evaluation, and the process of retrofitting is the responsibility of the Copermittees.

Section F.3 Subsection F.3.a.5

Comment: Sub-section F.3.a(5) "Maintenance of Municipal Separate Storm Sewer System (Municipal)" establishes an unrealistic and unnecessary burden of inspections and storm drain cleaning activities. Evidence has shown that the frequency of inspections required by the permit is entirely unnecessary and inappropriate as storm drain systems are not a large accumulator of waste. This section should be eliminated in favor of an annual inspection and cleaning of inlets or catch basins to storm drain systems only. (*Laguna Hills*)

Response: The minimum frequency of MS4 maintenance called for in section F.3.a.(5) includes inspection and waste removal once between May 1 and September 30 each year and additional cleaning as necessary during the rest of the year. This is not an unnecessary burden. Maintenance of municipal facilities, control structures, and the MS4 is considered so essential by US EPA that the requirement to conduct a maintenance program is specifically directed in both the Phase I and Phase II storm water regulations. In addition, documentation provided by the copermittees demonstrates that the MS4 does accumulate debris and can be a source of pollutants, including fecal coliform, for which several waterbodies in the region are listed as 303(d) impaired. For example, the copermittees to Cleanup and Abatement Order 99-211 (regarding the J03P02 MS4 outfall) have identified "accumulated organic debris in the surface and subsurface storm drain system" as one of six probable contributors of fecal coliform in the J03P02 drainage area. In the November 2000 NPDES Annual Progress Report, the copermittees report cleaning 1960 cubic yards of debris, including soil, vegetation, paper, plastic, and other during drainage facility maintenance. In addition, the County of Orange reported removing over 22,000 tons of debris from its drainage facilities, although the volume attributable to the region covered by the Tentative Order was not provided.

Section F.3 Subsection F.3.a.5

Comment: Item F.3.a.(5) requires that each Copermittee shall, at a minimum, inspect and remove accumulated waste from MS4s between May 1" and September 30" of each year. The establishment of municipal service levels and maintenance schedules is a discretionary decision of city and county governing boards. Section F.3.a.(5)(c) should be eliminated from the Tentative Order. (*Laguna Niguel*)

Response: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(1) provides that the proposed management program include "A description of maintenance activities and a maintenance schedule for structural controls to reduce pollutants (including floatables) in discharges from municipal separate storm sewers." EPA (1992) finds that in cases where scheduled maintenance is not appropriate, maintenance should be based on inspections of the control structure or frequency of storm events.

The Tentative Order does not establish the maintenance level for the copermittees, but does call for each copermittee to establish a maintenance schedule. The Tentative Order, in section F.3.a.(5) calls for the frequency of maintenance activities to be based on both frequency of storm events (cleaning prior to October 1) and inspections (additional cleaning as necessary between October 1 and April 30).

Section F.3 Subsection F.3.a.7

Comment: Item F.3.a.(7) requires the Copermittees to inspect high priority municipal areas and activities annually. Please provide a practical example(s) the type of inspection activity(s) that might be appropriate for roads, streets, highways and parking facilities. (*Laguna Niguel*)

Response: Determination of the most appropriate inspection activities should be made by the copermittee based on site-specific knowledge and expectations based on monitoring activities and other information sources for the roads, streets, highways and parking facilities of concern. One type of inspection activity that may be appropriate based on local conditions for roads, streets, highways, and parking facilities is a visual inspection of the conveyances that carry urban runoff and stormwater to the MS4, the best management practices that have been implemented to reduce pollutant discharges, and surrounding land use activity for signs of changes or conditions that may impact the ability of those BMPs to function properly.

Section F.3 Subsection F.3.b

Comment: Will the Regional Board be sharing the revenue generated from industrial permits with the Copermittees to help defray the costs associated with this mandate? (*Mission Viejo*)

Response: State law would need to be amended to allow the Regional Board to share permit fees.

Section F.3 Subsection F.3.b

Comment: The Board needs to provide a definition or lists of industrial categories and commercial categories to clarify what constitutes an industrial site and what constitutes a commercial site (see F.3.c.) The Standard Industrial Classification Manual published by the Office of Management and Budget includes Retail and Service categories in their industrial categorization, while the EPA definition of "storm water associated with industrial activity" is written to describe those facilities that must obtain an industrial storm water permit. (*Aliso Viejo*)

Response: Facilities that discharge storm water associated with industrial activity requiring a General Permit are listed by category in 40 Code of Federal Regulations (CFR) Section 122.26(b)(14) (Federal Register, Volume 55 on Pages 48065-66) and in Attachment 1 of the Statewide General Industrial Permit. A list of regulated Standard Industrial Classification Codes for the statewide Industrial NPDES program is available on-line at <http://www.swrcb.ca.gov/stormwtr/sicnum.html>. If any commercial site/source listed in section F.3.c of the Tentative Order as a high priority commercial activity is also inventoried as an industrial site as required under section F.3.b.(2) of the Tentative Order, it is not necessary to also inventory it as a commercial site/source.

Section F.3 Subsection F.3.b

Comment: Inspecting industrial sites is a responsibility of the State's industrial permitting program. Why is the Regional Board placing this burden on the municipalities? The permit specifies in detail both the content of and schedule for inspections of industrial sites to determine whether they pose a threat to water quality. This approach is overly prescriptive, hampers the Permittees' ability to determine those sites that require the most attention, and would result in the expenditure of resources at sites that are not a high priority. The requirements pertaining to inspection frequency set forth in Item F.3.b(6) should be deleted.

In 1988 EPA proposed to require municipalities to enforce and inspect industrial sites as part of the storm water management plan. When the final regulations were issued in 1990, this requirement was omitted. In assessing the change, EPA noted that this would be a tremendous burden that would overwhelm municipalities and is deemed prudent that this component not be required. (*County of Orange*)

Response: Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that each Copermitee must demonstrate that it can control “through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from site of industrial activity.” These ordinances must be applied at all industrial sites to ensure that pollutant discharges to the MS4 are reduced to the maximum extent practicable and permit requirements are met. Furthermore, 40 CFR 122.26(d)(2)(iv)(C)(1) requires that municipalities “identify priorities and procedures for inspections and establishing and implementing control measures...” for discharges from industrial sites that the municipality determines are contributing a substantial pollutant loading to the MS4. Regarding enforcement at industrial sites, the US EPA further states “The municipality, as a permittee, is responsible for compliance with its permit and must have authority to implement the conditions in its permit. To comply with its permit, a municipality must have the authority to hold dischargers accountable for their contributions to separate storm sewers” (1992).

Section F.3 Subsection F.3.b

Comment: There also is no support for imposing obligations on the Permittees to reduce pollutants in runoff from all industrial sites within their jurisdictions. Under the programmatic requirements of the CWA, the Permittees are only required to monitor and control pollutants in storm water discharges from those industrial facilities: (1) that “are subject to section 313 of title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA)” or (2) which a municipal permittee “determines are contributing a substantial pollutant loading to the municipal storm sewer system.” 40 C.F.R. § 122.26(d)(2)(iv)(C) (emphasis added). The requirements of SARA Title III, in turn, are applicable only to facilities that fall within Standard Industrial Classification (“SIC”) codes 20 through 39, and which manufacture certain toxic chemicals in excess threshold amounts (generally, 10,000 pounds for facilities using one or more Section 313 toxic chemicals and 25,000 pounds for facilities manufacturing one or more Section 313 toxic chemicals). See 42 U.S.C. § 11023. The CWA clearly does not require the Permittees to reduce pollutants in runoff from all industrial sites located within their jurisdictions. (*County of Orange*)

Response: The cited federal NPDES regulation 40 CFR 122.26 (d)(2)(iv) requires the development of a management program to “...reduce the discharge of pollutants to the maximum extent practicable, using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate.” Land used for industrial activities is clearly identified in the federal regulations as one of several high priority land uses from which pollutants in urban runoff discharges must be reduced, and 40 CFR 122.26(d)(2)(iv)(C) describes the minimum standard that must be addressed in the management program by the municipalities with respect to industrial sites and activities. The SDRWQCB does have the authority to include more specific requirements than those stated in the federal NPDES regulations. When relating specifically to storm water, Clean Water Act section 402(p)(3)(B)(iii) clearly provides states with wide-ranging discretion, stating that municipal storm water permits “[s]hall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.” Please refer to item 4 in section V of the Fact

Sheet/Technical Report (Common Municipal Storm Water Permit Issues) for a further discussion of whether the SDRWQCB can include in the Tentative Order more specific requirements than those stated in the federal NPDES regulations.

Section F.3 Subsection F.3.b and F.3.c

Comment: Commercial and Industrial programs in the URMP should be combined as they are virtually identical and there is no clear definition to distinguish the two categories of sites. This will reduce the effort associated with establishing and maintaining separate inventories for these categories and the added effort of attempting to distinguish between these categories. Decisions about required BMPs can then be based on the type of activities conducted at the sites and whether these activities occur in exposure to storm water. (*Aliso Viejo*)

Response: The Copermitees have the discretion to implement the requirements of the Tentative Order in a manner that they determine to be the most effective. However, the Tentative Order specifically addresses construction and industrial activities separately from other land uses in order to facilitate the effective dual regulation of these activities by both the Copermitees and the SDRWQCB. The format of the Jurisdictional Urban Runoff Management Program was intended to enable the management and reporting of these activities in a manner that will to facilitate cooperation and coordination between the Copermitees and SDRWQCB at these sites. The structure of the Tentative Order was also intended to ensure fair and consistent municipal audits and uniform implementation and enforcement of the Tentative Order throughout the region.

Section F.3 Subsection F.3.b.2

Comment: Item F.3.b.(2) requires each Copermitee to develop and annually update an inventory of all industrial sites within its jurisdiction. The inventory shall include minimum information for each industrial site including name, address, and a narrative description including SIC codes which best reflect the principal products or services provided by each facility. Please define "industrial site". Please provide us the above-referenced minimum information for all businesses within the City of Laguna Niguel that are subject to the California Statewide General NPDES Permit for Storm Water Discharges Associated with Industrial Activities. Most of the Copermitees do not have business license or registration programs. Therefore, the information requested in this section is not readily available to most Copermitees. Please consider an alternative for the development of the industrial site inventory. (*Laguna Niguel*)

Response: Facilities that discharge storm water associated with industrial activity requiring a General Permit are listed by category in 40 Code of Federal Regulations (CFR) Section 122.26(b)(14) (Federal Register, Volume 55 on Pages 48065-66) and in Attachment 1 of the Statewide General Industrial Permit. The facilities can be publicly or privately owned. A general description of these categories are: Facilities subject to storm water effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards (40 CFR Subchapter N); Manufacturing facilities; Mining/oil and gas facilities; Hazardous waste treatment, storage, or disposal facilities; Landfills, land application sites, and open dumps that receive industrial waste; Recycling facilities such as metal scrap yards, battery reclaimers, salvage yards, automobile yards; Steam electric generating facilities; Transportation facilities that conduct any type of vehicle maintenance such as fueling, cleaning, repairing, etc.; Sewage treatment plants; Certain facilities (often referred to as "light industry") where industrial materials, equipment, or activities are exposed to storm water.

A list of regulated Standard Industrial Classification Codes for the statewide Industrial NPDES program is available on-line at <http://www.swrcb.ca.gov/stormwtr/sicnum.html>. The requirements in Section F.3.b refer to all industrial sites regardless of whether the industrial site is subject to the California statewide General NPDES Permit for Storm Water Discharges Associated With Industrial Activities Except Construction or other individual NPDES permit. The Tentative Order requires the Copermittees to include in their inventories the minimum information for each site including SIC codes that best reflect the principal products or services offered by each facility.

The SDRWQCB will provide your city with information about the industrial NPDES permitted facilities in your jurisdiction. During the first term Permit, the copermittees reported distributing flyers to more than 10,000 industrial businesses in Orange County, though numbers are not available for the region subject to this Tentative Order. This action demonstrates the ability of the copermittees to identify potential industrial dischargers.

Section F.3 Subsection F.3.b.2

Comment: JURMP Item F.3.b.2 would require each Permittee to develop and maintain an annual inventory of all industrial sites within its jurisdiction regardless of whether these sites are within the scope of 40 C.F.R. § 122.26d(2)(iv)(C). The Permittees should not be required to address industrial sites that are not subject to CWA programmatic requirements for MS4s. Such sites are not significant sources of pollutants and preparation of an inventory for all sites is an unnecessary burden on the Permittees. Moreover, most of the Permittees do not have any database listing all of the industrial sites within their jurisdictions. Thus, it would be impracticable to develop an inventory of industrial sites and maintain that inventory on a current basis. (*County of Orange*)

Response: The SDRWQCB does have the authority to include more specific requirements than those stated in the federal NPDES regulations, and has determined an annual inventory of all industrial sites is appropriate for the control of pollutants delivered via the MS4. The copermittees must have the ability to identify potential industrial dischargers, and during the first term Permit, the copermittees reported distributing flyers to over 10,000 potential industrial dischargers, although numbers were not reported separately for the region subject to the Tentative Order. The SDRWQCB will provide your city with information about the industrial NPDES permitted facilities in your jurisdiction.

Section F.3 Subsection F.3.b.3.a

Comment: Item F.3.b.(3)(a) requires the Copermittees to prioritize industrial sites by threat to water quality. Each industrial site shall be classified as high, medium, or low threat to water quality. Please provide a practical example(s) of how a Copermittee might classify an industrial site as a high threat to water quality. (*Laguna Niguel*)

Response: Copermittees should use the criteria in section F.3.b.(3) of the Tentative Order to prioritize the threat of industrial activities to water quality. As discussed in the Fact Sheet to the Tentative Order, EPA suggests that copermittees should at a minimum consider the type of industrial activity (SIC codes can help characterize the type of industrial activity); the use and management of chemicals or raw products at the facility and the likelihood that storm water discharge from the site will be contaminated; and the size and location of the facility in relation to sensitive watersheds”

Section F.3 Subsection F.3.b.3.b

Comment: BMP Implementation (Industrial): Is there a list of businesses that currently have the various federal and state permits and approvals referenced in section F.3.b.(4)? How can this information be obtained? The Copermittee does not have records of businesses subject to these permits and programs. (*Laguna Niguel*)

Response: The Regional Board maintains a database of industrial storm water permit holders in the region, which is accessible over the internet at <http://www.swrcb.ca.gov/stormwtr/indpmt.html> or from the Regional Board office. The 303(d) list of impaired waterbodies is also available on-line at http://www.swrcb.ca.gov/tmdl/303d_lists.html or from the SDRWQCB office.

Section F.3 Subsection F.3.b.5.b

Comment: Item F.3.b(5) (b) requires a monitoring program from two storm events per year by high threat to water quality industrial sites. The monitoring program shall provide quantitative data on various constituents. One constituent is any pollutant listed in effluent guideline subcategories. What are "effluent guidelines subcategories?" Another constituent is any pollutant for which an effluent limit has been established in an existing NPDES permit for the facility. Where does a Copermittee obtain information regarding pollutants for which effluent limits have been established in an existing NPDES permit? If the Board has this information for Laguna Niguel businesses, please provide it.

Please provide additional information (i.e. scientific, empirical, other) regarding each of the constituents in F.3.b.(5)a. Why is each constituent a threat to water quality? What types of industrial activities/processes are normally associated with the presence of these constituents in storm water? What is a "Conditional No Exposure Exclusion for Industrial Activity"? (*Laguna Niguel*)

Response: The constituents listed in the Tentative Order for monitoring at industrial sites is taken from the Federal regulations. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C)(2) provides that the proposed management program shall "Describe a monitoring program for storm water discharges associated with the industrial facilities identified in paragraph (d)(2)(iv)(C) of this section, to be implemented during the term of the permit, including the submission of quantitative data on the following constituents: any pollutants limited in effluent guidelines subcategories, where applicable; any pollutant listed in an existing NPDES permit for a facility; oil and grease, COD, pH, BOD5, TSS, total phosphorus, total Kjeldhal nitrogen, nitrate plus nitrite nitrogen, and any information on discharges required under 40 CFR 122.21(g)(7)(iii) and (iv)."

Effluent guideline subcategories refer to conditions under which effluents from a facility is subject. To the extent that such constituents may be reasonable expected to be exposed to storm water, they would need to be monitored.

Information concerning pollutants for which effluent limits have been set in an existing NPDES permit is available from the Regional Board office. The copermittees may be able to obtain this monitoring information some industrial sites by requesting submittal of the Annual Reports required under the General Industrial Storm Water Permit.

Under the conditional no exposure exclusion, operators of industrial facilities in any of the 11 categories of "storm water discharges associated with industrial activity," (except construction activities, which are addressed under the construction component of the NPDES Storm Water Program) have the opportunity to certify to a condition of "no exposure" if their industrial materials and operations are not exposed to storm water. As long as the condition of "no exposure" exists at a certified facility, the operator is excluded from NPDES industrial storm water permit requirements. The

conditional no exposure exclusion replaces the no exposure exemption described under the Phase I Storm Water Program. The certification form used by the State of California, which includes a checklist of criteria, is available on-line at <http://www.swrcb.ca.gov/stormwtr/industrial.html>.

Section F.3 Subsection F.3.b.7

Comment: What does "necessary to maintain compliance with this order" mean? Municipalities do not have the same power that the Regional Board has with respect to industrial sites. (*San Juan Capistrano*)

Response: Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that each Copermittee must demonstrate that it can control "through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from site of industrial activity." These ordinances must be applied at all industrial sites to ensure that pollutant discharges to the MS4 are reduced to the maximum extent practicable and permit requirements are met. To this effect, the US EPA "recommends that municipal applicants incorporate a provision in the proposed management program that allows the municipality to require priority industrial facilities to implement the controls necessary for the municipality to meet its permit responsibilities" (1992). Regarding enforcement at industrial sites, the US EPA further states "The municipality, as a permittee, is responsible for compliance with its permit and must have authority to implement the conditions in its permit. To comply with its permit, a municipality must have the authority to hold dischargers accountable for their contributions to separate storm sewers"

Section F.3 Subsection F.3.c

Comment: F.3.c. "Commercial (Existing Development)" is an inappropriate transfer of responsibility from the Board to the co-permittee. Further, no mechanism exists within the jurisdictions of south Orange County to identify the commercial uses on an annual basis to the extent required by this section. Typically, there is no business license or registration requirement in cities of south Orange County for commercial operations. No staffing exists to perform such an inventory and cannot be complied with within the one-year requirement of the Order. (*Laguna Hills*)

Response: The requirements of the Tentative Order for Copermittees to implement a Commercial (Existing Development) Component of the Jurisdictional Urban Runoff Management Program to reduce pollutants in runoff from commercial activities is not an inappropriate transfer of responsibility from the SDRWQCB to the Copermittees. As discussed in the Fact Sheet/Technical Report, CWA sections 402(p)(3)(B)(ii-iii) require each Copermittee to prohibit non-storm water discharges into its MS4 and to reduce the discharge of pollutants to the maximum extent practicable for all urban land uses. The purpose of these two broad requirements is to minimize the short and long-term impacts of urban runoff on receiving water quality. Land used for commercial activities is clearly identified in the federal regulations as one of several high priority land uses that have the potential to be a significant source of pollutants and from which pollutants in urban runoff discharges must be reduced to the maximum extent practicable by each Copermittee.

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) requires the development of a proposed management program to reduce the discharge of pollutants in storm water to the maximum extent practicable. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) requires that this program include a component which addresses commercial sites and sources. To reduce the discharge of pollutants in urban runoff from commercial sites to the maximum extent practicable, BMPs must be

implemented. As discussed in Finding 12, BMPs effectively reduce pollutants in urban runoff by emphasizing pollution prevention and source controls, followed by treatment controls. The commercial existing development component will provide a program for the development and implementation of BMPs to address pollutants in storm water discharges from commercial sites and activities.

In order to prohibit non-storm water discharges, reduce commercial pollutant sources to the maximum extent practicable, and ensure that adequate BMPs are implemented, Copermittees must first identify all high priority threat to water quality commercial pollutant sources. Based on the number of complaints received by the SDRWQCB and the Copermittees, the types of commercial sites and activities listed in item F.3.c.(2) are potential high risk areas for pollutant discharges to storm water. The sites and activities are identified as such due to their frequent use of substances often found to be present as pollutants in urban runoff, combined with frequent mismanagement of runoff from the sites and activities. Therefore, development of an inventory of these commercial sites within a watershed will help identify the location of potential sources of pollutants in storm water. Pollutants found to be present in receiving waters can then be traced to the sites that frequently use such substances. In this manner an inventory of commercial sites can help in targeting commercial sites for inspection, monitoring, and potential enforcement. This will allow for limited inspection, monitoring, and enforcement time to be most effective. Also, the existing permit Order No. 96-03 requires that the Copermittees conduct and coordinate with the Principle Permittee any surveys and characterizations needed to identify the pollutant sources and drainage areas. Furthermore, the existing Order clearly identified commercial activities as a target of the education and outreach effort. Given that the Tentative Order is a third term permit, the requirement to identify and inventory commercial activities and to implement a BMP program to address discharges from these activities is reasonable and justified. To the extent that the Copermittees do not presently have mechanisms or resources to implement the programs required by the Tentative Order for the commercial activities within their jurisdiction (e.g. business license or registration requirement), the Copermittees will be required to adopt the authority and implement the programs necessary to comply with the requirements of the Tentative Order.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.3.c. in Order No. 2001-193 under the broad legal authority cited in the Fact Sheet/Technical Report

Section F.3 Subsection F.3.d

Comment: Could the residential programs, other than pollution prevention, be deferred until the next permitting cycle so municipalities could focus their efforts on higher priority water quality issues? (*San Juan Capistrano*)

Response: Residential activities currently discharge pollutants to the MS4 and receiving waters in southern Orange County, and they will need to be addressed during this permit cycle.

Section F.3 Subsection F.3.d.2

Comment: Item F.3.d.(2), Threat to Water Quality Prioritization (Residential): In section B.2 automobile washing may be exempted, but in this section it is a high priority. In fact, all of the City's residential areas would be high priority if the listed items are the standard. For most of the items listed, an education program will prove beneficial, while others have a high probability of not being controllable from a municipality's standpoint. (*Dana Point*)

Response: The residential areas and activities are identified in the Tentative Order as high priority threats to water quality due to their wide distribution, their association with pollutants of concern in urban runoff, and their historical mismanagement of associated urban runoff. Identification of high priority residential areas and activities will help focus BMP implementation efforts on these areas and activities. This list represents the minimum requirement by which residential areas and activities shall be prioritized. By focusing efforts on high priority areas and activities, the greatest potential for water quality improvements will result. Therefore, limited Copermittee staff time will be focused where it can be most effective. With respect to automobile washing, the exemption refers only to the exemption of this discharge from prohibition by the Copermittees unless it is found to be a significant source of pollutants. The exemption does not include an exemption from implementing BMPs to reduce pollutants to the MEP for this or other exempted non-storm water discharges. In fact, because these discharges are exempted and very common in residential areas, it is all the more important that the Copermittees address these discharges as a high priority for the implementation of BMPs such as public education. By limiting the generation of pollutants, less pollutants are available to be washed from residential areas and activities, resulting in reduced pollutant loads in storm water discharges from these areas and activities. In addition, there is no need to control or treat pollutants that are not initially generated.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Program item F.3.d.(2) in Order No. 2001-193 under the broad legal authority cited in the Fact Sheet/Technical Report.

Section F.3 Subsection F.3.d.2

Comment: It is unclear what constitutes a “residential area “. Please clarify. (*Laguna Niguel*)

Response: Residential areas can be broadly categorized as those where local governments have permitted dwelling units. Please refer to section F.3.d.(2) of the Tentative Order for a description of the minimum areas and activities that must be identified as high priority. This list should assist the copermittees in identifying additional residential activities.

Section F.4

Comment: What if any competency requirements will be established for co-permittee staff that are trained on stormwater issues? Are similar requirements, i.e. certifications, being considered for the trainers? (*Clayton Group Services*)

Response: The copermittees are responsible for proper training of staff to address and implement the municipal storm water programs. Particular requirements for any local government position is at the discretion of the jurisdiction. Previously, the copermittees have expressed a desire for consistent storm water enforcement actions across the jurisdictions, and as a result have considered establishing baseline goals for municipal authorized inspectors.

Section F.4

Comment: The State Water Quality Control Board or the Regional Board should coordinate the development of K-12 curricula with the California Integrated Waste Management Board as the CIWMB already provides such curricula for municipalities to use for outreach. A single curriculum

could easily cover both storm water and waste reduction topics as they are interrelated and it would greatly reduce duplication of effort and waste. The permittees could then offer the curricula in the actual outreach to educational institutions. *(Aliso Viejo)*

Response: Regional Board staff has contacted the CIWMB regarding storm water. An integrated program is planned for the future that would incorporate all of the issues under CAL EPA. In the meantime, the CIWMB is happy to work with any/all of the copermitees to provide the waste management curriculum. The current waste management curricula does deal with some storm water issues that pertain to CIWMB activities, such as proper disposal of used oil, and related ground and waters pollution prevention. The CIWMB curricula can highlight such lessons for the copermitees while providing workshops.

The copermitees are also encouraged to work together, perhaps through the public education committee, to incorporate storm water issues into any existing curriculum model. Another resource that may be helpful is a storm water curriculum for Junior High School students developed by the Fresno Metropolitan Flood Control District (For information contact Environmental Resources Manager, 5469 E. Olive Avenue; Fresno, CA 93727; Tel: 559-456-3292; Email: fmfdmm@gte.net).

Section F.4 Subsection F.4.B

Comment: The Board should provide educational materials and training courses regarding Statewide General NPDES Permits for Industrial and Commercial sites. It is appropriate for the copermitees to distribute these materials or provide notice of opportunities for training courses, but it should not be the responsibility of the copermitees to develop and conduct the training courses and materials for the Board's General Permits. *(Aliso Viejo)*

Response: Both the Regional Board and State Board offer educational material and periodic training courses regarding Statewide General NPDES permits for Industrial and Commercial sites. Some of this material can be found on line at <http://www.swrcb.ca.gov> and are available from the Regional Board office. In addition, Regional Board staff is available to participate in educational and training efforts initiated by the copermitees.

Section: F.5

Comment: Section F.5. "Illicit Discharge Detection and Elimination Component". All illicit discharge detection and elimination efforts were previously complied with under the existing permit and no illicit discharges were identified within the co-permittee area. To initiate a new investigation would be a waste of resources. Specifically, Section F.5.a. requires each co-permittee to implement a program to actively seek and eliminate illicit discharges and connections into its MS4. This matter has already been addressed and concluded and should not be reinforced within this Order. The Co-permittees have already investigated all drainage systems for illicit connections and discharges. These action and compliance with prior permits should be acknowledged by the Order and no further work on this should be required. *(Laguna Hills)*

Response: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(1) provides that the Copermitee include in its proposed management program "a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal storm sewer system."

The DAMP defines an illicit connection as “an undocumented and/or unpermitted physical connection from a facility to the storm drain system.” The commentors, and the proposed revised DAMP, report that all illicit physical connections were identified and eliminated by 1997. Section F.5 of the Tentative Order, however, does not refer solely to illicit physical connections, but also targets other illicit discharges. In addition, there have been numerous new developments and redevelopments, and opportunities for illicit physical connections, in the region since 1997. In certain cases of detected illegal discharges, therefore, illicit connections should be considered as a potential source.

The Tentative Order does not require the type of reconnaissance of the storm drain system that was completed in 1997, but rather calls for investigation, inspection, and follow-up when appropriate information indicates a reasonable potential for illicit discharges, illicit connections, or other sources of non-storm water

Section F.5.a of the Tentative Order reads “Each Copermittee shall implement a program to actively seek and eliminate illicit discharges and connections into its MS4. The program shall address all types of illicit discharges and connections excluding those non-storm water discharges not prohibited by the Copermittee in accordance with Section B. of this Order.” Any program to reduce pollution from urban runoff through the MS4 would be ineffective without a component for identifying illicit discharges. The program outlined in the Tentative Order calls for use of several tools to detect illicit discharges, including those resulting from illicit connections. These tools, found in sections F.5.a through F.5.i, include dry weather monitoring, investigations, enforcement of ordinances, pollution prevention, and others.

Section: F.5

Comment: Section F.5.d requires that each Copermittee shall immediately eliminate all detected illicit discharges, discharge sources, and connections. We would agree that illicit connections (as of sewer pipes) and identifiable point sources (like gas station washdown effluent) should be eliminated immediately upon detection. However, we question the feasibility of eliminating "all detected illicit discharges" on the "immediate" timeframe, given the very broad meaning (i.e., all non-stormwater discharges) that the RWQCB is attaching to the "illicit discharge" phrase. Although it is possible for to immediately eliminate specific illicit connections and point-source discharges, this is not so for non-point sources, especially on an “immediate” basis. As worded, this section could place the City into immediate noncompliance and subject them to noncompliance enforcement actions or litigation. This section should be revised to distinguish between immediately eliminating illicit connections and point source discharges versus controlling non-point sources over a longer period of time. This clause should be revised to read "eliminate all detected illicit connections immediately, and all other illicit discharges and sources to MEP as quickly as feasible."

Section F.5.e requires that each Copermittee implement and enforce ordinances, orders, and other legal authority to prevent and eliminate illicit discharges and connections. Relative to the enforcement of ordinances, the Copermittees would have to provide due process to any potential violators. The provision of due process may be contrary to requiring the immediate elimination of a discharge. How can these concepts, “provision of due process to violators” and “immediate elimination,” be reconciled? (*Laguna Niguel, San Clemente*)

Response: The Copermittees are required under CWA section 402(p)(3)(B)(ii) and Water Quality Control Plan for the San Diego Basin Waste Discharge Prohibition 8 to prohibit non-storm water discharges. By definition, illicit discharges and connections are non-storm water discharges. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B) also requires illicit discharges and connections to be detected and removed. Therefore, any detected illicit discharges or connections must be eliminated.

USEPA supports elimination of detected illicit discharges and connections when it states "Once the source is identified, the offending discharger should be notified and directed to correct the problem. Education efforts and working with the discharger can be effective in resolving the problem before taking legal action." To prevent and eliminate illicit discharges and connections, the Copermittee must implement and enforce its ordinance, orders, or other legal authority over illicit discharges and connections. The USEPA states that this "proposed management program component should describe how the prohibition on illicit discharges will be implemented and enforced. The description could include a schedule and allocation of staff and resources. A direct linkage should exist between this program component and the adequate legal authority requirements for the ordinances and orders to effectively implement the prohibition of illicit discharges" (1992). Moreover, in the preamble to the Phase II Federal Storm Water Regulations, the USEPA emphasizes the need for enforcement actions when it states "...that enforcement and compliance at the local level is both necessary and preferable." The requirement for Copermittees to eliminate illicit discharges immediately does not preclude the application of due process for potential violators. To the extent that a Copermittee discovers an illicit discharge or illegal connection, the Copermittee is required to immediately take such actions that are necessary to eliminate the illicit discharge or illegal connection.

The Copermittees are required to effectively prohibit the non-storm water discharges not specifically exempted and, to the extent that the Copermittee becomes aware of specific illicit discharges, the Copermittee must take all necessary steps to eliminate the discharge. Through the implementation of the requirements of the Tentative Order to prevent, identify, and eliminate sources of illicit discharges and reduce pollutants to the MEP, the Copermittees can avoid the condition of non-compliance described for non-point sources.

The SDRWQCB has discretion to require Jurisdictional Urban Runoff Management Program item F.5 in Order No. 2001-193 under the broad and specific legal authority cited in the Fact Sheet/Technical Report.

Section: F.5

Comment: The permit prohibits sewer spills, including private laterals to reach the storm drain system. If a sewer spill occurs which enters the storm drain, will both the City and water district be considered in violation of permits and therefore subject to fines or enforcement actions? What about Copermittees that do not own/operate sewers? The Permittees should not be held liable for systems that they do not have any jurisdiction over. Shouldn't this be the responsibility of the respective sewer agency under their NPDES permit? If so, what are the performance expectations of such Copermittees?

As it stands, the requirement for copermittees to "prevent" spills from private laterals could mean that copermittees must now require routine maintenance of private laterals. Please clarify the language to indicate that "prevent" as used means preventing spills from entering the MS4. Copermittees cannot prevent sewage spills from private laterals - they can use their police powers to put in place standards that are designed to prevent spills and notification requirements in the event of spills from private laterals so that response teams can act to prevent discharge of the spill into the MS4. How is it possible to detect leaking sewer laterals? If the leak is minor, even video taping of the lateral will not detect the leak. If the leak is major, the connected property will be effected and the leaking sewer lateral be repaired without the City ever knowing about the leak or the repair, unless the repair involves cutting open the street. This section also requires Cities to prevent sewer leaks from mains and laterals. How is that possible? Please provide information as to how Copermittees can prevent such leaks. (*SOCWA, Mission Viejo, County of Orange, San Clemente, Laguna Niguel*)

Response: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(4) requires a description of a program to prevent, contain, and respond to spills that may discharge into the municipal storm sewer. As used in F.5.f of the Tentative Order, the phrase "shall prevent...all sewage and other spills that may discharge into its MS4..." requires the copermittees to implement reasonable pollution prevention actions that seek to prevent the occurrences of such spills because these spills have been found to frequently enter the MS4 and be discharged to receiving waters. Assessment of copermittee compliance would involve a determination of whether the copermittee had taken appropriate pollution prevention measures and whether the response to the spill met the conditions of the Tentative Order.

As noted in the comment, the Copermittees are directed to implement a program in which they are notified of all such spills. As mentioned in the Fact Sheet/Technical Report, one mechanism to achieve compliance with this requirement is to update business licenses or permits of plumbers or other potential responders (e.g. apartment management agencies, homeowners associations, etc) to these spills to require them to report them to the Copermittee in whose jurisdiction the spill occurred.

Sewer agencies are subject to NPDES permits that are enforced by the SDRWQCB. The Tentative Order requires each copermittee to coordinate spill prevention, containment and response activities throughout all appropriate departments, programs and agencies.

Section F.5

Comment: Section F.5 (Illicit Discharge Detection and Elimination Component) requires that Copermittees implement a program of "illicit discharge detection and elimination "to prevent unauthorized discharges into MS4s. The Regional Board does not have the jurisdiction to dictate the manner in which municipalities regulate discharges into their MS4s. (*Laguna Niguel*)

Response: The detection and elimination of illicit discharges and connections is also clearly identified in the federal regulations as a high priority (40 CFR 122.26(d)(2)(iv)(B) and 122.26(d)(2)(iv)(B)(1)). As guidance for detecting and eliminating illicit discharges and connections, the US EPA (1992) states that "The proposed management program must include a description of inspection procedures, orders, ordinances, and other legal authorities necessary to prevent illicit discharges to the MS4".

California Water Code (CWC) section 13377 provides that the Regional Boards shall issue waste discharge requirements which apply and ensure compliance with all applicable provisions of the Federal Water Pollution Control Act (33 U.S.C. §1251 et seq.), as amended, also known as the federal Clean Water Act (CWA). Section 402(p)(3)(B)(iii) of the CWA requires municipalities to implement "controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." The SDRWQCB's responsibility is to translate this section of the CWA into the form of waste discharge requirements. Therefore the SDRWQCB has the authority to require specified programs to be implemented by the municipalities in order to carry out CWA requirements. Furthermore, illicit discharges are specifically addressed at 40 CFR 122.26(d)(2)(iv)(B).

Section F.5 Subsection F.5.e

Comment: Section F.5.e should be revised to read "Each Copermittee shall enforce its storm water ordinance for all detected illicit discharges, discharge sources and connection as necessary to

maintain compliance with this Order. Copermittee ordinances or other regulatory mechanisms shall include sanctions to ensure compliance. Sanctions shall include the following or their equivalent: Non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance.” This is the same language that is provided in Item F.3.b(7) re industrial sites. (*Laguna Niguel*)

Response: The language is cited does not apply to section F.5.e. Section F.5.e implements the Phase I Federal Regulations by requiring the Copermittees to both prevent (i.e. effectively prohibit) and eliminate illicit discharges and illegal connections to their MS4s through the implementation and enforcement of their ordinances, orders, or other legal authority. The language of section F.3.b.7 refers to industrial facilities that are regulated by both the SDRWQCB under the Statewide General Industrial Storm Water Permit and by the Copermittees under their municipal storm water ordinances. Because these industrial facilities are permitted under the NPDES program, the Copermittees are not required to prohibit these discharges, but are required to implement and enforce its storm water ordinance as necessary to maintain compliance with the Tentative Order. In implementing and enforcing its ordinances at these facilities, the Copermittees are directed to identify the sanctions that will ensure compliance. These are specified in the section cited in the comment. With respect to illicit discharges and illegal connections, the Copermittees must effectively prohibit these discharges and take the actions, including education or imposing enforcement with sanctions, necessary to eliminate the sources.

Section F.5 Subsection F.5.I

Comment: Section F.5.i “Limit Infiltration for Sanitary Sewer” is not appropriate for this copermittee as we have no authority over the sewer system within the community. (*Laguna Hills*)

Response: To the extent that a Copermittee operates both a MS4 and a sanitary sewer, the Copermittee is directed to coordinate the thorough, routine preventive maintenance of both systems. In cases where the Copermittee does not operate the sanitary sewer, the Copermittee is implicitly encouraged to coordinate the maintenance of the MS4 and sanitary sewer with the operator of the sanitary sewer, but must at a minimum ensure the thorough, routine preventive maintenance of the MS4 system.

Section: F.6

Comment: Why were the HOA and Common Interest Area requirements included in the Draft Orange County NPDES Permit when they were not included in the San Diego Permit? The Copermittees have no jurisdiction over HOAs and Common Interest Areas and cannot require these entities comply with the Tentative Order. It is inappropriate to require the Copermittees to be responsible for storm water discharges from these entities and maintenance of private storm drains. The Tentative Order should be changed to directly address the HOAs and Common Interest Areas. (*Aliso Viejo, Lake Forest, Laguna Niguel, Dana Point, Rancho Santa Margarita, Mission Viejo, Laguna Hills, Laguna Woods, County of Orange*)

Response: Prior to drafting the Tentative Order, staff visited with most of the Copermittees' storm water managers and learned that significant portions of the jurisdictions are within common interest developments and many of these have storm water outfalls that discharge directly to receiving waters. To address this situation, explicit requirements were included in the Tentative Order. The Tentative Order interprets common interest areas as property subject to the codes and ordinance and enforcement mechanisms of the city or county in which it resides and, therefore, holds the local government responsible for the discharge of wastes from private storm water conveyance systems.

In most, if not all, common interest developments, siting of sections of the storm water conveyance system, including roads, catch basins, and outfalls were approved by the municipality governing land use, and therefore, the conveyance system became a component of the overall municipal separate storm sewer system to manage urban runoff. The Tentative Order does not require municipalities to perform maintenance on storm water conveyance systems that are owned by common interest developments, but that is one option that can be used to ensure that discharges do not cause or contribute to water quality impairments. Other options, including ones based on education and incentives, can be developed based on the local circumstances. Regional Board staff will be available to discuss the development of options with the copermittees during development of jurisdictional plans.

Section F.7

Comment: What is the purpose of the public participation in the preparation of the JURMP? The requirements as presented in this Order appear black and white and there is no room for discretion, flexibility, negotiation, or discussion. The bottom line is that unless the particular discharge is one of the few items listed in Section B.2 that might be excluded, it can not be discharged. The public participation process should be occurring at this stage as the Board determines the contents of the Permit. After the determination by Board, the Copermittee role is mandated to educate, implement, and enforce. (*Laguna Niguel*)

Response: The public has the right to comment on all discretionary activities considered by the Copermittees. The federal NPDES regulations clearly require the Copermittees to include public participation in the development of their urban runoff management programs. 40 CFR 122.26(d)(2)(iv) requires management programs to "include a comprehensive planning process which involves public participation [...]". Public participation can be an important tool for strengthening an urban runoff management program. Also, public participation represents an educational opportunity for the Copermittees. As discussed in the Fact Sheet/Technical Report, USEPA strongly supports public participation when it states "An active and involved community is crucial to the success of a storm water management program because it allows for:

Broader public support since citizens who participate in the development and decision making process are partially responsible for the program and, therefore, may be less likely to raise legal challenges to the program and more likely to take an active role in its implementation;

Shorter implementation schedules due to fewer obstacles in the form of public and legal challenges and increased sources in the form of citizen volunteers;

A broader base of expertise and economic benefits since the community can be a valuable, and free, intellectual resource; and

A conduit to other programs as citizens involved in the storm water program development process provide important cross-connections and relationships with other community and government programs. This benefit is particularly valuable when trying to implement a storm water program on a watershed basis, as encouraged by EPA" (2000).

Consequently, the Tentative Order requires public participation on the part of the Copermittees in the development and implementation of Jurisdictional and Watershed Urban Runoff Management Plans. Some requirements, such as the prohibition on illicit discharges, are non-discretionary, but the implementation of many of the Tentative Order program requirements provides the Copermittees with

flexibility and discretion. How the public participation component is implemented is left to the discretion of the Copermittees in the Tentative Order.

The SDRWQCB has the discretion to require the Jurisdictional Urban Runoff Management Program item F.7 in Order No. 2001-193 under the broad and specific legal authority cited in the Fact Sheet/Technical Report.

Section F.8

Comment: With respect to the requirements in section F.8 (Assessment of Jurisdictional URMP Effectiveness), it would be virtually impossible for the City of Dana Point to measure and assess the impact of its water quality efforts on receiving waters such as San Juan Creek and the Pacific Ocean since our City's contribution as a part of the overall watershed is so miniscule and is accomplished through a great number of small drain outlets or via direct surface runoff. It would be more appropriate to make that specific task a part of the Watershed URMP. Any measurable changes to large receiving water bodies could not specifically identify a single source of that change unless that source were relatively large. The language of this provision does not work very well for small coastal cities such as ours. (*Dana Point*)

Response: Section F.8 of the Tentative Order refers to the assessment of effectiveness for the entire Jurisdictional Urban Runoff Management Program, only part of which includes an assessment of the impact of the JURMP on the discharge of urban runoff from its jurisdiction to the receiving waters. This requirement is also included as a central part of the Watershed Urban Runoff Management Program. These requirements are mandated by Federal NPDES regulation 40 CFR 122.26(d)(2)(v) which provides that the Copermittees must include "Estimated reductions in loadings of pollutants from discharges of municipal storm sewer constituents from municipal storm sewer systems expected as the result of the municipal storm water quality management program. The assessment shall also identify known impacts of storm water controls on ground water." Under Federal NPDES regulation 40 CFR 122.42(c) applicants must provide annual reports on the progress of their storm water management programs. Furthermore, the General Accounting Office recently released a report "Better Data and Evaluation of Urban Runoff Programs Needed to Assess Effectiveness (GAO-01-679) which included the recommendations to determine the extent to which activities conducted under the NPDES Storm Water Program are reducing pollutants in urban runoff and improving water quality and the costs of this program to local governments. The Copermittees are directed to identify and utilize both direct and indirect measurements to track the long term progress of the JURMPs towards achieving improvements in water quality. Some of the methods that can be used to accomplish this include surveys and water quality monitoring (e.g. the dry weather monitoring required in section F.5 of the Tentative Order). The requirement of section F.8 to assess the effectiveness of the JURMP supports these recommendations and is a necessary and fundamental part of the JURMP.

Section F.9

Comment: Item F.9, Fiscal Analysis Component: The City receives input and regulations in a variety of areas (affordable housing, air quality, building regulations, infrastructure maintenance, etc.), all of which require the City to allocate a portion of its budget for that function. This portion of the Tentative Order seems to imply that the budget associated with water quality is bottomless, and funds must be secured. This is inconsistent with the definition of MEP, which states that an MEP must be technically feasible and not cost prohibitive. The City has the responsibility of selecting the BMP's to be employed and the Regional Board will be the final determinant as to whether the City has met its

obligation to employ the proper BMP's. The language in the this section needs to be revised to better describe the fiscal responsibilities within the definition of MEP. (*Dana Point*)

Response: The definition of MEP refers to the implementation of BMPs and BMP programs to reduce pollutants not to the budget limitations of a Copermittee. BMPs must be implemented to MEP that are technically feasible and not cost prohibitive. The Tentative Order does not imply that the budget for addressing water quality is bottomless, but does recognize that significantly greater steps must be taken to satisfy the SDRWQCB's interpretation of MEP. The commenter is correct that the SDRWQCB as the permitting agency will determine whether the Copermittee has met its obligation to employ the proper BMP's that meet the MEP standard. The language in section F.9 is appropriate and does not require revision to better describe the fiscal responsibilities within the definition of MEP.

Section F.9

Comment: Section F.9 provides that "each Copermittee shall secure the resources necessary to meet the requirements of this Order." The Regional Board has no authority to impose this requirement. By what legal authority does the Regional Board believe it can impose this requirement? (*Laguna Niguel*)

Response: Federal NPDES regulation 40 CFR 122.26(d)(2)(vi) provides that "[The Copermittee must submit] for each fiscal year to be covered by the permit, a fiscal analysis of the necessary capital and operation and maintenance expenditures necessary to accomplish the activities of the programs under paragraphs (d)(2)(iii) and (iv) of this section. Such analysis shall include a description of the source of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds

Section F.9

Comment: Item F.9, Fiscal Analysis Component: Since this is a mandated program, what reimbursement funds are available pursuant to State law for implementation of State mandated programs? (*Laguna Niguel*)

Response: The SDRWQCB will not be providing reimbursement funding for the development and implementation of urban runoff management programs as the requirement falls within the purview of the NPDES Program created by the Clean Water Act. The State of California has simply been delegated to administer this federally mandated program.

Please note, however, that certain State assistance programs, including storm water pollution prevention grants and loans, may be available to assist the copermittees in implementation of certain components of jurisdictional programs. An updated description of the State's water quality financial assistance programs can be found on-line at <http://www.swrcb.ca.gov/funding/index.html>.

Section G

Comment: This section states that "each Copermittee shall have completed full implementation of all requirements of the JURMP no later than 365 days after adoption of the Order." In the case of the Aliso Creek watershed, "full implementation" would include retrofitting BMPs to entire existing

communities and street systems in response to the data recently generated showing ubiquitous non-compliant fecal coliform concentrations. It seems probable that this will be the case with many, if not most, Copermittees throughout the Region as soon as fecal coliform monitoring is instituted. This "full implementation" is physically, financially and administratively impossible with respect to the procedural and physical improvements required to implement structural treatment retrofits to every existing development and street. Is it good public policy to deliberately place non-feasible requirements on Copermittees, opening them to third-part litigation on Day 366? The section needs to be rephrased to clearly explain that Copermittees have a year to develop the JURMP, which should include an implementation schedule for prioritized BMPs retrofitting over the 5-year life of the Permit. (*Laguna Niguel*)

Response: Municipalities in the Aliso Creek watershed are developing action plans for addressing elevated fecal coliform levels. Actions taken to date include visual inspections of the MS4 and contributing drainage areas for illicit discharges and other sources of fecal coliform. Provision C.2 of the Tentative Order describes procedures that the Copermittees in the Aliso Creek watershed shall implement if implementation of the URMP and other requirements of the Order do not prevent discharges from MS4s from causing or contributing to a violation of water quality standards. The Tentative Order does not require retrofitting BMPs where it is not necessary or infeasible. The Regional Board in Finding No. 14 of the Tentative Order recognizes that an iterative process of BMP development, implementation, monitoring, and assessment is necessary to assure that an URMP is sufficiently comprehensive and effective to achieve compliance with receiving water objectives.

Section G

Comment: Item G requires each Copermittee to complete "full implementation" of the Jurisdictional URMP within 365 days after adoption of the Order. Please define "full implementation". Section Q (Pages 48-50) identifies twenty (20) separate and complex tasks that must be completed within 365 days after adoption of the Order. This schedule appears unrealistic and inconsistent with illustrative timetables found in the EPA Storm Water Phase II Final Rule Fact Sheet Series and Compliance Assistance Guide. Please provide the opportunity for the Co-Permittees to reasonably "phase" the implementation of required tasks over the term of the new permit. (*Laguna Niguel*)

Response: The Copermittees are expected to implement their JURMPs within 365 days. Schedules for the implementation of the requirements of the Tentative Order should be adequate. Please note the JURMPs are based on requirements largely derived from Order 90-38, Order 96-03 and the NPDES regulations which have been in place for many years. Thus, unlike Phase II communities, the copermittees have been implementing storm water management programs for 10 years. While phased implementation of required tasks will not be allowed, please note that prioritization of threats to water quality (see section F.3) is an effective means for focusing efforts during the implementation phase.

Section H

Comment: The City of Aliso Viejo asks that the Board consider a more streamlined, albeit innovative, approach to submittals and reporting that focuses on the development of implementation tools such as checklists and decision trees and less on lengthy plans and policy statements. Let the Permittee's submittals to the Board be the functional elements of a Jurisdictional Urban Runoff Management Program that form the basis of a living, useful program rather than an untested Plan.

Ultimately this will place us farther along the path toward water quality improvements and will effectively achieve the same level of technical compliance with URMP requirements at the 24-month point as would have been theoretically accomplished under the Tentative Order as currently written.

The City of Aliso Viejo asks that the Board consider a more streamlined, albeit innovative, approach to submittals and reporting that focuses on the development of implementation tools such as checklists and decision trees and less on lengthy plans and policy statements. Let the Permittee's submittals to the Board be the functional elements of a Jurisdictional Urban Runoff Management Program that form the basis of a living, useful program rather than an untested Plan. Ultimately this will place us farther along the path toward water quality improvements and will effectively achieve the same level of technical compliance with URMP requirements at the 24-month point as would have been theoretically accomplished under the Tentative Order as currently written. (*Aliso Viejo*)

Response: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv) require each Copermittee to develop and implement an urban runoff management program. The SDRWQCB must assess the urban runoff management program to ensure that it is adequate to prohibit non-storm water discharges and reduce pollutant discharges to and from the MS4 to the maximum extent practicable. In order for the SDRWQCB to assess and enforce the urban runoff management program in a fair and consistent manner, each Copermittee must submit to the SDRWQCB a description of their program. The description must detail all activities the Copermittee is undertaking to implement the requirements of each component of the Jurisdictional URMP section of Order No. 2001-193.

The submittal schedule of 365 days for Jurisdictional URMP documents is designed to provide each Copermittee some time to develop its Jurisdictional URMP. However, this time is limited since the Jurisdictional URMP requirements are based on NPDES regulations and existing programs implemented under the previous permits that have been in place for many years. The vast majority of the requirements in the Jurisdictional URMP should already be implemented by each Copermittee. Therefore, the provided submittal schedule should be more than adequate for each Copermittee to rework and tailor its programs to meet the Jurisdictional URMP requirements of Order No. 2001-193.

Section H Subsection H.3

Comment: Section H.3, page 4 1: Regarding the requirement for a "signed certified statement" in the Jurisdictional URMP, is the signature of a City staff person sufficient to meet this requirement? (*San Clemente*)

Response: Signatory requirements are addressed in the Tentative Order in Attachment C, section B.9.

Section H Subsection H.7.j

Comment: There are several sections of the Order which state that the City is supposed to develop controls and measures to limit infiltration of seepage from sanitary sewers into the MS4. These sections seem to say that the MS4s must be watertight. Making MS4s watertight is a very expensive proposition. The only real way to do this is to insert a plastic liner at several hundred dollars per linear foot. Also, some portions of the MS4, like canyon drains, use perforated pipe to help collect ground water to help stabilize the hillsides above. Given the fact that detecting leaking sewer laterals is next to impossible, is it cost effective to spend millions on lining the MS4 system,

as opposed to spending money on programs and treatment systems that prevent or clean-up pollutants before they reach the receiving waters? (*Laguna Niguel*)

Response: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(4) provides that the Copermittee include in its proposed management program “a description of procedures to prevent, contain, and respond to spills that may discharge into the municipal separate storm sewer.” In addition, federal NPDES regulations also require that the copermittees prevent all types of illicit discharges into the MS4, except for the non-storm water discharges listed in item B.2. The Tentative Order does not require specific BMPs to be used by each copermittee to meet the requirements. With respect to spills and seepage from the sewer system to the MS4, the Tentative Order in item F.5.i requires the copermittees to implement controls and measures to limit infiltration to the MS4 through routine preventative maintenance of the MS4. Where copermittees operate both the MS4 and the sewer system, they must routinely maintain both. Similarly, section F.5.f of the Tentative Order requires each copermittee to prevent, respond to, contain and cleanup all sewage and other spills that may discharge into the MS4. The Tentative Order relies heavily on pollution prevention measures, which is supported by both the federal EPA and the State of California. Effective, routine pollution prevention measures should limit the need for more costly alternatives, such as lining the sewers.

Section I

Comment: As the Tentative Order is currently written, the Board will require that the permittees submit the first JURMP Annual Report at the same time (January 2003) that the JURMP Document is submitted (365 days after the order). For the permittees to spend the first year developing the JURMP document and simultaneously to submit an annual report documenting the accomplishments of a program that they have only just finished developing and have not yet implemented for any significant period of time seems to result in reporting just for the sake of reporting and will be a drain on copermittee staff time and resources. Again we suggest that the Board find some way to streamline all reporting requirements under this Order. (*Aliso Viejo*)

Response: The Tentative Order does not require the submittal of the first Jurisdictional Urban Runoff Management Program (JURMP) Annual Report on the same date as the JURMP Document. The Tentative Order requires the first JURMP Annual Report to be submitted by the Copermittees on January 31, 2003. The JURMP Document shall be submitted 365 days following adoption. The requirement to submit a specific JURMP Document is necessary since this document will report on all aspects of the JURMP and will be used to assess the Copermittees' compliance with the Tentative Order. Section F of the Tentative Order requires the Copermittees to continue the implementation of the programs executed under Order No. 96-03 during the first year of the Tentative Order while the JURMP is being developed. The JURMP Annual Report submitted on January 31, 2003 will describe the implementation of these programs and the activities, including preparation of the JURMP Document, conducted under the first year of the Tentative Order.

Section J

Comment: Flexibility Needs to be Provided to Undertake Watershed Planning at the Sub-Watershed level. There is a need to provide flexibility in carrying out large-scale watershed planning. The proposed Watershed URMP appears to indicate that all jurisdictions in a watershed must work together at the same time in order to undertake watershed approaches. Given the widely differing conditions and jurisdictional relationships in the San Juan and San Mateo Creek watersheds, the Regional Board should specifically provide an option for watershed planning at the sub-watershed

level so long as the planning units are coherent from a hydrologic and geomorphological perspective.
(*Rancho Mission Viejo*)

Response: The Tentative Order does not preclude watershed planning at a sub-watershed level. The Tentative Order does require that each Copermitttee in the San Juan Creek Watershed Management Area within Orange County collaborate to develop a Watershed Urban Runoff Management Plan to identify, address, and mitigate the highest priority water quality issues. As noted by the commenter, such planning must be based on an assessment of watershed conditions including water quality of receiving waters. Watershed planning must also be based on the characterization of MS4 discharges, prioritization of major water quality problems in the watershed, existing and planned land uses, and the short term and long term strategy to assess and track the short term and long term progress of the Watershed URMP towards achieving improvements in receiving water quality impacted by urban runoff discharges.

Section J

Comment: The August 23 revision to the Tentative Order lists the “Arroyo Salada Creek” as a tributary to San Juan Creek. What is the Arroyo Salada Creek? Where is it located? Why is it considered to be a major receiving water? (*Laguna Niguel*)

Response: Arroyo Salada is identified in the San Diego Region Basin Plan as a tributary to Salt Creek (Hydrologic Unit Basin Number 1.14). It is the tributary which flows into Salt Creek at the coast. It is considered a major receiving water for the Dana Point area in that one of only a few receiving water bodies in the that area.

Section J Subsection Table 4

Comment: Aliso Viejo needs to be added as a Copermitttee for Orange County Coastal Steams - Laguna. A small section of AV drains to Laguna Canyon. (*Surfrider Foundation*)

Response: Aliso Viejo will be added as a Copermitttee for Orange County Coastal Streams - Laguna.

Section O Subsection O.3

Comment: Must the principal permittee be the same entity for purposes of the Unified Jurisdictional URMP and the Watershed URMPs? It may be too much of a burden for Orange County PFRD to have to manage and coordinate five different Watershed URMPs and annual reports. (*Aliso Viejo*)

Response: The Tentative Order does not define a Principal Permittee for the Watershed URMPs.

Section P

Comment: How will the Receiving Waters Monitoring Program data tie into the new Statewide General Permit for Construction Activities monitoring standards applicable to general permittees? (*Clayton Group Services*)

Response: The monitoring that will be conducted by entities permitted under the General Statewide Construction Storm Water Permit is site specific. The Receiving Waters Monitoring Program that will be implemented under the Tentative Order will assess the impact of urban runoff, which may include runoff from construction sites, on receiving waters. The Copermitees may individually or collectively review and consider any data generated from water quality monitoring of construction site discharges in the implementation of their programs.

Section: Q

Comment: The proposed permit has numerous new components/programs that must be developed and implemented (some within 180 or 365 days). Some of these programs will require municipalities to establish new funding sources and hire additional staff, which will be extremely difficult within the prescribed timelines. Is it possible to extend the completion dates of items required within the first 12 months by an additional 12 months?

The Board's timeline for preparation of the Urban Runoff Management Plan, and the Watershed Urban Runoff Management Plan and implementation of the Watershed URMP is aggressive. The financial burden of the copermitees to comply with these requirements will be onerous and the copermitees will most likely seek assistance from state and federal grant and loan programs. However, the timeline for applying for and receiving monies under these grant and loan programs is much longer than the compliance time period allowed by the Regional Board. Will the Board allow extensions on the due dates set forth in the Order if the co-permittees can show that applications have been made in a reasonable period of time and that every effort to comply with the Order is being made? (*Mission Viejo*)

Response: The Tentative implements the requirements of the 1990 Federal NPDES regulations and California Water Code regulations. The programs and BMPS required under the Tentative Order are intended to build upon those already developed and implemented by the Copermitees during the previous two permits. The timeline appears aggressive since the Tentative Order is a third term permit rather than a first or second term permit. The development and implementation of the Tentative Order are realistic and achievable. Most of the requirements of the proposed permit are also required by the existing permit and have been in place for almost five years. In addition, most of the funding sources and staff should already be in place. For these reasons, additional time for implementation of the requirements of the Tentative Order is not considered necessary.

Section Q

Comment: We recommend that fines and penalties pertaining to meeting deadlines, implementation requirements and regulations stated within this permit should be more clearly delineated. (*Surfrider Foundation*)

Response: Enforcement action is dependent on a number factors and must be handled on a case by case basis. Nonetheless, Attachment C of the Tentative Order defines the Standard Provisions, Reporting Requirements, and Notifications that apply to violations of the laws and regulations implemented and enforced under the Tentative Order.

Section Q

Comment: Section Q, Task No. 1: This task is inconsistent with the permit Section B.3. The language in this task description should be clarified according to Comment 4: following text change is recommended:

“For each discharge category not prohibited, the Copermittee shall submit the following information to the SDRWQCB within 60 days of determining that the discharge category is a significant source of pollutants to waters of the United States” (*San Clemente*)

Response: The completion date requirement and tasks specified in section B.3.c and Table 5 is appropriate. The requirement refers to non-prohibited, non-storm water discharge categories that the Copermittee has determined to be a significant source of pollutants. Since the Tentative Order is a third term permit, the Copermittees may have individually or collectively determined that one or more of these discharge categories may be a significant source(s) of pollutants. In that event, the Copermittees may prohibit the discharge category or not prohibit the discharge category and implement or require the implementation of BMP(s) to prevent or reduce pollutants to the MEP.

Section: Attachment B

Comment: The Tentative Order’s monitoring requirements reflect poor public policy and are contrary to the California Water Code. The Permittees have performed, and continue to perform, extensive monitoring of water quality within their jurisdictions that is described in Section 11.0 and Appendix K of the 2000 DAMP (Water Quality Monitoring Program). Yet, the Tentative Order would effectively throw out the years of work and millions of dollars spent on this effort by the Permittees in order to implement a new monitoring program – a program developed for San Diego County, a county without the Permittees’ historic water quality monitoring program. Not only is this poor public policy, representing an extremely ineffective use of public funds, but it is also contrary to the Water Code. Rather than imposing an entirely new monitoring program, the Tentative Order should allow for the Permittees to build upon the existing program, so that none of the valuable historical data or sampling frequencies necessary for calculating long term trends is lost. Tentative Order also should recognize and incorporate collaborative research and monitoring opportunities to aid the Permittees in determining the chemical, physical and biological impacts to receiving waters resulting from urban runoff.

Furthermore, to the extent that Permittees’ monitoring program could be made more effective, the Permittees should be allowed to review and revise their current program within the time frame established in the DAMP, thereby avoiding the massive revision (and resulting costs) that the Tentative Order would otherwise require now. Finally, to further maximize public resources, water quality monitoring reporting should coincide with the annual status report and an individual Permittee should be allowed to perform (by way of a consultant or the Permittee’s own staff) monitoring for an entire region.

In addition to the public policy reasons for not throwing out the Permittees’ existing monitoring program, there are also legal reasons that prohibit the Regional Board from doing so. In imposing the new monitoring requirements (see Tentative Order, Items F.5.b & P, and Appendices B & E), the Regional Board staff have provided no justification for the need within the County for a new monitoring program. Without such justification, the monitoring requirement violates Water Code sections 13267(b)(1) and 13224(c), both of which require that the cost of water monitoring required by a regional board “bear a reasonable relationship to the need for [such monitoring] and the benefits to be obtained [therefrom].” Without knowing why the monitoring is required, there is no way to tell whether the cost of the monitoring bears any relationship to the need for, or benefits from the monitoring. With no apparent reason for implementing a new monitoring program (other than to make it consistent with

the program imposed on San Diego County), and therefore no justification for the significant costs it would impose on the Permittees, the Tentative Order's monitoring program is contrary to the Water Code and is poor public policy. The Permittees should, accordingly, be allowed to continue implementing their existing Water Quality Monitoring Program. (*County of Orange*)

Response: The Monitoring and Reporting requirements of the Tentative Order, including the requirement to conduct a Receiving Waters Monitoring Program, are based on and strongly supported by the Federal NPDES regulations and the California Water Code. The Copermittees must conduct a comprehensive monitoring program as required under Federal NPDES regulations 40 CFR 122.26(d)(2)(iii). Standard provisions, reporting requirements, and notifications included in Attachment C are consistent to all NPDES permits and are generally found in Federal NPDES regulation 40 CFR 122.41 (Federal NPDES regulation citations are provided in the Attachment). The CWC sections 13377, 13267, and 13225 support the monitoring requirements contained in the Tentative Order. As the largest discharge of waste in Orange County, the costs to implement the monitoring requirements and reporting requirements for urban runoff in Attachment B of the Tentative Order are necessary and bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. The argument that "without knowing why the monitoring is required, there is no way to tell whether the cost of the monitoring bears any relationship to the need for, or benefits from the monitoring" is specious since to a great extent the Copermittees have the discretion, within the framework provided in Attachment B, to determine what monitoring will be performed, the frequency and location of monitoring, and how the monitoring activities will be conducted. Furthermore, both the Tentative Order and the Fact Sheet/Technical Report provide ample justification, rationale, and discussion of each of the Receiving Waters Monitoring Program requirements contained in Attachment B of the Tentative Order. Moreover, many of the objectives of the Tentative Order are represented in the Orange County Water Quality Monitoring Program (99-04) currently being implemented by the Copermittees.

Contrary to the comments above, the Tentative Order does not require the Copermittees to "effectively throw out the years of work and millions of dollars spent on this effort by the Permittees in order to implement a new monitoring program – a program developed for San Diego County, a county without the Permittees' historic water quality monitoring program." Rather the section B.2 of Attachment B of the Tentative Order specifically requires the Copermittees to submit a Receiving Waters Monitoring Program Document that includes:

- 1) A Previous Monitoring and Future Recommendations Technical Report
- 2) Receiving Waters Monitoring Program

Neither the requirement to review previous monitoring work, including the 99-04 Plan, nor the requirement to specifically define the Receiving Waters Monitoring Program to be implemented under the Tentative Order constitute "effectively throwing out" the current monitoring program. The Copermittees are specifically directed in Attachment B section B.2.b to "collaborate to review and revise the existing 99-04 Plan utilizing the findings of the Previous Monitoring and Future Recommendations Technical Report." It is difficult to see how utilizing their own review of their own previous monitoring efforts, including the 99-04 Plan, would result in the Copermittees revising the 99-04 Plan in such a manner as to "...throw out years of work and millions of dollars..." If the previous work performed cannot sustain review and revision, the considerable effort described above may, in fact, have been of questionable value. However, it is reasonable to expect that the previous monitoring work performed will easily be able to sustain any review and revision and will prove to be of great value. It is equally reasonable to expect that the findings resulting from the review of the monitoring work performed under the 99-04 Plan will be incorporated in the Receiving Waters Monitoring Program to be conducted by the Copermittees under Tentative Order 2001-193.

Moreover, the Copermittees are provided the maximum degree of latitude, flexibility and discretion to revise the 99-04 Plan. This does not constitute, as claimed by the commenter, an imposition of a new monitoring program. The SDRWQCB has the authority to require receiving waters monitoring and reporting in which the costs bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. The SDRWQCB has determined that the structure and format of the Receiving Waters Monitoring and Reporting Program is necessary in the San Diego Region and that the costs bear a reasonable relationship to the need for the reports and the benefits to be obtained.

The Tentative Order does not require that the 99-04 Plan be discontinued, but that it be reviewed and revised to include specific monitoring requirements considered necessary by the SDRWQCB for the assessment of compliance, measuring the effectiveness of Urban Runoff Management Plans, assessing the chemical, physical, and biological impacts to receiving waters resulting from the discharge of urban runoff, and assessing the overall health and evaluating the long-term trends in receiving water quality. While the 99-04 Plan includes some of these objectives in its three program elements (described in Appendix K of the Proposed DAMP), it does not include assessment of compliance with the Order and it does not require or provide for the monitoring and assessment of all parameters included in Attachment B. The 99-04 Plan, furthermore, does not adequately address all of the receiving waters of the San Juan Creek Watershed Management Area in Orange County. The 99-04 Plan was developed to assess urban runoff in Orange County as a whole, but a very strong emphasis was placed on the northern parts of the County outside of the San Diego Region covered under this Order. The Copermittees have committed to a revision of the 99-04 Plan by 2003; the requirements of the Tentative Order simply require that this revision be performed one year earlier and include the additional monitoring program requirements in Attachment B. Thus the Receiving Waters Monitoring and Reporting Program does, in fact, build upon the previous monitoring programs.

Finally, the SDRWQCB is not precluded from including Receiving Waters Monitoring Program requirements in the Tentative Order that are similar to those required in Order No. 2001-01 for the San Diego Municipal Storm Water Permit. Moreover, there is ample justification for consistency in Monitoring and Reporting Programs under NPDES permits and Waste Discharge Requirements within a region.

In response to the comment that the Tentative Order should recognize and incorporate collaborative research and monitoring opportunities, the Tentative Order Receiving Waters Monitoring and Reporting Program does not preclude and in fact encourages and incorporates collaborative research and monitoring opportunities that the Copermittees. The Copermittees have the discretion to determine how they may use these approaches to assess compliance with the Order and determine the chemical, physical and biological impacts to receiving waters resulting from urban runoff.

With respect to the comments regarding the maximization of public resources, the submittal of the Receiving Waters Monitoring and Report does in fact coincide with the submittal of the Annual Reports. The Receiving Waters Monitoring Program Document shall be submitted 180 days following adoption of the Tentative Order, but the submittal of the Receiving Waters Monitoring Annual Reports coincides with the January 31st submittal of the Jurisdictional and Watershed Annual Reports. The Tentative Order does not preclude an individual Copermittee performing (by way of a consultant or the Copermittee's own staff) monitoring for an entire region, but does require that all of the Copermittees collaborate in the effort to review, revise and implement the Receiving Waters Monitoring and Reporting Program. The capacity and degree of participation is at the discretion of the individual Copermittees. The Tentative Order does not prohibit the Copermittees from utilizing their staff to perform the work required in the Receiving Waters Monitoring and Reporting Program provided that any necessary certification or training requirements that may apply with respect to Standard Monitoring Requirements of Attachment B are satisfied.

For the reasons described above, the requirements of Receiving Waters Monitoring Program in Attachment B of the Tentative Order are not poor public policy and are not contrary to either the California Water Code or the Federal NPDES Regulations. The SDRWQCB has discretion to require Receiving Waters Monitoring and Reporting Program item P and Attachment B in the Tentative Order No. 2001-193 under the broad and specific legal authority cited in the Fact Sheet/Technical Report.

Section Attachment B

Comment: What is the status of State's proposed new Ambient Water Monitoring Program? How will it relate to municipal permit monitoring requirements? (*Richard Watson and Associates*)

Response: The SDRWQCB is currently developing its Surface Water Ambient Monitoring Program (SWAMP) workplan and selecting sampling sites in the San Juan Creek Watershed Management Area, Carlsbad Hydrologic Unit, Los Penasquitos Hydrologic Unit, and the Otay River Watershed. Sampling is expected to begin in 2002 and will use an integrative, rotating watershed approach to assessing the physical, chemical, and biological condition of surface waters in the San Diego Region.

Section Attachment B

Comment: Sampling can be misleading if taken at a time of day and site that shows low readings. Who selects sites and time of sampling? (*South Orange County Watershed Conservancy*)

Response: The Copermittees proposed specific monitoring methods, criteria and rationale for the selection of monitoring parameters, sampling sites, times, and frequencies. These will be reviewed by the Copermittees in the Previous Monitoring and Future Recommendations Technical Report and proposed in the Receiving Waters Monitoring Program required in Attachment B of the Tentative Order, which are subject to review, comment, and modification by the SDRWQCB.

Section Attachment B

Comment: The permittees are being required to conduct Urban Stream Bioassessment Monitoring as Part of the Receiving Waters Monitoring Program to assess the insitu survival of aquatic life in receiving waters, why impose toxicity testing which is a laboratory assessment and less representative and costly? (*Aliso Viejo*)

Response: Bioassessment monitoring provides a direct measurement of the impact of cumulative, sub-lethal doses of pollutants or contaminants that may be below reasonable water chemistry detection limits, but that are not without biological affect. Bioassessment not only identifies that an impact has occurred, but also measures the affect of the impact and tracks recovery when control or restoration measures (e.g. implementation of BMPs) have been taken. Bioassessment does not, however, identify the sources or causative agents of the impact. The toxicity testing requirement is necessary to identify the sources or causative agents of impact to the benthic macroinvertebrate community to enable the Copermittees to adequately address these sources in their programs.

As discussed in the another comment on bioassessment and toxicity testing, the Monitoring and Reporting Requirements of the Tentative Order include a requirement for the Copermittees to develop a program for standardized toxicity and Toxicity Identification Evaluation (TIE) analyses to be performed at urban stream bioassessment stations where the bioassessment data indicates significant impairment. In this context, toxicity testing and TIE analysis are follow-up tools to identify

potential sources and causative factors for an observed impact on the benthic community. However, toxicity testing and TIE analysis is also an appropriate means for identifying the impact of the discharge of urban runoff in and of itself, which is the focus of Finding 26. The Tentative Order properly includes toxicity and TIE analysis as a primary assessment procedure as well as a follow-up procedure for stations in which benthic bioassessment data that indicate an impact has occurred.

Section Attachment B Subsection B.2

Comment: Why is the reporting period for the receiving waters monitoring program different than the reporting period for the rest of our reports? We currently submit one annual status report a year that includes all of our information including the water quality monitoring program. If the two reports reflect different reporting periods and schedules it adds significantly to the confusion and difficulty in evaluating the effectiveness of the programs. (*County of Orange*)

Response: As outlined in Section Q, Table 6 "Submittal Summary," the annual reporting period for both the annual receiving waters monitoring program and the Jurisdictional Annual Report is concurrent, with both due on January 31, beginning in 2003. The Tentative Order does require within 180 days of Permit adoption a technical report that contains previous monitoring findings, provides recommendations for future monitoring, and describes a revised receiving waters monitoring program that reflects the requirements of the Order. The purpose of this report is to document the rationale for previous and future monitoring activities.

Section Attachment C

Comment: The "Bypass" and "Upset" Provisions are Inappropriate in an MS4 Permit. The standard provisions for "Bypass" and "Upset" in Attachment C, at A8 and 9, seem inappropriate in a MS4 permit, as they pertain only to POTWs. Recommendation: Delete the POTW standard provisions in Attachment C, at A.8 and A.9. (*Lake Forest & Laguna Woods*)

Response: These are conditions for NPDES permits set out in 40 CFR 122.41 and 122.42. The SDRWQCB does not have discretion to omit these standard conditions from the permit.

Section Attachment D

Comment: The Board defines non-storm water as "all discharges to and from a storm water conveyance system that do not originate from precipitation events..." while the USEPA defines storm water as "storm water runoff, snow melt runoff, and surface runoff drainage." Thus the federal definition of storm water seems to include surface runoff and drainage which may not be the result of precipitation while the Board does not. This may be the source of some fundamental problems in this order. (*Aliso Viejo*)

Response: Comment noted. The Tentative Order regulates the discharge of urban runoff. The Board's definition of urban runoff is consistent with USEPA's definition of storm water.

Section Attachment D

Comment: "Biomagnication" - is not the appropriate term biomagnification? (*Aliso Viejo*)

Response: Yes, biomagnification is the correct term, the change will be made in the final draft.

Section Attachment E

Comment: Please define a "major drainage area" as referenced within Attachment E section 4, B.2. (*Irvine Ranch Water District*)

Response: The Tentative Order was drafted to provide each Copermittee with the discretion to define what will constitute a major drainage area within their jurisdictions, based on the geographic extent of its jurisdiction, land use activities, etc. This definition and a description of the dry weather monitoring program will be included by each Copermittee in their Jurisdictional Urban Runoff Management Program Document, which is subject to SDRWQCB review and comment.

Section: Attachment E

Comment: Why is the Receiving Water Monitoring element (Attachment B) to be reported on as a separate report and the Dry Weather Monitoring element (Attachment E) to be reported on within the annual status report? All monitoring should be reported in one annual status report section so that data is kept together and analyzed holistically. Opportunities for more through analysis may be lost if the data are reported in two different reports. The Permittees opted to revise this program element and tie it directly into the water pollution database in order to find illegal discharges. If they so choose the Copermittees should be able to pool their resources in order to collectively benefit from a larger program by updating their current 99-04 plan to include some additional components.

The above referenced section states that the Permittees need to submit two separate monitoring reports. Since this basis of this information has already been submitted in two previous Reports of Waste Discharge and annually for the past nine years, why is this information needed again? The Permittees have already completed an extensive program to eliminate illicit connections and are now in a maintenance mode whereby the connections are dealt with when found through the channel maintenance program. In fact, very few illicit connections are found and most of them are pool drains. Wouldn't it be appropriate to revise the next monitoring annual status monitoring report to include some additional items?

Many of the proposed requirements in the draft permit would be administratively and operationally overwhelming to implement. The staff proposal to expand dry weather monitoring by applying the field screen criteria from the original Part I application requirements to on-going monitoring will have tremendous financial implications. The use of a 1/4-mile grid system was designed for initial field screening during the very expensive Part I application process. We are long past that process, and in Orange County we are now preparing to enter our third permitting cycle. Further, 40 CFR 122.26(d)(2)(iii)(A) requires between five and ten outfalls or field screening points as representative of the commercial, residential and industrial land use activities of the drainage area contributing to the system. No justification appears to warrant this requirement and it is clearly an unfunded mandate.

These sections identify eighteen (18) specific constituents for Dry Weather Analytical Monitoring. Please identify the reasons for including each of the constituents, the water quality issues or problems associated with each, and the typical construction, industrial, municipal, commercial and/or residential

operations or practices that may cause such constituents to be found in urban runoff. (*County of Orange, Lake Forest, Mission Viejo, Laguna Niguel,*)

Response: The Dry Weather Monitoring Program is a jurisdictional level program requirement that is based on Federal NPDES Regulations found at 40 CFR 122.26(d)(2)(iv)(B) and 40 CFR 122.26(d)(2)(iv)(B)(1). Federal NPDES Regulation 40 CFR 122.26(d)(2)(iv)(B)(2) provides that the Copermittee shall include in its proposed management program “a description of the procedures to conduct on going field screening activities during the life of the permit, including areas or locations that will be evaluated by each field screens.” The Dry Weather Monitoring requirement is a central component of each Copermittee’s jurisdictional level programs and activities to identify and eliminate illicit discharges and illegal connections. Furthermore, each Copermittee is expected to develop a Dry Weather Monitoring Program tailored to the conditions, land use activities, and urban runoff management issues specific to its jurisdiction. The Copermittees in the three counties in the San Diego Region have implemented this requirement with varying degrees of success since 1990 and have generally not found it to be administratively and operationally overwhelming to implement. A review of recently submitted enforcement letters and monitoring reports from San Diego Region municipal storm water Copermittees indicate that suspected small illicit discharges are in fact being identified at a jurisdictional level through frequent inspections or monitoring by the Copermittees. The identification and elimination of actual sources, however, has not been as successful and the Dry Weather Monitoring Program requirements of the Tentative Order were drafted to address this problem regionwide.

The program to detect and eliminate illicit connections and illegal discharges should be an on-going and flexible program that will ensure future problems are identified and addressed. As land use activities change, the potential for illicit discharges and illegal connections also change. The Dry Weather Monitoring Program should be flexible and specific to the needs of each jurisdiction and should not be constrained by the more rigid requirements of Receiving Waters Monitoring Program. In order to facilitate a more comprehensive monitoring of the MS4s to detect illicit discharges and illegal connections, each Copermittee is directed to develop and implement a flexible, responsive dry weather monitoring program designed to detect the highly episodic, short term illicit discharges that might escape detection in a monitoring program that is conducted by a second party at a countywide level. Furthermore, it is essential that the Dry Weather Monitoring Program be fully integrated with the other municipal programs and activities in its Jurisdictional Urban Runoff Management Program (JURMP), especially the programs implemented under section F.5 of the Tentative Order. Thus, because the permit is issued to each Copermittee, it is necessary for each Copermittee to conduct its Dry Weather Monitoring Program and report on the findings and follow-up activities initiated as a result of the findings in its JURMP Annual Report. Nonetheless, the Tentative Order does not preclude the Copermittees from collaborating and coordinating the monitoring activities. Significant advantages and economies can be realized through the coordinated effort of multiple Copermittees, particularly on a watershed scale (e.g. the Aliso Creek watershed). Such coordinated monitoring, however, should not be conducted without consideration of individual Copermittee flexibility and integration of the monitoring requirements with the source identification, elimination, and enforcement follow-up requirements specified in section F.5 of the Tentative Order.

While Dry Weather Monitoring will be conducted by each Copermittee as part of its JURMP, the Receiving Waters Monitoring Program will be conducted collectively by the Copermittees (i.e. the Principal Permittee) and addresses the impact of the discharge of urban runoff on receiving waters. Consequently, the reporting requirements for the two programs are different. The Tentative Order does not preclude collective evaluation of both sets of data by any or all of the Copermittees. The Copermittees have the discretion to collate the data and analyze it holistically. This approach is supported by the requirement that each Copermittee shall submit their Dry Weather Monitoring data annually to the Principle Permittee. It is important to note that the program management structure of

developed by the Copermittees should ensure that data collected by each Copermittee would be available to the Principal Permittee and each of the Copermittees for these types of analyses. With respect to Orange County Water Quality Monitoring Program (99-04 Plan), the Copermittees have the discretion to revise and implement the 99-04 Plan jointly as described above.

Under previous permits, a Report on Illicit/Illegal Discharges was required, but this report did not terminate the requirement for dry weather monitoring to detect and eliminate illicit discharges and illegal connections. The responsibility for each Copermittee to identify and eliminate illicit discharges is an ongoing requirement. The requirement does not go away because the permit is in its third renewal. Moreover, the detection and elimination of illicit discharges and illegal connections is not a process that the Copermittees as continuous dischargers of urban runoff can be considered to be "long past." As an ongoing requirement, it is essential that each Copermittee report annually on its activities and programs implemented to satisfy the requirements of section F.5 and Attachment E of the Tentative Order.

In regards to the use of a 1/4-mile grid system, this approach is not required in the Tentative Order. Moreover, the Copermittees have been provided with the maximum degree of latitude to determine the number, location and frequency of sampling in the Dry Weather Monitoring Program and to revise them annually.

With respect to the water quality constituents designated as the minimum monitoring requirements for the Dry Weather Monitoring Program, the constituents were selected from the Federal NPDES Regulations, and UESPA guidance documents cited in the Fact Sheet/Technical Report. Many of these constituents have been included in Dry Weather Monitoring Programs by San Diego Region municipal storm water Copermittees since 1990.

Section Fact Sheet

Comment: On page 17 of the draft fact sheet / technical report it states that there was a general lack of action by the Permittees... On what basis was this statement made? (*County of Orange*)

Response: The statement on page 17 of the Fact Sheet/Technical Report was based on ten years of staff review of Copermittees reports, enforcement actions, and studies. In particular, while some Copermittees reported enforcement action, many did not. Furthermore, in some cases where significant exceedances of receiving water quality objectives were reported by the Copermittees, source identification and elimination efforts were often ineffective or incomplete. Also, the extent of industrial and construction site inspection and enforcement actions performed by the Copermittees has not been adequate to fully address discharges from these facilities into the MS4.

Section Fact Sheet

Comment: On page 10 of the draft fact sheet/technical report it states that the Aliso Creek 205(j) study suggested several possible sources of aquatic toxicity, all of which are derived from urban runoff. Since the 205(j) study merely tested for the presence/absence of toxicity and did not conduct any actual TIE studies, it would be premature to assume that all of the possible sources would be derived from urban runoff. (*County of Orange*)

Response: Comment noted. The possible sources of toxicity suggested in the Aliso Creek 205(j) study include trace metals, polynuclear aromatic hydrocarbons (PAHs), pesticides (especially organophosphates), herbicides, polychlorinated biphenyls (PCBs), and ammonia. The Receiving

Waters Monitoring Program of the Tentative Order (Attachment B) will provide an measurement of the effectiveness of the Urban Runoff Management Plans. The monitoring program requires the copermittes to design and implement a program to conduct standardized toxicity testing at urban stream bioassessment stations where bioassessment data indicated significant impairment. When findings indicate the presence of toxicity, a Toxicity Identification Evaluation (TIE) shall be conducted to determine the cause(s) of the toxicity.

Section Fact Sheet

Comment: On page 6 of the draft fact sheet/technical report it states that preliminary results of the SDRWQCBs ambient bioassessment monitoring program indicates that the benthic macroinvertebrate communities of Aliso and San Juan Creeks may be adversely impacted. By what constituents? Did this monitoring take into account other habitat stressors such as water temperature, shading? How many stations were monitored? (*County of Orange*)

Response: The SDRWQCB Ambient Bioassessment Monitoring Program included two sites on Aliso Creek and a single site each on Arroyo Trabuco and San Juan Creek. In the 1998 and 1999 sampling, the ranking scores for the Aliso Creek and San Juan Creek sites were typically below the mean Benthic Macroinvertebrate Ranking for the San Diego Region. Arroyo Trabuco was generally at or above the mean BMI Ranking for the San Diego Region. These scores are derived from multiple metrics, which are attributes that are empirically shown to change predictably in value across a gradient of human influence. These metrics include taxa richness, percent pollution tolerant, biotic index, and functional feeding guild measures. This type of monitoring integrates the affects of multiple stressors, including habitat both spatially and temporally. Physical conditions and habitat are also assessed to ensure that sites being compared are comparable. Over 70 stations have been monitored in the four year Ambient Bioassessment Monitoring Program. These results are preliminary and additional data from samples collected in 2001 and the final report are still forthcoming from the California Department of Fish and Game Aquatic Bioassessment Laboratory. A more definitive assessment of the biological and physical condition of the creeks can be made when this information is available. Because aquatic bioassessment is a highly robust assessment that integrates multiple stressors, including sub-lethal doses of contaminants, it is a high monitoring priority for the SDRWQCB and is being included in Monitoring and Reporting Programs for NPDES permits and Waste Discharge Requirements including Tentative Order 2001-193. The Receiving Waters Monitoring Program in Attachment B of the Tentative Order expands this preliminary effort to include 15 bioassessment stations sampled biannually in the San Juan Creek Watershed Management Area within Orange County.

Section Fact Sheet

Comment: We request that Draft Fact Sheet/Technical Report language be updated at the same time as the Revised Order language is prepared. (*Laguna Niguel*)

Response: To the extent feasible, the Fact Sheet/Technical Report is updated to reflect changes in the Tentative Order. Some original material was retained following revisions to the Tentative Order when staff concluded that the material was still relevant to the Tentative Order as a whole.

ATTACHMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

May 14, 2009

James Smith
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Re: Draft MS4 Permit for South Orange County (NPDES Permit No. CAS0108740)

Dear Mr. Smith:

Following below are EPA Region 9's comments on the March 13, 2009 Tentative Draft Permit for the South Orange County Municipal Separate Storm Sewer System (MS4) within the jurisdiction of the San Diego Regional Board (NPDES permit No. CAS0108740).

EPA appreciates the efforts made by Regional Board staff to respond to our comments of January 2008 on the previous draft permit. Our comments on the latest draft mainly concern one aspect of the permit, namely the Low Impact Development (LID) requirements. Regarding LID, we still believe the permit needs certain improvements to ensure it contains clear, measurable, and enforceable requirements in this area.

With regards to other issues, we believe a number of clarifications are needed regarding the applicability of TMDLs to the permit. And in response to your request, we are providing comments on two other issues which are the removal of the term "urban runoff" and the use of numeric effluent limits for non-stormwater discharges.

A. Implementation of LID Requirements

First of all, we understand that the Orange County permittees desire consistency between the LID requirements adopted by the Santa Ana and San Diego Regional Boards. As noted in our letter to the Santa Ana Regional Board dated May 8, 2009 (which we provided to you earlier), with a few relatively minor clarifications, we would be comfortable with the requirements of the Santa Ana Regional Board's permit for North Orange County (May 1, 2009 version). As discussed below, however, we have certain concerns with the LID requirements of the March 13, 2009 draft permit proposed by the San Diego Regional Board as well as the tentative update of April 29, 2009. If the adopted Santa Ana Regional Board North Orange County permit satisfactorily addresses EPA's May 8 comments, we would support direct incorporation of the North Orange

County permit's LID provisions into your South Orange County permit. We will continue to consult with you regarding the status of the North Orange County permit.

1) Concerns with the South Orange County draft permit of March 13, 2009

Our concerns with the South Orange County draft permit of March 13, 2009 include the following:

a) We believe the draft permit should be revised to more clearly incorporate numeric criteria for LID implementation. This has been a priority of ours in our review of draft MS4 permits across the State including the recently-reissued permit for Ventura County and for the North Orange County permit.

In the South Orange County permit, numeric LID criteria should be included in section F.1.d.4 of the permit, entitled "Low Impact Development Site Design BMP Requirements." This section of the draft permit describes LID BMPs, but does not include numeric performance criteria. We recognize that in a subsequent section of the permit, section F.1.h which addresses hydromodification, there is a section entitled "Interim Requirements for Large Projects" (section F.1.h.6) which calls for the reduction of Effective Impervious Area (EIA) to less than 5%. While we support including an interim hydromodification requirement, to avoid confusion over the permit's expectations for LID, we believe the permit would be improved by including numeric criteria in the LID section F.1.d.4.

An example of this recommended approach is the permit adopted by the Los Angeles Regional Board for Ventura County on May 7, 2009. This permit includes numeric criteria in the LID sections of the permits, and also contains appropriate, separate criteria for hydromodification.

b) We would also point out that the South Orange County permit lacks storm sizing criteria to use in conjunction with the EIA requirement. The absence of such criteria resulted in criticism of an early version of the draft Ventura County permit.

Additionally, we would note that the latest draft North Orange County permit no longer contains the 5% EIA requirement, but instead establishes numeric LID performance criteria in terms of a design storm volume. We are supportive of both the design storm volume approach proposed by the Santa Ana Regional Board and the 5% EIA approach used by the Los Angeles Regional Board for the Ventura County permit.

c) We believe the South Orange County permit should include specific requirements for alternative programs when permittees conclude that implementation of LID is infeasible. However, the existing provisions in the permit related to waivers (sections F.1.d.7 and F.1.d.8) do not address this concern. Section F.1.d.7 is entitled "Waiver Provision for Numeric Sizing of Treatment Control BMP Requirements" and provides waivers for treatment requirements rather than LID. Further, section F.1.d.8, entitled "LID Site Design BMP Substitution Program" is written to substitute for "some

or all treatment control BMPs." Our concern is with the draft permit's LID section (section F.1.d.4.a.i) which refers to a "finding of infeasibility" that permittees may make if LID implementation is not practical for a given project; additional clarification is needed concerning the circumstances when LID would be considered "infeasible."

2) Concerns with the tentative revisions to the South Orange County permit of April 29, 2009

Our concerns with the tentative revisions to the South Orange County permit of April 29, 2009 include the following:

a) New language would be added in section F.1.d.(4)(a)(i) which would require LID practices or participation in the LID substitution program of F.1.d.(8)(d). However, the permit still does not clarify the circumstances when LID would be considered infeasible (see comment 1.c above) or require the permittees to develop such criteria for submittal to and approval by the Regional Board (as does the current draft of the Santa Ana Regional Board's permit). Further, the revised section F.1.d.(8)(d) seems misplaced (and is confusing) in that it is located within section F.1.d.(8) which sets forth an optional program to substitute LID for treatment controls.

b) A new section F.1.d.(4)(c) would be added to the permit which would require capture of a design storm. However, the permit also provides a rather open-ended list of acceptable LID BMPs. We would recommend that acceptable LID measures be limited as suggested in the first comment in our May 8 letter to the Santa Ana Regional Board on the proposed North Orange County permit, in which LID is defined in terms of the way the BMP performs. The concern in our May 8 letter is that certain BMPs (even biofiltration which is listed in the North Orange County permit) may not necessarily perform consistent with LID principles, unless additional operational requirements are specified. Such concerns would also apply to certain BMPs on the list in your permit such as detention ponds and constructed wetlands.

B. Total Maximum Daily Loads (TMDLs)

We believe that additional clarification is needed concerning the consistency of the draft permit with approved TMDLs. Finding E.12 for the permit indicates the permit includes applicable wasteload allocations (WLAs) that have been adopted by the Regional Board and approved by the State Board, Office of Administration Law and EPA. However, we are not aware of any such WLAs for the MS4s subject to the permit. Table 1 in the fact sheet for the permit notes that certain TMDLs have been adopted by the Regional Board, but have not yet been approved by EPA. There is also a reference in the fact sheet to dry weather TMDLs included in section C of the draft permit, which apparently have received all the necessary approvals. Again, however, we are not aware of these TMDLs and the fact sheet should provide full and clear information concerning the approval status of TMDLs with WLAs applicable to the MS4s.

Even if no applicable WLAs have been approved by EPA, it is helpful for the fact sheet to clarify this matter. Further, if applicable WLAs are approved by EPA prior to Regional Board adoption of the permit, they should be included in the permit. We are also pleased by the apparent intent of the Regional Board as indicated in Finding E.12 and Section I of the draft permit to express permit effluent limits, when necessary to ensure consistency with applicable WLAs, as numeric effluent limits. Numeric limits provide greater assurance of consistency with WLAs than the alternative of BMPs which are sometimes used, given the uncertainty in the performance of many of the BMPs commonly used for stormwater pollution control.

C. Removal of the Term "Urban Runoff"

You had asked for our views on the proposed replacement of the term "urban runoff", which was commonly used in the previous permit, with the terms "stormwater" and "non-stormwater" as the discharges regulated in the new permit. We would support this revision since it is actually more consistent with the terminology used in the EPA stormwater regulations at 40 CFR 122.26. However, we would point out that the new Finding C.14 and the discussion in the fact sheet incorrectly indicate that industrial stormwater discharges are subject to the maximum extent practicable (MEP) discharge standard in the Clean Water Act (CWA). Section 402(p)(3)(B) of the CWA provides that only municipal stormwater discharges are subject to the MEP standard; section 402(p)(3)(A) provides that industrial runoff is subject to all applicable requirements of sections 402(p) of the CWA, and section 301 of the CWA which includes BAT/BCT effluent limits and water quality standards compliance.

D. Numeric Effluent Limits for Non-Stormwater Discharges

You also asked for our views on whether numeric effluent limits would be appropriate for non-stormwater discharges. As noted above in our comments on LID and TMDLs, we are seeking to ensure that permits include clear, measurable and enforceable requirements. We believe that the use of numeric effluent limits for non-stormwater discharges would be a significant step in the right direction and we support the proposed limits. In previous MS4 permits, the non-stormwater discharges addressed in the permits have typically been regulated through best management practices (BMPs) pursuant to 40 CFR 122.44(k) for the same reason that stormwater discharges themselves are often regulated by BMPs, which is the lack of good information about the discharges and the difficulty in deriving appropriate numeric effluent limits. This issue was recognized in a 1996 EPA guidance on water quality-based effluent limits for stormwater discharges which is cited by the fact sheet. However, the guidance also indicates that as additional information becomes available, more specific limits should be considered. As noted in the fact sheet, additional information has become available to the Board about the discharges over the years, and we agree that the numeric effluent limits are now appropriate.

We appreciate the opportunity to provide input on this draft permit. If you would like to discuss these comments, please contact John Tinger at (415) 972-3518, or Eugene Bromley at 415-972-3510.

Sincerely,

A handwritten signature in black ink, appearing to read "Douglas E. Eberhardt". The signature is fluid and cursive, with a long horizontal stroke at the end.

Douglas E. Eberhardt, Chief
NPDES Permits Office

ATTACHMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

June 18, 2009

Mr. Ben Neill
Northern Watershed Protection Unit
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Re: Draft MS4 Permit for South Orange County

Dear Mr. Neill:

The following are EPA Region 9's comments on the March 13, 2009 Tentative Draft Permit for the South Orange County Municipal Separate Storm Sewer System (MS4), as amended by the "Draft Updates to LID Language" dated June 8, 2009. EPA most recently commented on the March 13 draft permit in a letter to James Smith dated May 14, 2009. These comments are intended to supplement our May 14 comments.

First, we would like to express our support for one aspect of the March 13, 2009 Tentative Draft Permit which was not covered by our May 14 letter. We recognize that section B, regarding Non-Stormwater Discharges removes "landscape irrigation, irrigation water, and lawn watering" from the listed categories of non-prohibited non-stormwater discharges. We note that the draft Fact Sheet identifies discharges from these categories to be substantial sources of pollutants. We agree that it is valid for the Regional Board to remove these sources from the list of non-prohibited non-stormwater discharges.

We are encouraged by the revisions made to the draft permit's Low Impact Development (LID) provisions in the June 8 update. We have been supportive of the Santa Ana Regional Board's Orange County MS4 permit, which was adopted on May 24, 2009. The LID provisions included in the June 8 update are generally consistent with the Santa Ana Regional Board's permit. We also appreciate that the June 8 update addresses the comments pertaining to LID in our May 14 letter.

We have the following specific comments on the June 8 update.

Section F.1.d requires the submittal of an updated model SUSMP within two years of permit adoption. We note that in other permits, including the May 24, 2009 Santa Ana Regional Board permit for Orange County, similar plans must be submitted within one year of permit issuance.

Section F.1.d.4.c.ii – The updated LID language includes the term “biofiltration.” Although this term is commonly used, as a general matter, its exact meaning is unclear. For example, in some circumstances, distinctions have not been made between infiltration and biofiltration. Conceptually, we believe that a well designed and operated biofiltration system can be consistent with LID principles by reducing flow volumes and protecting water quality. However, without a clear definition of biofiltration, there is the potential for the use of approaches that are contrary to LID. This section of the draft permit takes a step in the right direction by providing a total volume requirement for an acceptable biofilter. We would be interested in conferring further with you to improve the permit’s definition of biofiltration.

Lastly, we’d like to refer to our May 14 comment letter’s mention of the permit’s provisions regarding the incorporation of Total Maximum Daily Loads (TMDLs). We continue to believe that the draft permit’s TMDL provisions should be clarified, and would be glad to consult with you on this issue.

Thank you for the productive work you’ve done to improve this permit. If you’d like to discuss these comments, please contact John Tinger at (415) 972-3518, or Eugene Bromley at (415) 972-3510.

Sincerely,

A handwritten signature in black ink, appearing to read "Douglas E. Eberhardt". The signature is fluid and cursive, with a large initial "D" and "E".

Douglas E. Eberhardt, Chief
NPDES Permits Office

ATTACHMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

FAX TRANSMITTAL

Date: 9/28 # of Pages (including cover sheet): 5

TO: James Smith

Dept./Agency: San Diego RR

Fax Number: 858-571-6272

Verification Number:

FROM: Eugene Bumbly

Mail Code: WTR-5

Phone Number: (415) 972-3510

Fax Number: (415)

NOTE:

Doc Scanned On: 9.28.09
R.J. Stewart Time: 449



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

September 28, 2009

James Smith
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Re: Draft MS4 Permit for South Orange County (NPDES Permit No.
CAS0108740)

Dear Mr. Smith:

The following are EPA Region 9's comments on the August 12, 2009 draft permit for discharges from the South Orange County Municipal Separate Storm Sewer System (MS4) within the jurisdiction of the San Diego Regional Board (SDRB) (NPDES permit No. CAS0108740).

Region 9 submitted comments on the previous draft permit of March 2009 in letters to the SDRB dated May 14, 2009 and June 18, 2009. We believe significant progress has been made in the August 2009 draft permit in addressing our comments on the previous draft. Region 9 supports adoption of the latest draft permit, with a few relatively minor revisions and clarifications as described below.

A. Low Impact Development (LID) Requirements

As we pointed out in our previous letters, Region 9 is seeking clear, measurable, and enforceable LID requirements in MS4 permits. The LID requirements of the latest draft are quite similar to the requirements in the North Orange County MS4 permit adopted in May 2009, with Region 9's support, by the Santa Ana Regional Board (SARB). We believe the SDRB's draft permit would be consistent with our objectives for LID implementation with a few minor revisions discussed below:

1) Page 8 (Finding D.2.c) – We recommend either removing the word “filtration” or replacing it with “retention.” This would be consistent with the draft permit's Part F.1.d.(4)(d) which requires LID BMPs to be sized and designed to ensure onsite retention of the design storm event. We believe this would also better mirror the intent of mimicking natural hydrology via infiltration, harvesting and reuse, or evapotranspiration of stormwater, as opposed to the use of filtration systems which result in stormwater flows into the MS4 via underdrains.

- 2 -

2) Page 31 (Part F.1.c.8) – The inclusion of “LID biofiltration” in this section pertaining to large development projects is inconsistent with both section F.1.d.(4)(d) of the draft permit (described above) and with the SARB MS4 permit for Orange County (Part XII.C.2), where “bio-treatment” is only considered to meet that permit’s LID provisions if infiltration, harvesting and reuse, or evapotranspiration are not feasible. This section should be revised to clarify that retention BMPs are preferred, and that the use of biofiltration will comply with this provision only if retention BMPs are not feasible.

3) Page 31 (Part F.1.c.8) - At the first mention of the feasibility of onsite retention or “LID biofiltration” there should be a reference to the requirement that feasibility criteria will be proposed by the co-permittees and approved by the Executive Officer (EO). Based on the mention of a “technical feasibility analysis” in section F.1.d.7., it’s our understanding that it’s the intent of the permit that this analysis must be submitted for the approval of the EO as part of the standard stormwater mitigation plans (SSMPs), and will be subject to public review and comment. The permit should be clarified to explicitly state the expectations for the timing of the submittal of this analysis and the review and approval process. These expectations should be included initially in this section, which is the first instance in the permit where this analysis would apply.

4) Page 34 (Part F.1.d.4.(a)(iv)) – We recommend deletion of the words “filter” and “detain” since they are not consistent with the intent of onsite retention as noted above.

5) Page 36 (Part F.1.d.4.(d)(ii)) - Given the mention of technical infeasibility in this section, it should be noted here that the conclusions on feasibility will be made based on the approved feasibility analysis.

6) Page 36 (Part F.1.d.4.(d)(iii)) – We recommend the word “may” be changed to “must” to ensure conventional treatment is required when LID is determined to be infeasible.

7) Page 39 (Part F.1.d.7) – As noted above, mention of the technical feasibility analysis should clarify expectations for the submittal of this analysis along with the fact that there will be an opportunity for public review and comments, and ultimate approval by the EO.

B. Total Maximum Daily Loads (TMDLs)

As you know, the Baby Beach TMDL has not yet been approved by the State Office of Administrative Law (OAL) or EPA. Accordingly, Finding E.11 is not currently accurate in stating that the permit includes wasteload allocations (WLAs) from fully approved TMDLs. However, we anticipate the Baby Beach TMDL will be approved by OAL and EPA prior to permit adoption, and we suggest you proceed under this assumption.

We also suggest the following clarifications and revisions related to the proposed TMDL requirements of the permit:

- 3 -

- 1) Page 79 (Part I) – The reference to Finding E.12 appears to be an error, and should be corrected.
- 2) Page 79 (Part I.1.a) - Although Finding E.11 identifies the particular co-permittees which are affected by the TMDL requirements, it would be helpful for additional clarification to include the names of these co-permittees in Part I.1.a of the permit as well.
- 3) Page 79 (Part I.1.b) - The permit should contain clear expectations for monitoring to ensure achievement of TMDL WLAs. Given that the referenced TMDL does not include a clear monitoring plan, the permit should require submittal of a monitoring plan, and specify the date by which this plan must be submitted.
- 4) Page 79 (Part I.1.c) - Since the date for compliance with the dry weather WLA is five years after permit adoption, it appears erroneous to require both the wet weather and dry weather WLAs to be met by 2019, ten years after permit adoption. It should be noted that dry weather WLAs must be met by the end of 2014.

C. *Numeric Effluent Limits for Non-Stormwater Discharges*

In our previous letter of May 14, 2009, we supported the inclusion of numeric effluent limits for non-stormwater discharges, and we continue to do so. Establishing these limits is consistent with section 402(p)(3)(B)(ii) of the Clean Water Act, which states that permits for municipal stormwater must effectively prohibit non-stormwater discharges into the storm sewers.

- 1) Page 22 (Part C.4) - We recommend clarification regarding the “representative percentage” of the major outfalls/stations which will be monitored. The permit should provide expectations for the magnitude of required monitoring pursuant to this section.
- 2) Page 23 (Table 4.a.2) – It appears that the numeric values in the columns for the saltwater AMELs and MDELs should be reversed, i.e., the MDELs should be the larger numbers.

D. *Stormwater Action Levels*

We fully support the inclusion of stormwater action levels (SALs) in the permit. These requirements help to clarify MEP. We recommend the fact sheet include additional information describing how the particular values for the SALs were derived.

- 1) Page 25 (Part D.2.) - Again, the permit requires sampling of a “representative percent of the outfalls.” Both here and in Part C.4, the permit should provide some degree of specificity so that the permittees and the public have an idea of the expectations for the number of outfalls to be monitored.

E. *Retrofitting Existing Development*

- 4 -

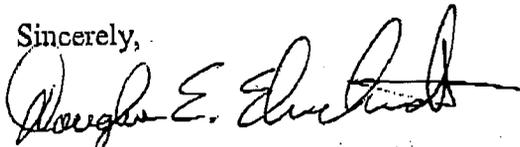
We fully support the proposed requirements in the permit for retrofitting existing development with additional controls such as LID. The benefits of adding LID measures in particular in new developments have been documented in numerous reports of which the Board is well aware. Such benefits would also accrue from adding LID to existing developments. In addition to the support provided by the fact sheet, we would note that such requirements are encouraged by the State's 2005 report entitled "NPDES Stormwater Cost Survey" which also investigated alternative approaches to stormwater control.

F. Hydromodification

We are pleased to see the draft permit continues to include requirements related to hydromodification, and that clear, measurable requirements are included to address the issue. We believe the requirements are fully supported in the fact sheet and are consistent with the requirements of other recent MS4 permits in California.

We appreciate the opportunity to provide input on the draft permit. If you would like to discuss these comments, please contact John Tinger at (415) 972-3518, or Eugene Bromley at 415-972-3510.

Sincerely,



Douglas E. Eberhardt, Chief
NPDES Permits Office

ATTACHMENT

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PERMIT FOR THE DISTRICT OF COLUMBIA
MUNICIPAL SEPARATE STORM SEWER SYSTEM

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1. DISCHARGES AUTHORIZED UNDER THIS PERMIT

1.1 Permit Area

This permit covers all areas within the jurisdictional boundary of the District of Columbia served by, or otherwise contributing to discharges from, the Municipal Separate Storm Sewer System (MS4) owned or operated by the District of Columbia. This permit also covers all areas served by or contributing to discharges from MS4s owned or operated by other entities within the jurisdictional boundaries of the District of Columbia unless those areas have separate NPDES MS4 permit coverage or are specifically excluded herein from authorization under the District's stormwater program. Hereinafter these areas collectively are referred to as "MS4 Permit Area".

1.2 Authorized Discharges

This permit authorizes all stormwater point source discharges to waters of the United States from the District of Columbia's MS4 that comply with the requirements of this permit. This permit also authorizes the discharge of stormwater commingled with flows contributed by process wastewater, non-process wastewater, or stormwater associated with industrial activity provided such discharges are authorized under separate NPDES permits.

This permit authorizes the following non-stormwater discharges to the MS4 when appropriate stormwater activities and controls required through this permit have been applied and which are: (1) discharges resulting from clear water flows, roof drainage, dechlorinated water line flushing, landscape irrigation, ornamental fountains, diverted stream flows, rising ground waters, uncontaminated ground water infiltration to separate storm sewers, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation waters, springs, footing drains, lawn watering, individual resident car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, wash water, fire fighting activities, and similar types of activities; and (2) which are managed so that water quality is not further impaired and that the requirements of the federal Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*, and EPA regulations are met.

1.3 Limitations to Coverage

1.3.1 Non-stormwater Discharges

The permittee, as defined herein, shall effectively prohibit non-stormwater discharges into the MS4, except to the extent such discharges are regulated with an NPDES permit.

1.3.2 Waivers and Exemptions

This permit does not authorize the discharge of any pollutant from the MS4 which arises from or is based on any existing waivers and exemptions that may otherwise apply and are not consistent with the Federal Clean Water Act and other pertinent guidance, policies, and regulations. This narrative prohibition on the applicability of such waivers and exemptions extends to any activity that would otherwise be authorized under District law, regulations or

ordinance but which impedes the reduction or control of pollutants through the use of stormwater control measures and/or prevents compliance with the narrative /numeric effluent limits of this permit. Any such discharge not otherwise authorized may constitute a violation of this permit.

1.4 Discharge Limitations

The permittee must manage, implement and enforce a stormwater management program (SWMP) in accordance with the Clean Water Act and corresponding stormwater NPDES regulations, 40 C.F.R. Part 122, to meet the following requirements:

1.4.1. Effectively prohibit pollutants in stormwater discharges or other unauthorized discharges into the MS4 as necessary to comply with existing District of Columbia Water Quality Standards (DCWQS);

1.4.2. Attain applicable wasteload allocations (WLAs) for each established or approved Total Maximum Daily Load (TMDL) for each receiving water body, consistent with 33 U.S.C. § 1342(p)(3)(B)(iii); 40 C.F.R. § 122.44(k)(2) and (3); and

1.4.3. Comply with all other provisions and requirements contained in this permit, and in plans and schedules developed in fulfillment of this permit.

Compliance with the provisions contained in Parts 2 through 8 of this permit, including milestones and final dates for attainment of applicable WLAs, shall constitute adequate progress toward compliance with DCWQS and WLAs for this permit term.

2. **LEGAL AUTHORITY, RESOURCES AND STORMWATER PROGRAM ADMINISTRATION**

2.1 Legal Authority

2.1.1 The permittee shall use its existing legal authority to control discharges to and from the Municipal Separate Storm Sewer System in order to prevent or reduce the discharge of pollutants to achieve water quality objectives, including but not limited to applicable water quality standards. To the extent deficiencies can be addressed through regulation or other Executive Branch action, the permittee shall remedy such deficiencies within 120 days. Deficiencies that can only be addressed through legislative action shall be remedied within 2 years of the effective date of this permit, except where otherwise stipulated, in accordance with the District's legislative process. Any changes to or deficiencies in the legal authority shall be explained in each Annual Report.

2.1.2 No later than 18 months following the effective date of this permit, the permittee shall update and implement Chapter 5 of Title 21 of District of Columbia Municipal Regulations (Water Quality and Pollution) ("updated DC Stormwater Regulations"), to address the control of stormwater throughout the MS4 Permit Area. Such regulations shall be consistent with this

permit, and shall be at least as protective of water quality as the federal Clean Water Act and its implementing regulations require.

2.1.3 The permittee shall ensure that the above legal authority in no way restricts its ability to enter into inter-jurisdictional agreements with other District agencies and/or other jurisdictions affected through this permit.

2.1.4 Review and revise, where applicable, building, health, road and transportation, and other codes and regulations to remove barriers to, and facilitate the implementation of the following standards: (1) standards resulting from issuance of District stormwater regulations required by Section 2.1, paragraph 1 herein; and (2) performance standards required by this permit.

2.2 Fiscal Resources

The permittee, including all agencies and departments of the District as specified in section 2.3 below, shall provide adequate finances, staff, equipment and support capabilities to implement the existing Stormwater Management Program (SWMP) and the provisions of this permit. For the core program the permittee shall provide a dedicated funding source. Each annual report under Part 6 of this permit shall include a demonstration of adequate fiscal capacity to meet the requirements of this permit.

2.3 Stormwater Management Program Administration/Permittee Responsibilities

2.3.1 The Government of the District of Columbia is the permittee, and all activities of all agencies, departments, offices and authorities of the District must comply with the requirements of this permit. The permittee has designated the District Department of the Environment (DDOE) as the agency responsible for managing the MS4 Stormwater Management Program and all activities necessary to comply with the requirements of this permit and the Comprehensive Stormwater Management Enhancement Amendment Act of 2008 by coordinating and facilitating a collaborative effort among other city agencies and departments including but not limited to departments designated as “Stormwater Agencies” by the Comprehensive Stormwater Management Enhancement Amendment Act of 2008:

District Department of Transportation (DDOT);
Department of Public Works (DPW);
Office of Planning (OP);
Office of Public Education Facilities Modernization (OPEFM);
Department of Real Estate Services (DRES);
Department of Parks and Recreation; and
DC Water and Sewer Authority (also known as and hereinafter referred to as DC Water).

Each named entity is responsible for complying with those elements of the permit within its jurisdictional scope and authorities.

2.3.2 DDOE shall coordinate, and all agencies, offices, departments and authorities shall implement provisions of the existing MS4 Task Force Memorandum of Understanding (MOU) dated 2000, updated matrix of responsibilities (January 2008), and any subsequent updates; the MOU between DDOE and DC Water (2012) and any subsequent updates; and other institutional agreements to coordinate compliance activities among agency partners to implement the provisions of this permit. DDOE's major responsibilities under these MOUs and institutional agreements shall include:

1. Convening regular meetings and communication with MS4 Task Force agencies and other committees established to implement this permit to budget, assign and implement projects, and monitor, inspect and enforce all activities required by the MS4 permit.
2. Providing technical and administrative support for the MS4 Task Force and other committees established to implement this permit
3. Evaluating, assessing, and synthesizing results of the monitoring and assessment programs and the effectiveness of the implementation of management practices and coordinating necessary adjustments to the stormwater management program in order to ensure compliance.
4. Coordinating the completion and submission of all deliverables required by the MS4 Permit.
5. Projecting revenue needs to meet MS4 Permit requirements, overseeing the District's stormwater fees to fulfill revenue needs, and coordinating with DC Water to ensure the District's stormwater fee is collected.
6. Making available to the public and other interested and affected parties, the opportunity to comment on the MS4 stormwater management program.

2.3.3 Within 180 days of permit issuance, the permittee shall complete an assessment of additional governmental agencies and departments, non-governmental organizations, watershed groups or other community organizations in the District and adjacent states to partner with to administer required elements of the permit. Intra- and inter-agency agreements between relevant governmental and nongovernmental organizations shall be established to ensure successful coordination and implementation of stormwater management activities in accordance with the requirements of this permit. Additional government and nongovernmental organizations and programs to consider include; land use planning, brownfields redevelopment, fire department, building and safety, public health, parks and recreation, and federal departments and agencies, including but not limited to, the National Park Service, Department of Agriculture, Department of Defense, and General Services Administration, responsible for facilities in the District.

3. STORMWATER MANAGEMENT PROGRAM (SWMP) PLAN

The permittee shall continue to implement, assess and upgrade all of the controls,

procedures and management practices, described in this permit, and in the SWMP dated February 19, 2009, and any subsequent updates. This Program has been determined to reduce the discharge of pollutants to the maximum extent practicable. The Stormwater Management Program is comprised of all requirements in this permit. All existing and new strategies, elements, initiatives, schedules or programs required by this permit must be documented in the SWMP Plan, which shall be the consolidated document of all stormwater program elements. Updates to the plan shall be consistent with all compliance deadlines in this permit. A current plan shall be posted on the permittee's website at an easily accessible location at all times.

New Stormwater Management Program strategies, elements, initiatives and plans required to be submitted to EPA for review and approval are included in Table 1.

TABLE 1
Elements Requiring EPA Review and/or Approval

Element	Submittal Date (from effective date of this permit)
Anacostia River Watershed Trash Reduction Calculation Methodology (4.10)	1 year
Catch Basin Operation and Maintenance Plan (4.3.5.1)	18 months
Outfall Repair Schedule (4.3.5.3)	18 months
Off-site Mitigation/Payment-in-Lieu Program (4.1.3)	18 months
Retrofit Program (4.1.5)	2 years
Consolidated TMDL Implementation Plan (4.10.3)	2 years
Revised Monitoring Program (5.1)	2 years
Revised Stormwater Management Program Plan (3)	4 years

No later than 3 years from the issuance date of this permit the permittee shall public notice a fully updated Plan including all of the elements required in this permit. No later than 4 years from the issuance date of this permit the permittee shall submit to EPA the fully updated plan for review and approval, as part of the application for permit renewal.

The measures required herein are terms of this permit. These permit requirements do not prohibit the use of 319(h) funds for other related activities that go beyond the requirements of this permit, nor do they prohibit other sources of funding and/or other programs where legal or contractual requirements preclude direct use for stormwater permitting activities.

TABLE 2
Legal Authority for Selected Required Program Stormwater Elements

Required Program Application Element	Regulatory References
Adequate Legal Authority	40 C.F.R. § 122.26(d)(2)(I)(C)-(F)

Green technology stormwater management practices, which incorporate technologies and practices across District activities.	Chapter 5 of Title 21 of District of Columbia Municipal Regulations (Water Quality and Pollution)
Existing Structural and Source Controls	40 C.F.R. § 122.26(d)(2)(iv)(A)(1)
Roadways	40 C.F.R. § 122.26(d)(2)(iv)(A)(3)
Pesticides, Herbicides, and Fertilizers Application	40 C.F.R. § 122.26(d)(2)(iv)(A)(6)
Municipal Waste Sites	40 C.F.R. § 122.26(d)(2)(iv)(A)(5)
Spill Prevention and Response	40 C.F.R. § 122.26(d)(2)(iv)(B)(4)
Infiltration of Seepage	40 C.F.R. § 122.26(d)(2)(iv)(B)(7)
Stormwater Management Program for Commercial and Residential Areas	40 C.F.R. § 122.26(d)(2)(iv)(A)
Manage Critical Source Areas	40 C.F.R. § 122.26(d)(iii)(B)(6)
Stormwater Management for Industrial Facilities	40 C.F.R. § 122.26(d)(2)(iv)(C)
Industrial and High Risk Runoff	40 C.F.R. § 122.26(d)(2)(iv)(C), (iv)(A)(5)
Identify Priority Industrial Facilities	40 C.F.R. § 122.26(d)(2)(iv)(C)(1)
Illicit Discharges and Improper Disposal	40 C.F.R. § 122.26(d)(2)(iv)(B)(1)-(5), (iv)(B)(7)
Flood Control Projects	40 C.F.R. § 122.26(d)(2)(iv)(A)(4)
Public Education and Participation	40 C.F.R. § 122.26(d)(2)(iv)(A)(6), (iv)(B)(5), (iv)(B)(6)

Monitoring and Assessment and Reporting	40 C.F.R. § 122.26(d)(2)(iv)(D)(v)
Monitoring Program	40 C.F.R. § 122.26(d)(2)(iv)(B)(2), (iii), iv(A), (iv)(C)(2)
Characterization Data	40 C.F.R. § 122.26(d)(2)(iii)(B)-(D), 40 C.F.R. § 122.21(g)(7)
Reporting	40 C.F.R. § 122.41(l)

4. IMPLEMENTATION OF STORMWATER CONTROL MEASURES

4.1 Standard for Long-Term Stormwater Management

The permittee shall continue to develop, implement, and enforce a program in accordance with this permit and the permittee’s updated SWMP Plan that integrates stormwater management practices at the site, neighborhood and watershed levels that shall be designed to mimic pre-development site hydrology through the use of on-site stormwater retention measures (e.g., harvest and use, infiltration and evapotranspiration), through policies, regulations, ordinances and incentive programs

4.1.1 Standard for Stormwater Discharges from Development

No later than 18 months following issuance of this permit, the permittee shall, through its Updated DC Stormwater Regulations or other permitting or regulatory mechanisms, implement one or more enforceable mechanism(s) that will adopt and implement the following performance standard for all projects undertaking development that disturbs land greater than or equal to 5,000 square feet:

Require the design, construction and maintenance of stormwater controls to achieve on-site retention of 1.2” of stormwater from a 24-hour storm with a 72-hour antecedent dry period through evapotranspiration, infiltration and/or stormwater harvesting and use for all development greater than or equal to 5,000 square feet.

The permittee may allow a portion of the 1.2” volume to be compensated for in a program consistent with the terms and requirements of Part 4.1.3.

4.1.2 Code and Policy Consistency, Site Plan Review, Verification and Tracking

By the end of this permit term the permittee must review and revise, as applicable, stormwater, building, health, road and transportation, and other codes and regulations to remove barriers to, and facilitate the implementation of the retention performance standard required in

Section 4.1.1. The permittee must also establish/update and maintain a formal process for site plan reviews and a post-construction verification process (e.g., inspections, submittal of as-builts) to ensure that standards are appropriately implemented. The permittee must also track the on-site retention performance of each project subject to this regulatory requirement.

4.1.3 Off-Site Mitigation and/or Fee-in Lieu for all Facilities

Within 18 months of the effective date of this permit the permittee shall develop, public notice, and submit to EPA for review and comment an off-site mitigation and/or fee-in-lieu program to be utilized when projects will not meet stormwater management performance standard as defined in Section 4.1.1. The permittee has the option of implementing an off-site mitigation program, a fee-in-lieu program, or both. Any allowance for adjustments to the retention standard shall be defined in the permittee's regulations. The program shall include at a minimum:

1. Establishment of baseline requirements for on-site retention and for mitigation projects. On-site volume plus off-site volume (or fee-in-lieu equivalent or other relevant credits) must equal no less than the relevant volume in Section 4.1.1;
2. Specific criteria for determining when compliance with the performance standard requirement for on-site retention cannot technically be met based on physical site constraints, or a rationale for why this is not necessary;
3. For a fee-in-lieu program, establishment of a system or process to assign monetary values at least equivalent to the cost of implementation of controls to account for the difference in the performance standard, and the alternative reduced value calculated; and
4. The necessary tracking and accounting systems to implement this section, including policies and mechanisms to ensure and verify that the required stormwater practices on the original site and appropriate required off-site practices stay in place and are adequately maintained.

The program may also include incentives for achieving other important environmental objectives such as ongoing measurable carbon sequestration, energy savings, air quality reductions in green house gases, or other environmental benefits for which the program can develop methods for quantifying and documenting those outcomes. Controls implemented to achieve those outcomes are subject to the same level of site plan review, inspection, and operation and maintenance requirements as stormwater controls.

District-owned transportation right-of-way projects are subject to a similarly stringent process for determining an alternate performance volume, but for the duration of this permit term need not conduct off-site mitigation or pay into a fee-in-lieu program to compensate for the difference.

4.1.4 Green Landscaping Incentives Program

No later than one year following permit issuance, the permittee shall develop an incentive program to increase the quantity and quality of planted areas in the District while allowing flexibility for developers and designers to meet development standards. The Incentive Program

shall use such methods as a scoring system to encourage green technology practices such as larger plants, permeable paving, green roofs, vegetated walls, preservation of existing trees, and layering of vegetation along streets and other areas visible to the public.

4.1.5 Retrofit Program for Existing Discharges

4.1.5.1 Within two years of the effective date of this permit the permittee shall develop, public notice, and submit to EPA for review and approval a program that establishes performance metrics for retrofit projects. The permittee shall fully implement the program upon EPA approval. The starting point for the performance metrics shall be the standard in Section 4.1.1. Performance metrics may be established generally for all retrofit projects, or for categories of projects, e.g., roads, sidewalks, parking lots, campuses. Specific site conditions may constitute justifications for setting a performance standard at something less than the standard in Section 4.1.1, and a similar calculator or algorithm process may be used in conjunction with a specific site analysis.

4.1.5.2 The permittee, with facilitation assistance from EPA Region III, will also work with major Federal landholders, such as the General Services Administration and the Department of Defense, with the objective of identifying retrofit opportunities, documenting federal commitments, and tracking pollutant reductions from relevant federal actions.

4.1.5.3 For each retrofit project estimate the potential pollutant load and volume reductions achieved through the DC Retrofit program by major waterbody (Rock Creek, Potomac, Anacostia) for the following pollutants: Bacteria (E. coli), Total Nitrogen, Total Phosphorus, Total Suspended Solids, Cadmium, Copper, Lead, Zinc, and Trash. These estimates shall be included in the annual report following implementation of the project.

4.1.5.4 The DC Retrofit Program shall implement retrofits for stormwater discharges from a minimum of 18,000,000 square feet of impervious surfaces during the permit term. A minimum of 1,500,000 square feet of this objective must be in transportation rights-of-way.

4.1.5.5 No later than 18 months following issuance of this permit, the permittee shall, through its Updated DC Stormwater Regulations or other permitting or regulatory mechanisms, implement an enforceable mechanism that will adopt and implement stormwater retention requirements for properties where less than 5,000 square feet of soil is being disturbed but where the buildings or structures have a footprint that is greater than or equal to 5,000 square feet and are undergoing substantial improvement. Substantial improvement, as consistent with District regulations at 12J DCMR § 202, is any repair, alteration, addition, or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. The characteristics of these types of projects may constitute justifications for setting a performance standard at something less than the standard in Section 4.1.1.

4.1.5.6 The permittee shall ensure that every major renovation/rehabilitation project for District-owned properties within the inventory of DRES and OPEFM (e.g., schools and school administration buildings) includes on-site stormwater retention measures, including but not

limited to green roofs, stormwater harvest/reuse, and/or other practices that can achieve the retention performance standard.

4.1.6 Tree Canopy

4.1.6.1 No later than one year following issuance of this permit, the permittee shall develop and public notice a strategy to reduce the discharge of stormwater pollutants by expanding tree canopy throughout the city. The strategy shall identify locations throughout the District where tree plantings and expanded tree boxes are technically feasible and commit to specific schedules for implementation at locations throughout the District, with highest priority given to projects that offer the greatest stormwater retention potential. The strategy shall also include the necessary elements to achieve the requirements of Section 4.1.6.2.

4.1.6.2 The permittee shall achieve a minimum net annual tree planting rate of 4,150 plantings annually within the District MS4 area, with the objective of a District-wide urban tree canopy coverage of 40% by 2035. The annual total tree planting shall be calculated as a net increase, such that annual mortality is also included in the estimate. The permittee shall ensure that trees are planted and maintained, including requirements for adequately designed and sized tree boxes, to achieve optimal stormwater retention and tree survival rate. Trees shall be planted in accordance with the Planting Specifications issued by the International Society of Arboriculture as appropriate to the site conditions.

4.1.6.3 The permittee shall annually document the total trees planted and make an annual estimate of the volume of stormwater that is being removed from the MS4 (and combined system, as relevant) in a typical year of rainfall as a result of the maturing tree canopy over the life of the MS4 permit. Also report annually on the status of achieving 40% canopy District-wide.

4.1.7 Green Roof Projects

4.1.7.1 Complete a structural assessment of all District properties maintained by DRES and slated for redevelopment to determine current roof conditions and the feasibility for green roof installation. These assessments shall be performed on an ongoing basis for all properties as they are considered for redevelopment. Based on the structural assessment and other factors, identify all District-owned properties where green roof projects are technically feasible and commit to specific schedules for implementing these projects. Highest priority shall be given to projects that offer the greatest stormwater capture potential.

4.1.7.2 The permittee shall install at a minimum 350,000 square feet of green roofs on District properties during the term of the permit (including schools and school administration buildings).

4.1.7.3 Document the square footage of green roof coverage in the District, whether publicly or privately owned, report any incentive programs implemented during the permit term, and estimate the volume of stormwater that is being removed from the MS4 (and combined

system, as relevant) in a typical year of rainfall as a result of the combined total green roof facilities in the District.

4.2 Operation and Maintenance of Stormwater Capture Practices

4.2.1 District Owned and Operated Practices.

Within two years of the effective date of this permit, develop and implement operation and maintenance protocols and guidance for District-owned and operated on-site retention practices (development and retrofits) to include maintenance needs, inspection frequencies, estimated maintenance frequencies, and a tracking system to document relevant information. Provide training to all relevant municipal employees and contractors, with regular refreshers, as necessary.

4.2.2 Non-District Owned and Operated Practices.

In conjunction with updating of relevant ordinances and policies, develop accountability mechanisms to ensure maintenance of stormwater control measures on non-District property. Those mechanisms may include combinations of deed restrictions, ordinances, maintenance agreements, or other policies deemed appropriate by the permittee. The permittee must also include a long-term verification process of O&M, which may include municipal inspections, 3rd party inspections, owner/operator certification on a frequency deemed appropriate by the permittee, and/or other mechanisms. The permittee must continue to maintain an electronic inventory of practices on private property to include this information.

4.2.3 Stormwater Management Guidebook and Training

4.2.3.1 No later than 18 months from the permit issuance date, the permittee shall finalize a Stormwater Management Guidebook to be available for wide-spread use by land use planners and developers. The Stormwater Management Guidebook shall provide regular updates, as applicable, in a format that facilitates such regular updates, and shall include objectives and specifications for integration of stormwater management technologies, including on site retention practices, in the areas of:

- a. Site Assessment.
- b. Site Planning and Layout.
- c. Vegetative Protection, Revegetation, and Maintenance.
- d. Techniques to Minimize Land Disturbance.
- e. Techniques to Implement Measures at Various Scales.
- f. Integrated Water Resources Management Practices.
- g. Designing to meet the required performance standard(s).
- h. Flow Modeling Guidance.
- i. Hydrologic Analysis.
- j. Construction Considerations.
- k. Operation and Maintenance

4.2.3.2 The permittee shall continue to provide key industry, regulatory, and other stakeholders with information regarding objectives and specifications of green infrastructure practices contained in the Stormwater Management Guidebook through a training program. The Stormwater Management training program will include at a minimum the following:

- a. Stormwater management/green technology practices targeted sessions and materials for builders, design professionals, regulators, resource agencies, and stakeholders.
- b. Materials and data from stormwater management/green technology practices pilot projects and demonstration projects including case studies.
- c. Design and construction methods for integration of stormwater management/green technology practices measures at various project scales.
- d. Guidance on performance and cost of various types of stormwater management/green technology practices measures in the District.

4.3 Management of for District Government Areas

Procedures to reduce the discharge of pollutants in stormwater runoff shall include, but not be limited to:

4.3.1 Sanitary Sewage System Maintenance Overflow and Spill Prevention Response

The permittee shall implement an effective response protocol for overflows of the sanitary sewer system into the MS4. The response protocol shall clearly identify agencies responsible and telephone numbers and e-mail for any contact and shall contain at a minimum, procedures for:

1. Investigating any complaints received within 24 hours of the incident report.
2. Responding within two hours to overflows for containment.
3. Notifying appropriate sewer and public health agencies within 24 hours when the sanitary sewer overflows to the MS4.
4. Notifying the public in a timely and effective manner when SSO discharges to the MS4 may adversely affect public health.

This provision in no way authorizes sanitary sewer overflow discharges either directly or via the MS4.

4.3.2 Public Construction Activities Management

The permittee shall implement and comply with the Development and Redevelopment and the Construction requirements in Part 4.6 of this permit at all permittee-owned or operated public construction projects.

The permittee shall obtain discharge authorization under the applicable EPA Construction General permit for construction activities and comply with provisions therein.

4.3.3 Vehicle Maintenance/Material Storage Facilities/ Municipal Operations.

The permittee shall implement stormwater pollution prevention measures at all permittee-owned, leased facilities and job sites including but not limited to vehicle/ equipment maintenance facilities, and material storage facilities.

For vehicle and equipment wash areas and municipal facilities constructed, redeveloped, or replaced, the permittee shall eliminate discharges of wash waters from vehicle and equipment washing into the MS4 by implementing any of the following measures at existing facilities with vehicle or equipment wash areas:

1. Self-contain, and haul off-site for disposal;
2. Equip with a clarifier; or
3. Equip with an alternative pre-treatment device.

4.3.4 Landscape and Recreational Facilities Management, Pesticide, Herbicide, Fertilizer and Landscape Irrigation

4.3.4.1 The permittee shall further reduce pollutants and pollutant discharges associated with the storage and application of pesticides, fertilizers, herbicides, the use of other toxic substances and landscape irrigation according to an integrated pest management program (IPM). The IPM shall be an ecosystem based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, use of resistant varieties, and use of low or no chemical and irrigation input landscapes, in accordance with the provisions of this permit, procedures and practices described in the SWMP and regulations.

The permittee shall further utilize IPM controls to reduce pollutants related to the storage and application of pesticides, herbicides, and fertilizers applied by employees or contractors, to public rights-of-way, parks, and other District property to ensure that:

- a. Pesticides are used only if monitoring indicates they are needed according to established guidelines;
- b. Fertilizers are used only when soil tests indicate that they are necessary, and only in minimum amounts and for needed purposes (e.g., seed germination).
- c. Treatments are made with the purpose of removing only the target organism;
- d. Pest controls are selected and applied in a manner that minimizes risks to human health, beneficial, non-target organisms, and the environment;
- e. No pesticides or fertilizers are applied to an area immediately prior to an expected rain event, or during or immediately following a rain event, or when water is flowing off the area;

- f. No banned or unregistered pesticides are stored or applied;
- g. All staff applying pesticides are certified or are under the direct supervision of a pesticide applicator certified in the appropriate category;
- h. Procedures are implemented to encourage the retention and planting of native and/or non-invasive, naturalized vegetation to reduce water, pesticide and fertilizer needs;
- i. Pesticides and fertilizers are stored indoors or under cover on paved surfaces or enclosed in secondary containment and storage areas inspected regularly to reduce the potential for spills; and
- j. Landscapes that maximize on-site retention of stormwater, while minimizing mowing, chemical inputs and irrigation are given preference for all new landscape installation.

4.3.4.2 The permittee shall coordinate internally among departments for the purpose of ensuring that pesticide and fertilizer use within its jurisdiction does not threaten water quality.

4.3.4.3 The permittee shall partner with other organizations to ensure that pesticide and fertilizer use within their jurisdiction does not threaten water quality.

4.3.4.4 The permittee shall continue to conduct education and outreach, as well as provide incentives, to curtail the use of turf-grass fertilizers for the purpose of reducing nitrogen and phosphorous discharges to surface waters. The program shall incentivize the use of vegetative landscapes other than turf grass and other measures to restrict the use of turf grass fertilizers.

4.3.4.5 The permittee shall use GIS layers of public land and sewersheds, as well as background data, to identify priority areas for a targeted strategy to reduce the sources of pesticides, herbicides, and fertilizers that contaminate the stormwater runoff, and report progress toward completing the screening characterization in the next Updated SWMP.

4.3.4.6 The permittee shall include in each Annual Report a report on the implementation of the above application procedures, a history of the improvements in the control of these materials, and an explanation on how these procedures will meet the requirements of this permit.

4.3.5 Storm Drain System Operation and Management and Solids and Floatables Reduction

4.3.5.1 Within 18 months of the effective date of this permit, the permittee shall complete, public notice and submit to EPA for review and approval a plan for optimal catch basin inspections, cleaning and repairs. The permittee shall fully implement the plan upon EPA approval.

4.3.5.2 Until such time as the catch basin maintenance study has been completed and approved, the permittee shall ensure that each catch basin within the DC MS4 Permit Area is cleaned at least once annually during the life of the permit. The permittee shall continue to use strategies for coordinated catch basin cleaning and street-sweeping that will optimize reduction of stormwater pollutants.

4.3.5.3 Within 18 months of the effective date of this permit, and consistent with the 2006 Outfall Survey, the permittee shall complete, public notice and submit to EPA for review and approval an outfall repair schedule to ensure that approximately 10% of all outfalls needing repair are repaired annually, with the overall objective of having all outfalls in good repair by 2022. This schedule may be combined with the catch basin maintenance study outlined in 4.3.5.1. The repair schedule shall be fully implemented upon EPA approval.

4.3.5.4 The permittee shall comply with the Anacostia River Trash TMDL implementation provisions in Part 4.10 of this permit and apply the technologies and other activities developed in the Anacostia River Watershed Trash TMDL throughout the entire MS4 Permit Area. The permittee shall continue to report the progress of trash reduction in the Consolidated Annual Report.

4.3.6 Streets, Alleys and Roadways

4.3.6.1 Street sweeping shall be conducted on no less than 641 acres of roadway in the MS4 area annually in accordance with the following schedule:

TABLE 3
Street Sweeping

Area/Street Classification	Frequency
Arterials-heavily developed commercial and central business districts with considerable vehicular and pedestrian traffic	At least nine (9) times per year
Industrial areas	At least six (6) times per year
Residential-residential areas with limited throughway and pedestrian traffic AND neighborhood streets which are used for local purposes only	At least four (4) times per year
Central Business District/Commercial-neighborhood business districts and main streets with moderate vehicular and pedestrian traffic	At least one (1) time every two weeks

Environmental hot spots in the Anacostia River Watershed	At least two (2) times per month March through October
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4.3.6.2 Standard road repair practices shall include limiting the amount of soil disturbance to the immediate area under repair. Stormwater conveyances which are denuded shall be resodded, reseeded and mulched, or otherwise stabilized for rapid revegetation, and these areas should have effective erosion control until stabilized.

4.3.6.3 The permittee shall continue to evaluate and update the use, application and removal of anti-icers, chemical deicers, salt, sand, and/or sand/deicer mixtures in an effort to minimize the impact of these materials on water quality. The permittee shall investigate and implement techniques available for reducing pollution from deicing salts in snowmelt runoff and runoff from salt storage facilities. The permittee shall evaluate and implement the use of porous/permeable surfaces that require less use of deicing materials and activities. This evaluation shall be made a part of an overall investigation of ways to meet the requirements of the Clean Water Act and reported in each Annual Report.

4.3.6.4 The permittee shall continue to implement and update a program to ensure that excessive quantities of snow and ice control materials do not enter the District’s water bodies. The permittee shall report its progress in implementing the program in each Annual Report. Except during a declared Snow Emergency when the permittee determines that the foremost concern of snow removal activities is public health and safety, it shall avoid snow dumping or storage in areas adjacent to water bodies, wetlands, and areas near public or private drinking water wells which would ultimately reenter the MS4.

4.3.7 Infrastructure Maintenance/Pollution Source Control Maintenance

The permittee shall continue to implement an operation and maintenance program that incorporates good housekeeping components at all municipal facilities located in the DC MS4 Permit Area, including but not limited to; municipal waste water treatment facility, potable drinking water facility, municipal fleet operations, maintenance garages, parks and recreation, street and infrastructure maintenance, and grounds maintenance operations, libraries and schools. The permittee shall document the program in the Annual Report, as required at Section 6.2 herein. The permittee shall, at a minimum:

1. Continue to implement maintenance standards at all municipal facilities that will protect the physical, chemical and biological integrity of receiving waters.
2. Continue to implement an inspection schedule in which to perform inspections to determine if maintenance standards are being met. Inspections shall be performed no less than once per calendar year and shall provide guidance in Stormwater Pollution Prevention Plan development and implementation, where needed.

3. Continue to implement procedures for record keeping and tracking inspections and maintenance at all municipal facilities.
4. Continue to implement an inspection and maintenance program for all permittee-owned management practices, including post-construction measures.
5. Continue to ensure proper operation of all treatment management practices and maintain them as necessary for proper operation, including all post-construction measures.
6. Ensure that any residual water following infrastructure maintenance shall be self-contained and disposed of legally in accordance with the Clean Water Act.

4.3.8 Public Industrial Activities Management/Municipal and Hazardous Facilities

For any municipal activity associated with industrial activity, as defined by 40 C.F.R. § 122.26, which discharges stormwater to, from and through the DC MS4, the permittee shall obtain separate coverage under either: (1) the EPA Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP) (As modified May 27, 2009); or (2) an individual permit.

4.3.9 Emergency Procedures

The permittee may conduct repairs of essential public service systems and infrastructure in emergency situations. An emergency includes only those situations included as conditions necessary for demonstration of an upset at 40 C.F.R. 122.41(n). For each claimed emergency, the permittee shall submit to the Permitting Authority a statement of the occurrence of the emergency, an explanation of the circumstances, and the measures that were implemented to reduce the threat to water quality, no later than required by applicable Clean Water Act regulations.

4.3.10 Municipal Official Training

The permittee shall continue to implement an on-going training program for those employees specified below, and any other employees whose job functions may impact stormwater program implementation. The training program shall address the importance of protecting water quality, the requirements of this permit, design, performance, operation and maintenance standards, inspection procedures, selecting appropriate management practices, ways to perform their job activities to prevent or minimize impacts to receiving waters, and procedures for tracking, inspecting and reporting, including potential illicit discharges. The permittee shall provide follow-up and refresher training at a minimum of once every twelve months, and shall include any changes in procedures, techniques or requirements.

The training program shall include, but is not limited to, those employees who work in the following areas:

1. Municipal Planning
 2. Site plan review
 3. Design
 4. Construction
 5. Transportation planning and engineering
 6. Street/sewer and right-of-way construction and maintenance
 7. Water and sewer departments
 8. Parks and recreation department
 9. Municipal water treatment and waste water treatment
 10. Fleet maintenance
 11. Fire and police departments
 12. Building maintenance and janitorial
 13. Garage and mechanic crew
 14. Contractors and subcontractors who may be contracted to work in the above described
 15. areas
 16. Personnel responsible for answering questions about the permittee's stormwater program,
 17. including persons who may take phone calls about the program
 18. Any other department of the permittee that may impact stormwater runoff
- 4.4 Management of Commercial and Institutional Areas

The permittee shall establish and implement policies and procedures to reduce the discharge of pollutants in stormwater runoff from all commercial and institutional (including federal) areas covered by this permit.

The permittee shall ensure maintenance of all stormwater management controls in commercial and institutional land areas in accordance with the following provisions:

1. Tracking all controls;
2. Inspecting all controls on a regular basis, according to an inspection schedule;
3. Ensure compliance with the MS4 permit and municipal ordinances at commercial and institutional facilities.

4.4.1 Inventory of Critical Sources and Source Controls

4.4.1.1 The permittee shall continue to maintain a watershed-based inventory or database of all facilities within its jurisdiction that are critical sources of stormwater pollution. Critical sources to be tracked shall include the following:

- a. Automotive service facilities, *e.g.*, service, fueling and salvage facilities;
- b. Industrial activities, as defined at 40 C.F.R. §§ 122.26(b)(14); and
- c. Construction sites exceeding one acre, or sites under one acre that are part of a larger common plan of development.
- d. Dry cleaners

- e. Any other facility the permittee has identified as a Critical Source

4.4.1.2 The permittee shall include the following minimum fields of information for each industrial and commercial facility identified as a critical source:

- a. Name of facility and name of owner/ operator;
- b. Address of facility;
- c. Size of facility; and
- d. Activities conducted at the facility that could impact stormwater.
- e. Practices and/or measures to control pollutants.
- f. Inspection and maintenance schedules, dates and findings.

4.4.1.3 The permittee shall update its inventory of critical sources at least annually. The update may be accomplished through collection of new information obtained through field activities or through other readily available inter and intra-agency informational databases (*e.g.*, business licenses, pretreatment permits, sanitary sewer hook-up permits, and similar information).

4.4.2 Inspection of Critical Sources

The permittee shall continue to inspect all commercial facilities identified in Part 4.4.1. herein and any others found to be critical sources twice during the five-year term of the permit. A minimum interval of six months between the first and the second mandatory compliance inspection is required, unless a follow-up inspection to ensure compliance must occur sooner.

4.4.3 Compliance Assurance.

At each facility identified as a critical source, the permittee's inspector(s) shall verify that the operator is implementing a control strategy necessary to protect water quality. Where the permittee determines that existing measures are not adequate to protect water quality, the permittee shall require additional site-specific controls sufficient to protect water quality.

4.5 Management of Industrial Facilities and Spill Prevention

4.5.1 The permittee shall continue to implement a program to monitor and control pollutants in stormwater discharged from Industrial Facilities located within the MS4 Permit Area, as defined herein, pursuant to the requirements in 40 C.F.R. § 122.26(d)(2)(iv)(C). These facilities shall include, but are not limited to:

- a. Private Solid Waste Transfer Stations
- b. Hazardous Waste Treatment, Disposal, and/or Recovery Plants
- c. Industrial Facilities subject to SARA or EPCRA Title III
- d. Industrial Facilities with NPDES Permits
- e. Industrial facilities with a discharge to the MS4

4.5.2 The permittee shall continue to maintain and update the industrial facilities database.

4.5.3 The permittee shall continue to perform or provide on-site assistance/inspections and outreach focused on the development of stormwater pollution prevention plans and NPDES permit compliance.

4.5.4 The permittee shall continue to refine and implement procedures to govern the investigation of facilities suspected of contributing pollutants to the MS4, including at a minimum: (i) a review, if applicable, of monitoring data collected by the facility pursuant to its NPDES permit; and (ii) wet weather screening as required by Part 5.2.1 herein (including collecting data on discharges from industrial sites). These procedures shall be submitted as part of each Annual Report required by Part 6.2 herein.

4.5.5 The permittee shall continue to implement the prohibition against illicit discharges, control spills, and prohibit dumping. Continue to implement a program to prevent, contain, and respond to spills that may discharge to the MS4, and report on such implementation submitted in each Annual Report. The spill response program may include a combination of spill response actions by the permittee and/or another public or private entity.

4.5.6 The permittee shall report progress in developing and carrying out industrial-related programs in each Annual Report required by Section 6 herein. Provide an explanation as to how the implementation of these procedures will meet the requirements of the Clean Water Act.

4.6 Stormwater Management for Construction Sites

4.6.1 Continue implementation of the Program that reduces the discharge of pollutants from construction sites. In each Annual Report, the permittee shall evaluate and report to determine if the existing practices meet the requirements of 40 C.F.R. § 122.26(d)(2)(iv)(A) and (D).

4.6.2 Continue the review and approval process of the sediment and erosion control plans under this program. Also, the permittee shall ensure that all construction projects impacting one acre or greater, or less than one acre when part of a larger common plan of development or sale equal to or larger than one acre, are not authorized until documentation is provided that they have received EPA NPDES Construction General Permit Coverage.

4.6.3 Continue to implement inspection and enforcement procedures, including but not limited to inspection of permitted construction sites that disturb more than 5,000 square feet of soil as follows:

1. First inspection prior to ground disturbing activities to review planned sediment and erosion control measures;
2. Second inspection to verify proper installation and maintenance of sediment and erosion control measures;

3. Third inspection to review planned installation and maintenance of stormwater management practices;
4. Fourth inspection to verify proper installation of stormwater management practices following final stabilization of the project site; and
5. Other inspections as necessary to ensure compliance with relevant standards and requirements.

4.6.4 When a violation of local erosion and sediment control ordinances occurs, the permittee shall follow existing enforcement procedures and practices using standardized reports as part of the inspection process to provide accurate record keeping of inspections of construction sites. The permittee shall use a listing of all violations and enforcement actions to assess the effectiveness of the Enforcement Program in each Annual Report.

4.6.5 Continue with educational measures for construction site operators (Section 4.9 of this permit) that consist, at a minimum, of providing guidance manuals and technical publications.

4.6.6 Report progress in developing and carrying out the above construction-related programs in each Annual Report required by Parts 6.2 herein, including: (i) an explanation as to how the implementation of these procedures will meet the requirements of the Clean Water Act; (ii) an explanation as to how the implementation of these procedures, particularly with regard to District “waivers and exemptions”, will meet the requirements of the Clean Water Act; and (iii) discussion of progress toward meeting TMDL and the District Watershed Implementation Plan deadlines.

4.7 Illicit Discharges and Improper Disposal.

4.7.1 The permittee shall continue to implement an ongoing program to detect illicit discharges, pursuant to the SWMP, and Part 4 of this permit, and to prevent improper disposal into the storm sewer system, pursuant to 40 C.F.R. § 122.26(d)(2)(iv)(B)(1). Such program shall include, at a minimum the following:

- a. An updated schedule of procedures and practices to prevent illicit discharges, as defined at 40 C.F.R. § 122.26(b)(2), and, pursuant to 40 C.F.R. § 122.26(d)(2)(iv)(B)(1), to detect and remove illicit discharges as defined herein;
- b. An updated inventory (organized by watershed) of all outfalls that discharge through the MS4 including any changes to the identification and mapping of existing permitted outfalls. Such inventory shall include, but not be limited to, the name and address, and a description (such as SIC code) which best reflects the principal products or services provided by each facility which may discharge to the MS4;
- c. Continue to implement an illicit connection detection and enforcement program to perform dry weather flow inspections in target areas;

- d. Visual inspections of targeted areas;
- e. Issuance of fines, tracking and reporting illicit discharges, and reporting progress on stopping targeted illicit discharges, and in appropriate cases, chemical testing immediately after discovery of an illicit discharge;
- f. Enforcement procedures for illicit discharges set forth in Part 4 herein;
- g. All necessary inspection, surveillance, and monitoring procedures to remedy and prevent illicit discharges. The permittee shall submit an inspection schedule, inspection criteria, documentation regarding protocols and parameters of field screening, and allocation of resources as a part of each Annual Report.
- h. The permittee shall continue to implement procedures to prevent, contain, and respond to spills that may discharge into the MS4. The permittee shall provide for the training of appropriate personnel in spill prevention and response procedures.
- i. The permittee shall report the accomplishments of this program in each Annual Report.

4.7.2 The permittee shall continue to ensure the implementation of a program to further reduce the discharge of floatables (e.g. litter and other human-generated solid refuse). The floatables program shall include source controls and, where necessary, structural controls.

4.7.3 The permittee shall continue to implement the prohibition against the discharge or disposal of used motor vehicle fluids, household hazardous wastes, grass clippings, leaf litter, and animal waste into separate storm sewers. The permittee shall ensure the implementation of programs to collect used motor vehicle fluids (at a minimum oil and anti-freeze) for recycle, reuse, and proper disposal and to collect household hazardous waste materials (including paint, solvents, pesticides, herbicides, and other hazardous materials) for recycle, reuse, or proper disposal. The permittee shall ensure that such programs are readily available within the District, and that they are publicized and promoted on a regular basis, pursuant to Public Education provisions in this permit at Part 4.9 herein.

4.7.4 The permittee shall continue to work with members of the Metropolitan Police Department to enhance illegal dumping enforcement.

4.7.5 The permittee shall implement the District's ban on coal tar pavement products, including conducting outreach and enforcement activities.

4.7.6 The permittee shall implement the Anacostia Clean Up and Protection Act of 2009, to ban the use of disposable non-recyclable plastic carryout bags and restrict the use on disposable carryout bags in certain food establishments.

4.8 Flood Control Projects

4.8.1 The permittee shall update the impervious surface analysis of floodplains six months after the approval of the revised Flood Insurance Rate Maps by the Federal Emergency Management Agency.

4.8.2 The permittee shall assess potential impacts on the water quality and the ability of the receiving water to support beneficial uses for all flood management projects. Evaluate the feasibility of retrofitting existing flood control devices to provide additional pollutant and volume removal from stormwater. Report results of such assessment, mapping program, and feasibility studies in the Annual Report (Part 6.2 herein).

4.8.3 The permittee shall review all development proposed in flood plain areas to ensure that the impacts on the water quality of receiving water bodies have been properly addressed. Information regarding impervious surface area located in the flood plains shall be used (in conjunction with other environmental indicators) as a planning tool. The permittee shall collect data on the percentage of impervious surface area located in flood plain boundaries for all proposed development beginning six months after the effective date of this permit. The permittee shall collect similar data for existing development in flood plain areas, in accordance with the mapping program and other activities designed to improve water quality. Critical unmapped areas shall be prioritized by the permittee with an emphasis on developed and developing acreage. Reports of this work shall be summarized in the Annual Report.

4.9 Public Education and Public Participation

The permittee shall continue to implement a public education program including but not limited to an education program aimed at residents, businesses, industries, elected officials, policy makers, planning staff and other employees of the permittee. The purpose of education is to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts. Education initiatives may be developed locally or regionally.

4.9.1 Education and Outreach.

4.9.1.1 The permittee shall continue to implement its education and outreach program for the area served by the MS4 that was established during the previous permit cycle. The outreach program shall be designed to achieve measurable improvements in the target audience's understanding of stormwater pollution and steps they can take to reduce their impacts.

4.9.1.2 The permittee shall assess current education and outreach efforts and identify areas where additional outreach and education are needed. Audiences and subject areas to be considered include:

a. General public

- 1) General impacts of stormwater flows into surface waters
- 2) Impacts from impervious surfaces
- 3) Source control practices and environmental stewardship actions and opportunities in the areas of pet waste, vehicle maintenance, landscaping, and rain water reuse.

- 4) A household hazardous waste educational and outreach program to control illicit discharges to the MS4 as required herein
 - 5) Information and education on proper management and disposal of used oil, other automotive fluids, and household chemicals
 - 6) Businesses, including home-based and mobile businesses
 - 7) Management practices for use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps and other hazardous materials
 - 8) Impacts of illicit discharges and how to report them including information for industries about stormwater permitting and pollution prevention plans and the requirement that they develop structural and non-structural control systems
- b. Homeowners, landscapers and property managers
- 1) Use of low or no phosphorus fertilizers, alternatives to fertilizers, alternative landscaping requiring no fertilizers
 - 2) Landscape designs to reduce runoff and pollutant loadings
 - 3) Car washing alternatives with the objective of eliminating phosphorus detergent discharges
 - 4) Yard care techniques that protect water quality
 - 5) Management practices for use and storage of pesticides and fertilizers
 - 6) Management practices for carpet cleaning and auto repair and maintenance
 - 7) Runoff Reduction techniques, including site design, on-site retention, pervious paving, retention of forests and mature trees
 - 8) Stormwater pond maintenance
- c. Engineers, contractors, developers, review staff and land use planners
- 1) Technical standards for construction site sediment and erosion control
 - 2) Runoff Reduction techniques, including site design, on-site reduction, pervious pavement, alternative parking lot design, retention of forests and mature trees
 - 3) Stormwater treatment and flow control controls
 - 4) Impacts of increased stormwater flows into receiving water bodies

4.9.2 Measurement of Impacts.

The permittee shall continue to measure the understanding and adoption of selected targeted behaviors among the targeted audiences. The resulting measurements shall be used to direct education and outreach resources most effectively, as well as to evaluate changes in adoption of the targeted behaviors.

4.9.3 Recordkeeping.

The permittee shall track and maintain records of public education and outreach activities.

4.9.4 Public Involvement and Participation.

The permittee shall continue to include ongoing opportunities for public involvement through advisory councils, watershed associations and/or committees, participation in developing updates to the stormwater fee system, stewardship programs, environmental activities or other similar activities. The permittee shall facilitate opportunities for direct action, educational, and volunteer programs such as riparian planting, volunteer monitoring programs, storm drain marking or stream clean up programs.

4.9.4.1 The permittee shall continue to create opportunities for the public to participate in the decision making processes involving the implementation and update of the permittee's SWMP. In particular, the permittee shall provide meaningful opportunity for the public to participate in the development of the permittee's Consolidated TMDL Implementation Plan. The permittee shall continue to implement its process for consideration of public comments on their SWMP.

4.9.4.2 The permittee shall continue to establish a method of routine communication to groups such as watershed associations and environmental organizations that are located in the same watershed(s) as the permittee, or organizations that conduct environmental stewardship projects located in the same watershed(s) or in close proximity to the permittee. This is to make these groups aware of opportunities for their direct involvement and assistance in stormwater activities that are in their watershed.

4.9.4.3 The permittee shall make all draft and approved MS4 documents required under this permit available to the public for comment. The current draft and approved SWMP and the MS4 annual reports deliverable documents required under this permit shall be posted on the permittee's website.

4.9.4.4 The permittee shall continue to develop public educational and participation materials in cooperation and coordination with other agencies and organizations in the District with similar responsibilities and objectives. Progress reports on public education shall be included in the Annual Report. An explanation shall be provided as to how this effort will reduce pollution loadings to meet the requirements of this permit.

4.9.4.5 The permittee shall periodically, and at least annually, update its website.

4.10 Total Maximum Daily Load (TMDL) Wasteload Allocation (WLA) Planning and Implementation

4.10.1 Anacostia River Watershed Trash TMDL Implementation

The permittee shall attain removal of 103,188 pounds of trash annually, as determined in the Anacostia River Watershed Trash TMDL, as a specific single-year measure by the fifth year of this permit term.

Reductions must be made through a combination of the following approaches:

1. Direct removal from waterbodies, e.g., stream clean-ups, skimmers
2. Direct removal from the MS4, e.g., catch basin clean-out, trash racks
3. Direct removal prior to entry to the MS4, e.g., street sweeping
4. Prevention through additional disposal alternatives, e.g., public trash/recycling collection
5. Prevention through waste reduction practices, regulations and/or incentives, e.g., bag fees

At the end of the first year the permittee must submit the trash reduction calculation methodology with Annual Report to EPA for review and approval. The methodology should accurately account for trash prevention/removal methods beyond those already established when the TMDL was approved, which may mean crediting a percentage of certain approaches. The calculation methodology must be consistent with assumptions for weights and other characteristics of trash, as described in the 2010 Anacostia River Watershed Trash TMDL.

Annual reports must include the trash prevention/removal approaches utilized, as well as the overall total weight (in pounds) of trash captured for each type of approach.

The requirements of this Section, and related elements as appropriate, shall be included in the Consolidated TMDL Implementation Plan (Section 4.10.3).

4.10.2 Hickey Run TMDL Implementation

The permittee shall implement and complete the proposed replacement/rehabilitation, inspection and enforcement, and public education aspects of the strategy for Hickey Run as described in the updated Plan to satisfy the requirements of the oil and grease wasteload allocations for Hickey Run. If monitoring or other assessment determine it to be necessary, the permittee shall install or implement appropriate controls to address oil & grease in Hickey Run no later than the end of this permit term. As appropriate, any requirement of this Section not completed prior to finalization of the Consolidated TMDL Implementation Plan (Section 4.10.3) shall be included in that Plan.

4.10.3 Consolidated TMDL Implementation Plan

For all TMDL wasteload allocations assigned to District MS4 discharges, the permittee shall develop, public notice and submit to EPA for review and approval a consolidated TMDL Implementation Plan within 30 months of the effective date of this permit provision. This Plan shall include, at a minimum, the following TMDLs and any subsequent updates:

1. TMDL for Biochemical Oxygen Demand (BOD) in the Upper and Lower Anacostia River (2001)
2. TMDL for Fecal Coliform Bacteria in the Upper and Lower Anacostia River (2003)
3. TMDL for Organics and Metals in the Anacostia River and Tributaries (2003)
4. TMDL for Fecal Coliform Bacteria in Kingman Lake (2003)
5. TMDL for Total Suspended Solids, Oil and Grease and Biochemical Oxygen Demand in Kingman Lake (2003)

6. TMDL for Fecal Coliform Bacteria in Rock Creek (2004)
7. TMDL for Organics and Metals in the Tributaries to Rock Creek (2004)
8. TMDL for Fecal Coliform Bacteria in the Upper, Middle and Lower Potomac River and Tributaries (2004)
9. TMDL for Organics, Metals and Bacteria in Oxon Run (2004)
10. TMDL for Organics in the Tidal Basin and Washington Ship Channel (2004)
11. TMDL for Sediment/Total Suspended Solids for the Anacostia River Basin in Maryland and the District (2007) [pending resolution of court vacature, Anacostia Riverkeeper, Inc. v. Jackson, No. 09-cv-97 (RCL)]
12. TMDL for PCBs for Tidal Portions of the Potomac and Anacostia Rivers in the District of Columbia, Maryland and Virginia (2007)
13. TMDL for Nutrients/Biochemical Oxygen Demand for the Anacostia River Basin in Maryland and the District (2008)
14. TMDL for Trash for the Anacostia River Watershed, Montgomery and Prince George's Counties, Maryland and the District of Columbia (2010)
15. TMDL for Nitrogen, Phosphorus and Sediment for the Chesapeake Bay Watershed (2010)

This Plan shall place particular emphasis on the pollutants in Table 4, but shall also evaluate other pollutants of concern for which relevant WLAs exist. EPA will incorporate elements of the Consolidate TMDL Implementation Plan as enforceable permit provisions, including milestones and final dates for attainment of applicable WLAs. The permittee shall fully implement the Plan upon EPA approval. This Plan shall preempt any existing TMDL implementation plans for the relevant WLAs. To account for any new or revised TMDL established or approved by EPA with wasteload allocations assigned to District MS4 discharges, the permittee shall submit an updated Consolidated TMDL Implementation Plan annually, as necessary. Such updates will account for any actions taken in the 12-month period preceding the date 6 months before the revision is due. If necessary, the first such update will be due 18 months after the submittal of the initial Plan, with subsequent updates due on the anniversary of the submittal date.

The Plan shall include:

1. A specified schedule for attainment of WLAs that includes final attainment dates and, where applicable, interim milestones and numeric benchmarks.
 - a. Numeric benchmarks will specify annual pollutant load reductions and the extent of control actions to achieve these numeric benchmarks.
 - b. Interim milestones will be included where final attainment of applicable WLAs requires more than five years. Milestone intervals will be as frequent as possible but will in no case be greater than five (5) years.
2. Demonstration using modeling of how each applicable WLA will be attained using the chosen controls, by the date for ultimate attainment.
3. An associated narrative providing an explanation for the schedules and controls included in the Plan.

4. Unless and until an applicable TMDL is no longer in effect (e.g., withdrawn, reissued or the water delisted), the Plan must include the elements in 1-3 above for each TMDL as approved or established.
5. The current version of the Plan will be posted on the permittee's website.

4.10.4 Adjustments to TMDL Implementation Strategies

If evaluation data, as outlined in the monitoring strategy being developed per Part 5.1, indicate insufficient progress towards attaining any WLA covered in 4.10.1, 4.10.2 or 4.10.3, the permittee shall make the appropriate adjustments within six (6) months to address the insufficient progress and document those adjustments in the Consolidated TMDL Implementation Plan. The Plan modification shall include a reasonable assurance demonstration of the additional controls to achieve the incorporated milestones. Annual reports must include a description of progress as evaluated against all implementation objectives, milestones and benchmarks, as relevant, outlined in Part 4.10.

4.11 Additional Pollutant Sources

For any additional pollutant sources not addressed in sections 4.1 through 4.9, the permittee shall continue to compile pertinent information on known or potential pollution sources, including significant changes in:

1. land use activities,
2. population estimates,
3. runoff characteristics,
4. major structural controls,
5. landfills,
6. publicly owned lands, and
7. industries impacting the MS4.

For purposes of this section, “significant changes” are changes that have the potential to revise, enhance, modify or otherwise affect the physical, legal, institutional, or administrative characteristics of the above-listed potential pollution sources. This information shall be submitted in each of the Annual Reports submitted to EPA pursuant to the procedures in Part 6.2 herein. For the Stormwater Model, analysis of data for these pollution sources shall be reported according to Part 7 herein.

The permittee shall implement controls to minimize and prevent discharges of pollutants from additional pollutant sources, including but not limited to Bacteria (*E. coli*), Total Nitrogen, Total Phosphorus, Total Suspended Solids, Cadmium, Copper, Lead, Zinc, and Trash, to receiving waters. Controls shall be designed to prevent and restrict priority pollutants from coming into contact with stormwater, e.g., restricting the use of lawn fertilizers rather than end-of-pipe treatment. These strategies shall include program priorities and a schedule of activities to address those priorities and an outline of which agencies will be responsible for implementing those strategies. The strategies used to reduce or eliminate these pollutants shall be documented in updates to the Stormwater Management Program Plan.

5. MONITORING AND ASSESSMENT OF CONTROLS

5.1 Revised monitoring program

5.1.1 Design of the Revised Monitoring Program

Within 30 months of the effective date of Part 4.10.3 of this permit the permittee shall develop, public notice and submit to EPA for review and approval a revised monitoring program. The permittee shall fully implement the program upon EPA approval. The revised monitoring program shall meet the following objectives:

1. Make wet weather loading estimates of the parameters in Table 4 from the MS4 to receiving waters. Number of samples, sampling frequencies and number and locations of sampling stations must be adequate to ensure data are statistically significant and interpretable.
2. Evaluate the health of the receiving waters, to include biological and physical indicators such as macroinvertebrates and geomorphologic factors. Number of samples, frequencies and locations must be adequate to ensure data are statistically significant and interpretable for long-term trend purposes (not variation among individual years or seasons).
3. Include any additional necessary monitoring for purposes of source identification and wasteload allocation tracking. This strategy must align with the Consolidated TMDL Implementation Plan required in Part 4.10.3 For all pollutants in Table 4 monitoring must be adequate to determine if relevant WLAs are being attained within specified timeframes in order to make modifications to relevant management programs, as necessary.

Table 4
Monitoring Parameters

Parameter
<i>E. coli</i>
Total nitrogen
Total phosphorus
Total Suspended Solids
Cadmium
Copper
Lead
Zinc
Trash

4. All chemical analyses shall be performed in accordance with analytical methods approved under 40 C.F.R. Part 136. When there is not an approved analytical method, the applicant may use any suitable method as described in Section 5.7 herein, but must provide a description of the method.

5.1.2 Utilization of the Revised Monitoring Program

The permittee must use the information to evaluate the quality of the stormwater program and the health of the receiving waters at a minimum to include:

1. The permittee shall estimate annual cumulative pollutant loadings for pollutants listed in Table 4. Pollutant loadings and, as appropriate, event mean concentrations, will be reported in DMRs and annual reports on TMDL implementation for pollutants listed in Table 4 in discharges from the monitoring stations in Table 5.
2. The permittee shall perform the following activities at least once during the permit term, but no later than the fourth year of this permit:
 - a. Identify and prioritize additional efforts needed to address water quality exceedances, and receiving stream impairments and threats;
 - b. Identify water quality improvements or degradation

Upon approval of the Revised Monitoring Program by EPA Region III, or 2 years from the effective date of this permit, whichever comes first, the permittee shall begin implementation of the Revised Monitoring Program.

5.2 Interim Monitoring

Until such time as EPA has approved the Revised Monitoring Program, the permittee shall implement the following monitoring program:

5.2.1 Wet Weather Discharge Monitoring

The permittee shall monitor for the parameters identified in Table 4 herein, at the locations listed in Table 5 herein. Monitoring frequency for chemical/physical parameters shall be taken by at least three times per year at a minimum. This does not include a geomorphologic assessment and/or physical habitat assessment. The permittee shall conduct sampling as provided in 40 C.F.R. § 122.21(g)(7).

The permittee shall monitor and provide an annual Discharge Monitoring Report for the period of interim monitoring.

TABLE 5
Monitoring Stations

A. Anacostia River Sub Watershed Monitoring Sites
1. Gallatin Street & 14 th Street N.E. across from the intersection of 14 th St. and Gallatin St. in an outfall (MS-2)
2. Anacostia High School/Anacostia Recreation Center – Corner of 17 th St and Minnesota Ave SE
B. Rock Creek Subwatershed Monitoring Sites
1. Walter Reed -- Fort Stevens Drive -- 16 th Street and Fort Stevens Road, N.W. at an outfall (MS-6)
2. Soapstone Creek -- Connecticut Avenue and Ablemarle Street N.W. at an outfall (MS-5)
C. Potomac River Subwatershed Monitoring Sites
1. Battery Kemble Creek-49th and Hawthorne Streets, N.W. at an outfall (MS-4)
2. Oxon Run-Mississippi Avenue and 15 th Street, S.E. into Oxon Run via an outfall (MS-1)

The permittee may revise this list of sites in accordance with its revised monitoring program in Section 5.1 herein. Otherwise, changes to the above MS4 monitoring stations and/or sites for any reason shall be considered a major modification to the permit subject to the reopener clause.

During the interim monitoring period for the pollutants listed in Table 4, demonstration of compliance will be calculated using the procedures identified in the SWMP, the approved Anacostia River TMDL Implementation Plan, and/or other appropriate modeling tools and data on management practices efficiencies. The annual report will provide all monitoring data, and a brief synthesis of whether the data indicate that relevant wasteload allocations and other relevant targets are being achieved.

5.2.2 Storm Event Data

In addition to the parameters listed above, the permittee shall continue to maintain records of the date and duration (in hours) of the storm events sampled; rainfall measurements or estimates (in inches) of the storm event which generated the sampled runoff; the duration (in hours) between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event; and a calculated flow estimate of the total volume (in gallons) and nature of the discharge sampled.

5.2.3 Sample Type, Collection, and Analysis

The following requirements apply only to samples collected for Part 5.2.1, Representative Monitoring.

1. For discharges from holding ponds or other impoundments with a retention period greater than 24 hours, (estimated by dividing the volume of the detention pond by the estimated volume of water discharged during the 24 hours previous to the time that the sample is collected) a minimum of one sample shall be taken for pollutants listed in Table 4 including temperature, DO, pH and specific conductivity. For all parameters, data shall be reported for the entire event of the discharge pursuant to 40 C.F.R. § 122.26(d)(2)(iii).
2. All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. Samples may be taken with a continuous sampler or as a combination of a minimum of three sample aliquots taken in each hour of discharge for the entire discharge, with each aliquot being separated by a minimum period of fifteen minutes.
3. Analysis and collection of samples shall be done in accordance with the most recent EPA approved laboratory methods and procedures specified at 40 C.F.R. Part 136 and its subsequent amendments.

5.2.4 Sampling Waiver

When a discharger is unable to collect samples due to adverse climatic conditions, the discharger must submit in lieu of sampling data a description of why samples could not be collected, including available documentation of the event.

Adverse climatic conditions which may prohibit the collection of samples includes weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.).

5.3 Dry Weather Monitoring

5.3.1 Dry Weather Screening Program

The permittee shall continue with ongoing efforts to detect the presence of illicit connections and improper discharges to the MS4 pursuant to the District SWMP. The permittee shall perform the following: (1) continue to screen known problem sewersheds within the District based on past screening activities; (2) continue to inventory all MS4 outfalls in the District and inspect all outfalls by the end of the permit term; and (3) ensure that the dry weather screening program has addressed all watersheds within the permit term. The screening shall be

sufficient to estimate the frequency and volume of dry weather discharges and their environmental impact.

5.3.2 Screening Procedures

Screening may be developed and/or modified based on experience gained during actual field screening activities. The permittee shall establish a protocol which requires screening to ensure that such procedures are occurring, but such protocol need not conform to the procedures published at 40 C.F.R. § 122.26(d)(1)(iv)(D). The permittee shall describe the protocol actually used in each Annual Report with a justification for its use. The procedures described in the SWMP shall be used as guidance.

5.3.3 Follow-up on Dry Weather Screening Results

The permittee shall continue to implement its enforcement program for locating and ensuring elimination of all suspected sources of illicit connections and improper disposal identified during dry weather screening activities. The permittee shall report the results of such implementation in each Annual Report.

5.4. Area and/or Source Identification Program

The permittee shall continue to implement a program to identify, investigate, and address areas and/or sources within its jurisdiction that may be contributing excessive levels of pollutants to the MS4 and receiving waters, including but not limited to those pollutants identified in Table 4 herein.

5.5 Flow Measurements

The permittee shall continue to select and use appropriate flow measurement devices and methods consistent with accepted scientific practices to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device.

5.6 Monitoring and Analysis Procedures

5.6.1 Monitoring must be conducted according to laboratory and test procedures approved under 40 C.F.R. Part 136 and subsequent amendments, unless other test procedures have been specified in the permit.

5.6.2 The permittee is authorized to use a more current or sensitive (i.e., lower) detection method than the one identified in 40 C.F.R. Part 136 exists for a particular parameter, including but not limited to PCBs (Method 1668B) and mercury (Method 1631E). If used, the permittee shall report using the more current and/or more sensitive method for compliance reporting and monitoring purposes.

5.6.3 EPA reserves the right to modify the permit in order to require a more sensitive method for measuring compliance with any pollutant contamination levels, consistent with 40 CFR, Part 136, should it become necessary.

5.7 Reporting of Monitoring Results

The permittee shall continue to report monitoring results annually in a Discharge Monitoring Report. If NetDMR (<http://www.epa.gov/netdmr/>) is unavailable to any of the following then the original and one copy of the Report are to be submitted at the following addresses:

NPDES Permits Branch
U.S. EPA Region III (3WP41)
Water Protection Division
1650 Arch Street
Philadelphia, PA 19103-2029

National Marine Fisheries Service/Northeast Region
Protected Resource Division
55 Great Republic Drive
Gloucester, Massachusetts 01930-2276

Monitoring results obtained during the previous year shall be summarized and reported in the Annual Report.

5.8 Additional Monitoring by the Permittee

If the permittee monitors (for the purposes of this permit) any pollutant more frequently than required by this permit, using laboratory and test procedures approved under 40 C.F.R. Part 136 and subsequent amendments or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the annual Discharge Monitoring Report. Such frequency shall also be indicated.

5.9 Retention of Monitoring Information

The permittee shall continue to retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation for a period of at least five(5) years from the date of the sample, measurement or report. This period may be extended by request of EPA at any time.

5.10 Record Content

Records of monitoring information shall include:

1. The date, exact location, time and methods of sampling or measurements;
2. The individual(s) who performed the sampling or measurements;

3. The date(s) analyses were performed;
4. The individual(s) who performed the analyses;
5. The analytical techniques or methods used; and
6. The results of such analyses.

6. **REPORTING REQUIREMENTS**

The permittee shall comply with the reporting requirements identified in this section, including but not limited to the deliverables identified in Table 6 below.

TABLE 6
Reporting Requirements

Submittal	Deadline
Discharge Monitoring Report	Each year on the anniversary of the effective date of the permit (AEDOP)
Annual Report	Each year on the AEDOP.
MS4 Permit Application	Six months prior to the permit expiration date.

6.1 Discharge Monitoring Reports

The permittee shall provide discharge monitoring reports per Part 5.7 of this permit on the quality of stormwater discharges from the MS4 for all analytical chemical monitoring stipulated in Part 5 of this permit.

6.2 Annual Reporting

The permittee shall submit an Annual Report to EPA on or by the effective yearly date of the permit for the duration of the permitting cycle. At the same time the Annual Report it submitted to EPA it shall also be posted on the permittee's website at an easily accessible location. If the annual report is subsequently modified per EPA approval (part 6.2.3 of this permit) the updated report shall be posted on the permittee's website.

6.2.1 Annual Report.

The Annual Report shall follow the format of the permit as written, address each permit requirement, and also include the following elements:

- a. A review of the status of program implementation and compliance (or non-compliance) with all provisions and schedules of compliance contained in this

- permit, including documentation as to compliance with performance standards and other provisions and deliverables contained in Section 4 herein;
- b. A review of monitoring data and any trends in estimated cumulative annual pollutant loadings, including TMDL WLAs and TMDL implementation activities;
 - c. An assessment of the effectiveness of controls established by the SWMP;
 - d. An assessment of the projected cost of SWMP implementation for the upcoming year (or longer) and a description of the permittee's budget for existing stormwater programs, including: (i) an overview of the permittee's financial resources and budget, (ii) overall indebtedness and assets, (iii) sources for funds for stormwater programs; and (iv) a demonstration of adequate fiscal capacity to meet the requirements of this permit, subject to the (a) the federal Anti-Deficiency Act, 31 U.S.C. §§ 1341, 1342, 1349, 1351, (b) the District of Columbia Anti-Deficiency Act, D.C. Official Code §§ 47-355.01-355.08 (2001), (c) D.C. Official Code § 47-105 (2001), and (d) D.C. Official Code § 1-204.46 (2006 Supp.), as the foregoing statutes may be amended from time to time;
 - e. A summary describing the number and nature of enforcement actions, inspections, and public education programs and installation of control systems;
 - f. Identification of water quality improvements or degradation through application of a measurable performance standard as stated throughout this permit;
 - g. Results of storm and water quality modeling and its use in planning installation of control systems and maintenance and other activities;
 - h. An assessment of any SWMP modifications needed to meet the requirements of this permit;
 - i. Revisions, if necessary, to the assessments of controls and the fiscal analysis reported in the permit application under 40 C.F.R. § 122.26(d)(2)(iv) and (v);
 - j. Methodology to assess the effects of the Stormwater Management Program (SWMP);
 - k. Annual expenditures and budget for the year following each annual report;
 - l. A summary of commitments for the next year and evaluation of the commitments from the previous year;
 - m. A summary of the monitoring data for stormwater and ambient sampling that is collected in the previous year and the plan, including identification of monitoring locations, to collect additional data for the next year;
 - n. The amount of impervious cover within the District, and within the three major watersheds in the District (Anacostia, Potomac and Rock Creek);
 - o. The percentage of effective impervious cover reduced annually, including but not limited to the number and square footage of green roofs installed in the District, including the square footage of drainage managed by practices that meet the performance standard in 4.1.1; and
 - p. An analysis of the work to be performed in the next successive year, including performance measures for those tasks. In the following year, progress with those performance measures shall be part of the Annual Report. The basis for each of the performance standards, which will be used as tools for evaluating environmental results and determining the success of each MS4 activity, shall be described incorporating an integrated program approach that considers all programs and projects which have a direct as well as an indirect affect on

stormwater management quantity and quality within the District. The report shall also provide an update of the fiscal analysis for each year of the permit as required by 40 C.F.R. § 122.26(d)(2)(vi).

6.2.2 Annual Report Meeting

Within 12 months of the effective date of this permit the permittee shall convene an annual report meeting with EPA to present annual progress and plans for the following year. In conjunction with this meeting the annual written report may consist of presentation materials summarizing all required elements of the annual report rather than a lengthy written report, as long as all required elements are included. Following this first annual reporting meeting EPA and the permittee shall determine if the meeting and associated presentation materials constitute an effective reporting mechanism. With the agreement of both EPA and the permittee the annual reporting meeting and the use of summarized presentation materials in lieu of a lengthy written report may be extended for the remainder of the permit term.

6.2.3 Annual Report Revisions

Each Annual Report may be revised with written approval by EPA. The revised Report will become effective after its approval.

6.2.4 Signature and Certification

The permittee shall sign and certify the Annual Report in accordance with 40 C.F.R §122.22(b), and include a statement or resolution that the permittee's governing body or agency (or delegated representative) has reviewed or been appraised of the content of such submissions. The permittee shall provide a description of the procedure used to meet the above requirement.

6.2.5 EPA Approval

In reviewing any submittal identified in Table 1 or 6, EPA may approve or disapprove each submittal. If EPA disapproves any submittal, EPA shall provide comments to the permittee. The permittee shall address such comments in writing within thirty (30) days of receipt of the disapproval from EPA. If EPA determines that the permittee has not adequately addressed the disapproval/comments, EPA may revise that submittal or portions of that submittal. Such revision by EPA is effective thirty (30) days from receipt by the permittee. Once approved by EPA, or in the event of EPA disapproval, as revised by EPA, each submission shall be an enforceable element of this permit.

6.3 MS4 Permit Application

The permittee develop a permit Application based on the findings presented in each of the Annual SWMP Reports submitted during the permitting cycle to be submitted six months prior to the expiration date of the permit. The permit application shall define the next iterative set of objectives for the program and provide an analysis to demonstrate that these objectives will be achieved in the subsequent permit term.

7. **STORMWATER MODEL**

The permittee shall continue to update and report all progress made in developing a Stormwater Model and Geographical Information System (GIS) to EPA on an annual basis as an attachment to each Annual Report required herein.

On an annual basis, the permittee shall report on pollutant load reductions throughout the area covered by this permit using the statistical model developed by DDOE or other appropriate model. In the annual update, the permittee shall include, at a minimum, other applicable components which are not only limited to those activities identified in Section 6 herein, but which are necessary to demonstrate the effectiveness of the permittee's Stormwater Management Program toward implementing a sustainable strategy for reducing stormwater pollution runoff to the impaired waters of the District of Columbia.

Assess performance of stormwater on-site retention projects through monitoring, modeling and/or estimating storm retention capacity to determine the volume of stormwater removed from the MS4 in a typical year of rainfall as a result of implementing stormwater controls. This provision does not require all practices to be individually monitored, only that a reasonable evaluation strategy must provide estimates of overall volume reductions by sewershed.

8. **STANDARD PERMIT CONDITIONS FOR NPDES PERMITS**

8.1 Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and may result in an enforcement action; permit termination, revocation and reissuance, or modification; and denial of a permit renewal application.

8.2 Inspection and Entry

The permittee shall allow EPA, or an authorized representative, and/or the permittee's contractor(s)/subcontractor(s), upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises at reasonable times where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
2. Have access to and copy, at reasonable times, any records that must be maintained under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), processes, or operations regulated or required under this permit; and
4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

8.3 Civil and Criminal Penalties for Violations of Permit Conditions

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

The Clean Water Act provides that any person who violates Sections 301, 302, 306, 307, 308, 318, or 405 of the Clean Water Act, or any permit condition or limitation implementing such section, or any requirement imposed in an approved pretreatment program and any person who violates any Order issued by EPA under Section 301(a) of the Act, shall be subject to a civil penalty not to exceed \$25,000 per day for each violation, Pursuant to the Civil Monetary Penalty Inflation Adjustment Rule, EPA has raised the statutory maximum penalty for such violations to \$37,500 per day for each such violation. 74 Fed. Reg. 626 (Jan. 7, 2009). The Clean Water Act also provides for an action for appropriate relief including a permanent or temporary injunction.

Any person who negligently violates Section 301, 302, 305, 307, 308, 318, or 405 of the Clean Water Act, any permit condition or limitation implementing any such section, shall be punished by a criminal fine of not less than \$5,000 nor more than \$50,000 per day of such violation, or by imprisonment for not more than 3 years, or by both. Any person who knowingly violates any permit condition or limitation implementing Section 301, 302, 305, 307, 308, 318, or 405 of the Clean Water Act, and who knows at the time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than \$250,000, or by imprisonment of not more than 15 years, or by both.

8.4 Duty to Mitigate

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

In the event that the permittee or permitting authority determines that discharges are causing or contributing to a violation of applicable WQS, the permittee shall take corrective action to eliminate the WQS exceedance or correct the issues and/or problems by requiring the party or parties responsible for the alleged violation(s) comply with Part I.C.1 (Limitations to Coverage) of this permit. The methods used to correct the WQS exceedances shall be documented in subsequent annual reports and in revisions to the Stormwater Management Program Plan.

8.5 Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:

1. Violation of any terms or conditions of this permit;
2. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
3. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge;
4. Information newly acquired by the Agency, including but not limited to the results of the studies, planning, or monitoring described and/or required by this permit;
5. Material and substantial facility modifications, additions, and/or expansions;
6. Any anticipated change in the facility discharge, including any new significant industrial discharge or changes in the quantity or quality of existing industrial discharges that will result in new or increased discharges of pollutants; or
7. A determination that the permitted activity endangers human health or the environment and that it can only be regulated to acceptable levels by permit modification or termination.

The effluent limitations expressed in this permit are based on compliance with the District of Columbia's water quality standards in accordance with the Clean Water Act. In the event of a revision of the District of Columbia's water quality standards, this document may be modified by EPA to reflect this revision.

The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition. When a permit is modified, only conditions subject to modification are reopened.

8.6 Retention of Records

The permittee shall continue to retain records of all documents pertinent to this permit not otherwise required herein, including but not limited copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five (5) years from the expiration date of this permit. This period may be extended by request of EPA at any time.

8.7 Signatory Requirements

All Discharge Monitoring Reports, plans, annual reports, certifications or information either submitted to EPA or that this permit requires be maintained by the permittee shall be signed by either a principal executive officer or ranking elected official, or a duly authorized representative of that person. A person is a duly authorized representative only if: (i) the authorization is made in writing by a person described above and submitted to EPA; and (ii) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for an agency. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).

If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new notice satisfying the requirements of this paragraph must be submitted to EPA prior or together with any reports, information, or applications to be signed by an authorized representative.

8.8 Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act, 33 U.S.C. § 1321.

8.9 District Laws, Regulations and Ordinances

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable District law, regulation or ordinance identified in the SWMP. In the case of “exemptions and waivers” under District law, regulation or ordinance, Federal law and regulation shall be controlling.

8.10 Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

8.11 Severability

The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstances is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

8.12 Transfer of Permit

In the event of any change in ownership or control of facilities from which the authorized discharge emanates, the permit may be transferred to another person if:

1. The current permittee notifies the EPA, in writing of the proposed transfer at least 30 days in advance of the proposed transfer date;
2. The notice includes a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them; and
3. The EPA does not notify the current permittee and the new permittee of intent to modify, revoke and reissue, or terminate the permit and require that a new application be submitted.

8.13 Construction Authorization

This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any navigable waters.

8.14 Historic Preservation

During the design stage of any project by the Government of the District of Columbia within the scope of this permit that may include ground disturbance, new and existing or retrofit construction, or demolition of a structure, the permittee shall notify the Historic Preservation liaison and provide the liaison planning documents for the proposed undertaking. The documents shall include project location; scope of work or conditions; photograph of the area/areas to be impacted and the methods and techniques for accomplishing the undertaking. Depending on the complexity of the undertaking, sketches, plans and specifications shall also be submitted for review. The documentation will enable the liaison to assess the applicability of compliance procedures associated with Section 106 of the National Historic Preservation Act. Among the steps in the process are included:

1. The determination of the presence or absence of significant historic properties (architectural, historic or prehistoric). This can include the evaluation of standing structures and the determination of the need for an archaeological survey of the project area.
2. The evaluation of these properties in terms of their eligibility for nomination to the National Register of Historic Places.
3. The determination of the effect that the proposed undertaking will have on these properties.
4. The development of mitigating measures in conjunction with any anticipated effects.

All such evaluations and determinations will be presented to the permittee for its concurrence.

If an alternate Historic Preservation procedure is approved by EPA in writing during the term of this permit, the alternate procedure will become effective after its approval.

8.15 Endangered Species

The U.S. Fish and Wildlife Service (FWS) has indicated that Hay's Spring Amphipod, a Federally listed endangered species, occurs at several locations in the District of Columbia. The National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) has indicated that the endangered shortnose sturgeon occurs in the Potomac River drainage and may occur within the District of Columbia. The FWS and NOAA Fisheries indicate that at the present time there is no evidence that the ongoing stormwater discharges covered by this permit are adversely affecting these Federally-listed species. Stormwater discharges, construction, or any other activity that adversely affects a Federally-listed endangered or threatened species are not authorized under the terms and conditions of this permit.

The monitoring required by this permit will allow further evaluation of potential effects on these threatened and endangered species once monitoring data has been collected and analyzed. EPA requires that the permittee submit to NOAA Fisheries, at the same time it submits to EPA, the Annual Outfall Discharge Monitoring Report of the monitoring data which will be used by EPA and NOAA Fisheries to further assess effects on endangered or threatened species. If this data indicates that it is appropriate, requirements of this NPDES permit may be modified to prevent adverse impacts on habitats of endangered and threatened species.

The above-referenced Report of monitoring data is required under this permit to be sent on an annual basis to:

The United States Environmental Protection Agency
Region III (3WP41)
Water Protection Division
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

National Marine Fisheries Service/Northeast Region
Protected Resource Division
55 Great Republic Drive
Gloucester, Massachusetts 01930-2276

8.16 Toxic Pollutants

If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under section 307(a) of the Act, 33 U.S.C. § 1317(a), for a toxic pollutant which is present in the discharge and such standard or prohibition

is more stringent than any limitation for such pollutant in this permit, the permittee shall comply with such standard or prohibition even if the permit has not yet been modified to comply with the requirement.

8.17 Bypass

8.17.1 Bypass not exceeding limitations. In accordance with 40 C.F.R. § 122.41(m), the permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation.

8.17.2 Notice

1. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it must submit prior notice at least ten days before the date of the bypass. See 40 C.F.R. § 122.41(m)(3)(i).
2. Unanticipated bypass. The permittee must submit notice of an unanticipated bypass as required by 40 C.F.R. § 122.41(l)(6) (24-hour notice). See 40 C.F.R. § 122.41(m)(3)(ii).

8.17.3 Prohibition of bypass. See 40 C.F.R. § 122.41(m)(4).

1. Bypass is prohibited, and EPA may take enforcement action against the permittee for bypass, unless:
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage as defined herein;
 - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - c. The permittee submitted notices as required herein.
2. EPA may approve an anticipated bypass, after considering its adverse effects, if EPA determines that it will meet the three conditions listed above.

8.18 Upset

Effect of an upset: An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of 40 C.F.R. § 122.41(n) are met.

8.19 Reopener Clause for Permits

The permit shall be modified or revoked and reissued, including but not limited to, for any of the following reasons:

1. To incorporate any applicable effluent standard or limitation issued or approved under Sections 301, 304, or 307 of the Clean Water Act, and any other applicable provision, such as provided for in the Chesapeake Bay Agreements based on water quality considerations, and if the effluent standard or limitation so issued or approved:
 - a. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - b. Controls any pollutant not limited in the permit. The permit, as modified or reissued under this paragraph, shall also contain any other requirements of the Act then applicable; or
2. To incorporate additional controls that are necessary to ensure that the permit effluent limits are consistent with any applicable TMDL WLA allocated to the discharge of pollutants from the MS4 or to incorporate milestones and schedules of a TMDL Implementation Plan; or
3. As specified in 40 C.F.R. §§ 122.44(c), 122.62, 122.63, 122.64, and 124.5.

8.20 Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, it must apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit. EPA may grant permission to submit an application less than 180 days in advance but no longer than the permit expiration date. In the event that a timely and complete reapplication has been submitted and EPA is unable through no fault of the permittee, to issue a new permit before the expiration date of this permit, the terms and conditions of this permit are automatically continued and remain fully effective and enforceable.

9. PERMIT DEFINITIONS

Terms that are not defined herein shall have the meaning accorded them under section 502 of the Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*, or its implementing regulations, 40 C.F.R. Part 122.

“Annual Report” refers to the consolidated Annual Report that the permittee is required to submit annually.

"Benchmark" as used in this permit is a quantifiable goal or target to be used to assess progress toward "milestones" (see separate definition) and WLAs, such as a numeric goal for BMP implementation. If a benchmark is not met, the permittee should take appropriate corrective action to improve progress toward meeting milestones or other objectives. Benchmarks are intended as an adaptive management aid and generally are not considered to be enforceable.

"Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. See 40 C.F.R. § 122.41(m)(1)(i).

"CWA" means Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. (6-483 and Pub. L. 97-117, 33 U.S.C. §§ 1251 *et seq.*

"Development" is the undertaking of any activity that disturbs a surface area greater than or equal to 5,000 square feet, including new development projects and redevelopment projects. For purposes of Parts 4.1.1 through 4.1.4 of the permit the requirements apply to discharges from sites for which design or construction commenced after 18 months from the effective date of this permit or as required by District of Columbia law, whichever is sooner. The permittee may exempt development projects receiving site plan approval prior to this date from these requirements.

"Director" means the Regional Administrator of USEPA Region 3 or an authorized representative.

"Discharge" for the purpose of this permit, unless indicated otherwise, refers to discharges from the Municipal Separate Storm Sewer System (MS4).

"Discharge Monitoring Report", "DMR" or "Outfall Discharge Monitoring Report" includes the monitoring and assessment of controls identified in Section 5 herein.

"EPA" means USEPA Region 3.

"Green Roof" is a low-maintenance roof system that stores rainwater where the water is taken up by plants and/or transpired into the air.

"Green Technology Practices" means stormwater management practices that are used to mimic pre-development site hydrology by using site design techniques that retain stormwater on-site through infiltration, evapotranspiration, harvest and use.

"Guidance" means assistance in achieving a particular outcome or objective.

"Illicit connection" means any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

"Illicit discharge" means any discharge to a municipal separate storm sewer that is not composed entirely of stormwater except discharges pursuant to an NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities, pursuant to 40 C.F.R. § 122.26(b)(2).

"Impaired Water" (or "Water Quality Impaired Water" or "Water Quality Limited Segment"): A water is impaired for purposes of this permit if it has been identified by the District or EPA pursuant to Section 303(d) of the Clean Water Act as not meeting applicable State water quality standards (these waters are called "water quality limited segments" under 40 C.F.R. 30.2(j)). Impaired waters include both waters with approved or established TMDLs, and those for which a TMDL has not yet been approved or established.

"Landfill" means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit (i.e., an area where wastes are applied onto or incorporated into the soil surface [excluding manure spreading operations] for treatment or disposal), surface impoundment, injection well, or waste pile.

"Large or Medium municipal separate storm sewer system" means all municipal separate storm sewers that are either: (1) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and G of 40 C.F.R. Part 122); or (2) located in the counties with unincorporated urbanized populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties (these counties are listed in Appendices H and I of 40 C.F.R. Part 122); or (3) owned or operated by a municipality other than those described in paragraph (i) or (ii) and that are designated by the Director as part of the large or medium municipal separate storm sewer system.

"Milestone" as used in this permit is an interim step toward attainment of a WLA that upon incorporation into the permit will become an enforceable limit or requirement to be achieved by a stated date. A milestone should be expressed in numeric terms, i.e. as a volume reduction, pollutant load, specified implementation action or set of actions or other objective metric, when possible and appropriate.

"MS4" refers to either a Large or Medium Municipal Separate Storm Sewer System.

"Municipal Separate Storm Sewer" means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (1) owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State Law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes; (2) Designed or used to collect or convey stormwater (including storm drains, pipes, ditches, etc.); (3) not a combined sewer; and (4) not part of a Publicly-Owned Treatment Works as defined at 40 C.F.R. § 122.2.

“Offset” means a unit of measurement, either used as monetary or non-monetary compensation, as a substitute or replacement for mitigation of a stormwater control practice that has been determined to be impracticable to implement.

“Performance measure” means for purposes of this permit, a minimum set of criteria for evaluating progress toward meeting a standard of performance.

“Performance standard” means for purposes of this permit, a cumulative measure or provision for attainment of an outcome or objective.

"Permittee" refers to the Government of the District of Columbia.

"Point Source" means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.

“Pollutant of concern” means a pollutant in an MS4 discharge that may cause or contribute to the violation of a water quality criterion for that pollutant downstream from the discharge.

“Pre-Development Condition” means the combination of runoff, infiltration and evapotranspiration rates, volumes, durations and temperatures that typically existed on the site with natural soils and vegetation before human-induced land disturbance occurred. In the context of requirements in this permit the environmental objective is a stable, natural hydrologic site condition that protects or restores to the degree relevant for that site, stable hydrology in the receiving water, which will not necessarily be the hydrologic regime of that receiving water prior to any human disturbance in the watershed.

“Retention” means the use of soils, vegetation, water harvesting and other mechanisms and practices to retain a target volume of stormwater on a given site through the functions of: pore space and surface ponding storage; infiltration; reuse, and/or evapotranspiration.

“Retrofit” means improvement in a previously developed area that results in reduced stormwater discharge volumes and pollutant loads and/or improvement in water quality over current conditions.

“Stormwater” means the flow of surface water which results from, and which occurs immediately following, a rainfall event, snow melt runoff, and surface runoff and drainage.

“Stormwater management” means (1) for quantitative control, a system of vegetative or structural measures, or both, which reduces the increased volume and rate of surface runoff caused by man-made changes to the land; and (2) for qualitative control, a system of vegetative, structural, and other measures which reduce or eliminate pollutants which might otherwise be carried by surface runoff.

“SWMP” is an acronym for Stormwater Management Program. For purposes of this permit, the term includes all stormwater activities described in the District’s SWMP Plan updated February 19, 2009, or any subsequent update, and all other strategies, plans, documents, reports, studies, agreements and related correspondences developed and used pursuant to the requirements of this permit.

“Severe property damage” means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. See 40 C.F.R. § 122.41(m)(1)(ii).

“Total Maximum Daily Load (TMDL) Units” means for purposes of this permit, the sum of individual waste load allocations (WLAs) and natural background. Unless specifically permitted otherwise in an EPA-approved TMDL report covered under the permit, TMDLs are expressed in terms of mass per time, toxicity or other appropriate measure such as pollutant pounds of a total average annual load.

“TMDL Implementation Plan” means for purposes of this permit, a plan and subsequent revisions/updates to that plan that are designed to demonstrate how to achieve compliance with applicable waste load allocations as set forth in the permit requirements described in Section 4.10.3.

“Stormwater Management Program (SWMP)” is a modified and improved SWMP based on the existing SWMP and on information in each of the Annual Reports/Discharge Monitoring Reports. The purpose of the SWMP is to describe the list of activities that need to be done to meet the requirements of the Clean Water Act, an explanation as to why these activities will meet the Clean Water Act requirements, and a schedule for those activities.

“Upset” means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond reasonable control. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. See 40 C.F.R. § 122.41(n)(1).

“Waste pile” means any non-containerized accumulation of solid, nonflowing waste.

“Water quality standards” refers to the District of Columbia’s Surface and Ground Water Quality Standards codified at Code of District of Columbia Regulations §§ 21-1100 *et seq.*, which are effective on the date of issuance of the permit and any subsequent amendments which may be adopted during the life of this permit.

“Waters of the United States” is defined at 40 C.F.R. § 122.2.

ATTACHMENT

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FACT SHEET

National Pollutant Discharge Elimination System (NPDES)
Municipal Separate Storm Sewer System (MS4)
Permit No. DC0000221 (Government of the District of Columbia)

NPDES PERMIT NUMBER: DC0000221 (Reissuance)

FACILITY NAME AND MAILING ADDRESS:

Government of the District of Columbia
The John A. Wilson Building
1350 Pennsylvania Avenue, N.W.
Washington, D.C. 20004

MS4 ADMINISTRATOR NAME AND MAILING ADDRESS:

Director, District Department of the Environment
1200 First Street, N.E., 6th Floor
Washington, D.C. 20002

FACILITY LOCATION:

District of Columbia's Municipal Separate Storm Sewer System (MS4)

RECEIVING WATERS:

Potomac River, Anacostia River, Rock Creek, and Stream Segments Tributary
To Each Such Water Body

INTRODUCTION:

Today's action finalizes reissuance of the District of Columbia Municipal Separate Storm Sewer System (MS4) Permit. In the Final Permit EPA has continued to integrate the adaptive management approach with enhanced control measures to address the complex issues associated with urban stormwater runoff within the corporate boundaries of the District of Columbia, where stormwater discharges via the Municipal Separate Storm Sewer System (MS4).

Since the United States Environmental Protection Agency, Region III (EPA) issued the District of Columbia (the District) its first MS4 Permit in 2000, the Agency has responded to a number of legal challenges involving both that Permit (as well as amendments thereto) and the second-round MS4 Permit issued in 2004. For the better part of ten years, the Agency has worked with various parties in the litigation, including the District and two non-governmental organizations, Defenders of Wildlife and Friends of the Earth, to address the concerns of the various parties. The Agency has engaged in both litigation and negotiation, including formal

mediation.¹ These activities ultimately led to an enhanced stormwater management strategy in the District, consisting of measurable outputs for addressing the issues raised during the litigation and mediation process.

FACILITY BACKGROUND AND DESCRIPTION:

The Government of the District of Columbia owns and operates its own MS4, which discharges stormwater from various outfall locations throughout the District into its waterways.²

On April 21, 2010 EPA public noticed the Draft Permit. The Draft Fact Sheet published with that Draft Permit contains more extensive permit background information, and the reader is referred to that document for the history of the District of Columbia MS4 permit.

The public comment period closed on June 4, 2010. EPA received comments from 21 individual commenters and an additional 53 form letters. The Draft Permit, Draft Fact Sheet, and comments received on those documents are all available at: http://www.epa.gov/reg3wapd/npdes/draft_permits.html. The Final Permit reflects many of the comments received. EPA is simultaneously releasing a responsiveness summary responding to these comments.

ACTION TO BE TAKEN:

EPA is today reissuing the District of Columbia NPDES MS4 Permit. The Final Permit replaces the 2004 Permit, which expired on August 18, 2009 and has been administratively extended since that time. The Final Permit incorporates concepts and approaches developed from studies and pilot projects that were planned and implemented by the District under the 2000 and 2004 MS4 permits and modifying Letters of Agreement, and implements Total Maximum Daily Loads (TMDLs) that have been finalized since the prior permit was issued, including the Chesapeake Bay TMDL. A number of applicable measurable performance standards have been incorporated into the Final Permit. These and other changes between the 2004 Permit and today's Final Permit are reflected in a Comparison Document that is part of today's Permit issuance.

WATER QUALITY IN DISTRICT RECEIVING WATERS:

The District's *2008 Integrated Report to the Environmental Protection Agency and U.S. Congress Pursuant to Sections 305(b) and 303(d) Clean Water Act*³ documents the serious water

1 A procedural history of Permit appeals can be viewed at the EPA Environmental Appeals Board web: http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/77355bee1a56a5aa8525711400542d23/b5e5b68e89edabe98525714f00731c6f!OpenDocument&Highlight=2,municipal.

2 Portions of the District are served by a combined sanitary and storm sewer system. The discharges from the combined sewer system are not subject to the MS4 permit, but are covered under NPDES Permit No. xxxx issued to the District of Columbia Water and Sewer Authority.

3 District Department of the Environment, *The District of Columbia Water Quality Assessment, 2008 Integrated Report to the Environmental Protection Agency and U.S. Congress Pursuant to Sections 305(b) and 303(d) Clean Water Act* (hereinafter "2008 Integrated Report").

quality impairments in the surface waters in and around the District. A number of the relevant designated uses are not being met, *e.g.*, aquatic life, fish consumption, and full body contact, and there are a number of specific pollutants of concern that have been identified (for additional discussion on relevant TMDLs *see* Section 4.10 of this Final Fact Sheet).

Commenters on the Draft Permit expressed some frustration over very slow progress or even lack of progress after a decade of implementation of the MS4 program and even longer for other water quality programs. EPA appreciates this concern. Although the District's receiving waters are affected by a range of discharge sources, discharges from the MS4 are a significant contributor of pollutants and cause of stream degradation. EPA also recognizes, however, that stormwater management efforts that achieve a reversal of the ongoing degradation of water quality caused by urban stormwater discharges entail a long term, multi-faceted approach.

Consistent with the federal stormwater regulations for characterizing discharges from the MS4 (40 C.F.R. §122.26(d)(2)(iii)), the first two permit terms for the District's MS4 program required end-of-pipe monitoring to determine the type and severity of pollutants discharging via the system. The monitoring program was not designed to evaluate receiving water quality *per se*, therefore detection of trends or patterns was not reasonably possible. Today's Final Permit includes requirements for a Revised Monitoring Program, and one of the objectives for the program is to use a suite of approaches and indicators to evaluate and track water quality over the long-term (*see* discussion of Section 5.1 in this Final Fact Sheet).

There have been identified improvements in some areas. For example the *2008 Integrated Report* noted improvements in the diversity of submerged aquatic vegetation in the Potomac River, as well as improvements in fish species richness in Rock Creek. Biota metrics are often the best indicators of the integrity of any aquatic system.

EPA also notes that there are a variety of indirect measures indicative of improvement. The federal stormwater regulations foresaw the difficulty, especially in the near-term, of detecting measurable improvement in receiving waters, and relied instead on indirect measures, such as estimates of pollutant load reductions (40 C.F.R. §122.26(d)(2)(v)). The District documents these types of indirect measures in its annual reports, *e.g.*, tons of solids collected from catch basin clean-outs, amount of household hazardous waste collected, number of trees planted, square footage of green roofs installed, and many other measures of success.⁴

EPA believes that documenting trends in water quality, whether improvements, no change, or even further degradation, is an important element of a municipal water quality program. Today's Final Permit recognizes this principle, both in the types of robust measures required as well as the transition to new monitoring paradigms. EPA encourages all interested parties to provide the District with input during the development of these program elements.

THIS FACT SHEET:

http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/information2/water.reg.leg/DC_IR_2008_Revised_9-9-2008.pdf

4 District MS4 Annual Reports can be found at: <http://ddoe.dc.gov/ddoe/cwp/view,a,1209,q,495855.asp>

This Final Fact Sheet is organized to correspond with the chronological organization and numbering in today's Final Permit. Where descriptions or discussions may be relevant to more than one element of the Final Permit the reader will be referred to the relevant section(s).

To keep today's Final Fact Sheet of readable length, many of the elements included in the fact sheet published with the Draft Permit (Draft Fact Sheet) on April 21, 2010 have not been repeated, but are referenced. Readers are referred to the Draft Fact Sheet published with the Draft Permit for additional discussion on provisions that have been finalized as proposed.⁵ The Final Fact Sheet does discuss significant changes since the 2004 Permit (even if discussed in the Draft Fact Sheet). The Final Fact Sheet also contains additional explanation of the Final Permit where commenters requested additional clarification. In addition, this Final Fact Sheet explains modifications to the Final Permit where provisions were changed in response to comments.

In many cases EPA made a number of very simple modifications to the Final Permit, *e.g.*, a word, phrase, or minor reorganization, simply for purposes of clarification. These modifications were not intended to change the substance of the permit provisions, only to clarify them. Most of those types of edits are not discussed in this Final Fact Sheet, but EPA has provided a Comparison Document of the Draft and Final Permits for readers who would like that level of detail.

Many commenters noted that the Draft Permit was not logically organized. EPA agrees. The major reorganization principles include:

- 1) There is a new Section 3, Stormwater Management Program (SWMP) Plan consolidating the various plans, strategies and other documents developed in fulfillment of permit requirements.
- 2) All implementation measures, *i.e.*, those stipulating management measures and implementation policies, are included in Section 4 of today's Final Permit. This includes "Source Identification" elements (Section 3 in the Draft Permit) and "Other Applicable Provisions" elements (Section 8 in the Draft Permit), which included TMDL requirements.
- 3) All monitoring requirements are consolidated in Section 5 of the Final Permit.
- 4) All reporting requirements are consolidated in Section 6 of the Final Permit.

EPA also refers readers to the Responsiveness Summary released today along with the Final Permit and Final Fact Sheet, for responses to comments and questions received on the Draft Permit. That document contains additional detailed explanations of the rationale for changes made to the Draft Permit in the Final Permit.

Finally, EPA made significant effort to avoid appending or incorporating by reference other documents containing permit requirements into the Final Permit. In the interest of clarity

⁵ The Permit and Fact Sheet proposed on April 21, 2010 can be viewed at: http://www.epa.gov/reg3wapd/npdes/draft_permits.html

and transparency EPA, to the extent possible, has included all requirements directly in the permit. Thus, EPA reviewed a variety of documents with relevant implementation measures, e.g., TMDL Implementation Plans and the 2008 Modified Letter of Agreement to the 2004 permit⁶, and translated elements of those plans and strategies into specific permit requirements that are now contained in the Final Permit. This Fact Sheet provides an explanation of the sources of provisions that are significant and are a direct result of one of those strategies.

1. DISCHARGES AUTHORIZED UNDER THIS PERMIT

(1.2 Authorized Discharges): The Final Permit authorizes certain non-stormwater discharges, including discharges from water line flushing. One commenter noted that many of these discharges, especially from potable water systems, contain concentrations of chlorine that may exceed water quality standards. EPA agrees, and has therefore clarified that dechlorinated water line flushing is authorized to be discharged under the Final Permit.

(1.4 Discharge Limitations): Comments on the language in Part 1.4 varied widely. Some commenters did not believe it was reasonable to require discharges to meet water quality standards. Other commenters believed this to be an unambiguous requirement of the Clean Water Act.

Today's Final Permit is premised upon EPA's longstanding view that the MS4 NPDES permit program is both an iterative and an adaptive management process for pollutant reduction and for achieving applicable water quality standard and/or total maximum daily load (TMDL) compliance. *See generally*, "National Pollutant Discharge Elimination System Permit Application Regulations for Stormwater Discharges," 55 F.R. 47990 (Nov. 16, 1990).

EPA is aware that many permittees, especially those in highly urbanized areas such as the District, likely will be unable to attain all applicable water quality standards within one or more MS4 permit cycles. Rather the attainment of applicable water quality standards as an incremental process is authorized under section 402(p)(3)(B)(iii) of the Clean Water Act, 33 U.S.C. § 1342(p)(3)(B)(iii), which requires an MS4 permit "to reduce the discharge of pollutants to the maximum extent practicable" (MEP) "and such other provisions" deemed appropriate to control pollutants in municipal stormwater discharges. To be clear, the goal of EPA's stormwater program is attainment of applicable water quality standards, but Congress expected that many municipal stormwater dischargers would need several permit cycles to achieve that goal.

Specifically, the Agency expects that attainment of applicable water quality standards in waters to which the District's MS4 discharges, requires staged implementation and increasingly more stringent requirements over several permitting cycles. During each cycle, EPA will continue to review deliverables from the District to ensure that its activities constitute sufficient progress toward standards attainment. With each permit reissuance EPA will continue to increase

⁶ District Department of the Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008) <http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF>

stringency until such time as standards are met in all receiving waters. Therefore today's Final Permit is clear that attainment of applicable water quality standards and consistency with the assumptions and requirements of any applicable WLA are requirements of the Permit, but, given the iterative nature of this requirement under CWA Section 402(p)(3)(B)(iii), the Final Permit is also clear that "compliance with all performance standards and provisions contained in the Final Permit shall constitute adequate progress toward compliance with DCWQS and WLAs for this permit term" (Section 1.4).

EPA believes that permitting authorities have the obligation to write permits with clear and enforceable provisions and thus the determination of what is the "maximum extent practicable" under a permit is one that must be made by the permitting authority and translated into provisions that are understandable and measurable. In this Final Permit EPA has carefully evaluated the maturity of the District stormwater program and the water quality status of the receiving waters, including TMDL wasteload allocations. In determining whether certain measures, actions and performance standards are practicable, EPA has also looked at other programs and measures around the country for feasibility of implementation. Therefore today's Final Permit does not qualify any provision with MEP thus leaving this determination to the discretion of the District. Instead each provision has already been determined to be the maximum extent practicable for this permit term for this discharger.

EPA modified the language in the Final Permit to provide clarity on the expectations consistent with the preceding explanation. Specifically Section 1.4.2 of the Final Permit requires that discharges 'attain' applicable wasteload allocations rather than just 'be consistent' with them, since the latter term is somewhat ambiguous.

In addition, the general discharge limitation 'no increase in pollutant loadings from discharges from the MS4 may occur to receiving waters' was removed because of the difficulty in measuring, demonstrating and enforcing this provision. Instead, consistent with EPA's belief that the Final Permit must include all of the enforceable requirements that would achieve this principle, the following discharge limitation is substituted: "comply with all other provisions and requirements contained in this permit, and in plans and schedules developed in fulfillment of this permit."

In addition, EPA made the following modifications: "Compliance with the performance standards and provisions contained in Parts 2 through 8 of this permit shall constitute adequate progress towards compliance with DCWQS and WLAs for this permit term" (*underlined text added*) (Section 1.4 of the Final Permit). EPA eliminated circularity with the addition of "Parts 2 through 8", clarifying that this requirement does not circle back to include the statements in 1.4.1 and 1.4.2, but rather interprets them. Also, although WLAs are a mechanism for attainment of water quality standards, EPA added the specific language "and WLAs" to make this concept explicit rather than just implicit. In addition this revised language emphasizes that the specific measures contained in the Final Permit, while appropriate for this permit term, will not necessarily constitute full compliance in subsequent permit terms. It is the expectation that with each permit reissuance, additional or enhanced requirements will be included with the objective

of ensuring that MS4 discharges do not cause or contribute to an exceedance of applicable water quality standards, including attainment of relevant WLAs.

2. LEGAL AUTHORITY, RESOURCES, AND STORMWATER PROGRAM ADMINISTRATION

(2.1 Legal Authority): Several commenters pointed out that there were a number of requirements in the Draft Permit without clear compliance schedules or deadlines, or with deadlines that did not correspond well to others in the permit. In the Final Permit, EPA has made several revisions to address these comments. For example, EPA changed a requirement that deficiencies in legal authority must be remedied “as soon as possible” to a 120-day requirement for deficiencies that can be addressed through regulation, and two years for deficiencies that require legislative action (Section 2.1.1). Also, EPA increased the compliance schedule for updating the District’s stormwater regulation from twelve months to eighteen months, *id.*, so that this action could be adequately coordinated with the development of the District’s new offsite mitigation/payment-in-lieu program (for more discussion see Section 4.1.3 below).

(2.2 Fiscal Resources): One commenter suggested eliminating the reference to the District’s Enterprise Fund since funding was likely to come from a number of different budgets within the District. EPA agrees with this comment and has removed this reference.

On the other hand, many commenters noted that the implementation costs of the District’s stormwater program will be significant. EPA agrees. The federal stormwater regulations identify the importance of adequate financial resources [40 C.F.R. §122.26(d)(1)(vi) and (d)(2)(vi)]. In addition, after seeing notable differences in the caliber of stormwater programs across the country, EPA recognizes that dedicated funding is critical for implementation of effective MS4 programs.^{7,8,9} In 2009 the District established, and in 2010 revised, an impervious-based surface area fee for service to provide core funding to the stormwater program¹⁰ (understanding that stormwater-related financing may still come from other sources as they fulfill multiple purposes, *e.g.*, street and public right-of-way retrofits). In conjunction with the 2010 rule-making to revise the fee the District issued a Frequently Asked Questions document¹¹ that indicates the intent to restrict this fee to its original purpose, *i.e.*, dedicated funding to implement the stormwater program and comply with MS4 permit requirements. EPA believes this action is essential, and he expects that the District will maintain a dedicated source of funding for the stormwater program.

7 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

8 National Association of Flood and Stormwater Agencies, Funded by EPA, *Guidance for Municipal Stormwater Funding* (2006) <http://www.nafmsa.org/Guidance%20Manual%20Version%202X.pdf>

9 EPA, *Funding Stormwater Programs* (2008) http://www.epa.gov/npdes/pubs/region3_factsheet_funding.pdf

10 District of Columbia, Rule 21-566 Stormwater Fees, <http://www.dcregs.dc.gov/Gateway/RuleHome.aspx?RuleID=474056>

11 District of Columbia, FAQ Document *Changes to the District’s Stormwater Fee* (2010) http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/information2/water.reg.leg/Stormwater_Fee_FAQ_10-5-10_-final.pdf

3. STORMWATER MANAGEMENT PROGRAM (SWMP) PLAN

A number of commenters were confused by the wide variety of plans, strategies and other written documents required by the Draft Permit. A number of commenters were also concerned about public access to several of these documents.

In today's Final Permit EPA is clarifying that any written study, strategy, plan, schedule or other element, existing or new, is part of the District Stormwater Management Program Plan. It is EPA's intent that all elements of the program be described in this central 'Plan'. This does not mean that the Plan cannot consist of separate documents. EPA understands that stand-alone elements may aid in implementation in certain situations. However, EPA is clarifying that all such documents are inherent components of the Plan.

To address the accessibility issue EPA is also requiring that the most current version of the Plan be posted on the District website. As such, all elements that may be documented in separate documents and deliverables must be posted at this location (a hyperlink to any element of the program in a different document is sufficient).

Moreover, today's Final Permit requires the District to public notice a fully updated Plan (to include all existing and new elements required by the Final Permit) within three years of the effective date of this Final Permit, and to then submit that Plan to EPA within four years of the effective date of the Final Permit. This schedule will enable this evaluation of the Plan to be part of EPA's evaluation of the Districts stormwater management program in preparation for the next reissuance of the permit.

The Final Permit requires the District to develop a number of new initiatives. Many commenters raised concerns about the rigor and suitability of these new elements in the absence of a requirement for public input, and in the absence of EPA review and approval. In light of those concerns EPA reviewed all elements of the Draft Permit, and where appropriate has added requirements to the Final Permit both for public notice and opportunity to comment and for submittal to EPA for review and approval. Not every new element has been subjected to this requirement. However, EPA agrees that the opportunity for the public and EPA to review new program elements that will become major components of the stormwater management program is reasonable. Thus, for provisions that EPA believes will be important foundations of the program in years to come, EPA has added a requirement for public notice and EPA review and approval. A new Table 1 in the Final Permit summarizes the elements that must now be submitted to EPA for review and approval.

TABLE 1
Elements Requiring EPA Review and Approval

Element	Submittal Date (from effective date of this permit)
Anacostia River Watershed Trash Reduction Calculation Methodology (4.10)	1 year
Catch Basin Operation and Maintenance Plan (4.3.5.1)	18 months
Outfall Repair Schedule (4.3.5.3)	18 months
Off-site Mitigation/Payment-in-Lieu Program (4.1.3)	18 months
Retrofit Program (4.1.6)	2 years
Consolidated TMDL Implementation Plan (4.10.3)	2 years
Revised Monitoring Program (5.1)	2 years
Revised Stormwater Management Program Plan (3)	4 years

4. IMPLEMENTATION OF STORMWATER CONTROL MEASURES

(4.1 Standard for Long-Term Stormwater Management): One of the fundamental differences between today’s Final Permit and earlier permits is the inclusion of measurable requirements for green technology practices, sometimes referred to as “low-impact development” or “green infrastructure.” These requirements, which include green roofs, enhanced tree plantings, permeable pavements, and a performance standard to promote practices such as bioretention and water harvesting, are designed to increase the effectiveness of stormwater controls by reducing runoff volumes and associated pollutant loads.^{12,13} In past years, stormwater management requirements in permits did not include clear performance goals, numeric requirements or environmental objectives. Today’s Final Permit stipulates a specific standard for newly developed and redeveloped sites, and also emphasizes the use of “green infrastructure” controls to be used to meet the performance standard. These permit requirements are intended to improve the permit by providing clarity regarding program performance and promoting the use of technologies and strategies that do not rely solely on end-of-pipe detention measures to manage runoff. EPA notes that much of this emphasis is based on changing paradigms in stormwater science, technology and policy (see discussion below), but also points out that the groundwork for this framework was laid during the prior permit term, and all of the green infrastructure elements agreed to in the 2008 Modified Letter of Agreement to the 2004 Permit.¹⁴

In the natural, undisturbed environment precipitation is quickly intercepted by trees and other vegetation, or absorbed by soils and humic matter on the surface of the ground where it is

12 The performance of green infrastructure control measures is well-established through numerous studies and reports, many of which are available at <http://cfpub2.epa.gov/npdes/greeninfrastructure/research.cfm#research>

13 Jay Landers, *Stormwater Test Results Permit Side-by-Side Comparisons of BMPs* (2006) Civil Engineering News http://www.unh.edu/erg/civil_eng_4_06.pdf

14 District Department of the Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222*, (2008) <http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF>

used by plants, becomes baseflow (shallow groundwater feeding waterways) or infiltrates more deeply to aquifers. During most storms very little rainfall becomes stormwater runoff where the landscape is naturally vegetated or in cases where there are permeable soils. Runoff generally only occurs with larger precipitation events, which constitute a very small proportion of the storms that occur in Washington, DC. In contrast to natural settings, traditional development practices cover large areas of the ground with impervious surfaces such as roads, driveways, sidewalks, and buildings. In addition, the remaining soils are often heavily compacted and are effectively impervious. Under developed conditions, stormwater runs off or is channeled away even during small precipitation events. The collective force of the increased stormwater flows entering the MS4 and discharging through outfalls into receiving streams scours streambeds, erodes stream banks, and causes large quantities of sediment and other entrained pollutants, such as metals, nutrients and trash, to enter the water body each time it rains^{15,16,17}. Stormwater research generally shows a high correlation between the level of imperviousness in a watershed and the degree of overall degradation of water quality and habitat. This principle is so well-settled that EPA has not included individual study results here, but refers interested readers to an excellent compendium of relevant studies compiled by the Maryland Department of Natural Resources at <http://www.dnr.state.md.us/irc/bibs/effectsdevelopment.html>.

To date stormwater management approaches generally have been focused primarily on flood management, in particular extended detention controls, such as wet ponds or dry detention basins, or on in-pipe or end-of-pipe treatment systems. Extended detention approaches are intended to reduce downstream flooding to the extent necessary to protect the public safety and private and public property. End-of-pipe systems are intended to filter or settle specific pollutants, but typically do not reduce the large suite of pollutants in storm water, nor do anything to address degradation attributable to increased discharge volumes. These approaches occurred largely by default since stormwater permits and regulations, including those with water quality objectives, did not stipulate specific, measurable standards or environmental objectives. In addition, water quality was not the primary concern during the early evolution of stormwater management practices.

There are multiple potential problems with extended detention as a water quality management practice, including the fact that receiving stream dynamics are generally based on balances of much more than just discharge rates.¹⁸ Stream stability, habitat protection and water quality are not necessarily protected by the use of extended detention practices and systems. In fact the use of practices such as wet detention basins often results in continued stream bank

15 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

16 Schueler, Thomas R., *The Importance of Imperviousness* (2000) Center for Watershed Protection, [http://yosemite.epa.gov/R10/WATER.NSF/840a5de5d0a8d1418825650f00715a27/159859e0c556f1c988256b7f007525b9/\\$FILE/The%20Importance%20of%20Imperviousness.pdf](http://yosemite.epa.gov/R10/WATER.NSF/840a5de5d0a8d1418825650f00715a27/159859e0c556f1c988256b7f007525b9/$FILE/The%20Importance%20of%20Imperviousness.pdf)

17 E. Shaver, R. Horner, J. Skupien, C. May, and G. Ridley. *Fundamentals of Urban Runoff Management: Technical and Institutional Issues – 2nd Edition*, (2007) North American Lake Management Society, Madison, WI. [http://www.deq.state.ms.us/mdeq.nsf/0/A8E8B82B89DCDDCE862573530049EEE0/\\$file/Fundamentals_full_manual_lowres.pdf?OpenElement](http://www.deq.state.ms.us/mdeq.nsf/0/A8E8B82B89DCDDCE862573530049EEE0/$file/Fundamentals_full_manual_lowres.pdf?OpenElement)

18 Low Impact Development Center, *A Review of Low Impact Development Policies: Removing Institutional Barriers to Adoption* (2007) http://pepi.ucdavis.edu/mapinfo/pdf/CA_LID_Policy_Review_Final.pdf

destabilization and increased pollutant loadings of sediment, phosphorus and other pollutants due to bank and channel erosion. Numerous studies have documented the physical, chemical and biological impairments of receiving waters caused by increased volumes, rates, frequencies, and durations of stormwater discharges, and the critical importance of managing stormwater flows and volumes to protecting and restoring our nation's waters^{19,20}.

Traditional stormwater management is very heavily focused on extended detention approaches, *i.e.*, collecting water short-term (usually in a large basin), and discharging it to the receiving water over the period of one to several days, depending on the size of the storm. Extended detention practices are first and foremost designed to prevent downstream flooding and not to protect downstream channel stability and water quality. For decades, water quality protection has been a secondary goal, or one omitted entirely during the design of these facilities. Over time it has become apparent through research and monitoring that these traditional practices do not effectively protect the physical, chemical or biological integrity of receiving waters²¹. Furthermore, operation and maintenance of these systems to ensure they perform as designed requires a level of managerial and financial commitment that is often not provided, further diminishing the effectiveness of these practices from a water quality performance perspective. A number of researchers have documented that extended detention practices fail to maintain water quality, downstream habitat and biotic integrity of the receiving waters.^{22,23,24,25} As a result, today's Final Permit shifts the District's practices from extended detention approaches to water quality protection approaches based on retention of discharge volumes and reduced pollutant loadings.

(4.1.1 Standard for Stormwater Discharges from Development): The 2008 National Research Council Report (NRC Report) on urban stormwater confirmed that current stormwater control efforts are not fully adequate. Three of the NRC Report's findings on stormwater management approaches are particularly relevant:

19 Daren M Carlisle, David M Wolock, and Michael R Meador, *Alteration of streamflow magnitudes and potential ecological consequences: a multiregional assessment*, Front Ecol Environ, (2010)

20 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

21 EPA, *Protecting Water Quality from Urban Runoff* (2003) http://www.epa.gov/npdes/pubs/nps_urban-facts_final.pdf

22 C.R. MacRae, *Experience from Morphological Research on Canadian Streams: Is Control of the Two Year Frequency Runoff Event the Best Basis for Stream Channel Protection?* (1997) in *Effects of Watershed Development and Management on Aquatic Ecosystems*, ASCE

23 R. Horner, C. May, E. Livingston, D. Blaha, M. Scoggins, J. Tims & J. Maxted, *Structural and Nonstructural BMPs for Protecting Streams* (2002) Seventh Biennial Stormwater Research & Watershed Management Conference <http://www.p2pays.org/ref/41/40364.pdf>

24 D.B. Booth & C.R. Jackson, *Urbanization of Aquatic Systems – Degradation Thresholds, Stormwater Detention and the Limits of Mitigation* (1997) *Journal of the American Water Resources Association* 22(5) http://clear.uconn.edu/projects/TMDL/library/papers/BoothJackson_1997.pdf

25 E. Shaver, R. Horner, J. Skupien, C. May, and G. Ridley. *Fundamentals of Urban Runoff Management: Technical and Institutional Issues – 2nd Edition*, (2007) North American Lake Management Society, Madison, WI. [http://www.deq.state.ms.us/mdeq.nsf/0/A8E8B82B89DCDDCE862573530049EEEE0/\\$file/Fundamentals_full_manual_lowres.pdf?OpenElement](http://www.deq.state.ms.us/mdeq.nsf/0/A8E8B82B89DCDDCE862573530049EEEE0/$file/Fundamentals_full_manual_lowres.pdf?OpenElement)

- 1) Individual controls on stormwater discharges are inadequate as the sole solution to stormwater impacts in urban watersheds;
- 2) Stormwater control measures such as product substitution, better site design, downspout disconnection, conservation of natural areas, and watershed and land-use planning can dramatically reduce the volume of runoff and pollutant loadings from new development; and
- 3) Stormwater control measures that harvest, infiltrate, and evapotranspire stormwater are critical to reducing the volume and pollutant loading of storms.

The NRC Report points out the wisdom of managing stormwater flow not just for the hydrologic benefits as described above, but because it serves as an excellent proxy for pollutants, *i.e.*, by reducing the volume of stormwater discharged, the amount of pollutants typically entrained in stormwater will also be reduced. Reductions in the number of concentrated and erosive flow events will result in decreased mobilization and transport of sediments and other pollutants into receiving waters. The NRC Report also noted that it is generally easier and less expensive to measure flow than the concentration or load of individual pollutant constituents. For all of these reasons EPA has chosen to use flow volume as the management parameter to implement policies, strategies and approaches.

The objective of effective stormwater management is to replicate the pre-development hydrology to protect and preserve both the water resources onsite and those downstream by eliminating or reducing the amount of both water and pollutants that run off a site, enter the MS4, and ultimately are discharged into adjacent water bodies. The fundamental principle is to employ systems and practices that use or mimic natural processes to: 1) infiltrate and recharge, 2) evapotranspire, and/or 3) harvest and use precipitation near to where it falls to earth.

Retaining the volume of all storms up to and including the 95th percentile storm event is approximately analogous to maintaining or restoring the pre-development hydrology with respect to the volume, rate, and duration of the runoff for most sites. In the mid-Atlantic region the 95th percentile approach represents a volume that appears to reasonably represent the volume that is fully infiltrated in a natural condition and thus should be managed onsite to restore and maintain this pre-development hydrology for the duration, rate and volume of stormwater flows. This approach also employs and/or mimics natural treatment and flow attenuation methods, *i.e.*, soil and vegetation, that existed on the site before the construction of infrastructure (*e.g.*, building, roads, parking lots, driveways). The 95th percentile volume is not a “magic” number; there will be variation among sites based on site-specific factors when replicating predevelopment hydrologic conditions. However, this metric represents a good approximation of what is protective of water quality on a watershed scale, it can be easily and fairly incorporated into standards, and can be equitably applied on a jurisdictional basis.

In the Draft Permit EPA proposed two sets of performance standards to be implemented by the District: on-site retention of the 90th percentile volume, or 1.2” for all non-federal projects, and on-site retention of the 95th percentile volume, or 1.7” for all federal projects.

In determining ‘maximum extent practicable’ for discharges from development involving

federal facilities EPA considered several factors in the Draft Permit:

- 1) Energy Independence and Security Act (EISA) Section 438 and EPA Guidance²⁶: Entitled “Storm water runoff requirements for federal development projects,” EISA section 438 provides: “The sponsor of any development or redevelopment project involving a Federal facility with a footprint that exceeds 5,000 square feet shall use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow.”

Guidance for federal agencies to implement EISA section 438 has been in place since December 2009, and sets forth two optional approaches to meeting the statutory requirements: a performance objective to retain the volume from the 95th percentile storm on site for any federally sponsored new development or redevelopment project and a site-specific hydrologic analysis to determine the pre-development runoff conditions and to develop the site such that the post-development hydrology replicates those conditions “to the maximum extent technically feasible.”

- 2) Executive Orders:
 - a. Executive Order 13508 - Chesapeake Bay Protection and Restoration: Calling the Chesapeake Bay a national treasure, E.O. 13508, issued May 12, 2009, establishes a mandate for federal leadership, action and accountability in restoring the Bay. Among the provisions of the Executive Order, section 202(c) directs the strengthening of stormwater management practices at Federal facilities and on Federal lands within the Chesapeake Bay watershed. In addition, section 501 directs federal agencies to implement controls as expeditiously as practicable on their own properties. As required by section 502, EPA issued guidance for federal land management practices to protect and restore the Bay, which includes guidance for managing existing development, as well as redevelopment, new development. Thus federal agencies have an executive directive to be leaders in stormwater management in the District and throughout the Chesapeake Bay watershed.²⁷
 - b. Executive Order 13514 - Federal Leadership in Environmental, Energy, and Economic Performance E.O. 13514, issued Oct. 5, 2009, directs the federal government to “lead by example” and includes a requirement for federal agencies to implement EPA’s EISA Section 438 guidance (see Sections 2(d)(iv)²⁸ and 14).

²⁶ EPA, *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act* (2009)

http://www.epa.gov/owow_keep/nps/lid/section438/

²⁷ EPA, *Guidance for Federal Land Management in the Chesapeake Bay Watershed*, Chapter 3. Urban and Suburban, (2010) 841-R-10-002 (http://www.epa.gov/owow_keep/NPS/chesbay502/pdf/chesbay_chap03.pdf)

²⁸ Sec. 2. Goals for Agencies. In implementing the policy set forth in Section 1 of this order, and preparing and implementing the Strategic Sustainability Performance Plan called for in Section 8 of this order, the head of each agency shall: . . . (d) improve water use efficiency and management by: . . . (iv) implementing and

- 3) **Water Quality:** These performance standards are appropriate as water quality-based effluent limitations in the Final Permit. In order to meet the necessary water quality requirements of the Clean Water Act, and to be consistent with the assumptions and requirements of the wasteload allocations for the Chesapeake Bay TMDL, EPA has determined that this performance standard is necessary. In fact, the District's final Phase I WIP acknowledges reasonable assurance demonstration for meeting its obligations to implement the Chesapeake Bay TMDL on an expectation that federal new development and redevelopment projects will achieve a 1.7" stormwater retention objective²⁹.

EPA concluded in the Draft Permit, and maintains in the Final Permit, that in this first permit in which a performance standard is being required, a retention standard of 1.2" represents the "maximum extent practicable" (MEP) for the District to implement at this time. In the District of Columbia area the 90th percentile event volume is estimated at 1.2 inches. This volume was calculated from 59 years (1948-2006) of rainfall data collected at Reagan National Airport using the methodology detailed in the Energy Independence and Security Act (EISA) Section 438 Guidance³⁰. EPA expects that the performance objective shall be accomplished largely by the use of practices that infiltrate, evapotranspire and/or harvest and use rainwater.

EPA's MEP determination included evaluating what has been demonstrated to be feasible in the mid-Atlantic region as well as in other parts of the country. Because on-site retention of the 90th percentile rainfall event volume and analogous approaches have been successfully implemented in other locations across the nation as requirements of stormwater permits, state regulations and local standards^{31,32,33,34,35,36,37,38,39} and under a wide variety of climates and

achieving the objectives identified in the stormwater management guidance referenced in Section 14 of this order. Sec. 14. Stormwater Guidance for Federal Facilities. Within 60 days of the date of this order, the Environmental Protection Agency, in coordination with other Federal agencies as appropriate, shall issue guidance on the implementation of Section 438 of the Energy Independence and Security Act of 2007 ([42 U.S.C. 17094](#)).

29 District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010)

http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Columbia_WIP_Bay_TMDL.pdf

30 EPA, *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act* (2009)

<http://www.epa.gov/owow/keep/nps/lid/section438/>

31 EPA, *The Municipality of Anchorage and the Alaska Department of Transportation and Public Facilities Municipal Separate Storm Sewer System Permit*, NPDES No. AKS052558 (2010)

[http://yosemite.epa.gov/r10/water.nsf/NPDES+Permits/MS4+requirements+-+Region+10/\\$FILE/ATTCZX11/AKS052558%20FP.pdf](http://yosemite.epa.gov/r10/water.nsf/NPDES+Permits/MS4+requirements+-+Region+10/$FILE/ATTCZX11/AKS052558%20FP.pdf)

32 California Regional Water Quality Control Board Los Angeles Region, *Ventura County Municipal Separate Storm Sewer System Permit*, NPDES No. CAS004002 (2009)

http://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/ventura_ms4/Final_Ventura_County_MS4_Permit_Order_No.09-0057_01-13-2010.pdf

33 Montana Department of Environmental Quality, *General Permit for Stormwater Discharge Associated with Small Municipal Separate Storm Sewer System*, NPDES No. MTR040000 (2010)

<http://www.deq.mt.gov/wqinfo/mpdes/StormWater/ms4.mcp>

34 Tennessee Department of Environment and Conservation, *General Permit for Discharges from Small Municipal Separate Storm Sewer Systems*, NPDES No. TNS000000, (2010)

http://state.tn.us/environment/wpc/stormh2o/finals/tns000000_ms4_phase_ii_2010.pdf

conditions, EPA considers this performance standard to be proven and therefore ‘practicable’ at this point in time. EPA believes that application of this performance standard will result in a significant improvement to the *status quo* and that it will provide notable water quality benefits. This approach will also provide a sound foundation and framework for future management approaches, strategies, measures and practices as the program evolves over subsequent permit cycles. In this context, EPA notes that there may be a need to improve upon this standard in the future, and expects to evaluate implementation success, performance of practices and the overall program, and water quality in the receiving waters when determining whether or not to modify this requirement in a future permit cycle.

EPA received a number of comments on these proposed development performance standards. Many commenters supported this approach. A few were opposed, largely to the numbers rather than the retention framework. Only one federal agency, the Department of Defense, to whom the 95th percentile standard would apply, opposed this provision, on the basis that they should not be subject to the higher standard.

In response to comments EPA revised the Final Permit to require the District to implement a performance standard of on-site retention of 1.2” for all development projects, regardless of who owns or operates the development. EPA’s rationale for including a single performance standard for all development projects is based on the fact that this permit is issued to the District of Columbia and the MEP determination must be based on what is practicable for that permittee even though certain property owners discharging to the District’s MS4 may have the ability as well as the mandate to achieve more. EPA concludes that it would be not be inappropriate to include the 1.7” performance standard in a permit to a federal permittee. This permit, however, is being issued to a non-federal permittee.

Therefore today’s Final Permit includes a performance standard for stormwater discharges from development that disturbs an area of land greater than or equal to 5,000 square feet. The requirement must be in effect 18 months from today. The Permit requires the design, construction, and maintenance of stormwater management practices to retain rainfall onsite, and

35 West Virginia Department of Environmental Protection, General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems, NPDES WV0116025 (2009) <http://www.dep.wv.gov/WWE/Programs/stormwater/MS4/permits/Documents/WV%20MS4%202009%20General%20Permit.pdf>

36 North Carolina Department of Environment and Natural Resources, *General Permit to Construct Operate and Maintain Impervious Areas and BMPs Associated with a Residential Development Disturbing Less than 1 Acre*, State Permit No. SWG050000 (2008) http://portal.ncdenr.org/c/document_library/get_file?uuid=724171cc-c208-4f39-a68c-b4cd84022cd9&groupId=38364

37 State of Maryland, *Stormwater Management Act of 2007*, Environment Article 4 §201.1 and §203 <http://www.mde.state.md.us/programs/Water/StormwaterManagementProgram/Pages/Programs/WaterPrograms/SedimentandStormwater/swm2007.aspx>

38 City of Philadelphia, *Stormwater Regulations*, §600.0 Stormwater Management (2006) <http://www.phillyriverinfo.org/WICLibrary/StormwaterRegulations.pdf>

39 EPA, See Chapter 3, *Green Infrastructure Case Studies: Municipal Policies for Managing Stormwater with Green Infrastructure* (2010) http://www.epa.gov/owow/NPS/lid/gi_case_studies_2010.pdf

prevent the off-site discharge of the rainfall volume from all events less than or equal to the 90th percentile rainfall event.

The District's Phase I Watershed Implementation Plan (WIP) for the Chesapeake Bay TMDL⁴⁰ based its proposed nutrient and sediment reductions, and the associated reasonable assurance demonstration, on these performance standards, i.e., 1.2" for non-federal projects and 1.7" for federal projects. In establishing the Chesapeake Bay TMDL, EPA used the information in the Bay jurisdictions' final Phase I WIPs, including that of the District, where possible. Thus the wasteload allocations (WLAs) in the TMDL⁴¹ are based, in part, on the expectation that all development in the District will be subject to these standards.

EPA notes that all federal facilities still must comply with the EISA requirements. The District will track the performance of federal development projects subject to the District's stormwater regulations, and therefore document those achieving better than 1.2" onsite retention. However, the District cannot, nor should they be expected to, enforce the EISA requirements.

EPA dropped the option for determination of the predevelopment runoff conditions based on a full hydrologic and hydraulic analysis of the site. EISA guidance had provided this option to federal facilities and EPA did not want to provide an *a priori* limitation to federal projects in the Draft Permit, but rather provide the District with the flexibility to include it if they determined it to be administratively feasible. However, since the Final Permit no longer includes an additional requirement for federal facilities, this provision is no longer necessary to provide federal facilities options consistent with EISA. With respect to non-federal facilities, in the seventeen months since the Draft Permit was proposed the District has continued with the process of finalizing their stormwater regulations, and has determined that inclusion of this option is not necessary or reasonable, and EPA concurs.

Several commenters raised the issue of costs associated with implementation of the performance standard. EPA has responded by noting that there are many locations where this stormwater management framework has already been implemented (*see* footnote 22), and also where costs have been well documented to be competitive or instances where infrastructure costs were less expensive because of avoided costs, *e.g.*, reduced infrastructure, narrower roads and otherwise fewer impervious surfaces, reduced or eliminated curbs and gutters, no or fewer buried storm sewers. In addition, where cost-benefit analyses have been conducted, green infrastructure practices are even more cost effective because of the wide array of additional benefits⁴² that do not accrue when traditional stormwater management practices are used.^{43,44,45,46,47,48,49,50,51,52,53,54}

40 District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010)

http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Columbia_WIP_Bay_TMDL.pdf

41 EPA, *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment* (2010)

<http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html>

42 EPA, Managing Wet Weather with Green Infrastructure website, Benefits: (http://cfpub2.epa.gov/npdes/home.cfm?program_id=298)

43 LimnoTech, *Analysis of the Pollution Reduction Potential of DC Stormwater Standards* (2009)

44 EPA, *Reducing Stormwater Costs through Low Impact Development Strategies and Practices* (2007)

Several commenters took issue with the inclusion of any numeric performance standard for discharges from development. As discussed above EPA believes that stormwater discharge permits should include clear and enforceable standards, and where feasible, numeric limits are preferred. As discussed above, for the purpose of requiring the permittee to ensure adequate management of discharges from development, a numeric performance standard is a proven means of establishing a clear and enforceable requirement. EPA recognizes that there will be development projects that may not be able to meet the performance standard on site because of site conditions or site activities that preclude the use of extensive green infrastructure practices. Thus as proposed in the Draft Permit, the Final Permit requires the District to develop an alternative means of compliance for development projects under these circumstances (*see* discussion of Section 4.1.3 Off-Site Mitigation and/or Fee-in-Lieu for all Facilities).

In July 2010 EPA Region III issued *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed*.⁵⁵ This document provides direction to all NPDES permitting authorities in the Region and establishes expectations for the next generation of MS4 permits. Based on many of the reasons already articulated in this Final Fact Sheet, EPA directed states to incorporate performance-based standards into permits and regulations with the objective of maintaining or restoring a pre-development hydrologic site condition for newly developed and redeveloped sites. In fact most states with authorized NPDES permit programs in the Chesapeake

<http://www.epa.gov/owow/NPS/lid/costs07/>

45 Report to Natural Resources Defense Council and Waterkeeper Alliance, *Economic Costs, Benefits and Achievability of Stormwater Regulations for Construction and Development Activities* (2008)

46 Meliora Environmental Design LLC, *Comparison of Environmental Site Design for Stormwater Management for Three Redevelopment Sites in Maryland* (2008)

47 City of Portland Environmental Services, *Cost-Benefit Evaluation of Ecoroofs* (2008)

<http://www.portlandonline.com/bes/index.cfm?a=261053&c=50818>

48 Natural Resources Defense Council, *Rooftops to Rivers, Green Strategies for Controlling Stormwater and Combined Sewer Overflows* (2006) <http://www.nrdc.org/water/pollution/rooftops/rooftops.pdf>

49 Riverkeeper, *Sustainable Raindrops* (2006) <http://www.riverkeeper.org/wp-content/uploads/2009/06/Sustainable-Raindrops-Report-1-8-08.pdf>

50 City of Philadelphia Water Department, *A Triple Bottom Line Assessment of Traditional and Green Infrastructure Options for Controlling CSO Events in Philadelphia's Watersheds* (2009)

http://www.epa.gov/npdes/pubs/gi_phil_bottomline.pdf

51 Richard R. Horner, *Investigation of the Feasibility and Benefits of Low-Impact Site Design Practices for Ventura County, and Initial Investigation of the Feasibility and Benefits of Low-Impact Site Development Practices for the San Francisco Bay Area, and Supplementary Investigation of the Feasibility and Benefits of Low-Impact Site Development Practices for the San Francisco Bay Area*, (2007)

http://docs.nrdc.org/water/files/wat_09081001b.pdf

52 J. Hathaway and W.F. Hunt. *Stormwater BMP Costs*. (2007)

www.bae.ncsu.edu/stormwater/PublicationFiles/DSWC.BMPcosts.2007.pdf.

53 Center for Neighborhood Technology and American Rivers, *The Value of Green Infrastructure: A Guide to Recognizing Its Economic, Environmental and Social Benefits* (2010) <http://www.cnt.org/repository/gi-values-guide.pdf>

54 J. Gunderson, R. Roseen, T. Janeski, J. Houle, M. Simpson. *Cost-Effective LID in Commercial and Residential Development* (2011) Stormwater <http://www.stormh2o.com/march-april-2011/costeffective-lid-development-1.aspx>

55 EPA, *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed* (2010) http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/MS4GuideR3final07_29_10.pdf

Bay Watershed have incorporated numeric on-site retention standards into final or draft regulations or permits.

In addition, this provision is consistent with the 2008 Modified Letter of Agreement to the 2004 Permit⁵⁶ in which the District committed to promulgate stormwater regulations that implement “Low Impact Development”, *i.e.*, measures that infiltrate, evapotranspire and harvest stormwater.

(4.1.2 Code and Policy Consistency, Site Plan Review, Verification and Tracking):
In Region III’s *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed*, EPA emphasized the importance of establishing accountability measures around performance measures. The best standards will not provide the necessary environmental outcomes if they are not properly implemented, and the only way to ensure proper implementation is to ensure that stormwater control measures are properly designed and installed.

Today’s Final Permit requires the District to ensure that all codes and policies are consistent with the standards in the Final Permit, and to establish and maintain adequate site plan review procedures, and a post-construction verification process (such as inspections or submittal of as-builts) to ensure that controls are properly installed.

Ensuring that local codes, ordinances and other policies are consistent with the requirements of the permit is critical element of success. A number local governments attempting to implement green infrastructure measures have found their own local policies to be one of the most significant barriers⁵⁷, *e.g.*, parking codes that require over-sized parking lots, plumbing codes that don’t allow rainwater harvesting for indoor uses, or street design standards that prohibit the use of porous/pervious surfaces. EPA has published a document, the *Water Quality Scorecard*, to assist local governments in understanding and identifying these local policy barriers and also provides options for eliminating them.⁵⁸ EPA is not requiring the District to use the *Scorecard* or any other specific method, but recommends a systematic assessment of local policies in the context of the requirements of the Final Permit in order to comply with the provisions of this Section.

EPA and others have long recognized the importance of site plan review in ensuring that development projects are designed according to standards and regulations, and a verification process following construction that projects were constructed as designed and approved.^{59,60,61,62}

⁵⁶ District Department of Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008)

<http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF>

⁵⁷ National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

⁵⁸ EPA, *Water Quality Scorecard, Incorporating Green Infrastructure Practices and the Municipal, Neighborhood and Site Scales* (2009) http://www.epa.gov/smartgrowth/pdf/2009_1208_wq_scorecard.pdf

⁵⁹ EPA, *Post-Construction Plan Review, Menu of BMPs*
http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=123

Most local governments, including the District, already have some form of site plan review and post-construction verification process for development projects. Today's Final Permit includes them as critical accountability elements of the District stormwater program.

In addition, today's Final Permit requires the District to track volume reductions from all projects. This is a critical element of determining whether wasteload allocations are being achieved.

One commenter noted that EPA had not imposed a clear compliance schedule for this requirement. The Final Permit includes a deadline of the end of the permit term for full compliance with this requirement, acknowledging that updating codes, ordinances and other policies may be a time-consuming process that typically requires consultation and support from elected officials, coordination amongst multiple departments and agencies, e.g., the Office of Planning, the Department of Transportation and the Department of the Environment, as well as public involvement.

(4.1.3 Off-Site Mitigation and/or Fee-in Lieu for all Facilities): Today's Final Permit requires the District to establish a program for Off-site Mitigation and/or Fee-In-Lieu within 18 months of the effective date of the Final Permit. The Final Permit provides the District flexibility to develop a program with either one of those elements or both. Specifically the Permit states:

The program shall include at a minimum:

- 1) Establishment of baseline requirements for on-site retention and for mitigation projects. On-site volume plus off-site volume (or fee-in-lieu equivalent or other relevant credits) must equal no less than the relevant volume in Section 4.1.1;
- 2) Specific criteria for determining when compliance with the baseline requirement for on-site retention cannot technically be met based on physical site constraints, or a rationale for why this is not necessary;
- 3) For a fee-in-lieu program, establishment of a system or process to assign monetary values at least equivalent to the cost of implementation of controls to account for the difference in the performance standard, and the alternative reduced value calculated; and
- 4) The necessary tracking and accounting systems to implement this section, including policies and mechanisms to ensure and verify that the required stormwater practices on the original site and appropriate required off-site practices stay in place and are adequately maintained.

60 Center for Watershed Protection, *Managing Stormwater in Your Community, A Guide for Building an Effective Post-Construction Program* (2008) http://www.cwp.org/documents/cat_view/76-stormwater-management-publications/90-managing-stormwater-in-your-community-a-guide-for-building-an-effective-post-construction-program.html

61 EPA, *MS4 Permit Improvement Guide* (2010) http://www.epa.gov/npdes/pubs/ms4permit_improvement_guide.pdf

62 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

This provision is included in today's Final Permit in acknowledgement that meeting the performance standard in 4.1.1 may be challenging in some situations. The NRC Report noted that an offset system is critical to situations when on-site stormwater control measures are not feasible.⁶³ In cases where a full complement of onsite controls is not feasible, offsite practices should be employed that result in net improvements to watershed function and water quality at the watershed scale. The *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed* contemplates offsets in MS4 programs.⁶⁴ EPA has also articulated expectations in the Chesapeake Bay TMDL that it expects the Bay jurisdictions to account for growth via offset programs that are consistent with Section 10 and Appendix S of the Chesapeake Bay TMDL.⁶⁵

EPA received numerous comments on this provision. No commenter was opposed to an offset program *per se*, but there were various opinions on how it should function. Because there was so much general interest in how this program would be shaped, EPA is responding to these comments by requiring the program be subject to public notice followed by submittal to and review by EPA. EPA believes this provides all of those with an interest in this program the opportunity to provide meaningful input. EPA will also review the program to ensure that it has adequate tracking and enforceability components, and meets the water quality objectives of the Final Permit. It is EPA's expectation that these mechanisms will be described by the permittee in the proposed implementation scheme. EPA emphasizes that accountability measures (*e.g.*, inspections, maintenance, tracking) will be critical to ensure the success of the program, and therefore the District's plan will be closely scrutinized for those measures prior to implementation.

The Final Permit includes an option for the District to include incentives for other environmental objectives, *e.g.*, carbon sequestration, in the offset program. As noted, because of the wide array of opinions EPA feels that consideration of some of these other environmental objectives deserve a full vetting by the community. The District is not required to include any incentives or credits along these lines in the program. If it chooses to do so, anything implemented to achieve those other environmental objectives must be subject to the same level of site plan review, inspection, and operation and maintenance requirements as stormwater controls implemented in fulfillment of other permit requirements.

Finally, for the duration of this permit term, the Final Permit exempts District owned and operated transportation rights-of-way projects from the requirement to mitigate stormwater off-site or pay into a fee-in-lieu program for development projects where the on-site performance standard cannot be met. This decision was based on the District request for short-term relief while the District Department of Transportation develops new stormwater management design, construction, and operation and maintenance processes, protocols, requirements and

63 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

64 EPA, *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed* (2010) http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/MS4GuideR3final07_29_10.pdf

65 EPA, *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment* (2010) <http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html>

specifications for transportation systems and public rights of way. EPA notes that this exemption does not apply to other District owned projects.

(4.1.4 Green Landscaping Incentives Program): Green infrastructure regulatory and incentive programs are becoming common across the country.^{66,67} Landscaping requirements that provide flexibility and a suite of options from which to select appropriate green infrastructure practices and systems, e.g. Seattle's Green Factor⁶⁸, have proven to be quite popular with developers, land owners and municipal officials.

The green landscaping provision is consistent with the 2008 Modified Letter of Agreement to the 2004 Permit⁶⁹ that articulated a long list of specific green infrastructure measures to be implemented, coupled with the commitment by the District to develop green infrastructure policies and incentives. Because these green landscaping provisions fill an important gap in the District's suite of green infrastructure-related policies, EPA specifically identified landscaping as an important area for development of incentives.

Other than general support EPA received little comment on this provision, thus the Final Permit has not been modified from the Draft Permit.

(4.1.5 Retrofit Program for Existing Discharges): Changes in land cover that occurred when urban and urbanizing areas were developed have changed both the hydrology and pollutant loadings to receiving waters and have led to water quality problems and stream degradation. In order to protect and restore receiving waters in and around the District stormwater volume and pollutant loadings from sites with existing development must be reduced. Due to historical development practices, most of these areas were developed without adequate stormwater pollutant reduction or water quality-related controls. To compensate for the lack of adequate stormwater discharge controls in these areas, EPA is requiring the District to include retrofit elements in the stormwater management program.^{70,71,72}

EPA has acknowledged the importance of including retrofit requirements in MS4 permits.^{73,74} The Chesapeake Bay TMDL allocations are founded on the expectation of

66 EPA, *Green Infrastructure Incentive Mechanisms*, Green Infrastructure Municipal Handbook Series, (2009) http://www.epa.gov/npdes/pubs/gi_munichandbook_incentives.pdf

67 EPA, *Green Infrastructure Case Studies: Municipal Policies for Managing Stormwater with Green Infrastructure* (2010) http://www.epa.gov/owow/NPS/lid/gi_case_studies_2010.pdf

68 City of Seattle, *Seattle Green Factor*, <http://www.seattle.gov/dpd/Permits/GreenFactor/Overview/>

69 District Department of Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008) <http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF>

70 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

71 Schueler, Thomas. *Urban Subwatershed Restoration Manual No. 1: An Integrated Framework to Restore Small Urban Watersheds* (2005)

72 EPA, *Green Infrastructure Retrofit Policies*, Managing Wet Weather with Green Infrastructure Municipal Handbook Series (2008) http://www.epa.gov/npdes/pubs/gi_munichandbook_retrofits.pdf

73 EPA, *MS4 Permit Improvement Guide* (2010) EPA 833-R-10-001,

stormwater retrofits in the District (*see* Section 8 of the TMDL⁷⁵), based on actions outlined in the District's final Phase I WIP developed for the Chesapeake Bay TMDL.⁷⁶

EPA received quite a few comments on this set of requirements. Some commenters strongly approved of the retrofit provisions in the Draft Permit, while others expressed concerns.

Today's Final Permit requires the District to develop performance metrics for retrofits, using the performance standard in Section 4.1.1 as the starting point, *i.e.*, if projects can meet the environmental objectives specified in Part 4.1.1 they should. However, understanding the challenges associated with retrofitting some sites, the Final Permit allows that the performance metrics for retrofit projects may vary from the performance standard in 4.1.1, *e.g.*, different requirements may apply to differing sets of circumstances, site conditions or types of projects. EPA believes the most important first step in a robust retrofit program is to set stringent environmental objectives, thus the requirement to develop clear and specific performance standards. EPA fully expects the District to utilize this permit term to develop design, construction and operation and maintenance protocols to meet the requisite performance standards.

Several modifications were made to this provision:

- 1) Because there was so much interest in this provision EPA added a requirement for public notice.
- 2) Because there were so many opinions on how this program should function, EPA removed some of the criteria in the Final Permit to allow the community to shape the program. In exchange EPA included a requirement that the relevant performance metrics be submitted to EPA for review and approval.
- 3) The compliance schedule for development, public notice and submittal to EPA of performance metrics for a retrofit program has been extended from one year to 18 months at the request of the District. EPA believes the additional time will allow better coordination of the offset program with the District's stormwater regulations (also with an 18 month compliance schedule), and allow adequate time for a public notice process and an EPA review.

Also included in the permit is a requirement that the District must work with federal agencies to document federal commitments to retrofitting their properties. Consistent with Executive Order 13508 on the Chesapeake Bay, the federal strategies developed pursuant thereto, and in fulfillment of the Chesapeake Bay TMDL, federal agencies have obligations to

http://www.epa.gov/npdes/pubs/ms4permit_improvement_guide.pdf

⁷⁴ EPA, *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed* (2010) http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/MS4GuideR3final07_29_10.pdf

⁷⁵ EPA, *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment* (2010) <http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html>

⁷⁶ District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010)

http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Columbia_WIP_Bay_TMDL.pdf

implement substantive stormwater controls. In order to accurately account for loads from federal lands that discharge through the District MS4 system, the District needs to be able to track the pollutant reductions resulting from federal actions. To do so the District will need to identify federal facilities and properties and work with federal agencies to identify retrofit opportunities on federal lands and properties and track progress in retrofitting these lands and properties.

In addition, the Final Permit requires the District to make pollutant load and volume reduction estimates for all retrofit projects for the nine pollutants in Table 4, and by each of the major District watersheds (Anacostia River, Rock Creek, Potomac River).

The Final Permit requires the District to implement retrofits to manage runoff from 18,000,000 square feet of impervious surfaces during the permit term. Of that total, 1,500,000 square feet must be in transportation rights-of-way. Although these initial drainage area objectives are not especially aggressive, EPA believes that a strong foundation for the retrofitting program must first be established. EPA can then set more aggressive drainage area objectives in subsequent permits. In its comments on the Draft Permit the District contended that the requirement in the Draft Permit for the retrofitting of 3,600,000 square feet of impervious surfaces in transportation rights-of-way was more than it could accomplish in a single permit term. The District suggested 1,500,000 square feet, almost 60% less than what was required in the Draft Permit would be achievable. In consideration of these comments, the total square footage of retrofitted impervious surfaces that must be in transportation rights-of-way is 1,500,000 square feet. EPA notes that the total square footage retrofit requirement is unchanged. EPA believes that this requirement will establish a strong foundation for the implementing a retrofitting program overall and in transportation rights-of-way, which can be followed in subsequent permits with more aggressive drainage area objectives. In addition, the Final Permit includes an additional provision that is intended to enhance the District's retrofit opportunities (*see* next paragraph).

The Final Permit establishes a requirement for the District to adopt and implement stormwater retention requirements for properties where less than 5,000 square feet of soil is being disturbed but where the buildings or structures have a footprint that is greater than or equal to 5,000 square feet and are undergoing substantial improvement. Substantial improvement, as consistent with District regulations at 12J DCMR § 202, is any repair, alteration, addition, or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. Although this specific element was not included in the Draft Permit, it reflects the fact that the District has already considered this provision in their proposed stormwater regulations, and is consistent with the overall retrofit approach in the Draft Permit. Both the District and EPA believe this will promote retrofitting on smaller sites that would not otherwise be subject to the performance standard in the stormwater regulations.

This section of the Final Permit also requires the District to ensure that every major renovation/ rehabilitation project for District-owned properties within the inventory of Department of Real Estate Services (DRES) and Office of Public Education Facilities Modernization (OPEFM) includes on-site retention measures to manage stormwater. This

requirement is based in part on EPA's understanding that these two agencies have control over most District buildings and renovation projects in the District. This provision was in Section 4.2 Operation and Maintenance of Stormwater Capture Practices of the Draft Permit, and was moved to Section 4.1.5 of the Final Permit since it is a retrofit requirement rather than a maintenance requirement.

(4.1.6 Tree Canopy): Several studies have documented the capacity for planting additional trees in the District and quantified the benefits.^{77,78,79,80} The District commitments to the tree planting requirements of the Final Permit are documented in the 2008 Modified Letter of Agreement to the 2004 Permit,⁸¹ and the District's Chesapeake Bay TMDL WIP.⁸² The number was derived from the District Urban Tree Canopy Goal⁸³ of planting 216,300 trees over the next 25 years, an average of 8,600 trees per year District-wide. Adjusting this number for the MS4 area of the District, the Final Permit requires the District to develop a strategy to plant new trees at a rate of at least 4,150 annually.

There was some interest from commenters in providing input to the tree canopy strategy, thus the Final Permit includes a requirement for the District to public notice this strategy. Also, in response to several comments, EPA has clarified the annual number as a net increase in order to account for mortality.

(4.1.7 Green Roof Projects): Quite a few studies have documented the water quality benefits of green roofs.^{84,85,86} The Green Build-out Model, a project specifically carried out to

77 Casey Trees, *The Green Build-out Model: Quantifying the Stormwater Management Benefits of Trees and Green Roofs in Washington, DC* (2007) (<http://www.caseytrees.org/planning/greener-development/gbo/index.php>).

78 University of Vermont and the U.S. Forest Service, *A Report on Washington D.C.'s Existing and Potential Tree Canopy* (2009) <http://www.caseytrees.org/geographic/key-findings-data-resources/urban-tree-canopy-goals/documents/UnivofVermontUTCReport4-17-09.pdf>

79 Casey Trees, et al. *See several District tree inventories:* <http://www.caseytrees.org/geographic/tree-inventory/community/index.php>

80 Casey Trees, *The Green Build-out Model: Quantifying the Stormwater Management Benefits of Trees and Green Roofs in Washington, D.C.* (2007) http://www.caseytrees.org/planning/greener-development/gbo/documents/GBO_Model_Full_Report_20051607.pdf

81 District Department of Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008) <http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF>

82 District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010) http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Columbia_WIP_Bay_TMDL.pdf

83 Casey Trees, *Urban Tree Canopy Goal website:* <http://www.caseytrees.org/geographic/key-findings-data-resources/urban-tree-canopy-goals/index.php>

84 EPA, *Green Roofs for Stormwater Runoff Control* (2009) <http://www.epa.gov/nrmrl/pubs/600r09026/600r09026.pdf>

85 E. Oberndorfer et al, *Green Roofs as Urban Ecosystems: Ecological Structures, Functions, and Services* (2007) *BioScience* 57(10):823-833 <http://www.bioone.org/doi/full/10.1641/B571005>

86 M. Hathaway, W.F. Hunt, G.D. Jennings, *A Field Study of Green Roof Hydrologic and Water Quality Performance* (2008) *Transactions of American Society of Agricultural and Biological Engineers*, Vol. 51(1): 37-44 <http://www.bae.ncsu.edu/people/faculty/jennings/Publications/ASABE%20Hathaway%20Hunt%20Jennings.pdf>

evaluate the potential in the District for using green roofs and other green infrastructure measures to reduce flows and pollutants from the District's wet weather systems, documented significant opportunities for green roof implementation.⁸⁷

The District commitments to green roof implementation are documented in the 2008 Modified Letter of Agreement to the 2004 Permit,⁸⁸ and the District Chesapeake Bay TMDL Watershed Implementation Plan.⁸⁹ The District is required to evaluate the feasibility of installing green roofs on District-owned buildings, and to install at least 350,000 square feet of green roof during the permit term.

(4.2 Operation and Maintenance of Retention Practices): Operation and maintenance, required pursuant to 40 C.F.R. 122.26(d)(2)(iv)(A)(1) and (3), is critical for the continued performance of stormwater control measures.^{90,91} EPA has consistently noted the importance of operation and maintenance in regulatory guidance.^{92,93,94} Today's Final Permit requires the District to ensure adequate maintenance of all stormwater control measures, both publicly and privately owned and operated.

The District has two years from the effective date of the Final Permit to develop and implement operation and maintenance protocols for all District owned and operated stormwater management practices. The District is also required to provide regular and ongoing training to all relevant contractors and employees.

The District is required to develop operation and maintenance mechanisms to ensure that stormwater practices are maintained and operated to meet the objectives of the program and that they continue to function over multiple permit cycles to provide the water quality benefits intended by design. Such mechanisms may include deed restrictions, ordinances and/or maintenance agreements to ensure that all non-District owned and operated stormwater control measures are adequately maintained. In addition the District must develop and/or refine

87 Casey Trees, *The Green Build-out Model: Quantifying the Stormwater Management Benefits of Trees and Green Roofs in Washington, D.C.* (2007) http://www.caseytrees.org/planning/greener-development/gbo/documents/GBO_Model_Full_Report_20051607.pdf

88 District Department of Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008) <http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF>

89 District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010) http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Columbia_WIP_Bay_TMDL.pdf

90 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

91 EPA Website: Stormwater Control Operation and Maintenance. <http://www.epa.gov/owow/NPS/ordinance/stormwater.htm>

92 EPA, *MS4 Permit Improvement Guide* (2010) EPA 833-R-10-001, http://www.epa.gov/npdes/pubs/ms4permit_improvement_guide.pdf

93 EPA, *MS4 Program Evaluation Guidance* (2007) EPA-833-R-07-003, http://www.epa.gov/npdes/pubs/ms4guide_withappendixa.pdf

94 EPA, *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed*, (2010) http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/MS4GuideR3final07_29_10.pdf

verification mechanisms, such as inspections, and an electronic inventory system to ensure the long-term integrity of stormwater controls in the District.

In addition the District is required to develop a Stormwater Management Guidebook and associated training within eighteen months of the effective date of the Final Permit. This requirement is based on commitments in the 2008 Modified Letter of Agreement to the 2004 Permit⁹⁵. Completion of the Guidebook has been delayed pending finalization of the District's revised stormwater regulations. However EPA expects Guidebook completion to parallel finalization of the District's revised stormwater regulations, which incorporate the standards and requirements of the Final Permit.

(4.3 Management of District Government Areas): Requirements in this section of the Final Permit largely continue provisions in the 2004 Permit. EPA received few comments on most elements of this section of the Draft Permit. The following revisions were made:

- 1) The District now must notify not only public health agencies within 24-hours in the event of a sanitary sewer overflow, but also ensure adequate public notification procedures within that same time period (Section 4.3.1 of the Final Permit). EPA emphasizes that this provision in no way authorizes sanitary sewer overflow discharges either directly or via the MS4. Those discharges are expressly prohibited.
- 2) Within 18 months of the effective date of the Final Permit, the District shall complete, public notice and submit to EPA for review and approval a plan for optimal catch basin inspections, cleaning and repairs. The District shall fully implement the plan upon EPA approval. This revision is based on comments that the catch basin maintenance provisions on the Draft Permit were vague and not within the context of a comprehensive plan (Section 4.3.5.1 of the Final Permit).
- 3) Section 3.2 of the Draft Permit required the District to update its outfall inventory. One commenter noted that the District's 2006 Outfall Survey had already essentially accomplished this, and that meanwhile many of these outfalls were in severe disrepair, thus contributing to increased sediment loading to receiving waters. EPA agrees this is a serious concern, and has thus modified the Final Permit to require the District to undertake the following: within 18 months of the effective date of the Final Permit, and consistent with the 2006 Outfall Survey, the District shall complete, public notice and submit to EPA for review and approval an outfall repair schedule to ensure that approximately 10% of all outfalls needing repair are repaired annually, with the overall objective of having all outfalls in good repair by 2022 (Section 4.3.5.3 of the Final Permit).
- 4) Consistent with the District's *Enhanced Street Sweeping and Fine Particle Removal Strategy*,⁹⁶ an additional element has been included in Table 3, Street Sweeping. The

⁹⁵ District Department of Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008)
<http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF>

⁹⁶ District Department of the Environment, *Municipal Separate Storm Sewer System Program Annual Report* (2010)

table now documents that environmental hotspots in the Anacostia River Watershed will now be swept at least two times per month from March through October.

(4.6 Management of Construction Activities): Requirements in this Section of the Final Permit largely continue provisions in the 2004 Permit. Several commenters suggested that these provisions needed to be significantly improved, including specifying more stringent effluent limitations, in order to address the impairments attributable to sediment.

While permitting authorities have a fair amount of latitude to modify many elements of a permit based on public comments, inclusion of a *de novo* numeric effluent limitation, when neither the Draft Permit nor the Draft Fact Sheet suggested such an option would require further public notice. Therefore, this Final Permit does not include a numeric effluent limitation for sediment discharged in stormwater from active construction sites.

However, EPA agrees that construction activities cause serious water quality problems, and has revised this section to require more robust oversight of construction stormwater controls. A significant cause of water quality problems caused by construction activities is the failure of construction site operators to comply with existing regulations. Thus, EPA expects increased inspections and enforcement activity to result in improved compliance and therefore reduced sediment loads.⁹⁷ Therefore the Final Permit includes construction site inspection frequency requirements to ensure compliance with the District erosion and sediment requirements.

(4.8 Flood Control Projects): Requirements in this Section of the Final Permit largely continue provisions in the 2004 Permit. EPA received few comments on this section. The following revision was made: a start date of six months after the effective date of the Final Permit was added for the requirement to collect data on the percentage of impervious surface area located in flood plain boundaries for all proposed development.

(4.10 Total Maximum Daily Load (TMDL) Wasteload Allocation (WLA) Planning and Implementation): There are several TMDLs with wasteload allocations that either directly or indirectly affect the District's MS4 discharges. The following are those that EPA has determined to be relevant for purposes of implementation via the Final Permit:

1. TMDL for Biochemical Oxygen Demand (BOD) in the Upper and Lower Anacostia River (2001)
2. TMDL for Total Suspended Solids (TSS) in the Upper and Lower Anacostia River (2002)
3. TMDL for Fecal Coliform Bacteria in the Upper and Lower Anacostia River (2003)
4. TMDL for Organics and Metals in the Anacostia River and Tributaries (2003)
5. TMDL for Fecal Coliform Bacteria in Kingman Lake (2003)
6. TMDL for Total Suspended Solids, Oil and Grease and Biochemical Oxygen Demand in Kingman Lake (2003)

⁹⁷ EPA, *Office of Enforcement and Compliance Assurance Accomplishments Report* (2008)
<http://www.epa.gov/compliance/resources/reports/accomplishments/oeca/fy08accomplishment.pdf>

7. TMDL for Fecal Coliform Bacteria in Rock Creek (2004)
8. TMDL for Organics and Metals in the Tributaries to Rock Creek (2004)
9. TMDL for Fecal Coliform Bacteria in the Upper, Middle and Lower Potomac River and Tributaries (2004)
10. TMDL for Organics, Metals and Bacteria in Oxon Run (2004)
11. TMDL for Organics in the Tidal Basin and Washington Ship Channel (2004)
12. TMDL for Sediment/Total Suspended Solids for the Anacostia River Basin in Maryland and the District (2007) [pending resolution of court vacature, Anacostia Riverkeeper, Inc. v. Jackson, No. 09-cv-97 (RCL)]
13. TMDL for PCBs for Tidal Portions of the Potomac and Anacostia Rivers in the District of Columbia, Maryland and Virginia (2007)
14. TMDL for Nutrients/Biochemical Oxygen Demand for the Anacostia River Basin in Maryland and the District (2008)
15. TMDL for Trash for the Anacostia River Watershed, Montgomery and Prince George's Counties, Maryland and the District of Columbia (2010)
16. TMDL for Nitrogen, Phosphorus and Sediment for the Chesapeake Bay Watershed (2010)

On July 25, 2011, in connection with a challenge by the Anacostia Riverkeeper and other environmental organizations, the U.S. District Court for the District of Columbia vacated EPA's approval of a total maximum daily load (TMDL) for sediment in the Anacostia River. While the court ruled in EPA's favor on a number of issues of significant importance to the TMDL program and that the TMDL adequately would achieve the designated aquatic life use, the court held that EPA's decision record did not adequately support EPA's determination that the TMDL would lead to river conditions that would support the primary (swimming) and secondary (boating) contact recreation and aesthetic designated uses. Based on its holding regarding the recreational and aesthetic uses, the court vacated the TMDL, but stayed its vacatur for one year to give EPA sufficient time to address the court's concerns. This TMDL is included in the above list (#12), because EPA expects this vacatur to be resolved within the time frame for TMDL efforts outlined in this permit. However, District planning and implementation efforts on this TMDL are not required until such time as the legal challenge is resolved and the TMDL is established.

Most EPA developed TMDLs for the District, as well as all District developed and EPA approved TMDLs can be found at the following website:

http://www.epa.gov/reg3wapd/tmdl/dc_tmdl/index.htm.

The Chesapeake Bay TMDL for nitrogen, phosphorus and sediment is available at:

<http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html>.

The District also has a number of TMDL-related documents on its website:

<http://ddoe.dc.gov/ddoe/cwp/view,a,1209,q,495456.asp>.

In addition, the tidal Anacostia River is listed as impaired for TSS and BOD, and the Upper Potomac River is listed as impaired for pH. TMDL establishment by EPA is pending for both.

As part of permit reissuance EPA has reviewed several existing TMDL implementation plans, including those for the Potomac River, Anacostia River and Rock Creek. EPA has identified the relevant implementation actions from those Plans and included them as requirements of the Final Permit, *e.g.*, green roofs, tree plantings. This approach provides more clarity for the District and the general public, and is also consistent with the obligation of NPDES permit writers to articulate enforceable provisions in permits to implement TMDL WLAs.

EPA took the same approach with the Anacostia River Watershed Trash TMDL⁹⁸ (Trash TMDL) (Part 4.10.1 of the Final Permit), which was finalized in September 2010. This TMDL was well-developed with quantifiable information about the sources and causes of impairment. The Trash TMDL assigned a specific WLA to MS4 discharges: removal of 103,188 pounds of trash annually. The Final Permit requires the District to attain this WLA as a specific single-year measure by the fifth year of this permit term. The Final Permit provision is based on the annual trash WLA for the District MS4. In the TMDL, annual WLAs were divided by 365 days to obtain daily WLAs. Given the fact that the daily and annual WLAs are congruent with each other, use of the annual WLA as the permit metric is consistent with the assumptions and requirements of the TMDL and is a more feasible measure for monitoring purposes.

Because the Anacostia River Watershed Trash TMDL provided a solid foundation for action, EPA determined the implementation requirements and included them in the Final Permit rather than require the District to develop a separate implementation plan. The Permit requires the District to determine a method for estimating trash reductions and submit that to EPA for review and approval within one year of the effective date of the Final Permit. In addition, the District must annually report the trash prevention/removal approaches utilized, and the overall total weight (in pounds) of trash captured for each type of approach.

On December 29, 2010, the U.S. Environmental Protection Agency established the Chesapeake Bay TMDL⁹⁹ to restore clean water in the Chesapeake Bay Watershed. The TMDL identifies the necessary reductions of nitrogen, phosphorus and sediment from Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia that, when attained, will allow the Bay to meet applicable water quality standards. EPA based the TMDL allocations, where possible, on information provided by the Bay jurisdictions in their final Phase I WIPs. The TMDL requires the Bay jurisdictions to have in place by 2017 the necessary controls to attain 60% of the reductions called for in the TMDL, and to have all controls in place by 2025. EPA has committed to hold jurisdictions accountable for results along the way, including ensuring that NPDES permits contain provisions and limits that are consistent with the assumptions and requirements of the relevant WLAs.

98 Maryland Department of the Environment and District of Columbia Department of Environment, *Total Maximum Daily Loads of Trash for the Anacostia River Watershed, Montgomery and Prince George's Counties, Maryland and the District of Columbia* (2010) <http://www.epa.gov/reg3wapd/pdf/AnacostiaTMDLPortfolio.pdf>

99 EPA, *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment* (2010) <http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html>

The District’s final Phase I Chesapeake Bay WIP proposed very aggressive targets for pollutant reductions in its MS4 program.

Pollutant of Concern	% Reductions in Urban Runoff Loads by 2025 from 2009 Baseline	Reductions in Urban Runoff Loads by 2025 from 2009 Baseline
Total Nitrogen	17	29,310 lbs/yr
Total Phosphorus	33	7,740 lbs/yr
Sediment	35	2,192 tons/yr

These numbers are from the District’s final input deck to the Chesapeake Bay Model in association with the final Phase I WIP.

The Final Permit requires a very robust set of measures, based on a determination that these measures are necessary to ultimately achieve the specified reductions. EPA took a similar approach with the Chesapeake Bay TMDL as it did with the aforementioned TMDLs, and incorporated specific implementation measures into the Final Permit. Although EPA did not finalize the Chesapeake Bay TMDL until December 2010, EPA had a reasonably clear understanding of what would be needed even prior to publishing the Draft Permit because of the significant amount of data, modeling output and other information available in advance of its finalization, as well as many months of ongoing discussions with the District about the elements of its final Phase I WIP.¹⁰⁰ Based on the final TMDL, EPA is assured that the Final Permit is consistent with the assumptions and requirements of the WLAs in the TMDL.

In partial fulfillment of attaining the Chesapeake Bay WLAs, the Final Permit contains: a new performance standard for development, a requirement for an offset program for development, numeric requirements for tree plantings and green roof installation, numeric requirements for retrofits, and a variety of other actions. The relevant sections of this Final Fact Sheet discuss those provisions more fully.

There will be two additional permit terms prior to 2025 during which the District will implement many additional and/or more robust measures to attain its Bay TMDL WLAs. Provisions, targets and numeric thresholds in this Final Permit are not necessarily the ones that will be included in subsequent permits. EPA believes, however, that the 2011 Final Permit sets the foundation for a number of actions and policies upon which those future actions will be based.

Section 4.10.2 of the Final Permit requires the District to implement and complete the proposed replacement/rehabilitation, inspection and enforcement, and public education aspects of the strategy for Hickey Run to satisfy the applicable oil and grease TMDL wasteload allocations. In addition, the District is required to install end-of-pipe management practices at four identified outfalls to address oil and grease and trash in Hickey Run no later than the end of this permit term. Implementation requirements to attain these WLAs were initiated during prior

100 District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010)
http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Columbia_WIP_Bay_TMDL.pdf

permit terms. The requirements of today's Final Permit are intended to bring the District to the concluding stages of attaining the Hickey Run oil and grease and trash WLAs.

The 2003 District of Columbia TMDL for oil and grease in the Anacostia River noted that the waterbody was no longer impaired by oil and grease. In particular data from Hickey Run, which provided the basis for listing the Anacostia River as an impaired water body, had demonstrated consistent compliance with applicable water quality standards for oil and grease: for twenty-one samples taken in Hickey Run between January and December 2002, no values exceeded the 10mg/L standard, and only one sample exceeded a 5 mg/L detection limit value. The 2003 TMDL further concluded that on-going implementation activities, which included public education and automobile shop enforcement actions, caused a significant decrease in ambient pollutant concentrations.¹⁰¹ The Final Permit includes a provision for additional controls on oil and grease in Hickey Run should monitoring during this permit term indicate it is necessary. However, per the demonstration noted above, EPA believes it likely this may not be necessary.

One commenter indicated that the shift from an aggregate numeric effluent limit for four outfalls into Hickey Run in the 2004 permit to a management practice-based approach in the Draft Permit violated the Clean Water Act's prohibition against backsliding, section 402(o)(1) of the CWA, 33 U.S.C. § 1342(o)(1) (“[A] Permit may not be renewed, reissued, or modified ... subsequent to the original issuance of such Permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous Permit”). In response, EPA notes that a non-numeric effluent limitation is not automatically less stringent than a numeric effluent limitation. A different (numeric or non-numeric) effluent limitation only violates the anti-backsliding prohibition if it can be fairly compared to the prior numeric limit and found to be less stringent than that requirement. *See e.g., Communities for a Better Environment v. State Water Resources Control Bd.*, 132 Cal. App. 4th 1313 (August 29, 2005) (finding that no backsliding had occurred where the effluent limit in existing permit was not “comparable” to WQBEL in previous permit). In this case EPA 1) notes that additional controls on oil and grease may not be needed (as explained above), and 2) has determined regardless that compliance with the performance standards in the Final Permit will result in improved water quality protections for the District MS4 receiving streams more effectively than did the previous numeric effluent limitations (see discussions in relevant sections).

Section 4.10.3 of today's Final Permit requires the District to develop a Consolidated TMDL Implementation Plan (Consolidated Plan) for all TMDL wasteload allocations assigned to District MS4 discharges. All applicable WLAs must be considered in this plan, though the TMDLs listed at the beginning of this Section form the basis for District action to meet this requirement. EPA has evaluated these TMDLs along with existing water quality data and has concluded that *E. coli*, total nitrogen, total phosphorus, total suspended solids, copper, lead, zinc and trash are critical pollutants of concern for District waters, and should be the focus of implementation measures as well as of a revised monitoring program (*see* Section 5.1 for a

¹⁰¹ District of Columbia, *Final Total Maximum Daily Load for Oil and Grease in the Anacostia River* (2003) http://www.epa.gov/reg3wapd/tmdl/dc_tmdl/AnacostiaRiver/AnacoatiaOilReport.pdf

discussion of the latter).

The rationale for a Consolidated Plan is to allow for more efficient implementation of control measures. In many cases TMDLs have been developed on a stream segment basis, which is not always the most logical framework for implementation of controls. In addition, the solutions for reducing many pollutants and/or improving water bodies will be the same stormwater control measures and/or policies, and it would be wasteful of resources and duplicative to have separate implementation plans under those circumstances.

The Final Permit requires the Consolidated Plan to include:

- 1) Specified schedules for attaining applicable wasteload allocations for each TMDL; such schedules must include numeric benchmarks that specify annual pollutant load reductions and the extent of control actions to achieve these numeric benchmarks.
- 2) Interim numeric milestones for TMDLs where final attainment of applicable wasteload allocations requires more than one permit cycle. These milestones shall originate with the third year of this permit term and every five years thereafter.
- 3) Demonstration using modeling of how each applicable WLA will be attained using the chosen controls, by the date for ultimate attainment.
- 4) The Consolidated TMDL Implementation Plan elements required in this section will become enforceable permit terms upon approval of such Plans, including the interim and final dates in this section for attainment of applicable WLAs.
- 5) Where data demonstrate that existing TMDLs are no longer appropriate or accurate, the Plan shall include recommended solutions, including, if appropriate, revising or withdrawing TMDLs.

Some of the applicable TMDLs developed within the District were based on limited or old data. In those cases the District may choose to reevaluate these waters and impairments to determine if revising or withdrawing the TMDL, or other action, would be appropriate.

The District has two years from the date of Final Permit issuance to develop, public notice and submit the Consolidated Plan to EPA for review and approval. EPA believes the required elements (1-5, above) will ensure clarity and enforceability, but also encourages interested parties to participate in the public process. EPA added this public notice requirement to the Final Permit because of the significant interest expressed by commenters on District TMDLs.

Section 4.10.4, Adjustments to TMDL Implementation Strategies, requires the District to make mid-course improvements to implementation measures and policies whenever data indicate insufficient progress towards attaining any relevant WLA. The District must adjust its management programs to compensate for the inadequate progress within 6 months, and document the modifications in the Consolidated TMDL Implementation Plan. The Plan modification shall include a reasonable assurance demonstration of the additional controls to achieve the necessary reductions, *i.e.*, quantitatively linking sources and causes to discharge

quality. In addition, annual reports must include a description of progress as evaluated against all implementation objectives, milestones and benchmarks, as relevant.

Finally, with respect to any new or revised TMDL that may be approved during the permit term, the Final Permit makes allowances for reopening the permit to address those WLAs (see Section 8.19 of the Final Permit: Reopener Clause for Permits), if necessary. EPA believes that reopening the permit will not typically be necessary since the Final Permit requires the District to update the Consolidated Plan within six months for any TMDL approved during the permit term with wasteload allocations assigned to District MS4 discharges, and also to include a description of revisions in the next regularly scheduled annual report.

(4.11 Additional Pollutant Sources): Requirements in this Section of the Final Permit largely continue provisions in the 2004 Permit. EPA notes that the provisions of this section were mostly included in Section 3 of the Draft Permit.

5. MONITORING AND ASSESSMENT OF CONTROLS

(5.1 Revised Monitoring Program): As included in the Draft Permit, the monitoring requirements for the District's stormwater program have been significantly updated from the last permit cycle. This revision reflects the fact that the District has already performed broad monitoring of a variety of parameters over the last two permit cycles. The Phase I stormwater regulations require representative sampling for the purpose of discharge characterization in the first permit term, or initial years of the program (40 C.F.R. §122.26(d)(1)(iv)(E)). The District now has a decade worth of this type of data, and it is timely to update the monitoring program to more effectively evaluate the effectiveness of the program, and to more effectively and efficiently use the District's funds for this purpose. As noted in the National Research Council's report *Urban Stormwater Management in the United States*¹⁰², the quality of stormwater from urbanized areas has been well-characterized. Continuing the standard end-of-pipe monitoring typical of most MS4 programs has produced data of limited usefulness because of a variety of shortcomings (as detailed in the report). The NRC Report strongly recommends that MS4 programs modify their evaluation metrics and methods to include biological and physical monitoring, better evaluations of the performance/effectiveness of controls and overall programs, and an increased emphasis on watershed scale analyses to ascertain what is actually going on in receiving waters. The report also emphasizes the link between study design and the ability to interpret data, *e.g.*, having enough samples to ensure that conclusions are statistically significant.

Consistent with these goals, the Final Permit requires the District to develop a Revised Monitoring Program to meet the following objectives:

- 1) Make wet weather loading estimates of the parameters in Table 4 from the MS4 to receiving waters. Number of samples, sampling frequencies and number and locations of

¹⁰² National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

- sampling stations must be adequate to ensure data are statistically significant and interpretable.
- 2) Evaluate the health of the receiving waters, to include biological and physical indicators such as macroinvertebrates and geomorphologic factors. Number of samples, frequencies and locations must be adequate to ensure data are statistically significant and interpretable for long-term trend purposes (not variation among individual years or seasons).
 - 3) Any additional necessary monitoring for purposes of source identification and wasteload allocation tracking. This strategy must align with the Consolidated TMDL Implementation Plan required in Part 4.10.3 For all pollutants in Table 4 monitoring must be adequate to determine if relevant WLAs are being attained within specified timeframes in order to make modifications to relevant management programs, as necessary.

The Final Permit requires the District to public notice the Revised Monitoring Program, and to submit it to EPA for review and approval within two years of the effective date of the Final Permit.

EPA also significantly refined the list of required pollutant analytes/parameters for which monitoring is required from over 120 to 9:

(Table 4 from the Final Permit)
Monitoring Parameters

Parameter
<i>E. coli</i>
Total nitrogen
Total phosphorus
Total Suspended Solids
Cadmium
Copper
Lead
Zinc
Trash

These parameters are those for which relevant stormwater wasteload allocations exist, or (in the case of cadmium) where monitoring data indicate that the pollutant is occurring in discharges at concentrations and frequencies to consider it a pollutant of concern. End-of-pipe analytical monitoring is an expensive undertaking, and EPA feels strongly that the District's water quality-related evaluations will be much more robust and actionable with an enhanced focus on true pollutants of concern, along with the elimination of analytes for which monitoring routinely shows non-detect concentrations, and/or those to which notable water quality problems have not been linked.

One modification has been made to this list for the Final Permit from the Draft Permit.

The Draft Permit required evaluation of Trash reductions in the relevant sections for the Anacostia River Watershed Trash TMDL (4.10.1), but failed to include it in Table 4 (Table 3 of the Draft Permit). EPA has added trash as a monitoring parameter to this table to correct that oversight.

(5.2 Interim Monitoring): During the interim period from the effective date of the Final Permit until EPA approves the Revised Monitoring Program, the Final Permit requires the District to largely continue the monitoring program established and updated under the 2000 and 2004 permits, except the monitoring program is only required for the list of monitoring parameters in Table 4, which has been reduced to the nine parameters as discussed above.

EPA received several comments and questions on the interim monitoring requirements. Individual responses are included in the Responsiveness Summary published with the Final Permit and this Final Fact Sheet. EPA chose to not modify the interim monitoring provisions for the Final Permit because: 1) they are largely an extension of the same requirements and methods already approved and established under prior permits, which will ensure that data collected during the interim monitoring period are comparable to data collected during the past decade, thus providing “apples to apples” comparisons in data interpretation; and 2) EPA believes that the District’s monitoring-related resources are more effectively spent developing a robust revised program, rather than revising the interim program.

(5.4 Area and/or Source Identification Program): The Final Permit provides that “[t]he permittee shall continue to implement a program to identify, investigate, and address areas and/or sources within its jurisdiction that may be contributing excessive levels of pollutants to the MS4 and receiving waters, including but not limited to those pollutants identified in Table 4 herein.” This is identical in substance to section 5.5 in the Draft Permit and essentially continues the requirements from the 2004 MS4 Permit. EPA received a comment that this provision has been inadequate to identify sources contributing pollutants to MS4 discharges. EPA recognizes that this provision is general, but believes that the District’s ongoing practices are sufficient during the interim monitoring period. EPA notes that the Final Permit requires the Revised Monitoring Program to include any additional necessary monitoring for purposes of source identification and wasteload allocation tracking. The public will have a chance to comment on the proposed objectives and methods in Plan, and EPA will review and approve this Plan. Therefore there will be several opportunities to ensure that the District has robust methods for identify additional pollutant inputs to District MS4 discharges.

(5.7 Reporting of Monitoring Results): In response to several comments, and because of the potential availability of electronic reporting in the future, EPA made several modifications to this Section of the Final Permit. When available the District may submit monitoring data through NetDMR, a national tool for regulated Clean Water Act permittees to submit discharge monitoring reports (DMRs) electronically via a secure Internet application to EPA. *See* <http://www.epa.gov/netdmr/>. However, if this system is not available to the National Marine Fisheries Service, then the District must continue to submit hard copies. The Final Permit eliminates the requirement for the District to submit monitoring reports to itself. This section

clarifies (consistent with Section 6.2) that all monitoring results from a given year be summarized in the following annual report.

6. REPORTING REQUIREMENTS

Permit reporting is required pursuant to 40 C.F.R. § 122.41(l). EPA has made a number of minor edits to this section primarily for the purposes of: maintaining consistency with other Sections of the Final Permit (as those provisions necessitated changes in reporting, the Final Fact Sheet discusses those changes in association with the relevant Section); eliminating redundancy; and to provide clarification.

(6.2 Annual Reporting): Consistent with comments from a number of commenters regarding public access to documents, today's Final Permit requires the District to post each Annual Report on its website at the same time the Report is submitted to EPA.

The separate 'Reporting on Funding' in the Draft Permit has been eliminated in the Final Permit because it was largely redundant with other reporting requirements, and because it was beyond the scope of what is needed from the District. The Final Permit requires annual reporting on projected costs and budget for the coming year as well as expenditures and budget for the prior year, including (i) an overview of the District's financial resources and budget, (ii) overall indebtedness and assets, (iii) sources for funds for stormwater programs, and (iv) a demonstration of adequate fiscal capacity to meet the permit requirements. However, EPA has concluded that additional detail would be superfluous. In addition, beyond a demonstration of basic budget considerations as outlined in the Final Permit, how the District chooses to allocate resources to comply with the permit is an internal decision.

EPA has also included a provision for an Annual Report Meeting in this permit in order to improve communication between the District and the Agency. This meeting will provide an opportunity for EPA to obtain more in-depth knowledge of the District's program, and should also enhance feed-back on the program. The permit requires the District to convene the first Annual Report Meeting within 12 months of issuance of the permit. If both parties agree that this first meeting was successful, the Annual Report meeting shall be extended for the duration of the permit term.

7. STORMWATER MODEL

The Stormwater Model and associated Geographical Information System are tools used by the District to help track and evaluate certain components of the water quality program. The Final Permit requires the use and maintenance of this system as a component of the District's Stormwater Management Program. There were no modifications to this Section between the Draft Permit and the Final Permit.

8. STANDARD PERMIT CONDITIONS FOR NPDES PERMITS

The provisions in Part 8 are requirements generally applicable to all NPDES permits, pursuant to 40 C.F.R. § 122.41, as well as other applicable conditions pursuant to § 122.49 and specific statutory or regulatory provisions as noted in the permit. No changes were made to this section of the permit.

9. PERMIT DEFINITIONS

Most changes to this section from the Draft Permit consist of minor clarifications. In addition, several terms were eliminated from this section because they do not appear elsewhere in the Final Permit: ‘goal’, ‘internal sampling station’, ‘significant spills’, and ‘significant materials’. The definition of ‘MS4 Permit Area’ was removed because it is already defined in Part 1.1.

A definition of “development” was added to clarify that development is “the undertaking of any activity that disturbs a surface area greater than or equal to 5,000 square feet.” The definition further clarifies that the relevant performance standard for development applies to projects that commence after 18 months from the effective date of the Final Permit or as soon as the District’s stormwater regulations go into effect, whichever is sooner.

The definition of ‘green roof’ was modified to allow for the fact that some types of ecoroofs may be constructed without vegetation or soil media.

The definition of “retrofit” was modified to focus on environmental outcomes, *i.e.*, reductions in discharge volumes and pollutant loads and improvements in water quality, rather than implementation of conveyance measures.

The definition of “predevelopment hydrology” was enhanced to clarify that the phrase refers to a “stable, natural hydrologic site condition that protects or restores to the degree relevant for that site, stable hydrology in the receiving water, which will not necessarily be the hydrologic regime of that receiving water prior to any human disturbance in the watershed.” This definition is consistent with several seminal publications on the topic including *Urban Stormwater Management in the United States*¹⁰³ and references therein, *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act*¹⁰⁴, and *Guidance for Federal Land Management in the Chesapeake Bay Watershed*¹⁰⁵, issued in fulfillment of Part 502 of E.O. 13508.

103 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

104 EPA, *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act* (2009) http://www.epa.gov/owow_keep/nps/lid/section438/

105 EPA, *Guidance for Federal Land Management in the Chesapeake Bay Watershed*, Chapter 3. Urban

RELATIONSHIP TO NON-POINT SOURCE PROGRAM:

It should be noted that the measures required by the Permit are separate from those projects identified in the District's EPA-approved Non-Point Source Management Plan as being funded wholly or partially by funds pursuant to Section 319(h) of the Clean Water Act. See Section 3 of Permit ("These Permit requirements do not prohibit the use of 319(h) funds for other related activities that go beyond the requirements of this Permit, nor do they prohibit other sources of funding and/or other programs where legal or contractual requirements preclude direct use for stormwater permitting activities.").

ADMINISTRATIVE RECORD:

Copies of the documents that comprise the administrative record for the Permit are available to the public for review at the Martin Luther King, Jr. Public Library, which is located at 901 G Street, N.W. in Washington, D.C. An electronic copy of the proposed and final Permits and proposed and Final Fact Sheets are also available on the EPA Region III website, http://www.epa.gov/reg3wapd/npdes/draft_permits.html. For additional information, please contact Ms. Kaitlyn Bendik, Mail Code 3WP41, NPDES Permits Branch, Office of Permits and Enforcement, EPA Region III, United States Environmental Protection Agency, 1650 Arch Street, Philadelphia, Pennsylvania 19103-2029.

ATTACHMENT

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STATE OF CALIFORNIA

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION**

**ORDER NO. 01-182
NPDES PERMIT NO. CAS004001
WASTE DISCHARGE REQUIREMENTS
FOR**

**MUNICIPAL STORM WATER AND URBAN RUNOFF DISCHARGES WITHIN THE
COUNTY OF LOS ANGELES, AND THE INCORPORATED CITIES THEREIN,
EXCEPT THE CITY OF LONG BEACH**

December 13, 2001

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STATE OF CALIFORNIA**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION****ORDER NO. 01-182
NPDES PERMIT NO. CAS004001
WASTE DISCHARGE REQUIREMENTS
FOR
MUNICIPAL STORM WATER AND URBAN RUNOFF DISCHARGES WITHIN THE
COUNTY OF LOS ANGELES, AND THE INCORPORATED CITIES THEREIN,
EXCEPT THE CITY OF LONG BEACH**

The California Regional Water Quality Control Board, Los Angeles Region (hereinafter referred to as the Regional Board) finds:

A. Existing Permit

The Los Angeles County Flood Control District, the County of Los Angeles, and 84 incorporated cities within the Los Angeles County Flood Control District (see Attachment A, List of Permittees), hereinafter referred to separately as Permittees and jointly as the Discharger, discharge or contribute to discharges of storm water and urban runoff from municipal separate storm sewer systems (MS4s), also called storm drain systems. The discharges flow to water courses within the Los Angeles County Flood Control District and into receiving waters of the Los Angeles Region. These discharges are covered under countywide waste discharge requirements contained in Order No. 96-054 adopted by this Regional Board on July 15, 1996, which replaced Order No. 90-079 adopted by this Regional Board on June 18, 1990. Order No. 96-054 also serves as a National Pollutant Discharge Elimination System (NPDES) permit for the discharge of municipal storm water.

B. Nature of Discharges and Sources of Pollutant

1. Storm water discharges consist of surface runoff generated from various land uses in all the hydrologic drainage basins that discharge into water bodies of the State. The quality of these discharges varies considerably and is affected by the hydrology, geology, land use, season, and sequence and duration of hydrologic events. The primary constituents of concern currently identified by the Los Angeles County Flood Control District Integrated Receiving Water Impacts Report (1994-2000) are cyanide, indicator bacteria, total dissolved solids, turbidity, total suspended solids, nutrients, total aluminum, dissolved cadmium, copper, lead, total mercury, nickel, zinc, bis(2-ethylhexyl)phthalate, polycyclic aromatic hydrocarbons (PAHs), diazinon, and chlorpyrifos.
2. Certain pollutants present in storm water and/or urban runoff may be derived from extraneous sources that Permittees have no or limited jurisdiction over. Examples of such pollutants and their respective sources are: PAHs which are products of internal combustion engine

operation, nitrates, bis (2-ethylhexyl) phthalate and mercury from atmospheric deposition, lead from fuels, copper from brake pad wear, zinc from tire wear, dioxins as products of combustion, and natural-occurring minerals from local geology. However, the implementation of the measures set forth in this Order is intended to reduce the entry of these pollutants into storm water and their discharge to receiving waters.

3. Water quality assessments conducted by the Regional Board identified impairment, or threatened impairment, of beneficial uses of water bodies in the Los Angeles Region. The causes of impairments include pollutants of concern identified in municipal storm water discharges by the County of Los Angeles in the Integrated Receiving Water Impacts Report (1994-2000). Pollutants in storm water can have damaging effects on both human health and aquatic ecosystems.
4. The Los Angeles County Grand Jury, September 2000, completed an investigation into the health risks of swimming near beaches in Los Angeles County and made several recommendations to reduce public health risks (Final Report, Grand Jury, Los Angeles County, 1999-2000). The Grand Jury recommended that the Regional Board consider among other actions, (i) a focus on setting contaminant limits rather than programmatic evaluations, (ii) audit of MS4 Permittee programs; and (iii) clarifying enforcement responsibilities between the State and local governments.
5. Studies and research conducted by other Regional agencies, academic institutions, and universities have also identified storm water and urban runoff as significant sources of pollutants to surface waters in Southern California. See, e.g., [*Surface Runoff to the Southern California Bight*, Southern California Coastal Water Research Project, (1992); *Impacts of Urban Runoff on Santa Monica Bay and Surrounding Ocean Waters* (Gersberg, R.M., 1995); *State of the Bay 1998*, Santa Monica Bay Restoration Project; *Storm Water Impact*, In, Southern California Environmental Report Card 1999, Institute of the Environment, University of California, Los Angeles (Stenstrom, M.S., 1999); *Distribution of Anthropogenic and Natural Debris on the Mainland Shelf of Southern California Bight*, Shelly L. Moore and M. James Allen (1999); *The Health Effects of Swimming in Ocean Water Contaminated by Storm Drain Runoff*, Haile, R.W. et al. (1999); *Huntington Beach Closure Investigation: Technical Review* (University of Southern California, 2000); *A Regional Survey of the Microbiological Water Quality Along the Shoreline of the Southern California Bight*, Rachel T. Noble et al. (2001); *Integrated Receiving Water Impacts Report (1994-2000)*, County of Los Angeles (2001)].
6. Development and urbanization increase pollutant load, volume, and discharge velocity. First, natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops and parking lots. Natural vegetated soil can both absorb rainwater and remove pollutants providing an effective natural purification process. In contrast, pavement and concrete can neither absorb water nor remove pollutants, and thus the natural purification characteristics are

lost. Second, urban development creates new pollution sources as the increased density of human population brings proportionately higher levels of vehicle emissions, vehicle maintenance wastes, municipal sewage waste, pesticides, household hazardous wastes, pet wastes, trash, and other anthropogenic pollutants. Development and urbanization especially threaten environmentally sensitive areas. Such areas have a much lower capacity to withstand pollutant shocks than might be acceptable in the general circumstance. In essence, development that is ordinarily insignificant in its impact on the environment may in a particular sensitive environment become significant. These environmentally sensitive areas designated by the State and/or the County of Los Angeles include Areas of Special Biological Significance (ASBS), water bodies designated as supporting a RARE beneficial use, Significant Natural Areas (SNAs), and Significant Ecological Areas (SEAs).

7. The increased volume, increased velocity, and discharge duration of storm water runoff from developed areas has the potential to greatly accelerate downstream erosion and impair stream habitat in natural drainages. Studies have demonstrated a direct correlation between the degree of imperviousness of an area and the degradation of its receiving waters. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as 10 percent conversion from natural to impervious surfaces. Percentage impervious cover is a reliable indicator and predictor of potential water quality degradation expected from new development. (*Impervious Cover as An Urban Stream Indicator and a Watershed Management Tool*, Schueler, T. and R. Claytor, In, *Effects of Water Development and Management on Aquatic Ecosystems* (1995), ASCE, New York; Leopold, L. B., (1973), *River Channel Change with Time: An Example*, Geological Society of America Bulletin, v. 84, p. 1845-1860; Hammer, T. R., (1972), *Stream Channel Enlargement Due to Urbanization: Water Resources Research*, v. 8, p. 1530-1540; Booth, D. B., (1991), *Urbanization and the Natural Drainage System--Impacts, Solutions and Prognoses: The Northwest Environmental Journal*, v. 7, p. 93-118; Klein, R. D., (1979), *Urbanization and Stream Quality Impairment*. *Water Resources Bulletin*, v. 15, p. 948-963; May, C. W., Horner, R. R., Karr, J. R., Mar, B. W., and Welch, E. B., (1997), *Effects of Urbanization on Small Streams in the Puget Sound Lowland Ecoregion: Watershed Protection Techniques*, v. 2, p. 483-494; Morisawa, M. and LaFlure, E. *Hydraulic Geometry, Stream Equilibrium and Urbanization* In Rhodes, D. P. and Williams, G. P. *Adjustments to the Fluvial System* p.333-350. (1979); Dubuque, Iowa, Kendall/Hunt. Tenth Annual Geomorphology Symposia Series; and *The Importance of Imperviousness: Watershed Protection Techniques*, 1(3), Schueler, T. (1994).)
8. The County of Los Angeles has identified as the seven highest priority industrial and commercial critical source types, (i) wholesale trade (scrap recycling, auto dismantling); (ii) automotive repair/parking; (iii) fabricated metal products; (iv) motor freight; (v) chemical and allied products; (vi) automotive dealers/gas stations; (vii) primary metal products (*Critical*

Source Selection and Monitoring Report, Los Angeles County Department of Public Works -Sept 1996). Monitoring conducted by Los Angeles County and the Regional Board demonstrates that the priority industrial sectors and auto repair facilities (one of the commercial sectors) on the list, contribute significant concentrations of heavy metals to storm water (*Los Angeles County 1999-2000 Storm Water Monitoring Report*, Los Angeles County Department of Public Works -July 2000; *Compliance Assessment of the Auto Dismantling Industry; Evaluation of the California General Industrial Storm Water Permit*, H. Chang, (2001), 70 pp., California Regional Water Quality Control Board, Los Angeles Region).

9. The discharge of washwaters and contaminated storm water from industries and businesses specified in this Order for inspection by Permittees is an environmental threat and can also adversely impact public health and safety. For example, a review of industrial waste/pretreatment records performed in 1995 in the County of Los Angeles on illicit discharges indicates that automotive service facilities and food service facilities sometimes discharge polluted washwaters to the MS4. The pollutants of concern in such washwaters include food waste, oil and grease, and toxic chemicals. Other storm water/industrial waste programs in California have reported similar observations. Illicit discharges from automotive service facilities and food service facilities have been identified elsewhere as a major cause of widespread contamination and water quality problems (Washtenaw County Statutory Drainage Board - 1987 Huron River Pollution Abatement Program).
10. Studies indicate that facilities with paved surfaces subject to frequent motor vehicular traffic (such as parking lots and fast food restaurants), or facilities that perform vehicle repair, maintenance, or fueling (automotive service facilities) are potential sources of pollutants of concern in storm water. [References: Pitt *et al.*, *Urban Storm Water Toxic Pollutants: Assessment, Sources, and Treatability*, Water Environment Res., 67, 260 (1995); *Results of Retail Gas Outlet and Commercial Parking Lot Storm Water Runoff Study*, Western States Petroleum Association and American Petroleum Institute, (1994); *Action Plan Demonstration Project, Demonstration of Gasoline Fueling Station Best Management Practices*, Final Report, County of Sacramento (1993); *Source Characterization*, R. Pitt, In *Innovative Urban Wet-Weather Flow Management Systems* (2000) Technomic Press, Field, R *et al.* editors; *Characteristics of Parking Lot Runoff Produced by Simulated Rainfall*, L.L. Tiefenthaler *et al.* Technical Report 343, Southern California Coastal Water Research Project (2001).]
11. Retail Gasoline Outlets (RGOs) are points of convergence for vehicular traffic and are similar to parking lots and urban roads. Studies indicate that storm water discharges from RGOs have high concentrations of hydrocarbons and heavy metals. [*The Quality of Trapped Sediments and Poor Water within Oil Grit Separators in Suburban MD*, Schueler T. and Shepp D. (1992), and *Concentrations of Selected Constituents in Runoff from Impervious Surfaces in Four Urban Catchments of Different*

Landuse, Ranabal, F.I., and T.J. Gizzard (1995), In Proceedings of the Fourth Biennial Stormwater Research Conference, Florida, pp-42-52]. Pilot studies indicate that treatment control best management practices installed at retail gasoline stations are effective in removing pollutants, reasonable in capital cost, easy to operate, and do not present safety risks [Rouge River National Wet Weather Demonstration Project, Task Product Memorandum – Evaluation of On-line Media Filters RPO-NPS-TPM59.00, Wayne County, MI, March 1999]. The Regional Board and the San Diego Regional Board have jointly prepared a Technical Report on the applicability of new development BMP design criteria for retail gasoline outlets, (Retail Gasoline Outlets: New Development Design Standards for Mitigation of Storm Water Impacts, (June 2001)). Retail Gasoline Outlets in Western U.S. States (such as Washington and Oregon) are already subject to numerical BMP design criteria, as well in other U.S. States.

C. Permit Background

1. The essential components of the Storm Water Management Program, as established by federal regulations [40 CFR 122.26(d)] are: (i) Adequate Legal Authority, (ii) Fiscal Resources, (iii) Storm Water Quality Management Program (SQMP) - (Public Information and Participation Program, Industrial/Commercial Facilities Program, Development Planning Program, Development Construction Program, Public Agency Activities Program, Illicit Connection and Illicit Discharges Elimination Program), and (iv) Monitoring and Reporting Program.
2. The Permittees have filed a Report of Waste Discharge (ROWD), dated February 1, 2001, and applied for renewal of their waste discharge requirements that serves as an NPDES permit to discharge wastes to surface waters. The ROWD includes a proposed SQMP and a Monitoring Program. The proposed SQMP contains programs previously approved under Board Order No. 96-054 in the following areas:

Public Information and Participation
Development Planning
Development Construction
Public Agency Activities
Illicit Connection/Illicit Discharge Elimination Program

These programs are revised pursuant to the provisions of this Order after adoption.

3. The County of Los Angeles has previously conducted source identification and pollutant characterization consistent with 40 CFR 122.26(d)(1)(ii) and (iii) under its storm water Monitoring Program. The Monitoring Program submitted with the ROWD proposes to advance the assessment of receiving water impacts, identification of sources of pollution, evaluation of Best Management Practices (BMPs), and measurement of long term trends in mass emissions.

4. The Regional Board has reviewed the ROWD and has determined it to be complete under the reapplication policy of MS4s issued by the U.S. Environmental Protection Agency (USEPA) (61 *Fed. Reg.* 41697). The Regional Board finds that the Permittees' proposed SQMP, incorporating the additional and/or revised provisions contained in this Order would meet the minimum requirements of federal regulations.
5. The City of Los Angeles has conducted shoreline and nearshore water quality monitoring off the Santa Monica Bay since the 1950s under the monitoring program for the Hyperion Waste Water Treatment Plant (NPDES No. CA0109991). The monitoring results indicate that effluent from Hyperion's 5-Mile Outfall does not impinge the shoreline, and that elevated bacterial counts are associated with runoff from storm drains and discharges from piers. In 1994, the Regional Board approved the relocation of Hyperion's shoreline stations to implement a bay-wide, regional shoreline-monitoring program associated with storm drain outfalls in the Santa Monica Bay. The City of Los Angeles requested that the shoreline-monitoring requirement be incorporated in this Order. The shoreline pathogen monitoring requirements are outlined in the Monitoring Program for this Order.

D. Permit Coverage

1. The requirements in this Order cover all areas within the boundaries of the Permittee municipalities (see Attachment A) over which they have regulatory jurisdiction as well as unincorporated areas in Los Angeles County within the jurisdiction of the Regional Board. The Permittees serve a population of about 9.5 million [Reference: *2000 Census of Population and Housing*, Bureau of the Census, U.S. Department of Commerce (2001)] in an area of approximately 3,100 square miles.
2. Federal, state, regional or local entities within the Permittees' boundaries or in jurisdictions outside the Los Angeles County Flood Control District, and not currently named in this Order, may operate storm drain facilities and/or discharge storm water to storm drains and watercourses covered by this Order. The Permittees may lack legal jurisdiction over these entities under state and federal constitutions. The Regional Board will coordinate with these entities to implement programs that are consistent with the requirements of this Order. The Regional Board will consider such facilities for coverage in 2003 under its NPDES permitting scheme pursuant to USEPA Phase II storm water regulations.
3. Sources of discharges into receiving waters in the County of Los Angeles but in jurisdictions outside its boundary include the following:

About 34 square miles of unincorporated area in Ventura County, which drain into Malibu Creek and then to Santa Monica Bay,

About 9 square miles of the City of Thousand Oaks, which also drain into Malibu Creek and then to Santa Monica Bay, and

About 86 square miles of area in Orange County, which drain into Coyote Creek and then into the San Gabriel River.

The Regional Board will ensure that storm water management programs for the areas in Ventura County and the City of Thousand Oaks that drain into Santa Monica Bay are consistent with the requirements of this Order. The Regional Board will coordinate with the Santa Ana Regional Board so that storm water management programs for the areas in Orange County that drain into Coyote Creek are consistent with the requirements of this Order.

4. This permit is intended to develop, achieve, and implement a timely, comprehensive, cost-effective storm water pollution control program to reduce the discharge of pollutants in storm water to the Maximum Extent Practicable (MEP) from the permitted areas in the County of Los Angeles to the waters of the U.S. subject to the Permittees' jurisdiction.
5. Permittees have expressed their intention to work cooperatively to control the contribution of pollutants from one portion of the MS4 to another portion of the system. Permittees may control the contribution of pollutants to the MS4 from non-permittee dischargers such as Caltrans, the U.S. Department of Defense, and other state and federal facilities, through interagency agreements.

E. Federal, State, and Regional Regulations

1. The Water Quality Act of 1987 added Section 402(p) to the federal Clean Water Act (CWA) (33 U.S.C. § 1251-1387). This section requires the USEPA to establish regulations setting forth NPDES requirements for storm water discharges in two phases.
 - The USEPA Phase I storm water regulations were directed at MS4s serving a population of 100,000 or more, including interconnected systems and storm water discharges associated with industrial activities, including construction activities. The Phase I Final Rule was published on November 16, 1990 (55 *Fed. Reg.* 47990).
 - The USEPA Phase II storm water regulations are directed at storm water discharges not covered in Phase I, including small MS4s (serving a population of less than 100,000), small construction projects (one to five acres), municipal facilities with delayed coverage under the Intermodal Surface Transportation Efficiency Act of 1991, and other discharges for which the USEPA Administrator or the State determines that the storm water discharge contributes to a violation of a water quality standard, or is a significant contributor of pollutants to waters of the United States. The Phase II Final Rule was published on December 8, 1999 (64 *Fed. Reg.* 68722).
2. The USEPA published an 'Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits' on August 26, 1996 (61 *Fed. Reg.* 43761). This policy discusses the appropriate kinds of

water quality-based effluent limitations to be included in NPDES storm water permits to provide for the attainment of water quality standards.

3. The USEPA published an 'Interpretative Policy Memorandum on Reapplication Requirements' for MS4 permits on August 9, 1996 (61 *Fed. Reg.* 41697). This policy requires that MS4 reapplication for reissuance for a subsequent five-year permit term contain certain basic information and information for proposed changes and improvements to the storm water management program and monitoring program.
4. The USEPA has entered into a Memorandum of Agreement (MOA) with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service for enhancing coordination regarding the protection of endangered and threatened species under Section 7 of the Endangered Species Act and the CWA's Water Quality Standards and NPDES programs. Among other actions, the MOA establishes a framework for coordination of actions by the USEPA, the Services, and CWA delegated States on CWA permit issuance under Section 402 of the CWA [66 *Fed. Reg.* 11202 – 11217].
5. USEPA regulations at 40 CFR 122.26(d)(2)(iv)(A) and 40 CFR 122.26(d)(2)(iv)(C) require that MS4 permittees implement a program to monitor and control pollutants in discharges to the municipal system from industrial and commercial facilities that contribute a substantial pollutant load to the MS4. The regulations require that permittees establish priorities and procedures for inspection of industrial facilities and priority commercial establishments. This permit, consistent with the USEPA policy, incorporates a cooperative partnership, including the specifications of minimum expectations, between the Regional Board and the Permittees for the inspection of industrial facilities and priority commercial establishments to control pollutants in storm water discharges (58 *Fed. Reg.* 61157).
6. Section 402 (p) of the CWA (33 U.S.C. § 1342(p) provides that MS4 permits must "require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design engineering method and such other provisions as the [EPA] Administrator or the State determines appropriate for the control of such pollutants." The State Water Resources Control Board's (State Board) Office of Chief Counsel (OCC) has issued a memorandum interpreting the meaning of MEP to include technical feasibility, cost, and benefit derived with the burden being on the municipality to demonstrate compliance with MEP by showing that a BMP is not technically feasible in the locality or that BMPs costs would exceed any benefit to be derived (dated February 11, 1993).
7. The CWA authorizes the USEPA to permit a state to serve as the NPDES permitting authority in lieu of the USEPA. The State of California has in-lieu authority for an NPDES program. The Porter-Cologne Water Quality Control Act authorizes the State Board, through the Regional Boards, to regulate and control the discharge of pollutants into waters of the State. The State Board entered into a MOA with the USEPA, on

September 22, 1989, to administer the NPDES Program governing discharges to waters of the U.S.

8. Section 303(d) of the CWA requires that the State identify a list of impaired water-bodies and develop and implement Total Maximum Daily Loads (TMDLs) for these waterbodies (33 U.S.C. §1313(d)(1)). A TMDL specifies the maximum amount of a pollutant that a water-body can receive, still meet applicable water quality standards and protect beneficial uses. The USEPA entered into a consent decree with the Natural Resources Defense Council (NRDC), Heal the Bay, and the Santa Monica BayKeeper on March 22, 1999, under which the Regional Board must adopt all TMDLs for the Los Angeles Region within 13 years from that date. This permit incorporates a provision to implement and enforce approved load allocations for municipal storm water discharges and requires amending the SQMP after pollutants loads have been allocated and approved.
9. Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) requires coastal states with approved coastal zone management programs to address non-point pollution impacting or threatening coastal water quality. CZARA (16 U.S.C. § 1451-1465) amends the Coastal Zone Management Act of 1972, to address five sources of non-point pollution: agriculture, silviculture, urban, marinas, and hydromodification. This NPDES permit addresses the management measures required for the urban category, with the exception of septic systems. The Regional Board addresses septic systems through the administration of other programs.
10. On May 18, 2000, the USEPA established numeric criteria for priority toxic pollutants for the State of California (California Toxics Rule (CTR)) 65 *Fed. Reg.* 31682 (40 CFR 131.38), for the protection of human health and aquatic life. These apply as ambient water quality criteria for inland surface waters, enclosed bays, and estuaries. The State Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP) – 2000*, on March 2, 2000, for implementation of the CTR (State Board Resolution No. 2000-15 as amended by Board Resolution No. 2000-030). This policy requires that discharges comply with TMDL-derived load allocations as soon as possible but no later than 20 years from the effective date of the policy.
11. The State Board adopted a revised Water Quality Control Plan for Ocean Waters of California (Ocean Plan) on July 23, 1997. The Ocean Plan contains water quality objectives which apply to all discharges to the coastal waters of California.
12. The State Board in *In Re: California Department of Transportation* (State Board Order WQ 2001-08), determined that the discharge of storm water to ASBS is subject to the prohibition in the Ocean Plan against the discharge of wastes to an ASBS.

13. The Regional Board adopted an updated Water Quality Control Plan (Basin Plan) for the Los Angeles Region on June 13, 1994, '*Water Quality Control Plan, Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*, (1994).' The Basin Plan designates beneficial uses of receiving waters and specifies both narrative and numerical water quality objectives for the receiving waters in Los Angeles County.
14. The Regional Board on September 19, 2001, adopted amendments to the Basin Plan, to incorporate TMDLs for trash in the Los Angeles River (Resolution No. 01-013) and Ballona Creek (Resolution No. 01-014). After approval by the State Board, the Office of Administrative Law, and the USEPA, the TMDLs for trash will be effective and enforceable.
15. The Regional Board on April 13, 1998, approved BMPs for sidewalk rinsing to minimize the discharge of wash waters to the storm drain system (Resolution No. 98-08). By the same resolution, the Regional Board prohibited the discharge of municipal street wash waters to the storm drain system.
16. The Regional Board on April 13, 1998, approved recommended BMPs for industrial/commercial facilities (Resolution No. 98-08).
17. The Regional Board on April 22, 1999, approved a list of BMPs for use in development planning and development construction (Resolution No. 99-03)
18. The Regional Board adopted and approved requirements for new development and significant redevelopment projects in Los Angeles County to control the discharge of storm water pollutants in post-construction storm water, on January 26, 2000, in Board Resolution No. R-00-02. The Regional Board Executive Officer issued the approved Standard Urban Storm Water Mitigation Plans (SUSMPs) on March 8, 2000. The State Board in large part affirmed the Regional Board action and SUSMPs in State Board Order No. WQ 2000-11 issued on October 5, 2000.
 - The State Board's Chief Counsel has issued a statewide policy memorandum (dated December 26, 2000), which interprets the Order to provide broad discretion to Regional Boards and identifies potential future areas for inclusion in SUSMPs and the types of evidence and findings necessary. Such areas include ministerial projects, projects in environmentally sensitive areas, and water quality design criteria for RGOs.
 - The State Board's Chief Counsel interprets the Order to encourage regional solutions and endorses a mitigation fund or "bank" that may be funded by developers who obtain waivers from the numerical design standards for new development and significant redevelopment.
19. 40 CFR 131.10(a) prohibits states from designating waste transport or waste assimilation as a use for any water of the U.S. Authorizing the

construction of a storm water/ urban runoff treatment facility in a jurisdictional water body would be tantamount to accepting waste assimilation as an appropriate use for that water body. Furthermore, the construction and operation of a pollution control facility in a water body can impact the physical, chemical, and biological integrity as well as the beneficial uses of the water body. Therefore, storm water treatment and/or mitigation in accordance with SUSMPs and any other requirements of this Order must occur prior to the discharge of storm water into a water of the U.S.

20. The Regional Board supports a Watershed Management Approach to address water quality protection in the region. The objective of the Watershed Management Approach should be to provide a comprehensive and integrated strategy towards water resource protection, enhancement, and restoration while balancing economic and environmental impacts within a hydrologically defined drainage basin or watershed. It emphasizes cooperative relationships between regulatory agencies, the regulated community, environmental groups, and other stakeholders in the watershed to achieve the greatest environmental improvements with available resources.
21. To promote a watershed management approach, the County of Los Angeles is divided into six Watershed Management Areas (WMAs) as follows:

Malibu Creek and Rural Santa Monica Bay WMA
Ballona Creek and Urban Santa Monica Bay WMA
Los Angeles River WMA
San Gabriel River WMA
Dominguez Channel/Los Angeles Harbor WMA, and
Santa Clara River WMA

Attachment A shows the list of Permittees under each WMA and some Permittees have expressed an intent to form sub-watershed groups within the WMA to promote regional solutions for the mitigation of storm water discharge pollution.

22. To facilitate compliance with federal regulations, the State Board has issued two statewide general NPDES permits for storm water discharges: one for storm water from industrial sites [NPDES No. CAS000001, General Industrial Activity Storm Water Permit (GIASP)] and the other for storm water from construction sites [NPDES No. CAS000002, General Construction Activity Storm Water Permit (GCASP)]. The GCASP was reissued on August 19, 1999. The GIASP was reissued on April 17, 1997. Facilities discharging storm water associated with industrial activities and construction projects with a disturbed area of five acres or more are required to obtain individual NPDES permits for storm water discharges, or to be covered by a statewide general permit by completing and filing a Notice of Intent (NOI) with the State Board. The USEPA guidance anticipates coordination of the state-administered programs for

industrial and construction activities with the local agency program to reduce pollutants in storm water discharges to the MS4.

The Regional Board is the enforcement authority in the Los Angeles Region for the two statewide general permits regulating discharges from industrial facilities and construction sites, and all NPDES storm water and non-storm water permits issued by the Regional Board. These industrial and construction sites and discharges are also regulated under local laws and regulations.

23. The State Board, on October 28, 1968, adopted Resolution No. 68-16, which established an anti-degradation policy for the State and Regional Boards. This policy restricts the degradation of surface waters and protects waterbodies where existing water quality is higher than is necessary for the protection of beneficial uses.
24. The State Board, on June 17, 1999, adopted Order No. WQ 99-05, which, in a precedential decision, identifies acceptable receiving water limitations language to be included in municipal storm water permits issued by the State and Regional Boards. The receiving water limitations included herein are consistent with the State Board Order, USEPA Policy, and the U.S. Appellate court decision in, *Defenders of Wildlife v. Browner* (9th Cir, 1999). The State Board OCC has determined that the federal court decision did not conflict with State Board Order No. WQ 99-05 (memorandum dated October 14, 1999)
25. California Water Code (CWC) § 13263(a) requires that waste discharge requirements issued by the Regional Board shall implement any relevant water quality control plans that have been adopted; shall take into consideration the beneficial uses to be protected and the water quality objectives reasonably required for that purpose; other waste discharges; the need to prevent nuisance; and provisions of CWC § 13241. The Regional Board has considered the requirements of § 13263 and § 13241, and applicable plans, policies, rules, and regulations in developing these waste discharge requirements.
26. CWC § 13370 *et seq.* requires that waste discharge requirements issued by the Regional Boards be consistent with provisions of the federal CWA and its amendments.
27. On March 12, 2001, the U.S. Court of Appeals ruled that it is necessary to obtain a NPDES permit for application of aquatic pesticides to waterways. (*Headwaters, Inc. vs. Talent Irrigation District*, 243 F.3d. 526 (9th Cir., 2001)) This decision is controlling in California for nonagricultural applications of pesticides to waterways. The State Board adopted a general NPDES permit (Order No. 2001-12-DWQ) on July 19, 2001, for public entities that discharge pollutants to waters of the U.S. associated with the application of aquatic pesticides for resource or pest management. Public entities that conduct such activities must seek coverage under the general permit.

F. Implementation

1. The California Environmental Quality Act (CEQA) (Cal. Pub. Resources Code § 21000 *et seq.*) requires that public agencies consider the environmental impacts of the projects they approve for development. CEQA applies to projects that are considered discretionary and does not apply to ministerial projects, which involve the use of established standards or objective measurements. A ministerial project may be made discretionary by adopting local ordinance provisions or imposing conditions to create decision-making discretion in approving the project. In the alternative, Permittees may establish standards and objective criteria administratively for storm water mitigation for ministerial projects. For water quality purposes, the Regional Board considers that all new development and significant redevelopment activity in specified categories, that receive approval or permits from a municipality, are subject to storm water mitigation requirements.
2. The objective of this Order is to protect the beneficial uses of receiving waters in Los Angeles County. To meet this objective, this Order requires that the SQMP specify BMPs that will be implemented to reduce the discharge of pollutants in storm water to the maximum extent practicable. Further, Permittees are to assure that storm water discharges from the MS4 shall neither cause nor contribute to the exceedance of water quality standards and objectives nor create conditions of nuisance in the receiving waters, and that the discharge of non-storm water to the MS4 has been effectively prohibited.
3. The SQMP required in this Order builds upon the programs established in Order Nos. 90-079, and 96-054, consists of the components recommended in the USEPA guidance manual, and was developed with the cooperation of representatives from the regulated community and environmental groups. The SQMP includes provisions that promote customized initiatives, both on a countywide and watershed basis, in developing and implementing cost-effective measures to minimize discharge of pollutants to the receiving water. The various components of the SQMP, taken as a whole rather than individually, are expected to reduce pollutants in storm water and urban runoff to the maximum extent practicable. Provisions of the SQMP are fully enforceable under provisions of this Order.
4. The emphasis of the SQMP is pollution prevention through education, public outreach, planning, and implementation as source control BMPs first and then Structural and Treatment Control BMPs next. Successful implementation of the provisions of the SQMP will require cooperation and coordination of all public agencies in each Permittee's organization, among Permittees, and with the regulated community.
5. The implementation of a Public Information and Participation Program is a critical component of a storm water management program. An informed and knowledgeable community is critical to the success of a storm water management program since it helps insure the following: (i) greater support for the program as the public gains a greater understanding of

the reasons why it is necessary and important, and (ii) greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters.

6. This Order includes a Monitoring Program that incorporates Minimum Levels (MLs) established under the SIP. The SIP's MLs represent the lowest quantifiable concentration for priority toxic pollutants that is measurable with the use of proper method-based analytical procedures and factoring out matrix interference. The SIP's MLs therefore represent the best available science for determining MLs and are appropriate for a storm water monitoring program. The use of MLs allows the detection of toxic priority pollutants at concentrations of concern using recent advances in chemical analytical methods.
7. This Order provides flexibility for Permittees to petition the Regional Board Executive Officer to substitute a BMP under the SQMP with an alternative BMP, if they can provide information and documentation on the effectiveness of the alternative, equal to or greater than the prescribed BMP in meeting the objectives of this Order.
8. This Order contemplates that the Permittees are responsible for considering potential storm water impacts when making planning decisions in order to fulfill the Permittees' CWA requirement to reduce the discharge of pollutants in municipal storm water to the MEP from new development and redevelopment activities. However, the Permittees retain authority to make the final land-use decisions and retain full statutory authority for deciding what land uses are appropriate at specific locations within each Permittee's jurisdiction. This Order and its requirements are not intended to restrict or control local land use decision-making authority.
9. This Order is not intended to prohibit the inspection for or abatement of vectors by the State Department of Health Services or local vector agencies in accordance with Cal. Health and Safety Code § 2270 *et seq.* and §116110 *et seq.* Certain Treatment Control BMPs if not properly designed, operated or maintained may create habitats for vectors (e.g. mosquito and rodents). This Order contemplates that the Permittees will closely cooperate and collaborate with local vector control agencies and the State Department of Health Services for the implementation, operation, and maintenance of Treatment Control BMPs in order to minimize the risk to public health from vector borne diseases.

G. Public Process

1. The Regional Board has notified the Permittees and interested agencies and persons of its intent to issue waste discharge requirements for this discharge, and has provided them with an opportunity to submit their written view and recommendations.

2. The Regional Board, in a public hearing, heard and considered all comments pertaining to the discharge and to the tentative requirements.
3. The Regional Board has conducted public workshops to discuss drafts of the permit. On April 24, 2001, Regional Board staff conducted a workshop outlining the reasoning behind the changes proposed for the new permit and received input from the Permittees and the public regarding those proposed changes. On July 26, 2001, a second public workshop was held at a special Regional Board meeting. The Permittees and the public had another opportunity to express their opinions regarding the proposed changes to the permit in front of the Regional Board members. A significant number of working meetings with the Permittees and other interested parties have occurred throughout the period from the submittal of the ROWD and completion of the tentative draft, in an attempt to incorporate and address all the comments presented.
4. The Los Angeles County Flood Control District, the County of Los Angeles and the other municipalities are co-permittees as defined in 40 CFR 122.26 (b)(1). Los Angeles County Flood Control District will coordinate with the other municipalities and facilitate program implementation. Each Permittee is responsible only for a discharge for which it is the operator.
5. This Order shall serve as a NPDES Permit, pursuant to CWA § 402, or amendments thereto, and shall take effect 50 days from Order adoption provided the Regional Administrator of the USEPA has no objections.
6. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA (Cal. Pub. Resources Code § 21100 *et seq.*), in accordance with CWC § 13389.
7. Pursuant to CWC §13320, any aggrieved party may seek review of this Order by filing a petition with the State Board. A petition must be sent to: State Water Resources Control Board, P.O. Box 100, Sacramento, California, 95812, within 30 days of adoption of the Order by the Regional Board.
8. This Order may be modified or alternatively revoked or reissued prior to its expiration date, in accordance with the procedural requirements of the NPDES program, and the CWC for the issuance of waste discharge requirements.

IT IS HEREBY ORDERED that the Los Angeles County Flood Control District, Los Angeles County, and the Cities of Agoura Hills, Alhambra, Arcadia, Artesia, Azusa, Baldwin Park, Bell, Bellflower, Bell Gardens, Beverly Hills, Bradbury, Burbank, Calabasas, Carson, Cerritos, Claremont, Commerce, Compton, Covina, Cudahy, Culver City, Diamond Bar, Downey, Duarte, El Monte, El Segundo, Gardena, Glendale, Glendora, Hawaiian Gardens, Hawthorne, Hermosa Beach, Hidden Hills, Huntington Park, Industry, Inglewood, Irwindale, La Cañada Flintridge, La Habra Heights, Lakewood, La Mirada, La Puente, La Verne, Lawndale, Lomita, Los Angeles, Lynwood, Malibu, Manhattan Beach, Maywood, Monrovia, Montebello, Monterey Park, Norwalk, Palos Verdes Estates, Paramount, Pasadena, Pico Rivera, Pomona, Rancho Palos Verdes,

Redondo Beach, Rolling Hills, Rolling Hills Estates, Rosemead, San Dimas, San Fernando, San Gabriel, San Marino, Santa Clarita, Santa Fe Springs, Santa Monica, Sierra Madre, Signal Hill, South El Monte, South Gate, South Pasadena, Temple City, Torrance, Vernon, Walnut, West Covina, West Hollywood, Westlake Village, and Whittier, in order to meet the provisions contained in Division 7 of the CWC and regulations adopted thereunder, and the provisions of the CWA, as amended, and regulations and guidelines adopted thereunder, shall comply with the following:

Part 1. DISCHARGE PROHIBITIONS

The Permittees shall effectively prohibit non-storm water discharges into the MS4 and watercourses, except where such discharges:

1. Are covered by a separate individual or general NPDES permit for non-storm water discharges; or
2. Fall within one of the categories below, and meet all conditions when specified by the Regional Board Executive Officer:
 - a) Category A - Natural flow:
 - (1) Natural springs and rising ground water;
 - (2) Flows from riparian habitats or wetlands;
 - (3) Stream diversions, permitted by the State Board; and
 - (4) Uncontaminated ground water infiltration [as defined by 40 CFR 35.2005(20)].
 - b) Category B - Flows from emergency fire fighting activity.
 - c) Category C - Flows incidental to urban activities:
 - (1) Reclaimed and potable landscape irrigation runoff;
 - (2) Potable drinking water supply and distribution system releases (consistent with American Water Works Association guidelines for dechlorination and suspended solids reduction practices);
 - (3) Drains for foundations, footings, and crawl spaces;
 - (4) Air conditioning condensate;
 - (5) Dechlorinated/debrominated swimming pool discharges;
 - (6) Dewatering of lakes and decorative fountains;
 - (7) Non-commercial car washing by residents or by non-profit organizations; and
 - (8) Sidewalk rinsing.

The Regional Board Executive Officer may add or remove categories of non-storm water discharges above. Furthermore, in the event that any of

the above categories of non-storm water discharges are determined to be a source of pollutants by the Regional Board Executive Officer, the discharge will no longer be exempt from this prohibition unless the Permittee implements conditions approved by the Regional Board Executive Officer to ensure that the discharge is not a source of pollutants. Notwithstanding the above, the Regional Board Executive Officer may impose additional prohibitions of non-storm water discharges in consideration of anti-degradation policies and TMDLs.

Part 2. RECEIVING WATER LIMITATIONS

1. Discharges from the MS4 that cause or contribute to the violation of Water Quality Standards or water quality objectives are prohibited.
2. Discharges from the MS4 of storm water, or non-storm water, for which a Permittee is responsible for, shall not cause or contribute to a condition of nuisance.
3. The Permittees shall comply with Part 2.1. and 2.2. through timely implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the SQMP and its components and other requirements of this Order including any modifications. The SQMP and its components shall be designed to achieve compliance with receiving water limitations. If exceedances of Water Quality Objectives or Water Quality Standards (collectively, Water Quality Standards) persist, notwithstanding implementation of the SQMP and its components and other requirements of this permit, the Permittee shall assure compliance with discharge prohibitions and receiving water limitations by complying with the following procedure:
 - a) Upon a determination by either the Permittee or the Regional Board that discharges are causing or contributing to an exceedance of an applicable Water Quality Standard, the Permittee shall promptly notify and thereafter submit a Receiving Water Limitations (RWL) Compliance Report (as described in the Program Reporting Requirements, Section I of the Monitoring and Reporting Program) to the Regional Board that describes BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedances of Water Quality Standards. This RWL Compliance Report may be incorporated in the annual Storm Water Report and Assessment unless the Regional Board directs an earlier submittal. The RWL Compliance Report shall include an implementation schedule. The Regional Board may require modifications to the RWL Compliance Report.
 - b) Submit any modifications to the RWL Compliance Report required by the Regional Board within 30 days of notification.
 - c) Within 30 days following the approval of the RWL Compliance Report, the Permittee shall revise the SQMP and its components and monitoring program to incorporate the approved modified

BMPs that have been and will be implemented, an implementation schedule, and any additional monitoring required.

- d) Implement the revised SQMP and its components and monitoring program according to the approved schedule.
4. So long as the Permittee has complied with the procedures set forth above and is implementing the revised SQMP and its components, the Permittee does not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the Regional Board to develop additional BMPs.

Part 3. STORM WATER QUALITY MANAGEMENT PROGRAM (SQMP) IMPLEMENTATION

A. General Requirements

1. Each Permittee shall, at a minimum, implement the SQMP. The SQMP is an enforceable element of this Order. The SQMP shall be implemented no later than February 1, 2002, unless a later date has been specified for a particular provision in this Order.
2. The SQMP shall, at a minimum, comply with the applicable storm water program requirements of 40 CFR 122.26(d)(2). The SQMP and its components shall be implemented so as to reduce the discharges of pollutants in storm water to the MEP.
3. Each Permittee shall implement additional controls, where necessary, to reduce the discharges of pollutants in storm water to the MEP.
4. Permittees that modify the countywide SQMP (i.e., implement additional controls, implement different controls than described in the countywide SQMP, or determine that certain BMPs in the countywide SQMP are not applicable in the area under its jurisdiction), shall develop a local SQMP, no later than August 1, 2002. The local SQMP shall be customized to reflect the conditions in the area under the Permittee's jurisdiction and shall specify activities being implemented under the appropriate elements described in the countywide SQMP.

B. Best Management Practice Implementation

The Permittees shall implement or require the implementation of the most effective combination of BMPs for storm water/urban runoff pollution control. When implemented, BMPs are intended to result in the reduction of pollutants in storm water to the MEP.

C. Revision of the Storm Water Quality Management Program

The Permittees shall revise the SQMP, at the direction of the Regional Board Executive Officer, to incorporate program implementation amendments so as to comply with regional, watershed specific requirements, and/or waste load

allocations developed and approved pursuant to the process for the designation and implementation of Total Maximum Daily Loads (TMDLs) for impaired water bodies.

D. Designation and Responsibilities of the Principal Permittee

The Los Angeles County Flood Control District is hereby designated as the Principal Permittee. As such, the Principal Permittee shall:

1. Coordinate and facilitate activities necessary to comply with the requirements of this Order, but is not responsible for ensuring compliance of any individual Permittee;
2. Coordinate permit activities among Permittees and act as liaison between Permittees and the Regional Board on permitting issues;
3. Provide personnel and fiscal resources for the necessary updates of the SQMP and its components;
4. Provide technical and administrative support for committees that will be organized to implement the SQMP and its components;
5. Convene the Watershed Management Committees (WMCs) constituted pursuant to Part F, below, upon designation of representatives;
6. Implement the Countywide Monitoring Program required under this Order and evaluate, assess and synthesize the results of the monitoring program;
7. Provide personnel and fiscal resources for the collection, processing and submittal to the Regional Board of annual reports and summaries of other reports required under the SQMP; and
8. Comply with the "Responsibilities of the Permittees" in Part 3.E., below.

E. Responsibilities of the Permittees

Each Permittee is required to comply with the requirements of this Order applicable to discharges within its boundaries (see Findings D.1, D.2. and D.3.) and not for the implementation of the provisions applicable to the Principal Permittee or other Permittees. Each Permittee shall, within its geographic jurisdiction:

1. Comply with the requirements of the SQMP and any modifications thereto;
2. Coordinate among its internal departments and agencies, as appropriate, to facilitate the implementation of the requirements of the SQMP applicable to such Permittee in an efficient and cost-effective manner;
3. Designate a technically knowledgeable representative to the appropriate WMC;

4. Participate in intra-agency coordination (e.g. Fire Department, Building and Safety, Code Enforcement, Public Health, etc.) necessary to successfully implement the provisions of this Order and the SQMP.
5. Prepare an annual Budget Summary of expenditures applied to the storm water management program. This summary shall identify the storm water budget for the following year, using estimated percentages and written explanations where necessary, for the specific categories noted below:
 - a) Program management
 - Administrative costs
 - b) Program Implementation

Where information is available, provide an estimated percent breakdown of expenditures for the categories below:

 - Illicit connection/illicit discharge
 - Development planning
 - Development construction
 - Construction inspection activities
 - Industrial/Commercial inspection activities
 - Public Agency Activities
 - Maintenance of Structural BMPs and Treatment Control BMPs
 - Municipal Street Sweeping
 - Catch basin clean-up
 - Trash collection
 - Capital costs
 - c) Public Information and Participation
 - d) Monitoring Program
 - e) Miscellaneous Expenditures
6. Each Permittee, in addition to the Budget Summary, shall report any supplemental dedicated budgets for the same categories.

F. Watershed Management Committees (WMCs)

1. Each WMC shall be comprised of a voting representative from each Permittee in the WMA.
2. The WMC's chair and secretary shall be chosen by the WMC upon Order adoption and on an annual basis, thereafter. In the absence of volunteer Permittee(s) for the positions, the Principal Permittee shall assume those roles until the WMC chooses members of the committee for the positions.
3. Each WMC shall:
 - a) Facilitate cooperation and exchange of information among Permittees;

- b) Establish additional goals and objectives and associated deadlines for the WMA, as the program implementation progresses;
- c) Prioritize pollution control efforts based on beneficial use impairment(s), watershed characteristics and analysis of results from studies and the monitoring program;
- d) Develop and/or update and monitor the adequate implementation, on an annual basis, of the tasks identified for the WMA;
- e) Assess the effectiveness of, prepare revisions for, and recommend appropriate changes to the SQMP and its components;
- f) Continue to prioritize the Industrial/Commercial critical sources for investigation, outreach and follow-up; and
- g) Meet four times per year and, as necessary.

G. Legal Authority

1. Permittees shall possess the necessary legal authority to prohibit non-storm water discharges to the storm drain system, including, but not limited to:
 - a) Illicit discharges and illicit connections and require removal of illicit connections;
 - b) The discharge of wash waters to the MS4 from the cleaning of gas stations, auto repair garages, or other types of automotive service facilities;
 - c) The discharge of runoff to the MS4 from mobile auto washing, steam cleaning, mobile carpet cleaning, and other such mobile commercial and industrial operations;
 - d) The discharge of runoff to the MS4 from areas where repair of machinery and equipment which are visibly leaking oil, fluid or antifreeze, is undertaken;
 - e) The discharge of runoff to the MS4 from storage areas of materials containing grease, oil, or other hazardous substances, and uncovered receptacles containing hazardous materials;
 - f) The discharge of chlorinated/ brominated swimming pool water and filter backwash to the MS4;
 - g) The discharge of runoff from the washing of toxic materials from paved or unpaved areas to the MS4;
 - h) Washing impervious surfaces in industrial/commercial areas that results in a discharge of runoff to the MS4;

- i) The discharge of concrete or cement laden wash water from concrete trucks, pumps, tools, and equipment to the MS4; and
 - j) Dumping or disposal of materials into the MS4 other than storm water, such as:
 - (1) Litter, landscape debris and construction debris;
 - (2) Any state or federally banned or unregistered pesticides;
 - (3) Food and food processing wastes; and
 - (4) Fuel and chemical wastes, animal wastes, garbage, batteries, and other materials that have potential adverse impacts on water quality.
2. The Permittees shall possess adequate legal authority to:
- a) Require persons within their jurisdiction to comply with conditions in Permittees' ordinances, permits, contracts, model programs, or orders (i.e. hold dischargers to its MS4 accountable for their contributions of pollutants and flows);
 - b) Utilize enforcement mechanisms to require compliance with Permittees ordinances, permits, contracts, or orders;
 - c) Control pollutants, including potential contribution, in discharges of storm water runoff associated with industrial activities (including construction activities) to its MS4 and control the quality of storm water runoff from industrial sites (including construction sites). This requirement applies to Source Control, and Treatment Control BMPs;
 - d) Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and non-compliance with permit conditions, including the prohibition of illicit discharges to the MS4. Permittees must possess authority to enter, sample, inspect, review and copy records, and require regular reports from industrial facilities (including construction sites) discharging polluted or with the potential to discharge polluted storm water runoff into its MS4;
 - e) Require the use of BMPs to prevent or reduce the discharge of pollutants to MS4s to MEP; and
 - f) Require that Treatment Control BMPs be properly operated and maintained to prevent the breeding of vectors.
3. Each Permittee shall, no later than November 1, 2002, amend and adopt (if necessary), a Permittee-specific storm water and urban runoff ordinance to enforce all requirements of this permit.
4. Each Permittee shall submit no later than December 2, 2002, a new or updated statement by its legal counsel that the Permittee has obtained all

necessary legal authority to comply with this Order through adoption of ordinances and/or municipal code modifications.

Part 4. SPECIAL PROVISIONS

Maximum Extent Practicable Standard

This permit, and the provisions herein, are intended to develop, achieve, and implement a timely, comprehensive, cost-effective storm water pollution control program to reduce the discharge of pollutants in storm water to the MEP from the permitted areas in the County of Los Angeles to the waters of the State.

A. General Requirements

1. Best Management Practice Substitution

The Regional Board Executive Officer may approve any site-specific BMP substitution upon petition by a Permittee(s), if the Permittee can document that:

- a) The proposed alternative BMP or program will meet or exceed the objective of the original BMP or program in the reduction of storm water pollutants; or
- b) The fiscal burden of the original BMP or program is substantially greater than the proposed alternative and does not achieve a substantially greater improvement in storm water quality; and,
- c) The proposed alternative BMP or program will be implemented within a similar period of time.

B. Public Information and Participation Program (PIPP)

The Principal Permittee shall implement a Public Information and Participation Program (PIPP) that includes, but is not limited to, the requirements listed in this section. The Principal Permittee shall be responsible for developing and implementing the Public Education Program, as described in the SQMP, and shall coordinate with Permittees to implement specific requirements.

The objectives of the PIPP are as follows:

- To measurably increase the knowledge of the target audiences regarding the MS4, the impacts of storm water pollution on receiving waters, and potential solutions to mitigate the problems caused;
- To measurably change the waste disposal and runoff pollution generation behavior of target audiences by encouraging implementation of appropriate solutions; and
- To involve and engage socio-economic groups and ethnic communities in Los Angeles County to participate in mitigating the impacts of storm water pollution.

The Principal Permittee shall convene an advisory committee to provide input and assistance in meeting the goals and objectives of the public education campaign. The advisory committee shall be consulted during the process of developing the PIPP campaign, and shall provide comments and advice during the process of preparing a Request For Proposals for a storm water public education contractor. The committee may participate as a part of a working group that evaluates contractor proposals and other tasks as appropriate. The committee shall be comprised of representatives of the environmental community, Permittee cities, Regional Board staff, and experts in the fields of public education and marketing. The Principal Permittee shall ensure that the committee meets at least once a year.

1. Residential Program

a) "No Dumping" Message

Each Permittee shall mark all storm drain inlets that they own with a legible "no dumping" message. In addition, signs with prohibitive language discouraging illegal dumping must be posted at designated public access points to creeks, other relevant water bodies, and channels no later than February 2, 2004. Signage and storm drain messages shall be legible and maintained as necessary during the term of the permit.

b) Countywide Hotline

The 888-CLEAN-LA hotline will serve as the general public reporting contact for reporting clogged catch basin inlets and illicit discharges/dumping, faded or lack of catch basin stencils, and general storm water management information. Each Permittee may establish its own hotline if preferred. Permittees shall include this information, updated when necessary, in public information, and the government pages of the telephone book, as they are developed or published. The Principal Permittee shall compile a list of the general public reporting contacts from all Permittees and make this information available on the web site (888CleanLA.com) and upon request. Permittees shall provide the Principal Permittee with their reporting contacts no later than March 1, 2002. Permittees are responsible for providing current, updated information to the Principal Permittee.

c) Outreach and Education

(1) The Principal Permittee shall continue to implement the following activities that were components of the first five-year PIPP:

- (i) Advertising;
- (ii) Media relations;
- (iii) Public service announcements;
- (iv) "How To" instructional material distributed in a targeted and activity-related manner;

- (v) Corporate, community association, environmental organization and entertainment industry tie-ins; and
 - (vi) Events targeted to specific activities and population subgroups.
- (2) The Principal Permittee shall develop a strategy to educate ethnic communities and businesses through culturally effective methods. Details of this strategy should be incorporated into the Public Education Program, and implemented, no later than February 3, 2003.
 - (3) The Principal Permittee shall enhance the existing outreach efforts to residents and businesses related to the proper disposal of cigarette butts.
 - (4) Each Permittee shall conduct educational activities within its jurisdiction and participate in countywide events.
 - (5) The Principal Permittee shall organize Public Outreach Strategy meetings for Permittees on a quarterly basis, beginning no later than May 1, 2002. The Principal Permittee shall provide guidance for Permittees to augment the countywide outreach and education program. Permittees shall coordinate regional and local outreach and education to reduce duplication of efforts. Permittees are encouraged to include other interested parties in the outreach strategy to strengthen and coordinate educational efforts.
 - (6) The Principal Permittee shall ensure that a minimum of 35 million impressions per year are made on the general public about storm water quality via print, local TV access, local radio, or other appropriate media.
 - (7) The Principal Permittee, in cooperation with the Permittees, shall provide schools within each School District in the County with materials, including, but not limited to, videos, live presentations, and other information necessary to educate a minimum of 50 percent of all school children (K-12) every 2 years on storm water pollution.
 - (8) Permittees shall provide the contact information for their appropriate staff responsible for storm water public education activities to the Principal Permittee no later than April 1, 2002, and changes to contact information no later than 30 days after a change occurs.
 - (9) The Principal Permittee shall develop a strategy to measure the effectiveness of in-school educational programs. The protocol shall include assessment of students' knowledge of storm water pollution problems and

solutions before and after educational efforts are conducted. The protocol shall be developed and submitted to the Regional Board Executive Officer for approval no later than May 1, 2002. It shall be implemented upon approval.

- (10) In order to ensure that the PIPP is demonstrably effective in changing the behavior of the public, the Principal Permittee shall develop a behavioral change assessment strategy no later than May 1, 2002. The strategy shall be developed based on sociological data and studies (such as the County Segmentation Study). The Principal Permittee shall submit the assessment strategy to the Regional Board Executive Office for approval. It shall be implemented on approval.

d) Pollutant-Specific Outreach

The Principal Permittee, in cooperation with Permittees, shall coordinate to develop outreach programs that focus on the watershed-specific pollutants listed in Table 1 no later than February 3, 2003. Metals may be appropriately addressed through the Industrial/Commercial Facilities Program (e.g. distribute education materials on appropriate BMPs for metal waste management to facilities that have been identified as a potential source, such as metal fabricating facilities). Region-wide pollutants may be included in the Principal Permittee's mass media outreach efforts.

Watershed	Target Pollutants for Outreach
Ballona Creek	Trash, Indicator Bacteria, Metals, PAHs
Malibu Creek	Trash, Nutrients (Nitrogen), Indicator Bacteria, Sediments
Los Angeles River	Trash, Nutrients (Nitrogen), Indicator Bacteria, Metals, Pesticides, PAHs
San Gabriel River	Trash, Nutrients (Nitrogen), Indicator Bacteria, Metals
Santa Clara River	Nutrients (Nitrogen), Coliform
Dominguez Channel	Trash, Indicator Bacteria, PAHs

Each Permittee shall make outreach materials available to the general public and target audiences, such as schools, community groups, contractors and developers, and at appropriate public counters and events. Outreach material shall include information on pollutants, sources of concern, and source abatement measures.

2. Businesses Program

a) Corporate Outreach

The Principal Permittee shall develop and implement a Corporate Outreach program to educate and inform corporate managers about storm water regulations. The program shall target RGOs and restaurant chains. At a minimum, this program shall include:

- (1) Conferring with corporate management to explain storm water regulations;
- (2) Distribution and discussion of educational material regarding storm water pollution and BMPs, and provide managers with suggestions to facilitate employee compliance with storm water regulations.

Corporate Outreach for all RGOs and restaurant chain corporations shall be conducted not less than twice during the permit term, with the first outreach contact to begin no later than February 3, 2003.

b) Business Assistance Program

The Principal Permittee and Permittees may implement a Business Assistance Program to provide technical resource assistance to small businesses to advise them on BMPs implementation to reduce the discharge of pollutants in storm water runoff. Programs may include:

- (1) On-site technical assistance or consultation via telephone to identify and implement storm water pollution prevention methods and best management practices; and
- (2) Making available, distributing, and discussing of applicable BMP and educational materials.

C. Industrial/Commercial Facilities Control Program

Each Permittee shall require implementation of pollutant reduction and control measures at industrial and commercial facilities, with the objective of reducing pollutants in storm water runoff. Except as specified in other sections of this Order, pollutant reduction and control measures can be used alone or in combination, and can include Structural and Source Control BMPs, and operation and maintenance procedures, which can be applied before, during, and/or after pollution generating activities. At a minimum, the Industrial/Commercial Facilities Control Program shall include requirements to: (1) track, (2) inspect, and (3) ensure compliance at industrial and commercial facilities that are critical sources of pollutants in storm water.

1. Track Critical Sources

a) Each Permittee shall maintain a watershed-based inventory or database of all facilities within its jurisdiction that are critical sources of storm water pollution. Critical sources to be tracked are summarized below, and also specified in Attachment B:

(1) Commercial Facilities

- restaurants;
- automotive service facilities; and
- RGOs and automotive dealerships.

(2) USEPA Phase I Facilities (Tier 1 and 2)

(3) Other Federally-mandated Facilities [as specified in 40 CFR 122.26(d)(2)(iv)(C)]

- municipal landfills;
- hazardous waste treatment, disposal, and recovery facilities; and
- facilities subject to SARA Title III (also known as EPCRA).

b) Each Permittee shall include the following minimum fields of information for each industrial and commercial facility:

- name of facility and name of owner/operator;
- address;
- coverage under the GIASP or other individual or general NPDES permits; and
- a narrative description including SIC codes that best reflects the industrial activities at and principal products of each facility.

The Regional Board encourages Permittees to add other fields of information, such as material usage and/or industrial output, and discrepancies between SIC Code designations (as reported by facility operators) and the actual type of industrial activity has the potential to pollute storm water. In addition, the Regional Board recommends use of an automated database system, such as a Geographical Information System (GIS) or Internet-based system; however, this is not required.

c) Each Permittee shall update its inventory of critical sources at least annually. The update may be accomplished through collection of new information obtained through field activities or through other readily available intra-agency informational databases (e.g. business licenses, pretreatment permits, sanitary sewer hook-up permits).

2. Inspect Critical Sources

Each Permittee shall inspect all facilities in the categories and at a level and frequency as specified in the following subsections.

a) Commercial Facilities

(1) Restaurants

Frequency of Inspections: Twice during the 5-year term of the Order, provided that the first inspection occurs no later than August 1, 2004, and that there is a minimum interval of one year in between the first compliance inspection and the second compliance inspection.

Level of inspections: Each Permittee, in cooperation with its appropriate department (such as health or public works), shall inspect all restaurants within its jurisdiction to confirm that storm water BMPs are being effectively implemented in compliance with State law, County and municipal ordinances, Regional Board Resolution 98-08, and the SQMP. At each restaurant, inspectors shall verify that the restaurant operator:

- has received educational materials on storm water pollution prevention practices;
- does not pour oil and grease or oil and grease residue onto a parking lot, street or adjacent catch basin;
- keeps the trash bin area clean and trash bin lids closed, and does not fill trash bins with washout water or any other liquid;
- does not allow illicit discharges, such as discharge of washwater from floormats, floors, porches, parking lots, alleys, sidewalks and street areas (in the immediate vicinity of the establishment), filters or garbage/trash containers;
- removes food waste, rubbish or other materials from parking lot areas in a sanitary manner that does not create a nuisance or discharge to the storm drain.

(2) Automotive Service Facilities

Frequency of Inspections: Twice during the 5-year term of the Order, provided that the first inspection occurs no later than August 1, 2004, and that there is a minimum interval of one year in between the first compliance inspection and the second compliance inspection.

Level of inspections: Each Permittee shall inspect all automotive service facilities within its jurisdiction to confirm that storm water BMPs are effectively implemented in compliance with County and municipal ordinances, Regional Board Resolution 98-08, and the SQMP. At each

automotive service facility, inspectors shall verify that each operator:

- maintains the facility area so that it is clean and dry and without evidence of excessive staining;
- implements housekeeping BMPs to prevent spills and leaks;
- properly discharges wastewaters to a sanitary sewer and/or contains wastewaters for transfer to a legal point of disposal;
- is aware of the prohibition on discharge of non-storm water to the storm drain;
- properly manages raw and waste materials including proper disposal of hazardous waste;
- protects outdoor work and storage areas to prevent contact of pollutants with rainfall and runoff;
- labels, inspects, and routinely cleans storm drain inlets that are located on the facility's property; and
- trains employees to implement storm water pollution prevention practices.

(3) Retail Gasoline Outlets and Automotive Dealerships

Frequency of Inspection: Twice during the 5-year term of the Order, provided that the first inspection occurs no later than August 1, 2004, and that there is a minimum interval of one year in between the first compliance inspection and the second compliance inspection.

Level of Inspection: Each Permittee shall confirm that BMPs are being effectively implemented at each RGO and automotive dealership within its jurisdiction, in compliance with the SQMP, Regional Board Resolution 98-08, and the Stormwater Quality Task Force Best Management Practice Guide for RGOs. At each RGO and automotive dealership, inspectors shall verify that each operator:

- routinely sweeps fuel-dispensing areas for removal of litter and debris, and keeps rags and absorbents ready for use in case of leaks and spills;
- is aware that washdown of facility area to the storm drain is prohibited;
- is aware of design flaws (such as grading that doesn't prevent run-on, or inadequate roof covers and berms), and that equivalent BMPs are implemented;
- inspects and cleans storm drain inlets and catch basins within each facility's boundaries no later than October 1st of each year;

- posts signs close to fuel dispensers, which warn vehicle owners/operators against “topping off” of vehicle fuel tanks and installation of automatic shutoff fuel dispensing nozzles;
- routinely checks outdoor waste receptacle and air/water supply areas, cleans leaks and drips, and ensures that only watertight waste receptacles are used and that lids are closed; and
- trains employees to properly manage hazardous materials and wastes as well as to implement other storm water pollution prevention practices.

b) Phase I Facilities

Permittees need not inspect facilities that have been inspected by the Regional Board within the past 24 months. For the remaining Phase I facilities that the Regional Board has not inspected, each Permittee shall conduct compliance inspections as specified below.

Frequency of Inspection

Facilities in Tier 1 Categories: Twice during the 5-year term of the Order, provided that the first inspection occurs no later than August 1, 2004, and that there is a minimum interval of one year in between the first compliance inspection and the second compliance inspection.

Facilities in Tier 2 Categories: Twice during the 5-year term of the permit, provided that the first inspection occurs no later than August 1, 2004. Permittees need not perform additional inspections at those facilities determined to have no risk of exposure of industrial activity to storm water. For those facilities that do have exposure of industrial activities to storm water, a Permittee may reduce the frequency of additional compliance inspections to once every 5 years, provided that the Permittee inspects at least 20% of the facilities in Tier 2 each year.

Level of Inspection: Each Permittee shall confirm that each operator:

- has a current Waste Discharge Identification (WDID) number for facilities discharging storm water associated with industrial activity, and that a Storm Water Pollution Prevention Plan is available on-site, and
- is effectively implementing BMPs in compliance with County and municipal ordinances, Regional Board Resolution 98-08, and the SQMP.

c) Other Federally-mandated Facilities

Frequency of Inspection: Twice during the 5-year term of the Order, provided that the first inspection occurs no later than August 1, 2004, and that there is a minimum interval of one year in between the first compliance inspection and the second compliance inspection.

Level of Inspection: Each Permittee shall confirm that each operator:

- has a current Waste Discharge Identification (WDID) number for facilities discharging storm water associated with industrial activity, and that a Storm Water Pollution Prevention Plan is available on-site, and
- is effectively implementing BMPs in compliance with County and municipal ordinances, Regional Board Resolution 98-08, and the SQMP.

3. Ensure Compliance of Critical Sources

- a) **BMP Implementation:** In the event that a Permittee determines that a BMP specified by the SQMP or Regional Board Resolution 98-08 is infeasible at any site, that Permittee shall require implementation of other BMPs that will achieve the equivalent reduction of pollutants in the storm water discharges. Likewise, for those BMPs that are not adequate to achieve water quality objectives, Permittees may require additional site-specific controls, such as Treatment Control BMPs.
- b) **Environmentally Sensitive Areas and Impaired Waters:** For critical sources that are in ESAs or that are tributary to CWA § 303(d) impaired water bodies, Permittees shall consider requiring operators to implement additional controls to reduce pollutants in storm water runoff that are causing or contributing to the exceedences of Water Quality Objectives.
- c) **Progressive Enforcement:** Each Permittee shall implement a progressive enforcement policy to ensure that facilities are brought into compliance with all storm water requirements within a reasonable time period as specified below.
- (1) In the event that a Permittee determines, based on an inspection conducted above, that an operator has failed to adequately implement all necessary BMPs, that Permittee shall take progressive enforcement action which, at a minimum, shall include a follow-up inspection within 4 weeks from the date of the initial inspection.

- (2) In the event that a Permittee determines that an operator has failed to adequately implement BMPs after a follow-up inspection, that Permittee shall take further enforcement action as established through authority in its municipal code and ordinances or through the judicial system.
 - (3) Each Permittee shall maintain records, including inspection reports, warning letters, notices of violations, and other enforcement records, demonstrating a good faith effort to bring facilities into compliance.
- d) Interagency Coordination
- (1) **Referral of Violations of the SQMP, Regional Board Resolution 98-08, and Municipal Storm Water Ordinances:** A Permittee may refer a violation(s) to the Regional Board provided that that Permittee has made a good faith effort of progressive enforcement. At a minimum, a Permittee's good faith effort must include documentation of:
 - Two follow-up inspections, and
 - Two warning letters or notices of violation.
 - (2) **Referral of Violations of the GIASP, including Requirements to File a Notice of Intent:** For those facilities in violation of the GIASP, Permittees may escalate referral of such violations to the Regional Board after one inspection and one written notice to the operator regarding the violation. In making such referrals, Permittees shall include, at a minimum, the following documentation:
 - Name of the facility;
 - Operator of the facility;
 - Owner of the facility;
 - Industrial activity being conducted at the facility that is subject to the GIASP; and
 - Records of communication with the facility operator regarding the violation, which shall include at least an inspection report and one written notice of the violation.

Permittees shall, at a minimum, make such referrals on a quarterly basis.
 - (3) **Investigation of Complaints Regarding Facilities – Transmitted by the Regional Board Staff:** Each Permittee shall initiate, within one business day, investigation of complaints (other than non-storm water discharges) regarding facilities within its jurisdiction. The initial investigation shall include, at a minimum, a limited

inspection of the facility to confirm the complaint to determine if the facility is effectively complying with the SQMP and municipal storm water/urban runoff ordinances, and to oversee corrective action.

- (4) **Support of Regional Board Enforcement Actions:** As directed by the Regional Board Executive Officer, Permittees shall support Regional Board enforcement actions by: assisting in identification of current owners, operators, and lessees of facilities; providing staff, when available, for joint inspections with Regional Board inspectors; appearing as witnesses in Regional Board enforcement hearings; and providing copies of inspection reports and other progressive enforcement documentation.
- (5) **Participation in a Task Force:** The Permittees, Regional Board, and other stakeholders may form a Storm Water Task Force, the purpose of which is to communicate concerns regarding special cases of storm water violations by industrial and commercial facilities and to develop a coordinated approach to enforcement action.

D. Development Planning Program

The Permittees shall implement a development-planning program that will require all Planning Priority development and Redevelopment projects to:

- Minimize impacts from storm water and urban runoff on the biological integrity of Natural Drainage Systems and water bodies in accordance with requirements under CEQA (Cal. Pub. Resources Code § 21100), CWC § 13369, CWA § 319, CWA § 402(p), CWA § 404, CZARA § 6217(g), ESA § 7, and local government ordinances ;
- Maximize the percentage of pervious surfaces to allow percolation of storm water into the ground;
- Minimize the quantity of storm water directed to impervious surfaces and the MS4;
- Minimize pollution emanating from parking lots through the use of appropriate Treatment Control BMPs and good housekeeping practices;
- Properly design and maintain Treatment Control BMPs in a manner that does not promote the breeding of vectors; and
- Provide for appropriate permanent measures to reduce storm water pollutant loads in storm water from the development site.

1. Peak Flow Control

The Permittees shall control post-development peak storm water runoff discharge rates, velocities, and duration (peak flow control) in Natural

Drainage Systems (i.e., mimic pre-development hydrology) to prevent accelerated stream erosion and to protect stream habitat. Natural Drainage Systems are located in the following areas:

- a) Malibu Creek;
- b) Topanga Canyon Creek;
- c) Upper Los Angeles River;
- d) Upper San Gabriel River;
- e) Santa Clara River; and
- f) Los Angeles County Coastal streams (see Basin Plan Table 2-1).

The Principal Permittee in consultation with Permittees shall develop numerical criteria for peak flow control, based on the results of the Peak Discharge Impact Study (see Monitoring Program Section II.I).

Each Permittee shall, no later than February 1, 2005, implement numerical criteria for peak flow control.

A Permittee or group of Permittees may substitute for the countywide peak flow control criteria with a Hydromodification Control Plan (HCP), on approval by the Regional Board, in the following circumstances:

- (1) Stream or watershed-specific conditions indicate the need for a different peak flow control criteria, and the alternative numerical criteria is developed through the application of hydrologic modeling and supporting field observations; or
- (2) A watershed-wide plan has been developed for implementation of control measures to reduce erosion and stabilize drainage systems on a watershed basis.

2. Standard Urban Storm Water Mitigation Plans (SUSMPs)

- a) Each Permittee shall amend codes and ordinances not later than August 1, 2002 to give legal effect to SUSMP changes contained in this Order. Changes to SUSMP requirements shall take effect not later than September 2, 2002.
- b) Each Permittee shall require that a single-family hillside home:
 - (1) Conserve natural areas;
 - (2) Protect slopes and channels;
 - (3) Provide storm drain system stenciling and signage;
 - (4) Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability; and

- (5) Direct surface flow to vegetated areas before discharge unless the diversion would result in slope instability.
- c) Each Permittee shall require that a SUSMP as approved by the Regional Board in Board Resolution No. R 00-02 be implemented for the following categories of developments:
 - (1) Ten or more unit homes (includes single family homes, multifamily homes, condominiums, and apartments);
 - (2) A 100,000 or more square feet of impervious surface area industrial/ commercial development;
 - (3) Automotive service facilities (SIC 5013, 5014, 5541, 7532-7534, and 7536-7539);
 - (4) Retail gasoline outlets;
 - (5) Restaurants (SIC 5812);
 - (6) Parking lots 5,000 square feet or more of surface area or with 25 or more parking spaces; and
 - (7) Redevelopment projects in subject categories that meet Redevelopment thresholds.
- d) Each Permittee shall submit an ESA Delineation Map for its jurisdictional boundary, based on the Regional Board's ESA Definition, no later than June 3, 2002, for approval by the Regional Board Executive Officer in consultation with the California Department of Fish and Game, and the California Coastal Commission.
- e) Each Permittee shall require the implementation of SUSMP provisions no later than September 2, 2002, for all projects located in or directly adjacent to or discharging directly to an ESA, where the development will:
 - (1) Discharge storm water and urban runoff that is likely to impact a sensitive biological species or habitat; and
 - (2) Create 2,500 square feet or more of impervious surface area.

3. Numerical Design Criteria

The Permittees shall require that post-construction Treatment Control BMPs incorporate, at a minimum, either a volumetric or flow based treatment control design standard, or both, as identified below to mitigate (infiltrate, filter or treat) storm water runoff:

- a) Volumetric Treatment Control BMP
 - (1) The 85th percentile 24-hour runoff event determined as the maximized capture storm water volume for the area, from

the formula recommended in *Urban Runoff Quality Management, WEF Manual of Practice No. 23/ ASCE Manual of Practice No. 87, (1998)*; or

- (2) The volume of annual runoff based on unit basin storage water quality volume, to achieve 80 percent or more volume treatment by the method recommended in *California Stormwater Best Management Practices Handbook – Industrial/ Commercial, (1993)*; or
 - (3) The volume of runoff produced from a 0.75 inch storm event, prior to its discharge to a storm water conveyance system; or
 - (4) The volume of runoff produced from a historical-record based reference 24-hour rainfall criterion for “treatment” (0.75 inch average for the Los Angeles County area) that achieves approximately the same reduction in pollutant loads achieved by the 85th percentile 24-hour runoff event.
- b) Flow Based Treatment Control BMP
- (1) The flow of runoff produced from a rain event equal to at least 0.2 inches per hour intensity; or
 - (2) The flow of runoff produced from a rain event equal to at least two times the 85th percentile hourly rainfall intensity for Los Angeles County; or
 - (3) The flow of runoff produced from a rain event that will result in treatment of the same portion of runoff as treated using volumetric standards above.

4. Applicability of Numerical Design Criteria

The Permittees shall require the following categories of Planning Priority Projects to design and implement post-construction treatment controls to mitigate storm water pollution:

- a) Single-family hillside residential developments of one acre or more of surface area;
- b) Housing developments (includes single family homes, multifamily homes, condominiums, and apartments) of ten units or more;
- c) A 100,000 square feet or more impervious surface area industrial/commercial development;
- d) Automotive service facilities (SIC 5013, 5014, 5541, 7532-7534 and 7536-7539) [5,000 square feet or more of surface area];
- e) Retail gasoline outlets [5,000 square feet or more of impervious surface area and with projected Average Daily Traffic (ADT) of 100 or more vehicles]. Subsurface Treatment Control BMPs

which may endanger public safety (i.e., create an explosive environment) are considered not appropriate;

- f) Restaurants (SIC 5812) [5,000 square feet or more of surface area];
 - g) Parking lots 5,000 square feet or more of surface area or with 25 or more parking spaces;
 - h) Projects located in, adjacent to or discharging directly to an ESA that meet threshold conditions identified above in 2.e; and
 - i) Redevelopment projects in subject categories that meet Redevelopment thresholds.
5. Not later than March 10, 2003, each Permittee shall require the implementation of SUSMP and post-construction control requirements for the industrial/commercial development category to projects that disturb one acre or more of surface area.
6. Site Specific Mitigation

Each Permittee shall, no later than September 2, 2002, require the implementation of a site-specific plan to mitigate post-development storm water for new development and redevelopment not requiring a SUSMP but which may potentially have adverse impacts on post-development storm water quality, where one or more of the following project characteristics exist:

- a) Vehicle or equipment fueling areas;
 - b) Vehicle or equipment maintenance areas, including washing and repair;
 - c) Commercial or industrial waste handling or storage;
 - d) Outdoor handling or storage of hazardous materials;
 - e) Outdoor manufacturing areas;
 - f) Outdoor food handling or processing;
 - g) Outdoor animal care, confinement, or slaughter; or
 - h) Outdoor horticulture activities.
7. Redevelopment Projects

The Permittees shall apply the SUSMP, or site specific requirements including post-construction storm water mitigation to all Planning Priority Projects that undergo significant Redevelopment in their respective categories.

- a) Significant Redevelopment means land-disturbing activity that results in the creation or addition or replacement of 5,000 square

feet or more of impervious surface area on an already developed site.

Where Redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post development storm water quality control requirements, the entire project must be mitigated. Where Redevelopment results in an alteration to less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post development storm water quality control requirements, only the alteration must be mitigated, and not the entire development.

- b) Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety.
- c) Existing single family structures are exempt from the Redevelopment requirements.

8. Maintenance Agreement and Transfer

Each Permittee shall require that all developments subject to SUSMP and site specific plan requirements provide verification of maintenance provisions for Structural and Treatment Control BMPs, including but not limited to legal agreements, covenants, CEQA mitigation requirements, and or conditional use permits. Verification at a minimum shall include:

- a) The developer's signed statement accepting responsibility for maintenance until the responsibility is legally transferred; and either
- b) A signed statement from the public entity assuming responsibility for Structural or Treatment Control BMP maintenance and that it meets all local agency design standards; or
- c) Written conditions in the sales or lease agreement, which requires the recipient to assume responsibility for maintenance and conduct a maintenance inspection at least once a year; or
- d) Written text in project conditions, covenants and restrictions (CCRs) for residential properties assigning maintenance responsibilities to the Home Owners Association for maintenance of the Structural and Treatment Control BMPs; or
- e) Any other legally enforceable agreement that assigns responsibility for the maintenance of post-construction Structural or Treatment Control BMPs.

9. Regional Storm Water Mitigation Program

A Permittee or Permittee group may apply to the Regional Board for approval of a regional or sub-regional storm water mitigation program to substitute in part or wholly SUSMP requirements. Upon review and a determination by the Regional Board Executive Officer that the proposal is technically valid and appropriate, the Regional Board may consider for approval such a program if its implementation will:

- a) Result in equivalent or improved storm water quality;
- b) Protect stream habitat;
- c) Promote cooperative problem solving by diverse interests;
- d) Be fiscally sustainable and has secure funding; and
- e) Be completed in five years including the construction and start-up of treatment facilities.

Nothing in this provision shall be construed as to delay the implementation of SUSMP requirements, as approved in this Order.

10. Mitigation Funding

The Permittees may propose a management framework, for endorsement by the Regional Board Executive Officer, to support regional or sub-regional solutions to storm water pollution, where any of the following situations occur:

- a) A waiver for impracticability is granted;
- b) Legislative funds become available;
- c) Off-site mitigation is required because of loss of environmental habitat; or
- d) An approved watershed management plan or a regional storm water mitigation plan exists that incorporates an equivalent or improved strategy for storm water mitigation.

11. California Environmental Quality Act (CEQA) Document Update

Each Permittee shall incorporate into its CEQA process, with immediate effect, procedures for considering potential storm water quality impacts and providing for appropriate mitigation when preparing and reviewing CEQA documents. The procedures shall require consideration of the following:

- a) Potential impact of project construction on storm water runoff;
- b) Potential impact of project post-construction activity on storm water runoff;
- c) Potential for discharge of storm water from areas from material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous

materials handling or storage, delivery areas or loading docks, or other outdoor work areas;

- d) Potential for discharge of storm water to impair the beneficial uses of the receiving waters or areas that provide water quality benefit;
- e) Potential for the discharge of storm water to cause significant harm on the biological integrity of the waterways and water bodies;
- f) Potential for significant changes in the flow velocity or volume of storm water runoff that can cause environmental harm; and
- g) Potential for significant increases in erosion of the project site or surrounding areas.

12. General Plan Update

- a) Each Permittee shall amend, revise or update its General Plan to include watershed and storm water quality and quantity management considerations and policies when any of the following General Plan elements are updated or amended: (i) Land Use, (ii) Housing, (iii) Conservation, and (iv) Open Space.
- b) Each Permittee shall provide the Regional Board with the draft amendment or revision when a listed General Plan element or the General Plan is noticed for comment in accordance with Cal. Govt. Code § 65350 *et seq.*

13. Targeted Employee Training

Each Permittee shall train its employees in targeted positions (whose jobs or activities are engaged in development planning) regarding the development planning requirements on an annual basis beginning no later than August 1, 2002, and more frequently if necessary. For Permittees with a population of 250,000 or more (2000 U.S. Census), training shall be completed no later than February 3, 2003.

14. Developer Technical Guidance and Information

- a) Each Permittee shall develop and make available to the developer community SUSMP (development planning) guidelines immediately.
- b) The Principal Permittee in partnership with Permittees shall issue no later than February 2, 2004, a technical manual for the siting and design of BMPs for the development community in Los Angeles County. The technical manual may be adapted from the revised California Storm Water Quality Task Force Best Management Practices Handbooks scheduled for publication in September 2002. The technical manual shall at a minimum include:

- (1) Treatment Control BMPs based on flow-based and volumetric water quality design criteria for the purposes of countywide consistency;
- (2) Peak Flow Control criteria to control peak discharge rates, velocities and duration;
- (3) Expected pollutant removal performance ranges obtained from national databases, technical reports and the scientific literature;
- (4) Maintenance considerations; and
- (5) Cost considerations.

E. Development Construction Program

1. Each Permittee shall implement a program to control runoff from construction activity at all construction sites within its jurisdiction. The program shall ensure the following minimum requirements are effectively implemented at all construction sites:
 - a) Sediments generated on the project site shall be retained using adequate Treatment Control or Structural BMPs;
 - b) Construction-related materials, wastes, spills, or residues shall be retained at the project site to avoid discharge to streets, drainage facilities, receiving waters, or adjacent properties by wind or runoff;
 - c) Non-storm water runoff from equipment and vehicle washing and any other activity shall be contained at the project site; and
 - d) Erosion from slopes and channels shall be controlled by implementing an effective combination of BMPs (as approved in Regional Board Resolution No. 99-03), such as the limiting of grading scheduled during the wet season; inspecting graded areas during rain events; planting and maintenance of vegetation on slopes; and covering erosion susceptible slopes.
2. For construction sites one acre and greater, each Permittee shall comply with all conditions in section E.1. above and shall:
 - a) Require the preparation and submittal of a Local Storm Water Pollution Prevention Plan (Local SWPPP), for approval prior to issuance of a grading permit for construction projects.
The Local SWPPP shall include appropriate construction site BMPs and maintenance schedules. (A Local SWPPP may substitute for the State SWPPP if the Local SWPPP is at least as inclusive in controls and BMPs as the State SWPPP). The Local SWPPP must include the rationale used for selecting or rejecting BMPs. The project architect, or engineer of record, or authorized

qualified designee, must sign a statement on the Local SWPPP to the effect:

“As the architect/engineer of record, I have selected appropriate BMPs to effectively minimize the negative impacts of this project’s construction activities on storm water quality. The project owner and contractor are aware that the selected BMPs must be installed, monitored, and maintained to ensure their effectiveness. The BMPs not selected for implementation are redundant or deemed not applicable to the proposed construction activity.”

The landowner or the landowner’s agent shall sign a statement to the effect:

“I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that submitting false and/or inaccurate information, failing to update the Local SWPPP to reflect current conditions, or failing to properly and/or adequately implement the Local SWPPP may result in revocation of grading and/or other permits or other sanctions provided by law.”

The Local SWPPP certification shall be signed by the landowner as follows, for a corporation: by a responsible corporate officer which means (a) a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or (b) the manager of the construction activity if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures; for a partnership or sole proprietorship: by a general partner or the proprietor; or for a municipality or other public agency: by an elected official, a ranking management official (e.g., County Administrative Officer, City Manager, Director of Public Works, City Engineer, District Manager), or the manager of the construction activity if authority to sign Local SWPPPs has been assigned or delegated to the manager in accordance with established agency policy.

- b) Inspect all construction sites for storm water quality requirements during routine inspections a minimum of once during the wet season. The Local SWPPP shall be reviewed for compliance with local codes, ordinances, and permits. For inspected sites that have not adequately implemented their Local SWPPP, a follow-up inspection to ensure compliance will take place within 2 weeks. If compliance has not been attained, the Permittee will take additional actions to achieve compliance (as specified in municipal

- codes). If compliance has not been achieved, and the site is also covered under a statewide general construction storm water permit, each Permittee shall enforce their local ordinance requirements, and if non-compliance continues the Regional Board shall be notified for further joint enforcement actions.
- c) Require, no later than March 10, 2003, prior to issuing a grading permit for all projects less than five acres requiring coverage under a statewide general construction storm water permit, proof of a Waste Discharger Identification (WDID) Number for filing a Notice of Intent (NOI) for permit coverage and a certification that a SWPPP has been prepared by the project developer. A Local SWPPP may substitute for the State SWPPP if the Local SWPPP is at least as inclusive in controls and BMPs as the State SWPPP.
3. For sites five acres and greater, each Permittee shall comply with all conditions in Sections E.1. and E.2. and shall:
- a) Require, prior to issuing a grading permit for all projects requiring coverage under the state general permit, proof of a Waste Discharger Identification (WDID) Number for filing a Notice of Intent (NOI) for coverage under the GCASP and a certification that a SWPPP has been prepared by the project developer. A Local SWPPP may substitute for the State SWPPP if the Local SWPPP is at least as inclusive in controls and BMPs as the State SWPPP.
- b) Require proof of an NOI and a copy of the SWPPP at any time a transfer of ownership takes place for the entire development or portions of the common plan of development where construction activities are still on-going.
- c) Use an effective system to track grading permits issued by each Permittee. To satisfy this requirement, the use of a database or GIS system is encouraged, but not required.
4. GCASP Violation Referrals
- a) Referral of Violations of the SQMP, Regional Board Resolution 98-08, and municipal storm water ordinances:
A Permittee may refer a violation(s) to the Regional Board provided that the Permittee has made a good faith effort of progressive enforcement. At a minimum, a Permittee's good faith effort must include documentation of:
- Two follow-up inspections within 3 months, and
 - Two warning letters or notices of violation.
- b) Referral of Violations of GCASP Filing Requirements:
For those projects subject to the GCASP, Permittees shall refer non-filers (i.e., those projects which cannot demonstrate that they have a WDID number) to the Regional Board, within 15 days of

making a determination. In making such referrals, Permittees shall include, at a minimum, the following documentation:

- Project location;
- Developer;
- Estimated project size; and
- Records of communication with the developer regarding filing requirements.

5. Each Permittee shall train employees in targeted positions (whose jobs or activities are engaged in construction activities including construction inspection staff) regarding the requirements of the storm water management program no later than August 1, 2002, and annually thereafter. For Permittees with a population of 250,000 or more (2000 U.S. Census), initial training shall be completed no later than February 3, 2003. Each Permittee shall maintain a list of trained employees.

F. Public Agency Activities Program

Each Permittee shall implement a Public Agency program to minimize storm water pollution impacts from public agency activities. Public Agency requirements consist of:

- Sewage Systems Maintenance, Overflow, and Spill Prevention
- Public Construction Activities Management
- Vehicle Maintenance/Material Storage Facilities/Corporation Yards Management
- Landscape and Recreational Facilities Management
- Storm Drain Operation and Management
- Streets and Roads Maintenance
- Parking Facilities Management
- Public Industrial Activities Management
- Emergency Procedures
- Treatment Feasibility Study

1. Sewage System Maintenance, Overflow, and Spill Prevention
 - a) Each Permittee shall implement a response plan for overflows of the sanitary sewer system within their respective jurisdiction, which shall consist at a minimum of the following:
 - (1) Investigation of any complaints received;
 - (2) Upon notification, immediate response to overflows for containment; and
 - (3) Notification to appropriate sewer and public health agencies when a sewer overflows to the MS4.
 - b) In addition to 1.a.1, 1.a.2, and 1.a.3 above, for those Permittees, which own and/or operate a sanitary sewer system, the Permittee shall also implement the following requirements:

- (1) Procedures to prevent sewage spills or leaks from sewage facilities from entering the MS4; and
 - (2) Identify, repair, and remediate sanitary sewer blockages, exfiltration, overflow, and wet weather overflows from sanitary sewers to the MS4.
2. Public Construction Activities Management
 - a) Each Permittee shall implement the Development Planning Program requirements (Permit Part 4.D) at public construction projects.
 - b) Each Permittee shall implement the Development Construction Program requirements (Permit Part 4.E) at Permittee owned construction sites.
 - c) Each Permittee shall obtain coverage under the GCASP for public construction sites 5 acres or greater (or part of a larger area of development) except that a municipality under 100,000 in population (1990 U.S. Census) need not obtain coverage under a separate permit until March 10, 2003.
 - d) Each Permittee, no later than March 10, 2003, shall obtain coverage under a statewide general construction storm water permit for public construction sites for projects between one and five acres.
3. Vehicle Maintenance/Material Storage Facilities/Corporation Yards Management
 - a) Each Permittee, consistent with the SQMP, shall implement SWPPPs for public vehicle maintenance facilities, material storage facilities, and corporation yards which have the potential to discharge pollutants into storm water.
 - b) Each Permittee shall implement BMPs to minimize pollutant discharges in storm water including but not be limited to:
 - (1) Good housekeeping practices;
 - (2) Material storage control;
 - (3) Vehicle leaks and spill control; and
 - (4) Illicit discharge control.
 - c) Each Permittee shall implement the following measures to prevent the discharge of pollutants to the MS4:
 - (1) For existing facilities, that are not already plumbed to the sanitary sewer, all vehicle and equipment wash areas (except for fire stations) shall either be:

- (i) Self-contained;
 - (ii) Equipped with a clarifier;
 - (iii) Equipped with an alternative pre-treatment device;
or
 - (iv) Plumbed to the sanitary sewer.
- (2) For new facilities, or during redevelopment of existing facilities (including fire stations), all vehicle and equipment wash areas shall be plumbed to the sanitary sewer and be equipped with a pre-treatment device in accordance with requirements of the sewer agency.

4. Landscape and Recreational Facilities Management

Each Permittee shall implement the following requirements:

- a) A standardized protocol for the routine and non-routine application of pesticides, herbicides (including pre-emergents), and fertilizers;
- b) Consistency with State Board's guidelines and monitoring requirements for application of aquatic pesticides to surface waters (WQ Order No. 2001-12 DWQ);
- c) Ensure no application of pesticides or fertilizers immediately before, during, or immediately after a rain event or when water is flowing off the area to be applied;
- d) Ensure that no banned or unregistered pesticides are stored or applied;
- e) Ensure that staff applying pesticides are certified by the California Department of Food and Agriculture, or are under the direct supervision of a certified pesticide applicator;
- f) Implement procedures to encourage retention and planting of native vegetation and to reduce water, fertilizer, and pesticide needs;
- g) Store fertilizers and pesticides indoors or under cover on paved surfaces or use secondary containment;
- h) Reduce the use, storage, and handling of hazardous materials to reduce the potential for spills; and
- i) Regularly inspect storage areas.

5. Storm Drain Operation and Management

- a) Each Permittee shall designate catch basin inlets within its jurisdiction as one of the following:
- Priority A: Catch basins that are designated as consistently generating the highest volumes of trash and/or debris.
 - Priority B: Catch basins that are designated as consistently generating moderate volumes of trash and/or debris.
 - Priority C: Catch basins that are designated as generating low volumes of trash and/or debris.

- b) Permittees subject to a trash TMDL (Los Angeles River and Ballona Creek WMAs) shall continue to implement the requirements listed below until trash TMDL implementation measures are adopted. Thereafter, the subject Permittees shall implement programs in conformance with the TMDL implementation schedule, which shall include an effective combination of measures such as street sweeping, catch basin cleaning, installation of treatment devices and trash receptacles, or other BMPs. Default requirements include:

- (1) Inspection and cleaning of catch basins between May 1 and September 30 of each year;
- (2) Additional cleaning of any catch basin that is at least 40% full of trash and/or debris;
- (3) Record keeping of catch basins cleaned; and
- (4) Recording of the overall quantity of catch basin waste collected.

If the implementation phase for the Los Angeles River and Ballona Creek Trash TMDLs has not begun by October 2003, subject Permittees shall implement the requirements described below in subsection 5(c), until such time programs in conformance with the subject Trash TMDLs are being implemented.

- c) Permittees not subject to a trash TMDL shall:
- (1) Clean catch basins according to the following schedule:
 - Priority A: A minimum of three times during the wet season and once during the dry season every year.
 - Priority B: A minimum of once during the wet season and once during the dry season every year.

Priority C: A minimum of once per year.

In addition to the schedule above, between February 1, 2002 and July 1, 2003, Permittees shall ensure that any catch basin that is at least 40% full of trash and/or debris shall be cleaned out. After July 1, 2003, Permittees shall ensure that any catch basin that is at least 25% full of trash and debris shall be cleaned out.

- (2) For any special event that can be reasonably expected to generate substantial quantities of trash and litter, include provisions that require for the proper management of trash and litter generated, as a condition of the special use permit issued for that event. At a minimum, the municipality who issues the permit for the special event shall arrange for either temporary screens to be placed on catch basins or for catch basins in that area to be cleaned out subsequent to the event and prior to any rain event.
 - (3) Place trash receptacles at all transit stops within its jurisdiction that have shelters no later than August 1, 2002, and at all other transit stops within its jurisdiction no later than February 3, 2003. All trash receptacles shall be maintained as necessary.
- d) Each Permittee shall inspect the legibility of the catch basin stencil or label nearest the inlet. Catch basins with illegible stencils shall be recorded and re-stenciled or re-labeled within 180 days of inspection.
- e) Each Permittee shall implement BMPs for Storm Drain Maintenance that include:
- (1) A program to visually monitor Permittee-owned open channels and other drainage structures for debris at least annually and identify and prioritize problem areas of illicit discharge for regular inspection;
 - (2) A review of current maintenance activities to assure that appropriate storm water BMPs are being utilized to protect water quality;
 - (3) Removal of trash and debris from open channel storm drains shall occur a minimum of once per year before the storm season;
 - (4) Minimize the discharge of contaminants during MS4 maintenance and clean outs; and
 - (5) Proper disposal of material removed.

6. Streets and Roads Maintenance

- a) Each Permittee shall designate streets and/or street segments within its jurisdiction as one of the following:
- Priority A: Streets and/or street segments that are designated as consistently generating the highest volumes of trash and/or debris.
 - Priority B: Streets and/or street segments that are designated as consistently generating moderate volumes of trash and/or debris.
 - Priority C: Streets and/or street segments that are designated as generating low volumes of trash and/or debris.
- b) Each Permittee shall perform street sweeping of curbed streets according to the following schedule:
- Priority A: These streets and/or street segments shall be swept at least two times per month.
 - Priority B: Each Permittee shall ensure that each street and/or street segments is swept at least once per month.
 - Priority C: These streets and/or street segments shall be swept as necessary but in no case less than once per year.
- c) Each Permittee shall require that:
- (1) Sawcutting wastes be recovered and disposed of properly and that in no case shall waste be left on a roadway or allowed to enter the storm drain;
 - (2) Concrete and other street and road maintenance materials and wastes shall be managed to prevent discharge to the MS4; and
 - (3) The washout of concrete trucks and chutes shall only occur in designated areas and never discharged to storm drains, open ditches, streets, or catch basins.
- d) Each Permittee shall, no later than August 1, 2002, train their employees in targeted positions (whose interactions, jobs, and activities affect storm water quality) regarding the requirements of the storm water management program to:
- (1) Promote a clear understanding of the potential for maintenance activities to pollute storm water; and
 - (2) Identify and select appropriate BMPs.

For Permittees with a population of 250,000 or more (2000 U.S. Census) training shall be completed no later than February 1, 2003.

7. Parking Facilities Management

Permittee-owned parking lots exposed to storm water shall be kept clear of debris and excessive oil buildup and cleaned no less than 2 times per month and/or inspected no less than 2 times per month to determine if cleaning is necessary. In no case shall a Permittee-owned parking lot be cleaned less than once a month.

8. Public Industrial Activities Management

Each Permittee shall, for any municipal activity considered a discharge of storm water associated with industrial activity, obtain separate coverage under the GIASP except that a municipality under 100,000 in population (1990 U.S. Census) need not file the Notice Of Intent to be covered by said permit until March 10, 2003 (with the exception of power plants, airports, and uncontrolled sanitary landfills).

9. Emergency Procedures

Each Permittee shall repair essential public services and infrastructure in a manner to minimize environmental damage in emergency situations such as: earthquakes; fires; floods; landslides; or windstorms. BMPs shall be implemented to the extent that measures do not compromise public health and safety. After initial emergency response or emergency repair activities have been completed, each Permittee shall implement BMPs and programs as required under this Order.

10. Treatment Feasibility Study

The Permittees in cooperation with the County Sanitation Districts of Los Angeles County shall conduct a study to investigate the possible diversion of dry weather discharges or the use of alternative Treatment Control BMPs to treat flows from their jurisdiction which may impact public health and safety and/or the environment. The Permittees shall collectively review their individual prioritized lists and create a watershed based priority list of drains for potential diversion or treatment and submit the priority listing to the Regional Board Executive Officer, no later than July 1, 2003.

G. Illicit Connections and Illicit Discharges Elimination Program

Permittees shall eliminate all illicit connections and illicit discharges to the storm drain system, and shall document, track, and report all such cases in accordance

with the elements and performance measures specified in the following subsections.

1. General

- a) Implementation: Each Permittee must develop an Implementation Program which specifies how each Permittee is implementing revisions to the IC/ID Program of the SQMP. This Implementation Program must be documented, and available for review and approval by the Regional Board Executive Officer, upon request.
- b) Tracking: All Permittees shall, no later than February 3, 2003, develop and maintain a listing of all permitted connections to their storm drain system. All Permittees shall map at a scale and in a format specified by the Principal Permittee all illicit connections and discharges on their baseline maps, and shall transmit this information to the Principal Permittee. No later than February 3, 2003, the Principal Permittee shall use this information as well as results of baseline and priority screening for illicit connections (as set forth in subsection 2 below) to start an annual evaluation of patterns and trends of illicit connections and illicit discharges, with the objectives of identifying priority areas for elimination of illicit connections and illicit discharges.
- c) Training: All Permittees shall train all targeted employees who are responsible for identification, investigation, termination, cleanup, and reporting of illicit connections and discharges. For Permittees with a population of less than 250,000 (2000 U.S. Census), training shall be completed no later than August 1, 2002. For Permittees with a population of 250,000 or more (2000 U.S. Census), training shall be completed no later than February 3, 2003. Furthermore, all Permittees shall conduct refresher training on an annual basis thereafter.

2. Illicit Connections

a) Screening for Illicit Connections

- (1) Field Screening: All Permittees shall field Screen the storm drain system for illicit connections in accordance with the following schedule:

- (i) Open channels: No later than February 3, 2003;
- (ii) Underground pipes in priority areas: No later than February 1, 2005; and
- (iii) Underground pipes with a diameter of 36 inches or greater: No later than December 12, 2006.

Permittees shall report, to the Principal Permittee, on the location and length of open channels or underground pipes that have been Screened *vis a vis* the entire storm drain

network, and on the status of suspected, confirmed, and terminated illicit connections. Permittees shall maintain a list containing all permitted connections and the status of connections under investigation for possible illicit connection.

- (2) Permit Screening: No later than December 12, 2006, Permittees shall complete a review of all permitted connections to the storm drain system, to confirm compliance with Part 1 (Discharge Prohibition).

b) Response to Illicit Connections

- (1) Investigation: Upon discovery or upon receiving a report of a suspected illicit connection, Permittees shall initiate an investigation within 21 days, to determine the source of the connection, the nature and volume of discharge through the connection, and the responsible party for the connection.
- (2) Termination: Upon confirmation of the illicit nature of a storm drain connection, Permittees shall ensure termination of the connection within 180 days, using enforcement authority as needed.

3. Illicit Discharges

- a) Abatement and Cleanup: Permittees shall respond, within one business day of discovery or a report of a suspected illicit discharge, with activities to abate, contain, and clean up all illicit discharges, including hazardous substances.
- b) Investigation: Permittees shall investigate illicit discharges as soon as practicable (during or immediately following containment and cleanup activities), and shall take enforcement action as appropriate.

Part 5. DEFINITIONS

The following are definitions for terms applicable to this Order:

"Adverse Impact" means a detrimental effect upon water quality or beneficial uses caused by a discharge or loading of a pollutant or pollutants.

"Anti-degradation policies" means the *Statement of Policy with Respect to Maintaining High Quality Water in California* (State Board Resolution No. 68-16) which protects surface and ground waters from degradation. In particular, this policy protects waterbodies where existing quality is higher than that necessary for the protection of beneficial uses including the protection of fish and wildlife propagation and recreation on and in the water.

"Applicable Standards and Limitations" means all State, interstate, and federal standards and limitations to which a "discharge" or a related activity is subject under the CWA, including

"effluent limitations, "water quality standards, standards of performance, toxic effluent standards or prohibitions, "best management practices," and pretreatment standards under sections 301, 302, 303, 304, 306, 307, 308, 403 and 404 of CWA.

"Areas of Special Biological Significance (ASBS)" means all those areas of this state as ASBS, listed specifically within the California Ocean Plan or so designated by the State Board which, among other areas, includes the area from Mugu Lagoon to Latigo Point: Oceanwater within a line originating from Laguna Point at 34° 5' 40" north, 119° 6'30" west, thence southeasterly following the mean high tideline to a point at Latigo Point defined by the intersection of the meanhigh tide line and a line extending due south of Benchmark 24; thence due south to a distance of 1000 feet offshore or to the 100 foot isobath, whichever distance is greater; thence northwesterly following the 100 foot isobath or maintaining a 1,000-foot distance from shore, whichever maintains the greater distance from shore, to a point lying due south of Laguna Point, thence due north to Laguna Point.

"Authorized Discharge" means any discharge that is authorized pursuant to an NPDES permit or meets the conditions set forth in this Order.

"Automotive Service Facilities" means a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 5511, 7532-7534, or 7536-7539. For inspection purposes, Permittees need not inspect facilities with SIC codes 5013, 5014, 5541, 5511, provided that these facilities have no outside activities or materials that may be exposed to storm water.

"Basin Plan" means the Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, adopted by the Regional Board on June 13, 1994 and subsequent amendments.

"Beneficial Uses" means the existing or potential uses of receiving waters in the permit area as designated by the Regional Board in the Basin Plan.

"Best Management Practices (BMPs)" means methods, measures, or practices designed and selected to reduce or eliminate the discharge of pollutants to surface waters from point and nonpoint source discharges including storm water. BMPs include structural and nonstructural controls, and operation and maintenance procedures, which can be applied before, during, and/or after pollution producing activities.

"Commercial Development" means any development on private land that is not heavy industrial or residential. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities, mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes.

"Construction" means constructing, clearing, grading, or excavation that results in soil disturbance. Construction includes structure teardown. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility; emergency construction activities required to immediately protect public health and safety; interior remodeling with no outside exposure of construction material or construction waste to storm water; mechanical permit work; or sign permit work.

"Control" means to minimize, reduce, eliminate, or prohibit by technological, legal, contractual or other means, the discharge of pollutants from an activity or activities.

"Dechlorinated/Debrominated Swimming Pool Discharge" means swimming pool discharges which have no measurable chlorine or bromine and do not contain any detergents, wastes, or additional chemicals not typically found in swimming pool water. The term does not include swimming pool filter backwash.

"Development" means any construction, rehabilitation, redevelopment or reconstruction of any public or private residential project (whether single-family, multi-unit or planned unit development); industrial, commercial, retail and other non-residential projects, including public agency projects; or mass grading for future construction. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

"Directly Adjacent" means situated within 200 feet of the contiguous zone required for the continued maintenance, function, and structural stability of the environmentally sensitive area.

"Director" means the Director of a municipality and Person(s) designated by and under the Director's instruction and supervision.

"Discharge" means when used without qualification the "discharge of a pollutant."

"Discharging Directly" means outflow from a drainage conveyance system that is composed entirely or predominantly of flows from the subject, property, development, subdivision, or industrial facility, and not commingled with the flows from adjacent lands.

"Discharge of a Pollutant" means: any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source" or, any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. The term discharge includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

"Disturbed Area" means an area that is altered as a result of clearing, grading, and/or excavation.

"Environmentally Sensitive Areas (ESAs)" means an area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments (California Public Resources Code § 30107.5). Areas subject to storm water mitigation requirements are: areas designated as Significant Ecological Areas by the County of Los Angeles (*Los Angeles County Significant Areas Study, Los Angeles County Department of Regional Planning (1976)* and amendments); an area designated as a Significant Natural Area by the California Department of Fish and Game's Significant Natural Areas Program, provided that area has been field verified by the Department of Fish and Game; an area listed in the

Basin Plan as supporting the "Rare, Threatened, or Endangered Species (RARE)" beneficial use; and an area identified by a Permittee as environmentally sensitive.

"General Construction Activities Storm Water Permit (GCASP)" means the general NPDES permit adopted by the State Board which authorizes the discharge of storm water from construction activities under certain conditions.

"General Industrial Activities Storm Water Permit (GIASP)" means the general NPDES permit adopted by the State Board which authorizes the discharge of storm water from certain industrial activities under certain conditions.

"Hillside" means property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is 25% or greater and where grading contemplates cut or fill slopes.

"Illicit Connection" means any man-made conveyance that is connected to the storm drain system without a permit, excluding roof drains and other similar type connections. Examples include channels, pipelines, conduits, inlets, or outlets that are connected directly to the storm drain system.

"Illicit Discharge" means any discharge to the storm drain system that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations. The term illicit discharge includes all non storm-water discharges except discharges pursuant to an NPDES permit, discharges that are identified in Part 1, "Discharge Prohibitions" of this order, and discharges authorized by the Regional Board Executive Officer.

"Illicit Disposal" means any disposal, either intentionally or unintentionally, of material(s) or waste(s) that can pollute storm water.

"Industrial/Commercial Facility" means any facility involved and/or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/or commodities, and any facility involved and/or used in providing professional and non-professional services. This category of facilities includes, but is not limited to, any facility defined by the Standard Industrial Classifications (SIC). Facility ownership (federal, state, municipal, private) and profit motive of the facility are not factors in this definition.

"Infiltration" means the downward entry of water into the surface of the soil.

"Inspection" means entry and the conduct of an on-site review of a facility and its operations, at reasonable times, to determine compliance with specific municipal or other legal requirements. The steps involved in performing an inspection, include, but are not limited to:

1. Pre-inspection documentation research.;
2. Request for entry;
3. Interview of facility personnel;
4. Facility walk-through.
5. Visual observation of the condition of facility premises;
6. Examination and copying of records as required;
7. Sample collection (if necessary or required);

8. Exit conference (to discuss preliminary evaluation); and,
9. Report preparation, and if appropriate, recommendations for coming into compliance.

In the case of restaurants, a Permittee may conduct an inspection from the curbside, provided that such "curbside" inspection provides the Permittee with adequate information to determine an operator's compliance with BMPs that must be implemented per requirements of this Order, Regional Board Resolution 98-08, County and municipal ordinances, and the SQMP.

"Large Municipal Separate Storm Sewer System (MS4)" means all MS4s that serve a population greater than 250,000 (1990 Census) as defined in 40 CFR 122.26 (b)(4). The Regional Board designated Los Angeles County as a large MS4 in 1990, based on: (i) the U.S. Census Bureau 1990 population count of 8.9 million, and (ii) the interconnectivity of the MS4s in the incorporated and unincorporated areas within the County.

"Local SWPPP" means the Storm Water Pollution Prevention Plan required by the local agency for a project that disturbs one or more acres of land.

"Maximum Extent Practicable (MEP)" means the standard for implementation of storm water management programs to reduce pollutants in storm water. CWA § 402(p)(3)(B)(iii) requires that municipal permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants. See also State Board Order WQ 2000-11 at page 20.

"Method Detection Limit (MDL)" means the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR 136, Appendix B.

"Minimum Level (ML)" means the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

"Municipal Separate Storm Sewer System (MS4)" means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, alleys, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) owned by a State, city, county, town or other public body, that is designed or used for collecting or conveying storm water, which is not a combined sewer, and which is not part of a publicly owned treatment works, and which discharges to Waters of the United States.

"National Pollutant Discharge Elimination System (NPDES)" means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under CWA §307, 402, 318, and 405. The term includes an "approved program."

"Natural Drainage Systems" means unlined or unimproved (not engineered) creeks, streams, rivers or similar waterways.

“New Development” means land disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision.

“Non-Storm Water Discharge” means any discharge to a storm drain that is not composed entirely of storm water.

"Nuisance" means anything that meets all of the following requirements: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.; (3) occurs during, or as a result of, the treatment or disposal of wastes.

“Parking Lot” means land area or facility for the parking or storage of motor vehicles used for businesses, commerce, industry, or personal use, with a lot size of 5,000 square feet or more of surface area, or with 25 or more parking spaces.

"Permittee(s)" means Co-Permittees and any agency named in this Order as being responsible for permit conditions within its jurisdiction. Permittees to this Order include the Los Angeles County Flood Control District, Los Angeles County, and the cities of Agoura Hills, Alhambra, Arcadia, Artesia, Azusa, Baldwin Park, Bellflower, Bell Gardens, Beverly Hills, Bradbury, Burbank, Calabasas, Carson, Cerritos, Claremont, Commerce, Compton, Covina, Cudahy, Culver City, Diamond Bar, Downey, Duarte, El Monte, El Segundo, Gardena, Glendale, Glendora, Hawaiian Gardens, Hawthorne, Hermosa Beach, Hidden Hills, Huntington Park, Industry, Inglewood, Irwindale, La Canada Flintridge, La Habra Heights, Lakewood, La Mirada, La Puente, La Verne, Lawndale, Lomita, Los Angeles, Lynwood, Malibu, Manhattan Beach, Maywood, Monrovia, Montebello, Monterey Park, Norwalk, Palos Verdes Estates, Paramount, Pasadena, Pico Rivera, Pomona, Rancho Palos Verdes, Redondo Beach, Rolling Hills, Rolling Hills Estates, Rosemead, San Dimas, San Fernando, San Gabriel, San Marino, Santa Clarita, Santa Fe Springs, Santa Monica, Sierra Madre, Signal Hill, South El Monte, South Gate, South Pasadena, Temple City, Torrance, Vernon, Walnut, West Covina, West Hollywood, Westlake Village, and Whittier.

“Planning Priority Projects” means those projects that are required to incorporate appropriate storm water mitigation measures into the design plan for their respective project. These types of projects include:

1. Ten or more unit homes (includes single family homes, multifamily homes, condominiums, and apartments)
2. A 100,000 or more square feet of impervious surface area industrial/commercial development (1 ac starting March 2003)
3. Automotive service facilities (SIC 5013, 5014, 5541, 7532-7534, and 7536-7539)
4. Retail gasoline outlets
5. Restaurants (SIC 5812)
6. Parking lots 5,000 square feet or more of surface area or with 25 or more parking spaces

7. Redevelopment projects in subject categories that meet Redevelopment thresholds
8. Projects located in or directly adjacent to or discharging directly to an ESA, which meet thresholds; and
9. Those projects that require the implementation of a site-specific plan to mitigate post-development storm water for new development not requiring a SUSMP but which may potentially have adverse impacts on post-development storm water quality, where the following project characteristics exist:
 - a) Vehicle or equipment fueling areas;
 - b) Vehicle or equipment maintenance areas, including washing and repair;
 - c) Commercial or industrial waste handling or storage;
 - d) Outdoor handling or storage of hazardous materials;
 - e) Outdoor manufacturing areas;
 - f) Outdoor food handling or processing;
 - g) Outdoor animal care, confinement, or slaughter; or
 - h) Outdoor horticulture activities.

"Pollutants" means those "pollutants" defined in CWA §502(6) (33.U.S.C.§1362(6)), and incorporated by reference into California Water Code §13373.

"Potable Water Distribution Systems Releases" means sources of flows from drinking water storage, supply and distribution systems including flows from system failures, pressure releases, system maintenance, distribution line testing, fire hydrant flow testing; and flushing and dewatering of pipes, reservoirs, vaults, and minor non-invasive well maintenance activities not involving chemical addition(s). It does not include wastewater discharges from activities that occur at wellheads, such as well construction, well development (i.e., aquifer pumping tests, well purging, etc.), or major well maintenance.

"Project" means all development, redevelopment, and land disturbing activities. The term is not limited to "Project" as defined under CEQA (Pub. Resources Code §21065).

"Rain Event" means any rain event greater than 0.1 inch in 24 hours except where specifically stated otherwise.

"Rare, Threatened, or Endangered Species (RARE)" means a beneficial use for waterbodies in the Los Angeles Region, as designated in the Basin Plan (Table 2-1), that supports habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.

"Receiving Waters" means all surface water bodies in the Los Angeles Region that are identified in the Basin Plan.

"Redevelopment" means land-disturbing activity that results in the creation, addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint;

addition or replacement of a structure; replacement of impervious surface area that is not part of a routine maintenance activity; and land disturbing activities related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

“Regional Administrator” means the Regional Administrator of the Regional Office of the USEPA or the authorized representative of the Regional Administrator.

“Restaurant” means a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC Code 5812).

“Retail Gasoline Outlet” means any facility engaged in selling gasoline and lubricating oils.

“Runoff” means any runoff including storm water and dry weather flows from a drainage area that reaches a receiving water body or subsurface. During dry weather it is typically comprised of base flow either contaminated with pollutants or uncontaminated, and nuisance flows.

“Screening” means using proactive methods to identify illicit connections through a continuously narrowing process. The methods may include: performing baseline monitoring of open channels, conducting special investigations using a prioritization approach, analyzing maintenance records for catch basin and storm drain cleaning and operation, and verifying all permitted connections into the storm drains. Special investigation techniques may include: dye testing, visual inspection, smoke testing, flow monitoring, infrared, aerial and thermal photography, and remote control camera operation.

“Sidewalk Rinsing” means pressure washing of paved pedestrian walkways with average water usage of 0.006 gallons per square foot, with no cleaning agents, and properly disposing of all debris collected, as authorized under Regional Board Resolution No. 98-08.

“Significant Ecological Area (SEA)” means an area that is determined to possess an example of biotic resources that cumulatively represent biological diversity, for the purposes of protecting biotic diversity, as part of the Los Angeles County General Plan.¹

Areas are designated as SEAs, if they possess one or more of the following criteria:

1. The habitat of rare, endangered, and threatened plant and animal species.
2. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind, or are restricted in distribution on a regional basis.
3. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind or are restricted in distribution in Los Angeles County.

¹ The 61 existing SEAs represent the findings of a study that was completed in 1976 by England and Nelson, Environmental Consultants, as amended through the adoption of a revised Los Angeles County General Plan in 1980. The results of an update study to evaluate existing SEAs within unincorporated Los Angeles County is currently being proposed to the Los Angeles County Planning Commission (*Los Angeles County Significant Ecological Area Update Study 2000, Background Report*, PCR Services Corporation). The *Update Study 2000*, which contains existing and proposed SEA boundaries, can be downloaded from the Los Angeles County Department of Planning website at http://planning.co.la.ca.us/drp_revw.html#SEA

4. Habitat that at some point in the life cycle of a species or group of species, serves as a concentrated breeding, feeding, resting, migrating grounds and is limited in availability either regionally or within Los Angeles County.
5. Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent an unusual variation in a population or community.
6. Areas important as game species habitat or as fisheries.
7. Areas that would provide for the preservation of relatively undisturbed examples of natural biotic communities in Los Angeles County.
8. Special areas.²

"Significant Natural Area (SNA)" means an area defined by the California Department of Fish and Game (DFG), Significant Natural Areas Program, as an area that contains an important example of California's biological diversity. The most current SNA maps, reports, and descriptions can be downloaded from the DFG website at <ftp://maphost.dfg.ca.gov/outgoing/whdab/sna/>. These areas are identified using the following biological criteria only, irrespective of any administrative or jurisdictional considerations:

1. Areas supporting extremely rare species or habitats.
2. Areas supporting associations or concentrations of rare species or habitats.
3. Areas exhibiting the best examples of rare species and habitats in the state.

"Site" means the land or water area where any "facility or activity" is physically located or conducted, including adjacent land used in connection with the facility or activity.

"Source Control BMP" means any schedules of activities, prohibitions of practices, maintenance procedures, managerial practices or operational practices that aim to prevent storm water pollution by reducing the potential for contamination at the source of pollution.

"SQMP" means the Los Angeles Countywide Stormwater Quality Management Program.

"State Storm Water Pollution Prevention Plan (State SWPPP)" means a plan, as required by a State General Permit, identifying potential pollutant sources and describing the design, placement and implementation of BMPs, to effectively prevent non-stormwater Discharges and reduce Pollutants in Stormwater Discharges during activities covered by the General Permit.

"Storm Water" means storm water runoff, snow melt runoff, and surface runoff and drainage.

"Storm Water Discharge Associated with Industrial Activity" means industrial discharge as defined in 40 CFR 122.26(b)(14)

"Stormwater Quality Management Program" means the Los Angeles Countywide Stormwater Quality Management Program, which includes descriptions of programs, collectively developed by the Permittees in accordance with provisions of the NPDES Permit, to comply with applicable federal and state law, as the same is amended from time to time.

² These criteria from the 1976 study have been modified in the *Update Study 2000*.

“Structural BMP” means any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution (e.g. canopy, structural enclosure). The category may include both Treatment Control BMPs and Source Control BMPs.

"SUSMP" means the Los Angeles Countywide Standard Urban Stormwater Mitigation Plan. The SUSMP shall address conditions and requirements of new development.

“Total Maximum Daily Load (TMDL)” means the sum of the individual waste load allocations for point sources and load allocations for nonpoint sources and natural background.

"Toxicity Identification Evaluation (TIE)" means a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.

"Toxicity Reduction Evaluation (TRE)" means a study conducted in a step-wise process to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity.

“Treatment” means the application of engineered systems that use physical, chemical, or biological processes to remove pollutants. Such processes include, but are not limited to, filtration, gravity settling, media absorption, biodegradation, biological uptake, chemical oxidation and UV radiation.

“Treatment Control BMP” means any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media absorption or any other physical, biological, or chemical process.

"USEPA Phase I Facilities" means facilities in specified industrial categories that are required to obtain an NPDES permit for storm water discharges, as required by 40 CFR 122.26(c). These categories include:

- i. facilities subject to storm water effluent limitation guidelines, new source performance standards, or toxic pollutant effluent standards (40 CFR N)
- ii. manufacturing facilities
- iii. oil and gas/mining facilities
- iv. hazardous waste treatment, storage, or disposal facilities
- v. landfills, land application sites, and open dumps
- vi. recycling facilities
- vii. steam electric power generating facilities
- viii. transportation facilities
- ix. sewage of wastewater treatment works
- x. light manufacturing facilities

"Vehicle Maintenance/Material Storage Facilities/Corporation Yards" means any Permittee owned or operated facility or portion thereof that:

- i. Conducts industrial activity, operates equipment, handles materials, and provides services similar to Federal Phase I facilities;
- ii. Performs fleet vehicle service/maintenance on ten or more vehicles per day including repair, maintenance, washing, and fueling;

- iii. Performs maintenance and/or repair of heavy industrial machinery/equipment ; and
- iv. Stores chemicals, raw materials, or waste materials in quantities that require a hazardous materials business plan or a Spill Prevention, Control , and Counter-measures (SPCC) plan.

“Water Quality Standards and Water Quality Objectives” means water quality criteria contained in the Basin Plan, the California Ocean Plan, the National Toxics Rule, the California Toxics Rule, and other state or federally approved surface water quality plans. Such plans are used by the Regional Board to regulate all discharges, including storm water discharges.

“Waters of the State” means any surface water or groundwater, including saline waters, within boundaries of the state.

“Waters of the United States” or “Waters of the U.S.” means:

- a. All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- b. All interstate waters, including interstate “wetlands”;
- c. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, “wetlands,” sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
 - 1. Which are or could be used by interstate or foreign travelers for recreational or other purposes;
 - 2. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - 3. Which are used or could be used for industrial purposes by industries in interstate commerce;
- d. All impoundments of waters otherwise defined as waters of the United States under this definition;
- e. Tributaries of waters identified in paragraphs (a) through (d) of this definition;
- f. The territorial sea; and
- g. “Wetlands” adjacent to waters (other than waters that are themselves wetlands) identified in paragraph (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.22(m), which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to man-made bodies of water, which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area’s status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with USEPA.

“Wet Season” means the calendar period beginning October 1 through April 15.

Part 6. STANDARD PROVISIONS

A. Standard Requirements

1. Each Permittee shall comply with all provisions and requirements of this permit.
2. Should a Permittee discover a failure to submit any relevant facts or that it submitted incorrect information in a report, it shall promptly submit the missing or correct information.
3. Each Permittee shall report all instances of non-compliance not otherwise reported at the time monitoring reports are submitted.
4. This Order includes the attached Monitoring and Reporting Program, and SUSMP(Regional Board Resolution No. R00-02), which are a part of the permit and must be complied with in the same manner as with the rest of the requirements in the permit.

B. Regional Board Review

Any formal determination or approval made by the Regional Board Executive Officer pursuant to the provisions of this Order may be reviewed by the Regional Board. A Permittee(s) or a member of the public may request such review upon petition within 30 days of the effective date of the notification of such decision to the Permittee(s) and interested parties on file at the Regional Board.

C. Public Review

1. All documents submitted to the Regional Board in compliance with the terms and conditions of this Order shall be made available to members of the public pursuant to the Freedom of Information Act (5 U.S.C. § 552 (as amended) and the Public Records Act (Cal. Government Code § 6250 *et seq.*).
2. All documents submitted to the Regional Board Executive Officer for approval shall be made available to the public for a 30-day period to allow for public comment.

D. Duty to Comply

1. Each Permittee must comply with all of the terms, requirements, and conditions of this Order. Any violation of this order constitutes a violation of the Clean Water Act, its regulations and the California Water Code, and is grounds for enforcement action, Order termination, Order revocation and reissuance, denial of an application for reissuance; or a combination thereof [40 CFR 122.41(a), CWC § 13261, 13263, 13265, 13268, 13300, 13301, 13304, 13340, 13350].
2. A copy of these waste discharge specifications shall be maintained by each Permittee so as to be available during normal business hours to Permittee employees and members of the public.

3. Any discharge of wastes at any point(s) other than specifically described in this Order is prohibited, and constitutes a violation of the Order.

E. Duty to Mitigate [40 CFR 122.41 (d)]

Each Permittee shall take all reasonable steps to minimize or prevent any discharge that has a reasonable likelihood of adversely affecting human health or the environment.

F. Inspection and Entry [40 CFR 122.41(i), CWC § 13267]

The Regional Board, USEPA, and other authorized representatives shall be allowed:

1. Entry upon premises where a regulated facility is located or conducted, or where records are kept under conditions of this Order;
2. Access to copy any records, at reasonable times, that are kept under the conditions of this Order;
3. To inspect at reasonable times any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and,
4. To photograph, sample, and monitor at reasonable times for the purpose of assuring compliance with this Order, or as otherwise authorized by the CWA and the CWC.

G. Proper Operation and Maintenance [40 CFR 122.41 (e), CWC § 13263(f)]

The Permittees shall at all times properly operate and maintain all facilities and systems of treatment (and related appurtenances) that are installed or used by the Permittees to achieve compliance with this Order. Proper operation and maintenance includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar system that are installed by a Permittee only when necessary to achieve compliance with the conditions of this Order.

H. Signatory Requirements [40 CFR 122.41(k) & 122.22]

Except as otherwise provided in this Order, all applications, reports, or information submitted to the Regional Board shall be signed by the Director of Public Works, City Engineer, or authorized designee and certified as set forth in 40 CFR 122.22.

I. Reopener and Modification [40 CFR 122.41(f) & 122.62]

1. This Order may only be modified, revoked, or reissued, prior to the expiration date, by the Regional Board, in accordance with the procedural requirements of the CWC and CCR Title 23 for the issuance of waste

discharge requirements, 40 CFR 122.62, and upon prior notice and hearing, to:

- a) Address changed conditions identified in the required reports or other sources deemed significant by the Regional Board;
 - b) Incorporate applicable requirements or statewide water quality control plans adopted by the State Board or amendments to the Basin Plan;
 - c) Comply with any applicable requirements, guidelines, and/or regulations issued or approved pursuant to CWA Section 402(p); and/or,
 - d) Consider any other federal, or state laws or regulations that became effective after adoption of this Order.
2. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:
- a) Violation of any term or condition contained in this Order;
 - b) Obtaining this Order by misrepresentation, or failure to disclose all relevant facts; or,
 - c) A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.
3. The filing of a request by the Principal Permittee or Permittees for a modification, revocation and re-issuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.
4. This Order may be modified to make corrections or allowances for changes in the permitted activity listed in this section, following the procedures at 40 CFR 122.63, if processed as a minor modification. Minor modifications may only:
- a) Correct typographical errors, or
 - b) Require more frequent monitoring or reporting by the Permittee.

J. Severability

The provisions of this permit are severable; and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected.

K. Duty to Provide Information [40 CFR 122.41(h)]

The Permittees shall furnish, within a reasonable time, any information the Regional Board or USEPA may request to determine whether cause exists for

modifying, revoking and reissuing, or terminating this Order. The Permittees shall also furnish to the Regional Board, upon request, copies of records required to be kept by this Order.

L. Twenty-four Hour Reporting [40 CFR 122.41(l)(6)]³

1. The Permittees shall report to the Regional Board any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time any Permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
2. The Regional Board may waive the required written report on a case-by-case basis.

M. Bypass [40 CFR 122.41(m)]⁴

Bypass (the intentional diversion of waste streams from any portion of a treatment facility) is prohibited. The Regional Board may take enforcement action against Permittees for bypass unless:

1. Bypass was unavoidable to prevent loss of life, personal injury or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.);
2. There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated waste, or maintenance during normal periods of equipment down time. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that could occur during normal periods of equipment downtime or preventive maintenance;
3. The Permittee submitted a notice at least ten days in advance of the need for a bypass to the Regional Board; or,
4. Permittees may allow a bypass to occur that does not cause effluent limitations to be exceeded, but only if it is for essential maintenance to

³ This provision applies to incidents where effluent limitations (numerical or narrative) as provided in this Order or in the Los Angeles County SQMP are exceeded, and which endanger public health or the environment.

⁴ This provision applies to the operation and maintenance of storm water controls and BMPs as provided in this Order or in the SQMP.

assure efficient operation. In such a case, the above bypass conditions are not applicable. The Permittee shall submit notice of an unanticipated bypass as required.

N. Upset [40 CFR 122.41(n)]⁵

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

1. A Permittee that wishes to establish the affirmative defense of an upset in an action brought for non compliance shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - a) An upset occurred and that the Permittee can identify the cause(s) of the upset;
 - b) The permitted facility was being properly operated by the time of the upset;
 - c) The Permittee submitted notice of the upset as required; and,
 - d) The Permittee complied with any remedial measures required.
2. No determination made before an action for noncompliance, such as during administrative review of claims that non-compliance was caused by an upset, is final administrative action subject to judicial review.
3. In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof.

O. Property Rights [40 CFR 122.41(g)]

This Order does not convey any property rights of any sort, or any exclusive privilege.

P. Enforcement

1. Violation of any of the provisions of the NPDES permit or any of the provisions of this Order may subject the violator to any of the penalties described herein, or any combination thereof, at the discretion of the prosecuting authority; except that only one kind of penalties may be applied for each kind of violation. The CWA provides the following:
 - a) Criminal Penalties for:

⁵ *Supra*. See footnote number 3.

(1) Negligent Violations:

The CWA provides that any person who negligently violates permit conditions implementing § 301, 302, 306, 307, 308, 318, or 405 is subject to a fine of not less than \$2,500 nor more than \$25,000 per day for each violation, or by imprisonment for not more than 1 year, or both.

(2) Knowing Violations:

The CWA provides that any person who knowingly violates permit conditions implementing § 301, 302, 306, 307, 308, 318, or 405 is subject to a fine of not less than \$5,000 nor more than \$50,000 per day of violation, or by imprisonment for not more than 3 years, or both.

(3) Knowing Endangerment:

The CWA provides that any person who knowingly violates permit conditions implementing § 301, 302, 307, 308, 318, or 405 and who knows at that time that he is placing another person in imminent danger of death or serious bodily injury is subject to a fine of not more than \$250,000, or by imprisonment for not more than 15 years, or both.

(4) False Statement:

The CWA provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under the Act or who knowingly falsifies, tampers with, or renders inaccurate, any monitoring device or method required to be maintained under the Act, shall upon conviction, be punished by a fine of not more than \$10,000 or by imprisonment for not more than two years, or by both. If a conviction is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than four years, or by both. (See CWA § 309(c)(4))

b) Civil Penalties

The CWA provides that any person who violates a permit condition implementing § 301, 302, 306, 307, 308, 318, or 405 is subject to a civil penalty not to exceed \$27,500 per day for each violation.

2. The CWC provides that any person who violates a waste discharge requirement provision of the CWC is subject to civil penalties of up to \$5,000 per day, \$10,000 per day, or \$25,000 per day of violation; or when the violation involves the discharge of pollutants, is subject to civil penalties of up to \$10 per gallon per day or \$25 per gallon per day of violation; or some combination thereof, depending on the violation or combination of violations.

Q. Need to Halt or Reduce Activity not a Defense [40 CFR 122.41(c)]

It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order.

R. Rescission

Regional Board Order No. 96-054 is hereby rescinded.

S. Expiration

This Order expires on December 12, 2006. The Permittees must submit a Report of Waste Discharges and a proposed Storm Water Quality Management Program in accordance with CCR Title 23 as application for reissuance of waste discharge requirements no later than June 12, 2006.

I, Dennis A. Dickerson, Regional Board Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Los Angeles Region, on December 13, 2001.



Dennis A. Dickerson
Executive Officer

ATTACHMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

APR 10 2008

Ms. Tam M. Doduc, Chair
Ms. Dorothy R. Rice, Executive Director
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Dear Ms. Doduc and Ms. Rice:

I understand that certain specific provisions of the 2001 Municipal Separate Storm Sewer System ("MS4") permit for the County of Los Angeles have been called into question as going beyond what is required under section 402(p) of the CWA. (Commission on State Mandates, File Nos. 03-TC-04, 03-TC-19, 03-TC-20, and 03-TC-21.) The permit conditions at issue are: 1) the requirements for conducting inspections at industrial and commercial facilities including, restaurants and automobile servicing, [Parts 4.C.2.a. and b.] and, 2) the requirement for permittees not subject to the Trash TMDL to locate and maintain trash receptacles at transit stops [Part 4.F.5.c.3.]. California RWQCB, Los Angeles Region, Order No. 01-182, NPDES No. CAS004001 (Dec. 13, 2001). This letter discusses these permit conditions in the context of EPA's expectations for MS4 permits.

Section 402(p) of the Clean Water Act, 33 U.S.C. 1342(p), requires EPA (or authorized states) to issue National Pollutant Discharge Elimination System ("NPDES") permits to regulate the discharge of stormwater from MS4s. Typically, these MS4s are owned and operated by cities and counties. Pursuant to the Clean Water Act, these permits must require the MS4 to: 1) "effectively prohibit" non-stormwater discharges, and 2) "reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." 33 U.S.C. 1342(p)(3)(B)(ii) and (iii).

The NPDES regulations require medium and large MS4s to develop stormwater management programs that the permitting authority will consider when developing permit conditions to reduce pollutants in discharges to the maximum extent practicable. Stormwater permitting has generally relied on the use of best management practices ("BMPs"), including both structural and non-structural controls, for achieving compliance with these requirements. The EPA also expects stormwater permits to follow an iterative process whereby each successive permit becomes more refined, detailed, and expanded as needed, based on experience under the previous permit. See, 55 Fed. Reg. 47990, 48052 ("EPA anticipates that storm water management programs will evolve and mature over time."); 64 Fed. Reg. 68722, 68754 (Dec. 8, 1999) ("EPA envisions application of the MEP standard as an iterative process."); Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits (Sept. 1, 1996) ("The interim permitting approach uses BMPs in first-round storm water permits, and

expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards”). See also, “Evaluating the Effectiveness of Municipal Stormwater Programs” (January 2008) (http://www.epa.gov/npdes/pubs/region3_factsheet_swmp.pdf). While the standard of “maximum extent practicable” (MEP) allows for flexibility, that flexibility is not boundless and requires some level of vigor. EPA has created a national menu of stormwater BMPs to provide additional guidance concerning appropriate BMPs for stormwater management plans. Other factors to consider in ensuring appropriate controls include “technical feasibility, cost, public acceptance, regulatory compliance, and effectiveness.” Building Indus. Ass’n v. State Water Res. Control Bd., 124 Cal. App. 4th 866, 889 (2004). See also “In re Cities of Bellflower, et al.”, SWRCB 2000-11.

At the outset, I note the Los Angeles MS4 permit is a third generation Phase I MS4 permit that should be building upon the experiences from previous permits. Both of the provisions at issue here seem well within a reasonable expectation of controls that reduce pollutants to the “maximum extent practicable.” EPA regulations at 40 C.F.R. §122.26(d)(2)(iv) set forth the basic elements to be included in a Phase I MS4’s stormwater management program. Subparagraph (A) requires a description of “source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the [MS4] that are to be implemented during the life of the permit.” Subparagraph (B) requires a program for detection and removal of illicit discharges and improper disposal into the storm sewer, including a program for inspections and enforcement. A program for commercial and industrial facility inspection and enforcement that includes restaurants and automobile facilities, would appear to be both practicable and effective. Such an inspection program ensures that stormwater discharges from such facilities are reducing their contribution of pollutants and that there are no non-stormwater discharges or illicit connections. Thus these programs are founded in both 402(p)(3)(B)(ii) and (iii) and are well within the scope of 40 C.F.R. §122.26(d)(2)(iv)(A) and (B).¹

Similarly, maintaining trash receptacles at all public transit stops is well within the scope of these regulations. Among the minimum controls required to reduce pollutants from runoff from commercial and residential areas are practices for “operating and maintaining public streets, roads, and highways” §122.26(d)(2)(iv)(A)(3). I believe these requirements are also practical and effective.² Moreover, this permit provision is consistent with EPA’s national menu

¹EPA’s “MS4 Program Evaluation Guidance” (January 2007) envisions that an MS4 permit would include a requirement for an inspection program for common industrial/commercial businesses, such as restaurants and gas stations, within the jurisdiction of the MS4. *Id.* at 76 - 77, 81. The inspection requirements of the LA MS4 permit are consistent with the recommended activities in the Guide.

²The provision applicable to the TMDL permittees is also clearly consistent with EPA’s 2002 guidance on TMDLs and storm water permitting. “Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit

of BMPs for stormwater management programs, which recommends a number of BMPs to reduce trash discharges. See <http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=5>. Among the recommendations is "improved infrastructure" for trash management when necessary, which includes the placement of trash receptacles at appropriate locations based on expected need. The requirements of the Los Angeles County MS4 permit are consistent with this recommendation. See also, "MS4 Program Evaluation Guidance" (January 2007) at pp. 50, 79. EPA's expectations of the programs to reduce pollutants to the maximum extent practicable specifically refer to control of litter and trash, regardless of whether the particular receiving water is already impaired for trash.

I hope that this explanation helps clarify EPA's expectations for MS4 permit requirements under the Clean Water Act. I look forward to continuing to work with the State on our shared goal of ensuring consistency and effectiveness in storm water permitting as a vital tool in protecting the quality of our waters. Should you have further questions about these issues, please have your staff contact Douglas Eberhardt of my staff at (415) 972-3420 or have your counsel's office contact Laurie Kermish of the Office of Regional Counsel at (415) 972-3917.

Sincerely,

 10 April 2008
Alexis Strauss
Director, Water Division

cc: Mr. Michael Lauffer, Chief Counsel
State Water Resources Control Board

Ms. Paula Higashi, Executive Director
Commission on State Mandates

Requirements Based on Those WLAs" (November 22, 2002) which is available at:
http://cfpub.epa.gov/npdes/pubs.cfm?program_id=6

ATTACHMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX Southern California Field Office
600 Wilshire Blvd. Suite 1460
Los Angeles, CA 90017

July 31, 2008

Mark A Grey
Director of Environmental Affairs
Building Industry Association of Southern California
1330 South Valley Vista Drive
Diamond Bar, CA 91765

Andrew R. Henderson
Vice President and General Counsel
Building Industry Association of Southern California
1330 South Valley Vista Drive
Diamond Bar, CA 91765

Dear Dr. Grey and Mr. Henderson:

This is in response to your July 1, 2008 letter to Alexis Strauss regarding the incorporation of Low Impact Development (LID) provisions into Municipal Separate Storm Sewer System (MS4) permits in southern California.

Your letter refers to your email communications with Ms. Strauss, as well as to testimony provided at the February 13, 2008 San Diego Regional Water Quality Control Board Hearing by Dr. Cindy Lin and to the April 1, 2008 comments to the Colorado River Basin Regional Water Quality Control Board by Mr. Doug Eberhardt. Your letter asks several questions about the U.S. EPA Region 9 Water Division's positions regarding the incorporation of LID provisions into southern California MS4 permits.

Nationally, U.S. EPA has formally recognized the benefits of LID (also termed "Green Infrastructure") in several policy documents. EPA is advocating green infrastructure as an approach to wet weather management that is cost-effective, sustainable, and environmentally-sound. On April 19, 2007, EPA and four national groups signed an agreement to promote green infrastructure as an environmentally preferable approach to storm water management, and on August 16, 2007 EPA issued a memo encouraging the incorporation of Green Infrastructure into NPDES storm water permits. Ongoing efforts are described in the January 17, 2008 Action Strategy for Managing Wet Weather with Green Infrastructure. All of these materials regarding EPA's policy on green infrastructure can be found at:

<http://cfpub.epa.gov/npdes/greeninfrastructure/information.cfm#greenpolicy>.

In EPA Region 9, we are promoting LID strategies that infiltrate, evapotranspire, capture, and reuse storm water to maintain or restore natural hydrologies and improve water

quality. We are encouraging permitting agencies across Region 9 to incorporate LID provisions into MS4 permits as clear, measurable and enforceable requirements.

The next round of MS4 permits in the coastal Regions of southern California will be the fourth generation of these permits. It is our expectation that these latest permits be strengthened to take advantage of lessons learned from previous permits, and to contribute to the restoration of impaired waters impacted by MS4s. These new MS4 permits should include quantitative requirements to enable all parties to clearly identify performance expectations for LID implementation.

Your letter asks several questions about our position regarding permit provisions which call for LID implementation to attain a standard of no more than 5% Effective Impervious Area (EIA). Such provisions are included in the current draft (April 29, 2008) MS4 permit for Ventura County proposed by the Los Angeles Regional Water Quality Control Board, and the February 15, 2008 guidelines provided by the Central Coast Regional Water Quality Control Board to those in the Central Coast Region enrolling under the State's Phase II general MS4 permit. We support the inclusion of the 5% EIA provisions for new development and redevelopment projects in both of these examples as clear, measurable, and enforceable requirements. Use of the 5% EIA requirement is not the only acceptable, quantitative approach for incorporating LID into renewed MS4 permits in southern California. As noted in Mr. Eberhardt's April 1, 2008 letter, and his May 13, 2008 follow-up letter to the Colorado River Basin Regional Water Quality Control Board, we are open to other quantitative means for measuring how LID tools reduce storm water discharges.

Your letter asks about our use of a paper by Dr. Richard Horner concluding that the achievement of a 3% EIA standard for development in Ventura County is feasible. Dr. Horner's paper is one of many we have before us. Our positions have been informed by many documents germane to the management of municipal storm water, including the January 21, 2008 paper by your organization entitled "Integration of Low Impact Development Measures and CEQA Approvals." EPA has also considered numerous publications, case studies and guidance manuals in its consideration of LID/Green Infrastructure as a cost-effective, preferable alternative to storm water management. A partial list of these materials may be found at <http://cfpub.epa.gov/npdes/greeninfrastructure/research.cfm>.

While we cannot attribute our position on future MS4 permits to a single report or analysis, our views on these permits have been most comprehensively informed by the nearly 50 audits of Region 9 MS4 permits we have conducted over the past seven years. These audit reports can be found on our website at <http://epa.gov/region09/water/npdes/ms4audits.html#report>. Twenty of our audits have been conducted in southern California. These audits have highlighted the need for quantitative, measurable requirements in MS4 permits to ensure effective implementation of storm water controls.

I hope this has answered the questions in your July 1, 2008 letter. If you would like to discuss this further, please call me, here in EPA's Southern California Field Office, at 213-244-1832

Sincerely,

A handwritten signature in black ink, appearing to read 'John Kemmerer', written over a horizontal line.

John Kemmerer
Associate Director,
Water Division

cc: Executive Officers, RWQCBs Regions 1-9
Tam Doduc, Chair SWRCB
Dorothy Rice, Executive Director, SWRCB
(all cc's transmitted electronically)

ATTACHMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

JUN 20 2014

Adam Fischer
Santa Ana Regional Water Quality Control Board
3737 Main Street, Suite 500
Riverside, CA 92501.

Re: Draft MS4 Permit for Orange County (Permit No. CAS618030)

Dear Mr. Fischer:

The following are EPA Region 9's comments on the draft NPDES permit (permit No. CAS618030) for discharges from the municipal separate storm sewer system (MS4) serving the portion of Orange County under the jurisdiction of the Santa Ana Regional Water Quality Control Board (Regional Board), which the Regional Board released for public comment on May 2, 2014. In an email dated January 31, 2014, we provided comments on an earlier "administrative draft" of this permit. We appreciate the opportunity to provide early input during the permit development process. However, we are disappointed that the May 2, 2014 draft permit contains problematic new provisions allowing for compliance with water-quality provisions based on Permittee submittal of draft plans (or providing a notice of intent to submit a plan) to the Executive Officer. Following below are our comments on the latest draft permit.

A. *Total Maximum Daily Load (TMDL) Requirements*

We have concerns with the draft permit's new options for complying with permit requirements associated with approved TMDLs upon the Permittees' written notification to the Executive Officer of their intent to develop a plan to comply with applicable wasteload allocations (WLAs). Each of the TMDLs listed in Appendices B through H of the draft permit was incorporated into the Santa Ana Regional Board's 2009 Orange County MS4 Permit (R8-2009-0030), so implementation of these TMDLs should be ongoing. We'd prefer that the draft permit be revised to retain the same approach for compliance with WLAs as the 2009 permit, and as is incorporated into the San Diego Regional Board's 2013 Regional MS4 permit (NPDES Permit No. CAS0109266). It's our conclusion that basing TMDL compliance on plans limits enforceability and makes it difficult to confirm that the TMDL water quality targets are being attained. If a plan-based compliance approach is to be included, it's important for the draft permit to be revised to include a more rigorous analysis including how specifically identified BMPs will directly result in achievement of WLAs, and the expectations that interim milestones be provided to track progress towards achieving WLAs. Also, contrary to the draft permit, this option for compliance should only be available upon approval of the plan (following opportunity for public comment) by the Executive Officer.

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Per Clean Water Act and federal regulations at 40 CFR 122.44 regarding TMDLs, permit language must be modified in several places to accurately describe that Permittee's discharges must comply with water quality-based effluent limits (WQBELs), not the TMDL WLAs. Specifically, we recommend/request these language changes be made within permit section XVIII – TMDL Implementation and in each of the TMDL Appendices B-H. For example, the responsible Permittees must comply with WQBELs established in this permit; those WQBELs are consistent with WLAs within approved TMDLs.

In our emailed comments of January 31, 2014, we expressed concern that compliance with WLAs (established as WQBELs in the permit as noted above) would be determined in accordance with a schedule (yet-to-be determined) where such determinations could be as infrequent as once every five years. We had recommended WLA compliance determinations at least once/year; we noted this would consistent with the implementation language in at least one TMDL adopted by the Regional Board (organochlorine compounds TMDL). The monitoring requirements of the latest draft permit (Attachment A) have been revised to require monitoring consistent with TMDL assessment periods, but do not specify in detail the monitoring frequency that would be necessary for consistency. To clarify the requirements and to avoid any misunderstandings of the TMDL requirements, we recommend that the permit either include the monitoring frequency that would be required for consistency with each TMDL, or direct the Permittee to a specific document where it could be found.

Furthermore, the permit should be revised to include action levels as part of the permits monitoring and reporting program and, if appropriate, the Permittees' water quality improvement plans. The goal of including both non-stormwater and stormwater action levels is to guide implementation efforts and measure progress towards the protection of water quality and designed beneficial uses of the state from adverse impacts caused or contributed to by MS4 discharges. Notably, action levels were included in the Riverside County MS4 permit (2010, Santa Ana Regional Board) and the San Diego Regional permit (2013).

Section XVIII.B.4 of the draft permit would allow exceedances of a WLA at a frequency that is less than or equal to a site-specific exceedance frequency found in the State's policy guide for developing the CWA section 303(d) list. If retained, this provision should be further discussed and supported in the fact sheet. Our understanding is that the exceedance frequency in the section 303(d) listing guide does not affect the applicability of approved WLAs, and would not justify the proposed exceedances that would be allowed under the permit. Absent adequate justification for section XVIII.B.4, we recommend it be removed from the permit.

The draft permit does not currently include any requirements related to TMDLs that may be approved during the term of the permit. To expedite implementation of additional controls that may be necessary for compliance with such TMDLs, we recommend the permit include a provision similar to section O of the 2012 MS4 permit

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for the City of Salinas (permit No. CA0049981) issued by the Central Coast Regional Board. The Salinas permit requires development and submittal within one year of final TMDL approval of a plan for complying with newly approved TMDLs. This is preferable to waiting for the next permit renewal to incorporate newly approved TMDLs. We understand that the Santa Ana Regional Board is currently developing a TMDL for selenium for the Newport Bay Watershed; our recommended provision would expedite compliance with the selenium TMDL and any others that may be approved during the term of the permit.

In Appendix G, we recommend that the second paragraph be modified to clarify that the metals and selenium TMDLs were only promulgated by EPA, and were not developed nor adopted by the Santa Ana Regional Board. We recommend the following edits to the paragraph:

~~“The WLAs in this Appendix are based on the Toxic Pollutants (Metals and Se) TMDLs. The Toxic Pollutants TMDL has been approved by Santa Ana Regional Water Quality Control Board, the State Water Resources Control Board, the Office of Administrative Law (“OAL”) and USEPA. The Toxic Pollutants TMDL was adopted by the Santa Ana Regional Water Quality Control Board in Resolution No. R8-2003-0039. The metals and Se TMDLs were promulgated by USEPA on June 17, 2002.”~~

B. New Development (Including Significant Redevelopment)

Section XII.A.7 requires the Principal Permittee to submit retrofit studies. While this is a step in the right direction, it falls far short of the retrofit provisions included in the San Diego Regional Board’s Regional MS4 permit (CAS019266). We recommend incorporation of the San Diego permit’s section II.E.5.(e)(1) “Retrofitting and Rehabilitating Areas of Existing Development.” The San Diego permit requires each Co-permittee to identify areas of existing development as candidates for retrofitting, focusing on areas where retrofitting will address pollutants and/or stressors that contribute to the highest priority water quality conditions. This more comprehensive approach will better identify areas within the built environment where retrofits would result in water quality improvements. The San Diego permit also requires a strategy to facilitate implementation of projects identified as potential candidates for retrofits, which is lacking in the draft Orange County permit. Moreover, many of the potential retrofit BMPs (such as bioretention) would provide additional benefits such as groundwater recharge which would help alleviate current and future drought conditions; this factor increases the importance of an effective retrofit program.

Section XII.K discusses off-site treatment controls. We recognize that in some cases off-site projects can effectively address the post-construction control requirements for new development and significant redevelopment projects. This is particularly the case where off-site controls are located to optimize infiltration to replenish groundwater

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supplies. However, it is necessary that water quality protections are in place at the site of the triggering development/redevelopment project, and the draft permit should be revised to make this explicitly clear. We recommend the Los Angeles County MS4 permit (CAS004001), which effectively addresses this issue in section VI.D.7.c.iii(7) by specifying Water Quality Mitigation Criteria that must be met for New and Redevelopment Projects that have been approved for offsite projects.

It is not clear whether regional or sub-regional biotreatment facilities would be required to treat 1½ times the capture volume required for retention facilities, as would be the case when on-site biotreatment replaces on-site retention. This requirement should be included in the permit. We further recommend that in situations where there may be a choice in using off-site retention or off-site biotreatment that the permit include a preference for retention (similar to the preference for retention over biotreatment for on-site controls).

The draft permit appears to lack any requirements for off-site mitigation when on-site LID is determined to be infeasible and regional or sub-regional facilities are not being used. We recommend that mitigation using off-site LID be required for any portion of the design capture volume for which retention or biotreatment is determined to be infeasible onsite. Such a requirement would be consistent with the 2012 Los Angeles County permit.

Finally, section XIII.L of the draft permit provides for a waiver of structural controls under certain circumstances. For example, a waiver could be available if the costs are shown to disproportionately outweigh the benefits. The waiver provisions are not explained in the fact sheet and further explanation and justification should be included. Given the experience throughout California implementing LID controls pursuant to MS4 permits, which has shown the widespread feasibility of implementing LID measures in connection with new development and redevelopment projects, we're very skeptical that this waiver provision is necessary.

C. Receiving Water Limitations

In our emailed comments of January 31, 2014, we expressed support for the receiving water limitations (RWLs) language that had been included in the administrative draft. At the time, this language closely tracked State Water Board WQ Order 99-05 and the Regional Board's 2009 MS4 permit for Orange County. Unfortunately, the May 2, 2014 draft permit (section IV) includes a new provision under which a Permittee would be deemed in compliance with RWLs upon submittal of a draft plan for compliance to the Executive Officer. As an alternative to this new draft permit language, it's our preference that the permit retain the same RWLs language contained in your 2009 Orange County MS4 permit. As you are no doubt aware, at a November 2012 workshop, the State Water Board indicated it may consider revising WQ Order 99-05. The State Board has recommended that MS4 permits include a permit reopener to address potential revisions

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to WQ Order 99-05. We suggest incorporation of such a reopener in the Orange County permit; section II.H.4.a of the San Diego permit provides appropriate language.

We are aware that while the State Board considers revisions to WQ Order 99-05, some stakeholders have been urging Regional Boards to develop new approaches for determining how RWLs compliance is determined. While our strong preference is to stick with the approach used in your 2009 permit, we have reviewed one alternative that we could support. During the development of the San Diego Regional Board's Regional MS4 permit, RB9 staff developed an option (referred to as Option 2) that would have made use of detailed Water Quality Improvement Plans to demonstrate measurable progress to achieve RWLs (included in the RB9 staff's Revised Tentative Order posted March 27, 2013). Under Option 2, after Water Quality Improvement Plan approval, its implementation would be the vehicle for achievement of RWLs. Ultimately at its May, 2013 hearing, the San Diego Regional Board chose not to adopt Option 2, and instead, with EPA's full support, adopted its Regional MS4 permit with RWLs language consistent with WQ Order 99-05. The Los Angeles MS4 permit also lays out a thorough, rigorous planning process for determining compliance with RWLs. However, we have gone on record as opposing this approach used by the Los Angeles Regional Board, given that the alternative compliance approach is available before the Plans are approved.

Unlike the San Diego Regional Board's staff proposal (Option 2) or the Los Angeles County MS4 permit, the draft Orange County permit does not provide necessary details on Permittee programs to demonstrate rigorous efforts to achieve RWLs. The deficiencies in the draft permit include the absence of measurable interim milestones and modeling efforts supporting assurances that BMPs will achieve RWLs. Again, our preference is to retain the RWLs language of the 2009 permit, but if a plan-based compliance approach is being seriously considered it should use the methodology developed by the San Diego and Los Angeles Regional Board staff, and should be available for compliance purposes only after plan approval.

D. Other Comments

1. Whole Effluent Toxicity (WET) Requirements

In our emailed comments of January 31, 2014, we had recommended that the Orange County MS4 permit include WET requirements (using EPA's Test for Significant Toxicity (TST) procedure) modeled after those in the 2012 Los Angeles County MS4 permit. The Los Angeles County permit requires tests using 100% effluent and 100% receiving water. However, the Orange County permit requires tests on a series of dilutions (section F.3 of Attachment A), and the selection of these dilutions should be explained in the fact sheet. We note the dilution series in the draft permit was commonly used in the WET data analysis methods used prior to the TST and may have been inadvertently carried over from previous permits.

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2. Monitoring Program

The list of parameters in the monitoring program for pesticides appears incomplete (Table 4 of Attachment A), in that only a limited number of organophosphate pesticides would be sampled. We recommend the list be broadened to include a wider variety of pesticide compounds in current use, such as pyrethroids (e.g., bifenthrin, cypermethrin, esfenvalerate, gamma cyhalothrin, permethrin, etc.) and neonicotinoides (e.g., clothianidin, imidocloprid, thiamethoxam).

Section II.D of Attachment A requires monitoring at representative "MS4 outfalls" but does not provide any guidance concerning the required number of locations to be sampled, or the specific locations themselves. We recommend the permit at least clarify that representative sampling locations must be selected that would allow a compliance determination with each applicable WLA. The fact sheet also notes that the intent of the permit is largely to continue the existing monitoring program, and it appears the Regional Board has generally been satisfied with the program in previous years. Nevertheless, we recommend the fact sheet further describe the program (e.g., number and location of sampling sites, frequency of sampling) to provide the public with a better sense of the scope of the program.

Based on information contained in Orange County's 2011-2012 Unified Annual Report, the County did not adequately compare dry weather receiving water composite sample results against the California Toxics Rule (CTR), specifically the chronic criteria, as required by section III.1(a) of the monitoring and reporting program requirements of the 2009 permit. Sampling results reported by Orange County were compared to the CTR acute toxicity criteria only. The lack of adequate sampling and/or analysis of dry weather composite samples against the chronic CTR criteria limits the County's ability to identify trends, potential sources, and appropriate responses to exceedances of applicable water quality standards. For the new permit, the Regional Board should ensure that the County clearly understands its responsibilities on this matter.

Finally, we note that bacteria sampling (section II.I.1.c of Attachment A) is not allowed on days when rain has occurred. The basis for this condition should be explained in the fact sheet.

3. Public Review of Updated Monitoring Program

Section II.B.6 of Attachment A provides that the Executive Officer will provide the opportunity for public comment on changes to the initial monitoring program which is submitted, but this opportunity seems missing for the initial submittal itself. We recommend the Executive Officer ensure such an opportunity for the initial submittal as well since it will likely be of greater interest than any changes in subsequent years.

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We appreciate the opportunity to provide our views on the draft permit. If you have any questions regarding this matter, please contact Eugene Bromley of the NPDES Permits Office at (415) 972-3510.

Sincerely,



for David Smith, Manager
NPDES Permits Office (WTR-5)

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

JAN 15 2014

Mr. Ivar Ridgeway
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Re: Draft MS4 Permit for the City of Long Beach (Permit No. CAS004003)

Dear Mr. Ridgeway:

The following are EPA Region 9's comments on the draft NPDES permit (permit No. CAS004003) for discharges from the municipal separate storm sewer system (MS4) serving the City of Long Beach, which the Los Angeles Regional Board released for public comment on November 22, 2013.

We are supportive of many aspects of the draft permit. For example, the draft permit's Planning and Land Development Program (section VII.J) contains valuable provisions for ensuring that when new development and redevelopment activities are planned there are efforts to reduce pollutant impacts from impervious surfaces and make beneficial use of stormwater. We also strongly endorse the Public Agency Activities Program, which incorporates a requirement to develop an Inventory of Existing Development for Retrofitting Opportunities (section VII.K.4). We're also supportive of the draft permit's incorporation of TMDL Waste Load Allocations (WLAs) as numeric effluent limits (section VIII). In addition, we support the monitoring program (Attachment E), particularly the requirement for outfall monitoring in addition to instream monitoring since this will help identify which outfalls may be contributing to exceedances of WLAs or receiving water limitations. Finally, we support the watershed-based approach used in the permit (section VII.C) which we believe will maximize water quality improvement overall by ensuring that best management practices are appropriately customized to the needs of individual watersheds.

Although we're strongly supportive of much of the draft permit, we have concerns with three areas, each of which we raised in testimony at the November 8, 2012 adoption hearing for the Los Angeles County MS4 permit. These concerns, and our recommendations to address them, are discussed below:

A. *Compliance with TMDL-based Water Quality-Based Effluent Limits Via Retention of the 85th percentile, 24-Hour Storm*

Section VIII.F.1.d of the draft permit provides that a permittee implementing an enhanced watershed management plan (EWMP) will be deemed in compliance with applicable water quality-based effluent limits associated with TMDLs if the runoff from

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

JAN 20 2015



Ms. Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor (95814)
P.O. Box 100
Sacramento, CA 95812-0100

Re: Comments to A-2236(a)-(kk)

Dear Ms. Townsend:

The following are EPA Region 9's comments on the State Water Board's draft WQ Order released on November 21, 2014, responding to the petitions (SWRCB/OCC files A-2236(a) through (kk)) submitted challenging NPDES permit No. CAS004001. This permit was issued in November 2012 by the Los Angeles Regional Board and authorizes discharges from the municipal separate storm sewer system (MS4) serving most of Los Angeles County. Region 9 offers the following comments on certain aspects of the Order.

A. "Safe Harbor" During the Planning Phase for a WMP/EWMP

Section VI.C.3.b of the LA MS4 permit provides that permittees are deemed in compliance with receiving water limitations (RWLs) upon notification to the Regional Board of their intent to develop a watershed management program (WMP) or enhanced watershed management program (EWMP). In our testimony at the November 2012 adoption hearing for the permit (and in a subsequent August 14, 2013 letter to the State Water Board), we recommended a change in the timing of when a permittee would be deemed in compliance. Rather than being deemed in compliance upon notification of intent to prepare a WMP/EWMP, we recommended that a permittee be deemed in compliance only after approval of a WMP/EWMP.

Section II.B.6 of the draft WQ Order supports the LA MS4 permit with regards to the timing of when the "safe harbor" period would begin. Establishing a safe harbor during this planning phase is not warranted. The requirement that LA County permittees meet RWLs was in place for over eleven years prior to the issuance of this permit. We disagree that permittees should be considered in compliance with these limits solely based on a notification of intent to prepare a plan.

A provision consistent with our recommendation was drafted as one option for the draft Regional MS4 permit (NPDES permit No. CAS0109266) proposed by the San Diego Regional Board in April 2013. The San Diego Regional Board chose to stick with

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an approach for compliance with RWLs that closely aligned with State Board Order WQ 99-05 (i.e., not this draft WQ Order's proposed option). In conclusion, the San Diego Board's option for finding permittees in compliance with RWLs only when a plan is approved should be incorporated into the State Water Board's final WQ Order responding to the LA MS4 permit petitions.

B. Compliance with RWLs Via Retention of the 85%, 24-Hour Storm for Drainage Areas with EWMPs

Section VI.E.2.e.i.4 of the LA MS4 permit provides that for drainage areas where a EWMP is developed, retention of the runoff from the 85%, 24-hour storm would constitute compliance with applicable Water Quality Based Effluent Limits (WQBELs) and RWLs for pollutants associated with TMDL Waste Load Allocations (WLAs). We raised concerns with this provision in our testimony at the November 2012 adoption hearing. It has been a long-standing EPA policy that where a MS4 permit does not incorporate TMDL WLAs as numeric limits, the permit's administrative record must demonstrate that specified control measures will be sufficient to ensure compliance with WLAs. In a December 4, 2012 letter, we requested that the Los Angeles Regional Board identify documents in the permit's administrative record which are the basis for the conclusion that the specified retention would result in achieving WLAs. Based on the Regional Board's April 11, 2013 response, we do not believe that the permit's record supports the conclusion that this retention will result in achievement of WLAs.

The draft WQ Order in section II.B.5 recognizes that the LA MS4 permit does not verify that TMDL-specific limitations will be met as a result of retention of the 85%, 24-hour storm. The draft WQ Order addresses this issue by requiring the submittal of a plan of additional control measures if the specified volume is retained, but water quality monitoring shows that RWLs and WQBELs associated with TMDLs are not in fact being achieved. While this is a step in the right direction, we are concerned that only requiring submittal of a plan could lead to an ineffective iterative process without any assurance that water quality will be protected. We recommend that the provision be strengthened to specify that the expectations for this plan must include: (1) a quantitative analysis demonstrating that proposed additional control measures will result in attainment of WLAs, and (2) a provision for the Executive Officer to have the option to require strict compliance with numeric WLAs if continued progress is not being made towards achieving these water quality limitations.

C. Applicability of the WQ Order to All Regional Boards

We note that some commenters on the draft WQ Order recommended that the State Water Board require that all Regional Boards follow the WMP/EWMP approach in the LA MS4 permit when issuing MS4 permits. As drafted, the proposed WQ Order (section II.B.7) directs all Regional Boards to consider the approach in the LA MS4 permit, but does not require its use. We believe it would be premature and inappropriate

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to require the LA MS4 permit approach throughout the State, especially considering the previous two issues we've identified in this letter.

We appreciate the opportunity to provide our views on the draft WQ Order. If you have any questions regarding this matter, please contact Eugene Bromley of the NPDES Permits Section at (415) 972-3510.

Sincerely,

A handwritten signature in black ink, appearing to read "David Smith". The signature is fluid and cursive, with the first name "David" written in a larger, more prominent script than the last name "Smith".

David Smith, Manager
NPDES Permits Section (WTR-2-3)

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 22 2002

OFFICE OF
WATER

MEMORANDUM

SUBJECT: Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs

FROM: Robert H. Wayland, III, Director
Office of Wetlands, Oceans and Watersheds

Handwritten signature of Robert H. Wayland, III.

James A. Hanlon, Director
Office of Wastewater Management

Handwritten signature of James A. Hanlon.

TO: Water Division Directors
Regions 1 - 10

This memorandum clarifies existing EPA regulatory requirements for, and provides guidance on, establishing wasteload allocations (WLAs) for storm water discharges in total maximum daily loads (TMDLs) approved or established by EPA. It also addresses the establishment of water quality-based effluent limits (WQBELs) and conditions in National Pollutant Discharge Elimination System (NPDES) permits based on the WLAs for storm water discharges in TMDLs. The key points presented in this memorandum are as follows:

NPDES-regulated storm water discharges must be addressed by the wasteload allocation component of a TMDL. See 40 C.F.R. § 130.2(h).

NPDES-regulated storm water discharges may not be addressed by the load allocation (LA) component of a TMDL. See 40 C.F.R. § 130.2 (g) & (h).

Storm water discharges from sources that are not currently subject to NPDES regulation may be addressed by the load allocation component of a TMDL. See 40 C.F.R. § 130.2(g).

It may be reasonable to express allocations for NPDES-regulated storm water discharges from multiple point sources as a single categorical wasteload allocation when data and information are insufficient to assign each source or outfall individual WLAs. See 40 C.F.R. § 130.2(i). In cases where wasteload allocations

are developed for categories of discharges, these categories should be defined as narrowly as available information allows.

The WLAs and LAs are to be expressed in numeric form in the TMDL. See 40 C.F.R. § 130.2(h) & (i). EPA expects TMDL authorities to make separate allocations to NPDES-regulated storm water discharges (in the form of WLAs) and unregulated storm water (in the form of LAs). EPA recognizes that these allocations might be fairly rudimentary because of data limitations and variability in the system.

NPDES permit conditions must be consistent with the assumptions and requirements of available WLAs. See 40 C.F.R. § 122.44(d)(1)(vii)(B).

WQBELs for NPDES-regulated storm water discharges that implement WLAs in TMDLs may be expressed in the form of best management practices (BMPs) under specified circumstances. See 33 U.S.C. §1342(p)(3)(B)(iii); 40 C.F.R. §122.44(k)(2)&(3). If BMPs alone adequately implement the WLAs, then additional controls are not necessary.

EPA expects that most WQBELs for NPDES-regulated municipal and small construction storm water discharges will be in the form of BMPs, and that numeric limits will be used only in rare instances.

When a non-numeric water quality-based effluent limit is imposed, the permit's administrative record, including the fact sheet when one is required, needs to support that the BMPs are expected to be sufficient to implement the WLA in the TMDL. See 40 C.F.R. §§ 124.8, 124.9 & 124.18.

The NPDES permit must also specify the monitoring necessary to determine compliance with effluent limitations. See 40 C.F.R. § 122.44(i). Where effluent limits are specified as BMPs, the permit should also specify the monitoring necessary to assess if the expected load reductions attributed to BMP implementation are achieved (e.g., BMP performance data).

The permit should also provide a mechanism to make adjustments to the required BMPs as necessary to ensure their adequate performance.

This memorandum is organized as follows:

- (I). Regulatory basis for including NPDES-regulated storm water discharges in WLAs in TMDLs;
- (II). Options for addressing storm water in TMDLs; and

(III). Determining effluent limits in NPDES permits for storm water discharges consistent with the WLA

(I). Regulatory Basis for Including NPDES-regulated Storm Water Discharges in WLAs in TMDLs

As part of the 1987 amendments to the CWA, Congress added Section 402(p) to the Act to cover discharges composed entirely of storm water. Section 402(p)(2) of the Act requires permit coverage for discharges associated with industrial activity and discharges from large and medium municipal separate storm sewer systems (MS4), *i.e.*, systems serving a population over 250,000 or systems serving a population between 100,000 and 250,000, respectively. These discharges are referred to as Phase I MS4 discharges.

In addition, the Administrator was directed to study and issue regulations that designate additional storm water discharges, other than those regulated under Phase I, to be regulated in order to protect water quality. EPA issued regulations on December 8, 1999 (64 FR 68722), expanding the NPDES storm water program to include discharges from smaller MS4s (including all systems within “urbanized areas” and other systems serving populations less than 100,000) and storm water discharges from construction sites that disturb one to five acres, with opportunities for area-specific exclusions. This program expansion is referred to as Phase II.

Section 402(p) also specifies the levels of control to be incorporated into NPDES storm water permits depending on the source (industrial versus municipal storm water). Permits for storm water discharges associated with industrial activity are to require compliance with all applicable provisions of Sections 301 and 402 of the CWA, *i.e.*, all technology-based and water quality-based requirements. *See* 33 U.S.C. §1342(p)(3)(A). Permits for discharges from MS4s, however, “shall require controls to reduce the discharge of pollutants to the maximum extent practicable ... and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.” *See* 33 U.S.C. §1342(p)(3)(B)(iii).

Storm water discharges that are regulated under Phase I or Phase II of the NPDES storm water program are point sources that must be included in the WLA portion of a TMDL. *See* 40 C.F.R. § 130.2(h). Storm water discharges that are not currently subject to Phase I or Phase II of the NPDES storm water program are not required to obtain NPDES permits. 33 U.S.C. §1342(p)(1) & (p)(6). Therefore, for regulatory purposes, they are analogous to nonpoint sources and may be included in the LA portion of a TMDL. *See* 40 C.F.R. § 130.2(g).

(II). Options for Addressing Storm Water in TMDLs

Decisions about allocations of pollutant loads within a TMDL are driven by the quantity and quality of existing and readily available water quality data. The amount of storm water data available for a TMDL varies from location to location. Nevertheless, EPA expects TMDL authorities will make separate aggregate allocations to NPDES-regulated storm water discharges

(in the form of WLAs) and unregulated storm water (in the form of LAs). It may be reasonable to quantify the allocations through estimates or extrapolations, based either on knowledge of land use patterns and associated literature values for pollutant loadings or on actual, albeit limited, loading information. EPA recognizes that these allocations might be fairly rudimentary because of data limitations.

EPA also recognizes that the available data and information usually are not detailed enough to determine waste load allocations for NPDES-regulated storm water discharges on an outfall-specific basis. In this situation, EPA recommends expressing the wasteload allocation in the TMDL as either a single number for all NPDES-regulated storm water discharges, or when information allows, as different WLAs for different identifiable categories, e.g., municipal storm water as distinguished from storm water discharges from construction sites or municipal storm water discharges from City A as distinguished from City B. These categories should be defined as narrowly as available information allows (e.g., for municipalities, separate WLAs for each municipality and for industrial sources, separate WLAs for different types of industrial storm water sources or dischargers).

(III). Determining Effluent Limits in NPDES Permits for Storm Water Discharges Consistent with the WLA

Where a TMDL has been approved, NPDES permits must contain effluent limits and conditions consistent with the requirements and assumptions of the wasteload allocations in the TMDL. See 40 CFR § 122.44(d)(1)(vii)(B). Effluent limitations to control the discharge of pollutants generally are expressed in numerical form. However, in light of 33 U.S.C. §1342(p)(3)(B)(iii), EPA recommends that for NPDES-regulated municipal and small construction storm water discharges effluent limits should be expressed as best management practices (BMPs) or other similar requirements, rather than as numeric effluent limits. See *Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits*, 61 FR 43761 (Aug. 26, 1996). The Interim Permitting Approach Policy recognizes the need for an iterative approach to control pollutants in storm water discharges. Specifically, the policy anticipates that a suite of BMPs will be used in the initial rounds of permits and that these BMPs will be tailored in subsequent rounds.

EPA's policy recognizes that because storm water discharges are due to storm events that are highly variable in frequency and duration and are not easily characterized, only in rare cases will it be feasible or appropriate to establish numeric limits for municipal and small construction storm water discharges. The variability in the system and minimal data generally available make it difficult to determine with precision or certainty actual and projected loadings for individual dischargers or groups of dischargers. Therefore, EPA believes that in these situations, permit limits typically can be expressed as BMPs, and that numeric limits will be used only in rare instances.

Under certain circumstances, BMPs are an appropriate form of effluent limits to control pollutants in storm water. See 40 CFR § 122.44(k)(2) & (3). If it is determined that a BMP approach (including an iterative BMP approach) is appropriate to meet the storm water component of the TMDL, EPA recommends that the TMDL reflect this.

EPA expects that the NPDES permitting authority will review the information provided by the TMDL, see 40 C.F.R. § 122.44(d)(1)(vii)(B), and determine whether the effluent limit is appropriately expressed using a BMP approach (including an iterative BMP approach) or a numeric limit. Where BMPs are used, EPA recommends that the permit provide a mechanism to require use of expanded or better-tailored BMPs when monitoring demonstrates they are necessary to implement the WLA and protect water quality.

Where the NPDES permitting authority allows for a choice of BMPs, a discussion of the BMP selection and assumptions needs to be included in the permit's administrative record, including the fact sheet when one is required. 40 C.F.R. §§ 124.8, 124.9 & 124.18. For general permits, this may be included in the storm water pollution prevention plan required by the permit. See 40 C.F.R. § 122.28. Permitting authorities may require the permittee to provide supporting information, such as how the permittee designed its management plan to address the WLA(s). See 40 C.F.R. § 122.28. The NPDES permit must require the monitoring necessary to assure compliance with permit limitations, although the permitting authority has the discretion under EPA's regulations to decide the frequency of such monitoring. See 40 CFR § 122.44(i). EPA recommends that such permits require collecting data on the actual performance of the BMPs. These additional data may provide a basis for revised management measures. The monitoring data are likely to have other uses as well. For example, the monitoring data might indicate if it is necessary to adjust the BMPs. Any monitoring for storm water required as part of the permit should be consistent with the state's overall assessment and monitoring strategy.

The policy outlined in this memorandum affirms the appropriateness of an iterative, adaptive management BMP approach, whereby permits include effluent limits (e.g., a combination of structural and non-structural BMPs) that address storm water discharges, implement mechanisms to evaluate the performance of such controls, and make adjustments (i.e., more stringent controls or specific BMPs) as necessary to protect water quality. This approach is further supported by the recent report from the National Research Council (NRC), *Assessing the TMDL Approach to Water Quality Management* (National Academy Press, 2001). The NRC report recommends an approach that includes "adaptive implementation," i.e., "a cyclical process in which TMDL plans are periodically assessed for their achievement of water quality standards" . . . and adjustments made as necessary. *NRC Report* at ES-5.

This memorandum discusses existing requirements of the Clean Water Act (CWA) and codified in the TMDL and NPDES implementing regulations. Those CWA provisions and regulations contain legally binding requirements. This document describes these requirements; it does not substitute for those provisions or regulations. The recommendations in this memorandum are not binding; indeed, there may be other approaches that would be appropriate

in particular situations. When EPA makes a TMDL or permitting decision, it will make each decision on a case-by-case basis and will be guided by the applicable requirements of the CWA and implementing regulations, taking into account comments and information presented at that time by interested persons regarding the appropriateness of applying these recommendations to the particular situation. EPA may change this guidance in the future.

If you have any questions please feel free to contact us or Linda Boornazian, Director of the Water Permits Division or Charles Sutfin, Director of the Assessment and Watershed Protection Division.

cc:

Water Quality Branch Chiefs

Regions 1 - 10

Permit Branch Chiefs

Regions 1 - 10

ATTACHMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 26 2014

OFFICE OF WATER

MEMORANDUM

SUBJECT: Revisions to the November 22, 2002 Memorandum "Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs"

FROM: Andrew D. Sawyers, Director
Office of Wastewater Management 
Benita Best-Wong, Director
Office of Wetlands, Oceans and Watersheds 

TO: Water Division Directors
Regions 1 - 10

This memorandum updates aspects of EPA's November 22, 2002 memorandum from Robert H. Wayland, III, Director of the Office of Wetlands, Oceans and Watersheds, and James A. Hanlon, Director of the Office of Wastewater Management, on the subject of "Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs" (hereafter "2002 memorandum"). Today's memorandum replaces the November 12, 2010, memorandum on the same subject; the Water Division Directors should no longer refer to that memorandum for guidance.

This memorandum is guidance. It is not a regulation and does not impose legally binding requirements on EPA or States. EPA and state regulatory authorities should continue to make permitting and TMDL decisions on a case-by-case basis considering the particular facts and circumstances and consistent with applicable statutes, regulations, and case law. The recommendations in this guidance may not be applicable to a particular situation. EPA may change or revoke this guidance at any time.

Background

Stormwater discharges are a significant contributor to water quality impairment in this country, and the challenges from these discharges are growing as more land is developed and more impervious surface is created. Stormwater discharges cause beach closures and contaminate shellfish and surface drinking water supplies. The increased volume and velocity of stormwater discharges causes streambank erosion, flooding, sewer overflows, and basement backups. The decreased natural infiltration of rainwater reduces groundwater recharge, depleting

our underground sources of drinking water.¹ There are stormwater management solutions, such as green infrastructure, that can protect our waterbodies from stormwater discharges and, at the same time, offer many other benefits to communities.

Section III of the 2002 memorandum recommended that for NPDES-regulated municipal and small construction stormwater discharges, effluent limits be expressed as best management practices (BMPs) or other similar requirements, rather than as numeric effluent limits. The 2002 memorandum went on to provide guidance on using “an iterative, adaptive management BMP approach” for improving stormwater management over time as permitting agencies, the regulated community, and other involved stakeholders gain more experience and knowledge. EPA continues to support use of an iterative approach, but with greater emphasis on clear, specific, and measurable permit requirements and, where feasible, numeric NPDES permit provisions, as discussed below.

Since 2002, States and EPA have obtained considerable experience in developing TMDLs and WLAs that address stormwater sources (see Box 1 in the attachment for specific examples). Monitoring of the impacts of stormwater discharges on water quality has become more sophisticated and widespread.² The experience gained during this time has provided better information on the effectiveness of stormwater controls to reduce pollutant loadings and address water quality impairments. In many parts of the country, permitting agencies have issued several rounds of stormwater permits. Notwithstanding these developments, stormwater discharges remain a significant cause of water quality impairment in many places, highlighting a continuing need for more meaningful WLAs and more clear, specific, and measurable NPDES permit provisions to help restore impaired waters to their beneficial uses.

With this additional experience in mind, on November 12, 2010, EPA issued a memorandum updating and revising elements of the 2002 memorandum to better reflect current practices and trends in permits and WLAs for stormwater discharges. On March 17, 2011, EPA sought public comment on the November 2010 memorandum and, earlier this year, completed a nationwide review of current practices used in MS4 permits³ and industrial and construction stormwater discharge permits. As a result of comments received and informed by the reviews of EPA and state-issued stormwater permits, EPA is in this memorandum replacing the

¹ See generally [Urban Stormwater Management in the United States](#) (National Research Council, 2009), particularly the discussion in Chapter 3, *Hydrologic, Geomorphic, and Biological Effects of Urbanization on Watersheds*.

² Stormwater discharge monitoring programs have expanded the types pollutants and other indices (e.g., biologic integrity) being evaluated. This information is being used to help target priority areas for cleanup and to assess the effectiveness of stormwater BMPs. There are a number of noteworthy monitoring programs that are ongoing, including for example those being carried out by Duluth, MN, Capitol Region Watershed District, MN, Honolulu, HI, Baltimore or Montgomery County, MD, Puget Sound, WA, Los Angeles County, CA, and the Alabama Dept. of Transportation, among many others. See also Section 4.2 (Monitoring/Modeling Requirements) of EPA’s *Municipal Separate Storm Sewer System Permits: Post-Construction Performance Standards & Water Quality-Based Requirements – A Compendium of Permitting Approaches* (EPA, June 2014), or “MS4 Compendium” available at http://water.epa.gov/polwaste/npdes/stormwater/upload/sw_ms4_compendium.pdf, for other examples of note.

³ See [EPA’s MS4 Permit Compendium](#), referenced in the above footnote.

November 2010 memorandum, updating aspects of the 2002 memorandum and providing additional information in the following areas:

- Including clear, specific, and measurable permit requirements and, where feasible, numeric effluent limitations in NPDES permits for stormwater discharges;
- Disaggregating stormwater sources in a WLA; and
- Designating additional stormwater sources to regulate and developing permit limits for such sources.

Including Clear, Specific, and Measurable Permit Requirements and, Where Feasible, Numeric Effluent Limitations in NPDES Permits for Stormwater Discharges

At the outset of both the Phase I and Phase II stormwater permit programs, EPA provided guidance on the type of water quality-based effluent limits (WQBELs) that were considered most appropriate for stormwater permits. See Interim Permitting Policy for Water Quality-Based Limitations in Storm Water Permits [61 FR 43761 (August 26, 1996) and 61 FR 57425 (November 6, 1996)] and the Phase II rulemaking preamble 64 FR 68753 (December 8, 1999). Under the approach discussed in these documents, EPA envisioned that in the first two to three rounds of permit issuance, stormwater permits typically would require implementation of increasingly more effective best management practices (BMPs). In subsequent stormwater permit terms, if the BMPs used during prior years were shown to be inadequate to meet the requirements of the Clean Water Act (CWA), including attainment of applicable water quality standards, the permit would need to contain more specific conditions or limitations.

There are many ways to include more effective WQBELs in permits. In the spring of 2014, EPA published the results of a nationwide review of current practices used in MS4 permits in *Municipal Separate Storm Sewer Systems Permits: Post-Construction Performance Standards & Water Quality-Based Requirements – A Compendium of Permitting Approaches* (June 2014). This MS4 Compendium demonstrates how NPDES authorities have been able to effectively establish permit requirements that are more specifically tied to a measurable water quality target, and includes examples of permit requirements expressed in both numeric and non-numeric form. These approaches, while appropriately permit-specific, each share the attribute of being expressed in a clear, specific, and measurable way. For example, EPA found a number of permits that employ numeric, retention-based performance standards for post-construction discharges, as well as instances where permits have effectively incorporated numeric effluent limits or other quantifiable measures to address water quality impairment (see the attachment to this memorandum).

EPA has also found examples where the applicable WLAs have been translated into BMPs, which are required to be implemented during the permit term to reflect reasonable further progress towards meeting the applicable water quality standard (WQS). Incorporating greater specificity and clarity echoes the approach first advanced by EPA in the 1996 Interim Permitting Policy, which anticipated that where necessary to address water quality concerns, permits would be modified in subsequent terms to include “more specific conditions or limitations [which] may include an integrated suite of BMPs, performance objectives, narrative standards, monitoring triggers, numeric WQBELs, action levels, etc.”

EPA also recently completed a review of state-issued NPDES industrial and construction permits, which also revealed a number of examples where WQBELs are expressed using clear, specific, and measurable terms. Permits are exhibiting a number of different approaches, not unlike the types of provisions shown in the MS4 Compendium. For example, some permits are requiring as an effluent limitation compliance with a numeric or narrative WQS, while others require the implementation of specific BMPs that reduce the discharge of the pollutant of concern as necessary to meet applicable WQS or to implement a WLA and/or are requiring their permittees to conduct stormwater monitoring to ensure the effectiveness of those BMPs. EPA intends to publish a compendium of permitting approaches in state-issued industrial and construction stormwater permits in early 2015.

Permits for MS4 Discharges

The CWA provides that stormwater permits for MS4 discharges “shall require controls to reduce the discharge of pollutants to the maximum extent practicable ... and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.” CWA section 402(p)(3)(B)(iii). Under this provision, the NPDES permitting authority has the discretion to include requirements for reducing pollutants in stormwater discharges as necessary for compliance with water quality standards. *Defenders of Wildlife v. Browner*, 191 F.3d 1159, 1166 (9th Cir. 1999).

The 2002 memorandum stated “EPA expects that most WQBELs for NPDES-regulated municipal and small construction stormwater discharges will be in the form of BMPs, and that numeric limitations will be used only in rare instances.” As demonstrated in the MS4 Compendium, NPDES permitting authorities are using various forms of clear, specific, and measurable requirements, and, where feasible, numeric effluent limitations in order to establish a more objective and accountable means for reducing pollutant discharges that contribute to water quality problems.⁴ Where the NPDES authority determines that MS4 discharges have the reasonable potential to cause or contribute to a water quality standard excursion, EPA recommends that the NPDES permitting authority exercise its discretion to include clear, specific, and measurable permit requirements and, where feasible, numeric effluent limitations⁵ as necessary to meet water quality standards.

NPDES authorities have significant flexibility in how they express WQBELs in MS4 permits (see examples in Box 1 of the attachment). WQBELs in MS4 permits can be expressed as system-wide requirements rather than as individual discharge location requirements such as

⁴ The MS4 Compendium presents examples of different permitting approaches that EPA has found during a nationwide review of state MS4 permits. Examples of different WQBEL approaches in the MS4 Compendium include permits that have (1) a list of applicable TMDLs, WLAs, and the affected MS4s; (2) numeric limits and other quantifiable approaches for specific pollutants of concern; (3) requirements to implement specific stormwater controls or management measures to meet the applicable WLA; (4) permitting authority review and approval of TMDL plans; (5) specific impaired waters monitoring and modeling requirements; and (6) requirements for discharges to impaired waters prior to TMDL approval.

⁵ For the purpose of this memorandum, and in the context of NPDES permits for stormwater discharges, “numeric” effluent limitations refer to limitations with a quantifiable or measurable parameter related to a pollutant (or pollutants). Numeric WQBELs may include other types of numeric limits in addition to end-of-pipe limits. Numeric WQBELs may include, among others, limits on pollutant discharges by specifying parameters such as on-site stormwater retention volume or percentage or amount of effective impervious cover, as well as the more traditional pollutant concentration limits and pollutant loads in the discharge.

effluent limitations on discharges from individual outfalls. Moreover, the inclusion of numeric limitations in an MS4 permit does not, by itself, mandate the type of controls that a permittee will use to meet the limitation.

EPA recommends that NPDES permitting authorities establish clear, specific, and measurable permit requirements to implement the minimum control measures in MS4 permits. With respect to requirements for post-construction stormwater management, consistent with guidance in the 1999 Phase II Rule, EPA recommends, where feasible and appropriate, numeric requirements that attempt to maintain pre-development runoff conditions (40 CFR § 122.34(b)(5)) be incorporated into MS4 permits. EPA's MS4 Compendium features examples from 17 states and the District of Columbia that have already implemented retention performance standards for newly developed and redeveloped sites. See Box 2 of the attachment for examples.

Permits for Industrial Stormwater Discharges

The CWA requires that permits for stormwater discharges associated with industrial activity comply with section 301 of the Act, including the requirement under section 301(b)(1)(C) to contain WQBELs to achieve water quality standards for any discharge that the permitting authority determines has the reasonable potential to cause or contribute to a water quality standard excursion. CWA section 402(p)(3)(A), 40 CFR § 122.44(d)(1)(iii). When the permitting authority determines, using the procedures specified at 40 CFR § 122.44(d)(1)(ii), that the discharge causes or has the reasonable potential to cause or contribute to an in-stream excursion of the water quality standards, the permit must contain WQBELs as stringent as necessary to meet any applicable water quality standard for that pollutant. EPA recommends that NPDES permitting authorities use the experience gained in developing WQBELs to design effective permit conditions to create objective and accountable means for controlling stormwater discharges. See box 3 in the attachment for examples.

Permits should contain clear, specific, and measurable elements associated with BMP implementation (*e.g.*, schedule for BMP installation, frequency of a practice, or level of BMP performance), as appropriate, and should be supported by documentation that implementation of selected BMPs will result in achievement of water quality standards. Permitting authorities should also consider including numeric benchmarks for BMPs and associated monitoring protocols for estimating BMP effectiveness in stormwater permits. Benchmarks can support an adaptive approach to meeting applicable water quality standards. While exceeding the benchmark is not generally a permit violation, exceeding the benchmark would typically require the permittee to take additional action, such as evaluating the effectiveness of the BMPs, implementing and/or modifying BMPs, or providing additional measures to protect water quality.⁶ Permitting authorities should consider structuring the permit to clarify that failure to implement required corrective action, including a corrective action for exceeding a benchmark, is a permit violation. EPA notes that, as many stormwater discharges are authorized under a general

⁶ For example, Part 6.2.1 of EPA's 2008 MSGP provides: "This permit stipulates pollutant benchmark concentrations that may be applicable to your discharge. The benchmark concentrations are not effluent limitations; a benchmark exceedance, therefore, is not a permit violation. Benchmark monitoring data are primarily for your use to determine the overall effectiveness of your control measures and to assist you in knowing when additional corrective action(s) may be necessary to comply with the effluent limitations ..."

permit, NPDES authorities may find it more appropriate where resources allow to issue individual permits that are better tailored to meeting water quality standards for large industrial stormwater discharges with more complex stormwater management features, such as multiple outfalls and multiple entities responsible for permit compliance.

All Permitted Stormwater Discharges

As stated in the 2002 memorandum, where a State or EPA has established a TMDL, NPDES permits must contain effluent limits and conditions consistent with the assumptions and requirements of the WLAs in the TMDL. See 40 CFR § 122.44(d)(1)(vii)(B). Where the TMDL includes WLAs for stormwater sources that provide numeric pollutant loads, the WLA should, where feasible, be translated into effective, measurable WQBELs that will achieve this objective. This could take the form of a numeric limit, or of a measurable, objective BMP-based limit that is projected to achieve the WLA. For MS4 discharges, CWA section 402(p)(3)(B)(iii) provides flexibility for NPDES authorities to set appropriate deadlines for meeting WQBELs consistent with the requirements for compliance schedules in NPDES permits set forth in 40 CFR § 122.47.

The permitting authority's decision as to how to express the WQBEL(s), either as numeric effluent limitations or as BMPs, with clear, specific, and measurable elements, should be based on an analysis of the specific facts and circumstances surrounding the permit, and/or the underlying WLA, including the nature of the stormwater discharge, available data, modeling results, and other relevant information. As discussed in the 2002 memorandum, the permit's administrative record needs to provide an adequate demonstration that, where a BMP-based approach to permit limitations is selected, the BMPs required by the permit will be sufficient to implement applicable WLAs. Permits should also include milestones or other mechanisms where needed to ensure that the progress of implementing BMPs can be tracked. Improved knowledge of BMP effectiveness gained since 2002⁷ should be reflected in the demonstration and supporting rationale that implementation of the BMPs will attain water quality standards and be consistent with WLAs.

EPA's regulations at 40 CFR § 122.47 govern the use of compliance schedules in NPDES permits. Central among the requirements is that the effluent limitation(s) must be met "as soon as possible." 40 CFR § 122.47(a)(1). As previously discussed, by providing discretion to include "such other provisions" as deemed appropriate, CWA section 402(p)(3)(B)(iii) provides flexibility for NPDES authorities to set appropriate deadlines towards meeting WQBELs in MS4 permits consistent with the requirements for compliance schedules in NPDES permits set forth in 40 CFR § 122.47. See *Defenders of Wildlife v Browner*, 191 F.3d at 1166. EPA expects the permitting authority to document in the permit record the basis for determining that the compliance schedule is "appropriate" and consistent with the CWA and 40 CFR § 122.47. Where a TMDL has been established and there is an accompanying implementation plan that provides a schedule for an MS4 to implement the TMDL, or where a comprehensive, integrated plan addressing a municipal government's wastewater and stormwater obligations under the NPDES program has been developed, the permitting authority should consider such

⁷ See compilation of current BMP databases and summary reports available at http://water.epa.gov/infrastructure/greeninfrastructure/gi_performance.cfm, which has compiled current BMP databases and summary reports.

schedules as it decides whether and how to establish enforceable interim requirements and interim dates in the permit.

EPA notes that many permitted stormwater discharges are covered by general permits. Permitting authorities should consider and build into general permits requirements to ensure that permittees take actions necessary to meet the WLAs in approved TMDLs and address impaired waters. A general permit can, for example, identify permittees subject to applicable TMDLs in an appendix, and prescribe the activities that are required to meet an applicable WLA.

Lastly, NPDES permits must specify monitoring requirements necessary to determine compliance with effluent limitations. See CWA section 402(a)(2); 40 CFR 122.44(i). The permit could specify actions that the permittee must take if the BMPs are not performing properly or meeting expected load reductions. When developing monitoring requirements, the NPDES authority should consider the variable nature of stormwater as well as the availability of reliable and applicable field data describing the treatment efficiencies of the BMPs required and supporting modeling analysis.

Disaggregating Stormwater Sources in a WLA

In the 2002 memorandum, EPA said it “may be reasonable to express allocations for NPDES-regulated stormwater discharges from multiple point sources as a single categorical wasteload allocation when data and information are insufficient to assign each source or outfall individual WLAs.” EPA also said that, “[i]n cases where wasteload allocations are developed for categories of discharges, these categories should be defined as narrowly as available information allows.” Furthermore, EPA said it “recognizes that the available data and information usually are not detailed enough to determine waste load allocations for NPDES-regulated stormwater discharges on an outfall-specific basis.”

EPA still recognizes that “[d]ecisions about allocations of pollutant loads within a TMDL are driven by the quantity and quality of existing and readily available water quality data,” but has noted the difficulty of establishing clear, specific, and measurable NPDES permit limitations for sources covered by WLAs that are expressed as single categorical or aggregated wasteload allocations. Today, TMDL writers may have more information—such as more ambient monitoring data, better spatial and temporal representation of stormwater sources, and/or more permit-generated data—than they did in 2002 to develop more disaggregated TMDL WLAs.

Accordingly, for all these reasons, EPA is again recommending that, “when information allows,” WLAs for NPDES-regulated stormwater discharges be expressed “as different WLAs for different identifiable categories” (e.g., separate WLAs for MS4 and industrial stormwater discharges). In addition, as EPA said in 2002, “[t]hese categories should be defined as narrowly as available information allows (e.g., for municipalities, separate WLAs for each municipality and for industrial sources, separate WLAs for different types of industrial stormwater sources or dischargers).” EPA does not expect states to assign WLAs to individual MS4 outfalls; however, some states may choose to do so to support their implementation efforts. These recommendations are consistent with the decision in *Anacostia Riverkeeper, Inc. v. Jackson*, 2011 U.S. Dist. Lexis 80316 (July 25, 2011).

In general, states are encouraged to disaggregate the WLA when circumstances allow to facilitate implementation. TMDL writers may want to consult with permit writers and local authorities to collect additional information such as sewer locations, MS4 jurisdictional boundaries, land use and growth projections, and locations of stormwater controls and infrastructure, to facilitate disaggregation. TMDLs have used different approaches to disaggregate stormwater to facilitate MS4 permit development that is consistent with the assumptions and requirements of the WLA. For example, some TMDLs have used a geographic approach and developed individual WLAs by subwatershed⁸ or MS4 boundary (*i.e.*, the WLA is subdivided by the relative estimated load contribution to the subwatershed or the area served by the MS4). TMDLs have also assigned percent reductions⁹ of the loading based on the estimated wasteload contribution from each MS4 permit holder. Where appropriate, EPA encourages permit writers to identify specific shares of an applicable wasteload allocation for specific permittees during the permitting process, as permit writers may have more detailed information than TMDL writers to effectively identify reductions for specific sources.

Designating Additional Stormwater Sources to Regulate and Developing Permit Limits for Such Sources

The 2002 memorandum states that “stormwater discharges from sources that are not currently subject to NPDES regulation may be addressed by the load allocation component of a TMDL.” Section 402(p)(2) of the Clean Water Act (CWA) requires industrial stormwater sources, certain municipal separate storm sewer systems, and other designated sources to be subject to NPDES permits. Section 402(p)(6) provides EPA with authority to identify additional stormwater discharges as needing a permit.

In addition to the stormwater discharges specifically identified as needing an NPDES permit, the CWA and the NPDES regulations allow for EPA and NPDES authorized States to designate additional stormwater discharges for regulation. See: 40 CFR §§122.26 (a)(9)(i)(C), (a)(9)(i)(D), (b)(4)(iii), (b)(7)(iii), (b)(15)(ii) and 122.32(a)(2). Accordingly, EPA encourages permitting authorities to consider designation of stormwater sources in situations where coverage under NPDES permits would, in the reasonable judgment of the permitting authority and, considering the facts and circumstances in the waterbody, provide the most appropriate mechanism for implementing the pollution controls needed within a watershed to attain and maintain applicable water quality standards.

If a TMDL had previously included a newly permitted source as part of a single aggregated or gross load allocation for all unregulated stormwater sources, or all unregulated sources in a specific category, the NPDES permit authority could identify an appropriate allocation share and include a corresponding limitation specific to the newly permitted stormwater source. EPA recommends that any additional analysis used to identify that share and develop the corresponding limit be included in the administrative record for the permit. The

⁸ Wissahickon Creek Siltation TMDL (Pennsylvania) www.epa.gov/reg3wapd/tmdl/pa_tmdl/wissahickon/index.htm.

⁹ Liberty Bay Watershed Fecal Coliform Bacteria TMDL (Washington).

<https://fortress.wa.gov/ecy/publications/SummaryPages/1310014.html> and Upper Minnehaha Creek Watershed Nutrients and Bacteria TMDL (Minnesota) <http://www.pca.state.mn.us/index.php/view-document.html?gid=20792>

permit writer's additional analysis would not change the TMDL, including its overall loading cap.

In situations where a stormwater source addressed in a TMDL's load allocation is not currently regulated by an NPDES permit but may be required to obtain an NPDES permit in the future, the TMDL writer should consider including language in the TMDL explaining that the allocation for the stormwater source is expressed in the TMDL as a "load allocation" contingent on the source remaining unpermitted, but that the "load allocation" would later be deemed a "wasteload allocation" if the stormwater discharge from the source were required to obtain NPDES permit coverage. Such language would help ensure that the allocation is properly characterized by the permit writer should the source's regulatory status change. This will help the permit writer develop limitations for the NPDES permit applicable to the newly permitted source that are consistent with the assumptions and requirements of the TMDL's allocation to that source.

If you have any questions please feel free to contact us or Deborah Nagle, Director of the Water Permits Division, or Tom Wall, Director of the Assessment and Watershed Protection Division.

cc: Association of Clean Water Administrators
TMDL Program Branch Chiefs, Regions 1 – 10
NPDES Permits Branch Chiefs, Regions 1 – 10

Attachment: MS4 and Industrial Stormwater Permit Examples

ATTACHMENT: MS4 and Industrial Stormwater Permit Examples

BOX 1. Examples of WQBELs in MS4 Permits:

1. Numeric expression of the WQBEL: The MS4 Permit includes a specific, quantifiable performance requirement that must be achieved within a set timeframe. For example:
 - Reduce fine sediment particles, total phosphorus, and total nitrogen loads by 10 percent, 7 percent, and 8 percent, respectively, by September 30, 2016 (2011 Lake Tahoe, CA MS4 permit)
 - Restore within the 5-year permit term 20 percent of the previously developed impervious land (2014 Prince George's County, MD MS4 permit)
 - Achieve a minimum net annual planting rate of 4,150 planting annually within the MS4 area, with the objective of an MS4-wide urban tree canopy of 40 percent by 2035 (2011 Washington, DC MS4 permit)
 - Discharges from the MS4 must not cause or contribute to exceedances of receiving water limits for Diazinon of 0.08µg/L for acute exposure (1 hr averaging period) or 0.05µg/L for chronic exposure (4-day averaging period), OR must not exceed Diazinon discharge limits of 0.072 µg/L for acute exposure or 0.045µg/L for chronic exposure (2013 San Diego, CA Regional MS4 permit)

2. Non-numeric expressions of the WQBEL: The MS4 Permit establishes individualized, watershed-based requirements that require each affected MS4 to implement specific BMPs within the permit term, which will ensure reasonable further progress towards meeting applicable water quality standards.
 - To implement the corrective action recommendations of the Issaquah Creek Basin Water Cleanup Plan for Fecal Coliform Bacteria (part of the approved Fecal Coliform Bacteria TMDL for the Issaquah Creek Basin), King County is required during the permit term to install and maintain animal waste education and/or collection stations at municipal parks and other permittee owned and operated lands reasonably expected to have substantial domestic animal use and the potential for stormwater pollution. The County is also required to complete IDDE screening for bacteria sources in 50 percent of the MS4 subbasins, including rural MS4 subbasins, by February 2, 2017 and implement the activities identified in the Phase I permit for responding to any illicit discharges found (2013 Western Washington Small MS4 General Permit)
 - For discharges to Segment 14 of the Upper South Platte River Basin associated with WLAs from the approved *E. coli* TMDL, the MS4 must identify outfalls with dry weather flows; monitor priority outfalls for flow rates and *E. coli* densities; implement a system maintenance program for listed priority basins (which includes storm sewer cleaning and sanitary sewer investigations); install markers on at least 90% of storm drain inlets in areas with public access; and conduct a public outreach program focused on sources that contribute *E. coli* loads to the MS4. By November 30, 2018, dry weather discharges from MS4 outfalls of concern must not contribute to an exceedance of the *E. coli* standard (126 cfu per 100 ml for a geometric mean of all samples collected at a specific outfall in a 30-day period) (2009 Denver, CO MS4 Permit)

3. Hybrid approach with both numeric and non-numeric expressions of the WQBEL:
 - Discharges of trash from the MS4 to the LA River must be reduced to zero by Sept. 2016. Permittees also have the option of complying via the installation of defined "full capture systems" to prevent trash from entering the MS4 (2012 Los Angeles County, CA MS4 Permit).
 - To attain the shared, load allocation of 27,000 metric tons/year of sediment in the Napa River sediment TMDL, municipalities shall determine opportunities to retrofit and/or reconstruction of road crossings to minimize road-related sediment delivery (≤ 500 cubic yards/mile per 20-year period) to stream channels (2013 CA Small MS4 General Permit).

Box 2. Examples of Retention Post Construction Standards for New and Redevelopment in MS4 Permits

- 2009 WV small MS4 permit: Keep and manage on site the first one inch of rainfall from a 24-hour storm preceded by 48 hours of no measurable precipitation.
- 2011 DC Phase I MS4 permit: Achieve on-site retention of 1.2" of stormwater from a 24-hour storm with a 72-hour antecedent dry period through evapotranspiration, infiltration and/or stormwater harvesting.
- 2012 Albuquerque, NM Phase I MS4 permit: Capture the 90th percentile storm event runoff to mimic the predevelopment hydrology of the previously undeveloped site.
- 2010 Anchorage, AK Phase I MS4 permit: Keep and manage the runoff generated from the first 0.52 inches of rainfall from a 24 hour event preceded by 48 hours of no measureable precipitation.
- 2013 Western WA small MS4 permit: Implement low impact development performance standards to match developed discharge durations to pre-developed durations for the range of pre-developed discharge rates from 8% of the 2-year flow to 50% of the 2-year flow.

BOX 3. Examples of QBELs in Industrial (including Construction) Stormwater Permits:

1. Numeric expression of the QBEL: The permit includes a specific, quantifiable performance requirement that must be achieved:
 - Pollutant concentrations shall not exceed the stormwater discharge limits specified in the permit (based on state WQS), including (for example): Cadmium-0.003 mg/l; Mercury-0.0024 mg/l; Selenium-0.02 mg/l (2013 Hawaii MSGP)
 - Beginning July 1, 2010, permittees discharging to impaired waters without an EPA-approved TMDL shall comply with the following effluent limits (based on state WQS), including (for example): Turbidity-25 NTU; TSS-30 mg/l; Mercury-0.0021 mg/l; Phosphorus, Ammonia, Lead, Copper, Zinc-site-specific limits to be determined at time of permit coverage (2010 Washington MSGP)
 - If discharging to waters on the 303(d) list (Category 5) impaired for turbidity, fine sediment, or phosphorus, the discharge must comply with the following effluent limit for turbidity: 25 NTU (at the point of discharge from the site), or no more than 5 NTU above background turbidity when the background turbidity is 50 NTU or less, or no more than a 10% increase in turbidity when background turbidity is more than 50 NTU. Discharges to waterbodies on the 303(d) list (Category 5) for high pH must comply with the numeric effluent limit of pH 6.5 to 8.5 su (2010 Washington CGP) (2010 Washington CGP)

2. Narrative expression of the QBEL: The permit includes narrative effluent limits based on applicable WQS:
 - New discharges or new dischargers to an impaired water are not eligible for permit coverage, unless documentation or data exists to show that (1) all exposure of the pollutant(s) of concern to stormwater is prevented; or (2) the pollutant(s) of concern are not present at the facility; or (3) the discharge of the pollutant(s) of concern will meet instream water quality criteria at the point of discharge (for waters without an EPA-approved TMDL), or there is sufficient remaining WLAs in an EPA-approved TMDL to allow the discharge and that existing dischargers are subject to compliance schedules to bring the waterbody into attainment with WQS (2011 Vermont MSGP; similar requirements in RI, NY, MD, VA, WV, SC, AR, TX, KS, NE, AZ, CA, AK, OR, and WA permits)
 - In addition to other applicable QBELs, there shall be no discharge that causes visible oil sheen, and no discharge of floating solids or persistent foam in other than trace amounts. Persistent foam is foam that does not dissipate within one half hour of point of discharge (2014 Maryland MSGP)

3. Requirement to implement additional practices or procedures for discharges to impaired waters:
 - For sediment-impaired waters (without an approved TMDL), the permittee is required to maintain a minimum 50-foot buffer zone between any disturbance and all edges of the receiving water (2009 Kentucky CGP)
 - For discharges to impaired waters, implement the following: (1) stabilization of all exposed soil areas immediately, but in no case later than 7 days after the construction activity in that portion of the site has temporarily or permanently ceased (as compared to 14 days for no-impaired waters); (2) temporary sediment basins must meet specified design standards if they will serve an area of 5 or more acres (as compared to 10 or more acres for other sites); (3) retain a water quality volume of 1 inch of runoff from the new impervious surfaces created by the project (though this volume reduction requirement is for discharges to all waters, not just impaired waters) (2013 Minnesota CGP).
 - If the site discharges to a water impaired for sediment or turbidity, or to a water subject to an EPA-approved TMDL, the permittee must implement one or more of the following practices: (1) compost berms, compost blankets, or compost socks; (2) erosion control mats; (3) tackifiers used with a perimeter control BMP; (4) a natural buffer of 50 feet (horizontally) plus 25 feet (horizontally) for 5 degrees of slope; (5) water treatment by electro-coagulation, flocculation, or filtration; and/or (6) other substantially equivalent sediment or turbidity BMP approved by the state (2010 Oregon CGP)

ATTACHMENT

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United States Environmental Protection Agency and the EPA Region III states of Pennsylvania, Maryland, Delaware, District of Columbia, Virginia and West Virginia

Evaluating the Effectiveness of Municipal Stormwater Programs

EPA 833-F-07-010

January 2008

Introduction

NPDES Stormwater Management Programs

EPA stormwater regulations require National Pollutant Discharge Elimination Program (NPDES) permits for stormwater discharges from many municipal separate storm sewer systems (MS4s). Phase I of the stormwater permit program generally addresses municipalities with greater than 100,000 in population, while Phase II addresses smaller jurisdictions within urban areas. Additional information on EPA's stormwater program is available at www.epa.gov/npdes/stormwater.

Stormwater Phase II programs address the following program components:

- ◆ Public education and outreach
- ◆ Public involvement
- ◆ Illicit discharge detection and elimination
- ◆ Construction Site Runoff Control
- ◆ Post-Construction Runoff Control
- ◆ Pollution Prevention/Good Housekeeping for Municipal Operations

In addition to the programs above, Stormwater Phase I programs also must address stormwater runoff from industrial facilities.

Operators of regulated MS4s are required to develop a stormwater management plan (SWMP) that includes measurable goals and to implement needed stormwater management controls (BMPs). The process of developing a plan, implementing the plan, and evaluating the plan is a dynamic, iterative process that helps move communities toward achievement of their goals (Figure 1).

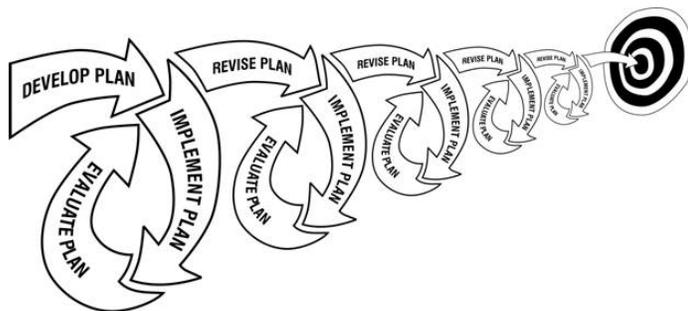


Figure 1. The iterative process of stormwater management (Develop, implement, evaluate, repeat).

40 CFR 122.26(d)(2)(v) and 122.34(g) requires MS4s to assess controls and the effectiveness of their stormwater programs. Municipal stormwater programs are also required to reduce the discharge of pollutants to the “maximum extent practicable” and satisfy the water quality requirements of the Clean Water Act. In addition, a number of government and scientific reports have found that better water quality data is needed if MS4s are to evaluate the effectiveness of their program in meeting water quality goals (NRC, 2004; Schwarzenback, et. al, 2006; Vaux, 2005).

This document discusses three approaches to evaluation of municipal SWMP effectiveness:

- ◆ Assessing program operations;
- ◆ Evaluating social indicators; and
- ◆ Monitoring water quality.

Other guidance is available to assist managers in evaluating overall implementation of the SWMP to the maximum extent practicable, e.g., EPA's *MS4 Program Evaluation Guidance* (www.epa.gov/npdes/pubs/ms4guide_withappendixa.pdf).

Purposes of Program Evaluation

- ◆ **Meet regulatory requirements.** EPA stormwater regulations require that the effectiveness of the SWMP be evaluated, including assessment of SWMP implementation, evaluation of BMP effectiveness, and the extent to which improvements in stormwater outfall discharge quality have occurred.
- ◆ **Document progress toward water quality goals.** Evaluation of SWMP effectiveness is essential to measure progress toward meeting benchmark conditions, complying with water quality standards, or restoring beneficial uses.
- ◆ **Justify commitment of resources.** Knowledge of program effectiveness can help justify SWMP expenditures to decision-makers and to the public, and help improve cost-effective implementation and management of the SWMP.
- ◆ **Provide feedback to the management program.** Stormwater management is an iterative process and knowledge of program effectiveness is essential for the permit renewal process and for mid-course corrections to improve the program.
- ◆ **Assess reductions in pollutants of concern.** If a waterbody is impaired, it may be helpful to assess the effectiveness of the SWMP in reducing the pollutants of concern.

Evaluating the Effectiveness of Municipal Stormwater Programs

Stormwater Management Goals

Setting Goals for SWMPs

Stormwater management plans must be guided by specific measurable water quality-based goals, but also typically include, programmatic, BMP-implementation, and social goals. NPDES permit conditions often serve as minimum goals for a SWMP, but an MS4 may have other goals for restoration or protection of water quality that go beyond minimum permit conditions and reflect local understanding of the storm drain system and receiving water conditions. Guidance on setting measurable goals for SWMPs can be found in EPA's *Measurable Goals Guidance for Phase II Small MS4s* (www.epa.gov/npdes/pubs/measurablegoals.pdf).

Programmatic goals might address education and outreach to a range of audiences, establishment of partnerships with business owners, or adoption of ordinances. BMP implementation goals may call for some number of practices to be installed in key locations according to a certain schedule. Goals for public involvement could include targets for number of participants in clean-up or tree-planting activities, number and quality of responses to attitude surveys, or changes in the use of lawn fertilizer.

The ultimate goal of any NPDES stormwater management program is to reduce pollutant discharges to the maximum extent practical, prohibit illicit discharges to the MS4, and protect water quality. Water quality goals may pertain to pollution prevention (reduction of potential pollutants at the source), improvements in stormwater outfall discharge quality, reduction of pollutant loads to receiving waters (e.g., a TMDL), restoration of aquatic resources (e.g., stream channel stabilization, fishery restoration), compliance with water quality standards, or restoration of beneficial uses. Intermediate benchmarks that indicate progress toward meeting water quality standards are important elements of successful long-term SWMPs.

Matching Evaluation to Management Goals

Evaluation of the effectiveness of a SWMP must relate directly to its goals. Two central questions are: *Are we meeting the municipal SWMP goals?* and *Are we meeting NPDES stormwater regulatory requirements?* If a goal is to keep a swimming beach open, it is often necessary to determine the extent to which water quality criteria for bacteria are being met. If a goal is to reduce nutrient loads by 40% from a watershed, it is then necessary to measure nutrient loads and compare measured loads against the goal. Meeting your water quality goals is the ultimate sign of program success, however, meeting programmatic or social goals can also be indicators of a successful program. Information on how these goals are met will serve as critical feedback in the iterative process of stormwater management.

Evaluating Stormwater Management Program Effectiveness

Stormwater program evaluation must be more than an exercise in collecting and tabulating data; evaluation data must be analyzed, interpreted, and reported so that results can be applied to such purposes as documenting effectiveness of BMPs, reporting information to government or the public, and planning future management activities.

Stormwater programs address multiple objectives and program evaluation can focus on a variety of desired outcomes that parallel these objectives. Approaches to the evaluation of stormwater program effectiveness may therefore fall on a continuum from basic verification of compliance with regulatory requirements to assessing changes in knowledge and behavior to detecting changes in receiving water quality (Figure 2). The NPDES stormwater evaluation program in Baltimore County, Maryland (www.baltimorecountymd.gov/Agencies/environment/watersheds/epnpdesmain.html) is a good example of effective evaluation of an MS4 program.

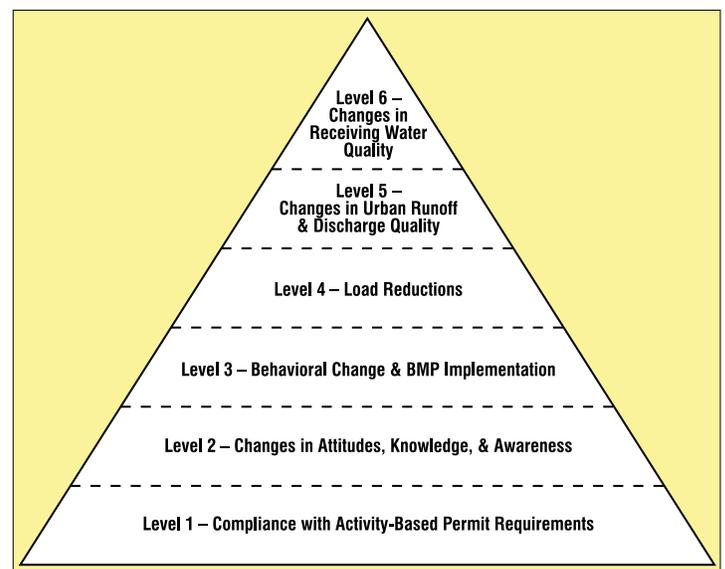


Figure 2. Approaches to evaluation of stormwater program effectiveness. (Source: CASQA, 2007)

In this document, we consider the range of evaluation approaches in three groups: program operations, social indicators, and water quality. Every evaluation approach must contain appropriate water quality measures to be meaningful.

Assess program operations

Assessment of stormwater program operations and activities verifies basic compliance with permit requirements and, more importantly, documents that tangible efforts have been made to reduce the impacts of urban stormwater. This approach to program evaluation can be applied to all of the components of a SWMP.

Evaluating the Effectiveness of Municipal Stormwater Programs

Track structural BMP implementation. Tracking the type and number of structural BMPs installed provides managers with direct feedback on how implementation is progressing and whether goals set forth in the permit are being achieved. Data on BMP specifications, location, date of completion, compliance with permit conditions, and ongoing operation and maintenance may be important to record. See USEPA [Techniques for Tracking, Evaluating, and Reporting the Implementation of Nonpoint Source Control Measures: Urban](#) (www.epa.gov/owow/nps/urban.pdf) for more information on the topic of tracking BMPs implemented in your jurisdiction.

Document management activities. Documenting management activities and pollutant source reduction efforts can be as important as tracking structural BMPs. How much material has been collected through street-sweeping and parking lot maintenance? How many site inspections were conducted and what were the results? How many and what type of illicit discharges were identified and eliminated? How many trainings and outreach activities were conducted, and how many people were reached? Baltimore City, Maryland, focuses limited stormwater management resources in a small highly urbanized watershed to demonstrate how making communities more livable can improve water quality. An important part of this effort is to document management activities so that both managers and residents can easily follow progress.

Evaluate social indicators

Social indicators—changes in knowledge, attitudes, and behavior of people—are important for two reasons. First, some SWMPs may have goals for increasing knowledge and awareness and changing attitudes among groups such as residents, business owners, and municipal employees. Second, social indicators—especially behavior changes—are important intermediate benchmarks in a successful SWMP when many years are needed to measure a water quality response. For more information, see *Developing a Social Component for the NPS Evaluation Framework* (www.uwex.edu/ces/regionalwaterquality/Flagships/Indicators.htm). This approach to program evaluation is typically applied to the public education and public participation components of a SWMP.

Gauge the effects of public education efforts. Changes in awareness, knowledge, and attitudes can be measured effectively using statistically valid surveys or questionnaires; for example see *Stormwater Knowledge, Attitude and Behaviors: A 2005 Survey of North Carolina Residents* (www.ncstormwater.org/pdfs/stormwater_survey_12506.pdf). Other approaches include monitoring attendance at public meetings, tracking requests for information, and counting hits on web sites. Keep in mind that simply reporting the number of meetings held or the number of brochures printed is not an effective method to document changes in stormwater knowledge.

Assess behavior changes. Measurement of change in pollution-generating behavior in a watershed can be an

important indicator of progress toward achieving SWMP goals. Examples include: changes in lawn fertilizer sales in response to a publicity campaign, pounds of hazardous waste turned in at collection events, participation in streambank clean-up events, and sign-ups for environmental action pledges.

Monitor water quality

Water quality monitoring is the most direct—and usually the best—approach to evaluating the effectiveness of a SWMP. Program evaluation through water quality monitoring can apply to several of the SWMP components, including illicit discharge detection, construction site runoff control and post-construction runoff control. The collection of water quality data (along with BMP performance data) would be especially useful for discharges to an impaired water body with an approved TMDL. (For more information about the TMDL program, visit www.epa.gov/owow/tmdl). Detailed guidance on design and operation of monitoring is available elsewhere, e.g., *USDA-NRCS National Handbook of Water Quality Monitoring* (<ftp://ftp.wcc.nrcs.usda.gov/downloads/wqam/wqm1.pdf>) and *EPA Monitoring Guidance for Determining the Effectiveness of Nonpoint Source Controls* (Sept. 1997, EPA 841-B-96-004).

Water quality monitoring approaches range from qualitative observations to highly quantitative measurements, covering areas as small as individual BMPs to large receiving waters such as lakes or estuaries. A good monitoring program for evaluation of SWMP effectiveness will probably contain several elements at various levels of detail and scale. Before embarking on new monitoring, however, it is important to collect and evaluate historic and current data from existing monitoring activities. Data from state 305(b) assessments, 303(d) lists, and published TMDLs, ongoing state and federal agency monitoring programs, water supply intake testing, and watershed volunteer groups, for example, can be useful both in designing a monitoring program and in supplementing program results.

Monitoring can focus on **biological** (e.g., *E. coli*, fish), **physical** (e.g., flow, suspended sediment, streambank stability), or **chemical** (e.g., phosphorus, trace metals) dimensions of the water resource. Measured water quality variables should be directly linked to both the pollutant sources and the BMPs being implemented. In general, a monitoring program should focus on selecting a few good water quality variables to measure well, rather than trying to track a long list of indicators. For example, for a swimming beach impaired by bacteria, it would be appropriate to monitor the swimming area, nearby storm drain outfalls, and tributary flows for *E. coli*. If stream channel blow-outs are an issue and BMPs addressing excessive flows are implemented, monitoring of streamflow and channel cross-section conditions would be a good choice. For algal blooms, monitoring of nutrient concentrations and loads to the receiving water might be appropriate.

Water quality monitoring must take hydrologic variation into account. Most stormwater pollution processes are driven by rainfall that varies from year to year. If several dry years follow

Evaluating the Effectiveness of Municipal Stormwater Programs

implementation of a SWMP, the program may appear to be highly effective in reducing pollutant loads simply because runoff is unusually low. Conversely, several years of wet weather could result in higher pollutant loads simply because of increased runoff volume despite BMP implementation. Consequently, it is important to monitor precipitation and streamflow to help interpret results from all but a few highly qualitative monitoring approaches.

MS4s can take a variety of monitoring approaches to evaluate their SWMP effectiveness. Several common approaches that can be implemented for physical, chemical, and biological dimensions of water quality are listed at the end of this document.

Feedback: The Iterative Approach to Stormwater Management

Management of stormwater programs is an iterative process, beginning with planning, progressing through implementation and program evaluation, and then returning to the beginning of the cycle with feedback to further program planning. Effectiveness evaluation assesses how well implementation is working and estimates benefits derived from the program for the primary purpose of assessing progress toward program goals and compliance with regulatory requirements. Results can also be used to make practical changes in management strategies. Effective program feedback will enable local governments to guide decisions on shifting priorities to achieve goals more cost-effectively, including modification of activities that need improvement, expansion of effective activities, and cessation of efforts that are no longer productive. Results of SWMP evaluation should be presented to decision-makers in a clear manner that addresses the questions formulated when the evaluation plan was designed.

Reporting

Annual reports are a good place to summarize evaluation results and to take stock of what is working and what is not. Data gathered throughout the year should be used to answer critical questions such as:

- ◆ What is the current status in meeting stormwater goals and NPDES regulatory requirements?
- ◆ What are the estimated load reductions and other benefits of BMP implementation?
- ◆ What are the costs associated with program implementation?
- ◆ How do the costs of program implementation relate to water quality changes?
- ◆ What stormwater program changes are necessary to meet the stated goals?

The Baltimore City, Maryland MS4 2005 NPDES permit, for example, requires the permittee to provide an annual narrative summary describing the results and analyses of program data,

including monitoring data accumulated throughout the reporting year. Identification of water quality improvements or degradation is a key part of this requirement.

Fourth-year reports are a good opportunity to use data gathered under the entire permit period to guide future management direction. Continuation of a NPDES permit typically requires the permittee to submit with its permit renewal application a summary of its SWMP describing how water quality goals are being achieved. Information in the application would include measured pollutant load reductions resulting from SWMP implementation and achievement of other benchmarks or water quality standards. Analysis of evaluation data is also used to justify or support changes in the permit and SWMP.

Feedback to the stormwater management program

NPDES regulations require assessment and revision of the stormwater management program in order to continue, to the maximum extent practicable, to not cause or contribute to water quality standards exceedances. As part of the iterative management process, stormwater program activities should be adjusted based on the results of an effectiveness evaluation. If a management goal has been achieved, effort in this area might be reduced to a maintenance level and resources reallocated to another pollutant or goal. If a goal has not been achieved, or satisfactory progress has not been made, additional resources can be applied and new strategies implemented. Such adjustments provide the direction for a municipality's permit renewal and will ensure progress toward program goals.

Effectiveness evaluation can also apply to ongoing stormwater programs through the process of adaptive management. Through this, evaluation results on program operations, social or water quality can provide rapid feedback to guide management activities. For example, an MS4 might establish dry weather action levels—or targets—for water quality constituents such as turbidity, phosphorus, and trace metals in tributaries draining to receiving water. Exceedance of an action level in samples taken from a tributary during dry weather would trigger an immediate investigation upstream to find and eliminate illicit connections and illegal discharges. Dry weather action levels would be reviewed and updated annually based on monitoring data and progress toward meeting SWMP goals.

In another example (Figure 3), coastal beaches and storm drains discharging near them are monitored for fecal bacteria. When compared against storm drain action levels for bacteria (sampled at the storm drain) and bacteria water quality criteria for body contact recreation (sampled in the open coastal receiving water), results of the paired samples guide management decisions on actions needed to protect the beach and follow up on sources of high bacteria counts.

Multi-faceted stormwater management programs can be evaluated as well. Baltimore City's NPDES stormwater permit requires it to restore a watershed or combination of watersheds containing 10% of the City's total impervious area during each five-year permit. The City conducts comprehensive watershed assessments and goals for restoration are developed based on

Evaluating the Effectiveness of Municipal Stormwater Programs

		Beach	
		Meets bacteria criteria	Fails to meet bacteria criteria
Storm drain discharge	Below bacteria action level	No action required	Storm drain discharge not causing beach impairment; continue to monitor and investigate other sources
	Above bacteria action level	Storm drain discharge not causing beach impairment; investigate storm drain sources	Storm drain discharge causing beach impairment; investigate storm drain sources ASAP

Figure 3. Decision table for storm drain and beach bacteria levels.

severity of water quality problems, input from local watershed associations, the possibility for inter-jurisdictional cooperation, and the availability of restoration opportunities. One restoration priority is Watershed 263 (www.cwp.org/RR_Photos/Baltimore_City_profile_sheet.pdf) where Baltimore City plans to restore a degraded stream system and simultaneously address other social and economic problems associated with older urban environments. The goals in this watershed include; replacing school yard asphalt with green infrastructure to filter stormwater; replacement of sidewalk sections with trees to remove nutrients and reduce the “heat island” effect; conversion of vacant abandoned lots into gardens for local residents to use; reduce the buildup of trash and litter through increased municipal street sweeping; and installing innovative ultra-urban BMPs wherever possible. A catch basin downstream of all of these activities will be monitored for water quality and compared to a similar watershed in the City with no controls. Since the installation of BMPs will be progressive, monitoring data will show the effectiveness of differing management strategies. Information will be fed back into future management plans for this watershed and others across the City to ensure that stormwater is being controlled to the maximum extent practicable.

In summary, a municipal stormwater management program needs to set clear goals and identify appropriate monitoring methods to evaluate those goals in order to assess the effectiveness of the stormwater program in protecting water quality.

Additional Resources

Monitoring/Evaluation Guidance or References

California Stormwater Quality Association (CASQA), 2007, *Municipal Stormwater Program Effectiveness Assessment Guidance*. Available at www.casqa.org

Southern California Coastal Water Research Project, *Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California*. ftp://ftp.sccwrp.org/pub/download/PDFs/419_smc_mm.pdf

EPA, 1992, NPDES Stormwater Sampling Guidance Document, EPA 833-B-92-001. www.epa.gov/npdes/pubs/owm0093.pdf

Center for Watershed Protection, *Smart Watershed Benchmarking Tool*. Available at www.cwp.org

Chesapeake Bay Program, *BMP Efficiencies and Definitions*. www.chesapeakebay.net/pubs/subcommittee/nsc/uswg/BMP_Pollutant_Removal_Efficiencies.pdf

International Stormwater BMP Database, *Development of Performance Measures: Determining Urban Stormwater Best Management Practice Removal Efficiencies* (www.bmpdatabase.org/docs/task3_1.pdf) and *Urban Stormwater BMP Performance Monitoring: A Guidance Manual for Meeting the National Stormwater BMP Database Requirements* (www.bmpdatabase.org/docs/Urban%20Stormwater%20BMP%20Performance%20Monitoring.pdf)

Stormwater Manager’s Resource Center, *Environmental Indicator Profile Sheet: BMP Performance Monitoring*. www.stormwatercenter.net/monitoring%20and%20assessment/ind%20profiles/IndPros25.pdf

State/Municipal examples of monitoring/evaluation programs

Baltimore County, *Watershed Management and Monitoring*. www.baltimorecountymd.gov/Agencies/environment/watersheds/ep_watershed_monitoring.html

City of Hialeah, FL *Stormwater Utility Monitoring Program*. <http://hialeahfl.gov/dept/streets/stormwater/plans/monitoring>

Maryland Watershed Restoration Action Strategy. www.dnr.state.md.us/watersheds/surf/proj/wras.html

Ventura, California, MS4 Permit www.swrcb.ca.gov/rwqcb4/html/programs/stormwater/venturaMs4.html

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National Research Council (NRC), 2004. *Confronting the Nation’s Water Problems: The Role of Research*, National Academies Press, Washington, D.C.

Schwarzenbach, R.P., B. I. Escher, K. Fenner, T. B. Hofstetter, C. A. Johnson, U. von Gunten, B. Wehrli. 2006. “The Challenge of Micropollutants in Aquatic Systems” *Science*, volume 313, p1072.

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Contacts

- U.S. EPA—Paula Estornell estornell.paula@epa.gov
- Maryland—Ray Bahr rbahr@mde.state.md.us
- Virginia—Douglas Fritz Doug.Fritz@dcr.virginia.gov

NOTE: This document is not law or regulation; it provides recommendations and explanations that MS4s may consider in determining how to comply with requirements of the CWA and NPDES permit requirements.

Evaluating the Effectiveness of Municipal Stormwater Programs

Useful Water Quality Monitoring Approaches for Evaluation of SWMPs

Visual observations. Some water quality conditions can be assessed by visual (qualitative) observations of controls, outfalls or receiving waters. Searching for and correcting illicit discharges through observation of oil and grease sheens, floatables, or odors at outfalls is one example. Progress in streambank stabilization and channel restoration might be monitored by regular photography of critical locations. In general, qualitative observations should be supplemented by quantitative measurements where possible, such as with dry weather sampling at outfalls or regular surveys of representative stream cross-sections. The City of Albuquerque MS4 Floatable & Gross Pollutant Study (www.cabq.gov/flood/pdf/FINALREPORT-OCTOBER2005.pdf) is an example of a systematic approach to qualitative observations of water quality conditions. Examples of survey techniques for streambank assessment can be found in the Maryland Stream Corridor Assessment Survey (www.dnr.maryland.gov/streams/pubs/surveyprotocols2.pdf) and the USACE/USEPA Review of protocols for stream assessment (www.mitigationactionplan.gov/Physical%20Stream%20Assessment%20Sept%202004%20Final.pdf).

BMP performance monitoring. Monitoring of individual BMP performance provides a direct measure of pollutant reduction efficiency of these key components of a SWMP. Conceptually, BMP input/output monitoring is simple—measure pollutant concentrations or loads entering and leaving a wet pond for example, and compute the difference. In practice, BMP monitoring is more complex, requiring careful collection of data concerning storm and runoff characteristics and information on BMP attributes, as well as water quality information. There are several sources of information on BMP performance and on protocols for collecting, storing, analyzing, and reporting BMP monitoring data, including the National Stormwater BMP Database (www.bmpdatabase.org) and the USEPA and ASCE *Urban Stormwater BMP Performance Monitoring Manual*. Some examples of individual BMP monitoring studies can be found at the Villanova Urban Stormwater Partnership (www3.villanova.edu/VUSP/index.html).

Probability monitoring. Monitoring sites can be selected across a broad geographic area according to some statistical design to broadly characterize water quality conditions in a watershed or to identify possible contamination hotspots. Site selection could be random to achieve wide spatial coverage or stratified to focus monitoring on particular environment types or represent specific target populations. Data from a statistical sample of stream riffle sites across a watershed could be used to assess the overall condition of watershed macroinvertebrate communities. A monitoring program addressing sediment toxicity in a bay might geographically direct sampling to ensure that sediments in different depositional environments or with different physical characteristics are sampled, or that samples are collected within the areas affected by discharges from major tributaries. Results of probability monitoring can be used to guide SWMP implementation efforts and to assess long-term trends in response to SWMP implementation. An example of a probability design applied to evaluating sediment toxicity is found in the NOAA report *Magnitude and Extent of Contaminated Sediment and Toxicity in Chesapeake Bay* (ccma.nos.noaa.gov/publications/NCCOSTM47.pdf).

Short-term extensive network monitoring. Short-term grab-sampling at the outlets of numerous small watersheds or other drainages within a large MS4 can identify impaired waters and rank areas for implementation priority. Data collected simultaneously across the MS4 can help characterize the geographical distribution of pollutant sources. The City of Los Angeles monitors a network of shoreline stations in Santa Monica Bay for bacteria to identify stormwater impacts on recreational uses of the bay. This approach can apply not only to streams draining small watersheds but also to storm drains during both wet-weather and dry-weather conditions. If continued over several years, this kind of monitoring can be a good

opportunity for volunteer groups to participate in the SWMP evaluation process. Data collected by volunteers could be reported separately or incorporated within “official” data sets used for regulatory purposes depending upon the methods used and level of training provided to volunteers.

Site-specific monitoring. High-value resources such as popular swimming beaches, important shellfish beds, or high-priority habitats could require specific monitoring to regularly assess the status of use support. Similarly, known high-priority pollutant sources or hotspots of impairment like contaminated aquatic sediments, an eroding stream channel threatening property, or a stream reach with a degraded fish population could be monitored to assess progress in restoration. Depending on the situation, such monitoring can be done in the critical area itself to assess its condition or upstream and downstream of the area to evaluate changes in pollutant stressors. Fairfax County’s MS4 program conducts an Industrial and High-Risk Runoff monitoring program to identify and investigate industrial and other high-risk sites to determine if they are contributing substantial pollutant loadings to the MS4. The San Diego Bay MS4 permittees operate a Toxic Hot Spots Monitoring Program to locate and track areas of aquatic sediment contamination related to discharges from MS4s around the Bay.

Long-term fixed stations. Permanent monitoring stations at major discharges from an MS4 or on a receiving water above and below an MS4 can be used to measure changes in pollutant loads discharged from the MS4. Such stations are usually located where it is easy to measure flow and collect representative samples. Accurate load measurement requires consideration of many factors including patterns of hydrologic variation, seasonal patterns of pollutant concentrations, and desired statistical power; it is advisable to consult a monitoring expert before setting up a sample program to monitor pollutant loads. Flow, concentration, and load data from long-term fixed stations can be used for many purposes, including assessing compliance with water quality standards, collection of representative data from drainage areas that are undergoing similar activities and where the discharges are expected to be of similar quality as required in some MS4s under Phase I rules, documenting water quality trends, and marking progress toward meeting pollutant load goals, e.g., for a TMDL. The Los Angeles County stormwater monitoring program operates a system of mass emissions stations (www.ladpw.com/WMD/npdes/Int_report/Section_1.pdf) to update estimated pollutant loads to the ocean and to document long-term trends in pollutant concentrations. The San Diego region urban runoff monitoring program maintains similar long-term mass loading stations (www.projectcleanwater.org/pdf/science_mon/2003-2004_monitoring_summary.pdf) that regular assessment of the biological communities as well as chemical pollutant loads in major drainages.

Receiving water monitoring. Protection of a water body receiving discharges from an MS4 is often the ultimate goal of stormwater management. However, an MS4 may not be the only stormwater discharge into a water body, and achievement of the MS4’s discharge quality goals may not eliminate the impairment in the receiving water. It may nevertheless be important to monitor water quality in the river, lake, estuary, or bay that receives its discharge, especially if localized impacts can be identified. Evaluation of the effectiveness of a SWMP on maintaining recreational benefits, for example, might involve monitoring both storm drains and swimming beaches for *E. coli*. If a goal of a SWMP is to reduce the impacts of toxic materials delivered in stormwater, a program monitoring a combination of water and sediment chemistry, sediment toxicity, and benthic communities in the receiving water might be appropriate.

ATTACHMENT

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MS4 Permit Improvement Guide



U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF WATER

OFFICE OF WASTEWATER MANAGEMENT

WATER PERMITS DIVISION

APRIL 2010

EPA 833-R-10-001



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 14 2010

Dear NPDES Stormwater Managers,

OFFICE OF
WATER

I am pleased to announce that the Environmental Protection Agency (EPA) has completed the "Municipal Separate Storm Sewer System Permit Improvement Guide." The primary purpose of this guidance document is to assist National Pollutant Discharge Elimination System (NPDES) permit writers in strengthening municipal separate storm sewer system (MS4) permits.

This Guide contains examples of permit conditions and supporting rationale that could be used in fact sheets that accompany NPDES permits. The Guide also includes recommendations for permit writers on how to tailor the language depending on the type of permit. For example, permits covering traditional municipalities may contain different permit provisions than those covering non-traditional entities like departments of transportation, universities, and prisons.

I ask that permit writers review the permit language and corresponding discussion presented in this Guide and consider how to incorporate this, or similar, language into their MS4 permits. Some modification of the language may be necessary to make it suitable for use with specific MS4 permits, and to better tailor it to meet the needs and goals of the various permitting authorities.

The permit language suggested in this Guide is not intended to override already existing, more stringent or differently-worded provisions that are equally as protective in meeting the applicable regulations. EPA expects the permitting authority to continue to make significant progress and ensure that the intent of the regulations or more stringent requirements is captured in the permit.

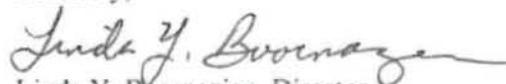
In addition, EPA would like to particularly stress the following key principles:

- Permit provisions should be clear, specific, measurable, and enforceable. Permits should include specific deadlines for compliance, incorporate clear performance standards, and include measurable goals or quantifiable targets for implementation.
- Permits should contain a performance standard for post-construction that is based on the objective of maintaining or restoring stable hydrology to protect water quality of receiving waters or another mechanism as effective.

EPA has begun a rulemaking to strengthen the stormwater program. Using this Guide to improve permits represents the direction that EPA is taking to strengthen the program. This Guide is a living document that will be updated as new information for improving the stormwater program is obtained.

I appreciate your continued efforts in strengthening the NPDES municipal stormwater program. If you have any questions about this Guide or suggestions for further improvements, please contact Rachel Herbert of my staff at herbert.rachel@epa.gov or call her at 202-564-2649.

Sincerely,


Linda Y. Boornazian, Director
Water Permits Division

CC: State Stormwater Coordinators
Association of State and Interstate Water Pollution Control Administrators

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INTRODUCTION & GETTING STARTED

Purpose

The primary purpose of the MS4 Permit Improvement Guide (Guide) is to assist National Pollutant Discharge Elimination System (NPDES) permit writers in strengthening municipal separate storm sewer system (MS4) stormwater permits. The objective of the Guide is to facilitate the creation of MS4 permits which are clear, consistent with applicable regulations, and enforceable. This Guide contains examples of permit conditions and supporting rationale that could be used in fact sheets that accompany NPDES permits. Permit language should include controls that identify specific actions permittees must perform to comply with the Permit Requirements.

This Guide focuses in large part on permits for small (Phase II) MS4s. However, while the contents of the Guide are generally organized consistent with the six minimum control measures (40 CFR 123.34(b)) applicable to Phase II MS4 permits, however, permit writers may find this Guide useful for Phase I MS4 permits. In addition, the Guide specifically addresses Phase I MS4 Permit Requirements with regard to the industrial program elements set forth in the Phase I regulations at 40 CFR 122.26(d)(2)(ii) and (iv)(C). These are addressed in Chapter 7. The Guide may also be useful for “non-traditional” MS4 permittees, such as departments of transportation (DOTs), universities and prisons.

EPA has developed a Stormwater Phase II Final Rule Fact Sheet Series (www.epa.gov/npdes/stormwater/swfinal) to assist permitting authorities and permittees in understanding the Phase II regulations. Further, EPA has developed the National Menu of Stormwater Best Management Practices (www.epa.gov/npdes/stormwater/menuofbmps) which provides descriptive information in fact sheets about various best management practices associated with the Phase II six minimum control measures.

The Guide was created by reviewing numerous MS4 permits and fact sheets from around the country. Some of the example permit and fact sheet language presented in this Guide has been adapted from these permits; in those instances where existing language that meets the purpose of this document was not available, EPA has crafted new language.

Contents of this Guide

This document is divided into parts, as noted above, based largely on the six minimum control measures required in the Phase II stormwater regulations (see 40 CFR 122.34(b)). Chapters 1 -6 address development and implementation of a stormwater management program (SWMP) and the six minimum control measures that must be included in the SWMP. Chapter 7 addresses industrial facilities programs relevant for Phase I MS4 permits. Chapter 8, Overall Evaluation and Adaptive Management, discusses reporting, evaluation, and tracking requirements. This Guide does not focus on the water quality provisions of the Clean Water Act, which may require more stringent requirements than those programmatic elements specified here.

Each chapter opens with an introduction providing a brief overview of relevant regulatory requirements pertaining to the subject of the chapter. Each chapter is then divided into sections in which the following topics are addressed:

- *Example Permit Provision* – This section includes example MS4 permit language. The language has been formatted and numbered in such a way that each section corresponds directly to a permit structured in accordance with the chapter sequence of this Guide. EPA developed these examples by first surveying existing EPA and State MS4 permit language and drawing upon agency experience in implementing permits. EPA has identified the source of the language (in footnotes) if adapted from specific permits.
- *Example Permit Requirement Rationale for the Fact Sheet* – This section describes the rationale for the example permit provision. This language can assist the permit writer in developing the fact sheet, which accompanies all NPDES permits; however, it is up to the permit writer to ensure that a complete and customized version of the fact sheet accompanies the permit. Example Permit Requirement Rationale for the Fact Sheet sections often describe “requirements” or steps that “must” be taken. To the extent this language is used in these sections, it is intended to describe requirements included in the example permit provisions. It does not mean that all permits “must” include the specific “requirement” described.
- *Recommendations for the Permit Writer* (included where appropriate) – This section discusses issues the permit writer should consider in determining how to use the example permit provisions.

How to Use this Guide

This guidance includes “example” MS4 permit language for specific program elements, but is not intended to be definitive or comprehensive for all MS4 Permit Requirements.¹ EPA recommends that permit writers review the example permit language presented in this guide and consider how to incorporate this, or similar, language into MS4 permits as appropriate. Each state may have different NPDES requirements along with varied experience overseeing MS4 programs, and MS4 permittees vary widely in storm water management experience and sophistication, size, topography, precipitation patterns, land use, receiving water conditions and other factors. In most instances, EPA anticipates that permit writers will modify the language to make it suitable for specific MS4 permits, and to tailor example provisions to meet the various needs and goals that apply.

When possible, this Guide has tried to provide examples that can be used for both Phase I and Phase II permits. However, in some instances EPA has provided suggestions for how the language can be tailored to better fit within the context of a Phase I or Phase II permit. In addition, EPA acknowledges that some language presented in this Guide may be more suitable for an individual permit rather than a general permit. While EPA has presented a discussion for ways the language could be altered to fit these scenarios in Recommendations for the Permit Writer sections, it is up to the permit writer to determine the best use of the material for the permit being crafted.

¹ For example, the guide does not explicitly address provisions for compliance with CWA section 402(p)(3)(B)(ii), water quality standards, applicable wasteload allocations in TMDLs or such other conditions as the permitting authority deems necessary. For information on integrating TMDLs into stormwater permits see USEPA’s DRAFT TMDLs to Stormwater Handbook (www.epa.gov/owow/tmdl/stormwater)

The example permit language in this Guide has been written as if the permit is a reissued permit and not an initial permit, since most MS4 permittees have been subject to NPDES permits for at least one permit term. Requirements to develop the initial SWMP are not included in this Guide since they would have been included in the first permit term. It is important that permit writers consider the different stages in the development and implementation of SWMPs when establishing permit conditions as well as the experience learned from other more advance programs. So, for example, this Guide includes brackets to indicate the place for an appropriate schedule or deadline rather than indicating specific timeframes in all instances. These examples are available to the permit writer, along with other resources such as the permittee's draft or existing SMWP document, annual reports, prior permit experience, receiving water quality information and the permit writer's best professional judgment, to issue permits suitable for their specific MS4s.

The permit language suggested in this Guide is not intended to override already existing, more stringent or differently-worded provisions that are equally as compliant in meeting the applicable regulations and protective of water quality standards. EPA expects the permitting authority to ensure that the intent of all applicable regulations is captured in the permit. States with more stringent permit provisions should continue to strengthen these provisions as the permits are reissued. This Guide includes suggestions on how to develop permit language for MS4 permittees. This Guide does not impose any new legally binding requirements on EPA, States, or the regulated community, and does not confer legal rights or impose legal obligations upon any member of the public. In the event of a conflict between the discussion in this Guide and any statute, regulation, or permit the statute, regulation or permit controls.

Terminology: SWMP and SWMP Document

This guide uses the term SWMP to refer to the stormwater management program that is required by the Phase I and Phase II regulations to be developed by MS4 permittees. The SWMP document is the written plan that is used to describe the various control measures and activities the permittee will undertake to implement the stormwater management program.

Preparing to Write an MS4 Permit

Most Phase II MS4 permittees are regulated under a general permit (with some exceptions where individual permits have been used for Phase II and non-traditional MS4 permittees). Phase I MS4 permittees are regulated under individual permits, and can include multiple co-permittees. EPA regulations require that initial MS4 permits (i.e. first permit term) set the foundation of the permittee's SWMP. For Phase II MS4 the focus is on the six minimum control measures in 40 C.F.R. 122.34(b), while the Phase I MS4 permittees are informed by the regulations at 40 C.F.R. 122.26(d). See Chapter 1 of this Guide.

As the permit writer prepares to reissue an MS4 permit, regardless of whether the permit is an individual or general permit, EPA recommends that the permit writer review, at a minimum, the following sources of information:

Past annual reports

For currently regulated MS4s, annual reports submitted by the permittee can include information that will help permit writers develop more specific and measurable Permit Requirements. The most recent annual report is usually the most helpful to review, but additional annual reports can be reviewed if time allows. If the permit writer is developing a general permit, a broad selection of

annual reports from various permittees should be reviewed. In particular, EPA recommends that the permit writer review, at a minimum, the following specific information:

Areas of obvious strengths or weaknesses in the SWMP

- For example, is the permittee vague about specific activities (often an indicator of a weak program area), or is the permittee clearly meeting the requirements of the permit and/or going above and beyond the minimum requirements?

Trends or common compliance problems

- For example, does the permittee analyze the data to assess the most common compliance problems, and then modify their controls/programs to address these problems? For example, do they use the common compliance issues identified to target their training and outreach/education efforts for construction operators?

Level of implementation of SWMP activities (e.g., frequency and numbers of inspections, frequency of catch basin cleaning, street sweeping)

- Does the permittee report the total universe when reporting the quantity of an activity achieved? For example, if the MS4 is required to conduct industrial inspections, does it report it did 100 inspections (which may be good or bad, depending on how many it was required to inspect), or that it did 100 out of 5,000 (only 2% of the total)?

Water quality priorities for the permittee (e.g. impaired waters, TMDLs, high quality waters)

- Does the permittee's annual report describe priority pollutants for impaired waters and other water quality programs and what was done to reduce and/or eliminate their contact with stormwater? Does the SWMP target both impaired and high quality waters?

Specific sources or pollutants of concern permittee is currently focusing on

- Does the SWMP target pollutants of concern in its activities?

Level and type of enforcement currently being used by permittee

- Does the annual report provide data and summary information on the different types of enforcement actions taken (how many verbal warnings, written notes, fines, etc)?

Any trends (i.e. water quality, compliance, control measure implementation levels) being reported by Permittees which indicate success or failure of particular SWMP components

- Does the permittee analyze the data, or just report the data in the MS4 annual report?

Types of measurable goals being applied and achieved by permittees

- Has the permittee met the measurable goals stated in the permit and SWMP?

Stormwater management program (SWMP)

Review the most current SWMP documents for potential gaps that may need to be specifically addressed in the reissued MS4 permit. EPA's *MS4 Program Evaluation Guidance* (available at www.epa.gov/npdes/pubs/ms4guide_withappendixa.pdf) can be used to assess the key elements in a SWMP.

NPDES MS4 audit reports, construction/industrial/commercial site inspection reports

Review the findings from any MS4 audits conducted during the past permit term to help identify key issues that should be addressed in the next permit. For example, if the audits identified weak or missing program elements and other controls, these should be addressed in the reissuance of the permit. Construction, industrial, and/or commercial site inspection reports for facilities within the MS4's boundary should be reviewed to determine if there are common compliance issues that should be addressed in the MS4 permit (for example, more training, more frequent inspections, more complete inventory or prioritization, etc.).

Monitoring/Information on Quality of Receiving Waters

Review any monitoring data collected by the permittee or any other entity that has collected useful monitoring data to identify potential pollutants of concern. In addition, the most recent information on impaired waters and total maximum daily loads (TMDLs) for the permit area should be reviewed. If there are waste load allocations (WLAs) applicable to the permittee, these should be addressed in the permit. If no WLA has been assigned to the MS4, the permit writer should still consider pollutants of concern identified in 303(d) lists and TMDLs when developing Permit Requirements. Such information will help identify whether more targeted permit conditions are needed to reduce the discharge of these pollutants. This Guide does not specifically address the inclusion of TMDL requirements in MS4 permits.

Permit renewal application data or past notice of intent (NOI) information

Review any permit renewal applications or NOIs submitted to establish coverage for the previous permit term. Permit writers should consider the recommendations made in the EPA "Interpretive Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems" (www.epa.gov/npdes/pubs/owm0125.pdf) published in 1996 (40 CFR Part 122; Federal Register, Volume 61, Number 155). This document provides information which clarifies the MS4 reapplication requirements and explains that MS4 permit applicants and NPDES permit writers have discretion to customize appropriate and streamlined reapplication requirements on a case-by-case basis.

Previous MS4 permit

Finally, review any past MS4 permits to identify where permit language should be revised or completely rewritten, for example, because language was vague. This MS4 permit improvement Guide should be used help strengthen key areas in the permit.

Note that if the MS4 permit is being issued for the first time, some of the above information will not exist yet, such as past annual reports or old SWMP documents.

MS4 Permit Writing Tips

There are a few general tips to keep in mind when writing MS4 permits. First, and most importantly, permit provisions should be clear, specific, measurable, and enforceable. Permits should include specific

deadlines for compliance, incorporate clear performance standards, and include measurable goals or quantifiable targets for implementation. Doing so will allow permitting authorities to more easily assess compliance, and take enforcement actions as necessary.

For example, the following permit provision could be strengthened: “The permittee shall demonstrate compliance with this Permit through the timely implementation of control measures and other actions to reduce pollutants in discharges to the maximum extent practicable in accordance with their SWMP...” This permit provision does not define what “timely implementation” is, allowing the permittee to determine what is timely. Timely implementation could be, although it probably was not intended to be, interpreted as meaning up to five years, or it could mean that implementation must occur within six months. In addition, “other actions” are mentioned in this provision, but they are never described. If a permit requires “other actions,” these actions should be specifically described in the permit. Finally, it is important to strike a balance of providing specific Permit Requirements while still allowing the permittee come up with innovative controls.

In addition, vague phrases such as “as feasible” and “as possible” should be avoided because they result in inconsistent implementation by permittees and difficulties in permit authority oversight and enforcement. The permit writer’s role is to determine what is necessary to achieve in a permit term, and to develop clear, enforceable language that conforms to these determinations. Accordingly, the permit should set forth objective standards, criteria or processes, which will aid the permittee in complying with the permit, as well as the permitting authority in determining compliance in the MS4 permit.

In order for permit language to be clear, specific, measurable and enforceable, each Permit Requirement will ideally specify:

- *What* needs to happen
- *Who* needs to do it
- *How much* they need to do
- *When* they need to get it done
- *Where* it is to be done

For each Permit Requirement: “What” is usually the stormwater control measure or activity required. “Who” in most cases is implied as the permittee (although in some cases the permitting authority may need to specify who exactly will carry out the requirement if there are co-permittees). “How much” is the performance standard the permittee must meet (e.g., how many inspections). “When” is a specific time (or a set frequency) when the stormwater control measure or activity must be completed. “Where” indicates the specific location or area (if necessary). These questions will help determine compliance with the permit requirement.

The Use of Partnerships in MS4 Permits

Since the Phase II Rule applies to all small MS4s within an urbanized area regardless of political boundaries it is very likely that multiple governments and agencies within a single geographic area are subject to MS4 permitting requirements. For example, a city government that operates a small MS4 within an urbanized area may obtain permit coverage under a general Phase II permit while other MS4s in the same vicinity (such as a county, other cities, or a state DOT) may have individual Phase I MS4 permits. All permittees are responsible for permit compliance in their permitted area. Given the

potential for overlapping activities in close proximity, EPA encourages permittees in a geographic area to establish cooperative agreements in implementing their stormwater programs. Partnerships and agreements between permittees and/or other agencies can minimize unnecessarily repeating activities and result in using available resources as efficiently as possible. Using existing tools and programs instead of creating new ones can allow permittees to focus resources on high priority program components instead. In addition by forming partnerships, water quality can be examined and improved on a larger, consolidated scale rather than on a piece-meal, site-by-site basis.

In addition to requiring MS4 permittees to maintain records of program implementation such as inspection forms, monitoring data, dry weather screening reports, and notices of violation, EPA recommends that MS4 permits include requirements for permittees to summarize and analyze data and submit the analysis to the permitting authority. For example, as permittees are required to evaluate program compliance and appropriateness of best management practices, the permit could require permittees to address in annual reports questions such as:

- For illicit discharge data, what are the most prevalent sources and pollutants in the illicit discharge data, and where are these illicit discharges occurring? How many illicit discharges have been identified, and how many of those have been resolved? How many outfalls or screening points were visually screened, how many had dry weather discharges or flows, at how many were field analyses completed and for what parameters, and at how many were samples collected and analyzed? Does the permittee need to conduct more inspections in these areas, or develop more specific outreach targeting these sources and pollutants?
- For the construction data, what are the most common construction violations, and are there any trends in the data (e.g., construction operators who receive more violations than others, areas of the MS4 with more violations, need to refine guidance or standards to more clearly address common violations) How has the permittee responded to these trends? Over the last year, how many construction site SWPPP reviews were completed and approved? How many inspections were conducted, how many noncompliant sites were identified, and how many enforcement actions (and of what type) were taken?

Also, although the stormwater Phase II rule requires reports, after the first permit term, reports are required to be submitted only in years two and four of the permit term. EPA strongly encourages annual reports for all permittees. (See 40 CFR 122.34(g)(3))

CHAPTER 1: ESTABLISHMENT OF THE STORMWATER MANAGEMENT PROGRAM

Introduction

An over-arching legal authority framework must be established in order for the SWMP to be effective. Ensuring that the permittee has established the legal authority to meet the requirements of the permit, created a well described enforcement response plan (ERP), and allocated adequate resources will set a necessary foundation for the SWMP.

Legal Authority

Permittees must have the authority to carry out all aspects of their stormwater management programs, including requiring the control of pollutants flowing into the MS4 system, having access to inspect sources of pollutant discharges, and being able to compel compliance and issue citations in the event of violations. Legal authority is especially critical for construction site runoff control, post-construction/permanent runoff control, industrial and commercial inspections, and illicit discharge detection and elimination programs. (See 40 CFR 122.26(d)(2)(i) and 40 CFR 122.34(b)(3)(ii)(B), (b)(4)(ii)(A), and (b)(5)(ii)(B))

A permittee seeking permit coverage under individual permits is required to describe the legal authority it has to implement and enforce the SWMP. EPA recommends that general permits also require regulated MS4s to describe their applicable legal authority in their Notices of Intent (NOIs) (40 CFR 122.26(d)(2)(i), 122.33(b)). This legal authority is typically established through the adoption of one or more ordinances, or by modifying existing ordinances to provide the necessary authority. In some cases, a permittee might already have codified water quality provisions to address previous MS4 Permit Requirements; in this case, the permittee should be required to review existing codes and ordinances and prepare a statement detailing any necessary changes required to address the new MS4 permit requirements. Some permittees, such as, DOTs, universities, and prisons, may not have the authority to create and enforce ordinances. For these entities other mechanisms and authorities that they do possess should be utilized (e.g. DOT right-of-way permits).

Enforcement Measures and Tracking

Permittees are required by the Phase I and Phase II regulations to include in their ordinance, or other regulatory mechanism, penalty provisions to ensure compliance with construction and industrial requirements, to require the removal of illicit discharges, and to address noncompliance with post-construction requirements. In complying with these requirements, EPA recommends the use of enforcement responses that vary with the type of permit violation, and escalate if violations are repeated or not corrected. EPA recommends that the permittee be required to develop and implement an enforcement response plan (ERP), which clearly describes the action to be taken for common violations associated with the construction program, industrial and commercial program, or other SWMP programs. A well-written ERP provides guidance to inspectors on the different enforcement

Included Concepts

- ▶ Requirement to develop a stormwater management program
- ▶ Necessary legal authority
- ▶ Enforcement Measures and Tracking
- ▶ Adequate resources

responses available, actions to address general permit non-filers, when and how to refer violators to the State, and how to track enforcement actions.

Adequate Resources

Each permittee will fund its SWMP differently; therefore, in order to assess whether adequate resources have been allocated to carry out the requirements of the MS4 permit, the permitting authorities should require their permittees to submit an accounting of stormwater-related budgets, costs, and staffing resources updated annually. The fiscal analysis should document and explain changes to budgets from year to year and describe how each type of funding can and cannot be used for stormwater program activities. (See 40 CFR 122.26(d)(2)(vi)).

1.1 Requirement to Develop a Stormwater Management Program

Example Permit Provision

- 1.1.1 Requirement to Develop Program – The permittee must revise and update its written stormwater management program (SWMP) document and submit the SWMP to the *[insert name of Permitting Authority]* for review by *[insert deadline, e.g., within one year of permit issuance]*. The permittee must continue to implement the current SWMP until the revised SWMP is submitted. The SWMP does not contain effluent limitations; the limitations are contained in Parts *[insert relevant part of the permit]* of the permit.
- 1.1.2 Contents of the SWMP document – At a minimum, the permittee must include the following information in its SWMP document:
- a. Ordinances, or other regulatory mechanisms, providing the legal authority necessary to implement and enforce the requirements of this permit (see Part 1.1);
 - b. Statement by the permittee’s legal counsel certifying to adequacy of legal authority (see Part 1.2);
 - c. Written procedures describing how the permittee will implement provisions described in Parts 2-8.
- 1.1.3 Modifications to the SWMP document – The *[insert applicable name of permitting authority]* may notify the permittee of the need to modify the SWMP document to be consistent with the permit, in which case the permittee will have *[insert deadline, e.g. 90 days]* to finalize such changes to the program. The permittee is required to keep the SWMP document up to date during the term of the permit. Where the permittee determines that modifications are needed to address any procedural, protocol, or programmatic change, such changes must be made as soon as practicable, but not later than *[insert deadline, e.g. 90 days]*.

Example Permit Requirement Rationale for the Fact Sheet

The permittee is required to develop a SWMP document that describes how the permittee will meet the control requirements in the permit. (See 40 CFR 122.26(d)(2)(iv), 122.34(a)). The SWMP document is a consolidation of all of the permittee's relevant ordinances or other regulatory requirements, the description of all programs and procedures (including standard forms to be used for reports and inspections) that will be implemented and enforced to comply with this permit and to document the selection, design, and installation of all stormwater control measures. The permittee is required to submit its SWMP document to the permitting authority. If modifications to the SWMP are necessary then the permitting authority will notify the permittee.

Recommendation for the Permit Writer

The permit writer should include in this section the relevant parts of the permit that require specific descriptions or justifications to be included in the SWMP document. Also, permit writers may need to include an additional requirement regarding the submittal of the SWMP document since some information contained in the SWMP document is required to be submitted prior to the permittee obtaining permit coverage. In addition, permit writers should refer to the memo entitled *Interim Guidance on Implementation of NPDES Regulations for Storm Water Phase II for Small Municipal Separate Storm Sewer Systems in Response to Recent Ninth Circuit Decision in Environmental Defense Center, et al. v. EPA, No. 00-70014 & consolidated cases (9th Cir.)* for additional guidance on the implementation of regulations for Phase II MS4s (www.epa.gov/npdes/pubs/interim_guidelines_memo_final.pdf).

1.2 Requirement to Develop Adequate Legal Authority to Implement and Enforce Stormwater Management Program

Example Permit Provision

- 1.2.1 Within [insert deadline, e.g., one year from permit issuance] the permittee must review and revise its relevant ordinances or other regulatory mechanisms, or adopt any new ordinances or other regulatory mechanisms that provide it with adequate legal authority to control pollutant discharges into and from its MS4, and to meet the requirements of this permit.
- 1.2.2 To be considered adequate, this legal authority must, at a minimum, address the following:
- a. Authority to Prohibit Illicit Discharges – Prohibit and eliminate illicit connections and discharges to the MS4. Illicit connections include pipes, drains, open channels, or other conveyances that have the potential to allow an illicit discharge to enter the MS4. Illicit discharges include all non-stormwater discharges except fire fighting discharges, discharges from NPDES permitted industrial sources and discharges not otherwise authorized under Part 1.2.2.b. of this permit.

- b. Allowable Non-Stormwater Discharges –Exceptions to the prohibition in Part 1.2.2.a. may include the following, only if they are considered non-significant contributors of pollutants: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)) to separate storm sewers, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water.
- c. Authority to Prohibit Spills or Other Releases – Control the discharge of spills, and prohibit dumping or disposal of materials other than stormwater into the MS4.
- d. Authority to Require Compliance – Require compliance with conditions in the permittee’s ordinances, permits, contracts, or orders (i.e., hold dischargers accountable for their contributions of pollutants and flows).
- e. Authority to Require Installation, Implementation, and Maintenance of Control Measures – Require owners/operators of construction sites, new or redeveloped land, and industrial and commercial facilities to minimize the discharge of pollutants to the MS4 through the installation, implementation, and maintenance of stormwater control measures consistent with *[insert references to applicable stormwater control measure manuals, guidance documents, etc.]*.
- f. Authority to Receive and Collect Information – The permittee must have the authority to request from operators of construction sites, new or redeveloped land, and industrial and commercial facilities information such as stormwater plans, inspection reports, and monitoring results, and other information deemed necessary to assess compliance with this permit. The permittee must also have the authority to review designs and proposals for new development and redevelopment to determine whether adequate stormwater control measures will be installed, implemented, and maintained.
- g. Authority to Inspect – The permittee must have the authority to enter private property for the purpose of inspecting at reasonable times any facilities, equipment, practices, or operations related to stormwater discharges to determine whether there is compliance with local stormwater control ordinances/standards or requirements in this Permit.
- h. Response to Violations – The permittee must have the ability to promptly require that violators cease and desist illicit discharges or discharges of stormwater in violation of any ordinance or standard and/or cleanup and abate such discharges, including the ability to:
 - 1. Effectively require the discharger to abate and clean up their discharge, spill, or pollutant release within *[insert deadline, e.g. 48 hours]* of notification; or
 - 2. For uncontrolled sources of pollutants that could pose an environmental threat, require abatement within *[insert timeframe, e.g. 30 days of notification]*; or,

3. Perform the clean up and abatement work and bill the responsible party, if necessary.
 4. If a situation persists where pollutant-causing sources or activities are not abated, provide the option to order the cessation of activities until such problems are adequately addressed.
 5. When all parties agree that clean-up activities cannot be completed within the timeframe provided, determine a new timeframe and notify the *[insert name of permitting authority]*.
- i. Monetary Penalties – The permittee must have the ability to:
 1. Levy citations or administrative fines against responsible parties either immediately at the site, or within a few days.
 2. Require recovery and remediation costs from responsible parties.
 - j. Civil/Criminal Penalties – The permittee must have the ability to impose more substantial civil or criminal sanctions (including referral to a city or district attorney) and escalate corrective response, consistent with its enforcement response plan developed pursuant to Part 1.3, for persistent non-compliance, repeat or escalating violations, or incidents of major environmental harm.
 - k. Interagency Agreements – Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements or other similar agreements with other owners of the MS4, such as *[insert other applicable permittees]*.
- 1.2.3 The permittee must include as part of its written SWMP document a statement certified by its chief legal counsel that the permittee has taken the necessary steps to obtain and maintain full legal authority to implement and enforce each of the requirements contained in this permit. This statement must include:
- a. Identification of all departments within the permittee’s jurisdiction that conduct stormwater-related activities and their roles and responsibilities under this permit. Include an up-to-date organizational chart specifying these departments, key personnel, and contact information.
 - b. Identification of the local administrative and legal procedures and ordinances available to mandate compliance with stormwater-related ordinances and therefore with the conditions of this permit.
 - c. A description of how stormwater related-ordinances are implemented and appealed.
 - d. A description of whether the municipality can issue administrative orders and injunctions, or whether it must go through the court system for enforcement actions.

Example Permit Requirement Rationale for the Fact Sheet

Adequate legal authority is required to implement and enforce most parts of the SWMP. (See 40 CFR 122.26(d)(2)(i) and 40 CFR 122.34(b)(3)(ii)(B), (b)(4)(ii)(A), and (b)(5)(ii)(B)). Without

adequate legal authority the MS4 would be unable to perform many vital SWMP functions such as performing inspections and requiring installation of control measures. In addition, the permittee would not be able to penalize and/or attain remediation costs from violators.

Recommendations for the Permit Writer

A major difference between a traditional MS4 and a non-traditional MS4 (such as a DOT, military base, or university) is often the scope of legal authority available to the MS4. Non-traditional MS4 permittees often cannot pass “ordinances” nor do they have enforcement authority like a typical municipality, so legal authority may consist of policies, standards, or specific contract language. Non-traditional MS4 permittees also do not generally have the authority to impose a monetary penalty. Although these differences exist, just like traditional MS4s, non-traditional MS4s must have the legal authority to develop, implement, and enforce the program. Moreover, the scope of legal authority that may be exercised by MS4 operators that are municipalities may vary from state to state. Therefore, permit writers should tailor the legal authority section depending on the types of permittees covered and the scope of authority that may be exercised by the permittee. For example, non-traditional MS4 permittees often have authority over what their contracts require. Therefore, the permit could require that contracts for construction and maintenance activities include specific stormwater requirements that ensure the permittee’s requirements are met. In addition, cooperative agreements could be maintained with those permittees that do possess the legal authorities to enforce stormwater measures within the permittee’s MS4 boundary.

The discharge prohibitions listed in Part 1.2.2 are taken from the Phase II regulations and are the minimum requirements. Note that, unlike Phase II MS4s, Phase I MS4 permittees are required to address the sources of non-stormwater discharges in Part 1.2.2.b. when they are identified as sources of pollutants in stormwater discharges. (See 40 CFR 122.26(d)(2)(iv)(B)). The permit writer may choose to apply additional or more stringent prohibitions. For example, some states have chosen to prohibit discharges from street washing activities as they can be significant sources of pollutants such as oil and grease and heavy metals.

1.3 Enforcement Measures and Tracking

Example Permit Provision

- 1.3.1 The permittee must continue to implement, and revise within [*specify deadline for completion, e.g. 12 months of permit issuance*] if necessary, an enforcement response plan (ERP), which sets out the permittee’s potential responses to violations and addresses repeat and continuing violations through progressively stricter responses as needed to achieve compliance. The ERP must describe how the permittee will use each of the following types of enforcement responses based on the type of violation:
- a. Verbal Warnings – Verbal warnings are primarily consultative in nature. At a minimum, verbal warnings must specify the nature of the violation and required corrective action.

- b. Written Notices – Written notices of violation (NOVs) must stipulate the nature of the violation and the required corrective action, with deadlines for taking such action.
 - c. Escalated Enforcement Measures – The Permittee must have the legal ability to employ any combination of the enforcement actions below (or their functional equivalent), and to escalate enforcement responses where necessary to address persistent non-compliance, repeat or escalating violations, or incidents of major environmental harm:
 - 1. Citations (with Fines) – The ERP must indicate when the permittee will assess monetary fines, which may include civil and administrative penalties.
 - 2. Stop Work Orders – The permittee must have the authority to issue stop work orders that require construction activities to be halted, except for those activities directed at cleaning up, abating discharge, and installing appropriate control measures.
 - 3. Withholding of Plan Approvals or Other Authorizations – Where a facility is in non-compliance, the ERP must address how the permittee’s own approval process affecting the facility’s ability to discharge to the MS4 can be used to abate the violation.
 - 4. Additional Measures – The permittee may also use other escalated measures provided under local legal authorities. The permittee may perform work necessary to improve erosion control measures and collect the funds from the responsible party in an appropriate manner, such as collecting against the project’s bond or directly billing the responsible party to pay for work and materials.
- 1.3.2 Enforcement Tracking – The Permittee must track instances of non-compliance either in hard-copy files or electronically. The enforcement case documentation must include, at a minimum, the following:
- a. Name of owner/operator of facility or site of violation
 - b. Location of stormwater source (i.e., construction project, industrial facility)
 - c. Description of violation
 - d. Required schedule for returning to compliance
 - e. Description of enforcement response used, including escalated responses if repeat violations occur or violations are not resolved in a timely manner
 - f. Accompanying documentation of enforcement response (e.g., notices of noncompliance, notices of violations)
 - g. Any referrals to different departments or agencies
 - h. Date violation was resolved.
- 1.3.3 Recidivism Reduction – The permittee is required to identify chronic violators of any SWMP component and reduce the rate of noncompliance recidivism. The permittee

must summarize inspection results by these chronic violators and include incentives, disincentives, or an increased inspection frequency at the operator's sites.²

Example Permit Requirement Rationale for the Fact Sheet

The permit requires permittees to have an established, escalating enforcement policy that clearly describes the action to be taken for common violations. The policy must describe the procedures to ensure compliance with local ordinances and standards, including the sanctions and enforcement mechanisms that will be used to ensure compliance. (See 40 CFR 122.26(d)(2)(i)). It is critical that the MS4 have the authority to initiate a range of enforcement actions to address the variability and severity of noncompliance. Enforcement responses to individual violations must consider criteria such as magnitude and duration of the violation, effect of the violation on the receiving water, compliance history of the operator, and good faith of the operator in compliance efforts. Particularly for construction sites, enforcement actions must be timely in order to be effective.

Recommendations for the Permit Writer

Typical enforcement mechanisms include verbal warnings, written NOVs, administrative fines and orders, stop work orders, and civil or criminal penalties. Some non-traditional MS4 permittees, such as DOTs and universities, may not have the authority to use the mechanisms described above. Therefore the enforcement requirements in the permit should take the permittee's enforcement limitations and abilities into consideration, allow for alternative mechanisms such as related contract obligations or right-of-way permits, and/or require entities that cannot enforce to coordinate with those entities that can. For example, if a DOT discovers an illicit discharge to the right-of-way, a mechanism should be in place for the DOT to communicate with the adjacent municipality to eliminate the discharge in a timely manner.

Some permit writers include specific language as to when permittees can refer violations of NPDES permits to the permitting authority. Because of the often similar control measures required in MS4 construction programs and NPDES CGP SWPPP requirements, permit writers want the permittee to make an honest effort at achieving compliance with their local requirements before referring a violator to the NPDES permitting authority. An example of permit language on NPDES referrals, which require the MS4 permittee to make a good faith effort at ensuring compliance by conducting at least two inspections and notices of violation, follows:

NPDES Permit Referrals—For those construction projects or industrial facilities subject to the *[insert name of applicable NPDES general construction/industrial permit]*, the permittee must:

² Adapted from 2009 San Francisco Bay Municipal Regional Stormwater Permit (Order No. R2-2009-0074; www.swrcb.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2009/R2-2009-0074.pdf) and the Los Angeles MS4 Permit (Part 3; www.swrcb.ca.gov/rwqcb4/water_issues/programs/stormwater/municipal/ms4_permits/los_angeles/2001-2007/LA_MS4_Permit2001-2007.pdf)

- a. Refer non-filers (i.e., those facilities that cannot demonstrate that they obtained permit coverage) to the *[insert name of permitting authority]* within *[insert number of days, e.g. 30 days]* of making that determination. In making such referrals, the permittee must include, at a minimum, the following documentation:
 1. Construction project or industrial facility location.
 2. Name of owner or operator.
 3. Estimated construction project size or type of industrial activity (including SIC code if known).
 4. Records of communication with the owner or operator regarding filing requirements.

- b. Refer violations to the *[insert name of permitting authority]* provided that the permittee has made a good faith effort of progressive enforcement to achieve compliance with its own ordinances. At a minimum, the permittee's good faith effort must include documentation of two follow-up inspections and two warning letters or notices of violation. In making such referrals, the permittee must include, at a minimum, the following documentation:
 1. Construction project or industrial facility location
 2. Name of owner or operator
 3. Estimated construction project size or type of industrial activity (including SIC code if known)
 4. Records of communication with the owner or operator regarding the violation, including at least two follow-up inspections, two warning letters or notices of violation, and any response from the owner or operator

It is important to note that a referral to the permitting authority does not relieve the MS4 from its enforcement obligations. The MS4 must continue to work with the permitting authority, using all available enforcement authority in order to gain compliance.

1.4 Requirement to Ensure Adequate Resources to Comply with MS4 Permit

Example Permit Provision

- 1.4.1 Secure Resources – The permittee must secure the resources necessary to meet all requirements of this permit.

- 1.4.2 Annual Fiscal Analysis – The permittee must conduct an annual analysis of the capital and operation and maintenance expenditures needed, allocated, and spent as well as the necessary staff resources needed and allocated to meet the requirements of this permit, including any development, implementation, and

enforcement activities required. The analysis must include estimated expenditures for the reporting period, the preceding period, and the next reporting period and be submitted with the annual report.

- a. Each analysis must include a description of the source of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds.
- b. Each analysis must include a narrative description of circumstances resulting in a [*insert percentage, e.g. 25 percent or greater*] annual change for any budget line items.
- c. Each analysis must include a description of the staff resources necessary to meet the requirements of this permit.

Example Permit Requirement Rationale for the Fact Sheet

The annual fiscal analysis will show the allocated resources, expenditures, and staff resources necessary to comply with the permit, and implement and enforce the permittee's SWMP. (See 40 CFR 122.26(d)(2)(vi)). The annual analysis is necessary to show that the permittee has adequate resources to meet all Permit Requirements. The analysis can also show year-to-year changes in funding for the stormwater program. A summary of the annual analysis must be reported in the annual report (see Section 8.4 and Appendix A). This report will help the Permitting Authority understand the resources that are dedicated to compliance with this permit, and to implementation and enforcement of the SWMP, and track how this changes over time.

Recommendations for the Permit Writer

Permit writers should be specific when requesting financial analysis information from the permittee. The Annual Report Template provided in this Guide includes basic questions that should be adequate for Phase II MS4s. However, more detailed information may be warranted from more established programs and larger Phase I MS4s.

Because stormwater is a component in many different program areas, it can often be difficult to get an accurate accounting of costs. For example, inspection staff may have multiple responsibilities in addition to stormwater inspections. Is it appropriate to count an entire inspector's time (i.e. full-time equivalent (FTE)) as a stormwater cost if the inspector is also doing building inspections? Also, some permittees count street sweeping as a stormwater compliance cost, while others consider their street sweeping costs as an aesthetic or air quality cost. Permittees should provide a detailed breakdown of costs, along with background or additional discussion so the permit writer knows what the costs include.

CHAPTER 2: PUBLIC EDUCATION AND OUTREACH/PUBLIC INVOLVEMENT

Introduction

The Phase II Regulations require MS4 permittees to develop programs to educate the public about the impact of stormwater discharges on local waterways and the steps that citizens, businesses, and other organizations can take to reduce the contamination of stormwater (40 CFR 122.34(b)(1),(2)). Phase I MS4 permittees were also required to describe their proposed public education programs as part of their initial permit application, but the regulations are not as specific as Phase II. (See 40 CFR 122.26(d)(2)(iv) (B), (D)(4) and (A)(6)).

Included Concepts

- ▶ Developing a comprehensive stormwater education/outreach program
- ▶ Involving the public in planning and implementing the SWMP

As the public gains a greater understanding of the benefits of stormwater management, an MS4 is likely to gain more support for the SWMP (including financial support) and increased compliance with the applicable regulatory requirements as the public understands how their actions impact water quality. Education and awareness programs help change human behavior with respect to reducing the amount of pollution generated from stormwater sources within the MS4 system. In addition to education, encouraging public participation in local stormwater programs can lead to program improvement as well as enabling people to identify and report a pollution-causing activity, such as spotting an illicit discharge.

2.1 Developing a Comprehensive Stormwater Education/Outreach Program

Example Permit Provision

2.1.1 The permittee must:

- a. Continue to implement, and revise if necessary within [*specify the time when the development of the program must be completed, e.g., within the first year after permit issuance*], a comprehensive stormwater education/outreach program.

The program must, at a minimum:

1. Define the goals and objectives of the program based on at least three high priority, community-wide issues (e.g. reduction of nitrogen in discharges from the MS4, promoting pervious techniques used in the MS4);
2. Identify and analyze the target audience(s);
3. Create an appropriate message(s) based on at least three targeted residential issues and three targeted industrial/commercial issues from the suggested list below (or three issues deemed more appropriate to the MS4):

Residential Community

- Residential car washing and auto maintenance control measures
- Off-pavement automobile parking
- Home and garden care activities (pesticides, herbicides, and fertilizers)
- Disposal of household hazardous waste (e.g. paints, cleaning products)
- Snow removal activities
- Using techniques that keep water onsite and/or reduce imperviousness (rain barrels, rain gardens, porous pavers, permeable concrete, porous asphalt, etc.)
- Litter prevention
- Importance of native vegetation for preventing soil erosion
- Public reporting of water quality issues
- Community activities (monitoring programs, environmental protection organization activities, etc.)
- Pet and other animal wastes

Industrial/Commercial Community

- Automobile repair and maintenance Control measures
- Control measure installation and maintenance
- Lawful disposal of vacuum truck and sweeping equipment waste
- Pollution prevention and safe alternatives
- Snow removal activities
- Using techniques that keep water onsite and/or reduce imperviousness (rain barrels, rain gardens, porous pavers, permeable concrete, porous asphalt, etc.)
- Equipment and vehicle maintenance and repair
- Importance of good housekeeping (e.g. sweeping impervious surfaces instead of hosing)
- Illicit discharge detection and elimination observations and follow-up during daily work activities
- Water quality impacts associated with land development (including new construction and redevelopment)
- Water quality impacts associated with road resurfacing and repaving

4. Develop appropriate educational materials (e.g. the materials can utilize various media such as printed materials, billboard and mass transit advertisements, signage at select locations, radio advertisements, television advertisements, websites);
5. Determine methods and process of distribution;
6. Evaluate the effectiveness of the program; and
7. Utilize public input (e.g., the opportunity for public comment, or public meetings) in the development of the program.

- b. During the term of the permit, the permittee must distribute the educational materials, using whichever methods and procedures determined appropriate by the permittee, in such a way that is designed to convey the program's message to [*insert percentage or other appropriate numeric threshold, e.g., 20%*] of the target audience each year.
- c. Within [*insert deadline, e.g., within the permit term*], the permittee must assess changes in public awareness and behavior resulting from the implementation of the program such as using a statistically valid survey and modify the education/outreach program accordingly.

- d. The permittee must assess its stormwater education/outreach program annually as specified in Part 8.3 of this permit. The permittee must adjust its educational materials and the delivery of such materials to address any shortcomings found as a result of this assessment.
- e. Written procedures for implementing this program must be incorporated into the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

Without a focused and comprehensive program, outreach and education efforts will likely be poorly coordinated and possibly ineffective. The permit the permittee to develop an education/outreach program that addresses the six steps listed and also found in EPA's *Getting In Step: A Guide to Effective Outreach in Your Watershed* (www.epa.gov/watertrain/gettinginstep/). This guide explains the steps in developing an outreach plan, presents information on creating outreach materials, and provides tips in working with the media. The permittee is encouraged to follow this guide in developing its outreach strategy.

The public education and outreach program must be tailored and targeted to specific water quality issues of concern in the relevant community. These community-wide and targeted issues must then guide the development of the comprehensive outreach program, including the creation of appropriate messages and educational materials. The permit includes a list of potential residential and commercial issues, but the permittee may also choose other issues that contribute significant pollutant loads to stormwater.

The permittee is encouraged to use existing public educational materials in its program. Examples of public educational materials for stormwater are available at EPA's *Nonpoint Source Outreach Toolbox* (www.epa.gov/nps/toolbox). The permittee is also encouraged to leverage resources with other agencies and municipalities with similar public education goals.

Finally, the underlying principle of any public education and outreach effort is to change behaviors. The permittee must develop a process to assess how well its public education and outreach programs is changing public awareness and behaviors and to determine what changes are necessary to make its public education program more effective. This assessment of public education programs is typically conducted via phone surveys, but other assessment methods that quantify results can be used. The permittee is encouraged to use a variety of assessment methods to evaluate the effectiveness of different public education activities. The permit requires that the first evaluation assessment be conducted before the final year of the permittee's coverage under this permit, before the next permit is issued. The allows the permittee to make changes as appropriate before the next permit application is due, EPA's *Getting In Step: A Guide to Effective Outreach in Your Watershed* (www.epa.gov/watertrain/gettinginstep/) can provide useful information on setting up and conducting the evaluations.

Recommendations for the Permit Writer

EPA recommends that the requirement to identify high priority community-wide issues and targeted issues be set at least 3 to 6 months before the stormwater education/outreach program is to be implemented, so the permitting authority can review the issues and provide any feedback before the plan is completed.

The permit can be a means for increasing public awareness and understanding of stormwater impacts on local watersheds, including high quality watersheds that need protecting. EPA recommends that the permit writer consider requiring permittees to identify and describe issues, such as specific pollutants, the sources of those pollutants, impacts on biology, and the physical attributes of stormwater runoff, in their education/outreach program, which affect local watershed(s). Where applicable, the education/outreach program should identify and describe high quality watersheds in need of protection and the issues that may threaten the quality of these waters.

The list in Part 2.1.1.a(3) is not all-inclusive. Therefore, EPA recommends that the permit be written to allow the permittee to identify priority issue(s) not listed that may contribute a significant pollutant load to stormwater. For Phase I, individual permits, it may be appropriate for the permit writer to specify the priority issues based on known issues, monitoring data, historical trends, etc. Phase II general permits will likely need to allow for more flexibility in selecting priority issues.

In addition, the permit writer will need to consider that DOTs and other “non-traditional” MS4s will likely have different priority concerns than the ones identified in the categories above. In fact, the categories (residential and commercial/industrial) may also need to be changed. In these instances, the permit writer may want to consider having the non-traditional permittees work together with any local government MS4s in their area to maximize the program and cost effectiveness of the outreach.

The permit writer may consider specifying the mechanism the permittee is required to use to measure the awareness of and behavior related to issues concerning stormwater runoff by the general public, or targeted audiences within the general public. Examples of evaluations could include:

- Direct Evaluations
- Surveys
- Tracking the number of attendees
- Interviews
- Review of media clippings
- Tracking the number of stormwater-related calls/emails/letters received

Permit writers should consider whether it is appropriate to require a baseline assessment of the public’s awareness of stormwater issues, for example in the second year of the permit term, so that comparisons may be drawn in reference to the baseline. This would likely require the permittee to conduct two assessments in the first permit term that the assessment is required.

2.2 Involving the Public in Planning and Implementing the SWMP

Example Permit Provision

- 2.2.1 The permittee is required to involve the public in the planning and implementation of activities related to the development and implementation of the SWMP. At a minimum, the permittee must:
- a. Establish a citizen advisory group or utilize existing citizen organizations. The permittee may establish a stand-alone group or utilize an existing group or process. The advisory group must consist of a balanced representation of all affected parties, including residents, business owners, and environmental organizations in the MS4 area and/or affected watershed. The permittee must invite the citizen advisory group to participate in the development and implementation of all parts of the community's SWMP.
 - b. Create opportunities for citizens to participate in the implementation of stormwater controls (e.g., stream clean-ups, storm drain stenciling, volunteer monitoring, and educational activities).
 - c. Ensure the public can easily find information about the permittee's SWMP.
- 2.2.2 Written procedures for implementing this program must be incorporated into the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

Stormwater management programs can be greatly improved by involving the community throughout the entire process of developing and implementing the program. Involving the public benefits both the permittee itself as well as the community. By listening to the public's concerns and coming up with solutions together, the permittee will gain the public's support and the community will become invested in the program. The permittees will likewise gain even more insight into the most effective ways to communicate their messages.

This permit requires the involvement of the public, which includes a citizen advisory group or process to solicit feedback on the stormwater program, and opportunities for citizens to participate in implementation of the stormwater program. The citizen advisory group should meet with the local land use planners and provide input on land use code or ordinance updates so that land use requirements incorporate provisions for better management of stormwater runoff and watershed protection. Public participation in implementation of the stormwater program can include many different activities such as stream clean-ups, storm drain markings, and volunteer monitoring.

Permittees are encouraged to work together with other entities that have an impact on stormwater (for example, schools, homeowner associations, DOTs, other MS4 permittees). Permittees are also encouraged to use existing advisory groups or processes in order to implement these public involvement requirements.

Recommendations for the Permit Writer

Especially for Phase I permittees, permit writers may consider requiring more specific information such as requiring at least one contact that the public can reach (including phone number and/or e-mail address) be clearly posted on the website. The contact may be a general contact or a specific person. The permitting authority may want the MS4 to have a mechanism for the public to comment year round, not just at public meetings. This could be facilitated by a webpage and email or a stormwater hotline.

Some Phase II permittees may find it more difficult to establish and maintain a formal citizen advisory group simply because they tend to have smaller populations. The permit writer may want to provide flexibility for the Phase II permittees to utilize the public involvement mechanism which best suits their individual community. For example, groups which are already involved with other aspects of municipal governance or established events where input could be solicited (i.e. farmers markets, festivals) may serve to meet the objective of this section.

CHAPTER 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION

Introduction

Phase I (see 40 CFR 122.26 (d)(1)(v)(B) and (d)(1)(iv)(B)) and Phase II stormwater management programs (see 40 CFR 122.26(d)(2)(iv)(B)) are required to address illicit discharges into the MS4 system. An illicit discharge is defined as any discharge to a municipal separate storm sewer system that is not composed entirely of stormwater, except allowable discharges pursuant to an NPDES permit (40 CFR 122.26(b)(2)). In addition to requiring permittee to have the legal authority to prohibit non-stormwater discharges from entering storm sewers (CWA Section 402(p)(3)(B)) (see Chapter I), MS4 permits must also require the development of a comprehensive, proactive Illicit Discharge Detection Elimination (IDDE) program.

An effective IDDE program is more than just a program to respond to complaints about illicit discharges or spills. Permittees must proactively seek out illicit discharges, or activities that could result in discharges, such as illegal connections to the storm sewer system, improper disposal of wastes, or dumping of used motor oil or other chemicals.

Included Concepts

- ▶ IDDE program development
- ▶ MS4 mapping
- ▶ Identification of priority areas
- ▶ Field screening
- ▶ IDDE source investigations and elimination
- ▶ Public reporting of non-stormwater discharges and spills
- ▶ Illicit discharge education and training

In order to trace the origin of a suspected illicit discharge or connection, the permittee must have an updated map of the storm drain system and a formal plan of how to locate illicit discharges and how to respond to them once they are located or reported. The permittee must provide a mechanism for public reporting of illicit discharges and spills, as well as an effective way for staff to be alerted to such reports. Regular field screening of outfalls for non-stormwater discharges needs to occur in areas determined to have a higher likelihood for illicit discharges and illegal connections. Proper investigation and enforcement procedures must be in place to eliminate the sources of the discharges, as well. Finally, in order for the permittee to adequately detect and eliminate sources of illicit discharges, both field and office staff must be properly trained to recognize and report the discharges to the appropriate parties.

EPA recommends that permittees refer to the Center for Watershed Protection's guide on *Illicit Discharge Detection and Elimination (IDDE): A Guidance Manual for Program Development and Technical Assistance* (IDDE Manual, available at www.cwp.org) when developing an IDDE program.

3.1 IDDE Program Development

Example Permit Provision

- 3.1.1 The permittee must continue to implement a program to detect, investigate, and eliminate non-stormwater discharges (see Part 1.2.2), including illegal dumping, into its system. The IDDE program must include the following:

- a. An up-to-date storm sewer system map (see Part 3.2).
 - b. Procedures for identifying priority areas within the MS4 likely to have illicit discharges, and a list of all such areas identified in the system (see Part 3.3)
 - c. Field screening to detect illicit discharges (see Part 3.4)
 - d. Procedures for tracing the source of an illicit discharge (see Part 3.5)
 - e. Procedures for removing the source of the discharge (see Part 3.5)
 - f. Procedures for program evaluation and assessment (see Part 8.3)
 - g. Procedures to prevent and correct any on-site sewage disposal systems that discharge into the MS4.³
- 3.1.2 In implementing the IDDE program, the permittee may conduct such investigations, contract for investigation, coordinate with storm drain investigation activities of others, or use any combination of these approaches.
- 3.1.3 For non-traditional MS4 permittees, if illicit connections or illicit discharges are observed related to another operator's municipal storm sewer system then the permittee must notify the other operator within [*insert applicable deadline, e.g., within 48 hours*] of discovery.
- 3.1.4 If another operator notifies the permittee of an illegal connection or illicit discharge to the municipal separate storm sewer system then the permittee must follow the requirements specified in Part 3.5.4.
- 3.1.5 Written procedures for implementing this program, including those components described in Parts 3.1 – 3.7 must be incorporated into the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

EPA stormwater regulations define "illicit discharge" as "any discharge to a municipal separate storm sewer that is not composed entirely of stormwater" except discharges resulting from fire fighting activities and discharges from NPDES permitted sources (see 122.26(b)(2)). The applicable regulations state that the following non-stormwater discharges may be allowed if they are not determined to be a significant source of pollutants to the MS4 : water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water. If, however, these discharges are determined to be a significant source of pollution then they are prohibited.

Examples of common sources of illicit discharges in urban areas include apartments and homes, car washes, restaurants, airports, landfills, and gas stations. These so called "generating sites" discharge sanitary wastewater, septic system effluent, vehicle wash water, washdown from

³ Vermont Phase II General Permit (www.vtwaterquality.org/stormwater/htm/sw_ms4.htm)

grease traps, motor oil, antifreeze, gasoline and fuel spills, among other substances. Although these illicit discharges can enter the storm drain system in various ways, they generally result from either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration into the storm drain system, spills, or "midnight dumping"). Illicit discharges can be further divided into those discharging continuously and those discharging intermittently.

One way of locating these dry weather discharges is to perform field screening of outfalls. If no rain has occurred prior to the screening then it is likely that any flow observed at an outfall is either groundwater or an illicit discharge. It is important to utilize resources effectively and to target field screening activities in priority areas that are the most common sources of illicit discharges. For example, municipalities with older neighborhoods should prioritize those areas for targeted investigation due to the likelihood of cross connections with the sanitary sewer. Older parts of the storm drain system may also be deteriorating and require repair or replacement.

In addition, it is important that permittees establish clear policies and procedures for tracing and eliminating illicit discharges to ensure that individual incidents are addressed consistently. These policies should include procedures to notify neighboring localities if a discharge is discovered either originating on or discharging to the neighboring storm sewer system.

Additional information is available in the Center for Watershed Protection's *IDDE Manual*.

Recommendations for the Permit Writer

In some instances the permit writer may choose to include more specific requirements. For example, if the priority areas are already known, then Part 3.1.1.a may be more specifically worded. In addition, regulations governing Phase I MS4 permits have somewhat different requirements including specific field screening procedures (40 CFR 122.26(d)(1)(iii)(D) and 122.26(d)(2)(iii)) and a program to detect and remove illicit discharges and improper disposal into the storm sewer (40 CFR 122.26(d)(2)(iv)(B)).

3.2 MS4 Mapping

Example Permit Provision

- 3.2.1 The permittee must maintain an up-to-date and accurate storm sewer system map.
- a. The storm sewer system map must show the following, at a minimum:
 1. The location of all MS4 outfalls and drainage areas contributing to those outfalls that are operated by the permittee, and that discharge within the permittee's jurisdiction to a receiving water
 2. The location (and name, where known to the permittee) of all waters receiving discharges from those outfall pipes. Each mapped outfall must be given an individual alphanumeric identifier, which must be noted on the map. When possible, the outfalls must be located using a geographic

position system (GPS) and photographs should be taken to provide baseline information and track operation & maintenance needs over time.⁴

3. Priority areas identified under Part 3.3
 4. Field screening stations identified under Part 3.4.2.a
- b. A copy of the storm sewer system map must be available onsite for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

In order to trace the origin of a suspected illicit discharge or connection, the permittee must have an up-to-date map of its storm drain system. This is critical in order to isolate the potential source of the non-stormwater discharges and the areas of potential impact. Ideally, the information would be available as a geographic information system (GIS) layer in a geo-locational database, however, paper maps are sufficient providing they have the necessary reference information.

The permit primarily requires the mapping of outfalls, drainage areas contributing to those outfalls, and receiving waters. The municipal facility inventory created to comply with the pollution prevention/good housekeeping requirements (see Part 6.1) must also be included either on this sewer system map or on a separate MS4 map.

Recommendations for the Permit Writer

Both Phase I and Phase II regulations require permittees to develop a map indicating outfalls and the waters that receive the MS4 discharges. This map is to be used to identify priority areas that have a reasonable potential for illicit discharges. The mapping requirements should be adjusted based on any existing mapping of the MS4 that has already been completed. For example, Phase I mapping should have been initiated during the initial permit application process. This map should not be static, however, since it would need to be updated as development patterns change and new collection and discharge components of the MS4 are added. The mapping requirement could be supplemented by adding a requirement to “modify existing maps to clearly identify all receiving waters.”

3.3 Identification of Priority Areas

Example Permit Provision

- 3.3.1 The permittee must continue to identify the following as priority areas [*insert areas that may be more applicable to the jurisdiction*]:
- a. Areas with older infrastructure that are more likely to have illicit connections;

⁴ New Jersey Phase II General Permit (www.state.nj.us/dep/dwg/pdf/Tier_A_final.pdf), with modifications

- b. Industrial, commercial, or mixed use areas;
- c. Areas with a history of past illicit discharges;
- d. Areas with a history of illegal dumping;
- e. Areas with onsite sewage disposal systems;
- f. Areas with older sewer lines or with a history of sewer overflows or cross-connections; and
- g. Areas upstream of sensitive waterbodies.

3.3.2 The permittee must document the basis for its selection of each priority area and create a list of all priority areas identified in the system. This priority area list must be updated [*insert frequency, e.g., annually*] to reflect changing priorities and be available for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

The permit requires an evaluation of the permittee’s neighborhoods and land uses to identify areas that are more likely to have illicit discharges. These areas must be prioritized for more frequent screening and investigations. Each permittee will have a different set of priority areas: newer communities with modern infrastructure are less likely to have sewer cross-connections and illegal connections to the storm drain system, whereas towns with rural areas may place an emphasis on illegal dumping and onsite sewage disposal systems. Prioritization must be based not only on land use but also on prior history and frequency of problems.

The identification of priority areas must include “hotspots” or areas where dumping, spills, or other illicit discharges are a common occurrence. These hotspots will help identify potential field screening locations and may help target educational activities. For example, if evidence of motor oil dumping is found quite frequently and traced to the same apartment complex, information about motor oil disposal could be distributed to residents in response.

Recommendations for the Permit Writer

Phase I permittees should have been documenting information regarding high priority areas for several permit terms. In these instances the permit writer should require the permittee to continually evaluate and update the priority areas as development patterns change or new “hotspot” areas are found. If the permit writer has information regarding priority areas which are specific to the Phase I permittee (e.g. certain high priority watersheds or land use types which typically discharge a pollutant of concern) then those specific areas should be specified as high priority.

3.4 Field Screening

Example Permit Provision

- 3.4.1 The permittee must continue to implement and revise if necessary within *[specify deadline for completion]* a written dry weather field screening and analytical monitoring procedures to detect and eliminate illicit discharges to the MS4. These procedures must be included as part of the IDDE program, and incorporated into the permittee's SWMP document. Dry weather field screening and analytical monitoring consists of (1) field observations; (2) field screening monitoring; and (3) analytical monitoring at selected stations.
- 3.4.2 Conduct dry weather field screening and analytical monitoring. At a minimum, the permittee must:
- a. Identify a minimum of *[specify number]* stations within the priority areas it identified in Part 3.3.1 at which field screening and analytical monitoring will take place. In addition, if the permittee is made aware of non-stormwater discharges that occur during the permit term outside of the priority areas, the permittee must include field screening stations in those areas;
 - b. Conduct dry weather field screening and analytical monitoring at each station identified above at least once *[insert timeframe for dry part of year, or specify annually]*.
 - c. Sample runoff according to requirements outlined in (1) and (2) below if flow or ponded runoff is observed at a field screening station and there has been at least seventy-two (72) hours of dry weather. The permittee must also record general information such as time since last rain, quantity of last rain, site descriptions (e.g., conveyance type, dominant watershed land uses), flow estimation (e.g., width of water surface, approximate depth of water, approximate flow velocity, flow rate), and visual observations (e.g., odor, color, clarity, floatables, deposits/stains, vegetation condition, structural condition, and biology).
 1. Field screening requirements: The permittee is required to conduct a field screening analysis for the following constituents. Samples must be collected and analyzed consistent with the procedures required by 40 CFR Part 136. *[insert specific indicator pollutants that the permittee is required to monitor for.]*
 2. Analytical monitoring requirements: In addition to field screening, the permittee is required to collect samples for analytical laboratory analysis of the following constituents for a minimum of *[insert percentage]* of the samples taken. Samples must be collected and analyzed consistent with the procedures required by 40 CFR Part 136. *[insert specific pollutants of concern that the permittee is required to monitor for]*
 3. Develop benchmark concentration levels for dry weather field screening and analytical monitoring results whereby exceedance of the benchmark will

require follow-up investigations to be conducted to identify and eliminate the source causing the exceedance of the benchmark.

- d. Conduct a follow-up investigation under Part 4.5 if the benchmarks associated with the constituents listed above in Part 3.4.2.c(1) and (2) are exceeded; and
- e. Make and record all applicable observations and select another station from the list of alternate stations for monitoring if, after two subsequent field screening tests have been completed, the field screening station is dry (i.e., no flowing or ponded runoff).

3.4.3 The permittee must assess its IDDE program every [*specify deadline for completion, e.g., once per permit term*] to determine if updates are needed. Where updates are found to be necessary, the permittee must make such changes [*insert deadline for finalizing changes*].

Example Permit Requirement Rationale for the Fact Sheet

The permit requires the development of a dry weather field screening and analytical monitoring program. The program must identify stations (e.g., outfalls) within the identified “priority areas” where the field screening will be conducted. At a frequency set by the permitting authority, the permittee must screen outfalls during dry weather and, if flow or ponded water is observed, collect a sample for field screening and analytical monitoring.

Visually screening outfalls during dry weather and conducting field tests, where flow is occurring, of selected chemical parameters as indicators of the discharge source will assist permittees in determining the source of illicit discharges. For example, the presence of surfactants is an indicator that sewage could be present in the discharge (e.g., soaps being discharged into sewer system as an indicator that wastewater is being discharged). Specific conductivity, fluoride and/or hardness concentration, ammonia and/or potassium concentration, surfactant and/or fluorescence concentration, chlorine concentration, pH, and other chemicals may similarly be indicative of industrial sources.

The permit requires the permittee to develop benchmarks for dry weather screening and analytical monitoring results. An exceedance of the benchmark concentration level indicates the need to conduct a follow-up investigation. The results will help the permittee narrow down the possible sources causing the benchmark to be exceeded so that they can then be eliminated. This is a common protocol to trigger additional monitoring and/or implementation of BMPs at stormwater discharges (e.g. MSGP has sector-specific benchmark monitoring requirements).

Recommendations for the Permit Writer

There are many options for field screening programs available to the permit writer that will meet the requirements of the regulations. Phase I regulations require that permittees conduct initial field screening of the entire MS4 during the permit application process as well as on-going field screening activities during the life of the permit. Based on this historical information and data, permit writers may want to specify in Phase I individual permits which priority areas must be screened. They may

also want to specify how many outfalls or what percentage of the outfalls should be inspected during the permit term.

In addition, for new Phase II permittees, permit writers may want to require screening of all priority areas during the first permit term and then require on-going screening in the areas where illicit discharges were identified.

This permit language includes analytical monitoring at dry weather field screening locations. The monitoring required during field screening (Part 3.4.2.c.1.) should include appropriate indicator pollutants, i.e. pollutants that will indicate the presence of some sort of illicit discharge. For example, Phase II NPDES regulations suggest sampling for specific conductivity, ammonia, surfactant and/or fluorescence concentration, pH and other chemicals indicative of industrial sources.

Permit writers should select the additional pollutants to be monitored based upon specific pollutants of concern for the receiving water(s) and/or specific indicator pollutants which can assist the MS4 in the location of particular discharges of concern and the potential water quality impact of the discharge. For example, the Phase I San Diego MS4 Permit requires that permittees monitor the following parameters during field screening: total hardness, oil and grease, diazinon and chlorpyrifos, cadmium (dissolved), lead (dissolved), zinc (dissolved), copper (dissolved), Enterococcus bacteria, total coliform bacteria, and fecal coliform bacteria.

Permit writers should encourage or even require permittees to use the *CWP IDDE Manual* and/or EPA’s 2008 Multi-Sector General Permit (www.epa.gov/npdes/stormwater/msgp) to develop benchmarks for each parameter.

In the *IDDE Manual* it is strongly recommended that benchmarks be developed specifically for each area. As an example, the *IDDE Manual* lists the following benchmark concentrations (Table 3-1) to identify industrial discharges:

Indicator Parameter	Benchmark Concentration
Ammonia	>= 50 mg/L
Color	>= 500 units
Conductivity	>= 2,000 µS/cm
Hardness	<= 10 mg/L as CaCO ₃ or >= 2,000 mg/L as CaCO ₃
pH	<= 5
Potassium	>= 20 mg/L
Turbidity	>= 1,000 NTU

For comparison purposes, the chemical fingerprint for different flow types in Alabama is presented in Table 3-2. The chemical fingerprint for each flow type can differ regionally, so permittees should develop their own “fingerprint” library by sampling each flow type.

Flow Type	Hardness (mg/L as CaCO ₃)	NH ₃ (mg/L)	Potassium (mg/L)	Conductivity (µS/cm)	Fluoride (mg/L)	Detergents (mg/L)
Sewage	50 (0.26)	25 (0.53)	12 (0.21)	1215 (0.45)	0.7 (0.1)	9.7 (0.17)
Septage	57 (0.36)	87 (0.4)	19 (0.42)	502 (0.42)	0.93 (0.39)	3.3 (1.33)

Laundry Washwater	45 (0.33)	3.2 (0.89)	6.5 (0.78)	463.5 (0.88)	0.85 (0.4)	758 (0.27)
Car Washwater	71 (0.27)	0.9 (1.4)	3.6 (0.67)	274 (0.45)	1.2 (1.56)	140 (0.2)
Plating Bath (Liquid Industrial Waste)	14330 (0.32)	66 (0.66)	1009 (1.24)	10352 (0.45)	5.1 (0.47)	6.8 (0.68)
Radiator Flushing (Liquid Industrial Waste)	5.6 (1.88)	26 (0.89)	2801 (0.13)	3280 (0.21)	149 (0.16)	15 (0.11)
Tap Water	52 (0.27)	<0.06 (0.55)	1.3 (0.37)	140 (0.07)	0.94 (0.07)	0 (NA)
Groundwater	38 (0.19)	0.06 (1.35)	3.1 (0.55)	149 (0.24)	0.13 (0.93)	0 (NA)
Landscape Irrigation	53 (0.13)	1.3 (1.12)	5.6 (0.5)	180 (0.1)	0.61 (0.35)	0 (NA)

The number in parentheses after each concentration is the Coefficient of Variation.
Source: Robert Pitt data from CWP IDDE Manual

The permit writer may also want to require the permittee to analyze a certain number of discharge samples to characterize the concentration of certain pollutants in the different drainage areas. This characterization sampling would be in addition to any characterization sampling completed for the Phase I permit application. This type of sampling would not necessarily aid in the elimination of the source of the discharge, however, the data would be useful in characterizing the discharge from the MS4.

For those areas that have ponding or flow during dry weather, permit writers may consider allowing permittees the flexibility to look for indicators of an illicit discharge before conducting water quality tests due to baseline flow (e.g. baseflow, groundwater flow, irrigation return flows) in certain areas. In these cases, permit writers could require that sensory indicators (i.e. odor, color, turbidity, and floatables) be evaluated.

For additional guidance on field screening, the *IDDE Manual* describes an outfall reconnaissance inventory (ORI) to assess outfalls and conduct indicator monitoring to help identify illicit discharges.

Regardless of the field screening scheme, it is also very important to emphasize in the permit conditions that monitoring must be done in compliance with 40 CFR 136.

3.5 IDDE Source Investigation and Elimination

Example Permit Provision

- 3.5.1 The permittee is required to develop written procedures for conducting investigations into the source of all identified illicit discharges, including approaches to requiring such discharges to be eliminated.
- 3.5.2 Minimum Investigation Requirements – At a minimum, the permittee is required to conduct an investigation(s) to identify and locate the source of any continuous or

intermittent non-stormwater discharge within [*specify time period*] of becoming aware of the illicit discharge.

- a. Illicit discharges suspected of being sanitary sewage and/or significantly contaminated must be investigated first.
- b. Investigations of illicit discharges suspected of being cooling water, wash water, or natural flows may be delayed until after all suspected sanitary sewage and/or significantly contaminated discharges have been investigated, eliminated and/or resolved.
- c. The permittee must report immediately the occurrence of any dry weather flows believed to be an immediate threat to human health or the environment to [*insert state water quality emergency contact phone number*].
- d. The permittee must track all investigations to document at a minimum the date(s) the illicit discharge was observed; the results of the investigation; any follow-up of the investigation; and the date the investigation was closed.

3.5.3 Determining the Source of the Illicit Discharge –The permittee is required to determine and document through its investigations, carried out in Part 3.5.1, the source of all illicit discharges. If the source of the illicit discharge is found to be a discharge authorized under [*insert NPDES discharge permit reference*] of an NPDES permit, no further action is required.

- a. If an illicit discharge is found, but within six (6) months of the beginning of the investigation neither the source nor the same non-stormwater discharge has been identified/observed, then the permittee must maintain written documentation for review by the permitting authority.
- b. If the observed discharge is intermittent, the permittee must document that a minimum of three (3) separate investigations were made to observe the discharge when it was flowing. If these attempts are unsuccessful, the Permittee must maintain written documentation for review by the permitting authority. However, since this is an ongoing program, the Permittee should periodically recheck these suspected intermittent discharges.⁵

3.5.4 Corrective Action to Eliminate Illicit Discharge – Once the source of the illicit discharge has been determined, the permittee must immediately notify the responsible party of the problem, and require the responsible party to conduct all necessary corrective actions to eliminate the non-stormwater discharge within [*specify deadline*]. Upon being notified that the discharge has been eliminated, the permittee must conduct a follow-up investigation and field screening, consistent with Part 3.4, to verify that the discharge has been eliminated. The permittee is required to document its follow-up investigation. The permittee may seek recovery and remediation costs from responsible parties consistent with Part 1.2, or require compensation for the cost of field screening and investigations. Resulting enforcement actions must follow the SWMP ERP.

⁵ New Jersey Phase II Permit (www.state.nj.us/dep/dwg/pdf/Tier_A_final.pdf)

Example Permit Requirement Rationale for the Fact Sheet

The Clean Water Act, section 402(p)(3)(B)(ii) requires MS4 permits to “effectively prohibit non-stormwater discharges into the storm sewers.” The permit implements this requirement, in part by requiring the development of procedures to investigate and eliminate illicit discharges. The permittee must develop a clear, step-by-step procedure for conducting the investigation of illicit discharges. The procedure must include an investigation protocol that clearly defines what constitutes an illicit discharge “case” and when a case is considered “closed.” In many circumstances, sources of intermittent, illicit discharges are very difficult to locate, and these cases may remain unresolved. The permit requires that each case be conducted in accordance with the SOPs developed to locate the source and conclude the investigation, after which the case may be considered closed. A standard operating procedure (SOP) document is required in order to provide investigators with guidance and any necessary forms to ensure that consistent investigations occur for every illicit discharge incident.

Physical observations and field testing can help narrow the identification of potential sources of a non-stormwater discharge; however it is unlikely that either will pinpoint the exact source. Therefore, the permittee will need to perform investigations “upstream” to identify illicit connections to systems with identified problem outfalls.

Once the source of the non-stormwater discharge is determined through investigation, corrective action is required to eliminate the problem source. Resulting enforcement actions must follow the SWMP ERP. The permittee may conduct remediation activities on its own, in which case the permittee must require compensation for any and all costs related to eliminating the non-stormwater discharge. Non-traditional MS4 permittees may be limited in their ability to seek recovery.

Recommendations for the Permit Writer

Both Phase I and Phase II regulations require permittees to develop a process to trace the source of illicit discharges and eliminate them. The regulations also state that appropriate enforcement procedures and actions must be included in this process.

3.6 Public Reporting of Non-Stormwater Discharges and Spills

Example Permit Provision

- 3.6.1 The permittee must promote, publicize, and facilitate public reporting of illicit discharges or water quality impacts associated with discharges into or from MS4s through a central contact point, including phone numbers for complaints and spill reporting, and publicize to both internal permittee staff and the public. If 911 is selected, the permittee must also create, maintain, and publicize a staffed, non-emergency phone number with voicemail, which is checked daily.
- 3.6.2 The permittee must develop a written spill/dumping response procedure, and a flow chart or phone tree, or similar list for internal use, that shows the procedures for responding to public notices of illicit discharges, the various responsible agencies

and their contacts, and who would be involved in illicit discharge incidence response, even if it is a different entity other than the permittee.

- 3.6.3 The permittee must conduct reactive inspections in response to complaints and follow-up inspections as needed to ensure that corrective measures have been implemented by the responsible party to achieve and maintain compliance.⁶

Example Permit Requirement Rationale for the Fact Sheet

This provision serves to implement, in part, the statutory requirement that MS4 permits effectively prohibit non-stormwater discharges. Spills, leaks, sanitary sewer overflows, and illicit dumping or discharges can introduce a range of stormwater pollutants into the storm system. Prompt response to these occurrences is the best way to prevent or reduce negative impacts to waterbodies. The permittee must develop a spill response SOP that includes an investigation procedure similar to or in conjunction with the investigation SOP developed for illicit discharges in general (see Section 3.5). Often, a different entity might be responsible for spill response in a community (i.e. fire department), therefore, it is imperative that adequate communication exists between stormwater and spill response staff to ensure that spills are documented and investigated in a timely manner.

A stormwater hotline can be used to help permittees become aware of and mitigate spills or dumping incidents. Spills can include everything from an overturned gasoline tanker to sediment leaving a construction site to a sanitary sewer overflow entering into a storm drain. Permittees must set up a hotline consisting of any of the following (or combination thereof): a dedicated or non-dedicated phone line, E-mail address, or website.

Recommendations for the Permit Writer

Spills which occur due to municipal staff activities are considered illicit discharges, but, spill prevention could also be addressed in the municipal operations/good-housekeeping portion of the permit as in this Guide (Chapter 6).

Facilitating public reporting of illicit discharges is specifically required in the Phase I regulations and as a part of the plan to detect and address illicit discharge, EPA recommends that Phase II permittees also develop a venue to promote, publicize, and facilitate public reporting of these discharges.

It is also noteworthy that smaller Phase II MS4s may utilize outside agency resources for spill response and/or they may use a neighboring locality. In this case, permittees will need to coordinate with these agencies to ensure appropriate spill response occurs and the necessary documentation is completed.

⁶ San Francisco Municipal Regional Stormwater permit (www.swrcb.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2009/R2-2009-0074.pdf), with modifications

3.7 Illicit Discharge Education & Training

Example Permit Requirement

- 3.7.1 The permittee must continue to implement a training program for all municipal field staff, who, as part of their normal job responsibilities, may come into contact with or otherwise observe an illicit discharge or illicit connection to the storm sewer system. Contact information, including the procedure for reporting an illicit discharge, must be included in the permittee's fleet vehicles that are used by field staff. Training program documents must be available for review by the permitting authority.
- 3.7.2 By no later than [*insert applicable deadline, e.g., 6 months after permit authorization*], the permittee must train all staff identified in Section 3.7.1 above on the identification of an illicit discharge or connection, and on the proper procedures for reporting and responding to the illicit discharge or connection. Follow-up training must be provided as needed to address changes in procedures, techniques, or staffing. The permittee must document and maintain records of the training provided and the staff trained.⁷

Example Permit Requirement Rationale for the Fact Sheet

The permit requires the permittee to train field staff, who may come into contact or observe illicit discharges, on the identification and proper procedures for reporting illicit discharges. Field staff to be trained may include, but are not limited to, municipal maintenance staff, inspectors, and other staff whose job responsibilities regularly take them out of the office and into areas within the MS4 area. Permittee field staff are out in the community every day and are in the best position to locate and report spills, illicit discharges, and potentially polluting activities. With proper training and information on reporting illicit discharges easily accessible, these field staff can greatly expand the reach of the IDDE program.

Recommendations for the Permit Writer

Permit writers may wish to require training of office staff (or all permittee staff), as well as field staff, as they can act as additional "eyes and ears" since they typically live in the community. The training should consist of how to identify illicit discharges and dumping, as well as the appropriate people to contact based on the type of discharge that is occurring.

Existing permittees (Phase I and Phase II) may have been training staff for several permit terms. For this reason, the permit writer may want the permittee to focus on annual "refresher" trainings for existing staff and new employees within a certain time of their hire date.

⁷ Washington State Phase I Permit (www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseIpermit/MODIFIEDpermitDOCS/PhaseIpermitSIGNED.pdf)

CHAPTER 4: CONSTRUCTION

Introduction

MS4 permits must address construction-related requirements (and often more specific state requirements) found in the following Federal regulations – Phase I MS4 Regulations 40 CFR 122.26(d)(2)(iv)(D) and Phase II MS4 Regulations 40 CFR 122.34(b)(4). Specific Permit Requirements should vary based on state requirements, rainfall amounts or other site-specific factors, but, in general, the requirements imposed on MS4 permittees for stormwater management of discharges associated with construction activities consist of several common requirements.

Permits must require that the permittee enact, to the extent allowed by State, Tribal or local law, an ordinance or other regulatory mechanism as part of the construction program that controls runoff from construction sites with a land disturbance of greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale. As part of the ordinance or other regulatory mechanism, the permittee should provide commonly understood and legally binding definitions. These terms should be defined consistently across other related guidance and regulatory documents. Note that EPA’s recommended definitions addressing this requirement are included in Appendix B.

Permits must require that MS4 permittees ensure that construction site operators select and implement appropriate erosion and sediment control measures to reduce or eliminate the impacts to receiving waters. The permit can require that permittees develop their own standards and specifications, but often it is preferable to require the permittees to utilize existing guidance that is approved by the permitting authority.

The permit must require that the permittee establish review procedures for construction site plans to determine potential water quality impacts and ensure the proposed controls are adequate. These procedures must include the review of individual pre-construction site plans to ensure consistency with local sediment and erosion control requirements. In addition, the permit must include requirements for inspection and enforcement of erosion and sediment control measures once construction begins.

Finally, Phase I MS4 permits must require the development of educational materials and training for construction site operators, and EPA recommends that training on stormwater controls for construction site operators be mandated in Phase II MS4 permits as well. Training should address site requirements for control measures, local stormwater requirements, enforcement activities, and penalties for non-compliance.

Included Concepts

- ▶ Construction requirements and control measures
- ▶ Construction site inventory
- ▶ Construction plan review procedures
- ▶ Construction site inspections and enforcement
- ▶ MS4 staff training
- ▶ Construction site operator education and public involvement

4.1 Construction Requirements and Control Measures

Example Permit Provision

4.1.1 The permittee must continue to implement a program which requires operators of public or private “construction activities” to select, install, implement, and maintain stormwater control measures that comply with *[Insert reference to documents including any and all applicable erosion and sediment control, pollution prevention, and other stormwater requirements, including applicable CGP, State, and local requirements.]* “Construction activity” for this permit includes, at a minimum, all public and private construction sites that result in a total land disturbance of *[insert disturbance threshold – either one or more acres or that result in a total land disturbance of less than one acre if part of a larger common plan or development or sale, or an alternative threshold that includes disturbances of less than one acre]*. Written procedures for implementing this program, including the components described in Parts 4.2 – 4.6, must be incorporated into the SWMP document. The permittee’s construction program must ensure the following minimum requirements are effectively implemented for all construction activity discharging to its MS4:

[Insert specific minimum requirements, such as:

- a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, such controls must be designed, installed and maintained to:
 - (1) Control stormwater volume and velocity within the site to minimize soil erosion;
 - (2) Control stormwater discharges, including both peak flowrates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and streambank erosion;
 - (3) Minimize the amount of soil exposed during construction activity;
 - (4) Minimize the disturbance of steep slopes;
 - (5) Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site;
 - (6) Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration, unless infeasible; and
 - (7) Minimize soil compaction and, unless infeasible, preserve topsoil.
- b. **Soil Stabilization.** Stabilization of disturbed areas must, at a minimum, be initiated immediately whenever any clearing, grading, excavating or other earth disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. Stabilization must be completed within a period of

time determined by the permittee. In arid, semiarid, and drought-stricken areas where initiating vegetative stabilization measures immediately is infeasible, alternative stabilization measures must be employed as specified by the permittee.

- c. **Dewatering.** Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls.
- d. **Pollution Prevention Measures.** Design, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, such measures must be designed, installed, implemented and maintained to:
 - (1) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
 - (2) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater; and
 - (3) Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.
- e. **Prohibited Discharges.** The following discharges are prohibited:
 - (1) Wastewater from washout of concrete, unless managed by an appropriate control;
 - (2) Wastewater from washout and cleanout of stucco, paint, from release oils, curing compounds and other construction materials;
 - (3) Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and,
 - (4) Soaps or solvents used in vehicle and equipment washing.
- f. **Surface Outlets.** When discharging from basins and impoundments, utilize outlet structures that withdraw water from the surface, unless infeasible.

Example Permit Requirement Rationale for the Fact Sheet

Stormwater discharges from construction sites generally includes sediment and other pollutants such as phosphorus and nitrogen, turbidity, pesticides, petroleum derivatives, construction chemicals, and solid wastes that may become mobilized when land surfaces are disturbed. The permit requires MS4 permittees to require construction site operators at defined sites to meet certain minimum stormwater requirements relating to erosion and sediment control and pollution prevention, and to meet other restrictions imposed on them by the State, or local regulations. These minimum requirements clearly specify the expectations for addressing

erosion control, sediment control, and pollution prevention control measures at construction sites.

EPA's Effluent Limitations Guidelines and Standards for the Construction and Development Point Source Category (74 FR 62996, December 1, 2009) require construction site owners and operators to implement a range of erosion and sediment control measures and pollution prevention practices to control pollutants in discharges from construction sites. These standards will be required in state construction general permits as they are reissued. These standards are broadly applicable to all construction activity disturbing one or more acres. They provide an objective means of describing appropriate erosion and sediment control best management practices, pollution prevention controls on construction site waste and storage of building materials and other reasonable components of the permittee's program to reduce pollutants to the maximum extent practicable in stormwater from construction sites that discharge through the MS4.

Recommendations for the Permit Writer

The Phase II stormwater regulations require permittees to develop a construction site program addressing "land disturbance of greater than or equal to one acre." However, some states may have more stringent requirements that apply to some permittees, or the permit writer may have discretion to lower the one acre threshold if this threshold is too high for particular permittees. For example, smaller, built-out cities may have many small redevelopment projects that fall below the one acre threshold. In such cases, controlling construction site stormwater entering the MS4 to the maximum extent practicable may require stormwater controls at smaller sites. Permit writers should review available construction and planning data from the MS4 to determine an appropriate project size threshold.

The example permit provision's list of minimum requirements for erosion controls, sediment controls, and pollution prevention measures is intended to establish specific requirements to implement the broader requirements in the Phase II rule (40 CFR 122.24(b)(4)). The list of minimum requirements in the example permit provision are from EPA's Construction and Development Effluent Guidelines (published December 1, 2009) which will eventually be required in all NPDES stormwater permits issued to construction site operators. At a minimum, the permit should reference the applicable state standards and, where appropriate, any local standards as well. Permit writers may wish to modify these specific requirements based on current standards or guidance on construction site stormwater controls in the State.

4.2 Construction Site Inventory

Example Permit Provision

4.2.1 The permittee must continue to maintain an inventory of all active public and private construction sites that result in a total land disturbance of *[insert disturbance threshold from Part 4.1.1.]* The inventory must be continuously updated as new projects are permitted and projects are completed. The inventory must contain

relevant contact information for each project (e.g., name, address, phone, etc.), the size of the project and area of disturbance, whether the project has submitted for permit coverage under *[insert name of applicable NPDES general construction permit]*, the date the permittee approved the *[insert name of local erosion and sediment control/stormwater plan]* in accordance with Part 4.3, and the permit tracking number issued by *[insert name of permitting authority]*. The permittee must make it available to the permitting authority upon request.

Example Permit Requirement Rationale for the Fact Sheet

To effectively conduct inspections, the permittee must know where construction activity is occurring. A construction site inventory tracks information such as project size, disturbed area, distance to any waterbody or flow channel, when the erosion and sediment control/stormwater plan was approved by the Permittee, and whether the project is covered by the permitting authority's construction general permit. This inventory will allow the permittee to track and target its inspections.

Recommendations for the Permit Writer

Because of state or local construction permitting requirements, many permittees have some system in place to track construction activity in their jurisdiction. If this is the first MS4 permit issued to the permittee, the permit writer should include a deadline for the development of the initial inventory.

Permit writers may want to request electronic copies of the inventory quarterly or yearly, if that information will be used by the State permitting or inspection staff.

4.3 Construction Plan Review Procedures

Example Permit Provision

- 4.3.1 The permittee must continue to require each operator of a construction activity to prepare and submit a *[insert name of local erosion and sediment control/stormwater plan]* prior to the disturbance of land for the permittee's review and written approval prior to issuance of a *[insert appropriate permit, i.e. grading or construction]*. The permittee must make it clear to operators of construction activity that they are prohibited from commencing construction activity until they receive receipt of written approval of the the plans. If the *[insert name of local erosion and sediment control/stormwater plan]* is revised, the permittee must review and approve those revisions.
- 4.3.2 The permittee must continue to implement site plan review procedures that meet the following minimum requirements:
- a. The permittee must not approve any *[insert name of local erosion and sediment*

control/stormwater plan] unless it contains appropriate site-specific construction site control measures that meet the minimum requirements in Part 4.1.1 of this permit.

- b. The stormwater pollution prevention plan (SWPPP) developed pursuant to *[insert name of applicable NPDES general construction permit]* may substitute for the *[insert name of local erosion and sediment control/stormwater plan]* for projects where a SWPPP is developed. The permittee is responsible for reviewing those portions of the SWPPP that comply with the *[insert name of local erosion and sediment control/stormwater plan]*.
- c. The *[insert name of local erosion and sediment control/stormwater plan]* must include the rationale used for selecting control measures, including how the control measure protects a waterway or stormwater conveyance.
- d. The permittee must use qualified individuals, knowledgeable in the technical review of *[insert name of local erosion and sediment control/stormwater plan]* to conduct such reviews.
- e. The permittee must document its review of each *[insert name of local erosion and sediment control/stormwater plan]* using a checklist or similar process.⁸

Example Permit Requirement Rationale for the Fact Sheet

The permit requires the review and prior approval of all local erosion and sediment control plans/stormwater plans to ensure that construction activities adhere to the permittee's minimum stormwater control requirements. Adequate review of erosion and sediment control/stormwater plans is necessary to verify compliance with all applicable requirements in the permittee's ordinance or other regulatory mechanism, as well as compliance with control measure standards and specifications. A formalized review procedure ensures consistent review of plans by specifying the requirements for plans being submitted, the schedule for review, and general conditions for approval. The site plan review process also provides a way to track construction activities and enforce standards.

A good site plan review process provides the permittee with the opportunity to comment – early and often – on a project's proposed number, type, location, and sizing of stormwater control measures that will be in place prior to, during, and at the conclusion of active construction. It is important to keep in mind that a site plan is a “living document” that may change during the life of the project; however, it is critical that the site plan be adequately reviewed and initially based on established policy, guidelines, and standards. The plan is the framework for stormwater control implementation, as well as the basis of any enforcement action on a project site.

The permit requires the permittee to review plans before construction activity begins to ensure that the plans are consistent with the standards specified in Part 4.1.1. The permit language also includes some key requirements during the plan review process:

⁸ 2009 Ventura County, CA Phase I MS4 Permit
www.swrcb.ca.gov/rwqcb4/water_issues/programs/stormwater/municipal/ventura_ms4/09-0057/Transmittal%20Letter%20and%20MS4%20Permit%20Order%20No%2009%200057.pdf

- If a SWPPP is developed for the State construction general permit, that plan may substitute for the local plan if it also includes/addresses the local requirements.
- The plan must include the rationale used for selecting or rejecting control measures (for example, why a silt fence was selected or why a sediment trap was not included).
- Finally, plan reviewers must be trained and must document their review. For example, this can be done by using a checklist or similar process.

Recommendations for the Permit Writer

Some MS4 permits include a requirement that, prior to approval of local permits, the permittee must verify that the construction site operator has existing coverage under the State’s Construction General Permit, if necessary. This requirement helps to reduce the number of non-filers for the State general permit by providing a check for NPDES CGP permit coverage at the local level.

4.4 Construction Site Inspections and Enforcement

Example Permit Provision

4.4.1 The permittee must continue to implement procedures for inspecting public and private construction projects in accordance with the frequency specified in Table 4-1 below:

Table 4-1: Inspection Frequencies

Site	Inspection Frequency
a. All sites [<i>insert a size threshold that is considered large for the MS4 if large projects are common, e.g. 5 acres</i>] or larger in size	Inspection must occur within [<i>insert number of days/hours, e.g. 48 hours</i>] of a [<i>insert significant rain event size, e.g. ½ inch rain event</i>] and no less than biweekly (every 2 weeks)]
b. All sites one (1) acre or larger that discharge to a tributary listed by the state/tribe as an impaired water for sediment or turbidity under the CWA section 303(d)	
c. Other sites one (1) acre or more determined by the permittee or permitting authority to be a significant threat to water quality*	
d. All other construction sites with one (1) acre or more of soil disturbance not meeting the criteria specified in (A),(B), or (C) above	Inspection must occur at least monthly
e. Construction sites less than one (1) acre in size	Inspection must occur as needed based on the evaluation of the factors that are a threat to water quality*

*In evaluating the threat to water quality, the following factors must be considered: soil erosion potential; site slope; project size and type; sensitivity of receiving waterbodies; proximity to receiving waterbodies; non-stormwater discharges; past record of non-compliance by the operators of the construction site; and [*insert other factors relevant to particular MS4*].

- 4.4.2 The permittee must adequately inspect all phases of construction.
- a. Prior to Land Disturbance: Prior to allowing an operator to commence land disturbance, the permittee must perform an inspection to ensure all necessary erosion and sediment controls are in place.
 - b. During Active Construction: During active construction, the permittee is required to conduct inspections in accordance with the frequencies specified in Table 4-1 in Part 4.4.1.
 - c. Following Active Construction: At the conclusion of the project, the Permittee must inspect all projects to ensure that all graded areas have reached final stabilization and that all temporary control measures are removed (e.g., silt fence).
- 4.4.3 The permittee must have trained and qualified inspectors (See Part 4.5). The permittee must also continue to follow, and revise as necessary, written procedures outlining the inspection and enforcement procedures. Inspections of construction sites must, at a minimum:
- a. Check for coverage under the *[insert name of applicable NPDES general construction permit]* by requesting a copy of any application or Notice of Intent (NOI) or other relevant application form during initial inspections.
 - b. Review the applicable *[insert name of local erosion and sediment control/stormwater plan]* and conduct a thorough site inspection to determine if control measures have been selected, installed, implemented, and maintained according to the plan.
 - c. Assess compliance with the permittee's ordinances and permits related to stormwater runoff, including the implementation and maintenance of designated minimum control measures.
 - d. Assess the appropriateness of planned control measures and their effectiveness.
 - e. Visually observe and record non-stormwater discharges, potential illicit connections, and potential discharge of pollutants in stormwater runoff.
 - f. Provide education and outreach on stormwater pollution prevention, as needed.
 - g. Provide a written or electronic inspection report generated from findings in the field
- 4.4.4 The permittee must track the number of inspections for the inventoried construction sites throughout the reporting period to verify that the sites are inspected at the minimum frequencies required. Inspection findings must be documented and maintained for review by the permitting authority.
- 4.4.5 Based on site inspection findings, the permittee must take all necessary follow-up actions (i.e., re-inspection, enforcement) to ensure compliance in accordance with the permittee's enforcement response plan required in Part 1.3. These follow-up and enforcement actions must be tracked and maintained for review by the permitting authority.⁹

⁹ 2007 San Diego Phase I MS4 Permit (www.swrcb.ca.gov/rwqcb9/water_issues/programs/stormwater/docs/sd_permit/r9_2007_0001/2007_0001final.pdf)

Example Permit Requirement Rationale for the Fact Sheet

The permit requires inspections of construction sites based on a prioritized ranking of sites (see 40 CFR 122.26(d)(2)(iv)(D)(3) and 122.34(b)(4)(ii)(F)). Larger construction sites and sites that discharge to a sediment impaired waterbody are inspected more frequently than small sites. In addition to inspections at a regular interval, inspections are required within a certain timeframe after a rain event.

Inspections are required before land disturbance to ensure erosion and sediment controls are in place and a plan has been developed, during active construction, and after the site has been stabilized. The permit language also contains specific requirements on what the inspection must include (such as a comparison of control measures in the approved plan to measures installed in the field).

Without adequate implementation and maintenance, stormwater controls will not function as designed. In order to ensure proper implementation and maintenance by site operators, a rigorous inspection protocol is necessary. This protocol must include a written SOP for site inspections and enforcement to ensure inspections and enforcement actions are conducted in a consistent manner. The SOP must include steps to identify priority sites for inspection and enforcement based on the nature and extent of the construction activity, slope of the site, proximity to receiving waters, the characteristics of soils, and the water quality status of the receiving water. This will allow inspection resources and staff time to be used most effectively. Documentation of inspections is critical to track noncompliance and enforcement. Regularly scheduled inspections, as well as post-storm event inspections, are necessary to be sure that regular maintenance occurs as well as repairs after storm events.

Recommendations for the Permit Writer

Selecting an appropriate inspection frequency is, by necessity, a case-by-case exercise. Inspection frequencies for one permittee will not necessarily be appropriate for other permittees. For example, appropriate inspection frequencies may vary among different permittees depending on such factors as topography and rainfall patterns, including whether the MS4 is located in a wet or arid region and/or has distinct wet and dry seasons. Appropriate inspection frequencies may also vary seasonally or geographically within a single MS4 based on seasonal variations in rainfall or snowfall, or differing topographical or geographic conditions in different parts of the MS4 area.

For individual MS4 permits, permit writers should consider seasonal rainfall patterns, the presence and location of impaired streams or sensitive habitats, soils, topography, and other MS4-specific factors. In addition, permit writers should review current inspection frequencies, as well as inspection and enforcement records.

The permit writer should also note that the permit language will need to be modified if the permittee was not previously required to develop written procedures for the inspection and enforcement conducted at construction sites.

4.5 MS4 Staff Training

Example Permit Provision

- 4.5.1 The permittee must ensure that all staff whose primary job duties are related to implementing the construction stormwater program, including permitting, plan review, construction site inspections, and enforcement, are trained to conduct these activities. The training can be conducted by the permittee or outside training can be attended, however, this training must include, at a minimum:
- a. Erosion and Sediment Control/Stormwater Inspectors:
 1. Initial training, held within the first permit year, regarding proper control measure selection, installation, implementation, and maintenance, as well as administrative requirements such as inspection reporting/tracking and use of the permittee's enforcement responses; and
 2. Annual refresher training for existing inspection staff to update them on preferred controls, regulation changes, permit updates, and policy or standards updates. Throughout the year, e-mails and/or memos must be sent out to update the inspectors as changes happen.
 - b. Other Construction Inspectors: Initial training must be held within the first permit year, on general stormwater issues, basic control measure implementation information, and procedures for notifying the appropriate personnel of noncompliance. Refresher training held at least once every two years.
 - c. Plan Reviewers:
 1. Initial training, held within the first permit year, regarding control measure selection, design standards, and review procedures; and
 2. Annual training regarding new control measures, innovative approaches, permit updates, regulation changes, and policy or standard updates.
 - d. Third-Party Inspectors and Plan Reviewers: If the permittee utilizes outside parties to conduct inspections and/or review plans, these outside staff must be trained per the requirements listed in Part 4.5.1.a (above).

Example Permit Requirement Rationale for the Fact Sheet

By setting up training for the permittee staff, the permittee can ensure that the erosion and sediment control requirements are understood and consistently applied since all staff will have been trained on the same information. The permit requires staff whose primary job duties are related to implementing the construction stormwater program to be trained. The training requirements vary by the type of staff. For example, erosion and sediment control inspectors must be trained annually on a range of topics, while other construction inspectors (such as building inspectors) will receive more general training.

The permittee can conduct the training or the training can be provided by another entity (such as a State erosion and sediment control class). Ideally, the training should include classroom presentations, in-field training, and follow-up evaluations to determine whether the training was effective.

Also, the permittee should consider providing training to other in-field municipal staff so that problems associated with flooding and sedimentation from construction sites can be properly reported and addressed.

4.6 Construction Site Operator Education & Public Involvement

Example Permit Provision

- 4.6.1 Construction Operator Education. The permittee must develop and distribute educational materials to construction site operators as follows:
- a. Each year, the permittee must either provide information on existing training opportunities or develop new training for construction operators on control measure selection, installation, implementation, and maintenance as well as overall program compliance.
 - b. The permittee must develop or utilize existing outreach tools (i.e. brochures, posters, website, plan notes, manuals etc.) aimed at educating construction operators on appropriate selection, installation, implementation, and maintenance of stormwater controls, as well as overall program compliance.
 - c. The permittee must make available appropriate outreach materials to all construction operators who will be disturbing land within the MS4 boundary. The permittees' contact information and website must be included in these materials.
 - d. The permittee must include information on appropriate selection, installation, implementation, and maintenance of controls, as well as overall program compliance, on the permittee's existing website.
- 4.6.2 Public Involvement.
- a. The permittee must adopt and implement procedures for receipt and consideration of information submitted by the public regarding construction projects. This includes, but is not limited to, the public reporting mechanisms described in Part 3.6.
 - b. The permittee must hold public meetings for all public projects that have planned disturbance greater than or equal to an acre.¹⁰

¹⁰ Eastern Washington MS4 Phase II Permit (Part 2 only) (www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseiiEwa/MODIFIEDpermitDOCS/EWpermitMODsigned.pdf)

Example Permit Requirement Rationale for the Fact Sheet

Education of construction site operators regarding stormwater management and regulatory requirements is an essential part of controlling stormwater discharges from construction sites. Making brochures, guidance documents and trainings available will increase the knowledge of operators and compliance in the field and can help them choose the correct structural control and processes, correctly install the controls, and successfully implement control measures. The permit requires the permittee to provide appropriate outreach materials to construction site operators. These materials can be made available during the normal course of business (i.e. in BMP manuals, in plan notes, during meetings) or via brochures or websites. In addition, the permittee must either provide training or notify the operators of available training opportunities.

Public involvement requirements include the development of a hotline or other telephone number for the public to call regarding stormwater concerns at construction sites.

CHAPTER 5: POST-CONSTRUCTION OR PERMANENT/LONG-TERM STORMWATER CONTROL MEASURES

Introduction

Phase I MS4s are required to address new development and significant redevelopment in their SWMPs through controls to reduce pollutants in stormwater discharges after construction is completed. See 40 CFR 122.26(d)(2)(iv)(A)(2).

The Phase II regulations require regulated small MS4 operators to develop, implement, and enforce a program to address stormwater discharges from new development and redevelopment sites that disturb greater than or equal to one acre to the MS4 (including projects that disturb less than one acre that are part of a larger common plan of development or sale). The regulations also require that the MS4 ensure that control measures are installed and implemented that prevent or minimize water quality impacts. See 40 CFR 122.34(b)(5)(i)

As part of these Phase II requirements, the MS4 must:

- Develop and implement approaches to addressing post-construction stormwater discharges that include a combination of structural and/or non-structural controls;
- Adopt adequate legal authority to enable the MS4 to address post-construction stormwater discharges from new development and redeveloped sites; and
- Ensure adequate long-term operation and maintenance of applicable post-construction control measures. See 40 CFR 122.34(b)(5)(ii).

As of April 2010, most MS4 permits only require permittees to adopt a post-construction program with enforceable requirements designed to reduce stormwater impacts from new development and redevelopment, without specifying a performance standard. To meet this requirement many MS4s have adopted criteria in ordinances or other legally enforceable mechanisms based on already promulgated flood-control based standards (i.e., focused only on discharge rates). However, performance standards can be a very useful and meaningful mechanism in the post-construction toolbox to ensure that water quality objectives are met.

The example permit provisions that follow present the current thinking on how to strengthen the effectiveness of the permittee's stormwater program by preventing the harmful effects of increased stormwater flows and pollutant loads from new development and redeveloped sites on receiving waterbodies. EPA recognizes that there are a wide variety of approaches that some states have already

Included Concepts

- ▶ Post-construction stormwater management program
- ▶ Site performance standards
- ▶ Site plan review
- ▶ Long-term maintenance of post-construction stormwater control measures
- ▶ Watershed protection
- ▶ Tracking of post-construction stormwater control measures
- ▶ Inspections and enforcement
- ▶ Retrofit plan

taken to control discharges from new development and redeveloped sites, some of which are more stringent than the permit language recommended below. The language below includes components that EPA believes would provide focus and enforceability, and would bring about significant improvements in stormwater controls on site. However, the “maximum extent practicable” may be greater than is reflected in the example permit language below for some MS4s, and EPA encourages states, where possible, to go beyond these example provisions and to achieve even better watershed planning and water quality outcomes. For these reasons, this chapter presents the minimum permit provisions EPA currently recommends to be included in permits in order for permittees to reduce their discharges to the maximum extent practicable as well as the optional, more stringent, requirements.

5.1 Post-Construction Stormwater Management Program

Example Permit Provision

- 5.1.1 The permittee must continue to implement a program to control stormwater discharges from new development and redeveloped sites that disturb at least one acre (including projects that disturb less than one acre that are part of a larger common plan of development or sale) that discharge into an MS4 [*or insert smaller alternative size*]. The program must apply to private and public development sites, including roads.
- 5.1.2 The program must require that controls are in place that will infiltrate, evapotranspire, or harvest and use stormwater from the site to meet the performance standards in Part 5.2 to protect water quality.
- 5.1.3 Written procedures for implementing this program, including the components described in Parts 5.2 – 5.8, must be incorporated into the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

The stormwater regulations require that an MS4 develop and implement a program to address post-construction discharges from new development and redeveloped sites, and ensure the long-term operation and maintenance of these controls (see Part 5.4 for the maintenance requirements). (See 40 CFR 122.34(b)(5)). The permit requires the use of specific stormwater controls, i.e., those that infiltrate, evapotranspire, or harvest and use stormwater, with the aim of maintaining or restoring the pre-development stormwater runoff conditions at the site.

Many traditional stormwater management practices, and the permit language that drives them, fail to address the hydrologic modifications that increase the quantity of stormwater discharges, and cause excessive erosion and stream channel degradation. Frequently the volume, duration, and velocity of stormwater discharges cause degradation to aquatic systems. Protecting and restoring the physical, chemical and biological integrity of receiving waters must be a central issue in stormwater permits. The recent report of the National Research Council (*Urban Stormwater Management in the United States*, National Academies Press, 2008, www.epa.gov/npdes/pubs/nrc_stormwaterreport.pdf) recommends that the NPDES stormwater

program examine the impacts of stormwater flow, treat flow as a surrogate for other pollutants, and includes the necessary control requirements in stormwater permits. Specifically the report recommends that the volume retention practices of infiltration, evapotranspiration and rainwater harvesting be used as primary stormwater management mechanisms. For this reason, EPA recommends use of a permit condition that is based on maintaining or restoring predevelopment hydrology although other forms of this permit condition maybe appropriate as well.

Additional information on the development of a post-construction program for Phase II permittees can be found in the Center for Watershed Protection’s *Managing Stormwater In Your Community: A Guide for Building an Effective Post-Construction Program* (available at www.cwp.org/postconstruction). Also, EPA’s green infrastructure website includes information on post-construction controls and programs (see www.epa.gov/greeninfrastructure).

5.2 Site Performance Standards

Example Permit Provision

- 5.2.1 The permittee must establish, implement and enforce a requirement that owners or operators of new development and redeveloped sites discharging to the MS4, which disturb greater than or equal to one acre (including projects that disturb less than one acre that are part of a larger common plan of development or sale), design, install, implement, and maintain stormwater control measures that infiltrate, evapotranspire, harvest, and use stormwater discharges.
- 5.2.2 Within [*insert deadline, e.g., 12 months, 24 months, etc.*] the permittee must require that stormwater discharges from such new development and redevelopment sites be managed such that post-development hydrology does not exceed the pre-development hydrology at the site, in accordance with the performance standard set forth in this paragraph. The SWMP must describe the site design strategies, control measures, and other practices deemed necessary by the permittee to maintain or improve pre-development hydrology.¹¹ [*Insert a new development performance standard, such as one or a combination of the following:*

Basis for Performance Standard	Description	Performance Standard
Rainfall	Minimum storm volume to be retained on site.	Design, construct, and maintain stormwater management practices that manage rainfall on-site, and prevent the off-site discharge of the precipitation from [<i>insert standards, such as “the first one inch of rainfall from a 24-hour storm preceded by 48 hours of no measurable precipitation”</i>]. Discharge volume reduction can be achieved by canopy interception, soil amendments, evaporation, rainfall harvesting, engineered infiltration, extended filtration and/or evapotranspiration and any combination of the aforementioned practices. This first one inch of rainfall

¹¹ Big Darby Creek Watershed CGP, Part III.G.2.d. (web.epa.ohio.gov/dsw/permits/DarbyStormWater_Final_GP_sep06.pdf)

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		<i>must be 100% managed with no discharge to surface waters, except when the permittee chooses to implement the conditions in Part 5.2.5.d below.¹²</i>
<i>Rainfall</i>	<i>Minimum storm size to be retained on site.</i>	<i>Design, construct, and maintain stormwater management practices that manage rainfall on-site, and prevent the off-site discharge of the precipitation from all rainfall events less than or equal to [insert standards, such as “the 95th percentile rainfall event”]. This objective must be accomplished by the use of practices that infiltrate, evapotranspire and/or harvest and reuse rainwater. The 95th percentile rainfall event is the event whose precipitation total is greater than or equal to 95 percent of all storm events over a given period of record.¹³</i>
<i>Recharge/Runoff</i>	<i>Hydrologic analysis.</i>	<i>Design, construct, and maintain stormwater management practices that preserve the pre-development runoff conditions following construction. The post-construction rate, volume, duration and temperature of discharges must not exceed the pre-development rates and the pre-development hydrograph for 1, 2, 10, 25, 50 and 100 year storms must be replicated through site design and other appropriate practices. These goals must be accomplished through the use of infiltration, evapotranspiration, and/or rainwater harvesting and reuse practices. Defensible and consistent hydrological assessments and modeling methods must be used and documented.¹⁴</i>
<i>Recharge</i>	<i>Groundwater recharge requirement.</i>	<i>Any “major development” project, which is one that disturbs [insert standards, such as at least one (1) acre of land or creates at least 0.25 acres of new or additional impervious surface], must comply with one of the following two groundwater recharge requirements:</i> <ul style="list-style-type: none"> <i>• Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100 percent of the average annual pre-construction groundwater recharge volume for the site; or</i> <i>• Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater discharges volume from pre-construction to post-construction for the two-year storm is infiltrated.¹⁵</i>
<i>Impervious Cover</i>	<i>Limiting total impermeable surface (or effective impermeable surface)</i>	<i>Minimize total impervious cover resulting from new development and redevelopment to [insert standards, such as <10% of disturbed land cover and/or limit total amount of effective impervious surface to no more than 5% of the landscape].</i>

¹² West Virginia Small MS4 Permit (www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)

¹³ Section 438, Energy Independence & Security Act (EISA) Guidance (www.epa.gov/owow/NPS/lid/section438/pdf/final_sec438_eisa.pdf)

¹⁴ Section 438, Energy Independence & Security Act (EISA) Guidance (www.epa.gov/owow/NPS/lid/section438/pdf/final_sec438_eisa.pdf)

¹⁵ New Jersey Stormwater Management Rules, N.J.A.C. 7:8 (www.nj.gov/dep/rules/adoptions/2004_0202_njpdcs.pdf)

5.2.3 Incentives for Redeveloped Sites. When considered at the watershed scale, certain types of developed sites can either reduce existing impervious surfaces, or at least create less ‘accessory’ impervious surfaces. The Permittee may develop a program to allow adjustments to the performance standard for new development or redevelopment sites that qualify. A reduction of [*insert the amount of stormwater the Permittee can reduce for utilizing redevelopment principles, e.g. 0.2 inches from the one inch runoff reduction standard*] may be applied to any of the following types of development. Reductions are additive up to a maximum reduction of [*insert amount, such as 0.75 inches*] for a project that meets four or more criteria. The permittee may choose to be more restrictive and allow a reduction of less than [*insert amount, such as 0.75 inches*] if they choose. In no case will the reduction be greater than [*insert amount, such as 0.75 inches*].

1. Redeveloped sites
2. Brownfield redeveloped site
3. High density (>7 units per acre)
4. Vertical Density, (Floor to Area Ratio (FAR) of 2 or >18 units per acre)
5. Mixed use and Transit Oriented Development (within ½ mile of transit)¹⁶

5.2.4 Additional Requirements and Exceptions: The permittee must implement the following additional requirements where applicable:

- a. A site that is a potential hot spot with the reasonable potential for contaminating underground sources of drinking water must provide treatment for associated pollutants (e.g., petroleum hydrocarbons at a vehicle fueling facility).
- b. A site that discharges or proposes to discharge to any surface water or ground water that is used as a source of drinking water must comply with all applicable requirements relating to source water protection and must not cause an exceedance of drinking water standards.¹⁷
- c. Sites may not infiltrate stormwater in areas of soil contamination.
- d. For projects that cannot meet 100% of the performance standard in Part 5.2.2 on site, two alternatives are available: off-site mitigation and payment in lieu. If these alternatives are chosen, then the permittee must develop and fairly apply criteria for determining the circumstances under which these alternatives will be available and establish reasonable schedules for mitigation and require payment in lieu of prior to project inception. A determination that standards cannot be met on site must include multiple criteria that would rule out fully meeting the performance standard in Part 5.2.2, such as: too small a lot outside of the building footprint to create the necessary infiltrative capacity even with amended soils; soil instability as documented by a thorough geotechnical

¹⁶ West Virginia Small MS4 Permit (Section C.b.5.a.ii.A.3)
(www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)

¹⁷ West Virginia Small MS4 Permit (Section C.b.5.a.ii.A.2)
(www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)

analysis; a site use that is inconsistent with capture and reuse of stormwater; or too much shade or other physical conditions that preclude adequate use of plants. Sites must still maximize stormwater retention on-site, before applying the remaining stormwater to one of the alternatives. In instances where alternatives are chosen, technical justification as to the infeasibility of on site management is required to be documented.¹⁸

Example Permit Requirement Rationale for the Fact Sheet

Developed land changes the hydrology of sites, leading to higher stormwater discharge volumes and higher pollutant loads. The purpose of this standard is to maintain or restore stable hydrology in receiving waters thereby protecting water quality by having post-construction hydrology mimic the natural hydrology of the area.

A simpler, but reasonably approximate ‘mimicking the natural hydrograph’ approach can typically be accomplished by retaining (as opposed to detaining stormwater for later discharge) on a developed site the volume of water that was retained prior to development, through the mechanisms of infiltration, evapotranspiration, and capture and use. By significantly reducing the volume of stormwater discharges, these mechanisms significantly reduce the discharge of pollutants in stormwater, making discharge volumes the ideal all-around focus and metric for stormwater management. These provisions must be clear about the retention requirement, e.g., an underdrained rain garden likely functions more as a detention and filtration system than an infiltration system.

In Part 5.2.3, the five types of development which qualify for incentives are redevelopment, brownfield redevelopment, high density, vertical density, and mixed use with transit oriented development. Redeveloping already degraded sites can reduce regional land consumption and minimize new land disturbance. Minimizing land disturbance and impervious cover is critical to maintaining watershed health. In addition to water quality benefits, cleaning up and reinvesting in brownfield properties increases local tax bases, facilitates job growth, utilizes existing infrastructure, takes development pressures off of undeveloped, open land, and both improves and protects the environment. The effect of low-density urbanization on watersheds and the hydrologic cycle is substantial. High-density development, including vertical density, slows land consumption rates and accommodates more land uses on a smaller footprint. Finally, mixing land uses and promoting transit-oriented development can directly reduce runoff since mixed-use developments have the potential to use surface parking lots and transportation infrastructure more efficiently, requiring less pavement.¹⁹

In Part 5.2.4.d, the permittee must establish clear and stringent criteria for the conditions under which payment in lieu and off-site mitigation could be used. These criteria must be related to physical constraints such as a combination of soils which limit infiltration opportunities, space or light limited situations restricting the amount of vegetation that can be used, and a land use that is not conducive to capture and use of stormwater. Further, appropriate schedules for

¹⁸ *West Virginia Small MS4 Permit (Section C.b.5.a.ii.A.4)*

(www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)

¹⁹ Adapted from the WV Phase II MS4 Fact Sheet

(www.dep.wv.gov/WWE/Programs/stormwater/MS4/permits/Pages/default.aspx)

payment and implementation of mitigation measures must be established to ensure stormwater impacts are addressed in a timely manner.

Recommendations for Permit Writer

Many communities have adopted criteria based on already promulgated flood-control based standards (i.e., focused only on discharge rates). This example permit language instead promotes the concept that effective standards should be based on the objective of maintaining or restoring stable hydrology to protect the quality of receiving waters by having post-construction hydrology mimic the natural hydrology of the area. The permit language provides a number of example standards that can be used to achieve this objective.

Performance standards should take into account the wide variability in hydrologic conditions in different areas. Ideally, standards should reflect the local naturally-occurring hydrology with respect to runoff, infiltration, evapotranspiration, and storage – that is, the water balance that would be present in the absence of development. Key parameters, such as rainfall patterns, soil characteristics, and topography, can be used to establish likely ‘natural’ hydrology. Where maintaining or reestablishing such hydrologic conditions is infeasible, off-site mitigation, payment-in-lieu, or fee programs may be used. Based on current (2010) information, EPA recommends that permits allow for a combination of techniques that utilize infiltration, capture and use, and evapotranspiration as appropriate, rather than relying only on infiltration or some other technique alone to meet performance standards.

The permit writer could include a performance standard that stipulates that predevelopment hydrographs match post-development hydrographs. In order for this type of performance standard to be effective, the permit writer should make sure that the permit clearly spells out all variables of the hydrograph (volume, rate, duration, frequency) to be matched, and not just the discharge rate. Many current pre-post hydrology standards focus only on discharge rate, which is primarily a flood control approach. In addition, a pre-development condition should also be defined, and that condition should be one that is reasonably ‘natural’, rather than simply the conditions (perhaps already fairly impervious) that existed immediately prior to the current developed site. A calculator tool based on key hydrologic parameters (soil, rainfall, slope, and vegetation) or an on-site rainfall retention standard that is appropriate for that area can help the permittee determine what constitutes pre-development hydrology and the means by which it may be matched.

As contemplated in the example permit provisions, permit writers may want to consider the difference between new development and redevelopment sites, as well as differences among some types of developed sites, in establishing performance standards. From the standpoint of imperviousness at a watershed scale, redeveloped sites are usually more desirable than new development sites, which replace relatively naturally functioning green spaces with impervious surfaces such as roads, and parking lots. Certain types of development generate less impervious surfaces than others. For example, typically, there is little or no increase in net stormwater discharges when redeveloping underused properties such as vacant properties, brownfield sites, or greyfield sites, since new impervious cover replaces existing impervious cover. The net discharge increase from already developed properties would likely be zero since the site was already predominately impervious cover. In many cases, redeveloped sites break up or remove some portion of the impervious cover, converting it to pervious cover and allowing for some stormwater infiltration. Redevelopment sites can produce a net improvement in regional water quality by decreasing total impervious area and its

associated stormwater discharges. Redeveloped sites can also reduce regional land consumption. By building on underused, already degraded land, the pressure to convert previously undeveloped land is reduced. Therefore differential standards for new development and redeveloped sites, as well as for different types of developed sites, may be reasonable. However, they should be crafted to minimize creation of imperviousness at the watershed scale, and still include some reasonable level of stormwater management at the site scale.

Redevelopment is the act of improving by renewing or restoring any developed property that results in the land disturbance of one acre or greater, and that has one of the following characteristics:

- Land that currently has an existing structure, such as buildings or houses, or
- Land that is currently covered with an impervious surface, such as a parking lot or roof, or
- Land that is currently degraded and is covered with sand, gravel, stones, or other non-vegetative covering.

Infiltration may not be appropriate in all cases. For example, a site that is a potential hot spot with the reasonable potential for significant pollutant loading(s) may not be appropriate for stormwater infiltration. Hot spots may include commercial, industrial, institutional, municipal, or transportation related operations that may produce higher levels of stormwater pollutants, and/or present a higher level or risk for spills, leaks, or illicit discharges such as: gas stations, petroleum wholesalers, vehicle maintenance and repair, auto recyclers, recycling centers and scrap yards, landfills, solid waste facilities, wastewater treatment plants, airports, railroad stations and associated maintenance facilities, and highway maintenance facilities.

In addition, the permit writer may want to consider what type of flexibility to afford sites where the owner/operator is not able to meet the performance standard on site. For instance, if a site is constrained by size or previous impervious surfaces, such that the use of control measures that infiltrate stormwater is severely limited, the permit could allow alternatives for meeting the performance standard in other ways such as payment in lieu and off-site mitigation within the same watershed.

Off-site mitigation and payment in lieu programs are options that can be used in these instances. Off-site mitigation generally means that control measures may be implemented at another location, in the same watershed/watershed as the original project, and as approved by the regulatory agency. Payment in lieu programs generally mean that the developer pays a fee to the permittee which will then be applied to a stormwater control project, in lieu of installing the required control measures.

If the permit writer chooses to include an off-site mitigation or payment in lieu program in the permit, the permit writer could specify that the programs meet several criteria, for example, those described in the 2009 West Virginia Phase II General Permit Fact Sheet

www.dep.wv.gov/WWE/Programs/stormwater/MS4/permits/Pages/default.aspx):

1. The permittee must establish clear and stringent criteria for the conditions under which these options are available that must be related to real physical constraints such as a combination of soils limiting infiltration opportunities, space or light limited situations restricting the amount of vegetation that can be used, and a land use that is not conducive to capture and use of

stormwater. While one or two of these characteristics should not be adequate to qualify for the alternative, the combination of multiple constraints could;

2. A minimal requirement for at least [0.4 inch] of stormwater managed on-site;
3. A [1:1.5 ratio] of the amount of requisite stormwater not managed on site to the amount of stormwater required to be mitigated at another site, or for which in-lieu payments must be made;
4. If demonstrated to the permittee that it is completely infeasible to manage the remainder [0.4 inches], then the ratio for this unmanaged portion is [1:2].
5. The necessary tracking systems for both types of programs, including the necessary inventory of public and retrofit projects for off-site mitigation; and,
6. The establishment of a credible valuation structure for payment in lieu, i.e., what is the actual cost for the permittee to provide retrofits for the necessary amount of stormwater, not just a token payment. The purpose of these provisions is to disincentivize the use of alternatives unless really needed, but also to provide a financial foundation for implementation of public stormwater management projects, including retrofits where those needs have been identified.

Additional justification for the development types which qualify for these incentives can be seen in the West Virginia Phase II MS4 Permit Fact Sheet

www.dep.wv.gov/WWE/Programs/stormwater/MS4/permits/Pages/default.aspx.

5.3 Site Plan Review

Example Permit Provision

- 5.3.1 To ensure that all applicable new development and redeveloped sites conform to the performance standards required in Part 5.2, the permittee must continue to implement project review, approval, and enforcement procedures that include:
 - a. Procedures for the site plan review and approval process(es) that include inter-departmental consultations, as needed, and a required re-approval process when changes to an approved plan are desired; and
 - b. A requirement for submittal of 'as-built' certifications within 90 days of completion of a project.
- 5.3.2 The permittee must conduct site plan reviews, using the procedures described in Part 5.3.1, of all new development and redeveloped sites which will disturb greater than or equal to one acre [or a smaller threshold as set by the permitting authority] and discharge to the MS4 (including sites that disturb less than one acre that are part of a larger common plan of development or sale). The site plan review must specifically address how the project applicant meets the performance standards in Part 5.2 and how the project will ensure long-term maintenance as required in Part 5.4.

Example Permit Requirement Rationale for the Fact Sheet

Specific standards are a critical component of a stormwater management program. However, even the best requirements need to be supported by a review program to ensure that the standards are met. The example permit provision would require permittees to fully implement a comprehensive site plan review and approval program. To meet this requirement, the permittee must have the authority to withhold approvals when standards are not met.

Recommendations for the Permit Writer

The permit writer may want to consider adding a requirement for a pre-application concept plan meeting to occur (in addition to the requirement for the project applicant to submit a site plan for review). During this meeting the project land owner or developer, the project design engineer, and municipal planning staff could discuss the conceptual designs that would be used to ensure that they meet the performance standards. This meeting would ensure that stormwater and performance standards are addressed early in the development process. However, if this pre-application concept plan meeting is not consistent with local planning procedures, the permit writer could consider omitting this requirement.

5.4 Long-Term Maintenance of Post-Construction Stormwater Control Measures

Example Permit Provision

- 5.4.1 All structural stormwater control measures installed and implemented to meet the performance standards of Part 5.2 must be maintained in perpetuity. The permittee must ensure the long-term maintenance of structural stormwater control measures installed according to this Part through one, or both, of the following approaches:
- a. Maintenance performed by the Permittee. See part 6.4.
 - b. Maintenance performed by the owner or operator of a new development or redeveloped site under a maintenance agreement. The permittee must require the owner or operator of any new development or redeveloped site subject to the performance standards in Part 5.2 to develop and implement a maintenance agreement addressing maintenance requirements for any structural control measures installed on site to meet the performance standards. The agreement must allow the permittee, or its designee, to conduct inspections of the structural stormwater control measures and also account for transfer of responsibility in leases and/or deeds. The agreement must also allow the permittee, or its designee, to perform necessary maintenance or corrective actions neglected by the property owner/operator, and bill or recoup costs from the property owner/operator when the owner/operator has not performed the necessary maintenance within thirty (30) days of notification by the permittee or its designee.

- 5.4.2 Verification of maintenance responsibilities. The permittee must require that property owners or operators of any new development or redeveloped site subject to the performance standards in Part 5.2 provide verification of maintenance for the approved structural stormwater control measures used to comply with the performance standards. Verification must include one or more of the following as applicable:
- a. The owner/operator's signed statement accepting responsibility for maintenance with a provision for transferring maintenance responsibility if the property is legally transferred to another party; and/or
 - b. Written conditions in the sales or lease agreement that require the recipient to assume responsibility for maintenance; and/or
 - c. Written conditions in project conditions, covenants and restrictions for residential properties assigning maintenance responsibilities to a home owner's association, or other appropriate group, for maintenance of structural and treatment control stormwater management practices; and/or
 - d. Any other legally enforceable agreement that assigns permanent responsibility for maintenance of structural or treatment control stormwater management practices.

Example Permit Requirement Rationale for the Fact Sheet

Appropriate operation and maintenance are critical aspects to the function of any suite of controls. In many cases, controls may be located on private property, and it is necessary to establish some provision to assure responsibility and accountability for the operation and maintenance of these controls.

The permittee must ensure maintenance of all structural stormwater control measures. In this Guide, structural controls also include many green infrastructure practices such as rainwater harvesting, rain gardens, permeable pavement, and vegetated swales.

Recommendations for the Permit Writer

Most non-traditional MS4 permittees will probably not have the legal authority to recoup costs where the owner/operator has not completed necessary maintenance. Permit writers may want to be more specific in this requirement to include other options for non-traditional MS4 permittees.

5.5 Watershed Protection

Example Permit Provision

- 5.5.1 When the Permittee revises its General Plan (or equivalent) or other relevant plans (e.g. Transportation Master, or Community Plan) they must include effective water

quality and watershed protection elements that require implementation of consistent water quality protection measures for new development and redeveloped sites within *[insert deadline]*. Examples of water quality and watershed protection elements to be considered include the following: *[insert principles and/or policies which are appropriate for the watershed such as,*

- Minimize the amount of impervious surfaces (roads, parking lots, roofs, etc.) within each watershed, by minimizing the creation, extension and widening of parking lots, roads and associated development.
- Preserve, protect, create and restore ecologically sensitive areas that provide water quality benefits and serve critical watershed functions. These areas may include, but are not limited to; riparian corridors, headwaters, floodplains and wetlands.
- Implement management practices that prevent or reduce thermal impacts to streams, including requiring vegetated buffers along waterways, and disconnecting discharges to surface waters from impervious surfaces such as parking lots.
- Prevent disturbances of natural waterbodies and natural drainage systems caused by development, including roads, highways, and bridges.
- Avoid development in areas that are particularly susceptible to erosion and sediment loss.
- Implement standards to protect trees, and other vegetation with important evapotranspirative qualities.
- Implement policies to protect native soils, prevent topsoil stripping, and prevent compaction of soils.
- Implement water conservation policies that will reduce both stormwater and non- stormwater discharges via storm sewer systems.²⁰
- Implement policies that encourage stormwater practices close to the source of the runoff rather than downstream and lower in the watershed.]

Example Permit Requirement Rationale for the Fact Sheet

Imperviousness has been shown to correlate with water quality impacts. In order to minimize water quality impacts, the permittee must examine their planning principles to manage the creation of impervious surfaces at the watershed level, such as reducing the footprint of streets and parking lots. Also, ecologically sensitive areas can protect water quality by acting both as filters that reduce pollutants in stormwater discharges and as sponges to reduce the impact on the ecosystem's hydrology. Thermal pollution is also a concern that can impact biota in waterways. Stormwater discharges from impervious surfaces are often characterized by higher temperatures than natural, pervious surfaces. Reducing the chances of further increasing this temperature by preserving, protecting, and restoring natural features that provide shading for the waterway can further help reduce thermal pollution. Whenever possible natural waterways

²⁰ West Virginia Small MS4 Permit (www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)

must be protected and not disturbed by stormwater from developed sites. For example, areas that have a high potential for erosion must be avoided for development when possible. Protecting vegetation, native soils, and conserving water can also help ensure the hydrologic qualities of the site remain intact.

Consideration of stormwater impacts from development is critical during the planning phases of development. This not only includes planning on the site-level, but also with respect to discharges from the MS4 on the watershed level. To the extent possible, stormwater management must be an integral part of higher level planning documents that determine where and how development that will result in stormwater discharges to the MS4 should occur since these decisions affect water quality. Using land efficiently can result in better stormwater management by putting development where it is most appropriate. For example, by directing and concentrating new development in areas targeted for growth, communities can reduce or remove development pressure on undeveloped parcels and protect sensitive natural lands and recharge areas. Another strategy is redeveloping already degraded sites such as abandoned shopping centers or underutilized parking lots. In this case, the net increase in discharges from developed sites would likely be zero, and it would likely decrease, depending on the on-site infiltration practices used. Also, by allowing or encouraging denser development, less land is converted overall, and less total impervious area created.

Recommendations for the Permit Writer

Examining stormwater on a watershed basis and including watershed principles is an important part of protecting waterways in a holistic manner. Climate change may increase the size and frequency of storms in some area of the nation. Including watershed-type assessments and considerations as Permit Requirements will help the permittee better focus their efforts to ensure the best water protection outcomes for existing conditions and those anticipated future conditions. Therefore, permit writers should consider including watershed protection principles. Newer programs may not be ready for permit writers to include the exact example permit provision provided. If possible, permit writers should be as specific as possible for the needs of the watershed where the MS4 permittee is located. Permittees should be careful when installing new stormwater BMPs to ensure that there are not any negative, unintended consequences.

5.6 Tracking of Post-Construction Stormwater Control Measures

Example Permit Provision

5.6.1 Inventory of Post-Construction Stormwater Control Measures. The permittee must continue to maintain an inventory of all post-construction structural stormwater control measures installed and implemented at new development and redeveloped sites, including both public and private sector sites located within the permit area. The inventory must be searchable by property location (either on paper or electronic). New entries to the inventory must be made during the site plan review and approval process in Part 5.3.1.

5.6.2 Tracking Information. Each entry to the inventory must include basic information on each project, such as project name, owner's name and contact information, location, start/end date, etc. In addition, inventory entries must include the following for each project:

- a. Short description of each stormwater control measure (type, number, design or performance specifications);
- b. Latitude and longitude coordinates of each stormwater control measure;
- c. Short description of maintenance requirements (frequency of required maintenance and inspections); and
- d. Inspection information (date, findings, follow up activities, prioritization of follow-up activities, compliance status).

Based on inspections conducted under Part 5.7, the permittee must update the inventory as appropriate where changes occur in property ownership or the specific control measures implemented at the site. This inventory must be maintained and available for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

Creating an inventory of post-construction structural stormwater control measures, including tracking of specific information, will first enable permittees to know what control measures they are responsible for. Without this information the permittee will not be protecting water quality to their full potential since inspections, maintenance, and follow-up changes cannot be performed. Tracking information such as the latitude/longitude, maintenance and inspection requirements and follow-up will allow the permittee to be able to better allocate their resources for those activities that are immediately necessary. Although not required, including photographs will help the permittee assess how the control measure has changed since it was first created and will likely aid in determining proper maintenance and/or retrofitting opportunities if the measure is no longer providing the water quality benefits it was originally designed.

Recommendations for the Permit Writer

Permit writers may wish to specifically define the types of structural controls that must be included in the inventory. For example, rain barrels may be considered a structural control, but the MS4 likely does not need latitude and longitude coordinates of the rain barrels.

5.7 Inspections and Enforcement

Example Permit Provision

- 5.7.1 Inspection Frequency. To ensure that all stormwater control measures are operating correctly and are being maintained as required consistent with its applicable maintenance agreement, the permittee must conduct inspections of each project site covered under Part 5.2 performance standards, *[insert inspection frequency, e.g., at least one time during the permit term, 20% of sites per year, etc.]*. The inspections must be in accordance with those specified in the *[insert State manual that describes the maintenance of control measures]*. A description of inspection procedures must be included in the SWMP document.
- 5.7.2 Post-Construction Inspection. Within *[insert deadline, e.g., 1 week, 2 weeks, etc.]* of completion of construction of any project required to meet the Section 5.2 performance standards, the permittee must conduct a post-construction inspection to verify that the permittee's performance standards have been met. The permittee must include in its SWMP a procedure for being notified by construction operators/owners of their completion of active construction so that the post-construction inspection may be conducted.
- 5.7.3 Inspection Reports. The permittee must document its inspection findings in an inspection report. Each inspection report must include:
- a. Inspection date;
 - b. Name and signature of inspector;
 - c. Project location (street address, latitude/longitude, etc.) and inventory reference number (from inventory established in Section 5.6.1)
 - d. Current ownership information (for example, name, address, phone number, fax, and email)
 - e. A description of the condition of the structural stormwater control measure including the quality of: vegetation and soils; inlet and outlet channels and structures; embankments, slopes, and safety benches; catch basins; spillways, weirs, and other control structures; and sediment and debris accumulation in storage and forebay areas as well as in and around inlet and outlet structures;
 - f. Photographic documentation of all critical structural stormwater control measure components; and

- g. Specific maintenance issues or violations found that need to be corrected by the property owner or operator along with deadlines and reinspection dates.
- The permittee must document and maintain records of inspection findings and enforcement actions and make them available for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

Inspection of post-construction control measures is key to ensuring the protection of water quality. If control measures are not inspected and maintained they could become sources of pollution rather than reducing pollution. By including detailed information in the inspection report, the permittee can better determine if maintenance is required and the permittee can have a snapshot of sorts to know the status of their control measures to prioritize funding.

Recommendations for the Permit Writer

Permit writers should clearly specify the requirements for inspections. Inspecting and properly maintaining structural stormwater controls to ensure they are working as designed is just as important as installing them in the first place. By having specific requirements, permittees will be reminded that they must allocate resources to ensure control measures are properly maintained and functioning. The permit writer may also want to add a prioritization scheme to the requirement to help the permittee determine what maintenance activities are priorities for protecting water quality and which ones are minor changes.

5.8 Retrofit Plan

Example Permit Provision

- 5.8.1 The permittee must develop a plan to retrofit existing developed sites that are impacting water quality. The retrofit plan must be developed within [*insert deadline, such as within two years of permit issuance*] and must emphasize controls that infiltrate, evapotranspire, or harvest and use stormwater discharges. The plan must include²¹:
- a. An inventory of potential retrofit locations, which considers, at a minimum:
 - Locations that contribute pollutants of concern to an impaired waterbody
 - Locations that contribute to receiving waters that are significantly eroded
 - Locations that are tributary to a sensitive ecosystem or protected area
 - Locations that are tributary to areas prone to flooding

²¹ Orange County Municipal Stormwater Permit (Section F.3.d)
www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/oc_stormwater.shtml)

- b. An evaluation and ranking of the inventoried locations to prioritize retrofitting which includes, at a minimum:
- Feasibility
 - Cost effectiveness
 - Pollutant removal effectiveness
 - Impervious area potentially treated
 - Maintenance requirements
 - Landowner cooperation
 - Neighborhood acceptance
 - Aesthetic qualities, and
 - Efficacy at addressing concern.

Example Permit Requirement Rationale for the Fact Sheet

It is clear that we cannot protect the nation's waters without also addressing degradation caused by stormwater discharges from existing developed sites. For that reason stormwater programs must include substantive retrofit provisions.

It is possible and reasonable to significantly improve water quality in many urban receiving waters. This requires more than just a new development and redeveloped sites program, however, which at best can only hold the line. To actually improve the quality of receiving waters it is necessary to mitigate discharges from existing developed sites, which generally means implementation of measures to bring about the retrofit the stormwater control measures at existing sites to retain most stormwater on site.

In addition, research indicates that most streambank restoration projects that actively stabilize eroding channels should not be implemented until after hydrologic retrofits have been completed that restore the hydrologic regime not concurrently with the implementation of the retrofits.

Municipal projects, such as traffic calming sites could also include stormwater retrofit components, such as curb bump outs that include bioretention features, rain gardens, and curb cuts.

Information on retrofit options and the development of a retrofit plan can be found in the Center for Watershed Protection's guidance on Urban Stormwater Retrofit Practices (available at www.cwp.org as Manual No. 3 under the Urban Subwatershed Restoration Manual Series).

Recommendations for the Permit Writer

Permittees may need a permit term or two to adequately develop and implement a retrofit plan. Some permittees may not be ready to have retrofit plans as part of their requirements. It is up to the permit writer to make this determination based on the specific information they have available on current programs. A retrofit plan should assess the areas where retrofitting is appropriate and will result in increased water quality protection and restoration. The permit writer should determine

the appropriate timeframe and language for a retrofit plan. For example, if the permittee was already required to develop a retrofit plan in a previous permit term the permit may specify a schedule for implementation rather than development.

CHAPTER 6: POLLUTION PREVENTION/GOOD HOUSEKEEPING

Introduction

Federal stormwater regulations (see 40 CFR 122.34(b)(6) and 40 CFR 122.26(d)(2)(iv)(A)) require the operator of a regulated MS4 community to develop a program to:

- Prevent or reduce the amount of stormwater pollution generated by municipal operations and conveyed into receiving waters.
- Train employees on how to incorporate pollution prevention/good housekeeping techniques into municipal operations.
- Identify appropriate control measures and measurable goals for preventing or reducing the amount of stormwater pollution generated by municipal operations.

The first step for the permittee is to evaluate and assess the areas and municipal facilities that it controls in order to determine which activities may currently have a negative impact on water quality and to find solutions for these activities. The simplest solution is to limit the number of activities that are conducted outside and exposed to stormwater.

Storm sewer systems need maintenance to ensure that structures within the storm sewer that are meant to reduce pollutants do not become sources of pollution. Regularly maintaining catch basins and cleaning storm sewer pipes prevent the accumulation of pollutants that are later released during rain events as well as blockages, backups, and flooding. Most permittees have an existing program to maintain the storm sewer infrastructure. EPA notes, however, that some of these programs have tended to focus on flood avoidance and complaint response rather than reducing water quality impacts from stormwater discharges.

The MS4 permit must require that the system be maintained to prevent the discharge of pollutants into receiving waters. System mapping and a schedule of regular maintenance are key to a successful pollution prevention program. EPA recommends establishing a tiered maintenance schedule for the entire storm sewer system area, with the highest priority areas being maintained at the greatest frequency. Priorities should be driven by water quality concerns and can be based on the land use within the MS4 area, the condition of the receiving water, the amount and type of material that typically accumulates in an area, or other location-specific factors. It is also advisable to use spill and illicit discharge data to track areas that may require immediate sewer infrastructure maintenance. It is also important for material that is collected to be disposed of in a responsible manner.

Included Concepts

- ▶ Municipal facility and control inventory
- ▶ Facility assessment
- ▶ Development of facility-specific stormwater management SOPs and Implementation of facility stormwater controls
- ▶ Storm sewer system maintenance activities
- ▶ Flood management
- ▶ Pesticide, herbicide, and fertilizer application and management
- ▶ Training and education
- ▶ Contractor requirements and oversight

The procedures for storm sewer system operation and maintenance must be documented in the permittee's SOPs or similar type of documents, which are part of the permittee's SWMP. Employee training to carry out these pollution prevention measures is a required component of the program. The pollution prevention/good housekeeping/maintenance activities should be documented and, where possible, quantified (e.g., number and location of inspections and clean-outs, type and quantity of materials removed). Having permittees characterize the quantity, location, and composition of pollutants removed from catch basins can provide useful data that can later be used to assess the program's overall effectiveness, identify illicit discharges, and help the permittee better prioritize implementation activities in the future.

Specific pollution prevention requirements related to pollutant-generating activities such as landscaping techniques (including the application of pesticides, herbicides, and fertilizer) and operating and maintaining public streets, should also be included in the permit where applicable. For example, typical pollutants associated with street repair and maintenance include heavy metals, chlorides, hydrocarbons (e.g., benzene, toluene, ethylbenzene, xylene), concrete dust, sand, deicers, sediment, and trash. The permitting authority should consider requiring alternative landscaping practices such as integrated pest management (IPM), xeriscaping, or mechanical (non-chemical) removal of unwanted plants. Other landscaping controls, such as mulch management, chemical storage, reduction of soil compaction, and erosion control, should also be considered. Training and educating municipal and contracted staff is also important to ensure that everyone is knowledgeable and proficient in the newest and most effective approaches to minimizing pollutant discharges from municipal facilities and activities.

Additionally, permits should require that water quality be considered when designing flood management projects, and that existing structural flood control devices are evaluated to determine if retrofitting the device to remove/reduce pollutants from stormwater is necessary and practicable.

6.1 Municipal Facility and Control Inventory

Example Permit Provision

6.1.1 Development of a Municipal Facility and Stormwater Control Inventory – The permittee must continue to update and maintain an inventory of municipally-owned or operated facilities and stormwater controls, including but not limited to the following:

- Composting facilities
- Equipment storage and maintenance facilities
- Fuel farms
- Hazardous waste disposal facilities
- Hazardous waste handling and transfer facilities
- Incinerators
- Landfills
- Landscape maintenance on municipal property
- Materials storage yards

- Pesticide storage facilities
- Public buildings, including schools, libraries, police stations, fire stations, municipal buildings, and similar buildings
- Public parking lots
- Public golf courses
- Public swimming pools
- Public works yards
- Recycling facilities
- Salt storage facilities
- Solid waste handling and transfer facilities
- Street repair and maintenance sites
- Vehicle storage and maintenance yards
- Municipally-owned and/or maintained structural stormwater controls

6.1.2 Documentation– The list of municipally-owned or operated facilities and stormwater controls must be maintained and available for review by the permitting authority.

6.1.3 Mapping – On a map of the area covered by the MS4 permit, the permittee must identify where the municipally-owned or operated facilities and stormwater controls are located. The map must identify the stormwater outfalls corresponding to each of the facilities as well as the receiving waters to which these facilities discharge. The permittee must also identify the manager of each facility and their contact information. The map must be maintained and updated regularly and be available for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

Municipally-owned or operated facilities serve as hubs of activity for a variety of municipal staff from many different departments. Some municipalities will have one property at which all activities take place (e.g., the municipal maintenance yard), whereas others will have several specialized facilities such as those listed above. A comprehensive list and map of such facilities will help staff responsible for stormwater compliance build a better awareness of their locations within the MS4 service area and their potential to contribute stormwater pollutants. The facility inventory will also serve as a basis for setting up periodic facility assessments (see Part 6.2) and developing, where necessary, facility stormwater pollution prevention plans (see Part 6.3).

Recommendations for the Permit Writer

Permit writers should tailor the facilities listed in the assessment as best they can to include the facilities most likely to be owned or operated by the permittee. It is highly likely that some of the facilities listed in the Permit Requirement would not apply to most non-traditional and/or non-municipal MS4s.

6.2 Facility Assessment

Permit Requirement

6.2.1 Municipally-owned or operated facility assessment:

- a. Comprehensive Assessment of Pollutant Discharge Potential –The permittee must review, reassess, and update the comprehensive assessment of all municipally-owned or operated facilities identified in Part 6.1 [*insert frequency, e.g., annually*] for their potential to discharge in stormwater the following typical urban pollutants: sediment, nutrients, metals, hydrocarbons (e.g., benzene, toluene, ethylbenzene and xylene), pesticides, chlorides, and trash. Other pollutants may be associated with, but not generated directly from, the municipally-owned or operated facilities, such as bacteria, chlorine, organic matter, etc. Therefore, the permittee must determine additional pollutants associated with its facilities that could be found in stormwater discharges. A description of the assessment process must be included in the SWMP document.
- b. Identification of “High Priority” Facilities – Based on the Part 6.2.1.a comprehensive assessment, the permittee must identify as “high-priority” those facilities that have a high potential to generate stormwater pollutants. Among the factors that must be considered in giving a facility a high priority ranking is the amount of urban pollutants stored at the site, the identification of improperly stored materials, activities that must not be performed outside (e.g., changing automotive fluids, vehicle washing), proximity to waterbodies, poor housekeeping practices, and discharge of pollutant(s) of concern to impaired water(s). High priority facilities must include the permittee’s maintenance yards, hazardous waste facilities, fuel storage locations, and any other facilities at which chemicals or other materials have a high potential to be discharged in stormwater.
- c. Documentation of Comprehensive Assessment Results – The permittee must document the results of the assessments and maintain copies of all site evaluation checklists used to conduct the comprehensive assessment. The documentation must include the results of the permittee’s initial assessment, any identified deficiencies and corrective actions taken, and a list of the “high priority” facilities identified per Part 6.2.1.b.

Example Permit Requirement Rationale for the Fact Sheet

The initial (“first time”) comprehensive assessment is necessary to identify which of the municipality’s facilities are most likely to contribute stormwater pollutants and which are in need of stormwater controls. The assessments will involve a detailed site inspection that can identify improperly stored materials, activities that should not be performed outside (e.g., changing automotive fluids, vehicle washing), and poor housekeeping practices.

Recommendations for the Permit Writer

If the permitting authority has an established site inspection protocol to be used in the comprehensive assessment, it should be included and referenced here. The list of pollutants in this section should be modified or expanded based on pollutants of concern in the permitting authority's jurisdiction.

6.3 Development of Facility-Specific Stormwater Management SOPs and Implementation of Facility Stormwater Controls

Example Permit Provision

6.3.1 Facility-specific Stormwater Management SOPs for "High Priority" Facilities:

- a. For each "high priority" facility or operation identified in Part 6.2, the permittee must develop a site-specific SOP that identifies stormwater controls (i.e., structural and non-structural controls, and operational improvements) to be installed, implemented, and maintained to minimize the discharge of pollutants in stormwater. At a minimum, the facility-specific SOP must include the stormwater control measures described below in Part 6.3.2, as well as inspection and visual monitoring procedures and schedules described in Part 6.3.3.
- b. A copy of the facility-specific stormwater management SOP must be maintained and be available for review by the permitting authority. The SOP must be kept on-site at each of the municipally-owned or operated facilities' offices for which it was completed. The SOP must be updated as necessary.
- c. The permittee must install, implement, and maintain all stormwater controls required per Part 6.3.2 of this permit and included in the facility's site-specific SOP.

6.3.2 Stormwater Controls for "High Priority" Facilities – The following stormwater controls must be implemented at all "high priority" municipally-owned or operated facilities identified in Part 6.2. A description of any controls included in this part and any standard operating procedures developed to comply with this part must be included as part of the of each facility's SOP:

- a. General good housekeeping – The following good housekeeping practices must be implemented for all facilities identified as "high priority":
 1. The permittee must keep all municipally-owned or operated facilities neat and orderly, minimizing pollutant sources through good housekeeping procedures and proper storage of materials.
 2. Materials exposed to stormwater must be covered where feasible (without creating additional impervious surfaces, if possible).
- b. De-icing material storage – The permittee must store salt and other de-icing materials in a permanent storage structure, unless stormwater runoff from the storage piles is not discharged, or if discharges from the piles are authorized under another stormwater permit. If a permanent storage structure is required but does not exist, one must be built within [*insert timeframe*], and seasonal

tarping must be used as an interim control measure until the permanent structure is completed. If a permanent storage facility is not feasible, the permittee must provide a rationale to the permitting authority as to why and what alternate BMPs will be utilized instead.

Where a permanent storage structure is present, the permittee must perform regular maintenance and inspections of the permanent storage structure.

- c. Fueling operations – The permittee must continue to implement standard operating procedures for vehicle fueling and receiving of bulk fuel deliveries at municipally-owned or operated facilities with the goal of reducing the likelihood of spills, and providing spill controls in the event that accidental spills do occur.
- d. Vehicle maintenance – The permittee must continue to implement a standard operating procedure for vehicle maintenance and repair activities that occur at municipally-owned or operated facilities with the goal of reducing the likelihood of spills or releases and providing controls in the event that accidental spills do occur. The standard operating procedures must include regular inspections of all maintenance areas and activities.
- e. Equipment and vehicle washing – The discharge of equipment and vehicle wash wastewater to the MS4 or directly to receiving waters from municipal facilities is prohibited. The permittee may meet this requirement by either installing a vehicle wash reclaim system, capturing and hauling the wastewater for proper disposal, connecting to sanitary sewer (where applicable and approved by local authorities), ceasing the activity, and/or applying for and obtaining a separate stormwater permit.²²

6.3.3 Inspections and Visual Monitoring:

- a. Weekly visual inspections – The permittee must perform weekly visual inspections to ensure materials and equipment are clean and orderly, and to minimize the potential for pollutant discharge. The permittee must look for evidence of spills and immediately clean them up to prevent contact with precipitation or runoff. The weekly inspections must be tracked in a log for every facility, and records kept with the SWMP document. The inspection report must also include any identified deficiencies and the corrective actions taken to fix the deficiencies.
- b. Quarterly comprehensive inspections – At least once per quarter, a comprehensive inspection of “high priority” facilities, including all stormwater controls, must be performed, with specific attention paid to waste storage areas, dumpsters, vehicle and equipment maintenance/fueling areas, material handling areas, and similar potential pollutant-generating areas. The quarterly inspection results must be documented and records kept with the SOP document. This inspection must be done in accordance with the developed SOPs. The inspection report must also include any identified deficiencies and the corrective actions taken to fix the deficiencies.

²² New Jersey Tier A Phase II MS4 Permit (NJ0141852) (www.state.nj.us/dep/dwg/pdf/Tier_A_final.pdf)

- c. Quarterly visual observation of stormwater discharges – At least once per quarter, the permittee must visually observe the quality of the stormwater discharges from the “high priority” facilities (unless climate conditions preclude doing so, in which case the permittee must attempt to evaluate the discharges four times during the wet season). Any observed problems (e.g., color, foam, sheen, turbidity) that can be associated with pollutant sources or controls must be remedied within three days or before the next storm event, whichever is sooner. Visual observations must be documented, and records kept with the SOP document. This inspection must be done in accordance with the developed SOPs. The inspection report must also include any identified deficiencies and the corrective actions taken to fix the deficiencies.

Example Permit Requirement Rationale for the Fact Sheet

Each municipal facility will require a different set of control measures depending on the nature of activities that occur there and the types of materials that are stored and used. Developing and maintaining a site-specific SOP for each facility will help to ensure that employees responsible for facility operation are aware of the stormwater controls required for the site.

There are a number of storage areas and activities that are common at municipal facilities that have a high potential for polluting stormwater:

- Deicing materials, particularly road salt, are easily liberated and transported by rainfall, and constituents such as chloride are not removed by most stormwater controls.
- Fueling and vehicle maintenance and storage areas are prone to spills and drips of various automotive fluids.
- Equipment and vehicle washing areas are designed to mix water with dirt and hydrocarbons, requiring special treatment of the wastewater (including pretreatment and diversion to the sanitary sewer, if allowed) and protection of wash areas from rainfall and runoff.

The best way to avoid pollutant discharges from these sources is to keep precipitation and runoff from coming into contact with stored chemicals and activity areas that use chemicals and materials, which can become sources of stormwater pollutants. For example, the permittee must cover stockpiles, create dedicated structures for stored materials, build berms around areas of pavement to prevent clean runoff from contacting contaminated areas, and maintain a minimum distance between stockpiles and stormwater infrastructure and receiving waters. These are just a few of the ways in which these potential pollutant sources can be protected from precipitation and runoff.

The permit requires that comprehensive site inspections be conducted quarterly, which is an appropriate frequency to ensure that material stockpiles that might be moved or utilized on a seasonal basis are protected from precipitation and runoff. Also, quarterly inspections will allow inspectors to observe different types of operations that occur at different times of the year (e.g., landscape maintenance crews are less active in the winter). Quarterly visual observations are required so that inspectors can see in real time the qualitative nature of the

stormwater discharge and so that corrective action can be taken where necessary to improve on-site stormwater controls.

The permit also specifies that inspection procedures, results, and controls for each facility be documented to ensure that the site inspections are consistent and that maintenance of stormwater controls remains part of the municipality's standard operating procedures. The requirement for an inspection log will allow the permitting authority to verify that periodic site inspections have been performed.

Recommendations for the Permit Writer

Neither Phase I nor Phase II regulations specifically require that MS4 permittees develop facility-specific stormwater management SOPs. However, both Phase I and Phase II require that permittees prevent or reduce pollutant discharge in stormwater from municipal facilities and activities. Requiring permittees to assess high priority facilities and develop appropriate controls for each is an effective way of requiring permittees to address potential sources of pollutants at facilities.

When setting frequency for facility inspections (see Part 6.3.3), the permit writer should consider the number of facilities and the size/complexity of the sites to ensure that enough time is available to complete the assessments.

The list of specific stormwater controls for municipal facilities will vary from place to place based on local and watershed priorities and climate considerations. The permit writer should specify stormwater controls that are appropriate for the local conditions. For example, if a permittee uses satellite locations for temporary storage of deicing materials during snow events, the permit writer may want to consider options other than the permanent storage requirement if the permittee uses the piles within a certain time frame and the piles are covered by temporary tarping or a similar control.

6.4 Storm Sewer System Maintenance Activities

Example Permit Provision

6.4.1 MS4 catch basin maintenance

- a. Assessment/prioritization of catch basins – The permittee must assign a priority to each of its catch basin inlets within its jurisdiction as one of the following:
 - Priority A – Catch basins that are designated as consistently generating the highest volumes of trash and/or debris
 - Priority B – Catch basins that are designated as consistently generating moderate volumes of trash and/or debris
 - Priority C – Catch basins that are designated as generating low volumes of trash and/or debris

The permittee must use information compiled from citizen complaints/reports to help in the determination of the appropriate priority level. A description of

the prioritization scheme must be included in the SWMP.

- b. Catch basin inspection and cleaning
 1. Based on the priorities assigned in Part 6.4.1.a., the permittee must inspect and clean catch basins in accordance with the following schedule:
 - Priority A – [*Insert cleanout frequency, e.g., 3 times per year*]
 - Priority B – [*Insert cleanout frequency, e.g., 2 times per year*]
 - Priority C – [*Insert cleanout frequency, e.g., 1 time per year*]

The permittee must develop a catch basin cleaning schedule based on the frequency specified in this permit, along with a list of each of its catch basins and the priority assigned to them per Part 6.4.1.a.
 2. In addition to catch basin cleanings performed above, the permittee must ensure that any catch basin that is inspected and found to be between one third and one half full of trash and/or debris must be cleaned within [*Insert cleanout frequency e.g., 1 week of discovery*].²³ The permittee must maintain a log of all maintenance performed.
 3. The permittee must document that it has performed all required catch basin cleanings in a log that is to be made available for review by the permitting authority upon request.
- c. Catch basin labeling – The permittee must ensure that each catch basin includes a legible stormwater awareness message (e.g., a label, stencil, marker, or pre-cast message such as “drains to the creek” or “only rain in the drain”). Catch basins with illegible or missing labels must be recorded and re-labeled within [*insert number of days*] of inspection.
- d. Maintenance of surface drainage structures – The permittee must visually monitor permittee-owned open channels and other drainage structures for debris at least [*specify frequency, e.g., once per year*] and identify and prioritize problem areas, such as those with recurrent illegal dumping, for inspection at least [*specify frequency, e.g., three times per year*]. Removal of trash and debris from open channels and other drainage structures must occur [*insert frequency of open channel/drainage structure cleaning, e.g., annually*]. The permittee must document its drainage structure maintenance in a log that is to be made available for review by the permitting authority upon request.
- e. Disposal of waste materials – The permittee must develop a procedure to dewater and dispose of materials extracted from catch basins. This procedure must ensure that water removed during the catch basin cleaning process and waste material will not reenter the MS4.

6.4.2 Municipal activities and operations

- a. Assessment of municipal activities and operations

²³ EPA’s Office of Research and Development documented a threshold sump level of ½ as a break point where solids retainage was either erratic or negative (Catchbasin Technology Overview and Assessment #EPA-600/2-77-051 1977).

1. The permittee must maintain and revise as necessary the operation and maintenance (O&M) activity assessment. The following municipal O&M activities must be included in the assessment for their potential to discharge pollutants in stormwater:
 - Road and parking lot maintenance, including pothole repair, pavement marking, sealing, and re-paving
 - Bridge maintenance, including re-chipping, grinding, and saw cutting
 - Cold weather operations, including plowing, sanding, and application of deicing compounds and maintenance of snow disposal areas
 - Right-of-way maintenance, including mowing, herbicide and pesticide application, and planting vegetation
 - Municipally-sponsored events such as large outdoor festivals, parades, or street fairs
2. The permittee must identify all materials that could be discharged from each of these O&M activities. Typical pollutants associated with these activities include metals, chlorides, hydrocarbons (e.g. benzene, toluene, ethylbenzene, xylene), sediment, and trash.
3. The permittee must develop a set of pollution prevention measures that, when applied during municipal O&M activities, will reduce the discharge of pollutants in stormwater. These pollution prevention measures must include, at a minimum:
 - Replacing materials/chemicals with more environmentally benign materials or methods (e.g., use mechanical methods vs. herbicides, or use water-based paints or thermoplastics rather than solvent-based paints for stripping)
 - Changing operations to minimize the exposure or mobilization of pollutants (e.g., mulch, compost or landfill grass clippings) to prevent them from entering surface waters
 - Placing barriers around or conducting runoff away from deicing chemical storage areas to prevent discharge into surface waters), consistent with Part 6.3.2.b

[If available in your particular State or the municipality, insert relevant section of SWMP, or other relevant document, that includes specific stormwater controls that must be used.]
4. The permittee must develop and implement a schedule for instituting the pollution prevention measures. At a minimum, with respect to all roads, highways, and parking lots with more than 5,000 square feet of pollutant-generating impervious surface area that are owned, operated, or maintained, the permittee must implement all pollution prevention measures by *[insert deadline]*.
5. The results of the assessments and pollution prevention measures, including schedules for implementation, must be documented and made available for review by the permitting authority upon request.

- b. Inspection of pollution prevention measures – All pollution prevention measures implemented at municipal facilities must be visually inspected [*insert frequency, e.g., monthly or quarterly*] to ensure they are working properly; a log of inspections must be maintained and made available for review by the permitting authority upon request.

6.4.3 Street Sweeping and Cleaning

- a. The permittee must continue to evaluate and rate all municipally-owned streets, roads, and public parking lots within their jurisdiction. The permittee must include in the evaluation the sweeping frequency, timing, and efficiency of existing street sweeping programs. The street sweeping frequency must be based on land use, trash and stormwater pollutant levels generated. At a minimum, the following areas must be regarded as “high priority,” for sweeping activities while the “medium priority” and “low priority” areas are recommended:
- High priority – Streets, road segments, and public parking lots designated as high priority include, but are not limited to, high traffic zones, commercial and industrial districts, shopping malls, large schools, high-density residential dwellings, sport and event venues, and plazas. This designation must include areas that consistently accumulate high volumes of trash, debris, and other stormwater pollutants.
 - Medium priority – Streets, road segments and public parking lots designated as medium priority include, but are not limited to, medium traffic zones; warehouse districts; and light, small-scale commercial and industrial areas.
 - Low priority – Streets and road segments designated as low priority include, but are not limited to, light traffic zones and residential zones.
- b. The permittee must show on a map of its service area how the streets, roads, and public parking lots have been rated in accordance with Part 6.4.3.a.
- c. Implementing sweeping schedules – The permittee must sweep streets/roads/public parking lots in accordance with the following frequency:
- High priority – average of at least [*insert frequency, e.g., twice per month*]
 - Medium priority – average of at least [*insert frequency, e.g., once per month*]
 - Low priority – [*insert frequency, e.g., twice per year*]
- If a permittee’s existing overall street sweeping effort provides equivalent or greater street sweeping frequency relative to the requirements above, the permittee may continue to implement its existing street sweeping program.
- d. For areas where street sweeping is technically infeasible (e.g., streets without curbs), the permittee must increase implementation of other trash/litter control procedures to minimize pollutant discharges to storm drains and creeks. The permittee must show on its Part 6.4.3.b map the location of these areas.
- e. Sweeping equipment selection and operation
1. When replacing existing sweeping equipment, the permittee must select and operate high-performing sweepers that are efficient in removing pollutants,

including fine particulates, from impervious surfaces.

2. The permittee must follow equipment design performance specifications to ensure that street sweeping equipment is operated at the proper equipment design speed with appropriate verification, and that it is properly maintained.
 3. The permittee must operate sweepers to optimize pollutant removal by permitting sweepers access to the curb through the use of parking restrictions that clear the curb or through effective public outreach to inform citizens of sweeping days and times so that voluntary curb clearing can occur.
- f. Sweeper Waste Material Disposal – The permittee must develop a procedure to dewater and dispose of street sweeper waste material. This procedure must ensure that water and material will not reenter the MS4.
- g. Operator training – Street sweeper operators must be trained to enhance operations for water quality benefit.
- h. The permittee must include the following in the SWMP and update as changes are made:
1. A description of the street sweeping frequency and any significant changes in the sweeping frequency map, along with the basis for those changes
 2. The types of sweepers used
 3. A summary of the proper sweeping operation verification results and street sweeping methods, including the way in which the permittee specifies and confirms the rate or speed at which street miles are covered by sweeper operators
 4. The use of additional resources in sweeping seasonal leaves or pick-up of other material
 5. A description of the methods for addressing areas identified in Part 6.4.3, considered infeasible for street sweeping
- 6.4.4 Maintenance of municipally-owned and/or maintained structural stormwater controls
- a. The permittee must inspect at least [*insert frequency, e.g., yearly*], and maintain if necessary, all municipally-owned or maintained structural stormwater controls. The permittee must also maintain all green infrastructure practices through regularly scheduled maintenance activities.

Example Permit Requirement Rationale for the Fact Sheet

MS4 Maintenance

Traditional municipal storm drain systems were designed to quickly collect and convey runoff to receiving waters. The purpose of catch basin, inlet, and storm drain cleanouts is to prevent blockages, flooding, and reduce pollution.

Fine particles and pollutants from run-on, atmospheric deposition, vehicle emissions, breakup of street surface materials, littering, and sanding can accumulate along the curbs of roads in between rainfall events. This results in the accumulation of pollutants such as sediment, nutrients, metals, hydrocarbons, bacteria, pesticides, trash and other toxic chemicals. Storm drain maintenance is often the last opportunity to remove pollutants before they enter the storm drain system. Because they effectively trap solids, they need to be cleaned out periodically to prevent those materials from being transported by high stormwater flows. By doing so the MS4 will prevent trash and litter from ultimately becoming sources of marine debris, which is any man-made, solid material that enters waterways either directly or indirectly.

The permit includes a priority ranking approach for catch basins so that municipal resources are directed to the areas and structures that generate the most pollutants. A priority ranking system is required because some catch basins will accumulate pollutants faster than others based on the nature of the drainage area and whether controls are present upstream of the catch basin. Catch basins with the highest accumulations will need to be cleaned more often than those with low accumulations. The permit language also includes a requirement that triggers catch basin cleaning when a catch basin is one-third full.

Proper storm drain system cleanout includes vacuuming or manually removing debris from catch basins; vacuuming or flushing pipes to increase capacity and remove clogs; removing sediment, debris, and overgrown vegetation from open channels; and repairing structures to ensure the integrity of the drainage system. It is important to conduct regular inspections of all storm sewer infrastructure and perform maintenance as necessary. Though these activities are intended to ensure that the sewer system is properly maintained and that any accumulated pollutants are removed prior to discharge, if not properly executed, cleanout activities can result in pollutant discharges. In selecting maintenance practices, the permittee must carefully evaluate each with an eye towards stormwater pollution potential to minimize unintended pollutant discharges, such as the use of flushing storm drain pipes to remove debris without recapturing the debris further down the pipe.

The materials removed from catch basins may not reenter the MS4. The material must be dewatered in a contained area and the water treated with an appropriate and approved control measure or discharged to the sanitary sewer. The solid material will need to be stored and disposed of properly to avoid discharge during a storm event. Some materials removed from storm drains and open channels may require special handling and disposal, and may not be authorized to be disposed of in a landfill.

Street Sweeping and Cleaning

Street and parking lot sweeping is a practice that most municipalities initially conducted for aesthetic purposes. However, the water quality benefits are now widely recognized. Street sweeping also prevents particulate matter associated with road dust from accumulating on public streets and washing into storm drains.

The permit language addresses a number of important factors that impact the effectiveness of a street sweeping program. The first factor is the type of equipment used; the permit language stipulates that when equipment needs to be replaced, high-performance sweepers are purchased preferentially. Street sweeping has traditionally been more effective at removing large-sized particles, but new equipment has been developed to remove smaller, fine-grained particles. Mechanical sweepers (broom-type) are usually the least expensive and are better suited to pick up

large-grained sediment. Vacuum and regenerative air sweepers are better at removing fine-grained sediment particles, but they are more expensive. Removal efficiency can be improved through tandem sweeping (i.e., two sweepers sweeping the same route, with one following the other to pick up missed material), or if the street sweeper makes multiple passes on a street.

The second factor influencing street sweeping effectiveness is the way in which the equipment is operated; the permit specifies that equipment be operated according to the manufacturers' operating instructions by operators who have been trained to sweep in accordance with the Permit Requirements in order to protect water quality.

The third determining factor is the degree to which parked cars block sweeper access to the curb; one of the best ways to ensure access to the curb is to establish parking restrictions based on sweeping schedules and to inform residents of the schedule so they can voluntarily move their cars. The permit requires that the permittee institute parking restrictions and/or a public outreach campaign requesting that cars be parked elsewhere to accommodate sweeping schedules.

Because not all streets are suitable for sweeping (e.g., those that don't have a curb and gutter), source controls can be used in place of sweeping in those areas.

The permittee is required to maintain documentation of sweeping events and characterize the quantity and composition of pollutants removed from roadways. Street sweeping data are relatively easy to track and maintain, so the permit includes requirements for reporting and assessment of the effectiveness of the sweeping activities based on equipment used, miles swept, and the amount of materials collected.

The street sweeping material may not reenter the MS4. The material must be dewatered in a contained area and the water treated with an appropriate and approved control measure or discharged to the sanitary sewer. The solid material will need to be stored and disposed of properly to avoid discharge during a storm event. Some materials may require special handling and disposal, and may not be authorized to be disposed of in a landfill.

Recommendations for the Permit Writer

MS4 Maintenance

MS4s should have a specific schedule to clean out their storm drains since it will ensure that the debris that is trapped in the system will not move into waterbodies and ultimately become marine debris in the ocean. For additional information to include on marine debris go to the EPA's Marine Debris website (www.epa.gov/owow/oceans/debris).

The frequency and timing of visual assessments and cleaning of storm drains and open channels can be tailored to local climate conditions. For example, one approach would be to require that visual observations and cleanings be conducted before the start of the wet season or before spring snowmelt.

The permitting authority should review and approve dewatering and disposal methods for materials removed from catch basins.

Catch basin labeling is believed to be an effective mechanism for educating residents since it involves a direct reminder that that water or other materials which flow into storm drains is not

treated in any way, but instead drains directly to nearby waterways. There are many methods for labeling catch basins and the permit writer should work with the permittee to determine the most feasible and cost effective method of delivering the “drains to stream” message.

Street Sweeping and Cleaning

Street sweeping frequency and timing can be based on climate conditions and seasonal variation in pollution loading. For example, in cold climates where sand is used for winter road maintenance, the permit language could specify increased sweeping during the winter and prior to the spring snowmelt. In areas with a rainy season, sweeping might be timed to occur before the rainy season starts.

In the fall, sweepers can be used to pick up leaves, as they can contribute 25 percent of nutrient loadings in catch basins. If more substantial piles of leaves are found in the community during the fall, street sweeping activities should be coordinated with leaf pick-up. Equally important is an early spring sweeping before rains begin to pick up sand, de-icing material, and winter debris. More frequent sweeping may reduce the need for catch basin cleaning.

The prioritization of sweeping activities (high, medium, low) should be based on standard categories that are based on traffic frequencies and used to determine service levels for the roadways. The example provided in the permit language is based on specific information for the location.

The permitting authority should review and approve dewatering and disposal methods for street sweeping material.

6.5 Flood Management

Example Permit Provision

6.5.1 Flood Management Projects – Within [*insert deadline, such as two years*] of permit issuance, the permittee must develop and implement a process to assess the water quality impacts in the design of all new flood management projects that are associated with the permittee or that discharge to the MS4. This process must include consideration of controls that can be used to minimize the impacts to site water quality and hydrology while still meeting the project objectives. Beginning [*insert deadline, such as three years*] from date of permit issuance, the permittee must assess at least [*insert number of projects to be evaluated, such as two*] existing flood management projects per year to determine whether changes or additions should be made to improve water quality.²⁴ A description of this process must be included in the SWMP document.

²⁴ Eastern Washington Phase II MS4 Permit (www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseiiEwa/MODIFIEDpermitDOCS/EWpermitMODsigned.pdf)

Example Permit Requirement Rationale for the Fact Sheet

This permit requires that existing flood management projects be prioritized and a set number be evaluated to identify opportunities for water quality retrofits. This is because the focus of stormwater management in the past had been to control flooding and mitigate property damage, with less emphasis on water quality protection. These structures may handle a significant amount of stormwater and therefore offer an opportunity to modify their design to include water quality features for less than the cost of building new controls. This requirement applies not only to new flood control projects, but also to existing structures.

6.6 Pesticide, Herbicide, and Fertilizer Application and Management

Example Permit Provision

6.6.1 Landscape maintenance

- a. The permittee must evaluate the materials used and activities performed on public spaces such as parks, schools, golf courses, easements, public rights of way, and other open spaces for pollution prevention opportunities. Maintenance activities for the turf landscaped portions of these can include mowing, fertilization, pesticide application, irrigation, etc. Typical pollutants include sediment, nutrients, hydrocarbons, pesticides, herbicides and organic debris.
- b. The permittee must implement the following practices to minimize landscaping-related pollutant generation:
 1. Educational activities, permits, certifications, and other measures for municipal applicators and distributors.
 2. Integrated pest management measures that rely on non-chemical solutions, including
 - Use of native plants, xeriscaping in arid/semi-arid regions (reduces water usage and fertilization)
 - Keeping clippings and leaves away from waterways and out of the street using mulching, composting, or landfilling
 - Limiting application of pesticides and fertilizers if precipitation is forecasted within 24 hours or as specified in label instructions
 - Limiting or replacing pesticide use (e.g., manual weed and insect removal)
 - Limiting or eliminating the use of fertilizers, or, if necessary, prohibiting application within 5 feet of pavement, 25 feet of a storm drain inlet, or 50 feet of a waterbody
 - Reducing mowing of grass to allow for greater pollutant removal, but not jeopardizing motorist safety
 3. Schedules for chemical application that minimize the discharge of such constituents due to irrigation and expected precipitation.

4. The collection and proper disposal of unused pesticides, herbicides, and fertilizers.²⁵

Example Permit Requirement Rationale for the Fact Sheet

The permit focuses on requiring source controls to reduce the amount of chemicals used. The permit specifies the use of integrated pest management, selection of native vegetation that is naturally adapted to local conditions and therefore requires fewer chemical and water inputs, reducing exposure of the chemicals to water by scheduling application according to weather forecasts and plant needs, and ensuring that municipal employees who are responsible for storing and handling these materials are educated about their use, disposal, and possible impacts.

Recommendations for the Permit Writer

EPA is currently developing a general permit to control discharges from the application of pesticides to or over, including near, waters of the U.S. EPA is working closely with state NPDES and pesticide control authorities, the regulated community, and environmental organizations to develop its permit that will be required for such discharges beginning in April 2011. It is important to note that some of the permit language in this section may need to be altered to be consistent with the pesticide permit once it is finalized. For up-to-date information, go to EPA's website (www.epa.gov/npdes/agriculture).

6.7 Training and Education

Example Permit Provision

6.7.1 Employee Training Requirements – Permittees must develop an annual employee training program for appropriate employees involved in implementing pollution prevention and good housekeeping practices in the preceding Parts. All new hires must receive training within the first year of their hire date. This annual training must include a general stormwater education component, any new technologies, operations, or responsibilities that arise during the year, and the Permit Requirements that apply to the staff being trained. A description of the program must be maintained for review by the permitting authority. The permittee must also identify and track all personnel requiring training and records must be maintained. Training must begin [*insert deadline*] from the effective date of permit authorization.

²⁵ San Diego Phase I MS4 Permit (CAS0108758) (www.swrcb.ca.gov/rwqcb9/water_issues/programs/stormwater/docs/oc_permit/updates_8_13_09/R9-2009-0002_12Aug09.pdf)

Example Permit Requirement Rationale for the Fact Sheet

The regulations found at 40 CFR 122.34(b)(6) specifically requires that the permittee develop a “training component” that trains employees “to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.” This permit requires employee training for existing and new employees who are involved in performing pollution prevention and good housekeeping practices. All training must include a general stormwater educational component, including an overview of the requirements with which the municipality needs to comply. The permittee is responsible for identifying which staff must attend trainings based on the applicability of the topics listed, and they are required to conduct refresher training on an annual basis.

Recommendations for the Permit Writer

The topics included in the trainings should take into consideration the types of activities in which the municipality engages and the extent to which such activities are performed in-house or contracted.

6.8 Contractor Requirements and Oversight

Example Permit Provision

6.8.1 Requirements for Contractors:

- a. Any contractors hired by the permittee to perform municipal maintenance activities must be contractually required to comply with all of the stormwater control measures, good housekeeping practices, and facility-specific stormwater management SOPs described above.
- b. The permittee must provide oversight of contractor activities to ensure that contractors are using appropriate control measures and SOPs. Oversight procedures must be described in the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

Many municipalities use third-party contractors to conduct municipal maintenance activities in lieu of using municipal employees. Contractors performing activities that can affect stormwater quality must be held to the same standards as the permittee. Not only must these expectations be defined in contracts between the permittee and its contractors, but the permittee is responsible for ensuring, through contractually-required documentation or periodic site visits, that contractors are using stormwater controls and following standard operating procedures.

CHAPTER 7: INDUSTRIAL STORMWATER SOURCES

Introduction

Phase I MS4 permittees are required to develop and implement an inspection and oversight program to monitor and control pollutants in stormwater discharges to the MS4 from industrial facilities.

Regulations addressing industrial stormwater management in Phase I MS4 permits is found at 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv). Requirements to regulate the stormwater discharges from commercial facilities are found at 40 CFR 122.26(d)(2)(iv)(A).

This program component typically applies only to Phase I MS4 permittees as Phase II federal regulations (40 CFR 122.34(b)) do not specifically address stormwater discharges from industrial facilities and commercial businesses (other than as part of the education and outreach program). However, EPA recommends that permit writers consider including requirements pertaining to stormwater discharges to the MS4 from industrial sources in Phase II permits to further reduce stormwater pollutants from the MS4.

Phase I MS4 regulations specify that several key elements be included in Phase I MS4 stormwater management programs. These elements include: adequate legal authority to require compliance and inspect sites, inspection of priority industrial and commercial facilities, establishing control measure requirements for facilities that may pose a threat to water quality, and enforcing stormwater requirements. In order to implement these requirements, MS4 permits require the development of an inventory of facilities and prioritization protocol and adequate staff training to ensure proper inspection and enforcement of requirements.

Included Concepts

- ▶ Facility inventory
- ▶ Industrial facility stormwater control measures
- ▶ Industrial and commercial facility inspections
- ▶ Staff training

7.1 Facility Inventory

Example Permit Provision

7.1.1 Source Identification

- a. The permittee must continue to maintain an inventory of all industrial and commercial sites/sources within its jurisdiction (regardless of ownership) that could discharge pollutants in stormwater to the MS4. The inventory must be updated [*insert frequency, e.g. annually*] and available for review by the permitting authority upon request.
- b. The inventory must include the following minimum information for each industrial and commercial site/source:
 1. Name

2. Address
3. Physical location of storm drain receiving discharge
4. Name of receiving water
5. Pollutants potentially generated by the site/source
6. Identification of whether the site/source is (1) tributary to an impaired water body segment (i.e., whether it is listed under Section 303(d) of the Clean Water Act) and (2) whether it generates pollutants for which the water body segment is impaired
7. A narrative description including standard industrial classification (SIC) codes, which best reflects the principal products or services provided by each facility.

The use of a geolocational database system is highly recommended.

- c. At a minimum, the following sites/sources must be included in the inventory:

1. Commercial Sites/Sources:

[insert commercial sources that are a priority such as

- Airplane repair, maintenance, fueling, or cleaning
- Animal facilities
- Automobile and other vehicle body repair or painting
- Automobile (or other vehicle) parking lots and storage facilities
- Automobile repair, maintenance, fueling, or cleaning
- Boat repair, maintenance, fueling, or cleaning
- Building material retailers and storage
- Cement mixing or cutting
- Eating or drinking establishments (e.g., restaurants), including food markets
- Equipment repair, maintenance, fueling, or cleaning
- Golf courses, parks and other recreational areas/facilities
- Landscaping
- Marinas
- Masonry
- Mobile automobile or other vehicle washing
- Mobile carpet, drape or furniture cleaning
- Nurseries and greenhouses
- Painting and coating
- Pest control services
- Pool and fountain cleaning
- Portable sanitary services

- Power washing services
 - Retail or wholesale fueling]
2. Industrial Sites/Sources:
 - Industrial Facilities, as defined at 40 CFR § 122.26(b)(14), including those subject to the Multi Sector General Permit or individual NPDES permit
 - Facilities subject to Title III of the Superfund Amendments and Reauthorization Act (SARA)
 - Hazardous waste treatment, disposal, storage and recovery facilities
 3. All other commercial or industrial sites/sources tributary to an impaired water body segment, where the site/source generates pollutants for which the water body segment is impaired
 4. All other commercial or industrial sites/sources that the permittee determines may contribute a significant pollutant load to the MS4²⁶

Example Permit Requirement Rationale for the Fact Sheet

The permit requires the permittee to develop an inventory of all potential commercial and industrial sites/sources that could contribute pollutants to the MS4. A list of specific commercial and industrial sites/sources is included in the permit, and additional sites/sources can be added if they are likely to discharge a pollutant of concern to an impaired waterbody or they are contributing a significant pollutant load to the MS4.

The inventory information will provide the permittee with information on potential pollutant sources that contribute to its MS4 system, and at what locations in the system into which they discharge. This information will also allow the permittee to prioritize inspections and tailor education and outreach efforts, which will best assist the facility in implementing appropriate pollution prevention practices or other on-site stormwater controls. In addition, the inventory data will allow the permittee to determine whether the facilities may discharge pollutants of concern into impaired waters. Finally, the information contained in the inventory will enable permittees to characterize these facilities and prioritize them based on their potential impact on stormwater quality. By prioritizing facilities in such a manner, the permittee may then establish a targeted approach towards conducting inspections (see Part 7.3 for a discussion of inspection frequency).

In addition, data from NPDES pretreatment programs within the MS4 boundary on significant industrial users (SIUs) could also be used to identify and prioritize the industrial sites in the stormwater program.

²⁶San Diego MS4 Permit (www.swrcb.ca.gov/rwqcb9/water_issues/programs/stormwater/docs/sd_permit/r9_2007_0001/2007_0001final.pdf), with modifications.

Recommendations for the Permit Writer

The example permit provision lists specific commercial and industrial sources to be included in the inventory, but permit writers should customize this list to meet specific issues in their area. For example, some permittees may have large industrial areas with few commercial businesses, while others may have a large number of restaurants and retail businesses but no industrial facilities at all. Other permittees may have had past water quality problems at certain types of commercial or industrial sites, in which case such facilities should be included in their inventories.

7.2 Industrial Facility Stormwater Control Measures

Example Permit Provision

- 7.2.1 The permittee must require industrial and commercial facilities included in the Part 7.1 inventory to select, install, implement, and maintain stormwater control measures. At a minimum, these control measures must:
- a. Minimize Exposure – Industrial/commercial facilities must minimize the exposure of manufacturing, processing, and material storage areas (including loading and unloading, storage, disposal, cleaning, maintenance, and fueling operations) to rain, snow, snowmelt, and runoff by either locating these industrial materials and activities inside or protecting them with storm resistant coverings (although significant enlargement of impervious surface area is not recommended). The facilities must consider, where appropriate:
 1. Using grading, berming, or curbing to prevent runoff of contaminated flows and divert run-on away from these areas
 2. Locating materials, equipment, and activities so that leaks are contained in existing containment and diversion systems (confine the storage of leaky or leak-prone vehicles and equipment awaiting maintenance to protected areas)
 3. Cleaning up spills and leaks promptly using dry methods (e.g., absorbents) to prevent the discharge of pollutants
 4. Using drip pans and absorbents under or around leaky vehicles and equipment or store indoors where feasible
 5. Using spill/overflow protection equipment
 6. Draining fluids from equipment and vehicles prior to on-site storage or disposal
 7. Performing all cleaning operations indoors, under cover, or in bermed areas that prevent runoff and run-on and also that capture any overspray
 8. Ensuring that all wash water drains to a proper collection system (i.e., not the stormwater drainage system)
 - b. Follow Good Housekeeping Practices – Industrial/commercial facilities must keep clean all exposed areas that are potential sources of pollutants, using such

measures as sweeping at regular intervals, keeping materials orderly and labeled, and storing materials in appropriate containers.

- c. Conduct Maintenance – Industrial/commercial facilities must regularly inspect, test, maintain, and repair all industrial equipment and systems to avoid situations that may result in leaks, spills, and other releases of pollutants in stormwater discharged to receiving waters.
- d. Implement Spill Prevention and Response Procedures – Industrial/commercial facilities must minimize the potential for leaks, spills and other releases that may be exposed to stormwater and develop plans for effective response to such spills if or when they occur. At a minimum, the facilities must implement:
 1. Procedures for plainly labeling containers (e.g., “Used Oil,” “Spent Solvents,” “Fertilizers and Pesticides,”) that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur
 2. Preventative measures such as barriers between material storage and traffic areas, secondary containment provisions, and procedures for material storage and handling
 3. Procedures for expeditiously stopping, containing, and cleaning up leaks, spills, and other releases. Employees who may cause, detect, or respond to a spill or leak must be trained in these procedures and have necessary spill response equipment available.
 4. Procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies [*Insert appropriate contacts for reporting*]
- e. Implement Erosion and Sediment Controls – Industrial/commercial facilities must stabilize exposed areas and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants.
- f. Manage Runoff – Industrial/commercial facilities must divert, infiltrate, reuse, contain, or otherwise reduce stormwater runoff, to minimize pollutants in discharges.
- g. Address Salt Storage Piles or Piles Containing Salt – Industrial/commercial facilities must enclose or cover storage piles of salt, or piles containing salt, used for deicing or other commercial or industrial purposes, including maintenance of paved surfaces. If a permanent storage structure is required but does not exist, one must be built within [*insert timeframe*], and seasonal tarping must be used as an interim control until the permanent structure is completed. Facilities must implement appropriate measures (e.g., good housekeeping, diversions, containment) to minimize exposure resulting from adding to or removing materials from the pile. Piles do not need to be enclosed or covered if stormwater runoff from the piles is not discharged or if discharges from the piles are authorized under another NPDES permit.
- h. Conduct Employee Training – All facility employees who work in areas where industrial materials or activities are exposed to stormwater, or who are

responsible for implementing activities necessary to manage stormwater must be trained. Training must be conducted [*insert frequency, e.g. at least annually*].

- i. Address Non-Stormwater Discharges – Industrial/commercial facilities must eliminate non-stormwater discharges not authorized by an applicable NPDES permit.
 - j. Control Waste, Garbage and Floatable Debris – Facilities must ensure that waste, garbage, and floatable debris are not discharged to receiving waters by keeping exposed areas free of such materials or by intercepting them before they are discharged.
 - k. Control Dust Generation and Vehicle Tracking of Industrial Materials – Industrial/commercial facilities must minimize generation of dust and off-site tracking of raw, final, or waste materials.²⁷
- 7.2.2 Within the [*insert deadline, e.g. first two years of permit term*], the permittee must notify the owner/operator of each industrial and commercial site/source of the stormwater requirements for control measures in Part 7.2.1.
- 7.2.3 As necessary to minimize any pollutants causing the applicable receiving waterbody to be listed as impaired, the permittee must require implementation of additional controls for industrial and commercial sites/sources that are tributary to the impaired water body segments and that are likely to generate such impairment pollutants.²⁸

Example Permit Requirement Rationale for the Fact Sheet

The permittee is required to ensure that the minimum control measures are implemented, as applicable, at every industrial/commercial facility included in its inventory. The minimum measures outlined, when properly selected, designed and implemented, promote prevention and source control, before treatment.

The control measures in this permit are consistent with the control measure requirements found in EPA's 2008 Multi-Sector General Permit (MSGP) for stormwater discharges from industrial activities. The permit writer should ensure that these requirements are consistent with the State's industrial stormwater permit. The control measures in this permit describe specific activities that the permittee must require industrial facilities and commercial sites to implement to minimize stormwater pollution. Another control measure is simply preventing pollutants from coming into contact with precipitation in the first place since this will ensure they are not carried into nearby waterways. General good housekeeping and maintenance procedures are also required. Additional control measures address spill prevention and response, erosion and sediment controls, managing runoff, and controlling discharges from salt storage piles.

²⁷ 2008 MSGP (Section 2) (www.epa.gov/npdes/pubs/msgp2008_finalpermit.pdf), with modifications

²⁸ San Diego MS4 Permit (www.swrcb.ca.gov/rwqcb9/water_issues/programs/stormwater/docs/sd_permit/r9_2007_0001/2007_0001final.pdf), with modifications

The control measures must also include employee training, controlling non-stormwater discharges, addressing waste, garbage and floatable debris, and addressing dust generation and vehicle tracking.²⁹

The permittee is required to notify industrial and commercial sites of the control measure requirements and their responsibility to implement and comply with the requirements.

Facilities that discharge into impaired waterbodies may be required to implement additional controls as necessary to prevent the discharge of the associated pollutants of concern.

7.3 Industrial and Commercial Facility Inspections

Example Permit Provision

7.3.1 Industrial and Commercial Site Inspection Program

- a. The permittee must continue to implement a program to inspect all commercial and industrial facilities included in its Part 7.1(a) inventory. The permittee must describe how this will occur in the SWMP.
- b. The inspection program must:
 1. Prioritize all facilities into high, medium, and low categories on the basis of the potential for water quality impact using criteria such as pollutant sources on site, pollutants of concern, proximity to a water body, and violation history of the facility. The different priority categories will be assigned different inspection frequencies, with the highest priority facilities receiving more frequent inspections. Describe the process for prioritizing inspections and frequency of inspections. If any geographical areas are to be targeted for inspections due to high potential for stormwater pollution, these areas must be listed in the Inspection Plan.
 3. Explain how the priority assigned to any one facility may be modified based on the site inspection findings and the facility's potential to discharge pollutants.

7.3.2 Minimum Inspection Requirements

- a. Inspection Frequency – The permittee is required to conduct inspections at the following frequencies, at a minimum:
 1. Facilities with high potential for water quality impact must be inspected [*insert frequency, e.g. annually*].
 2. Facilities with medium potential for water quality impact must be inspected at least [*insert frequency, e.g. once every three years*].
 3. Facilities with low potential for water quality impact must be inspected at least [*insert frequency, e.g. once every 5 years*].

²⁹ 2008 MSGP Fact Sheet (www.epa.gov/npdes/pubs/msgp2008_finalfs.pdf), with modifications

4. Facilities with either a *[insert violation type]* written violation occurring in the previous year must be inspected at least *[insert frequency, e.g. annually]* until compliance is achieved.
 5. For facilities with no exposure of commercial or industrial activities to stormwater, no inspections are required. However, the permittee must continue to track these facilities for significant change in the exposure of their operations to stormwater.
- b. Scope of Inspection – Inspections must at a minimum:
1. Evaluate the facility’s compliance with the Part 7.2 requirement to select, design, install, and implement stormwater control measures.
 2. Conduct a visual observation for evidence of unauthorized discharges, illicit connections, and potential discharge of pollutants to stormwater.
 3. Verify whether the facility is required to be authorized under the *[insert applicable NPDES general industrial stormwater permit]*, and whether the facility has in fact obtained such permit coverage.³⁰
 4. Evaluate the facility’s compliance with any other relevant local stormwater requirements.
- c. Documentation Requirements – At a minimum, the permittee must document the following for each inspection:
- The inspection date and time;
- The name(s) and signature(s) of the inspector(s);
1. Weather information and a description of any discharges occurring at the time of the inspection;
 2. Any previously unidentified discharges of pollutants from the site;
 3. Any control measures needing maintenance or repairs;
 4. Any failed control measures that need replacement;
 5. Any incidents of noncompliance observed; and
 6. Any additional control measures needed to comply with the Permit Requirements.
- d. Track Inspections – Inspection findings must be tracked to ensure inspections are conducted at the frequency specified in Part 7.3.2.b., highlight and document the recidivism of noncompliant facilities, and aid follow up and enforcement activities.

7.3.3 Enforcement – The permittee must ensure that all necessary follow up and enforcement activities are conducted as necessary to require necessary implementation and maintenance of the control measures described in Part 7.2. The permittee is required to utilize the approved ERP for all enforcement actions.

³⁰ San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (www.swrcb.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2009/R2-2009-0074.pdf), with modifications

Example Permit Requirement Rationale for the Fact Sheet

The permittee must design an inspection program that facilitates more frequent inspections of the highest priority facilities. (See 40 CFR 122.26(d)(iv)(C)(1)). This will help maximize use of the permittee's existing inspection resources and ensure that the permittee inspectors are the most visible and the most familiar with the facilities with the highest potential for water quality impact.

The permittee must develop a process for prioritizing inspections and designating all facilities in the industrial and commercial inventory as either a high, medium or low priority. The designation could occur by individual facility or by facility type. The prioritization for individual facilities may be adjusted after the first, or any subsequent, inspection (for example, if a facility is a high priority facility and the inspection reveals it has little potential for stormwater pollution, then the facility could be reprioritized as a low priority facility).

It is important that inspections be conducted in a thorough and consistent manner in accordance with a formal protocol for conducting an inspection. This protocol should be the basis for inspector training as well. Inspections should include a thorough walk-through of the facility.

The documentation of inspections is very important, not only when tracking noncompliance, but also to facilitate effective enforcement action when needed. A timeline of noncompliance and subsequent enforcement action is critical when escalating measures to gain compliance. Typically, the use of inspection forms facilitates complete and consistent documentation among inspectors and over time.

Recommendations for the Permit Writer

The permit writer may choose to define what criteria the permittee will use to determine the priority of each facility on its inventory. For example, the Phase I Los Angeles County MS4 permit specifies which facilities are Tier 1 and Tier 2 and provides the required inspection frequency for each. The permit writer could also automatically designate certain sets of industries to a certain priority category (e.g., all facilities subject to the State's Industrial General Permit could be designated as high priority facilities in the permit). If the permit does not define what criteria are to be used when prioritizing facilities, the permittee should be required to develop this protocol and submit it to the permitting authority for review.

The permit writer should review available industrial and commercial inventories to determine if more specific inspection frequencies should be set. For example, an MS4 with only 10 facilities in the inventory could probably inspect those facilities annually. However, an MS4 with over 2,000 facilities in the inventory may need to set the inspection frequency at a less frequent interval.

7.4 Staff Training

Example Permit Provision

7.4.1 The permittee must ensure that all staff whose primary job duties are implementing the industrial stormwater program is trained to conduct facility inspections. The training must cover what is required under this permit in terms of stormwater control measures, the requirements of other applicable Industrial Stormwater general permits or other related local requirements, the permittee's site inspection and documentation protocols, and enforcement procedures. Follow-up training must be provided every other year to address changes in procedures, techniques, or staffing. Permittees must document and maintain records of the training provided and the staff trained.³¹

Example Permit Requirement Rationale for the Fact Sheet

Inspectors responsible for conducting inspections at industrial/commercial facilities must be trained on the applicable stormwater requirements for the different types of facilities (i.e., industrial, commercial, other). Training must include a summary of federal, state, and local stormwater regulations that may apply to industrial/commercial facilities. Inspectors must be familiar with various types of stormwater control measures commonly used at the types of facilities typically found in the MS4 area and must be able to educate facility operators about such stormwater control measures. In addition, inspectors must understand and use the permittee's established enforcement response plan (see Chapter 1 of this Guide) to gain compliance as necessary. The inspection staff must be proficient in the enforcement escalation procedure and must properly document all enforcement actions accordingly per the ERP.

³¹ Western Washington Phase I MS4 Permit (www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseIpermit/MODIFIEDpermitDOCS/PhaseIpermitSIGNED.pdf), with modifications

CHAPTER 8: MONITORING, EVALUATION, AND REPORTING

Introduction

Phase I MS4s are required to conduct discharge characterization, field screening and develop a monitoring program. Phase I MS4s are also required to conduct an assessment of controls. See 40 CFR 122.26(d)(1)(iii), (d)(2)(iii), and (d)(2)(v).

Phase II MS4 regulations allow, but do not specifically require, monitoring. Phase II MS4s are required to evaluate program compliance, the appropriateness of identified control measures, and progress toward achieving identified measurable goals. See 40 CFR 122.34(g).

There are many components involved in monitoring and evaluating the effectiveness of a municipal stormwater program. Any comprehensive monitoring program should have clear monitoring objectives to help determine compliance and water quality impacts. Each monitoring program is unique and should be customized to the specific waterbodies, impairments, and pollutant sources of the MS4.

Evaluating the overall effectiveness of the municipal stormwater program should be done using information from the monitoring program, progress toward meeting measurable goals, and other indicators. Without assessing the effectiveness of the stormwater management program the permittee will not know which parts of the program need to be modified to protect and/or improve water quality and instead will essentially be operating blindly. Establishing a comprehensive monitoring and assessment program will enable the permittee to track progress in complying with permit provisions and implementing a program to protect water quality.

Included Concepts

- ▶ Consolidated information tracking system
- ▶ Development of a comprehensive monitoring and assessment program
- ▶ Evaluation of overall program effectiveness
- ▶ Requirements for annual reporting of MS4 activities

8.1 Consolidated Information Tracking System

Example Permit Provision

- 8.1.1 Within the first *[insert time frame which corresponds to the development of the monitoring program e.g. first two years of permit]*, the permittee must develop a tracking system to track the information required in the permit as well as the information required to be reported in the annual report (see Part 8.4).

Example Permit Requirement Rationale for the Fact Sheet

An important part of any municipal stormwater program is to document and track information on activities the permittee undertakes to comply with the Permit Requirements. Tracking should be integrated into each of the minimum measures. For example, tracking the location of illicit discharges may indicate that a specific area has a high incidence of motor oil being dumped into storm drains. Investigations may reveal that homeowners are changing the motor oil in their cars, but not properly disposing it. Therefore, the permittee will need to educate the homeowners in that area regarding proper disposal.

The permittee must develop a tracking system to monitor implementation of its various programs in order to document the permittee's compliance with its Permit Requirements, such as the number of construction sites and industrial facilities inspected. In addition, the tracking system will allow the permittee to monitor the compliance status of those entities within its jurisdiction, such as construction sites and industrial facilities, and to ensure compliance of municipally-owned and operated facilities.

Any tracking system should be coordinated with the monitoring and evaluation programs developed by the permittee. Ideally, a monitoring and evaluation program will link the "actions" (e.g., the inspections, maintenance, education and other activities the permittee implements) with the "results" (e.g., water quality monitoring data, improvements in environmental indicators) of the monitoring program.

In addition, adequate tracking is necessary to generate and provide reports of program progress not only to the permitting authority, but to a permittee's internal management for planning and funding purposes. Ideally, a MS4 permittee will have at least one person in charge of overall coordination, including tracking. While many departments or agencies might implement various stormwater program components, it is helpful for a single person or department to gather and analyze applicable data. This can be accomplished in a number of ways and will vary based on existing data tracking mechanisms used by a permittee, the data being captured and the reporting requirements the permittee must comply with. Ideally, the program would have a database accessible by all parties which specifies the required data. Lacking this, the permittee will need to coordinate all responsible parties. The permittee will need to ensure that responsible parties "mine" all data necessary to adequately represent the program and permit compliance, and specify adequate internal reporting deadlines to guarantee that the data is available in a timely manner for program planning, effectiveness assessments and permit reporting. Some permittees create reporting forms for program component managers to complete and submit by internal deadlines. Regardless of how the permittee coordinates the effort internally, without adequate tracking of data the permittees will not be able to submit annual reports to the permitting authority that provide the necessary information to determine permit compliance.

Recommendations for the Permit Writer

To assist the permittee in ensuring appropriate data is gathered and analyzed, the permitting authority should be very clear regarding annual reporting requirements. In addition, the text for this section should be tailored depending on the permittee. For example, some permittees may be able to develop a GIS-based system complete with the option to upload pictures and inspection reports versus a spreadsheet. In the text provided either system would meet the requirements, but more detailed information can be obtained with the GIS-based system.

8.2 Development of a Comprehensive Monitoring & Assessment Program

Example Permit Provision

- 8.2.1 The permittee must continue to implement, and revise as necessary, a comprehensive monitoring and assessment program. A description of this program must be included in the SWMP document. The monitoring and assessment program must be designed to meet the following objectives:
- a. Assess compliance with this permit;
 - b. Measure the effectiveness of the permittee's stormwater management program;
 - c. Assess the chemical, physical, and biological impacts to receiving waters resulting from stormwater discharges;
 - d. Characterize stormwater discharges;
 - e. Identify sources of specific pollutants;
 - f. Detect and eliminate illicit discharges and illegal connections to the MS4; and
 - g. Assess the overall health and evaluate long-term trends in receiving water quality.

NOTE: Because monitoring programs and requirements are very specific to the MS4 and local water quality impairments, permit writers are directed to the "Recommendations to the Permit Writer" section below for examples of comprehensive monitoring program Permit Requirements.

Example Permit Requirement Rationale for the Fact Sheet

Without clear monitoring objectives and a detailed monitoring plan, it will be difficult for permittees and permitting authorities to evaluate the effectiveness of the municipal stormwater program.

There are numerous factors that should be examined while setting up the water quality monitoring portion of the comprehensive program. Understanding and considering climatic conditions such as precipitation patterns, temperature, and seasonal variations will ensure the study design will collect data that are representative of typical storms in the area and that sampling occurs during times of the year when it is most logical to do so. Acknowledging the different types of land uses within the area will also help the permittee to prioritize monitoring efforts based on the areas most likely to be impacted by stormwater. The type of waterbody monitored must also be considered when selecting sampling locations since pollutants behave differently depending on the environment thereby impacting sampling protocols. For example, sampling in a freshwater lake involves different protocols than monitoring in a tidally influenced river or a first order stream. Waterbody type can also influence the data results and conclusions (e.g. freshwater wetlands typically have high denitrification rates that will likely impact the results of nitrate sampling).

Selection of specific sampling locations is also very important. If particular sites are of concern, then monitoring both above and below the sites to figure out their contributions to the overall water quality issues may make sense. Also, the actual location in the waterbody is important to specify for consistency. For example, should samples be taken close to the stream bank or in the center of the waterbody, in riffles or pools? The answers to these questions, of course, depend on the goals of the monitoring and the constituents (biological, chemical, hydrological) being examined.

In addition, the number and frequency of samples collected and stream assessments performed will determine how robust the data will be (see page 287 in *National Research Council's Report Urban Stormwater Management in the United States (2009)* available at www.epa.gov/npdes/pubs/nrc_stormwaterreport.pdf). Monitoring may or may not be tied to specific wet weather events (i.e. within 72 hours after a rainfall event). A combination of specific wet weather samples and dry weather samples may be appropriate.

Establishing objectives with associated indicators (environmental or administrative) for each minimum measure can help put each component into perspective when considering the overall program. Indicators are one way to evaluate the success of the program from the overall program level. Developing standard environmental indicators is a critical step to evaluate the SWMP. Permittees need practical tools, such as these indicators, in order to determine if their stormwater programs are working, and that help elucidate where additional efforts may be most critical. Environmental indicators should be selected based on the type (estuarine/freshwater/brackish) and condition (impaired/non-impaired) of the waterbody to which stormwater is discharged as well as the intended use of the area where the stormwater is discharged (source water protection area, etc.).

In addition, permittees should document certain administrative efforts associated with developing and implementing their SWMPs. In this context 'administrative' is considered quite broad, including such things as control measures, inspection programs, policies and rules, MS4 system scope and condition, educational efforts and any other variable or outcome that could reflect on the quality of a stormwater program other than the actual environmental quality outcomes, which are covered under 'Environmental Indicators'.

Good administrative indicators are numerous, and good suites of indicators will vary from one community to another. More information can be obtained on each of the environmental and administrative indicators listed by going to the Stormwater Manager's Resource Center (www.stormwatercenter.net) and selecting "Monitor/Assess" on the left navigation bar.

Several protocols have been developed to assess the effectiveness of stormwater control measures:

- Guidance for Evaluating Emerging Stormwater Treatment Technologies, Technology Assessment Protocol - Ecology (TAPE) www.ecy.wa.gov/biblio/0210037.html . This guidance document's primary purpose is to establish a testing protocol and process for evaluating and reporting on the performance and appropriate uses of emerging stormwater treatment technologies.
- Technology Acceptance Reciprocity Partnership (TARP) Protocol for Stormwater Best Management Practice Demonstrations www.dep.state.pa.us/dep/deputate/pollprev/techservices/tarp/pdffiles/Tier2protocol.pdf . The purpose of the TARP

Protocol is to provide a uniform method for demonstrating stormwater technologies and developing test quality assurance (QA) plans for certification or verification of performance claims.

- BMP Performance Verification Checklist. This is a tool that helps permittees provide a consistent set of questions for applicants proposing to use manufactured and proprietary BMP. It is available as Tool # 8 of the Center for Watershed Protection's *Managing Stormwater in Your Community*. The checklist is accompanied by an explanation and instructions for using the checklist, technical appendices, and a matrix that compares existing verification protocols, such as TARP and TAPE.

Additional monitoring resources include:

- CWP, 2008, *Monitoring to Demonstrate Environmental Results: Guidance to Develop Local Stormwater Monitoring Studies Using Six Example Study Designs* (www.cwp.org)
- Geosyntec Consultants and Wright Water Engineers, 2009, *Urban Stormwater BMP Performance Monitoring*, (bmpdatabase.org/MonitoringEval.htm)
- CASQA, 2007, *Municipal Stormwater Program Effectiveness Assessment Guidance* (www.casqa.org)

Recommendations for the Permit Writer

Because of the site-specific nature and variability of these monitoring programs between permittees, the detailed requirements should be provided by each permit writer. For example, the Phase I regulations included specific monitoring requirements while the Phase II regulations allow, but do not specifically require monitoring. To assist permit writers, several examples of monitoring requirements from existing MS4 permits are listed below:

- Baltimore County, MD Phase I MS4 permit (issued 2005); see the watershed assessment and planning requirements (Part II.F) and assessment of controls (Part II.H)
www.mde.state.md.us/assets/document/sedimentStormwater/MSSPermit/BA%20final%20permit.pdf
- Southern California Regional Bioassessment Monitoring Program (this is a regional monitoring program involving coastal counties in Southern California)
www.socalsmc.org/Docs/SMC-DesignofBioassessmentRegionalMonitoringProgram.pdf
- San Diego, CA Phase I MS4 Permit (issued 2007); see Receiving Waters and Urban Runoff Monitoring and Reporting Program.
www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/docs/sd_permit/r9_2007_0001/2007_0001final.pdf

The permit writer could consider the role of partnerships among the MS4s in establishing and implementing the monitoring programs so that any data collected is robust, useful, and meaningful. In addition, communities may benefit more by working with local organizations and/or neighboring communities who are already collecting similar data. By doing so resources may be used more efficiently and results of testing may be more robust.

The permit writer should also require the permittee to assess the effectiveness of the SWMP in meeting applicable Permit Requirements. The sampling protocols developed must support the goals of the monitoring program. The monitoring and assessment program must include water quality monitoring as well as an assessment of environmental and administrative indicators. Along these lines, the permit writer could also add requirements such as the ones provided below:

Water Quality Monitoring

a. *The Permittee must develop a water quality monitoring program that includes [insert specific monitoring programs and requirements, such as:*

- Ambient receiving water monitoring,
- Biological monitoring,
- Control measure performance monitoring, or
- Discharge (wet weather) monitoring

Because the detailed monitoring program requirements are very unique to each MS4, the permitting authority should insert here the specific details of the relevant monitoring program, such as monitoring type, frequency, location, etc.]

- b. When determining water quality monitoring components, the permittee must examine and consider a variety of factors, including, but not limited to:
- Climatic conditions, including precipitation patterns, temperature, and seasonal variations
 - Land uses in the MS4
 - Waterbody type
- c. The permittee must consider and address specific sampling quality assurance/quality control protocols, including, but not limited to:
- Specific chemical constituents (pollutants), biological stream indicators, and physical stream indicators that will be monitored to best achieve the purpose of the monitoring
 - Sampling locations
 - Number and frequency of sample collection and assessments
 - Timing of sample collection
- d. The permittee must determine if any similar monitoring is occurring within the MS4 and if it is logical to link efforts.

Environmental Indicators

As part of the comprehensive monitoring and assessment program, the permittee must identify and track at least *[insert number of indicators to be tracked]* environmental

indicators from each category listed below (physical and hydrologic indicators; biological indicators; water quality indicators). The indicators must be appropriate to assess if the SWMP is meeting goals and objectives:

Physical and hydrological indicators	Biological indicators	Water quality indicators
<ul style="list-style-type: none"> • Stream widening/downcutting • Physical habitat quality • Impacted dry weather flows • Increased flooding frequency • Stream temperature monitoring 	<ul style="list-style-type: none"> • Fish assemblage analysis • Macro-invertebrate assemblage • Single species indicator • Composite indicators • Other biological indicators 	<ul style="list-style-type: none"> • Water quality pollutant constituent monitoring • Toxicity testing • Non-point source loadings • Exceedance frequencies of water quality standards • Sediment contamination • Human health criteria

Administrative indicators

As part of the comprehensive monitoring and assessment program, the permittee must identify and track at least [*insert number of indicators to be tracked*] administrative indicator from each category listed below (social indicators; programmatic indicators; site indicators). The indicators must be appropriate to assess if the SWMP is meeting goals and objectives:

Social indicators	Programmatic indicators	Site indicators
<ul style="list-style-type: none"> • Public attitude surveys • Industrial/commercial pollution prevention • Public involvement and monitoring • User perception 	<ul style="list-style-type: none"> • Number of illicit connections identified and corrected • Number of control measures installed, inspected, and maintained • Permitting and compliance • Growth and development 	<ul style="list-style-type: none"> • Control measure performance monitoring • Industrial site compliance monitoring

Performance Monitoring of Stormwater Controls

When monitoring the performance of stormwater controls, EPA recommends that percent removal efficiencies are not calculated and compared since results can be misleading because the percentages may be based on differing levels of the influent concentration (see cfpub.epa.gov/npdes/stormwater/urbanbmp/bmptopic.cfm#percentremoval for further discussion; also see *National Research Council's Report Urban Stormwater Management in the United States (2009)* available at www.epa.gov/npdes/pubs/nrc_stormwaterreport.pdf).

Modeling can also be a useful tool to quantify the impacts of municipal stormwater management. The following resources provide summaries and reviews of different types of models available to

determine existing loading from an MS4 as well as the effects expected from various stormwater controls.

1. USEPA Handbook for Developing Watershed Plans to Restore and Protect Our Waters
www.epa.gov/nps/watershed_handbook/

Chapter 8 of this document focuses on methods for estimating pollutant loads, including the use of watershed models. This chapter provides assistance in selecting and applying watershed models to estimate pollutant loads from existing conditions.

2. USEPA TMDL Model Evaluation and Research Needs
www.epa.gov/nrmrl/pubs/600r05149/600r05149.htm

This report documents the review of more than 60 available watershed and receiving water models. It discusses model selection on the basis of model capabilities and provides a series of tables rating the capabilities or applicability the models using the categories of TMDL endpoints, general land and water features, special land processes, special water processes, and application considerations including the selection of appropriate best management practices and their water quality impacts. The document also provides individual fact sheets for each reviewed model.

8.3 Evaluation of Overall Program Effectiveness

Example Permit Provision

- 8.3.1 *Annual Effectiveness Assessment* – The annual effectiveness assessment must:
- a. Use the monitoring and assessment data described in Part 8.2 to specifically assess the effectiveness of each of the following:
 1. Each significant activity/control measures or type of activity/control measure implemented;
 2. Implementation of each major component of the Stormwater Management Program (Public Education/Involvement, Illicit Discharges, Construction, Post-Construction, Good Housekeeping); and
 3. Implementation of the Stormwater Management Program as a whole.
 - b. Identify and use measurable goals, assessment indicators, and assessment methods for each of the items listed in Part 8.3.1.a above.
 - c. Document the permittee’s compliance with permit conditions.
- 8.3.2 Based on the results of the effectiveness assessment, the permittee must annually review its activities or control measures to identify modifications and improvements needed to maximize SWMP effectiveness, as necessary to achieve compliance with this permit. The permittee must develop and implement a plan and schedule to address the identified modifications and improvements. Municipal activities/control

measures that are ineffective or less effective than other comparable municipal activities/control measures must be replaced or improved upon by implementation of more effective municipal activities/control measures.

8.3.3 As part of its Annual Reports, the permittee must report on its SWMP effectiveness assessment as implemented under Part 8.3.1 above.

Example Permit Requirement Rationale for the Fact Sheet

A key requirement in the stormwater Phase II rule is a report (40 CFR 122.34(g)(3)) that includes “the status of compliance with permit conditions, an assessment of the appropriateness of identified [control measures] and progress towards achieving identified measurable goals for each of the minimum control measures.” This assessment is critical to the stormwater program framework which uses the iterative approach of implementing controls, conducting assessments, and designating refocused controls leading toward attainment of water quality standards.

Building on the monitoring and assessment program developed in Part 8.2, the permittee must conduct an annual effectiveness assessment to assess the effectiveness of significant control measures, SWMP components, and the SWMP as a whole. The California Stormwater Quality Association’s (CASQA) *Municipal Stormwater Program Effectiveness Guidance* describes strategies and methods for assessing effectiveness, including examples of effectiveness assessment for each SWMP program component. The CASQA Effectiveness Guidance is available at www.casqa.org for purchase. A two-hour EPA webcast focusing on the CASQA Guide is also available (available at www.epa.gov/npdes/training under “Assessing the Effectiveness of Your Municipal Stormwater Program”). A resources document from the webcast includes a 10 page summary of the Guide and example pages from the municipal chapter (www.epa.gov/npdes/outreach_files/webcast/jun0408/110961/municipal_resources.pdf).

The *Municipal Stormwater Program Effectiveness Assessment Guidance* synthesizes information on designing and conducting program effectiveness assessments. The document also explains how to select certain methods based on programmatic outcomes and goals. The reader is led through a series of questions and case studies to demonstrate how proper assessments are selected. Techniques are related to different level of outcomes: level one – documenting activities, level two – raising awareness, level 3 – changing behavior, level 4 – reducing loads from sources, level 5 – improving runoff quality, and level 6 – protecting receiving water quality. The Guide includes fact sheets for all six NPDES program elements, outlining methods and techniques for assessing effectiveness of each program.

Recommendations for the Permit Writer

Adaptive management is the appropriate process for assessing new opportunities for improving program effectiveness in controlling stormwater pollution. The permit writer should require the permittee to use adaptive management throughout the permit term to assess options for improving controls on stormwater discharges as compared with measurable goals and demonstrated by monitoring and assessment protocols. The permit writer should have the permittee monitor and

assess the data and analyses required under the permit as well as applicable information from other sources in the adaptive management process.

In addition, the permit writer should have the permittee assess and modify, as necessary, any or all existing SWMP components and adopt new or revised SWMP components to optimize reductions in stormwater pollutants through an iterative process. This iterative process should include routine assessment of the need to further improve water quality and protect beneficial uses, review of available technologies and practices to accomplish the needed improvement, and evaluate resources available to implement the technologies and practices.

8.4 Requirements for Annual Reporting of MS4 Activities

Example Permit Provision

- 8.4.1 Summary Annual Report - The Permittee must submit annual reports on or before *[specify deadline, e.g., the anniversary date of this permit]* for the reporting period *[specify the reporting period, e.g., July 1-June 30]*. The Permittee must use the Summary MS4 Annual Report template in Appendix A to document a summary of the past year activities. All of the information required on this form must be completed.
- 8.4.2 Detailed Annual Report - The Permittee must also submit a detailed annual report that addresses, for the activities described in the SWMP document required in Part 1.1, the following:
- A summary of past year activities, including where available, specific quantities achieved and summaries of enforcement actions. See Part 8.4.3 for required information specific to certain SWMP areas.
 - A description of the effectiveness of each SWMP program component or activity (see Part 8.3); and
 - Planned activities and changes for the next reporting period, for each SWMP program component or activity.
 - Detailed fiscal analysis described in Part 1.4.2.
- 8.4.3 *[Specify any additional information and/or data pertaining to implementation of priority activities the Permitting Authority would like to see in Annual Reports, e.g. a list of green roofs (with square footage) installed in the MS4, a summary of water quality monitoring data collected for a specific waterbody, etc.]*

The Annual Report must clearly refer to the Permit Requirements, and describe in quantifiable terms, the status of activities undertaken to comply with each requirement.

Example Permit Requirement Rationale for the Fact Sheet

In general, an annual report must document and summarize implementation of the SWMP during the previous year and evaluate program results and describe planned changes towards continuous improvement. The annual report also can serve as a “state of the SWMP” report for the general public or other stakeholders in the community. While records are to be kept and made available to the public, the annual report is an excellent summary document to provide as well.

Recommendations for the Permit Writer

EPA recommends using its Summary Annual Report Template (see Appendix A) in this guidance in order to obtain summary information about the status of MS4 programs. In addition to the summary annual report template, permittees must also submit a more detailed annual report.

The permit writer may determine that additional, more detailed, information is needed to determine compliance with the Permit Requirements. Even if these reporting details are not required within the permit, the permitting authority and enforcement officials can still request them at any time or during a program audit.

MS4 permits should require permittees to summarize and analyze data concerning the effectiveness of the SWMP and submit the analysis to the permitting authority. For example, the permittees should address such questions as:

- For illicit discharge data, what are the most prevalent sources and pollutants in the illicit discharge data, and where are these illicit discharges occurring? How many illicit discharges have been identified, and how many of those have been resolved? How many outfalls or screening points were visually screened, how many had dry weather discharges or flows, at how many were field analyses completed and for what parameters, and at how many were samples collected and analyzed? Does the MS4 need to conduct more inspections in these areas, or develop more specific outreach targeting these sources and pollutants?
- For the construction data, what are the most common construction violations, and are there any trends in the data (e.g., construction operators who receive more violations than others, areas of the MS4 with more violations, need to refine guidance or standards to more clearly address common violations). How has the permittee responded to these trends? Over the last year, how many construction site plan reviews were completed and approved? How many inspections were conducted, how many noncompliant sites were identified, and how many enforcement actions (and of what type) were taken?

At a minimum, the permit should require that the annual report clearly illustrate three key items for each SWMP area:

- **Summary of the Year’s Activities.** The summary should describe and quantify program activities for each SWMP component. Responsible persons, agencies, departments or co-permittees should be included. Each activity should be described in relation to achievement of established goals or performance standards.

- **Description of SWMP Effectiveness.** An annual report should not only describe the previous year's activities, but should also highlight the SMWP's effectiveness (see Part 8.3) using the indicators required in Part 8.2.
- **Planned Activities and Changes.** The annual report should describe activities planned for the next year highlighting any changes made to improve control measures or program effectiveness.

Also, although the stormwater Phase II rule requires reports, after the first permit term, to be submitted in only years two and four of the permit term, EPA strongly encourages annual reports for all permittees.

APPENDIX A: SUMMARY ANNUAL REPORT TEMPLATE



National Pollutant Discharge Elimination System Stormwater Program

Small MS4 Report Form



The purpose of this report is to contribute information to an evaluation of the NPDES small municipal separate storm sewer system (MS4) permit program. Consistent with 40 CFR §122.37 the U.S. Environmental Protection Agency is assessing the status of the program nation-wide. A “no” answer to a question does not necessarily mean noncompliance with your permit or with the federal regulations. In order to establish the range of variability in the program it is necessary to ask questions along a fairly broad performance continuum. Your permitting authority may use some of this information as one component of a compliance evaluation.

1. MS4 Information

Name of MS4

Name of Contact Person (First) (Last) (Title)

Telephone (including area code) Email

Mailing Address

City State ZIP code

What size population does your MS4 serve? _____ NPDES number _____

What is the reporting period for this report? (mm/dd/yyyy) From _____ to _____

2. Water Quality Priorities

- A. Does your MS4 discharge to waters listed as impaired on a state 303(d) list? Yes No
- B. If yes, identify each impaired water, the impairment, whether a TMDL has been approved by EPA for each, and whether the TMDL assigns a wasteload allocation to your MS4. Use a new line for each impairment, and attach additional pages as necessary.

Impaired Water	Impairment	Approved TMDL		TMDL assigns WLA to MS4	
_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No

- C. What specific sources contributing to the impairment(s) are you targeting in your stormwater program?

- D. Do you discharge to any high-quality waters (e.g., Tier 2, Tier 3, outstanding natural resource waters, or other state or federal designation)? Yes No
- E. Are you implementing additional specific provisions to ensure their continued integrity? Yes No

3. Public Education and Public Participation

- A. Is your public education program targeting specific pollutants and sources of those pollutants? Yes No
- B. If yes, what are the specific sources and/or pollutants addressed by your public education program?

- C. Note specific successful outcome(s) (e.g., quantified reduction in fertilizer use; NOT tasks, events, publications) fully or partially attributable to your public education program during this reporting period.

- D. Do you have an advisory committee or other body comprised of the public and other stakeholders that provides regular input on your stormwater program? Yes No

4. Construction

- A. Do you have an ordinance or other regulatory mechanism stipulating:
- | | | |
|--|------------------------------|-----------------------------|
| Erosion and sediment control requirements? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Other construction waste control requirements? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Requirement to submit construction plans for review? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| MS4 enforcement authority? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
- B. Do you have written procedures for:
- | | | |
|-------------------------------|------------------------------|-----------------------------|
| Reviewing construction plans? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Performing inspections? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Responding to violations? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
- C. Identify the number of active construction sites \geq 1 acre in operation in your jurisdiction at any time during the reporting period. _____
- D. How many of the sites identified in 4.C did you inspect during this reporting period? _____
- E. Describe, on average, the frequency with which your program conducts construction site inspections.

- F. Do you prioritize certain construction sites for more frequent inspections? Yes No
If Yes, based on what criteria? _____
- G. Identify which of the following types of enforcement actions you used during the reporting period for construction activities, indicate the number of actions, or note those for which you do not have authority:
- | | | | |
|------------------------------|-----------------------|---------|---------------------------------------|
| <input type="checkbox"/> Yes | Notice of violation | # _____ | No Authority <input type="checkbox"/> |
| <input type="checkbox"/> Yes | Administrative fines | # _____ | No Authority <input type="checkbox"/> |
| <input type="checkbox"/> Yes | Stop Work Orders | # _____ | No Authority <input type="checkbox"/> |
| <input type="checkbox"/> Yes | Civil penalties | # _____ | No Authority <input type="checkbox"/> |
| <input type="checkbox"/> Yes | Criminal actions | # _____ | No Authority <input type="checkbox"/> |
| <input type="checkbox"/> Yes | Administrative orders | # _____ | No Authority <input type="checkbox"/> |
| <input type="checkbox"/> Yes | Other _____ | # _____ | |
- H. Do you use an electronic tool (e.g., GIS, data base, spreadsheet) to track the locations, inspection results, and enforcement actions of active construction sites in your jurisdiction? Yes No
- I. What are the 3 most common types of violations documented during this reporting period?

- J. How often do municipal employees receive training on the construction program? _____

5. Illicit Discharge Elimination

- A. Have you completed a map of all outfalls and receiving waters of your storm sewer system? Yes No
- B. Have you completed a map of all storm drain pipes and other conveyances in the storm sewer system? Yes No
- C. Identify the number of outfalls in your storm sewer system. _____
- D. Do you have documented procedures, including frequency, for screening outfalls? Yes No
- E. Of the outfalls identified in 5.C, how many were screened for dry weather discharges during this reporting period?

- F. Of the outfalls identified in 5.C, how many have been screened for dry weather discharges at any time since you obtained MS4 permit coverage? _____
- G. What is your frequency for screening outfalls for illicit discharges? Describe any variation based on size/type.

- H. Do you have an ordinance or other regulatory mechanism that effectively prohibits illicit discharges? Yes No
- I. Do you have an ordinance or other regulatory mechanism that provides authority for you to take enforcement action and/or recover costs for addressing illicit discharges? Yes No
- J. During this reporting period, how many illicit discharges/illegal connections have you discovered? _____
- K. Of those illicit discharges/illegal connections that have been discovered or reported, how many have been eliminated?

- L. How often do municipal employees receive training on the illicit discharge program? _____

6. Stormwater Management for Municipal Operations

- A. Have stormwater pollution prevention plans (or an equivalent plan) been developed for:
 - All public parks, ball fields, other recreational facilities and other open spaces Yes No
 - All municipal construction activities, including those disturbing less than 1 acre Yes No
 - All municipal turf grass/landscape management activities Yes No
 - All municipal vehicle fueling, operation and maintenance activities Yes No
 - All municipal maintenance yards Yes No
 - All municipal waste handling and disposal areas Yes No
 - Other _____
- B. Are stormwater inspections conducted at these facilities? Yes No
- C. If Yes, at what frequency are inspections conducted? _____
- D. List activities for which operating procedures or management practices specific to stormwater management have been developed (e.g., road repairs, catch basin cleaning).

- E. Do you prioritize certain municipal activities and/or facilities for more frequent inspection? Yes No
- F. If Yes, which activities and/or facilities receive most frequent inspections? _____
- G. Do all municipal employees and contractors overseeing planning and implementation of stormwater-related activities receive comprehensive training on stormwater management? Yes No
- H. If yes, do you also provide regular updates and refreshers? Yes No
- I. If so, how frequently and/or under what circumstances? _____

7. Long-term (Post-Construction) Stormwater Measures

- A. Do you have an ordinance or other regulatory mechanism to require:
- | | | |
|--|------------------------------|-----------------------------|
| Site plan reviews for stormwater/water quality of all new and re-development projects? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Long-term operation and maintenance of stormwater management controls? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Retrofitting to incorporate long-term stormwater management controls? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
- B. If you have retrofit requirements, what are the circumstances/criteria?

- C. What are your criteria for determining which new/re-development stormwater plans you will review (e.g., all projects, projects disturbing greater than one acre, etc.) _____
- D. Do you require water quality or quantity design standards or performance standards, either directly or by reference to a state or other standard, be met for new development and re-development? Yes No
- E. Do these performance or design standards require that pre-development hydrology be met for:
- | | | |
|----------------------|------------------------------|-----------------------------|
| Flow volumes | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Peak discharge rates | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Discharge frequency | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Flow duration | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
- F. Please provide the URL/reference where all post-construction stormwater management standards can be found.

- G. How many development and redevelopment project plans were reviewed during the reporting period to assess impacts to water quality and receiving stream protection? _____
- H. How many of the plans identified in 7.G were approved? _____
- I. How many privately owned permanent stormwater management practices/facilities were inspected during the reporting period? _____
- J. How many of the practices/facilities identified in I were found to have inadequate maintenance? _____
- K. How long do you give operators to remedy any operation and maintenance deficiencies identified during inspections?

- L. Do you have authority to take enforcement action for failure to properly operate and maintain stormwater practices/facilities? Yes No
- M. How many formal enforcement actions (i.e., more than a verbal or written warning) were taken for failure to adequately operate and/or maintain stormwater management practices? _____
- N. Do you use an electronic tool (e.g., GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance? Yes No
- O. Do all municipal departments and/or staff (as relevant) have access to this tracking system? Yes No
- P. How often do municipal employees receive training on the post-construction program? _____

8. Program Resources

- A. What was the annual expenditure to implement MS4 permit requirements this reporting period? _____
- B. What is next year's budget for implementing the requirements of your MS4 NPDES permit? _____

C. This year what is/are your source(s) of funding for the stormwater program, and annual revenue (amount or percentage) derived from each?

Source: _____ Amount \$ _____ OR % _____

Source: _____ Amount \$ _____ OR % _____

Source: _____ Amount \$ _____ OR % _____

D. How many FTEs does your municipality devote to the stormwater program (specifically for implementing the stormwater program; not municipal employees with other primary responsibilities)? _____

E. Do you share program implementation responsibilities with any other entities? Yes No

Entity	Activity/Task/Responsibility	Your Oversight/Accountability Mechanism
_____	_____	_____
_____	_____	_____
_____	_____	_____

9. Evaluating/Measuring Progress

A. What indicators do you use to evaluate the overall effectiveness of your stormwater management program, how long have you been tracking them, and at what frequency? These are not measurable goals for individual management practices or tasks, but large-scale or long-term metrics for the overall program, such as macroinvertebrate community indices, measures of effective impervious cover in the watershed, indicators of in-stream hydrologic stability, etc.

Indicator	Began Tracking (year)	Frequency	Number of Locations
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

B. What environmental quality trends have you documented over the duration of your stormwater program? Reports or summaries can be attached electronically, or provide the URL to where they may be found on the Web.

10. Additional Information

In the space below, please include any additional information on the performance of your MS4 program. If providing clarification to any of the questions on this form, please provide the question number (e.g., 2C) in your response.

Certification Statement and Signature

I certify that all information provided in this report is, to the best of my knowledge and belief, true, accurate and complete. Yes

Federal regulations require this application to be signed as follows: **For a municipal, State, Federal, or other public facility:** by either a principal executive or ranking elected official.

Name of Certifying Official, Title

Date (mm/dd/yyyy)

Submit

APPENDIX B: DEFINITIONS

Commencement of Construction – the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction-related activities (e.g., stockpiling of fill material). (Source: 2008 CGP)

Control Measure – any best management practice (BMP) or other method used to prevent or reduce the discharge of pollutants to waters of the United States. (Source: 2008 CGP)

Discharge – when used without qualification means the “discharge of a pollutant.” (Source: 2008 CGP)

Discharge of Stormwater Associated with Construction Activity – as used in this permit, refers to a discharge of pollutants in stormwater from areas where soil disturbing activities (e.g., clearing, grading, or excavation), construction materials or equipment storage or maintenance (e.g., fill piles, borrow area, concrete truck chute washdown, fueling), or other industrial stormwater directly related to the construction process (e.g., concrete or asphalt batch plants) are located. (Source: 2008 CGP)

Illicit Discharge - any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities. (Source: 40 CFR 122.26)

Large Construction Activity – is defined at 40 CFR §122.26(b)(14)(x) and incorporated here by reference. A large construction activity includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than five acres of land or will disturb less than five acres of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than five acres. Large construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site. (Source: 2008 CGP)

Non-Structural Controls – preventative actions that involve management and source controls. Refer also to 40 CFR 122.34(b)(5)(c)(iii). (Source: 40 CFR 122.26)

Qualified Personnel – A person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact stormwater quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of stormwater discharges from the construction activity. (Source: EPA’s 2008 Construction General Permit)

Receiving Water – the “Water of the United States” as defined in 40 CFR §122.2 into which the regulated stormwater discharges. (Source: 2008 CGP)

Small Construction Activity – includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than one (1) acre and less than five (5) acres of land or will disturb

less than one (1) acre of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than one (1) acre and less than five (5) acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site. (Source: 2008 CGP)

Stormwater control measure – see control measure.

Structural Control - physically designed, installed, and maintained practices used to prevent or reduce the discharge of pollutants in stormwater, to minimize erosion, and/or to minimize the impacts of stormwater on waterbodies.

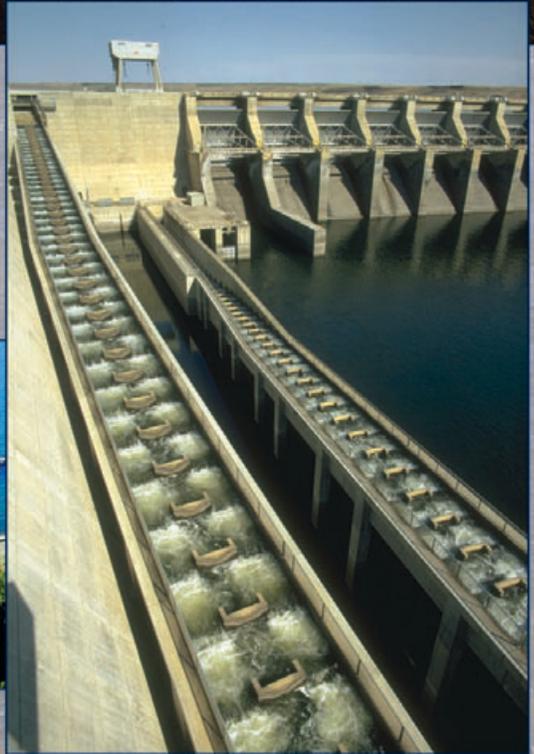
Wasteload Allocation – the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. Wasteload allocations constitute a type of water quality-based effluent limitation. (40 CFR 130.2)

ATTACHMENT

58



National Management Measures to Control Nonpoint Source Pollution from Hydromodification





United States Environmental Protection Agency
Office of Water
Washington, DC 20460
(4503T)

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July 2007

National Management Measures
to Control Nonpoint Source Pollution from Hydromodification

Nonpoint Source Control Branch
Office of Wetlands, Oceans and Watersheds
U.S. Environmental Protection Agency
Office of Water

July 2007

Disclaimer

This document provides technical guidance to states, territories, authorized tribes, and the public for managing hydromodification and reducing associated nonpoint source pollution of surface and ground water. At times, this document refers to statutory and regulatory provisions, which contain legally binding requirements. This document does not substitute for those provisions or regulations, nor is it a regulation itself. Thus, it does not impose legally-binding requirements on EPA, states, territories, authorized tribes, or the public and may not apply to a particular situation based upon the circumstances. EPA, state, territory, and authorized tribe decision makers retain the discretion to adopt approaches to manage hydromodification and reduce associated NPS pollution of surface and ground water on a case-by-case basis that differ from this guidance where appropriate. EPA may change this guidance in the future.

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Chapter 1: Introduction

The Nation's aquatic resources are among its most valuable assets. Although environmental protection programs in the United States have improved water quality during the past 35 years, many challenges remain. Significant strides have been made in reducing the impacts of discrete pollutant sources, but some aquatic ecosystems remain impaired, due in part to complex pollution problems caused by nonpoint source (NPS) pollution.¹ Of special concern are the problems in our streams, lakes, estuaries, aquifers, and other water bodies caused by runoff that is inadequately controlled or treated. These problems include changes in flow, increased sedimentation, higher water temperature, lower dissolved oxygen, degradation of aquatic habitat structure, loss of fish and other aquatic populations, and decreased water quality due to increased levels of nutrients, metals, hydrocarbons, bacteria, and other constituents.

What is Hydromodification?

USEPA (1993) defines hydromodification as the "alteration of the hydrologic characteristics of coastal and non-coastal waters, which in turn could cause degradation of water resources." Examples of hydromodification in streams include dredging, straightening, and, in some cases, complete stream relocation. Other examples include construction in or along streams, construction and operation of dams and impoundments, channelization in streams, dredging, and land reclamation activities. Hydromodification can also include activities in streams that are being done to maintain the stream's integrity such as removing snags.² Some indirect forms of hydromodification, such as erosion along streambanks or shorelines, are caused by the introduction or maintenance of structures in or adjacent to a waterbody and other activities, including many upland activities, that change the natural physical properties of the waterbody.

EPA has grouped hydromodification activities into three categories: (1) channelization and channel modification, (2) dams, and (3) streambank and shoreline erosion. The following definitions are offered to clarify the hydromodification activities associated with these three categories:

Channelization and channel modification include activities such as straightening, widening, deepening, and clearing channels of debris and sediment. Categories of channelization and channel modification projects include flood control and drainage, navigation, sediment control, infrastructure protection, mining, channel and bank instability, habitat improvement/enhancement, recreation, and flow control for water supply (Watson et al., 1999). Channelization activities can play a critical role in NPS pollution by increasing the timing and delivery of pollutants, including sediment, that enter the water. Channelization can also be a cause of higher flows during storm events, which potentially increases the risk of flooding.

¹ For more information on NPS pollution, go to EPA's website at <http://www.epa.gov/owow/nps>.

² A tree or branch embedded in a lake or stream bed and constituting a hazard to navigation; a standing dead tree.

Dams³ are artificial barriers on waterbodies that impound or divert water and are built for a variety of purposes, including flood control, power generation, irrigation, navigation, and to create ponds, lakes, and reservoirs for uses such as livestock watering, municipal water supply, fish farming, and recreation. While these types of dams are constructed to provide benefits to society, they can contribute to NPS pollution. For example dams can alter flows, which ultimately can cause impacts to water quality (changes to temperature or dissolved gases) and biological/habitat (disruption of spawning or altering of plant and benthic communities) above and below the dam.

Streambank and shoreline erosion are the wearing away of material in the area landward of the bank along non-tidal streams and rivers. Streambank erosion occurs when the force of flowing water in a river or stream exceeds the ability of soil and vegetation to hold the banks in place. Eroded material is carried downstream and redeposited in the channel bottom or in point bars located along bends in the waterway. Shoreline erosion occurs in large open waterbodies, such as the Great Lakes or coastal bays and estuaries, when waves and currents sort coarser sands and gravels from eroded bank materials and move them in both directions along the shore away from the area undergoing erosion. While the underlying forces causing the erosion may be different for streambank and shoreline erosion, the results (erosion and its impacts) are usually similar. It is also important to note that streambank and shoreline erosion are natural processes and that natural background levels of erosion also exist. However, human activities along or adjacent to streambanks or shorelines may increase erosion and other nonpoint sources of pollution.

Why is NPS Guidance on Hydromodification Important?

Hydromodification is one of the leading sources of impairment in our nation's waters. According to the *National Water Quality Inventory: 2000 Report to Congress* (USEPA, 2002a), there are almost 3.7 million miles of rivers and streams⁴ in the United States. Approximately 280,000 miles of assessed rivers and streams in the United States are impaired for one or more designated uses, which include aquatic life support, fish consumption, primary and contact recreation, drinking water supply, and agriculture. Many of the pollutants causing impairment are delivered to surface and ground waters from diffuse sources, such as agricultural runoff, urban runoff, hydrologic modification, and atmospheric deposition of contaminants. The leading causes of

³ Dams are defined according to Title 33 of the Code of Federal Regulations, section 222.6(h) (2003) as all artificial barriers together with appurtenant works which impound or divert water and which (1) are 25-feet or more in height or (2) have an impounding capacity of 50 acre-feet or more. Barriers that are six-feet or less in height, regardless of storage capacity or barriers that have a storage capacity at maximum water storage elevation of fifteen acre-feet or less regardless of height are not included. Federal regulations define dams for the purpose of ensuring public safety. For example, 33 CFR 222.6 states objectives, assigns responsibilities, and prescribes procedures for implementation of a National Program for Inspection of Non-Federal Dams. Most states use this or a very similar definition, which creates a category of dams that requires some form of inspection to ensure that they are structurally sound. Dams smaller than those defined above, such as those used to create farm ponds, are authorized under the NRCS program.

⁴ Approximately 700,000 miles (19%) of the total 3.7 million miles of rivers and streams in the United States were assessed for the *National Water Quality Inventory: 2000 Report to Congress* (USEPA, 2002a).

beneficial use impairment (partially or not supporting one or more uses) are nutrients, sediment, pathogens (bacteria), metals, pesticides, oxygen-depleting materials, and habitat alterations (USEPA, 2002a).

The *National Water Quality Inventory: 2000 Report to Congress* (USEPA, 2002a) identified hydrologic modifications (i.e., hydromodification) as a leading source of water quality impairment in assessed surface waters. Of the 11 pollution source categories listed in the report, hydromodification was ranked as the second leading source of impairment in assessed rivers, second in assessed lakes, and sixth in assessed estuaries (Table 1.1). Three major types of hydromodification activities—channelization and channel modification, dams, and streambank and shoreline erosion—change a waterbody’s physical structure as well as its natural functions.

Many hydromodification activities are necessary because of human activities. For example, hardening of streambanks to correct headcutting and streambank erosion is often necessary because of changes in landuse that increase impervious surfaces. While hydromodification activities are intended to provide some form of benefit (e.g., levees for reducing flooding, electricity from hydroelectric dams, or bulkheads to reduce shoreline erosion and protect valuable property), there may be unintended consequences resulting from the activity. To illustrate, levees may provide local flood reduction by keeping storm flows from spreading onto flood plains. However, these same levees may alter riparian wetland habitat that once relied on seasonal flooding.

Table 1.1 Leading Sources of Water Quality Impairment Related to Human Activities for Rivers, Lakes, and Estuaries (USEPA, 2002a)

	Rivers and Streams	Lakes, Ponds, and Reservoirs	Estuaries
Sources^a	Agriculture (48%) ^b	Agriculture (41%)	Municipal Point Sources (37%)
	Hydrologic Modification (20%)^c	Hydrologic Modification (18%)	Urban Runoff/Storm Sewers (32%)
	Habitat Modification (14%) ^d	Urban Runoff/Storm Sewers (18%)	Industrial Discharges (26%)
	Urban Runoff /Storm Sewers (13%)	Nonpoint Sources (14%)	Atmospheric Deposition (23%)
	Forestry (10%)	Atmospheric Deposition (13%)	Agriculture (18%)
	Municipal Point Sources (10%)	Municipal Point Sources (12%)	Hydrologic Modification (14%)
	Resource Extraction (10%)	Land Disposal (10%)	Resource Extraction (12%)

^a Excluding unknown, natural, and “other” sources.

^b Values in parentheses represent the approximate percentage of surveyed river miles, lake acres, or estuary square miles that are classified as impaired due to the associated sources.

^c Hydrologic modifications include flow regulation and modification, dredging, and construction of dams. These activities may alter a lake’s habitat in such a way that it becomes less suitable for aquatic life (USEPA, 2002a).

^d Habitat modifications result from human activities, such as flow regulation, logging, and land-clearing practices. Habitat modifications—changes such as the removal of riparian (stream bank) vegetation—can make a river or stream less suitable for the organisms inhabiting it (USEPA, 2002a).

Purpose and Scope of the Guidance

National summaries, such as those shown in Table 1.1, are useful in providing an overview of the magnitude of problems associated with hydromodification. Solutions, however, are usually applied at the local level. For example, in Maryland, the Shore Erosion Task Force, after investigating shore erosion in the state, published recommendations to be implemented under a Comprehensive Shore Erosion Control Plan. To initiate statewide planning, the Maryland Department of Natural Resources established partnerships with two coastal counties that were significantly affected by shoreline erosion. These state-local partnerships enable the state to better identify and correct shoreline erosion problems throughout Maryland (MDNR, 2001).

State and local elected officials and agencies, landowners, developers, environmental and conservation groups, and others play a crucial role in working together for protecting, maintaining, and restoring water resources that are impacted by hydromodification activities. These local efforts, in aggregate, form the basis for changing the status of hydromodification as a national problem.

This guidance document provides background information about NPS pollution and offers a variety of solutions for reducing NPS pollution resulting from hydromodification activities. The background information provided in Chapter 2 includes a discussion of sources of NPS pollution associated with hydromodification and how the generated pollutants enter the Nation's waters. Chapter 3 (Channelization and Channel Modification), Chapter 4 (Dams), and Chapter 5 (Streambank and Shoreline Erosion) present technical information about how certain types of NPS pollution can be reduced or eliminated.

Since hydromodification is not associated with localized impacts and solutions, Chapter 6 provides a discussion on the broad concept of assessing and addressing water quality problems on a watershed level. Chapter 7 provides detailed information for practices that can be used to implement the management measures presented in this guidance. Chapter 8 provides a discussion of available models and assessment approaches that could be used to determine the effects of hydromodification activities. Chapter 9 summarizes additional dam removal information, including permitting requirements, process, and techniques for dam removal. The primary goal of this guidance document is to provide technical assistance to states, territories, tribes, local governments, and the public for managing hydromodification and reducing associated NPS pollution.

Document Organization

This document is divided into the following chapters:

- Chapter 1: Introduction
- Chapter 2: Background
- Chapter 3: Channelization and Channel Modification
- Chapter 4: Dams
- Chapter 5: Streambank and Shoreline Erosion

- Chapter 6: Guiding Principles
- Chapter 7: Practices for Implementing Management Measures
- Chapter 8: Modeling Information
- Chapter 9: Dam Removal Requirements, Process, and Techniques
- References Cited
- Additional Resources
- Appendix A: Federal, State, Nonprofit, and Private Financial and Technical Assistance Programs
- Appendix B: U.S. Environmental Agency Contacts

Activities to Control NPS Pollution

Historical Perspective

During the first 15 years of the national program to abate and control water pollution (1972–1987), EPA and the states focused most of their water pollution control activities on traditional point sources, which are stationary locations or fixed facilities from which pollutants are discharged; any single identifiable source of pollution (e.g., a pipe, ditch). EPA and the states have regulated these point sources through the National Pollutant Discharge Elimination System (NPDES) permit program established by section 402 of the Clean Water Act (CWA).⁵ The NPDES program functions as the primary regulatory tool for assuring that state water quality standards are met. NPDES permits, issued by an authorized state or EPA, contain discharge limits designed to meet water quality standards and national technology-based effluent regulations.

In 1987, in view of the progress achieved in controlling point sources and the growing national awareness of the increasingly dominant influence of NPS pollution on water quality, Congress amended the CWA to focus greater national efforts on nonpoint sources.

Federal Programs and Funding

The CWA establishes several reporting, funding, and regulatory programs that address pollutants carried in runoff that is not subject to confinement or treatment. These programs relate to watershed management and nonpoint source control. Readers are encouraged to use the information contained in this guidance to develop nonpoint source management programs/plans that comprehensively address the following EPA programs:

- *Section 319 Grant Program.* Under section 319 of the CWA, EPA awards funds to states and eligible tribes to implement NPS management programs. These funds can be used for projects that address nonpoint source related sources of pollution, including hydromodification.⁶
- *Clean Water State Revolving Fund.* The Clean Water State Revolving Fund (CWSRF) program is an innovative method of financing environmental projects. Under the

⁵ For more information on the NPDES program, refer to EPA's NPDES website at <http://cfpub.epa.gov/npdes>.

⁶ More information about the section 319 program is provided at <http://www.epa.gov/owow/nps/cwact.html>.

program, EPA provides grants or “seed money” to all 50 states plus Puerto Rico to capitalize state loan funds. The states, in turn, make loans to communities, individuals, and others for high-priority water quality activities. As money is paid back into the revolving fund, new loans are made to other recipients. When funded with a loan from this program, a project typically costs much less than it would if funded through the bond market. Many states offer low or no interest rate loans to small and disadvantaged communities. In recent years, state programs have begun to devote an increasing volume of loans to nonpoint source, estuary management, and other water-quality projects. Eligible NPS projects include almost any activity that a state has identified in its nonpoint source management plan. Such activities include projects to control runoff from agricultural land; conservation tillage and other projects to address soil erosion; development of streambank buffer zones; and wetlands protection and restoration.⁷

- *Total Maximum Daily Loads.* Under section 303(d) of the CWA, states are required to compile a list of impaired waters that fail to meet any of their applicable water quality standards. This list, called a 303(d) list, is submitted to Congress every 2 years, and states are required to develop a Total Maximum Daily Load (TMDL) for each pollutant causing impairment for waterbodies on the list.⁸
- *Water Quality Certification.* Section 401 of the CWA requires that any applicant for a federal license or permit to conduct any activity that “may result in any discharge” into navigable waters must obtain a certification from the state or tribe in which the discharge originates that the discharge will comply with various provisions of the CWA, including sections 301 and 303. The federal license or permit may not be issued unless the state or tribe has granted or waived certification. The certification shall include conditions, e.g., “effluent limitations or other limitations” necessary to assure that the permit will comply with the state’s or tribe’s water quality standards or other appropriate requirements of state or tribal law. Such conditions must be included in the federal license or permit.
- *National Estuary Program.* Under the National Estuary Program, states work together to evaluate water quality problems and their sources, collect and compile water quality data, and integrate management efforts to improve conditions in estuaries. To date, 28 estuaries have been accepted into the program. Estuary programs can be an excellent source of water quality data and can provide information on management practices.⁹
- *Safe Drinking Water Act.* Many areas, especially urban fringe areas, need to maintain or improve the quality of surface and ground waters that are used as drinking water sources. This act requires states to develop Source Water Assessment Reports and implement Source Water Protection Programs. Low- or no-interest loans are available under the Drinking Water State Revolving Fund (SRF) Program.¹⁰

⁷ Additional information about CWSRF is available at <http://www.epa.gov/OWM/cwfinance/cwsrf/index.htm>.

⁸ More information on the TMDL program and 303(d) lists is provided at <http://www.epa.gov/owow/tmdl>.

⁹ More information on the National Estuary Program is provided at <http://www.epa.gov/nep>.

¹⁰ More information about the Safe Drinking Water Act and Source Water Protection Programs can be found at <http://www.epa.gov/safewater/sdwa/index.html> and <http://www.epa.gov/safewater/protect.html>.

- *Wildlife Habitat Incentives Program (WHIP)*. WHIP¹¹ is a voluntary program authorized by the Farm Security and Rural Investment Act of 2002 (Farm Bill)¹² that enables landowners to apply for technical and financial assistance to improve wildlife habitat. The program is administered by the Natural Resources Conservation Service (NRCS), which works with private landowners and operators, conservation districts, and federal, state, and tribal agencies to improve terrestrial and aquatic habitats. NRCS and participants work together to create a wildlife habitat development plan that includes a cost-share agreement. Continued assistance after habitat development includes monitoring, review of management guidelines, and technical advice. WHIP funds may also be used for dam removal. Additional information is available from an NRCS WHIP fact sheet.¹³

Two excellent resources for learning more about the CWA and the many programs established under it are *The Clean Water Act: An Owner's Manual* (Killam, 2005) and *The Clean Water Act Desk Reference* (WEF, 1997).

Introduction to Management Measures

Management measures may be implemented as part of state, tribal, or local programs to control nonpoint source pollution for a variety of purposes, including protection of water resources, aquatic wildlife habitat, and land downstream from increased pollution and flood risks. They can be used to guide in the development of a runoff management program. Management measures establish performance expectations and, in many cases, specify actions that can be taken to prevent or minimize nonpoint source pollution from hydromodification activities. Management measures might control the delivery of NPS pollutants to receiving water resources by:

- Minimizing pollutants available (source reduction)
- Retarding the transport and/or delivery of pollutants, either by reducing water transported, and thus the amount of the pollutant transported, or through deposition of the pollutant
- Remediating or intercepting the pollutant before or after it is delivered to the water resource through chemical or biological transformation

Management measures are generally designed to control a particular type of pollutant from specific activities and land uses. The intent of the six management measures in this guidance document is to provide information for addressing and considering the NPS pollution potential associated with hydromodification activities. Implementation of management measures can minimize and control hydromodification NPS pollution through erosion and sediment control, chemical and pollutant control, management of instream and riparian habitat restoration, and protection of surface water quality.

¹¹ <http://www.nrcs.usda.gov/programs/whip>

¹² <http://www.nrcs.usda.gov/programs/farmbill/2002>

¹³ <http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/WHIPFct.pdf>

Activities associated with these management measures may be regulated by federal, state, or local law (e.g., section 404 of the Clean Water Act). These measures do not supersede such requirements. Sometimes regulatory authorities may appear to conflict, as is sometimes the case of the CWA and water use and distribution. CWA sections 101(g) and 510 specifically allow for resolution of the conflict by placing water use and its distribution under the authority of the states, thus protecting any state agreements on “water rights.” Users of this NPS guidance should recognize that the applicability of the guidance provided in this document will remain subject to state statutes, interstate compacts, and international treaties. As such, this guidance does not recommend or require any management measures or practices that hinder a state’s ability to exercise existing water rights, which provide water for municipal, industrial, and agricultural needs. For further information regarding specific state policies on water rights and regulations of water use, contact the appropriate state water agency. Contact information is generally provided on state government Web sites.

This document also lists and describes management practices for each management measure. Management practices are specific actions taken to achieve, or aid in the achievement of, a management measure. A more familiar term might be best management practice (BMP). The word “best” has been dropped for the purposes of this guidance (as it was in the Coastal Management Measures Guidance (USEPA, 1993)) because the adjective is too subjective. The “best” practice in one area or situation might be entirely inappropriate in another area or situation. The practices listed in this document have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measures. EPA recognizes that there is often site-specific, regional, and national variability in the selection of appropriate practices, as well as in the design constraints and pollution control effectiveness of practices. The practices presented for each management measure are not all-inclusive. States or local agencies and communities might wish to apply other technically and environmentally sound practices to achieve the goals of the management measures.

Channelization and Channel Modification (Chapter 3)

Channelization can cause a variety of instream flow changes and may result in the faster delivery of pollutants to downstream areas. Channel modification might result in a combination of harmful effects (higher flows or increased risk of downstream flooding) and beneficial effects (local flood control or enhanced flushing in a stream channel). The management measures for channelization and channel modification are intended to protect waterbodies by ensuring proper planning before a proposed project is implemented. Planning and evaluation can help to identify and prevent local and downstream problems before a project is started. An added benefit of planning and evaluation is to correct or prevent detrimental changes to the instream and riparian habitat associated with the project. Implementation of the management measures can also ensure that operation and maintenance programs for existing projects improve physical and chemical characteristics of surface waters and restore or maintain instream and riparian habitat when possible.

Management Measure 1: Physical and Chemical Characteristics of Surface Water:

Ensure that the planning process for new hydromodification projects addresses changes to physical and chemical characteristics of surface waters that may occur as a result of the proposed work. For existing projects, ensure that operation and maintenance programs use any opportunities available to improve the physical and chemical characteristics of surface waters.

Management Measure 2: Instream and Riparian Habitat Restoration: Correct or prevent detrimental changes to instream and riparian habitat from the impacts of channelization and channel modification projects, both proposed and existing.

Dams (Chapter 4)

Because of their instream locations, any construction activities associated with dams have the potential to introduce sediment and other pollutants into adjacent waterbodies. Construction activities, chemical spills during dams operation or maintenance, and changes in the quantity and quality of water held and released by a dam may alter the nature of the waterbody. The management measures for dams are intended to be applied to the construction of new dams, as well as any construction activities associated with the maintenance of existing dams. They can also be applied to dam operations that result in the loss of desirable surface water quality, and instream and riparian habitat.

Management Measure 3: Erosion and Sediment Control: Prevent sediment from entering surface waters during the construction or maintenance of dams.

Management Measure 4: Chemical and Pollutant Control: Prevent downstream contamination from pollutants associated with dam construction and operation and maintenance activities.

Management Measure 5: Protection of Surface Water Quality and Instream and Riparian Habitat: Protect the quality of surface waters and aquatic habitat in reservoirs and in the downstream portions of rivers and streams that are influenced by the quality of water contained in the releases (tailwaters) from reservoir impoundments.

Streambank and Shoreline Erosion (Chapter 5)

NPS pollution might result from the rapid increase in erosion of streambanks caused by increased flow rates associated with urbanization in a watershed. Not only is the land adjacent to these eroding streambanks unnaturally carried away, but these eroded soils are carried downstream and deposited in often undesirable locations. Shorelines erode more severely as the result of poorly planned and implemented shoreline protection projects located nearby. Habitats can be buried and wetlands can be filled. As runoff upstream increases, more erosion results on downstream streambanks. The streambank and shoreline erosion management measure promotes the necessary actions required to correct streambank and shoreline erosion where it must be controlled. Because erosion is a natural process, this management measure is not intended to be applied to all erosion occurring on streambanks and shorelines.

Management Measure 6: Eroding Streambanks and Shorelines: Protect streambanks and shorelines from erosion and promote institutional measures that establish minimum setback requirements or measures that allow a buffer zone to reduce concentrated flows and promote infiltration of surface water runoff in areas adjacent to the shoreline.

Channelization and channel modification and dams represent forms of hydromodification that are direct results of human activities—someone performs a construction activity directly in or along a stream, river, or shoreline. For example, a town constructs concrete lined channels along a stream passing through the city limits to reduce stream meandering and prevent flooding. Another example is the construction (many years ago) of a dam in a stream for hydropower at a grist mill. Streambank and shoreline erosion are forms of hydromodification that result from direct and indirect human activities. For example, a streambank is eroding at a much faster rate because of recent development activities on shore that result in increased runoff, which is causing increased bank erosion. Another example is a concrete seawall that is protecting property at one location, but causing increased erosion on adjacent properties.

This distinction between forms of hydromodification and impacts from hydromodification is important when contrasting the relationship between Chapter 3 (Channelization and Channel Modification) and Chapter 5 (Streambank and Shoreline Erosion). Many of the operation and maintenance solutions presented in Chapter 3 are also practices that can be used to stabilize streambanks and shorelines as presented in Chapter 5. For example, a stream channel that has been hardened with vertical concrete walls to prevent local flooding and limit the stream to its existing channel (to protect property built along the stream channel), may benefit from operation and maintenance practices that use opportunities to replace the concrete walls with an appropriate vegetative or combined vegetative and non-vegetative structures along the streambank when possible. These same practices may be applicable to stabilize downstream streambanks that are eroding and creating a nonpoint source pollution problem because of the upstream development and hardened streambanks.

Chapter 2: Background

There are differing views on defining the stability of a stream channel and other waterbodies. From a navigation perspective, a stream channel is considered stable if shipping channels are maintained to enable safe movement of vessels. Landowners with property adjacent to a stream or shoreline might consider the waterbody to be stable if it does not flood and erosion is minimal. Ecologists might find some erosion of streambanks and meandering channels to be a part of natural evolution (i.e., changes that are not induced by humans) and consider long-term changes like these to be quite acceptable (Watson et al., 1999). In any case, new and existing channelization projects, construction and maintenance of dams, and streambank and shoreline erosion problems should be evaluated with these differing perspectives in mind and a balance of these perspectives should be taken into account when constructing or maintaining a project. Often, multiple priorities can be maintained with good up-front planning and communication among the different stakeholders involved.

Key Geomorphic Functions of Streams

Discharge, Slope, and Sinuosity

Figure 2.1 is a cross-section of a typical stream channel. The thalweg is the deepest part of the channel. The sloped bank is known as the scarp. The term discharge is used to describe the volume of water moving down the channel per unit time (usually described in the United States as cubic foot per second (cfs)). Discharge is the product of the area through which the water is flowing (in square feet) and the average velocity of the water (in feet per second). If discharge in a channel increases or decreases, there must be a corresponding change in streamflow velocity and/or flow area.

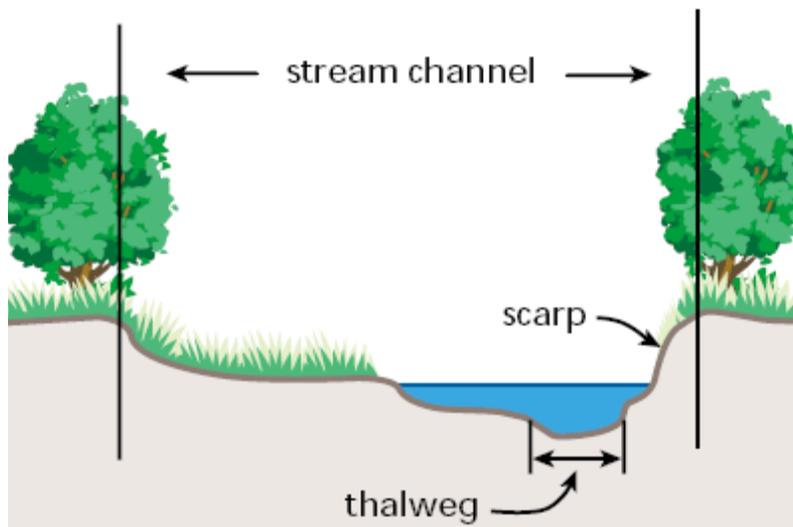


Figure 2.1 Cross-section of a Stream Channel (FISRWG, 1998)

Channel slope is an especially key concept when dealing with hydromodification projects. It is the difference in elevation between two points in the stream divided by the stream length

between the two points. Stream sinuosity greatly affects stream slope. Sinuosity is the stream length between two points on a stream divided by the valley length between the two points. A meandering stream moving through a valley has a lower slope than a straight stream.

Erosion, Transport, and Deposition of Sediment

All streams accomplish three basic geomorphic tasks:

- *Erosion*—the detachment of soil particles along the stream bed and banks
- *Sediment transport*—the movement of eroded soil particles in streamflow
- *Sediment deposition*—the settling of eroded soil particles in the water or on land as water recedes

These processes largely determine the size and shape of the channel, both laterally and longitudinally. The ability to accomplish these geomorphic tasks is related to stream power, the product of slope and discharge. Slope directly affects flow velocity. Consequently, a shallow, meandering stream with low slope generates less stream power, and has lower erosion and sediment-transport capacity, than a deep, straight stream.

In addition to sinuosity, roughness along the boundaries of a stream area is also important in determining streamflow velocity and stream power. The rougher the channel bottom and banks, the more they are able to slow down the flow of water. The level of roughness is determined by many conditions including:

- Type and spacing of bank vegetation
- Size and distribution of sediment particles
- Bedforms
- Bank irregularities
- Other miscellaneous obstructions

Tractive stress, also known as shear stress, describes the lift and drag forces that work to create erosion along the stream bed and banks. In general, the larger the sediment particle, the more stream power is needed to dislodge it and transport it downstream. When stream power decreases in the channel, larger sediment particles are deposited back to the stream bed.

Dynamic Equilibrium

One of the primary functions of a stream is to move particles out of the watershed. Erosion, sediment transport, and deposition occur all the time at both large and small scales within a channel. A channel is considered stable when the average tractive stress maintains a stable streambed and streambanks. That is, sediment particles that erode and are transported downstream from one area are replaced by particles of the same size and shape that have originated in areas upstream. Lane (1955) qualitatively described this relationship as:

$$Q_s * D \propto Q_w * S$$

Where: Q_s = Sediment discharge, D = Sediment particle size, Q_w = Streamflow, S = Stream slope

When all four variables are in balance, the channel is stable, or in dynamic equilibrium.

Lane's channel variable relationships can be visualized as a pan balance with sliding weights (Figure 2.2). Sediment discharge is placed on one pan and streamflow on the other. The hook holding the sediment load pan can slide back and forth based on changes in sediment size. Likewise, the hook holding the streamflow pan can slide according to changes in slope.

If a disturbance or stream modification occurs that causes a variable to change, one or more of the other variables must change in order to maintain the balance. During an imbalanced phase, the scale indicator will point to either degradation or aggradation. This indicates that the channel will try to adjust and regain equilibrium by either increasing sediment discharge by scouring the bottom or eroding its banks (degradation) or decreasing sediment discharge by depositing sediment on the bottom (aggradation), depending on the circumstance.

For example, if stream slope is decreased and streamflow remains the same (i.e., streamflow pan slides toward the center), the balance will tip and aggradation will occur (Figure 2.3). Alternatively, if streamflow increases and slope remains the same (i.e., more weight on the streamflow pan), degradation will occur. No matter the scenario, this basic relationship between the variables will hold true and aggradation or degradation will cease only when the system reaches equilibrium. This can occur naturally over time, or through management practices designed to deal with the "balancing" issue.

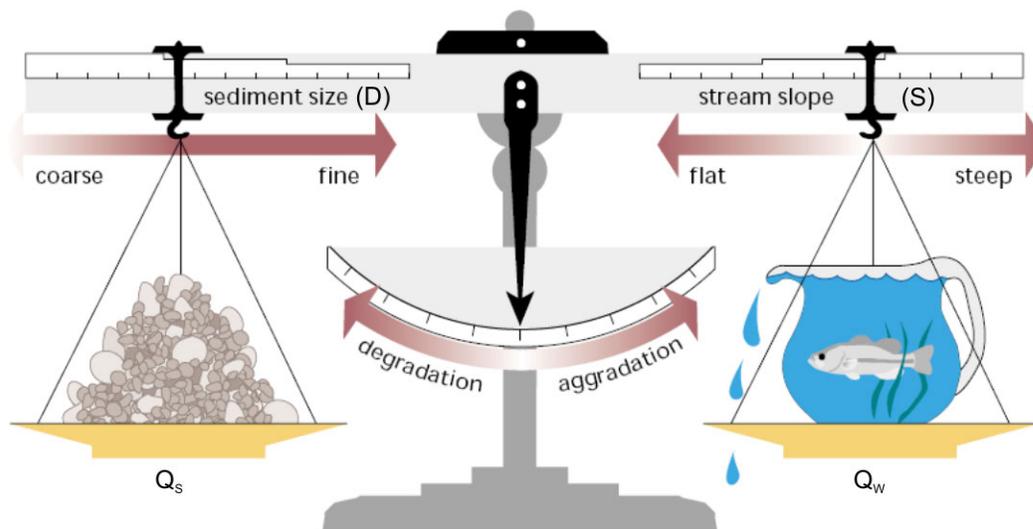


Figure 2.2 Factors Affecting Channel Degradation and Aggradation (FISRWG, 1998)

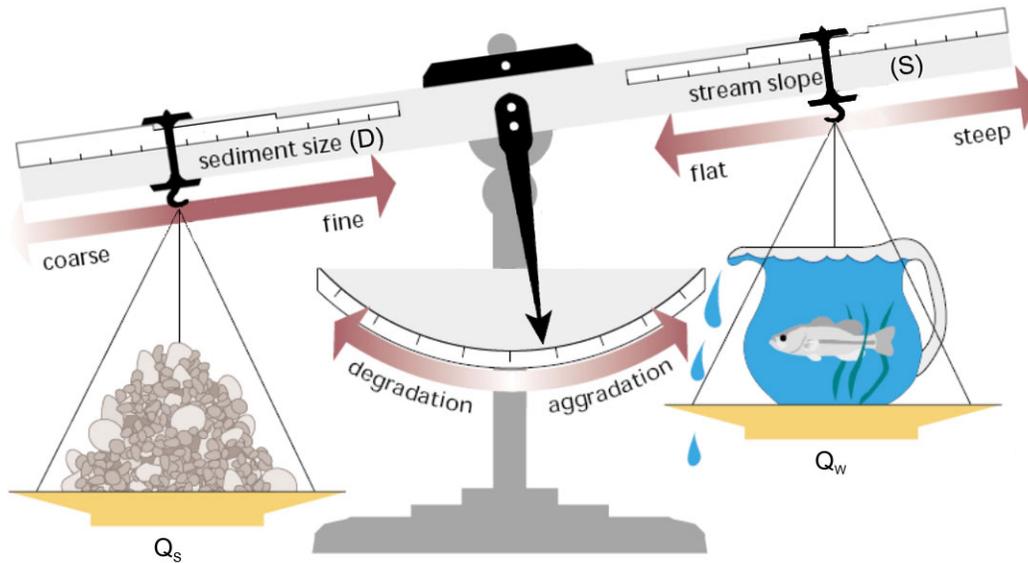


Figure 2.3 Example of Aggradation (Adapted from FISRWG, 1998)

Longitudinal View of Channels

The geomorphic processes that define the size and shape of channels can be observed in large and small scale longitudinal views. The overall longitudinal view of many streams can be divided into three general zones (Schumm, 1977):

- *Headwater zone*—characterized by steep slopes with sediment erosion as the most dominant geomorphic process.
- *Transfer zone*—characterized by more sinuous channel patterns and wider floodplains with sediment transfer as the most dominant geomorphic process.
- *Deposition zone*—characterized by lower slope and higher channel sinuosity than the other zone and is the primary deposition area for watershed sediment.

Key characteristics of each zone are summarized in Figure 2.4.

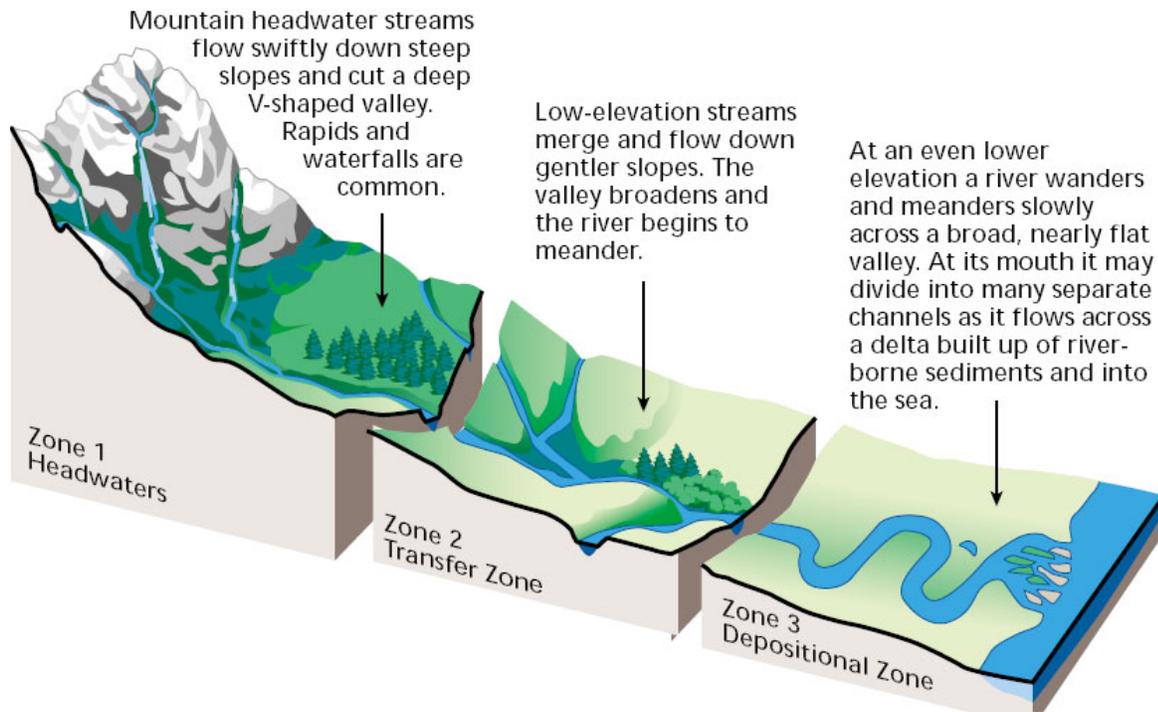


Figure 2.4 Three Longitudinal Profile Zones (FISRWG, 1998)

At a smaller scale, natural-forming channels are usually characterized by a series of riffles, pools, and runs. These structures are primarily associated with the thalweg, which meanders within the channel (Figure 2.5).

Riffles are shallow, turbulent, and swiftly flowing stretches of water that flow over partially or totally submerged rocks. Deeper areas at stream bends are the pools and can be classified as large-shallow, large-deep, small-shallow, and small-deep. Runs are the sections of a stream with little or no surface turbulence that connect pools and riffles.

The distribution in streamflow velocity and stream power throughout the riffle/pool/run sequence impact the geomorphic tasks. The stream bottom of a riffle is at a higher

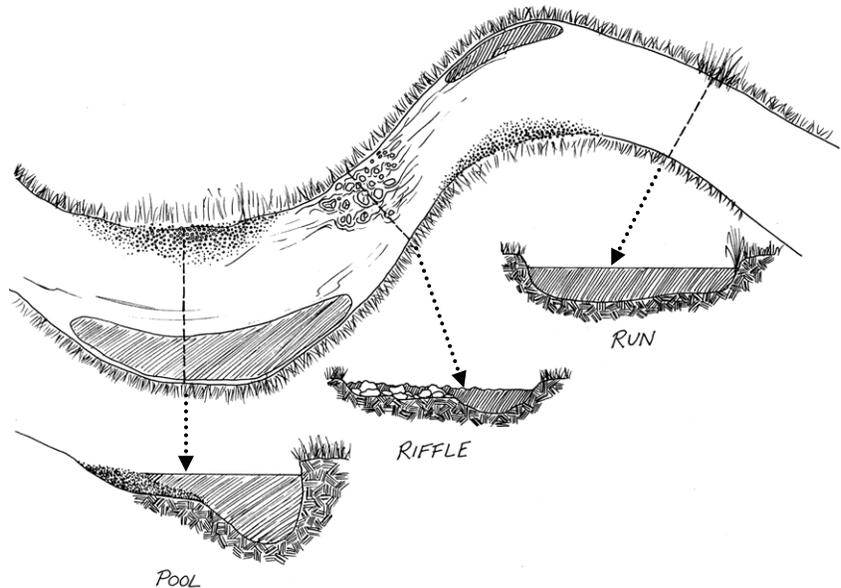


Figure 2.5 Overview of a Pool, Riffle, and Run (USEPA, 1997b)

elevation than the stream areas surrounding it. Consequently, the water flowing in a run from riffle to pool has the highest velocity near the center of the channel just under the surface (i.e., away from the roughness associated with channel boundaries). On reaching a bend, angular momentum forces the highest velocity flow to the outside of the bend and, given enough tractive stress, causes erosion to the bank (cutbanks). Meanwhile on the inside of the bend deposition often occurs because of decreasing flow velocity. Importantly, these and other characteristics of the riffle/pool/run sequence create unique habitats which allow different species to live, reproduce, and feed.

Disruption of Dynamic Equilibrium

Changes caused by (or exacerbated by) hydromodification projects and other human activities can lead to a disruption of the dynamic equilibrium of the stream channel. If, for example, a modification occurs that causes a change in sediment discharge, channel slope, or streamflow, one or more of the other variables will be imbalanced and the channel will usually try to adjust and regain equilibrium by either increasing sediment discharge by scouring the bottom or eroding its banks (degradation) or decreasing sediment discharge by depositing sediment on the bottom (aggradation) (Biedenharn et al., 1997; Watson et al., 1999). In some cases, alterations to a stream channel can result in local or system-wide channel instability (FISRWG, 1998).

General Impacts of Channelization and Channel Modifications

Channelization and channel modifications are undertaken for many purposes including flood control, navigation, drainage improvement, and reduction of channel migration potential. Modifications also occur in association with the installation of culverts and bridges, urbanization of the watershed, and agricultural drainage. These changes may result in several physical and chemical impacts.

Physical Impacts

The most significant physical impact of channelization and channel modifications is the movement or deposition of sediment. Sediment erodes from stream banks and beds, is washed downstream in faster moving water, deposited in areas of slower flows, and transported into new areas of streams or other receiving waters. Critical habitat can be changed when channelization or channel modification projects alter the dynamic equilibrium of a stream and change sediment transport or deposition characteristics. Re-establishing equilibrium may take some time to occur and have long-lasting effects to habitat and water quality conditions.

Channel modification and channelization can lead to increased erosion in some areas of the stream, which produces sediment. Sediment can be dislodged and transported directly from the waterbody's shoreline, bank, or bottom. Sediment being transported by a stream is referred to as the sediment load, which is further classified as the bed load (those particles moving on or near the bed, or bottom of the channel) and the suspended load (those particles moving in the water column). Hydromodification typically results in more uniform channel cross-sections, steeper stream gradients, and reduced average pool depths.

An increase in the sediment load could lead to increased turbidity, which then may cause an increase in stream temperature because the darker sediment particles absorb heat (USEPA, 1997b). Changes in water temperature can influence several abiotic chemical processes, such as dissolved oxygen concentrations, sorption of chemicals onto particles, and volatilization rates. Water temperature influences reaeration rates of oxygen from the atmosphere. Dissolved oxygen concentrations in water are inversely related to temperature; solubility of oxygen decreases with increasing water temperature. In addition, sorption of chemicals to particulate matter and volatilization rates are influenced by changes in water temperature. Sorption often decreases with increasing temperature and volatilization increases with increasing temperature (University of Texas, 1998).

An increased sediment load that contains significant organic matter can increase the sediment oxygen demand (SOD). The SOD is the total of all biological and chemical processes in sediment that consume oxygen (USEPA, 2003a). These processes occur at or just below the sediment-water interface. Most of the SOD at the surface of the sediment is due to the biological decomposition of organic material and the bacterially facilitated nitrification of ammonia, while the SOD several centimeters into the sediment is often dominated by the chemical oxidation of species such as iron, manganese, and sulfide (Walker and Snodgrass, 1986 from USGS, 1997; Wang, 1980). Increases in SOD can lead to lower levels of dissolved oxygen, which can be harmful to aquatic life.

A channel that is deepened or widened can result in slower and/or shallower flow. Reduced stream velocities can result in more sediment deposits to a stream segment. When more sediment is deposited in an area of a stream, critical habitats can be buried, channels may become unstable, and flooding increases. In tidal areas, channel modification activities, such as deepening a channel to allow for larger ships to access a shoreline, may require frequent maintenance to remove accumulating sediment because of changes in flow patterns.

Chemical Impacts

A variety of chemicals can be introduced into surface waters when channelization and channel modification activities alter flow and sediment transport characteristics. Nutrients, metals, toxic organic compounds, pesticides, and organic materials can enter the water in eroding soils along banks and move throughout a stream as flow characteristics change. Changing temperatures and dissolved oxygen levels may lead to alterations in the bioavailability of metals and toxic organics. Complex chemical conditions can significantly change when stream flow and sedimentation characteristics change, resulting in new and/or potentially harmful forms of chemicals affecting instream or benthic organisms.

It is important to remember that many of the physical and chemical changes are interrelated. For a more detailed discussion of the impacts associated with chemical and physical changes to surface waters, see *Restoration of Aquatic Ecosystems* (NRC, 1992). The following discussion provides examples of impacts that may be present as a result of different kinds of channelization. For a more detailed discussion of types of channelization projects and potential impacts, see Watson et al. (1999).

Biological and Habitat Impacts

Pools, riffles, and runs create a mixture of flows and depths and provide a variety of habitats to support fish and invertebrate life (USEPA, 1997b). The shallow, turbulent, and swiftly flowing stretches of riffle water are well oxygenated and have a “patchy distribution of organisms,” which means that different types of organisms are naturally found in different parts of the riffle. Pools can also be large or small and shallow or deep and support a wide variety of aquatic species. Sediments can deposit in pools, which can lead to the formation of islands, shoals, or point bars.

Changes in habitat and biological communities following hydromodification of a channel can be highly site-specific and complex. The physical and chemical alterations resulting from channelization impact various habitats and biological communities, including instream algae, fish, macroinvertebrate populations, and bank or floodplain vegetation. Mathias and Moyle (1992) compared unchannelized and channelized sections of the same stream and found a much higher diversity of many organisms, including aquatic invertebrates, fish, and riparian vegetation, in the unchannelized sections of the stream. Adams and Maughan (1986) compared the benthic community in a small headwater stream, prior to and after channelization. They found that the pathways of organic input shifted from materials associated with leaf fall and runoff to materials associated with periphyton production. Accompanying this change was a shift of the assemblage from shredder domination to grazer domination and a decrease in diversity. Biological and habitat impacts caused by channelization can result from increased stream velocity, decreases in pool and riffle habitat complex, decrease in canopy cover, increase in the solar radiation reaching the channel, channel incision, and increases in sediment.

Channelization of a stream may increase velocity due to increased channel slope and decreased friction with the bank and bed material. Changes in the velocity may cause an impact to organisms within the channel. For example, fish may have to expend more energy to stay in swifter currents and their source of food may be swept downstream. Studies have demonstrated that fisheries associated with channelized streams can be far less productive than those of non-channelized streams (Jackson, 1989). Increased rates of erosion as a result of increased velocities downstream of a channelization feature can also create unstable streambanks, which could lead to increased streambank erosion, higher risks of flooding, and ultimately negative impacts to aquatic organisms.

Channelization can result in a more uniform stream channel that is void of the pool and riffle habitat complex or obstructions, such as woody debris inputs. As repeatedly observed, this can result in changes to the biological community. Negishi et al. (2002) observed a decrease in the total density of macroinvertebrates in the middle of a channelized stream and a decrease in taxon richness in the middle and edge of a channelized stream. An overall reduction in habitat heterogeneity is likely responsible for the reduction in species diversity and the increased abundance of those species favored by the altered flows that is typically observed (Allan, 1995). On medium-sized, unregulated rivers, Benke (2001) found that habitat-specific invertebrate biomass was highest on snags, followed by the main channel and then the floodplain. It was concluded that invertebrate productivity from these habitats has likely been significantly diminished as a result of snag removal, channelization, and floodplain drainage (Benke, 2001).

The survival of the Gulf Coast walleye (*Stizostedion vitreum*) relies on the availability of appropriate spawning habitat, such as large woody debris, that locally reduce current velocity. Channelization and the removal of structures have been identified as activities of concern that could threaten the survival of the species (VanderKooy and Peterson, 1998). In one experiment, an assessment of water quality using environmental indices, such as macroinvertebrate communities, found that channelization and deforestation resulted in a completely different and less varied biocommunity (Bis et al., 2000). A lower persistence of the macroinvertebrate assemblage in the channelized stream was attributed to the lower availability of flow such as backwaters and inundated habitats (Negishi et al., 2002). In a study by Kubecka and Vostradovsky (1995), low fish populations were attributed to channelization of the riverbed.

The channelization of a river can also result in a decrease in canopy cover and an increase in the solar radiation reaching the channel. Bis et al. (2000) found that an increase in incident radiation on a river resulted in increased algal productivity and a significant decrease in scrapers, a macroinvertebrate that feeds on periphyton or algae growing on plant surfaces. Increased water temperatures can also lead to a shift in the algal community to predominately planktonic algal communities, which disrupts the aquatic food chain (Galli, 1991). The combination of increased water temperatures and loss of riparian vegetation falling into the stream (which provides both food and cover) may be responsible for the decrease in macroinvertebrates. Increased solar radiation on a channelized stream can act to decrease productivity by reaching the level of photoinhibition; a decrease in productivity due to excessive amounts of solar radiation. The temperature of the water can also be increased to the extent that it adversely impacts organisms. Elevated temperatures disrupt aquatic organisms that have narrow temperature limits, such as trout, salmon, and many aquatic insects.

Incision of a channel, a common impact of channelization, disconnects the channel from the floodplain by lowering the riverbed relative to the floodplain and decreasing the occurrence of overbank flow. Channel incision or downcutting has rarely been found to directly affect the biotic ecosystem, but indirect changes in habitat conditions are significant. Channel incision decreases habitat heterogeneity and, as a result, biodiversity (Tachet, 1997). An analysis of forest overstory, understory, and herbaceous strata along a channelized and unchannelized stream showed that there was a difference in terms of size-class structure and woody debris quantity (Franklin et al., 2001). Loss of woody vegetation along riparian zones on a channel that is incised because of upstream channelization was attributed to a decrease in over bank flooding and a lowering of the water table as the stream became incised (Steiger et al., 1998). A comparison of a regulated and an unregulated river in Colorado's Green River Basin found a difference in riparian vegetation composition. The regulated river supported banks with wetland species that survive in anaerobic soils and terraces with desert species adapted to xeric soil conditions. The unregulated river supported riparian vegetation that changed along a more gradual environmental continuum from a river channel to a high floodplain (Merritt and Cooper, 2000).

Sediment affects the use of water in many ways. When the rate of erosion changes, transport and deposition of sediment also changes. Excessive quantities of sediment can bury benthic organisms and the habitat of fish and waterfowl. Suspended solids in the water reduce the amount of sunlight available to aquatic plants, cover fish spawning areas and food supplies, fill

rearing pools, reduce beneficial habitat structure in stream channels, smother coral reefs, clog the filtering capacity of filter feeders, and clog and harm the gills of fish. Those fish species that rely on visual means to get food may be restricted by increased turbidity. Sedimentation effects combine to reduce fish, shellfish, coral, and plant populations and decrease the overall productivity of lakes, streams, estuaries, and coastal waters.

Impacts Associated with Specific Hydromodification Actions

Channel Straightening and Deepening

Channels are straightened for a multitude of reasons, such as directing water away from a particular structure or area and reducing local flooding. Channelization that involves straightening of the stream channel increases the slope of the channel, which results in higher discharge velocities. Impacts associated with increased water velocities include more streambank and streambed erosion, higher sediment loads, changes in pools, riffle, and run structure, and increased transport of nutrients and other pollutants (FISRWG, 1998; Simons and Senturk, 1992).

Channelization can also result in alterations to the base level of the stream, including channel downcutting or incision of a section of the stream, which raise the height of the floodplain relative to the riverbed and decrease the frequency of overbank flow. When streams reach flood stage and flow into the floodplain, velocities decrease. The reduction in overbank flow reduces sediment deposition and the sediment storage potential of the floodplain (Wyzga, 2001). A change in the downstream base level of a stream can create an unstable stream system (Biedenharn et al., 1997).

Headcutting is the deepening of a waterway caused by channelization or localized stream-bed mining. Headcutting severely impacts the physical integrity of a stream, as streambanks become unstable and are more prone to eroding and sloughing. Bank failures may result, removing streamside vegetation and introducing significant amounts of sediment into the waterway. As sediments build on the stream bottom, natural substrate is covered and stream depth decreases. Water quality often diminishes as temperatures rise due to less shading by riparian vegetation and increased water surface area with decreased depth. The rapid alteration to stream habitat caused by headcutting is usually detrimental to aquatic wildlife. Various organizations, such as the U.S. Army Corps of Engineers, the Natural Resources Conservation Service (NRCS), and the Missouri Department of Conservation, are involved in projects to reduce headcutting (CSU, n.d.; MDC, 2007; USGS, 2000).

Channel Lining

The sides of channels can be lined with materials such as metal sheeting, concrete, wood, or stone to prevent erosion of a particular section of stream channel or stream bank. The artificially lined areas can reduce the friction between the channel and flowing water, leading to an increase in velocity. The increased velocity and thus the increased erosive potential of the flowing water are not able to erode the artificially lined channel area and can result in augmented erosion downstream as well as increased downstream flooding (Brookes, 1998). Lining the channel also removes aquatic habitat and important substrates that are essential to aquatic life.

Channel Narrowing

Narrowing of a stream channel often occurs when flood control measures such as levees and floodwalls are implemented. By narrowing a stream channel, the water is forced to flow through a more confined area and thus travels at an increased velocity (FISRWG, 1998). The increased velocity in turn increases the stream's erosive potential and ability to transport sediment. This can lead to increased erosion of the streambank and shoreline in downstream locations.

When a channel is made narrower, the water depth increases and the surface area exposed to the solar radiation and ambient temperature decreases, especially in the warmer months. This can cause a decrease in the water temperature. Increased depth may also reduce the surface area of the water in contact with the atmosphere and affect the transfer of oxygen into the water.

In a naturally flowing stream, floods are responsible for such processes as redistributing sediment from the river bottom to form sandbars and point bar deposits. Stream channel modifications to reduce flood damage, such as levees and floodwalls, often narrow the stream width, increasing the velocity of the water and thus its erosive potential. This can lead to increased erosion of the streambank and shoreline in downstream locations (FISRWG, 1998).

Channel Widening

Channel widening is often performed to increase a channel's ability to transport a larger volume of water. The design is often based on volumes of water that occur during flood events. The design of a channel modification project to increase the channel's ability to transport a large volume of water will determine the characteristic of the water flow. The widening of a channel can result in a channel with a capacity to transport water that far exceeds the typical daily discharge. This results in a typical flow that is shallow and wide. As a result of increased contact with the streambed and streambank, there is increased friction and a decreased water velocity. The decrease in velocity causes sediment to settle out of the water column and accumulate within the stream channel. This accumulation of sediment can decrease the capacity of the stream channel. The decreased depth and increased surface area of the water exposed to solar radiation and ambient air temperatures can lead to an increase in water temperature. A change in water temperature can influence dissolved oxygen concentrations as dissolved oxygen solubility decreases with increasing water temperature.

Where tidal flow restrictors cause impoundments, there may be a loss of streamside vegetation, disruption of riparian habitat, changes in the historic plant and animal communities, and decline in sediment quality. Restricted flows can impede the movement of fish or other aquatic life. Flow alteration can reduce the level of tidal flushing and the exchange rate for surface waters within coastal embayments, with resulting impacts on the quality of surface waters and on the rates and paths of sediment transport and deposition.

Culverts and Bridges

The presence of culverts and bridges along a channel can have an impact on the physical and chemical qualities of the water. A culvert can be in the form of an arch over a channel or a pipe that encircles a channel, and it functions to direct flow below a roadway or other land use. A culvert or the supports of a bridge can confine the width of a channel forcing the water to flow in a smaller area and thus at a higher velocity. Impacts associated with a higher flow velocity

include increased erosion. An arch culvert maintains the natural integrity of the stream bottom. In addition, as compared with the natural substrate that can be found using an arch culvert without concrete inverts (floors), a pipe culvert may create less friction with the water flow and result in an increased flow velocity. The chemical and physical changes associated with increased erosion and sediment transport capacity would then result.

The culvert acts as a fixed point with a fixed elevation within the stream channel and as the stream attempts to adjust over time, the culvert remains stationary. Placement of this type of structure disturbs the natural equilibrium of a channel. A culvert sometimes may have beneficial attributes when it acts as a grade control structure, and as such, may serve to prevent upstream migrating incision (headcutting) from moving further up the channel. Depending on the watershed processes, the culvert may act to preserve the natural equilibrium of a channel.

Urbanization

As humans develop watersheds, the proportions of pervious and impervious land within the watershed change (most often increasing impervious areas and decreasing pervious areas). Development also results in reductions in vegetative cover in exchange for increases in houses, buildings, roads, and other non-vegetative cover. The result is a change in the fate of water from rainfall events. Generally, as imperviousness increases and vegetative cover is lost:

- Runoff increases
- Soil percolation decreases
- Evaporation decreases
- Transpiration decreases

Increased volumes of runoff resulting from some types of watershed development can result in hydraulic changes in downstream areas including bank scouring, channel modifications, and flow alterations (Anderson, 1992; Schueler, 1987). The resulting changes to the distribution, amount, and timing of flows caused by flow alterations can affect a wide variety of living resources. As urbanization occurs, changes to the natural hydrology of an area are inevitable. During urbanization, pervious spaces, including vegetated and open forested areas, are converted to land uses that usually have increased areas of impervious surface, resulting in increased runoff volumes and pollutant loadings. Hydrologic and hydraulic changes occur in response to site clearing, grading, and change in landscape. Water that previously infiltrated the ground and was slowly released runs off quickly into stream networks. Development, with corresponding increases in imperviousness, can lead to:

- Increased magnitude and frequency of bankfull and subbankfull floods
- Dimensions of the stream channel that are no longer in equilibrium with its hydrologic regime
- Enlargement of channels
- Highly modified stream channels (from human activity)
- Upstream channel erosion that contributes greater sediment load to the stream
- Reduced dry weather flow to the stream
- Decreased wetland perimeter of the stream
- Degraded in-stream habitat structure

- Reduced large woody debris
- Increased stream crossings and potential fish barriers
- Fragmented riparian forests that are narrower and less diverse
- Decline in water quality
- Increased summer stream temperatures
- Reduced aquatic diversity

The hydraulic changes associated with urbanization have often been addressed with channelization and channel modification as a solution. Evaluating impacts from urbanization on a watershed scale and planning solutions on the same watershed scale can often prevent the transference of upstream problems to downstream locations. There are a variety of management activities that can reduce the impacts associated with urban development. When these urban impacts are reduced, additional hydromodification impacts, such as channelization and channel modification or streambank and shoreline erosion effects, may be reduced. Changes in urban development practices that result in reduced sediment in runoff can enhance reservoir quality and lessen the need for management activities to reduce nonpoint source impacts associated with the operation of dams.¹

Agricultural Drainage

Some activities, including channelization and channel modification, that take place within a watershed, can lead to unintended adverse effects on watershed hydrology. Even when the intended effect of the watershed activity is to reduce pollution or erosion for an area within a watershed, the impact of the project to the entire watershed's hydrology should be evaluated. Since hydrology is important to the detachment, transport, and delivery of pollutants, better understanding of these effects can lead to reduction of nonpoint source pollution problems (USEPA, 2003b).

One example of an activity that has been shown to provide localized nonpoint source benefits, but can negatively affect the hydrology of a watershed, is an agricultural drainage system. The main purpose of agricultural drainage is to provide a root environment suitable for plant growth, but it can also be used as a means of reducing erosion and improving water quality. Despite the localized positive effects of drainage, when drainage water is poor in quality or contains elevated levels of pollutants, adverse impacts may occur downstream within a watershed. Concentrations of salts, nutrients, and other crop-related chemicals, such as fertilizers and pesticides can damage downstream aquatic ecosystems. Many agricultural drainage systems include drain tiles placed strategically throughout a field to create a network of gravity fed drains. The drain tiles empty into a collection pipe that drains to a waterbody nearby. With the drain system in place and operating, water will leave the affected area quicker and at one or more focused points. Water from the drainage system may erode the banks of unlined surface drains, contribute to flashier runoff events in the receiving water or downstream, and increase the load of sediment in drainage water (USEPA, 2003b).

¹ For additional information on hydrologic problems associated with urbanization and management practices that address urbanization issues, refer to *National Management Measures to Control Nonpoint Source Pollution from Urban Areas* (USEPA, 2005d): <http://www.epa.gov/owow/nps/urbanmm/index.html>.

Because of these adverse effects, drainage planners should analyze effluents from these systems for nutrients and pesticides to determine possible downstream impacts. Care should also be taken with drainage water so that it does not negatively alter the hydrology of a watershed (FAO, 1997). The degree to which management activities, such as agricultural drainage systems, affect watersheds beyond their intended purpose should be evaluated. In some cases, a thorough assessment and thoughtful discussion with key stakeholders is enough to evaluate the potential impacts of a project on hydrology. However, in many instances, some form of modeling is probably needed to integrate various small and large impacts of watershed activities. For more information on agricultural drainage and management practices related to agricultural drainage, refer to *National Management Measures for the Control of Nonpoint Pollution from Agriculture* (USEPA, 2003b).²

Shorelines

A shoreline is defined as the areas between low tide and the highest land affected by storm waves. The shape and position of shorelines are constantly being modified by the processes of erosion and deposition by waves and currents (Tarbuck and Lutgens, 2005). NOAA's Coastal Services Center defines shoreline as "the line of contact between the land and a body of water. On Coast and Geodetic Survey nautical charts and surveys the shoreline approximates the mean high water line" (NOAA, 2006).

The shoreline can be divided into three major areas:

- 1) *Coast*—the land inland from the base of the sea cliff (produced by the undercutting of bedrock at sea level by wave erosion).
- 2) *Beach (shore)*—the area between low tide level and dunes, sea cliff, or permanent vegetation. This can be separated into backshore and foreshore.
- 3) *Offshore*—the area continuously underwater, which can include a wave build platform.

Shoreline Processes

As mentioned above, the shape and position of shorelines are constantly modified by erosion and deposition by waves and currents. Waves are agents of erosion, transportation, and deposition of sediments. Waves can be formed by the following processes (Tulane University, n.d.; University of Alabama, 2006):

- *Wind-generated waves*—formed by shear stress between water and air when the wind speed is higher than about 3 km/hr. Factors that determine the size of waves are wind velocity, wind duration, and fetch (distance the wind blows over a continuous water surface).
- *Displacement of water*—can be caused by activities such as landslides.
- *Displacement of seafloor*—can be caused by faulting and volcanic eruptions.

² Available online at: <http://www.epa.gov/owow/nps/agmm/index.html>.

Wave refraction occurs where wave fronts approach the shore at an angle, but are bent to become more parallel to the shoreline by frictional drag on the bottom. The part of the wave in shallow water slows down because of bottom friction, while the part in the deep water keeps moving at regular speed. Wave refraction causes headland erosion and deposition in bays (Tulane University, n.d.; University of Alabama, 2006).

Nearshore currents occur in the area from the shoreline to beyond the surf zone and consist of (Tulane University, n.d.; University of Alabama, 2006):

- *Longshore currents* move parallel to shore in the same general direction as the approaching waves. They are produced by the movement of oblique waves in the surf zone, and can transport large amounts of sediment by longshore drift.
- *Rip currents* are strong, narrow currents of surface water that flow seaward through the surf into deeper water. The currents develop in areas with lower wave heights (deeper water depths).

Deposition and Erosion

Wave erosion and rivers that open into the ocean or lakes can deposit sediment, transported by longshore currents, developing the following depositional features (Tulane University, n.d.; University of Alabama, 2006):

- 1) *Beaches*—Any strip of sediment that extends from the low-water line inland to a cliff or zone of permanent vegetation, which is built of material eroded by waves from the headlands, and material brought down by rivers that carry the products of weathering and erosion from the land masses. Beaches are protected from the full force of water waves but are continually modified by wave and current erosion.
- 2) *Spits*—A narrow ridge or embankment of sediment forming a finger-like projection from the shore into the open ocean. Spits typically develop when the sediment being carried by long-shore drift is deposited where water becomes deeper, such as the mouth of a bay.
- 3) *Baymouth bars*—Sand bars that form as a result of longshore drift and completely cross a bay, sealing it off from the open ocean.
- 4) *Tombolo*—A ridge of sand that connects two islands or an island with the mainland, formed as the result of wave refraction around an island.
- 5) *Tidal inlet*—A break in a spit or baymouth bar, caused by storm erosion, through which tidal currents rush.
- 6) *Barrier islands*—Low offshore ridges of sediments that parallel the coast and are separated from the mainland by lagoons.

Wave erosion can also wear away land features, causing the following types of features to form (Tulane University, n.d.; University of Alabama, 2006):

- 1) *Sea cliffs*—formed by storm wave erosion which undercuts higher land, making it susceptible to mass wasting. Sea cliffs can erode very slowly or rapidly, depending on the rock type and wave energy.
- 2) *Wave-cut terrace or platform*—produced by the retreat of a sea cliff which slopes gently in a seaward direction.

- 3) *Headlands*—occur due to the seaward projections of shore eroded by wave refraction.

Common Natural and Anthropogenic Causes of Coastal Land Loss

Primary causes of coastal land loss, including both natural and anthropogenic causes, are summarized in Table 2.1 below (USGS, 2004).

Table 2.1 Common Causes of Coastal Land Loss

Agent	Examples
<i>Natural Causes</i>	
Erosion	Waves and currents, storms, landslides
Sediment reduction	Climate change, stream avulsion, source depletion
Submergence	Land subsidence, sea-level rise
Wetland deterioration	Herbivory, freezes, fires, saltwater intrusion
<i>Anthropogenic Causes</i>	
Transportation	Boat wakes, altered water circulation
Coastal construction	Sediment deprivation (bluff retention), coastal structures (jetties, groins, seawalls)
River modification	Control and diversion (dams, levees)
Fluid extraction	Water, oil, gas, sulfur
Climate alteration	Global warming and ocean expansion, increased frequency and intensity of storms
Excavation	Dredging (canals, pipelines, drainage), mineral extraction (sand, shell, heavy mines)
Wetland destruction	Pollutant discharge, traffic, failed reclamation, burning

Shorelines can also experience increased rates of erosion as a result of hydromodification activities. Alterations to the sediment sources for beaches can result in erosion. The sediment supplied to beaches or shorelines can come from a variety of sources including rivers, cliff and rocky foreshores, the seafloor, or windblown dune materials. Beaches and shorelines at the mouth of a river are often replenished by fluvial sediment. When changes within the river system decrease the sediment load carried to the mouth of the river, the result may be decreased sediment supplies to the shoreline or beach. While the design of each hydromodification system determines the impacts that will ensue, streambank and shoreline erosion is a common consequence.

Impacts Associated with Dams

The physical presence and operation of dams can result in changes in water quality and quantity. Some of the water quality impacts include changes in erosion, sedimentation, temperature, dissolved gases, and water chemistry. Examples of biological and habitat impacts, which may result from a combination of physical and chemical changes, include loss of habitat for existing or desirable fish, amphibian, and invertebrate species; changes from cold water to warm water species (or inversely, changes from warm water to cold water species); blockage of fish passage; or loss of spawning or necessary habitat.

The impacts associated with dams occur above (upstream) and below (downstream) the dam. Upstream impacts occur primarily in the impoundment/reservoir created by the presence and operation of the dam. The area and depth of the impoundment will determine the extent and

complexity of the upstream and downstream impacts. For example, small, low-head dams with little impounded areas will exhibit different impacts than large storage dams. Sedimentation and fish passage issues at the smaller, low-head dam contrast with sedimentation, temperature, fish passage, flow regulation, and water quality issues that may be associated with the larger storage dam. The existence of the dam and associated impoundment results in much different water quality interactions than those associated with the preexisting naturally flowing streams or rivers.

Above dams, activities within the watershed can have significant impacts on water quality within impoundments and in releases from dams to downstream areas. Watershed activities, such as agricultural land use, unpaved rural roads, forestry harvesting, or urbanization can lead to changes in runoff water quantity and quality. Agricultural and forestry practices that lead to sediment-laden runoff may result in increased sediment accumulation within an impoundment. Chemicals (e.g., pesticides and nutrients) that are applied on agricultural crops can be carried with sediment in runoff. Increases in urbanization that result in more impervious areas within a watershed often result in dramatic changes in the quantity and timing of runoff flows. These external sources are integrated by the dam and may result in short- and long-term water quality changes within an impoundment and dam releases.

Water quality in reservoirs and releases from dams are closely linked and scrutinized to uses of the water. Often, there are multiple potential users who may have differing quality needs and perceptions. Management of dams includes balancing dam operations, watershed activities, reservoirs, and downstream water and uses. Dortch (1997) provides an excellent assessment on water quality considerations in *Reservoir Management*. Dortch (1997) notes the following about water quality:

- *Temperature* regulates biotic growth rates and life stages and defines fishery habitat (warm, cool, and cold water).
- *Oxygen* sustains aquatic life.
- *Turbidity* affects light transmission and clarity.
- *Nutrient enrichment* is linked to primary productivity (algal growth) and can cause oxygen depletion, poor taste, and odor problems.
- *Organic chemicals and metals* may be toxic and accumulate when bound to sediment that settles in the reservoir.
- *Total dissolved solids* may be problematic for water supplies and other users.
- *Total suspended solids* are a transport mechanism for nutrients and contaminants. Solids may settle in reservoirs and displace water storage volume.
- *pH* regulates many chemical reactions.
- *Dissolved iron, manganese, and sulfide* can accumulate in reservoir hypolimnions that are depleted of oxygen and can cause water quality problems in the reservoir and release water.
- *Pathogens* include bacteria, viruses, and protozoa that can cause public health problems.

Water uses include water supply, flood control, hydropower, navigation, fish and wildlife conservation, and recreation (Dortch, 1997). All of the uses have varying water quality requirements, ranging from almost none for flood control to high quality needs for water supply, fish and wildlife conservation, and recreation.

Dams act as a barrier to the flow of water, as well as to materials being transported by the water. This can impact water quality both in the impoundment/reservoir created by the dam and downstream of the dam. Alteration to the chemical and physical qualities of water held behind a dam is often a function of the retention time of a reservoir or the amount of time the water is retained and not able to flow downstream. Water held in a small basin behind a run-of-river dam may undergo minimal alteration. In contrast, water stored for months or even years behind a large storage dam can undergo drastic changes that impact the downstream environment when released (McCully, 2001). A storage dam that impounds a large reservoir of water for an extended time period will cause more extensive impacts to the physical and chemical characteristics of the water than a smaller dam with little storage capacity.

Several physical changes are possible when dams are introduced into a stream or river, including changes in:

- Instream water velocities
- Timing and duration of flows
- Flow rates
- Sediment transport capacities
- Turbidity
- Temperature
- Dissolved gasses

Similarly, changes to water chemistry are possible as a result of damming rivers and streams, including changes to:

- Nutrients
- Alkalinity and pH
- Metals and other toxic pollutants
- Organic matter

The nature and severity of impacts will depend on the location in the river or stream, in relation to the upstream or downstream side of the dam, the storage time of the impounded water, and the operational practices at the dam. Many of the above impacts are also interrelated. For example, changes in temperature may result in changes in dissolved oxygen levels or changes to pH may result in changes to nutrient dynamics and the solubility of metals.

Water Quality in the Impoundment/Reservoir

As water approaches a dam from upstream, the stream velocity slows down considerably, creating a lake-like environment. The water builds up behind the dam and forms a basin (i.e., impoundment, reservoir) that is deeper than the previous stream flow. The height of the dam and its operational characteristics will determine how much water is stored and the length of storage. The extent of impacted stream area above the dam is influenced by the size of the dam installed, how much water is released, and how often water is released. For example, a small run-of-the-river dam constructed to divert water for a millrace will have minimal storage capacity and may only store water for several hours or less. In this case, instream water velocities may decrease,

but with minimal upstream and downstream effects. Thus, the length of upstream channel that is impacted should be relatively small.

In contrast, a large flood control dam and reservoir may have many months of storage and severely alter instream velocities for long distances upstream. Topography surrounding the original stream channel and storage volume will be important parameters determining the length of stream channel affected by the large dam. The volume and frequency of discharges from the dam will also determine how much of the upstream channel is impacted with lower instream velocities as a result of the dam.

Dams act as a physical barrier to the movement of suspended sediments and nutrients downstream (McCully, 2001). When the stream flow behind a dam slows, the sediment carrying capacity of the water decreases and the suspended sediment settles onto the reservoir bottom. Any organic compounds, nutrients, and metals that are absorbed to the sediment also settle and can accumulate on the reservoir bottom.

Turbidity associated with sediment varies, depending on particle sizes of the sediment and the length of time water is held. Longer holding times in the reservoir could result in periodic episodes of high turbidity from upstream storm events that carry sediment rich stormwater, especially if the sediment is predominantly very fine clay particles. Turbidity may also increase as a result of planktonic algal growth in a reservoir.

The increased depth of the water in reservoirs reduces the volume of water exposed to solar radiation and ambient temperatures. Once the flow is controlled by the operation of the dam and the reservoir is mixed primarily by winds, temperature variations can become established within the reservoir. This can cause thermal stratification where, compared to the bottom, surface layers become warmer in the summer and cooler in the winter. In deeper reservoirs, the deepest layers may become nearly constant in temperature throughout the year. Changes in temperature can impact water quality and biological processes in the reservoir, including changes in predominant fish species. Since the density of water is a function of water temperature, thermal stratification creates density gradients within the impoundment. As density gradients become established, exchanges of gases and chemicals between gradients decrease. In a stratified impoundment well aerated surface waters often do not mix with hypolimnetic water and result in poorly oxygenated strata below the surface waters.

Nutrient transport is affected by dams, which can trap the nutrients in the impoundment/reservoir. When nutrients accumulate, the reservoir might become nutrient enriched (i.e., eutrophic). In warmer seasons, concentrated nutrients in waters exposed to light can promote growth of algae and other aquatic plants, which consume nutrients and release oxygen (during photosynthesis) and carbon dioxide (during respiration). When algae and other aquatic plants complete their growth cycles, they die and sink to the bottom of an impoundment. Microbial decomposition of the highly organic dead plant materials may release nutrients back into the water column. Microbial decomposition of the dead plant and algal cells in aerobic conditions consumes oxygen, which can rapidly deplete bottom waters of dissolved oxygen. Under anaerobic conditions, microbial decomposition can produce potentially toxic concentrations of gases, such as hydrogen sulfide.

The operational characteristics of a dam will influence nutrient levels in water releases. For example, water released from the surface of an impoundment may contain seasonally varying forms and levels of nutrients. During periods of algal growth, releases may contain lower levels of dissolved nutrients and higher levels of organic materials (algae) containing nutrients. When algal growth is not occurring, releases may contain higher levels of dissolved nutrients.

Anaerobic (oxygen-depleted) environments, which are typical of deeper waters in reservoirs, can result in several changes to the water chemistry. For example, as by-products of organic matter decomposition in an anaerobic environment, ammonia and hydrogen sulfide concentrations can become elevated (Freeman, 1977; Pozo et al., 1997). Highly acidic (or highly alkaline) waters tend to convert insoluble metal sulfides to soluble forms, which can increase the concentration of toxic metals in reservoir waters (FISRWG, 1998).

Changes in one water quality parameter in a reservoir/impoundment can impact other water quality parameters, causing a cycling of events to occur. For example, increased sedimentation (from internal or external sources) can lead to more organic matter remaining in the reservoir, resulting in more biochemical oxygen demand, potentially lower dissolved oxygen, and other changes to water chemistry, such as pH and metal solubility. Periodic growth and then die-off of aquatic plants and algae creates additional variable cycling of organic matter in the reservoir. The following references may provide additional detail on the complex water quality changes that can occur in impoundments and reservoirs:

- Holdren, C., W. Jones, and J. Taggart. 2001. *Managing Lakes and Reservoirs*. North American Lake Management Society and Terrene Institute, in cooperation with the Office of Water, Assessment and Watershed Protection Division, U.S. Environmental Protection Agency, Madison, WI.
- Thornton, K.W., B.L. Kimmel, and F.E. Payne. 1990. *Reservoir Limnology: Ecological Perspectives*. John Wiley & Sons, Inc., New York.
- U.S. Army Corps of Engineers. N.d. *The WES Handbook on Water Quality Enhancement Techniques for Reservoirs and Tailwaters*. U.S. Army Corps of Engineer Research and Development Center Waterways Experiment Station, Vicksburg, MS.

Water Quality Downstream of a Dam

The physical and chemical changes that occur to the water quality in an impoundment/reservoir have a large impact on the water released downstream of a dam. As previously stated, the presence of a dam can alter water velocities above and below the dam. In smaller dams with little storage capacity, velocities may slow locally and recover to an undisturbed state shortly downstream from the dam. When dams store large volumes of water in a reservoir, the operation of the dam will have a major impact on the downstream velocities and flows. Unless the dam is operated to consistently release water at flows near pre-dam levels, downstream areas will have flows and velocities that are directly related to the volume of water released in a given time period. The downstream flow characteristics will become a function of the operation of the dam, including the timing and duration of releases, the depth of reservoir intakes, and other physical characteristics of the release.

On the Columbia River, research found that prior to construction of dams, average water temperatures fluctuated more diurnally with cooler nighttime temperatures as compared with the existing average water temperatures. With the dams in place, cooler weather tends to cool the free flowing river but have little effect on the average temperature of the impounded river (USEPA, 2003c).

When dams trap sediment upstream, water released from the dam may be starved of sediment and have an increase in erosive capacity. Along with trapping sediment, nutrients may also be trapped above the dam. When the nutrients are trapped and unavailable, sensitive downstream habitats and populations may be affected.

Whether the water is released from the surface or bottom of the reservoir can have a large impact on the characteristics of the water. The impacts of water outflows below a dam are an outcome of the seasonal temperature fluctuations and the outflow positioning. Seasonal temperature profiles in reservoirs are highly variable and dependent upon a complex set of factors including tributary inflow, basin morphometry, drawdown and discharge characteristics, and the degree of stratification (Wetzel, 2001). Compared to natural temperatures, in summer elevated temperatures in surface water releases can increase downstream river temperatures, whereas bottom water releases can be expected to decrease water temperatures. The opposite effect is generally observed in the winter due to changes in the water temperature gradient (USACE, 1999 in Fidler and Oliver, 2001).

Suspended Sediment and Reduced Discharge

Whether the release water originates from the surface or the bottom of the reservoir, the suspended sediment has typically settled out of the water column and thus the water released from behind the dam is usually relatively free from sediment (Simons and Senturk, 1992). This sediment-free water can easily pick up and carry a sediment load and have an increase in erosive capacity. Because of the rock lined channels of bank stabilization and navigation projects that usually occur below these reservoirs, the only place that the clear waters can find the sediments they need is in the streambed or navigation channel. This leads to channel deepening or bed degradation, which in turn lowers water tables and drains floodplain channels and backwaters (Rasmussen, 1999). Streambed and streambanks will continue to erode until an equilibrium suspended sediment load is established. Without sediment from upstream sources, downstream streambanks, streambeds, sandbars, and beaches can erode away more quickly (FISRWG, 1998).

A reduction in the discharge and sediment load generally results in degradation of the channel close to the dam and sedimentation downstream due to the increased supply from the erosion near the dam. Degradation may eventually migrate downstream, but is typically most dramatic the first few years following construction of the dam (Biedenharn et al., 1997). In addition, the physical impact of the discharge will depend, in part, on the channel substrate. A fine silt and sand channel bottom may experience more extensive erosion than a bed rock or cobble substrate.

Lower flow conditions below a dam within a tidally influenced basin can lead to changes in water chemistry. The impact of lower freshwater flow into estuaries was extensively studied in San Francisco Bay. Nichols et al. (1986) provide a detailed history of changes to freshwater inflows to San Francisco Bay. They also provide a summary of the impacts, which include the ecological and water quality effects. A study comparing an unregulated river and a dam regulated river found a significant difference in the water quality chemistry, including an analysis of levels of sodium, potassium, calcium, phosphorus, electrical conductivity, and pH in the middle and lower reaches of the rivers. These differences were attributed to increased tidal influence as a result of lower outflow volumes of fresh water from the dam (Colonnello, 2001). In addition, a decreased discharge from the dam and increased tidal influence can prolong the flushing time or the time it takes water to move through a system. This causes the nutrients and pollutants within the water to remain concentrated in areas below the dam near an estuary.

Biological and Habitat Impacts

The presence of a dam may cause physical and chemical changes to the water quality. These, in turn, can have an impact on the entire biological community including fish, macroinvertebrates, algae, and streamside vegetation. Impacts to the biological community differ upstream and downstream of a dam. Dams may disrupt spawning, increase mortalities from predation, change instream and riparian habitat, and alter plant and benthic communities. Resulting fish populations after dam construction may thrive and become well established, but could be very different than populations prior to installing the dam. For example, upstream of the dam, a fish population may change from a cold-water salmonid fishery to one that is dominated by cool- or warm-water species. A once thriving native trout population may become a largemouth bass (*Micropterus salmoides*) and bluegill (*Lepomis macrochirus*) dominated system. Similarly, downstream conditions may also change. In southern states, streams that once supported catfish and other tolerant warm-water species may now be able to support a trout fishery because of cold-water releases from bottom waters behind a dam. Although the trout fishery may be viewed as positive by some, the displaced native warmwater species may not be perceived as beneficial.

Dams prevent the movement of organisms throughout the river system (Morita and Yamamoto, 2002). Researchers found that fragmenting habitat by damming a river caused the disappearance of a fish species in several upstream locations and further disappearances were predicted (Morita and Yamamoto, 2002). Recently, some individual cases involving movement of invasive, non-native aquatic species note the presence of dams as a positive factor. In these cases, dams have blocked the movement of potentially harmful invasive species.

Flood control and hydropower projects influence a river's hydrograph. For example, in some regions normal river hydrographs featured a rise in water level elevation corresponding to spring

rains. Other geographic areas had stream hydrographs corresponding to snowmelt in the mountains, or fall rainfall. Native species evolved under these scenarios and used such water level rises to trigger spawning movements onto floodplains and in the case of birds, for nesting on islands. Additionally, the stream water level fluctuations were important in providing feeding and resting areas for spring and fall waterfowl migrations. Under managed scenarios for commercial navigation, river water level elevations are raised in the spring and held stable throughout the navigation season, virtually eliminating the triggering mechanisms native species used to reproduce and complete their life cycles. Because of this, many native riverine species often fail to spawn or nest, and are becoming increasingly threatened (Rasmussen, 1999). Additionally, stabilization of periodic flooding has also lead to the loss of ephemeral wetlands and may lead to the accumulation of sediments in nearshore areas, thus negatively affecting fish spawning areas (NRC, 1992).

Dams may lead to increased predation of fish in several ways. A dam may cause populations of fish to concentrate on the upstream and downstream sides, which might lead to the likelihood of increased predation. Changes in the habitat adjacent to a dam can make conditions more suitable to predation. Dams may cause the migration process to be delayed, which also leads to increased predation (Larinier, 2000).

The physical and chemical changes to water released from a dam, including reduced streamflow variability and decreased sediment loads, may also impact benthic communities. Increased water clarity and reduced streamflow variability just below a dam may result in a greater abundance of periphyton or other plants as compared with other locations in the river (Stanford and Ward, 1996). A slowed stream flow velocity with decreased turbulence can also encourage the growth of phytoplankton blooms (Décamps et al., 1988). In contrast, the operation of some hydroelectric dams with large, sudden releases of water may scour the bottom of the downstream channel to the extent that there is a nearly complete removal of the plant communities (Allan, 1995).

Impacts Associated with Dam Removal

Removing a dam affects the flow of water, movement of sediment and chemical constituents, and the overall channel morphology (Academy of Natural Sciences, 2002) on the waterway where the dam was located. The impacts of removing a dam differ for the upstream and downstream sections of a waterway.

Changes in the biological community following the removal of a dam are difficult to generalize, as they are highly site specific and can vary in recovery time from a few months to

The effects of river damming were evaluated in a study comparing a regulated river to an unregulated river in the Green River Basin in Colorado. Prior to installation of the dam in Green River in 1962, Green River and the Yampa River were similar in riparian vegetation and fluvial processes. Comparison of the now regulated Green River and the free-flowing Yampa River found distinctive vegetation differences between the parks that surround the rivers. The channel form of Green River has undergone three stages of morphologic change that have transformed the historically deep river into a shallow braided channel. The Yampa River has remained relatively unchanged. The land surrounding the Green River now consists of marshes with anaerobic soil that supports wetland species and terraces with desert species adapted to xeric soil conditions. The meandering Yampa River has maintained its original surroundings. Its frequently flooded bars and high floodplains provide a wide range of habitats for succession of riparian vegetation (Merritt and Cooper, 2000).

more than a decade. With the removal of a dam, there are changes in the vegetative community surrounding the stream channel and changes in the biological community within the stream itself.

Physical Changes: Upstream Impacts

The removal of a dam allows the water formerly held behind the dam to flow and will likely cause the extent of the impoundment area or reservoir area to decrease. As a dam is removed and the water recedes, sediment is scoured from the bottom and a stream channel returns sometimes to its pre-dam pathway and sometimes to a newly carved channel. As a channel is formed, areas that were formerly beneath the impoundment area become exposed. This can leave large areas of unvegetated and unstable land exposed, which makes these areas likely to undergo erosion and gully development, increasing the sediment load to the stream.

In time, vegetation will stabilize the newly formed stream banks, reducing erosion and allowing sediment transport levels to return to natural levels. The nutrient and metal constituents associated with the sediment will also return to natural levels. As the newly established channel-like flow develops and the stagnant and deep conditions are removed, the natural temperature and oxygen levels will be reestablished.

Physical Changes: Downstream Impacts

Once the physical barrier of the dam is removed, a river can flow unrestricted. As the channel is reformed, the water discharge volume and the stream channel can reach equilibrium. As a result, a more natural stream flow rate is maintained.

With the removal of a dam, the fate of the trapped sediments is of concern because flooding and downstream pollution problems can result. On a short-term time scale, the redistribution of the fine silt and sand sediments that accumulated behind the dam wall may cause an increase in turbidity and water quality problems. In addition, the impact can be greater if the sediments contain toxic pollutants, such as metals or bioaccumulative compounds such as mercury or PCBs. On a short-term time scale, the redistribution of the fine silt and sand sediments increases the turbidity and can damage spawning grounds, water quality, habitat, and food quality (American Rivers, 2002a). Suspended sediment loads can have a negative impact on a biological community and reach lethal levels during dam removal if preventive measures are not implemented (Doyle et al., 2000).

After a dam is removed and the sediment that has been trapped behind the dam is redistributed, natural sediment transport levels return. As a result, the constituents typically sorbed to sediment, including nutrients and metals, are no longer found localized in excess. Normal sediment transport levels typically result in a river bottom with a higher percentage of rocky substrate. Gravel and cobblestones located below the sediment may be exposed or may be transported from upstream locations as the flow rate of the river increases. This unrestricted flow and transport of sediment and gravel may also play a key role in restoring sediments to downstream locations and coastal beaches (USDOI, 1995). The removal of a dam and the return of natural flow rates should also help to restore a river's natural water temperature range and oxygen levels.

Short-term chemical changes to the water quality, including the possibility of supersaturation of nitrogen gas directly following the removal of a dam, can cause aquatic animals to experience

adverse conditions. This can include gas bubble disease, in which nitrogen bubbles form in the blood and tissues and block capillaries by embolism (Colt, 1984; Soderberg, 1995). Adverse effects can be seen when the dissolved nitrogen level reaches 102% and at 105% widespread fish mortalities are possible (Dryden Aqua, 2002). Supersaturation was an issue in the 1992 removal of Little Goose Dam on the Snake River (American Rivers, 2002a). If a reservoir is drawn down slowly, the severity of the impact of supersaturation on aquatic organisms can be lessened (American Rivers, 2002a).

Biological Changes: Upstream Impacts

Following the removal of a dam, a return to the normal temperature range, flow rates, and oxygen levels supports the return of native aquatic vegetation species. Still water impoundments support aquatic vegetation that is free floating or that does not need to be strongly rooted, while free-flowing systems support plants that are rooted strongly enough to resist being uprooted by the water current (WRM, 2000).

As the water recedes and the formerly impounded area becomes exposed, vegetation can begin to colonize the area. Sometimes, the exposed area may be colonized by invasive plant species, which are able to remain for several years and prevent other vegetation from becoming established.

The removal of a dam and the subsequent drawdown of water from the impoundment area can affect the wetlands formerly bordering the impoundment area. As the dam is removed, the water table typically begins to drop. The elevation of the wetlands and the extent of the water table drawdown determine whether the wetland areas dry up and what changes will occur in the wetland species composition. Wetlands that develop alongside the newly carved channel are likely to be different than the wetlands formerly bordering the impoundment area in terms of plant and animal species composition.

The biological changes associated with the removal of a dam can be described in phases, as the waterbody makes the transition from reservoir to river. This includes a pattern of relatively rapid recovery for invertebrates or short-lived taxa, followed by a second phase of slower recovery for fish or longer-lived taxa if the dam removal is not an especially large or disruptive event. Overall, the initial impacts, such as colonization by invasive species, typically determine the ecological recovery that follows (Doyle et al., 2000).

Dam removal can allow for improved fish passage and unrestricted fish movement that provides access to spawning habitat upstream. For coastal rivers, the removal of a dam may enable tidal waters to reach upper portions of the stream that were formerly cut off by the dam, creating a spawning environment preferred by certain fish species. Access to upstream sections is particularly beneficial for some anadromous fish that live most of their lives in saltwater and swim upstream toward freshwater to spawn (Massachusetts River Restore Program, 2002).

A dam can also act as a barrier between upstream and downstream fish populations. If a downstream community of fish is an invasive fish species the dam serves as a physical barrier to separate the invasives from the upstream community (American Rivers, 2002a). Thus, the removal of the dam can negatively impact the ecosystem if it allows for the movement of a

population of an invasive species that was previously prevented from traveling to a section of the stream because of the presence of a dam.

Biological Changes: Downstream Impacts

Downstream of the former dam, wetlands are likely to reappear along side the stream channel where they occurred prior to the construction of the dam (WRM, 2000). Revegetation of river beds and banks typically occurs within one growing season, following removal of a dam (Massachusetts River Restore Program, 2002).

Recolonization of the stream banks by vegetation affects the biological community within the stream by providing shade, reducing water temperatures, and supplying a source of woody debris and organic matter to the stream.

As streamside vegetation begins to recover and suitable habitat is restored, fish begin to return. Changes in flow as a result of dam removal lead to the development of side channels and ponds that provide habitat for fish and wildlife. Increased flow rates also allow for the transport of larger debris, including gravel and logs, which create spawning beds and pool and riffle habitat (River Recovery, 2001). In addition, the rocky substrate environment, which is typically exposed as a result of dam removal, provides habitat for aquatic insects and spawning fish. In the long term, the return to natural stream temperatures, oxygen levels, and flow rates all contribute to the reestablishment of a healthy aquatic and riparian ecosystem.

Chapter 3: Channelization and Channel Modification



Channelization and channel modification describe river and stream channel engineering undertaken for flood control, navigation, drainage improvement, and reduction of channel migration potential. Activities that fall into this category include straightening, widening, deepening, or relocating existing stream channels and clearing or snagging operations. These forms of hydromodification typically result in more uniform channel cross-sections, steeper stream gradients, and reduced average pool depths. Channelization and channel modification also refer to the excavation of borrow pits, canals, underwater mining, or other practices that change the depth, width, or location of waterways, or embayments within waterways.

Channelization and channel modification activities can play a critical role in nonpoint source pollution by increasing the downstream delivery of pollutants and sediment that enter the water. Some channelization and channel modification activities can also cause higher flows, which increase the risk of downstream flooding.

Channelization and channel modification can:

- Disturb stream equilibrium
- Disrupt riffle and pool habitats
- Create changes in stream velocities
- Eliminate the function of floods to control channel-forming properties
- Alter the base level of a stream (streambed elevation)
- Increase erosion and sediment load

Many of these impacts are related. For example, straightening a stream channel can increase stream velocities and destroy downstream pool and riffle habitats. As a result of less structure in the stream to retard velocities, downstream velocities may continue to increase and lead to more frequent and severe erosion.

Management Measure 1: Physical and Chemical Characteristics of Channelized or Modified Surface Waters

Management Measure 1

- 1) Evaluate the potential effects of proposed channelization and channel modification on the physical and chemical characteristics of surface waters.
- 2) Plan and design channelization and channel modification to reduce undesirable impacts.
- 3) Develop an operation and maintenance program for existing modified channels that includes identification and implementation of opportunities to improve physical and chemical characteristics of surface waters in those channels.

This management measure applies to proposed channelization or channel modification projects and is intended to occur concurrently with the implementation of Management Measure 2 (Instream and Riparian Habitat Restoration). The intent of the management measure is for project planners to consider potential changes in surface water characteristics when evaluating proposed channelization or channel modification projects. Also, for existing modified channels, the planning process can include consideration of opportunities to improve the surface water characteristics necessary to support desired fish and wildlife.

The purpose of the management measure is to ensure that the planning process for new hydromodification projects addresses changes to physical and chemical characteristics of surface waters that may occur as a result of proposed work. For existing projects, this management measure can be used to ensure the operation and maintenance program uses any opportunities available to improve the physical and chemical characteristics of the surface waters.

Changes created by channelization and channel modification activities are problematic if they unexpectedly alter environmental parameters to levels outside normal or desired ranges. The physical and chemical characteristics of surface waters that may be influenced by channelization and channel modification include sedimentation, turbidity, salinity, temperature, nutrients, dissolved oxygen, oxygen demand, and contaminants. Changes in natural sediment supplies, reduced freshwater availability, and accelerated delivery of pollutants are examples of the types of changes that can be associated with channelization and channel modification.

Published case studies of existing channelization and channel modification projects describe alterations to physical and chemical characteristics of surface waters (Burch et al., 1984; Petersen, 1990; Reiser et al., 1985; Roy and Messier, 1989; Sandheinrich and Atchison, 1986; Sherwood et al., 1990; Shields et al., 1995). Frequently, the post-project conditions are intolerable to desirable fish and wildlife. The literature also describes instream benefits for fish and wildlife that can result from careful planning of channelization and channel modification

projects (Bowie, 1981; Los Angeles River Watershed, 1973; Sandheinrich and Atchison, 1986; Shields et al., 1990; Swanson et al., 1987; USACE, 1989).

Management Practices for Management Measure 1

Implementation of this management measure should begin during the planning process for new projects. For existing projects, implementation of this management measure can be included as part of a regular operation and maintenance program. The approach is two-pronged and should include:

1. *Planning and evaluation*, with numerical models for some situations, of the types of nonpoint source (NPS) pollution related to instream changes and watershed development.
2. *Operation and maintenance programs that apply* a combination of nonstructural and structural practices to address some types of NPS problems stemming from instream changes or watershed development.

Planning and Evaluation

In planning-level evaluations of proposed hydromodification projects, it is critical to understand that the surface water quality and ecological impact of the proposed project will be driven primarily by the alteration of physical transport processes. In addition, it is critical to realize that the most important environmental consequences of many hydromodification projects will occur over a long-term time scale of years to decades.

Use models/methodologies as one means to evaluate the effects of proposed channelization and channel modification projects on the physical and chemical characteristics of surface waters. Evaluate these effects as part of watershed plans, land use plans, and new development plans.

The key element in the selection and application of models for the evaluation of the environmental consequences of hydromodification projects is the use of appropriate models to adequately characterize circulation and physical transport processes. Appropriate surface water quality and ecosystem models (e.g., salinity, sediment, cultural eutrophication, oxygen, bacteria, fisheries, etc.) are then selected for linkage with the transport model to evaluate the environmental impact of the proposed hydromodification project. There are several sophisticated two-dimensional (2D) and three-dimensional (3D) time-variable hydrodynamic models available for environmental assessments of hydromodification projects. Two-dimensional depth or laterally averaged hydrodynamic models can be routinely applied to assist with environmental assessments of beneficial and adverse effects on surface water quality by knowledgeable teams of physical scientists and engineers (Hamilton, 1990). Three-dimensional hydrodynamic models are also beginning to be more widely applied for large-scale environmental assessments of aquatic ecosystems (e.g., EPA/USACE-WES Chesapeake Bay 3D hydrodynamic and surface water quality model).

Refer to Chapter 8 for a list of some models available for studying the effects of channelization and channel modification activities (Table 8.1). Chapter 8 also provides examples of channelization and channel modification activities and associated models that can be used in the planning process.

Operation and Maintenance Programs

Several management practices can be implemented to avoid or mitigate the physical and chemical impacts generated by hydromodification projects. Many of these practices have been engineered and used for several decades, not only to mitigate human-induced impacts but also to rehabilitate hydrologic systems degraded by natural processes.

In cases where existing channelization or channel modification projects can be changed to enhance instream or streamside characteristics, several practices can be included as a part of regular operation and maintenance programs. New channelization and channel modification projects that are predicted to cause unavoidable physical or chemical changes in surface waters can also use one or more practices to mitigate the undesirable changes. Some of the types of practices include:

- Grade control structures
- Levees, setback levees, and floodwalls
- Noneroding roadways
- Streambank protection and instream sediment load controls
- Vegetative cover

Grade Control Structures

There are two basic types of grade control structures. The first type can be referred to as a bed control structure because it is designed to provide a hard point in the streambed that is capable of resisting the erosive forces of the degradational zone. The second type can be referred to as a hydraulic control structure because it is designed to function by reducing the energy slope along the degradational zone to the point where the stream is no longer capable of scouring the bed. The distinction between the operating processes of these two types is important whenever grade control structures are considered (Biedenharn and Hubbard, 2001).

Design considerations for siting of grade control structures include determining the type, location, and spacing of structures along the stream, along with the elevation and dimensions of structures. Siting grade control structures can be considered a simple optimization of hydraulics and economics. However, these factors alone are usually not sufficient to define optimum siting conditions. Hydraulic considerations must be integrated with a host of other factors that can vary from site to site to determine the final structure plan. Some of the more important factors to be considered when siting grade control structures are discussed more specifically in the U.S. Army Corps of Engineers' *Design Consideration for Siting Grade Control Structures* (Biedenharn and Hubbard, 2001).

When carefully applied, grade control structures can be highly versatile in establishing human and environmental benefits in stabilized channels. To be successful, application of grade control structures should be guided by analysis of the stream system both upstream and downstream from the area to be reclaimed (CASQA, 2003).

In some cases, grade control structures can be designed to allow fish passage. However, some grade control structures can obstruct fish passage. In many instances, fish passage is a primary consideration and may lead engineers to select several small fish passable structures in lieu of

one or more high drops that would restrict fish passage. In some cases, particularly when drop heights are small, fish are able to migrate upstream past a structure during high flows. In situations where structures are impassable, and where the migration of fish is an important concern, openings, fish ladders, or other passageways must be incorporated into the structure's design (Biedenharn and Hubbard, 2001). Fish passage practices are described in Chapter 7.

A type of grade control structure is a check dam. Refer to Chapter 7 for more information about this practice.

Levees, Setback Levees, and Floodwalls

Levees are embankments or shaped mounds constructed for flood control or hurricane protection (USACE, 1981). Setback levees and floodwalls are longitudinal structures used to reduce flooding and minimize sedimentation problems associated with fluvial systems. These practices can be used to reduce the impacts of channelization and channel modification. A more detailed discussion of levees, setback levees, and floodwalls is available in Chapter 7.

Noneroding Roadways

Disturbances along the streambank that result from activities associated with operation and maintenance of channelization projects can lead to additional nonpoint source pollution impacts to the stream. An example of human-induced activities is erosion associated with roadways. Rural road construction, streamside vehicle operation, and stream crossings usually result in significant soil disturbance and create a high potential for increased erosion processes and sediment transport to adjacent streams and surface waters. Erosion during and after construction of roadways can contribute large amounts of sediment and silt to runoff waters, which can deteriorate water quality and lead to fish kills and other ecological problems (USEPA, 1995b).

Road construction involves activities such as clearing of existing native vegetation along the road right-of-way; excavating and filling the roadbed to the desired grade; installation of culverts and other drainage systems; and installation, compaction, and surfacing of the roadbed.

Although most erosion from roadways occurs during the first few years after construction, significant impacts may result from maintenance operations using heavy equipment, especially when the road is located adjacent to a waterbody. In addition, improper construction and lack of maintenance may increase erosion processes and the risk for road failure. To minimize erosion and prevent sedimentation impacts on nearby waterbodies during construction and operation periods, streamside roadway management needs to combine proper design for site-specific conditions with appropriate maintenance practices. A discussion of how roadways can impact fish habitat and passage is available from EPA's *National Management Measures to Control Nonpoint Source Pollution from Forestry* (USEPA, 2005a).

More information about suggested practices to consider during design, construction, operation and maintenance, and general maintenance of noneroding roadways, is available from EPA's *National Management Measures to Control Nonpoint Source Pollution from Forestry* (USEPA, 2005a). This EPA guidance document also provides some suggested permanent control BMPs that may be used to prevent erosion from roadways. Additional information about noneroding roadways is available in Chapter 7 and the Resources section of this document.

Streambank Protection and Instream Sediment Load Controls

Streambank erosion is a natural process that occurs in fluvial systems. Streambank erosion can also be induced or exaggerated as a result of human activities. There are several factors within a watershed that can contribute to human induced streambank erosion. Accelerated streambank erosion related to human activity can typically be attributed to three major causes including channel modifications, reservoir construction, and land use changes (Henderson, 1986). When possible, streambank erosion problems should be addressed in the context of the entire watershed, using a systems approach that considers and accommodates natural stream processes. Approaches to addressing streambank erosion problems associated with channelization and channel modification activities can involve efforts to identify and address all significant contributing factors in addition to treating the immediate symptom, bank erosion.

In general, the design of streambank protection may involve the use of several techniques and materials. Nonstructural or programmatic management practices for the prevention of streambank failures include:

- Protection of existing vegetation along streambanks
- Careful use or regulation of irrigation near streambanks, such as rerouting of overbank drainage
- Minimization of loads on top of streambanks (such as prevention of building within a defined distance from the streambed)

Several structural practices are used to protect or rehabilitate eroded banks. These practices are usually implemented in combination to provide stability of the stream system, and they can be grouped into direct and indirect methods. Direct methods place protecting material in contact with the bank to shield it from erosion. Indirect methods function by deflecting channel flows away from the bank or by reducing the flow velocities to nonerosive levels (Henderson, 1986; Henderson and Shields, 1984). Indirect bank protection requires less bank grading and tree and snag removal. However, some structural methods like stone toe protection, as discussed below, can be placed with minimal disturbance to existing slope, habitat, and vegetation.

Feasibility of the practices at a site depends on the engineering design of the structure, availability of the protecting material, extent of the bank erosion, and specific site conditions such as the flow velocity, channel depth, inundation characteristics, and geotechnical characteristics of the bank. The use of vegetation alone or in combination with other structural practices, when appropriate, could further reduce the engineering and maintenance efforts.

Vegetation can be considered with respect to site-specific characteristics. When vegetation is combined with low cost building materials or engineered structures, numerous techniques can be created for streambank erosion control. It is important to consider the assets and limitations when planning to use planted vegetation for streambank protection. Advantages of vegetation include the following (Allen and Leech, 1997):

- Reinforces soil (increases bank stability).
- Increases resistance to flow and reduces flow velocities (from exposed stalks), causing the flow to dissipate energy against the plant (rather than the soil).

- Intercepts water.
- Enhances water infiltration.
- Depletes soil water by uptake and transpiration.
- Acts as a buffer against the abrasive effect of transported materials.
- Induces sediment deposition (from close-growing vegetation).
- Reduces costs, in some cases, when compared to most structural methods.
- Improves conditions for fisheries and wildlife.
- Improves water quality.
- Protects cultural/archeological resources.

Limits of vegetation include failure to grow; being subject to undermining; being uprooted by wind, water, and the freezing and thawing of ice; ingestion by wildlife or livestock; and maintenance requirements. Chapter 3 of *Bioengineering for Streambank Erosion Control* discusses plant acquisition, handling, and timing of planting (Allen and Leech, 1997).

Streambanks can be protected or restored either by increasing resistance of the bank to erosion or by decreasing the energy of the water at the point of contact with the bank, for example by deflecting or interrupting flows (Henderson, 1986). Instream sediment can be controlled by using several structural, vegetative, or bioengineered practices, depending on the management objective and the source of sediment. Streambank protection and channel stabilization practices, including various types of revetments, grade control structures, and flow restrictors, have been effective in controlling sediment production caused by streambank erosion. Designs should match the protection capability of the treatment to the erosion potential of each stream zone. For example, riprap may be needed at the toe of a slope to protect it from undercutting combined with tree revetments to deflect flows and provide protection for live stakings that will develop permanent support. The growing body of research indicates management techniques that emulate nature and work with natural stream processes are more successful and economical.

Significant amounts of instream sediment deposition can be prevented by controlling bank erosion processes and streambed degradation. Channel stabilization structures can also be designed to trap sediment and decrease the sediment delivery to desired areas by altering the transport capacity of the stream and creating sediment storage areas. In regulated streams, alteration of the natural streamflow, particularly the damping of peak flows caused by surface water regulation and diversion projects, can increase streambed sediment deposits by impairing the stream's transport capacity and its natural flushing power. Sediment deposits and reduced flow alter the channel morphology and stability, the flow area, the channel alignment and sinuosity, and the riffle and pool sequence. Such alterations have direct impacts on the aquatic habitat and the fish populations in the altered streams (Reiser et al., 1985).

Vegetative Cover

Streambank protection using vegetation is a commonly used practice, particularly in areas of low water velocities. Vegetative cover, also used in combination with structural practices, is often relatively easy to establish and maintain, and is visually attractive (USACE, 1983). Emergent vegetation provides two levels of protection. First, the root system helps hold soil together and increases overall bank stability by forming a binding network. Second, the exposed stalks, stems, branches, and foliage provide resistance to streamflow, causing the flow to lose part of its energy

by deforming the plants rather than by removing the soil particles. Above the waterline, vegetation protects against rainfall impact on the banks and reduces the velocity of the overland flow during storm events.

Vegetative controls are not suitable for all sites, especially those sites with severe erosion due to high flow rates or channel velocities. Refer to the Washington State Department of Transportation's (WSDOT's) *Hydraulics Manual*, Chapter 4¹ for information on calculating flow rates or channel velocities. Stabilization measures should only be implemented after a careful evaluation of the stream and the surrounding area. A knowledgeable fluvial geomorphologist may be helpful with this evaluation. In addition, plant species should be selected with care; native plant species should be used whenever possible. Appropriate species can be determined by consulting horticulturalists and botanists for plant selection assistance. The USDA-Forest Service guide, *A Soil Bioengineering Guide for Streambank and Lakeshore Stabilization*² provides a list of plants for soil bioengineering associated systems. The International Erosion Control Association (IECA)³ publishes a products and services directory listing sources of plant material and professional assistance.

In addition to bank stabilization, vegetation can also offer pollutant filtering capacity. Pollutants and sediment transported by overland flow may be partly removed as a result of a combination of processes including reduction in flow pattern and transport capacity, settling and deposition of particulates, and eventual nutrient uptake by plants.

Summary of Physical and Chemical Practices

All of the following practices can be used to address the effects of channelization and channel modification activities on the physical and chemical characteristics of a waterbody:

- Bank shaping and planting
- Branch packing
- Brush layering
- Brush mattresses
- Bulkheads and seawalls
- Check dams
- Coconut fiber roll
- Dormant post plantings
- Erosion and Sediment Control (ESC) Plans
- Joint plantings
- Levees, setback levees, and floodwalls
- Live cribwalls
- Live fascines
- Live staking
- Noneroding roadways
- Return walls

¹ <http://www.wsdot.wa.gov/eesc/design/hydraulics/Manual/Rev3Publications/Chapter%204.pdf>

² <http://www.fs.fed.us/publications/soil-bio-guide>

³ <http://ieca.org>

- Revetments
- Riprap
- Root wad revetments
- Rosgen's Stream Classification Method
- Setbacks
- Toe protection
- Tree revetments
- Vegetated buffers
- Vegetated gabions
- Vegetated geogrids
- Vegetated reinforced soil slope (VRSS)
- Wing deflectors

Additional information about each of the above practices is available in Chapter 7. The Additional Resources section provides a number of sources for obtaining information about the effectiveness, limitations, and cost estimates for these practices.

Management Measure 2: Instream and Riparian Habitat Restoration

Management Measure 2

- 1) Evaluate the potential effects of proposed channelization and channel modification on instream and riparian habitat.
- 2) Plan and design channelization and channel modification to reduce undesirable impacts.
- 3) Develop an operation and maintenance program for existing modified channels that includes identification and implementation of opportunities to restore instream and riparian habitat in those channels.

Implementation of this management measure is intended to occur concurrently with the implementation of the Management Measure for Physical and Chemical Characteristics of Channelized or Modified Surface Waters (see previous management measure discussion). This management measure pertains to surface waters where channelization and channel modification have altered or have the potential to alter instream and riparian habitat, such that historically present plants, fish, or wildlife are adversely affected. This management measure is intended to apply to any proposed channelization or channel modification project to determine changes in instream and riparian habitat and to existing modified channels to evaluate possible improvements to instream and riparian habitat. The purpose of this management measure is to correct or prevent detrimental changes to instream and riparian habitat from the impacts of channelization and channel modification projects.

Management Practices for Management Measure 2

Implementation of this management measure should begin during the planning process for new projects. For existing projects, implementation of this management measure can be included as part of a regular operation and maintenance program. Ensuring the involvement and participation of all partners is a place to start on any restoration project. Determining the extent of the restoration activity can help identify potential partners and other interested stakeholders. Each stakeholder may bring a certain expertise, historical information and data, and possibly funding to a project. Development of a stream corridor restoration plan can help organize the group, set goals for implementation of management practices, secure funding or other types of support, and facilitate the sharing of ideas and accomplishments within the group and to others in the community. The approach is two-pronged and should include:

1. *Planning and evaluation*, with numerical models for some situations, of the types of NPS pollution related to instream and riparian habitat changes and watershed development.

2. *Operation and maintenance* activities that restore habitat through the application of a combination of nonstructural and structural practices to address some types of NPS problems stemming from instream and riparian habitat changes or watershed development.

Planning and Evaluation

Several tools can be used to evaluate the instream and riparian health of a stream system. These approaches include:

- Biological methods/models
- Temperature restoration practices
- Geomorphic assessment techniques
- Expert judgment and checklists

Biological Methods/Models

To assess the biological impacts of channelization, it is necessary to evaluate both physical and biological attributes of the stream system. Assessment studies should be performed before and after channel modification, with samples being collected upstream from, within, and downstream from the modified reach to allow characterization of baseline conditions. It also may be desirable to identify and sample a reference site within the same ecoregion as part of the rapid bioassessment procedures discussed below.

Use models/methodologies to evaluate the effects of proposed channelization and channel modification projects on instream and riparian habitat and to determine the effects after such projects are implemented.

There are a number of different methods that can be used to assess the biological impacts of channelization. Rapid Bioassessment Protocols (RBPs) were developed as inexpensive screening tools for determining whether a stream is supporting a designated aquatic life use (Barbour et al., 1999; Plafkin et al., 1989). One component of these protocols is an instream habitat assessment procedure that measures physical characteristics of the stream reach (Barbour and Stribling, 1991). An assessment of instream habitat quality based on 12 instream habitat parameters is performed in comparison to conditions at a “reference” site, which represents the “best attainable” instream habitat in nearby streams similar to the one being studied. The RBP habitat assessment procedure has been used in a number of locations across the United States. A small field crew of one or two persons typically can perform the procedure in approximately 20 minutes per sampling site.

Rapid Bioassessment Protocols (Barbour et al., 1999; Plafkin et al., 1989) were designed to be scientifically valid and cost-effective and to offer rapid return of results and assessments. Protocol III (RBP III) focuses on quantitative sampling of benthic macroinvertebrates in riffle/run habitats or on other submerged, fixed structures (e.g., boulders, logs, bridge abutments, etc.) where such riffles may not be available. The data collected are used to calculate various metrics pertaining to benthic community structure, community balance, and functional feeding groups. The metrics are assigned scores and compared to biological conditions as described by either an ecoregional reference database or reference sites chosen to represent the “best attainable” biological community in similarly sized streams. In conjunction with the instream

habitat quality assessment, an overall assessment of the biological and instream habitat quality at the site is derived. RBP III can be used to determine spatial and temporal differences in the modified stream reach. Application of RBP III requires a crew of two persons; field collections and lab processing require 4 to 7 hours per station and data analysis about 3 to 5 hours, totaling 7 to 12 hours per station. The RBP III has been extensively applied across the United States. More information about biological assessments is available from EPA's Biological Assessment Web site.⁴

Karr et al. (1986) describes an Index of Biological Integrity (IBI), which includes 12 metrics in three major categories of fish assemblage attributes: species composition, trophic composition, and fish abundance and condition. Data are collected at each site and compared to those collected at regional reference sites with relatively unimpacted biological conditions. A numerical rating is assigned to each metric based on its degree of agreement with expectations of biological condition provided by the reference sites. The sum of the metric ratings yields an overall score for the site. Application of the IBI requires a crew of two persons; field collections require 2 to 15 hours per station and data analysis about 1 to 2 hours, totaling 3 to 17 hours per station. The IBI, which was originally developed for Midwestern streams, can be readily adapted for use in other regions. It has been used in several states across the country to assess a wide range of impacts in streams and rivers.

Habitat Evaluation Procedures (HEPs) can be used to document the quality and quantity of available habitat, including aquatic habitat, for selected wildlife species. HEPs provide information for two general types of instream and riparian habitat comparisons:

- The relative value of different areas at the same point in time
- The relative value of the same area at future points in time

By combining the two types of comparisons, the impact of proposed or anticipated land and water use changes on instream and riparian habitat can be quantified (Ashley and Berger, 1997).

Additional information about the assessment methods discussed above, as well as other methods for assessing biological impacts is available in Table 8.2 of Chapter 8.

Temperature Restoration Practices

Channelization and channel modification activities can greatly impact stream temperature. All other factors remaining unchanged, when a channel is narrowed, the water depth increases and the surface area exposed to solar radiation and ambient temperature decreases. This can decrease water temperature. When a channel is widened, the opposite occurs; shallower depths and increased temperatures occur. Temperature may also be increased from increased turbidity because the sediment particles absorb heat. It is important to model how temperature will change in a stream, as a result of channelization and channel modification activities, to determine what other changes and impacts might occur in the stream.

⁴ <http://www.epa.gov/owow/monitoring/bioassess.html>

Stream temperature has been widely studied, and heat transfer is one of the better-understood processes in natural watershed systems. Most available approaches use energy balance formulations based on the physical processes of heat transfer to describe and predict changes in stream temperature.

More information about temperature restoration models and practices is provided in Chapter 8 (Modeling).

Geomorphic Assessment Techniques

Fluvial geomorphology is the study of stream form and function. Geomorphic assessment focuses on qualitative and quantitative observations of stream form. It provides a “moment-in-time” characterization of the existing morphology of the stream. In addition, geomorphic assessment includes a stability component. Stability assessments place the stream in the context of past, present, and anticipated adjustment processes. Geomorphic assessments can be useful in predicting changes that could be created by channelization and channel modification activities.

Stream classification is a technique that is used to show the relationship between streams and their watersheds. There are several techniques for stream classification, all of which have advantages and limitations. Advantages of geomorphic assessment include (adapted from FISRWG, 1998):

- Promotes communication.
- Enables extrapolation of data collected on a few streams to a number of channels over a broader geographical area.
- Helps the restoration practitioner consider the landscape context and determine expected ranges of parameters.
- Enables practitioners to interpret the channel-forming or dominant processes active at the site.
- Uses reference reaches as the desired outcome of restoration.
- Provides an important cross-check to verify if the selected design values are within a reasonable range.

Limitations of geomorphic assessment include (adapted from FISRWG, 1998):

- Determination of bankfull or channel-forming flow depth may be difficult or inaccurate.
- The dynamic condition of the stream is not indicated in stream classification systems.
- River response to a perturbation or restoration action is normally not determined by classifying it alone.
- Biological health is not directly determined.
- Classifying a stream should not be used alone to determine the type, location, and purpose of restoration activities.

Schumm (1960) identified straight, meandering, and braided channels and related both channel pattern and stability to modes of sediment transport. Schumm recognized that stable straight and meandering channels have mostly suspended sediment loads and cohesive bank materials, as opposed to unstable braided streams characterized by mostly bedload sediment transport and

wide sandy channels with noncohesive bank materials. Meandering mixed-load channels are found at an intermediate condition (FISRWG, 1998).

Montgomery and Buffington (1993) proposed a classification system similar to Schumm for alluvial, colluvial, and bedrock streams in the Pacific Northwest. This system addresses channel response to sediment inputs throughout the drainage network. Six classes of alluvial channels were identified—cascade, step-pool, plane-bed, riffle-pool, regime, and braided. The stream types are differentiated based on channel response to sediment inputs. For example, steeper channels maintain their morphology while transporting sediment. Streams with lower gradients make more morphological adjustments with increased sediment loads (FISRWG, 1998).

A conceptual model of channel evolution in response to channelization (CEM-channel evolution model) was developed by Simon and Hupp (1986, 1987), Hupp and Simon (1986, 1991), and Simon (1989a, 1989b). The model identifies six geomorphic stages of channel response and was developed and extensively applied to predict empirical stream channel changes following large-scale channelization projects in western Tennessee. Data required for model application include bed elevation and gradient, channel top-width, and channel length before, during, and after modification. Gauging station data can be used to evaluate changes through time of the stage-discharge relationship and bed-level trends. Riparian vegetation is dated to provide ages of various geomorphic surfaces and thereby to deduce the temporal stability of a reach.

A component of Simon and Hupp's (1986, 1987) channel response model is the identification of specific groups of woody plants associated with each of the six geomorphic channel response stages. Their findings for western Tennessee streams suggest that the site preference or avoidance patterns of selected tree species allow their use as indicators of specific bank conditions. This method might require calibration for specific regions of the United States to account for differences in riparian zone plant communities, but it would allow simple vegetative reconnaissance of an area to be used for a preliminary estimate of stream recovery stage (Simon and Hupp, 1987).

Restoring or maintaining streams to a stable form through natural channel design requires detailed information about surface water hydrology and the interactions between rainfall and overland flow or runoff. The Rosgen classification system, developed by David L. Rosgen, and presented in *Applied River Morphology*, is currently the most comprehensive and widely used quantitative assessment method for geomorphology. It represents a compilation of much of the early work in applied fluvial geomorphology and relies largely on the identification of bankfull field indicators. The bankfull discharge is the flow event that fills a stable alluvial channel up to the elevation of the active floodplain (Rosgen, 1996). Dunne and Leopold (1978) first developed hydraulic geometry relationships for the bankfull stage, also called regional curves. Most river engineers and hydrologists work under the assumption that the bankfull discharge is equivalent to the channel forming or dominant discharge in geomorphic classification and in analog and empirical design methods. The bankfull discharge is the only discharge that can be easily identified in the field using physical indicators; therefore it is one of the most commonly used in natural channel design. Additional information about Rosgen is available in Chapter 7.

Moment-in-time stream classifications provide insights into the existing form of the stream and can help to define design parameters and understand potential modifications in reference to existing conditions. Stream classification offers a way to categorize streams based on channel morphology. The older classification systems were largely qualitative descriptions of stream features and landforms and were difficult to apply universally. In 1994, Rosgen published *A Classification of Natural Rivers*. Because of its relative simplicity and usefulness in stream restoration, the Rosgen classification system has become popular among hydrologists, engineers, geomorphologists, and biologists working to restore the biological function and stability of degraded streams. The classification consists of 41 major stream types for which stream channel stability and stream bank erosion potential can be assessed. From the assessment, structures for in-stream and stream bank restoration or modification can be selected. When planning stream restoration projects, it is important for the planning team to use a multidisciplinary approach that includes consideration of hydraulics, hydrology, water quality, geomorphological processes, and biological interactions to develop and implement a successful restoration. Chapter 7 provides additional detailed information on stream classification practices.

In site selection, geomorphic assessments can determine if a site is unstable and in need of some form of restoration activity. During design, geomorphic assessments can be used in combination with hydrologic, hydraulic, and/or sediment transport analyses to define design elements such as channel slope and hydraulic geometry.

Sediment transport analysis in rivers and streams is used to approximate the amount of sediment being moved by flow event scenarios and to determine where it will be deposited. Modeling the sediment transport capacity of a channel and its predicted sediment deposition patterns are important for assessing existing and proposed channel design projects to estimate potential project impacts. Sediment transport analysis is also useful for determining restoration opportunities in existing channelization and channel modification projects. Sediment transport analysis is often coupled with stable channel analyses methods to refine channel geometries to estimate optimal scour and deposition characteristics (Schulte et al., 2000). A good source of technical information on sediment transport analysis can be found in *River Engineering for Highway Encroachments* (FHWA, 2001).

Sediment transport analysis has been used in many projects, including:

- Channel design projects (Schulte et al., 2000)
- Stream restoration design (Copeland et al., 2001; Shields et al., 2003)
- Flood control projects (USACE, 1994)
- Highway projects that include stream crossings (FHWA, 2001)

In the design of new channelization projects and analysis of existing projects, channels are typically evaluated using channel stability methods and then the analysis is refined using sediment transport models. Sediment transport analysis is used to refine geometry so that scour and deposition are minimized. It is also used to determine the optimum grade control structure elevation and placement and to find the excavation depths in depositional zones to minimize operational costs for maintaining the channel geometry (Schulte et al., 2000).

The methods and techniques used to accomplish a geomorphic assessment should be project-specific and conducted by personnel trained in applied fluvial geomorphology. Geomorphic assessment of streams has evolved rapidly over the past 10–15 years. Initial methodologies tended to be tailored for localized applications and required extensive data collection and validation. Rosgen's methodology provides a more universal approach to stream classification that represents trade-offs between data collection needs and ease of application for many different stream types. The challenge to this type of modeling and assessment has always been to balance the complexity and need for extensive data collection with ease of use and reliability of the results. The key is that the geomorphic assessment must provide a fundamental understanding of the linkage between river form and process. The assessment should provide insight into where the stream has been, is now, and in what direction it is moving. It should also place the project reach in the context of broader system wide adjustment processes. Geomorphic assessment can be used to select sites for restoration and develop designs.

Expert Judgment and Checklists

Approaches using expert judgment and checklists developed based on experience acquired in previous projects and case studies may be very helpful in integrating environmental goals into project development. The USACE used this concept of incorporating environmental goals into project design (Shields and Schaefer, 1990) in the development of a computer-based system for the environmental design of waterways (ENDOW). The ENDOW system is composed of three modules: a streambank protection module, a flood control channel module, and a streamside levee module. The three modules require the definition of the pertinent environmental goals to be considered in the identification of design features. Depending on the environmental goals selected for each module, ENDOW will display a list of comments or cautions about anticipated impacts and other precautions to be taken into account in the design.

Another example of using expert judgment is the Proper Functioning Condition (PFC) technique. PFC was developed by the Bureau of Land Management (BLM) to rapidly assess whether a stream riparian area is functioning properly in terms of hydrology, landform/soils, channel characteristics, and vegetation. The assessment is performed by an interdisciplinary team and involves completing a checklist evaluating 17 factors concerning hydrology, vegetation, and erosional/depositional characteristics. The PFC field technique is not quantitative, but with adequate training, results are reproducible to a high degree (FISRWG, 1998).

Operation and Maintenance Activities

Implementation practices for instream and riparian habitat restoration in planned or existing modified channels are consistent with those management practices for physical and chemical characteristics of channelized or modified surface waters. To prevent future impacts to instream or riparian habitat or to solve current problems caused by channelization or channel modification projects, include one or more of the following practices to mitigate the undesirable changes:

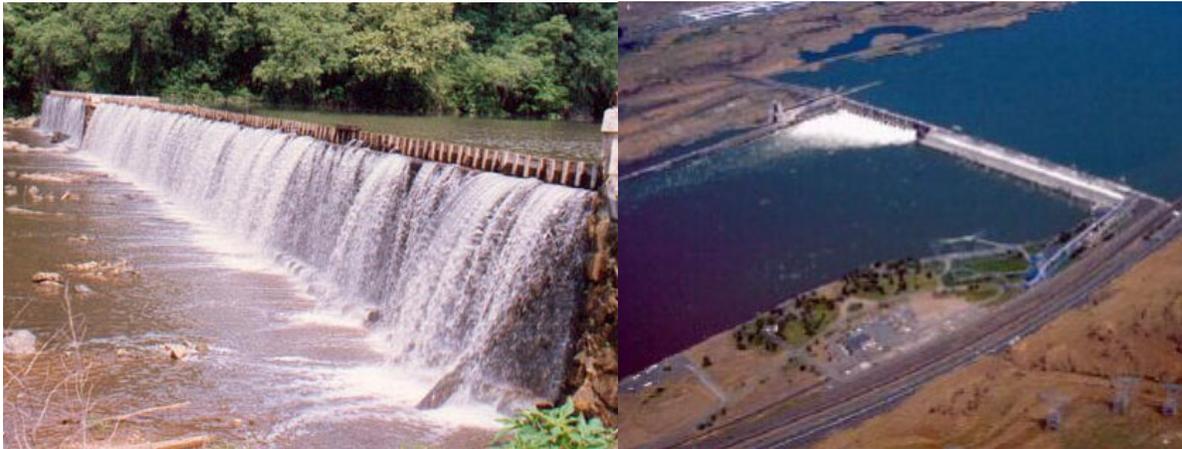
- Bank shaping and planting
- Branch packing
- Brush layering
- Brush mattresses
- Bulkheads and seawalls

- Check dams
- Coconut fiber roll
- Dormant post plantings
- Erosion and Sediment Control (ESC) Plans
- Establish and protect stream buffers
- Joint plantings
- Levees, setback levees, and floodwalls
- Live cribwalls
- Live fascines
- Live staking
- Marsh creation and restoration
- Noneroding roadways
- Return walls
- Revetments
- Riparian improvements
- Riprap
- Root wad revetments
- Rosgen's Stream Classification Method
- Setbacks
- Toe protection
- Tree revetments
- Vegetated buffers
- Vegetated gabions
- Vegetated geogrids
- Vegetated reinforced soil slope (VRSS)
- Wing deflectors

Additional information about each of the above practices is available in Chapter 7. The Additional Resources section provides a number of sources for obtaining information about the effectiveness, limitations, and cost estimates for these practices.

Operation and maintenance programs should weigh the benefits of including practices such as those for mitigating any current or future impairments to instream or riparian habitat. Additional information about these practices can be found in Chapter 7. Also, Fischenich and Allen (2000) provide a comprehensive summary of practices that can be evaluated for use in operation and maintenance programs.

Chapter 4: Dams



Dams are a common form of hydromodification. The National Research Council estimated that there were more than 2.5 million dams in the United States in 1992 (NRC, 1992). These dams range in size from berms across small streams that create farm ponds to large concrete structures across major rivers for hydropower and flood control. The USACE estimates (of these 2.5 million dams in the United States) about 79,000 are large enough to be included in the National Inventory of Dams (USACE, n.d.b.).¹

Dams generally were built to store and provide water for mechanical power generation (e.g., waterwheels to mill grain), industrial cooling, hydroelectric power generation, agricultural irrigation, municipal water supplies for human consumption, and impoundment-based recreation (e.g., boating and sport fishing). Dams are also used for flood control and to maintain channel depths for barge transportation.

Dams can be associated with a number of effects, including changes to hydrology, water quality, habitat, and river morphology. Lakes and reservoirs integrate many processes that take place in their contributing watersheds, including processes that contribute energy (heat), sediment, nutrients, and toxic substances. Human activities, such as agricultural and urban land use, contribute to contaminant and sediment loads to reservoirs. The presence and operation of dams can determine the fate of these pollutants in a reservoir or impoundment and potentially downstream as water is released from the dam. For example, the presence of a dam may lead to sediment accumulation in a reservoir. However, there are management practices that can mitigate this integrative effect of a reservoir. One example is selective withdrawals, which are an operational technique that can be used by some dam operators to provide water quality and temperatures necessary to sustain downstream fish populations.

When dams are built, depending on size and design, they may alter the river system structure, causing it to change from a river (flowing) to lake (static) and back to a river (flowing) system.

¹ With the National Dam Inspection Act (P.L. 92-367) of 1972, Congress authorized the U.S. Army Corps of Engineers (USACE) to inventory U.S. dams. The Water Resources Development Act of 1986 (P.L. 99-662) authorized USACE to maintain and periodically publish an updated National Inventory of Dams (NID).

Dams with large storage capacities will, by design, retain water longer than those with little storage. This can change system flow patterns, which can affect water quality and habitat upstream and downstream of the dam. Most effects from dams are observed downstream. Table 4.1 provides a description of several common types of dams.

Table 4.1 Types of Dams (FEMA, 2003)

Type of Dam	Description
Ambursen dam	A buttress dam in which the upstream part is a relatively thin, flat slab usually made of reinforced concrete
Arch dam	A concrete, masonry, or timber dam with the alignment curved upstream so as to transmit the major part of the water load to the abutments
Buttress dam	A dam consisting of a watertight part supported at intervals on the downstream side by a series of buttresses
Crib dam	A gravity dam built up of boxes, crossed timbers, or gabions, filled with earth or rock
Diversion dam	A dam built to divert water from a waterway or stream into a different watercourse
Double curvature arch dam	An arch dam that is curved both vertically and horizontally
Earth dam	An embankment dam in which more than 50% of the total volume is formed of compacted earth layers that are generally smaller than 3-inch size
Embankment dam	Any dam constructed of excavated natural materials, such as both earthfill and rockfill dams, or of industrial waste materials, such as a tailings dam
Gravity dam	A dam constructed of concrete and/or masonry, which relies on its weight and internal strength for stability
Hollow gravity dam	A dam constructed of concrete and/or masonry on the outside but having a hollow interior and relying on its weight for stability
Hydraulic fill dam	An earth dam constructed of materials, often dredged, which are conveyed and placed by suspension in flowing water
Industrial waste dam	An embankment dam, usually built in stages, to create storage for the disposal of waste products from an industrial process
Masonry dam	Any dam constructed mainly of stone, brick, or concrete blocks pointed with mortar
Mine tailings dam (or tailings dam)	An industrial waste dam in which the waste materials come from mining operations or mineral processing
Multiple arch dam	A buttress dam comprised of a series of arches for the upstream face
Overflow dam	A dam designed to be overtopped
Regulating dam (or afterbay dam)	A dam impounding a reservoir from which water is released to regulate the flow downstream
Rock-fill dam	An embankment dam in which more than 50% of the total volume is comprised of compacted or dumped cobbles, boulders, rock fragments, or quarried rock generally larger than 3-inch size
Roller compacted concrete dam	A concrete gravity dam constructed by the use of a dry mix concrete transported by conventional construction equipment and compacted by rolling, usually with vibratory rollers
Rubble dam	A stone masonry dam in which the stones are unshaped or uncoursed
Saddle dam (or dike)	A subsidiary dam of any type constructed across a saddle or low point on the perimeter of a reservoir

Siting, construction, operation, maintenance, and removal of dams can lead to nonpoint source (NPS) effects. For example, siting of dams can result in inundation of wetlands, riparian areas, and fastland in areas upstream of the dam. During construction or maintenance, erosion and soil loss occurs. Proper siting and design help prevent erosion prone areas from being developed. For dams actively controlled by human operators, dam operation and the amount of water released can affect downstream areas when flood waters necessary to deliver sediment are restricted, or when controlled releases from dams change the timing, quantity, or quality of downstream flow. While removal of dams can lead to physical and biological impacts, such as temporary increased turbidity from redistribution of sediment previously stored behind the dam or displacement of warm-water species that prefer lake-like conditions, dam removal has many biological and habitat benefits, such as allowing for easier fish movement and a return of natural stream temperatures and dissolved oxygen. Sometimes, however, dams limit passage of undesirable invasive species. Therefore, a comprehensive evaluation of the benefits and limitations resulting from the presence of a dam should be completed when evaluating operation and maintenance procedures, as well as options for removal. A more detailed discussion of water quality, biological, habitat, physical, and chemical changes from dam removal is provided in Chapter 2.

One opportunity to evaluate and address the NPS impacts of some larger dams that are used for hydropower occurs during the licensing/relicensing process. The Federal Power Act (FPA) requires all nonfederal hydropower projects located on navigable waters to be licensed. The FPA (16 U.S.C. 791-828c) was originally enacted as the Federal Water Power Act in 1920 and was made part of the FPA in 1935. The Federal Energy Regulatory Commission (FERC) is the independent regulatory agency within the Department of Energy that has exclusive authority, under the FPA, to license such projects. The hydropower dam relicensing process offers an opportunity to assess the balance between natural resources and the generation of electricity and to address some areas that are determined to be problematic. Stakeholders, including dam owners and operators, local governments, environmental groups, and the public, often have different interests to be balanced. Through the FPA and the relicensing process, these varied interests can be evaluated and a balanced outcome can be derived. In conjunction with FPA licensing requirements, states and authorized tribes certify that discharges (including those that originate from dams) meet water quality standards under section 401 of the Clean Water Act (CWA).

The FPA also requires relicensing to be conducted in light of recent laws and regulations that are in effect at the time of renewal. As regulations related to hydropower dams change, it is possible that many dams that were previously licensed and are up for relicensing may no longer be in compliance with current regulatory standards. For example, many dams were built prior to the CWA, which includes regulatory requirements for protecting and maintaining designated uses (such as protecting desired aquatic life or maintaining bacterial water quality that is protective of human health for all recreational activities). Other regulatory requirements that may be evaluated during relicensing include protections for wetlands, aquatic habitat, and endangered species.²

² Additional information about FERC and hydropower licensing/relicensing is available at <http://www.ferc.gov>.

Management Measure 3: Erosion and Sediment Control for the Construction of New Dams and Maintenance of Existing Dams

Management Measure 3

- 1) Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction.
- 2) Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

The purpose of this management measure is to prevent sediment from entering surface waters during the construction or maintenance of dams. This management measure emphasizes the importance of minimizing sediment loss to surface waters during both dam construction and maintenance. It is essential that proper erosion and sediment control practices be used to protect surface water quality because of the high potential for sediment loss directly to surface waters. Sediment and erosion control practices can be borrowed from other applications, such as urban development and construction activities.

Two broad performance goals constitute this management measure: minimizing erosion and maximizing the retention of sediment onsite. These performance goals allow for site-specific flexibility in specifying practices appropriate for local conditions. Regular inspections of a dam are valuable opportunities for dam owners to identify erosion problems and implement sediment controls to protect the integrity of the dam. Since the number of new dam construction projects is relatively small compared to the number of existing dams, operation and maintenance activities offer significantly more opportunities to prevent NPS problems associated with erosion and sediment control.

Dam owners are encouraged to establish a program of regular safety inspection of the dam's infrastructure and dam maintenance. Safety inspection of a dam is a program of regular visual inspection using simple equipment and techniques. These inspections are often an economical means of ensuring the long-term safety and survival of a dam structure. By regularly monitoring the condition and performance of the dam and its surroundings, adequate warning of potentially unsafe conditions will enable timely maintenance. Being able to recognize the signs of potential problems and failure, as well as what to do and whom to contact, is vital. Partial or total failure of a dam may cause extensive damage to downstream areas, including loss of life, property damage, and impacts to wetlands, riparian areas, stream channels, and other ecologically important lands, for which the owner may be held liable. There are also potentially expensive repair costs and lost income that may result from failures or poorly maintained dam structures.

The primary areas of dam structural failure are:

- Loss of clay soils used in berms and other earthen structures
- Seepage and leakage at the base or along pipes
- Erosion, including wave action, stock damage and spillways
- Cracking and movement of structural components
- Defects in associated structures
- Vegetation, including catchment protection and weed control

Operation and maintenance should be applied to small, as well as large dams. Many owners of small dams, like those on farm ponds, should regularly inspect their dams for maintenance needs. Local NRCS staff can provide technical assistance to small dam owners for operation and maintenance activities.³

Regular operation and maintenance efforts can lead to some dams being in need of repairs and/or upgrades. Designs for repairs and upgrades can involve replacing reinforced concrete risers and impact basins, replacing rusted out corrugated metal pipe principal spillways, raising the top of the dams, widening the auxiliary spillways, and removing sediment from the flood pools. Examples of project costs for these types of maintenance activities reported in Ohio have ranged from \$175,000 on a small dam to \$775,000 on the largest dam (Brate, 2004).

At the state and local levels, this measure can be incorporated into existing erosion and sediment control (ESC) programs. This measure can also be effectively implemented as part of safety inspection requirements. Erosion and sediment control is also intended to be part of a comprehensive land use or watershed management program.

Management Practices for Management Measure 3

The management measure can be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices described below can be applied successfully to implement the management measure for erosion and sediment control for construction of new dams and maintenance of existing dams.

Erosion Control Practices

Successful control of erosion and sedimentation from construction and maintenance activities can involve a system of management practices that targets each stage of the erosion process. The most efficient approach involves minimizing the potential sources of sediment from the onset. This means limiting the extent and duration of land disturbance to the minimum needed, and protecting surfaces once they are exposed. The second stage of the management practice system involves controlling the amount of runoff and its ability to carry sediment by diverting incoming flows and impeding internally generated flows. The third stage involves retaining sediment that is picked up on the project site through the use of sediment-capturing devices. On most sites

³ Contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app>) to access NRCS in your community.

successful erosion and sedimentation control requires a combination of structural and vegetative practices. All of these stages are better performed using advanced planning and good scheduling.

The timing of land disturbing activities and installation of erosion control measures must be coordinated to minimize water quality impacts. For large scale activities, the management practice system is typically installed in reverse order, starting with sediment capturing devices, followed by key runoff control measures and runoff conveyances, and then land clearing activities. Often, construction or maintenance activities that generate significant off-site sediment have failed to sequence activities in the proper order.

Erosion controls reduce the amount of sediment lost during dam construction and prevent sediment from entering surface waters. Erosion control is based on (1) minimizing the area and time of land disturbance and (2) quickly stabilizing disturbed soils to prevent erosion.

The effectiveness of erosion control practices can vary based on land slope, the size of the disturbed area, rainfall frequency and intensity, wind conditions, soil type, use of heavy machinery, length of time soils are exposed and unprotected, and other factors. In general, a system of erosion and sediment control practices can more effectively reduce offsite sediment transport than a single practice. Numerous nonstructural measures such as protecting natural or newly planted vegetation, minimizing the disturbance of vegetation on steep slopes and other highly erodible areas, maximizing the distance eroded material must travel before reaching the drainage system, and locating roads away from sensitive areas may be used to reduce erosion.

The following practices have proven to be useful in controlling erosion and can be incorporated into ESC plans and used during dam construction as appropriate. These practices can be used during and after construction and throughout ongoing maintenance activities.

- Bank shaping and planting
- Branch packing
- Brush layering
- Brush mattressing
- Bulkheads and seawalls
- Check dams
- Coconut fiber roll
- Construct runoff intercepts
- Construction management
- Dormant post plantings
- Erosion and sediment control (ESC) plans
- Erosion control blankets
- Joint planting
- Live cribwalls
- Live fascines
- Live staking
- Locate potential land disturbing activities away from critical areas
- Mulching

- Noneroding roadways
- Phase construction
- Preserve onsite vegetation
- Retaining walls
- Revegetate
- Revetment
- Riparian improvements
- Riprap
- Rootwad revetments
- Scheduling projects
- Sediment fences
- Seeding
- Site fingerprinting
- Sodding
- Soil protection
- Surface roughening
- Training—erosion and sediment control
- Tree armoring, fencing, and retaining walls or tree walls
- Tree revetments
- Vegetated buffers
- Vegetated filter strips
- Vegetated gabions
- Vegetated geogrids
- Vegetated reinforced soil slope (VRSS)
- Wildflower cover
- Wind erosion controls

A more detailed discussion of each of the above practices is provided in Chapter 7.

Runoff Control

To prevent the entry of sediment used during construction into surface waters, these precautionary steps should be followed:

- Identify areas with steep slopes, unstable soils, inadequate vegetation density, insufficient drainage, or other conditions that give rise to a high erosion potential.
- Identify measures to reduce runoff from such areas if disturbance of these areas cannot be avoided (Hynson et al., 1985).

Runoff diversions are structures that channel upslope runoff away from erosion source areas, divert sediment-laden runoff to appropriate traps or stable outlets, or capture runoff before it leaves the site, diverting it to locations where it can be used or released without erosion or flood damage. Diversions can be either temporary or permanent in nature.

Runoff control measures, mechanical sediment control measures, grassed filter strips, mulching, and/or sediment basins could be used to control runoff from the construction site. Scheduling

construction during drier seasons, exposing areas for only the time needed for completion of specific activities, and avoiding stream fording also help to reduce the amount of runoff created during construction.

The largest surface water pollution problem during construction is suspended sediment resulting from aggregate processing, excavation, and concrete work. Preventing the entry of these materials above and/or below a dam is always the preferable alternative because runoff due to these types of construction activities can add more sediment to a reservoir, harm aquatic life above and below the dam, or affect habitat in streams below a dam. Filtration and gravitational settling during detention are the main processes used to remove sediment from construction site runoff. Methods used to control runoff and associated sedimentation from construction sites include:

- Check dams
- Constructing runoff intercepts
- Locate potential land disturbing activities away from critical areas
- Preserve onsite vegetation
- Retaining walls
- Sediment basins/rock dams
- Sediment fences
- Sediment traps
- Vegetated buffers
- Vegetated filter strips

A more detailed discussion of each of the above practices is provided in Chapter 7.

Erosion and Sediment Control (ESC) Plans

ESC plans can be used to control erosion and sediment and incorporate such control in planning. Some states call for specific requirements to be included in state ESC plans. Table 4.2 provides examples of several state ESC plan requirements. Additional detail about ESC plans, including general objectives, and management techniques for ensure proper administration of plans, is available in Chapter 7.

Table 4.2 Examples of Erosion and Sediment Control Plan Requirements for Select States

Location	General Requirements for ESC Plan
Delaware	ESC plans required for sites over 5,000 ft ² . Temporary or permanent stabilization must occur within 14 days of disturbance.
Florida	ESC plans required on all sites that need a runoff management permit.
Georgia	ESC plan required for all land-disturbing activities.
Indiana	ESC plan required for sites over 5 acres.
Maine	ESC plans required for sites adjacent to a wetland or waterbody. Stabilization must occur at completion or if no construction activity is to occur for 7 days. If temporary stabilization is used, permanent stabilization must be implemented within 30 days.
Maryland	ESC plans required for sites over 5,000 ft ² or 100 yd ³ .
Michigan	ESC plans required for sites over 1 acre or within 500 ft of a waterbody. Permanent stabilization must occur within 15 days of final grading. Temporary stabilization is required within 30 days if construction ceases.

Location	General Requirements for ESC Plan
Minnesota	ESC plans required for land development over 1 acre.
New Jersey	ESC plans required for sites over 5,000 ft ² .
North Carolina	ESC plans required for sites over 1 acre. Controls must retain sediment on-site. Stabilization must occur within 30 days of completion of any phase of development.
Ohio	ESC plans required for sites over 5 acres. Permanent stabilization must occur within 7 days of final grading or when there is no construction activity for 45 days.
Oklahoma	ESC plans required for sites over 5 acres.
Pennsylvania	ESC plans required for all sites, but the state reviews only plans for sites over 25 acres. Permanent stabilization must occur as soon as possible after final grading. Temporary stabilization is required within 70 days if construction ceases for more than 30 days. Permanent stabilization is required if the site will be inactive for more than 1 year.
South Carolina	ESC plans required for all sites unless specifically exempted. Perimeter controls must be installed. Temporary or permanent stabilization is required for topsoil stockpiles and all other areas within 7 days of disturbance.
Virginia	For areas within the jurisdiction of the Chesapeake Bay Preservation Act, no more land is to be disturbed than necessary for the project. Indigenous vegetation must be preserved to the greatest extent possible.
Washington	ESC provisions are incorporated into the state runoff management plan.
Wisconsin	ESC plans required for all sites over 4,000 ft ³ . Temporary or permanent stabilization is required within 7 days.

(Adapted from Environmental Law Institute, 1998; USEPA, 1993)

Management Measure 4: Chemical and Pollutant Control at Dams

Management Measure 4

- 1) Limit application, generation, and migration of toxic substances.
- 2) Ensure the proper storage and disposal of toxic materials.
- 3) Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.

This management measure is intended to be applied to the construction of new dams, as well as to construction activities associated with the maintenance of dams. This management measure addresses fuel and chemical spills associated with dam construction and operation and maintenance activities, as well as concrete washout and related construction activities. The purpose of this management measure is to prevent downstream contamination from pollutants associated with dam construction and maintenance activities.

Although suspended sediment is the major pollutant generated at a construction site, other pollutants that may be present around dams (especially during construction and operation and maintenance activities) include:

- Petroleum products—fuels and lubricants, specifically gasoline, diesel oil, kerosene, lubricating oils, grease, and asphalt
- Pesticides—insecticides, herbicides, fungicides, and rodenticides
- Fertilizers
- Construction chemicals—acids, soil additives, and concrete-curing compounds
- Wastewater—aggregate wash water, herbicide wash water, concrete-curing water, core-drilling wastewater, or clean-up water from concrete mixers
- Solid wastes—paper, wood, metal, rubber, plastic, and roofing materials
- Garbage
- Sanitary wastes
- Cement
- Lime

This management measure is important because most erosion and sediment control practices are ineffective at retaining soluble NPS pollutants on a construction site. Many of the NPS pollutants, other than suspended sediment, generated at a construction site are carried offsite in solution or attached to clay particles in runoff. Some metals (e.g., manganese, iron, and nickel) attach to larger sediment particles and usually can be retained onsite. Other metals (e.g., copper, cobalt, and chromium) attach to fine clay particles and have greater potential to be carried offsite. Insoluble pollutants (e.g., oils, petrochemicals, and asphalt) form a surface film on runoff water and can be easily washed away (USEPA, 1973; USEPA, 2002b; USEPA, 2005d). Factors that influence the pollution potential of construction chemicals include:

- The nature of the construction and maintenance activity
- The physical characteristics of the construction site
- The characteristics of the receiving water

Dam construction sites are particularly sensitive areas and have the potential to severely impact surface waters with runoff containing construction chemical pollutants. Because dams are located on rivers or streams, pollutants generated at these construction sites have a much shorter distance to travel before entering surface waters. Therefore, chemicals and other NPS pollutants generated at a dam construction site should be controlled.

Management Practices for Management Measure 4

The management measure generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices described below can be applied successfully to implement the control of chemicals and pollutants at dams. This includes dam construction as well as routine maintenance. Practices for controlling chemicals and pollutants include the following:

- Equipment runoff control
- Fuel and maintenance staging areas
- Locate potential land disturbing activities away from critical areas
- Pesticide and fertilizer management
- Pollutant runoff control
- Spill prevention and control program

A more detailed discussion of each of the above practices is provided in Chapter 7.

Management Measure 5: Protection of Surface Water Quality and Instream and Riparian Habitat

Management Measure 5

Develop and implement a program to manage the operation of dams that includes an assessment of:

- 1) Surface water quality and instream and riparian habitat and potential for improvement.
- 2) Significant nonpoint source pollution problems that result from excessive surface water withdrawals.

This management measure is intended to be applied to dam operation, maintenance, and removal activities that result in the loss of desirable surface water quality, and of desirable instream and riparian habitat.

The purpose of the management measure is to protect the quality of surface waters and aquatic habitat (including riparian habitat) in the portion of rivers and streams that are impacted by dams. Operation, maintenance, and dam removal activities can be assessed to determine opportunities for potential improvements in water quality and aquatic habitat. These activities, as well as actions within the watershed, that contribute NPS pollutants to an impoundment should be collectively and periodically evaluated to help identify opportunities for cost-effective change.

The recommended overall programmatic approach is to evaluate a set of practices that can be applied individually or in combination to protect and improve surface water quality and aquatic habitat in reservoirs, as well as in areas downstream of dams. Then, a program can be implemented using the most cost-effective operation, maintenance, and removal activities to protect and improve surface water quality and aquatic and riparian habitat.

The individual application of any particular technique, such as aeration, change in operational procedure, restoration of an aquatic or riparian habitat, or implementation of a watershed protection best management practice (BMP), will, by itself, probably not improve water quality to an acceptable level within the reservoir impoundment or in tailwaters flowing through downstream areas. The individual practices discussed in this portion of the guidance may have to be implemented in some combination in order to improve water quality in the impoundment or in tailwaters to acceptable levels.

Selection of the management measure for the protection of surface water and instream and riparian habitat was based on:

- The availability and demonstrated effectiveness of practices to improve water quality in impoundments and in tailwaters of dams.

- The level of improvement in water quality of impoundments and tailwaters that can be measured from implementation of engineering practices, operational procedures, watershed protection approaches, or aquatic or riparian habitat improvements.

Successful implementation of the management measure should generally involve the following categories of practices undertaken individually or in combination to improve water quality and aquatic and riparian habitat in reservoir impoundments and in tailwaters:

- Artificial destratification and hypolimnetic aeration of reservoirs with deep withdrawal points that do not have multilevel outlets to improve dissolved oxygen (DO) levels in the impoundment and to decrease levels of other types of NPS pollutants, such as manganese, iron, hydrogen sulfide, methane, ammonia, and phosphorus in reservoir releases.
- Aeration of reservoir releases, through turbine venting, injection of air into turbine releases, installation of reregulation weirs, use of selective withdrawal structures, or modification of other turbine start-up or pulsing procedures.
- Providing both minimum flows to enhance the establishment of desirable instream habitat and scouring flows as necessary to maintain instream habitat.
- Establishing adequate fish passage or alternative spawning ground and instream habitat for fish species.
- Improving watershed protection by installing and maintaining BMPs in the drainage area above the dam to remove phosphorus, suspended sediment, and organic matter and otherwise improve the quality of surface waters flowing into the impoundment.
- Removing dams, which are unsafe, unwanted, or obsolete, after careful consideration of alternatives.

Since the presence and operation of a dam have the potential to cause impacts, periodic assessments of reservoir water quality, watershed activities, and operational practices may provide valuable information for evaluating management strategies. The types and severity of the impacts can serve as an indicator of the frequency and magnitude of the assessments. There are a variety of assessment tools that are available to assist decision-makers in the evaluation of impacts associated with dams. Watershed-related impacts and management activities can be evaluated with a variety of models. EPA supports several models that may be useful for watershed assessments, such as BASINS.⁴

⁴ More information about EPA-supported watershed assessment tools can be found at <http://www.epa.gov/waterscience/wqm>.

Reservoir water quality can also be assessed with various models. Table 8-1 in this document provides a list of models that may be used to assess reservoir water quality. Also presented in Table 8-1 are models that could be used to evaluate downstream impacts of dams.⁵

Management Practices for Management Measure 5

The management measure generally can be implemented by applying one or more management practices appropriate to the source, location, and climate. Management practices that can be used to achieve the management measure include practices to improve water quality, restore or maintain aquatic and riparian habitat, and maintain fish passage, as well as possible removal of dams. The subsection on dam removal includes planning and evaluation considerations, descriptions of the removal process, permitting requests, sediment removal techniques, descriptions of changes associated with dam removal, and a discussion of potential biological impacts.

Practices for Improving Water Quality

Management practices for improving water quality associated with the operation and maintenance of dams can be categorized as:

- Watershed Protection Practices—activities to reduce NPS pollution that take place within the watershed surrounding a dam. Reduced NPS pollutant inputs, such as sediment or nutrients, can have a significant, positive effect on water quality within a reservoir and often in reservoir releases, as well.
- Practices for Aeration of Reservoir Water—aeration activities within the reservoir. The primary goal for aerating a large portion of reservoir water is to increase oxygen levels throughout the reservoir. Other water quality factors may also improve, including levels of dissolved metals and nutrients, destratification of the water column, and improved oxygen levels in releases.
- Practices for Aeration of Reservoir Releases—a variety of aeration techniques for improving water quality, specifically dissolved oxygen levels, are presented.

Improving water quality in impoundments and tailwaters often requires consideration of the interaction of several different factors. For example, achievement of desired DO levels at specific projects may require evaluation of several different technologies and management activities. The U.S. Army Corps of Engineers created a computer-modeling program, AERATE, that performs calculations to

Management practices to protect surface water quality and instream and riparian habitat are discussed in the following subsections:

- Improving Water Quality
 - Watershed Protection
 - Aeration of Reservoir Water
 - Aeration of Reservoir Releases
- Improving Aquatic Habitat
- Maintaining Fish Passage
- Dam Removal

⁵ The USACE Environmental Laboratory develops and supports several models, such as QUAL2E, Bathtub, and CE-QUAL-RI that can be found at <http://el.erdc.usace.army.mil/products.cfm?Topic=none>.

evaluate several direct (e.g., active aeration technologies) and indirect (e.g., activities such as watershed management to reduce nitrogen and phosphorous runoff, which result in improved DO) reservoir aeration techniques. The program considers the following aeration techniques: improving water quality in the reservoir, modifying the withdrawal outlet location (and thereby changing which water is withdrawn and released from the reservoir), treating the release water to eliminate the poor quality as the flow passes through the outlet structure, and treating the release water in the tail water area (Wilhelms and Yates, 1995).

Watershed Protection Practices

Many NPS pollution problems in reservoirs and dam tailwaters frequently result from sources in the contributing watershed (e.g., sediment, nutrients, metals, and toxics). Management of pollution sources from a watershed has been found to be a cost-effective solution for improving reservoir and dam tailwater water quality (TVA, 1988). Watershed protection practices can be effective in producing long-term water quality benefits and lack the high operation and maintenance costs associated with structural controls.

Additional information about watershed protection, specifically developing and implementing watershed plans, is available from EPA's draft *Handbook for Developing Watershed Plans to Restore and Protect Our Waters*. The handbook is available at <http://www.epa.gov/nps>.

Watershed protection is a technique that provides long-term water quality benefits, and many states and local communities have adopted this practice. Numerous state and local governments have already legislated and implemented detailed watershed planning programs that are consistent with this management measure. For example, Oregon, New Jersey, Delaware, and Florida have passed legislation that requires county and municipal governments to adopt comprehensive plans, including requirements to direct future development away from sensitive areas. Many municipalities and regions have adopted land use and growth controls, including the towns of Amherst and Norwood and the Cape Cod region of Massachusetts; Narragansett, Rhode Island; King County, Washington; and many others.

Watershed protection management practices fall under the following four categories:

- Encourage drainage protection—includes descriptions and applications of zoning techniques that can be used to limit development density or redirect density to less environmentally sensitive areas.
- Establish and protect stream buffers—describes important steps for protecting or establishing riparian buffer zones to enhance water quality and pollutant removal.
- Identify and address NPS contributions—involves identifying potential upstream sources of nonpoint source pollution, as well as providing solutions to minimize those impacts.
- Identify and preserve critical areas—entails identifying properties that if preserved or enhanced could maintain or improve water quality and reduce the impacts of urban runoff, as well as, preserving environmentally significant areas (includes land acquisition, easements, and development restrictions of various types).

Refer to Chapter 7 for additional information about each of the above practices.

Reservoir Aeration Practices

Systems that have been developed and tested for reservoir aeration rely on atmospheric air, compressed air, or liquid oxygen to increase DO concentrations in reservoir waters. Mixing of reservoir water to destratify warmer, oxygen rich, epilimnion and cooler, oxygen poor, hypolimnion waters can be used. However, this practice has not been used at large hydropower reservoirs because of the associated cost in deep, large volume reservoirs. Refer to Chapter 7 for additional information about reservoir aeration practices.

Practices to Improve Oxygen Levels in Tailwaters

Aeration of water as it passes through the dam or through the portion of the waterway immediately downstream from the dam is another approach to improving DO in water releases from dams. The systems in this category rely on agitation and turbulence to mix the reservoir releases with atmospheric air. One approach involves the increased use of spillways, which release surface water to prevent it from overtopping the dam. An alternative approach is to install barriers called weirs in the downstream areas. Weirs are designed to allow water to overtop them, which can increase DO through surface agitation and increased surface area contact. Some of these downstream systems create supersaturation of dissolved gases and may require additional modifications to prevent supersaturation, which may be harmful to aquatic organisms.

The quality of reservoir releases can be improved through adjustments in the operational procedures at dams. These include scheduling of releases or of the duration of shutoff periods, instituting procedures for the maintenance of minimum flows, making seasonal adjustments in the pool levels or in the timing and variation of the rate of drawdown, selecting the turbine unit that most increases DO (often increasing the DO levels by 1 mg/L), and operating more units simultaneously (often increasing DO levels by about 2 mg/L). The magnitude and duration of reservoir releases also should be evaluated to determine impacts to the salinity regime in coastal waters, which could be substantially altered from historical patterns.

Two factors should be considered when evaluating the suitability of hydraulic structures such as spillways and weirs for their application in raising the DO concentration in waterways:

- Most of the measurements of DO increases associated with hydraulic structures have been collected at low-head facilities. The effectiveness of these devices may be limited as the level of discharge increases (Wilhelms, 1988).
- The hydraulic functioning of these types of structures should be carefully considered since undesirable flow conditions may occur in some instances (Wilhelms, 1988).

Practices that improve oxygen levels in tailwaters include:

- Gated conduits
- Labyrinth weirs
- Modifying operational procedures
- Reregulation weirs
- Selective withdrawal

- Spillway modifications
- Turbine operation
- Turbine venting
- Water conveyances

Additional information about each of these practices is available in Chapter 7.

Practices to Restore or Maintain Aquatic and Riparian Habitat

Several options are available for the restoration or maintenance of aquatic and riparian habitat in the area of a reservoir impoundment or in portions of the waterway downstream from a dam. One set of practices is designed to augment existing flows that result from normal operation of the dam. These include operation of the facility to produce flushing flows, minimum flows, or turbine pulsing. Another approach to producing minimum flows is to install small turbines that operate continuously. Installation of reregulation weirs in the waterway downstream from the dam can also achieve minimum flows. Finally, riparian improvements are discussed for their importance and effectiveness in restoring or maintaining aquatic and riparian habitat in portions of the waterway affected by the location and operation of a dam.

A 2004 report from the National Academies' National Research Council (NRC, 2004) illustrates the importance of maintaining instream flows and critical wildlife habitat in streams where dams are present and notes that areas along Nebraska's Platte River are properly designated as "critical habitats" for the river's endangered whooping crane and threatened piping plover. A series of dams and reservoirs have been constructed in the river basin for flood control and to provide water for farm irrigation, power generation, recreation, and municipal use. The alterations to the river and surrounding land caused by this extensive water-control system, however, resulted in habitat changes that were at odds with the protection of the listed species.

Conflicts over the protection of federally listed species and water management in the Platte River Basin have existed for more than 25 years. In recent years, the Fish and Wildlife Service of the U.S. Department of the Interior issued a series of biological opinions indicating that new water depletions would have to be balanced by mitigation measures, and a lawsuit forced the designation of "critical habitat" for the piping plover. These and other controversies prompted the Department of the Interior and the Governance Committee of the Platte River Endangered Species Partnership to request that the National Research Council examine whether the current designations of "critical habitat" for the whooping crane and piping plover are supported by existing science. The National Research Council was also asked to assess whether current habitat conditions are affecting the survival of listed species or limiting their chances of recovery, and to examine the scientific basis for the department's instream-flow recommendations, habitat-suitability guidelines, and other decisions. The report concludes that in most instances habitat conditions are indeed affecting the likelihood of species survival and recovery.

Additional information about the following practices to restore or maintain aquatic and riparian habitat are available in Chapter 7:

- Constructed spawning beds
- Flow augmentation

- Riparian improvements
- Spillway modifications

Practices to Maintain Fish Passage

Migrating fish populations may be unable to travel up or downstream because of the presence of a dam or suffer losses when passing through the turbines of hydroelectric dams at facilities that have not been equipped with special design features to accommodate fish passage. The effect of dams and hydraulic structures on migrating fish has been studied since the early 1950s in an effort to develop systems or identify operating conditions that would minimize mortality rates. Selecting a device or management strategy for optimal fish passage in a stream or river with a dam requires careful analysis of a variety of factors, such as species, type and operational strategy of the dam, and the physical characteristics of the river system.

Larinier (2000) reports that devices such as fish ladders and bypass channels can help fish travel past dams, but may result in increased mortality due to the hardship and stress involved with passing through these structures. In addition, the fish passage structures have to be placed in a suitable entrance location, have a flow that is attractive to the species of concern, be continually maintained, and possess the hydraulic conditions necessary for the target species (Larinier, 2000). With all of these requirements, the success of a fish ladder or similar device is often uncertain. Passage through the hydraulic turbines of a hydropower dam can cause increased stress as a result of changes in velocity or pressure and the possibility of electric shocks from the turbines and can lead to increased mortality (Larinier, 2000).

The safe passage of fish either upstream or downstream through a dam requires a balance between operation of the facility for its intended uses and implementation of practices that will ensure safe passage of fish. The United States Congress' Office of Technology Assessment (OTA) report on fish passage technologies at hydropower facilities provides an excellent overview of fish passage technologies and discusses some of the economic considerations associated with the safe passage of fish (OTA, 1995).

The U.S. Fish and Wildlife Service and its partners have created a database that makes information about barriers to fish passage in the United States available to policy makers and the public. The database, known as the Fish Passage Decision Support System (FPDSS),⁶ is part of the U.S. Fish and Wildlife Service's National Fish Passage Program.⁷

Available fish-protection systems for hydropower facilities fall into one of four categories based on their mode of action (Stone and Webster, 1986): behavioral barriers, physical barriers, collection systems, and diversion systems. These are discussed in separate sections below, along with additional practices that have been successfully used to maintain fish passage: spill and water budgets, fish ladders, fish lifts, advanced hydroelectric turbines, transference of fish runs, and constructed spawning beds.

⁶ <https://ecos.fws.gov/fpdss/index.do>

⁷ <http://www.fws.gov/fisheries/fwma/fishpassage>

Upstream fish passage systems have been constructed at approximately 10 percent of the FERC licensed hydropower plants. Upstream fish passage systems such as fish ladders and lifts are considered adequately developed for anadromous species such as salmon, American shad (*Alosa sapidissima*), alewives (*Alosa pseudoharengus*), and blueback herring (*Alosa aestivalis*). Fish passage systems for riverine fish have not been specifically designed, although some of these species will use fish passage systems designed for anadromous species (OTA, 1995).

Practices include:

- Advanced hydroelectric turbines
- Behavioral barriers
- Collection systems
- Fish ladders
- Fish lifts
- Physical barriers
- Spill and water budgets
- Transference of fish runs

Additional information about the above practices is available in Chapter 7.

Removal of Dams

The removal of dams has become an accepted practice for dam owners to deal with unsafe, unwanted, or obsolete dams. Dam removal may be necessary as dams deteriorate, sediments accumulate behind dams in reservoirs, human needs shift, and economics dictate (NRC, 1992). Dams serve a variety of important social and environmental purposes (e.g., water supply, flood control, power generation, wildlife habitat, and recreation). As a result, dam removal is often infrequent.

Dam Removal Resource

American Rivers is a nonprofit organization focusing on the health of U.S. river systems, fish, and wildlife. American Rivers' website hosts a variety of information related to hydromodification, including past and recent estimates of dam removals in the United States.
<http://www.americanrivers.org>

Migratory fish passage throughout United States rivers and streams is obstructed by over 2 million dams and many other barriers such as blocked, collapsed, and perched culverts. The National Oceanic and Atmospheric Administration (NOAA) is expanding its community-based approach to restoring fish habitat through the recently developed Open Rivers Initiative (ORI).⁸ Administered by NOAA Fisheries Service Office of Habitat Conservation, ORI is designed to help communities correct fish passage problems by focusing financial and technical resources on the removal of obsolete dams and other blockages. ORI strives to restore vital habitat for migrating fish like salmon, striped bass, sturgeon, and shad, as well as improve community safety and stimulate economic revitalization of riverfront communities. Through its more broadly focused Community-based Restoration Program (CRP), NOAA Fisheries Service has opened over 700 miles of stream habitat with financial and technical assistance provided to fish passage

⁸ <http://www.nmfs.noaa.gov/habitat/restoration/ORI>

projects. Examples of successfully completed CRP projects that fit the Open Rivers Initiative model include:

- Culvert removal in the John Smith Creek (Mendocino County, CA)
- Mt. Scott Creek dam removal (Happy Valley, OR)
- Wyomissing Creek dam removal (Reading, PA)
- Town Brook dam removal and fish ladder (Plymouth, MA)
- Sennebec dam removal (Union, ME)

There are many things to consider when removing a dam, one of which is the function(s) of the dam and the status of that function (active vs. inactive). As discussed above, dams are used for various purposes, including water supply, hydroelectric power, recreation, and flood control benefits. When proposals are made to remove a dam with one or more of these active functions, the way in which these functions and benefits will be replaced or mitigated must be addressed (FOR, 1999). An example of this process can be seen with the Jackson Street Dam, located on Bear Creek in Medford, Oregon. The dam diverted water from the creek into the irrigation canals of Rogue River Valley Irrigation District (RRVID). Since the dam created a partial barrier to migratory fish, a loss of stream habitat, and an algae-filled impoundment near the city park, a consensus was reached that removing the dam was the most cost-efficient means of eliminating the problem. However, since the dam was currently providing irrigation diversion, another cost-efficient diversion had to be devised for RRVID. The decision was made to replace the old dam with a less damaging diversion structure. The new structure is approximately one-fourth the height of the Jackson Street Dam (about 3 feet) and is located 1,200 feet upstream. The new structure is also removed at the end of the irrigation season, which coincides with the time of the year when most upstream migration occurs. When the new structure is in place during the irrigation season, it allows fish to migrate (by well-designed fish ladders and screens), and it was designed so that little water will back up behind it. It is also equipped with fish screens to keep fish out of the irrigation canal (FOE et al., 1999).

It is also important to consider the cost of removing a dam, and who will pay for the removal. Removal costs can vary from tens of thousands of dollars to hundreds of millions of dollars, depending on the size and location of the dam. Who pays for dam removal can be a complex issue. Removal in the past has often been financed by the dam owner; local, state, and federal government; and in some cases agreements where multiple stakeholders cover the costs (American Rivers, n.d.a.). A guide to selected funding sources (*Paying for Dam Removal: A Guide to Selected Funding Sources*)⁹ is available from American Rivers.

Dam owners are responsible to keep the dam safe. When a dam begins to fail or breach, a decision must be made as to whether to keep or repair the structure. When a dam generates no revenue, the long-term costs of liability insurance, dam and impoundment maintenance, and operation weigh heavily on the side of dam removal. On average, dam removal costs 3–5 times less than repair.

Source: Delaware Riverkeeper, n.d.

⁹ <http://www.americanrivers.org/site/DocServer/pdr-color.pdf?docID=727>

In the case of the Jackson Street Dam, the most cost-effective alternative to solving the problems associated with the dam was to remove it. However, since it was currently functioning, an alternative means to provide that function was needed. In some instances, it is not more beneficial to remove the dam if it is functioning. For example, USACE expressed concern over the costs of air pollution created by fuel-burning power plants needed to replace the lost power from dams in the debate over the removal of the Snake River dams (Lee, 1999). There was much controversy over whether it was more cost-efficient to remove the dams, especially due to the functions the dams provided. USACE found that replacing the dams would be costly, both monetarily and ecologically. The estimated costs to replace the lower Snake hydropower were between \$180 million to \$380 million a year for 100 years (Lee, 1999). In addition, the cost of the resulting increase in pollution due to natural gas or coal replacement plants was very high, yet an actual amount was not determined.

Evaluations made by the USACE found that the costs associated with removing the Snake River dams greatly exceeded the costs of maintaining, improving, and keeping them (Associated Press, 2002). Therefore, the dams along the Snake River remain and have been repaired. USACE plans to pursue technical and operational changes at the Snake River dams to improve fish survival, in addition to barging or trucking juvenile salmon around the dams (Associated Press and the Herald Staff, 2002).

The entire decision-making process is a delicate balance that involves many stakeholders. One important step in this process is to decide if the ecological benefits of removing the dam outweigh the benefits of maintaining the dam.

When deciding whether to remove a dam, interested parties should collect as much information as possible about the potential removal project. American Rivers has published a fact sheet (*Data Collection: Researching Dams and Rivers Prior to Removal*),¹⁰ which contains a variety of sources to help begin researching the particular dam that might be removed and the river on which it is located (American Rivers, n.d.b.).

American Rivers and Trout Unlimited have published a guide to help decide whether to remove a dam or not, *Exploring Dam Removal: A Decision-Making Guide* (American Rivers and Trout Unlimited, 2002).¹¹

Repercussions of Unsafe Dams (American Rivers, 1999)

Unsafe dams may result in:

1. Loss of life from surging flows if a dam fails
2. Destruction of property
3. Harm to the downstream river environment (e.g., erosion)
4. Release of toxic sediments (e.g., dioxins, PCBs)
5. Risk to users of the river (i.e., users may not be able to avoid life threatening hazards if in close approximation to a failing dam)
6. Jeopardizing delivery of critical services to communities (e.g., power generation, flood control)

The decision-making process related to dam removal is often complex with inputs from stakeholders with opposing desired outcomes. Additional resources related to dam removal are available in the Resources chapter.

¹⁰ http://www.americanrivers.org/site/DocServer/Researching_a_Dam_Data_Collection.pdf?docID=981

¹¹ http://www.americanrivers.org/site/DocServer/Exploring_Dam_Removal-A_Decision-Making_Guide.pdf?docID=3641

Chapter 5: Streambank and Shoreline Erosion



Figure 5.1 Shoreline Erosion: Before and After Photos (SEAS, 2007)

Streambanks and shorelines naturally erode. Water flowing along (parallel to) streambanks dislodges sediment and other materials that constitute the streambank. Similarly, water flowing perpendicular to shorelines, due to waves or tides, transports sediment and other materials away from the shoreline. Anthropogenic influences change the natural erosion processes, often increasing erosion locally and sedimentation downstream, along adjacent shorelines, or offshore. Many human activities change the hydraulic characteristics of stream flows or transfer energy to adjacent shorelines and contribute to increased streambank and shoreline erosion, for example:

- *Urbanization* that leads to changes in imperviousness creates changes in the hydraulics of water during wet weather events. Increased imperviousness can result in flashier runoff events that are shorter in duration with greater flow rates and more erosive force.
- *Agricultural practices*, such as drainage ditches, can change the characteristics of subsurface water flows into receiving streams. These changes result in less subsurface water storage and often increase stream flows during and after storms.
- *Livestock grazing* may reduce vegetative cover, which can result in more erosion on uplands and increased sediment and other pollutant loads in streams. Livestock that are allowed direct access to streams can significantly increase streambank erosion and destroy important riparian habitat.
- *Roads* built in rural areas, such as forest and recreational roads, alter the natural landscape and can destroy riparian habitat. If not properly installed and maintained, these types of roads erode and supply increased sediment and pollutants to adjacent streams. Additionally, roads may increase imperviousness, which leads to flashier runoff events. Stream crossings associated with rural roads can block fish passage, trap debris during storms, and lead to increased streambank erosion in nearby areas.
- *Marinas* can alter local wave and tidal flow patterns, resulting in transference of wave and tidal energy to adjacent shorelines.
- *Channelization or channel straightening* sometimes results in an increase in the slope of a channel, which causes an increase in stream flow velocities. Channel modifications to reduce flood damage, such as levees and floodwalls, often narrow the stream width, increasing the velocity of the water and thus its erosive potential. In addition, newly

constructed banks are generally more prone to erosion than “seasoned” banks and are more likely to require bank stabilization.

- *Dams* alter the flow of water, sediment, organic matter, and nutrients, resulting in both direct physical and indirect biological effects. The impact of a dam on a stream corridor can vary, depending on the purposes of the dam and its size in relation to stream flow. Varying discharges released from a hydropower dam can be a significant factor increasing streambank erosion. When dams are a barrier to the flow of sediment and organic materials, the decreased suspended sediment load in release waters may lead to scouring of downstream streambeds and streambanks.

In summary, these anthropogenic factors can affect the state of equilibrium in streams or along shorelines. The typical chain of events that follows the disturbance to a stream corridor or shoreline can be described as changes in:

- Hydrology
- Stream hydraulics
- Morphology
- Factors such as sediment transport and storage
- Alterations to the biological community
- Impervious cover

Management Measure 6: Eroding Streambanks and Shorelines

Management Measure 6

- 1) Where streambank or shoreline erosion is a nonpoint source (NPS) pollution problem, streambanks and shorelines should be stabilized. Vegetative methods are strongly preferred unless structural methods are more effective, considering the severity of stream flow discharge, wave and wind erosion, and offshore bathymetry, and the potential adverse impact on other streambanks, shorelines, and offshore areas.
- 2) Protect streambank and shoreline features with the potential to reduce NPS pollution.
- 3) Protect streambanks and shorelines from erosion due to uses of either the shorelands or adjacent surface waters.

Typically, several streambank and shoreline stabilization techniques may be used to effectively control erosion wherever it is a source of nonpoint pollution. Often a combination of techniques may be necessary to effectively control conditions that are causing the increased erosion. Techniques involving marsh creation and vegetative bank stabilization (“soil bioengineering”) will usually be effective at sites with limited exposure to strong currents or wind-generated waves. In cases with increased erosional forces, an integrated approach that employs the use of structural systems in combination with soil bioengineering techniques can be utilized. The use of harder, more structural approaches, including beach nourishment and coastal or riparian structures, may need to be considered in areas facing severe water velocities or wave energy. In addition to controlling the sources of sediment contributed to surface waters, which are causing nonpoint source (NPS) pollution, these techniques can halt the destruction of wetlands and riparian areas located along the shoreline. Once affected streambanks and shorelines are protected, they can serve as a filter for surface water runoff from upland areas, or as a temporary sink for nutrients, contaminants, or sediment already present as NPS pollution in surface waters.

Stabilization practices involving vegetation or engineering structures should be properly designed and installed. These techniques should be applied only when there will be no adverse effects to aquatic or riparian habitat, or to the stability of adjacent shorelines. In addition to activities that are applied directly to an eroding streambank or shoreline, there may be opportunities to promote institutional measures that establish minimum setback requirements or a buffer zone to reduce concentrated flows and promote infiltration of surface water runoff in areas adjacent to the shoreline.

Stream-friendly Project Tips**Before Construction**

- Involve your neighbors to increase project success
- Get the necessary permits
- Flag and avoid disturbing wetlands
- Preserve existing native trees and shrubs
- Cut trees and shrubs rather than ripping them out of the ground (many may resprout)
- Make a plan to replant disturbed areas and use native plants
- Install sediment-control practices (e.g., coffer dams)

During Construction

- Stockpile fertile topsoil for later use for plants
- Use hand equipment rather than heavy equipment
- If using heavy equipment, use wide-tracks or rubberized tires
- Work from the streambank, preferably on the higher, non-wetland side
- Avoid instream work except as authorized by your local fishery and wildlife authority
- Stay 100 feet away from water when refueling or adding oil
- Avoid using wood treated with creosote or copper compounds

After Construction

- Keep out people and livestock during plant establishment
- Check project after high flows
- Water plants during *droughts*
- Control grass until trees and shrubs overtop grass, usually two to three years

Source: SWCD. No date. *Protecting Streambanks from Erosion: Tips for Small Acreages in Oregon*. Washington County Soil and Water Conservation District and the Small Acreage Steering Committee, Oregon Association of Conservation Districts. <http://www.or.nrcs.usda.gov/news/factsheets/fs4.pdf>. Accessed June 2003.

Initially project planners can consider whether a complete removal or reversal of the causative effects is possible. For example, when evaluating restoration sites affected by upstream armoring and urbanization, rather than adding armoring to the downstream site that is eroding, the planning team may consider whether changes to operations up stream can be made. Next, activities to improve existing erosion damage may be examined. The alteration of operation approaches in combination with management and restoration efforts can reduce future impacts. Similarly, removal of channelization structures may allow for a greater recovery of the integrity of a stream corridor. If feasible, the objective of a restoration design should be to eliminate or moderate disruptive influences to allow for equilibrium (NRC, 1992). If this is not possible, restoration may have limited effectiveness in the long term or may require a closer look at an entire watershed to determine alternate restoration activities. See Chapter 6 for additional information on watershed planning and restoration information.

A glossary of stream restoration terms is available from U.S. Army Corps of Engineers' Ecosystem Management and Restoration Research Program at <http://el.ercdc.usace.army.mil/elpubs/pdf/sr01.pdf>.

This management measure was selected for the following reasons:

- Many anthropogenic activities can destabilize streambanks and shorelines, resulting in erosion that contributes significant amounts of NPS pollution in surface waters.
- The loss of coastal land and streambanks due to shoreline and streambank erosion results in reduction of riparian areas and wetlands that have NPS pollution abatement potential.
- A variety of activities related to use of shorelands or adjacent surface waters can result in erosion of land along coastal bays or estuaries and loss of land along rivers and streams.

Preservation and protection of shorelines and streambanks can be accomplished through many approaches, but preference in this guidance is for vegetative practices, such as soil bioengineering and marsh creation, where their use is appropriate.

Management Practices for Management Measure 6

The management measure generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. A variety of vegetative and structural practices are presented and are examples of activities that can be used as a single practice or in combination with other practices to achieve the desired project goals. An example of a source of information is the USACE publication *Stream Management* (Fischenich and Allen, 2000), which provides a good summary of vegetative and structural practices as well as a comprehensive review of processes related to stream and streambank erosion. The document also presents a thorough overview of planning activities for approaching streambank erosion issues.

The types of practices that can be used to accomplish the elements of Management Measure 6, including the following groups of practices:

- Vegetative practices
- Structural practices
- Integrated systems
- Planning and regulatory approaches

Vegetative Practices

Vegetative practices have a long history of use in Europe for streambank and shoreline protection and for slope stabilization. Prior to the 1980s, they have been practiced in the United States only to a limited extent, primarily because other engineering options, such as the use of riprap, have been more commonly accepted practices (Allen and Klimas, 1986). The use of vegetative streambank and shoreline stabilization practices have become more common in the United States over the past several decades as their implementation has shown to be physically and ecologically successful. Economically, less costly alternatives of stabilization, such as vegetative practices, are being pursued as alternatives to engineering structures for controlling erosion of streambanks and shorelines.

Vegetative practices, sometimes referred to as soil bioengineering, refer to the installation of plant materials as a main structural component in controlling problems of land instability where

erosion and sedimentation are occurring (USDA-NRCS, 1992). Vegetative practices can be defined as, “the use of live and dead plant materials, in combination with natural and synthetic support materials, for slope stabilization, erosion reduction, and vegetative establishment” (FISRWG, 1998).

Basic principles of soil bioengineering include the following (USDA-NRCS, 1992):

- Fit the soil bioengineering system to the site
 - Topography and exposure (e.g., note the degree of slope, presence of moisture)
 - Geology and soils (e.g., determine soil depth and type)
 - Hydrology (e.g., calculate peak flows in the project area)
- Retain existing vegetation whenever possible
- Limit removal of vegetation
- Stockpile and protect topsoil
- Protect areas exposed during construction
- Divert, drain, or store excess water

Additionally, vegetative approaches have the advantage of providing food, cover, and instream and riparian habitat for fish and wildlife and result in a more aesthetically appealing environment than traditional engineering approaches (Allen and Klimas, 1986). Many planners of vegetative practices try to utilize native plants and materials that can be obtained from local stands of species. These plants are already well adapted to the climate and soil conditions of the area and thus have an increased chance of becoming established and surviving. The use of locally available plants also cuts the costs of a restoration project (Gray and Sotir, 1996). Vegetative systems that use locally available plants have the added advantage of blending in with natural vegetation over time.

Additional benefits of using bioengineering methods include (USEPA, 2003c):

- Designed to be low maintenance or maintenance-free in the long run
- Enhance habitat not only by providing food and cover sources, but by serving as a temperature control for aquatic and terrestrial animals
- If successful, can stabilize slopes effectively in a short period of time (e.g., one growing season)
- Self-repairing after establishment
- Filter overland runoff, increase infiltration, and attenuate flood peaks

The limitations of vegetative practices include the need for skilled laborers and the difficulty of locating plant materials, particularly during the dormant season, which is the optimal time for installation. To properly establish a soil bioengineering planting, orientation, on-site training, and careful supervision of the labor crews are required. Another limitation, which is avoidable, is that projects that promote the growth of thick vegetation may increase roughness values or increase friction and raise floodwater elevations. This should be taken into consideration during the planning stages of a project and prevented.

Additional information about soil bioengineering principles is available from the *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992).¹ Local agencies, such as the USDA Natural Resources Conservation Service (NRCS) and the Cooperative Extension Service, can be useful sources of information on appropriate native plant species to consider in bioengineering projects.

The USDA Forest Service has published *A Soil Bioengineering Guide for Streambank and Lakeshore Stabilization*,² which provides information on how to successfully plan and implement a soil bioengineering project, including the application of soil bioengineering techniques. The guide also provides specific tips for using soil bioengineering techniques successfully.

Specific vegetative practices include (USDA-NRCS, 1992):

- Branch packing
- Brush layering
- Brush matting
- Coconut fiber roll
- Dormant post plantings
- Live fascines
- Live staking
- Marsh creation and restoration
- Tree revetments
- Vegetated buffers

Refer to Chapter 7 for additional information about the above practices. The Additional Resources section provides a number of sources for obtaining information about the effectiveness, limitations, and cost estimates for these practices.

Structural Approaches

Soil bioengineering alone is not suitable in all instances. When considering an approach to streambank or shoreline stabilization, it is important to take several factors into account. For example, it is inappropriate to stabilize slopes with vegetative systems in areas that would not support plant growth, such as those areas with soils that are toxic to plants, areas of high water velocity, or where there is significant wave action (Gray and Sotir, 1996). Shores subject to wave erosion will usually require structures or beach nourishment to dampen wave or stream flow energy.

Properly designed and constructed shoreline and streambank erosion control structures are used in areas where higher water velocity or wave energy make vegetative stabilization and marsh creation ineffective. In addition to careful consideration of the engineering design, the proper planning for a shoreline or streambank protection project will include a thorough evaluation of

¹ The soil bioengineering chapter of the handbook is available at <http://www.info.usda.gov/CED/ftp/CED/EFH-Ch18.pdf>.

² Available at <http://www.fs.fed.us/publications/soil-bio-guide>.

the physical processes causing the erosion. To complete the analysis of physical factors, the following steps are suggested (Hobbs et al., 1981):

- Determine the limits of the shoreline reach
- Determine the rates and patterns of erosion and accretion and the active processes of erosion within the reach
- Determine, within the reach of the sites of erosion-induced sediment supply, the volumes of that sediment supply available for redistribution within the reach, as well as the volumes of that sediment supply lost from the reach
- Determine the direction of sediment transport and, if possible, estimation of the magnitude of the gross and net sediment transport rates
- Estimate factors such as ground-water seepage or surface water runoff that contribute to erosion

Some of the most widely accepted alternative engineering practices for streambank or shoreline erosion control are described below. These practices will have varying levels of effectiveness depending on the strength of waves, tides, streamflow, or currents at the project site. They will also have varying degrees of suitability at different sites and may have varying types of secondary impacts. One important impact that must always be considered is secondary effects, such as the transfer of wave or streamflow energy, which can cause erosion elsewhere, either offshore or alongshore. Finding a satisfactory balance between these three factors (effectiveness, suitability, and secondary impacts) is often the key to a successful streambank or shoreline erosion control project.

Examples of structural approaches include:

- Beach nourishment
- Breakwaters
- Bulkheads and seawalls
- Check dams
- Groins
- Levees, setback levees, and floodwalls
- Return walls
- Revetment
- Riprap
- Toe protection
- Wing deflectors

Refer to Chapter 7 for additional information about the above practices. The Additional Resources section provides a number of sources for obtaining information about the effectiveness, limitations, and cost estimates for these practices.

Integrated Systems

The use of structural systems alone may raise concern because these systems lack vegetation, which can be effective at stabilizing soils in most conditions. Additionally, vegetated systems

can help to restore damaged habitat along shorelines and streambanks. Integrated systems, which combine structural systems and vegetation, can be very effective in many settings where vegetation adds support and habitat to structural systems. An example of an integrated system is the use of stones for toe protection (structural) and soil bioengineering techniques (vegetative) for the upper banks of a waterway. Integrated slope protection designs that employ the traditional structural methods and the soil bioengineering techniques have proven to be more cost effective than either method independently. Where construction methods are labor-intensive and labor costs are reasonable, the combination of methods may be especially cost effective (Gray and Sotir, 1996).

Integrated systems include:

- Bank shaping and planting
- Joint planting
- Live cribwalls
- Riparian improvements
- Root wad revetments
- Vegetated gabions
- Vegetated geogrids
- Vegetated reinforced soil slope (VRSS)

Refer to Chapter 7 for additional information regarding the above practices. The Additional Resources section provides a number of sources for obtaining information about the effectiveness, limitations, and cost estimates for these practices.

Planning and Regulatory Approaches

In addition to the vegetative, structural, and integrated practices discussed above, another group of practices that can be used to protect streambanks and shorelines includes planning and regulatory approaches. The variety of planning activities include practices in waters adjacent to eroding streambanks and shorelines (e.g., evaluating the erosion potential) and on land areas adjacent to eroding streambanks and shorelines (e.g., watershed planning processes). There are also a variety of local policy and regulatory activities that can be used to protect sensitive or eroding streambanks and shorelines ranging from setback requirements and vegetated buffer minimum widths to requirements for erosion and sediment control plans for various types of construction activities. The following are examples (with complete descriptions located in Chapter 7) of planning and regulatory protection activities that could be used to protect vulnerable streambanks or shorelines:

- Erosion and sediment control plans
- Establishment and protection of stream buffers
- Rosgen's stream classification method
- Setbacks
- Shoreline sensitivity assessment

Chapter 6: Guiding Principles

Many of the management measures and practices recommended by EPA to reduce the nonpoint source (NPS) pollutant impacts associated with hydromodification activities stress the need to incorporate planning as a tool. States, local governments, or community groups should begin the planning process early when trying to determine how to address a particular NPS issue associated with a new or existing hydromodification project. The planning process should bring key stakeholders together so that a variety of options can be explored to adequately define the problem and potential solutions. Once the issues are identified according to the various perspectives, project goals can be established to solve one or more environmental problems.

One important part of the planning process is the identification of the goals of the different stakeholders. Once these goals, which are sometimes different for the different groups of stakeholders, are identified and defined, the planning team can strive to achieve a balance among the needs of the various stakeholders. Often restoration compromises can be made to meet differing goals of the stakeholders to achieve a balance of the needs of the different groups. For example, changes in hydroelectric dam operation may be possible to produce minimum base flows downstream from the dam to support a variety of aquatic habitats, while still providing energy in a profitable manner. In addition, solutions that only allow for complete removal of the dam and restoration to preexisting stream conditions may not be possible because of other changes in the watershed (e.g., urbanization, other hydromodification projects, or the need for affordable and environmentally friendly electricity). A compromise solution that enables the dam to continue to operate while minimizing environmental impacts and to enhance critical downstream habitats that support a desirable fish population may be the best solution.

Part of the planning process and achievement of balance when evaluating techniques for restoring areas impacted by NPS pollution associated with hydromodification activities can be termed “creating opportunities.” For example, an opportunity may be found by working with stakeholders such as local homeowners who are concerned about the unsightly algae present in a community reservoir. Reducing runoff containing an abundant supply of nitrogen and phosphorous pollutants from lawns surrounding the reservoir may lead to reductions in the algal bloom. Changes in land use that result in increasing the permeability of land adjacent to a channelized stream can reduce the overall volume and velocity of water in the stream. As flooding conditions are reduced, “hard” structures like bulkheads can be replaced with softer, vegetative solutions along the stream channel. The combination of reduced scouring flows associated with the greater stream velocities and vegetated channel banks can lead to improved instream ecological conditions. There are many other possible opportunities waiting to be found and implemented when projects are evaluated at the watershed level.

Project planning and analysis are essential parts of success when trying to reduce the impact of NPS pollution from new or existing hydromodification activities. One example of a planning process is explained in the EPA document *Ecological Restoration: A Tool to Manage Stream Quality* (USEPA, 1995a). This document outlines the key steps in the ecological restoration decision framework as:

- Identification of impaired or threatened watersheds

- Inventory of the watershed
- Identification of the restoration goals
- Selection of candidate restoration techniques
- Implementation of selected restoration techniques
- Monitoring

Other EPA guidance documents offer similar approaches to the restoration planning process, including *Community-Based Environmental Protection: A Resource Book for Protecting Ecosystems and Communities* (USEPA, 1997a). Both guidance documents offer a variety of case studies to provide readers with examples of the frameworks as they are applied to real-world situations. EPA's *Draft Handbook for Developing Watershed Plans to Restore and Protect Our Waters* (USEPA, 2005c) also provides useful planning information related to watershed plans.

The Natural Resources Conservation Service (NRCS) is also a source of information for planning. NRCS provides assistance through their Watershed Protection and Flood Prevention Program, whose purpose is to assist federal, state, local agencies, local government sponsors, tribal governments, and program participants to protect and restore watersheds from damage caused by erosion, floodwater, and sediment; to conserve and develop water and land resources; and to solve natural resource and related economic problems on a watershed basis. The program provides technical and financial assistance to local people or project sponsors, builds partnerships, and requires local and state funding contribution.¹

NRCS uses locally-led conservation programs, which are an extension of the agency's traditional assistance to individual farmers and ranchers, for planning and installing conservation practices for soil erosion control, water management, and other purposes. Through this effort, local people, generally with the leadership of conservation districts along with NRCS technical assistance, will assess their natural resource conditions and needs, set goals, identify ways to solve resource problems, utilize a broad array of programs to implement solutions, and measure their success.

When planning any new development activities or restoration of already developed or impacted activities, it is important to account for the guiding principles:

- Using a watershed approach
- Smart growth principles
- Project design principles
- Monitoring and maintenance of structures

Each of these principles is discussed in more detail below.

¹ Additional information about this program, as well as contact information is available at <http://www.nrcs.usda.gov/programs/watershed>.

Using a Watershed Approach

EPA recommends the use of a watershed approach as the key framework for dealing with problems caused by runoff and other sources that impair surface waters (USEPA, 1998). The watershed protection approach is a comprehensive planning process that considers all natural resources in the watershed, as well as social, cultural, and economic factors. Using a watershed approach, multiple stakeholders integrate regional and locally-led activities with local, state, tribal, and federal environmental management programs. EPA works with federal agencies, states, tribes, local communities, and non-governmental sectors to make a watershed approach the key coordinating framework of planning, restoration, and protection efforts to achieve “clean and safe” water and healthy aquatic habitat.

The watershed approach framework can be applied to address impacts caused by hydromodification activities throughout a watershed. Additionally, the watershed approach can help to identify and address problems within a watershed that increase NPS pollution associated with hydromodification activities.

Major elements of successful watershed approaches include:

- Focusing on hydrologically-defined areas—watersheds and aquifers have hydrologic features that converge to a common point of flow; watersheds range in size from very large (e.g., the Mississippi River Basin) to a drainage basin for a small creek.
- Using an integrated set of tools and programs (regulatory and voluntary, federal/state/tribal/local and non-governmental sectors) to address the myriad problems facing the Nation’s water resources, including NPS and point source pollution, habitat degradation, invasive species, and air deposition of pollutants (e.g., mercury and nutrients).
- Involving all parties that have a stake or interest in developing collaborative solutions to a watershed’s water resource problems.
- Using an iterative planning or adaptive management process of assessment and setting environmental, water quality, and habitat goals (e.g., water quality standards).
- Planning, implementation, and monitoring to ensure that plans and implementation actions are revised to reflect new data.
- Breaking down barriers between plan development and implementation to enhance prospects for success.

A key attribute of the watershed approach is that it can be applied with equal success to large- and small-scale watersheds. Federal agencies, states, interstate commissions, and tribes usually apply the approach on larger scales, such as in watersheds greater than 100 square miles in size.

However, local agencies and urban communities can apply the approach to watersheds as small as several acres in size.

Although specifics may vary from large scale to small scale, the basic goals of the watershed approach remain the same—protecting, maintaining, and restoring water resources, based on the geomorphology, ecology, and other natural characteristics of the waterbody. Local runoff management program officials must be especially conscious of watershed scale when planning and implementing specific management practices. For example, programmatic practices, such as stream protection ordinances and public education campaigns, are usually applied community wide. Consequently, the results benefit many small watersheds. In contrast, structural practices, such as vegetative approaches, usually provide direct benefits to a single stream. Regional structural management practices such as headland breakwater systems for larger watersheds can be used, but they do not protect smaller contributing streams. Given limited resources, program officials must often analyze cost and benefits and choose between large- and small-scale practices. Often, a combination of nonstructural and structural practices implemented across the watershed and at regional and local levels is the most cost effective approach.

An example of the watershed approach being used for hydromodification activities is the South Myrtle Creek Ditch Project. South Myrtle Creek, which flows into the South Umpqua River in Oregon, was historically populated with cutthroat trout (*Oncorhynchus clarki*) and coho salmon (*Oncorhynchus kisutch*). However, since the early 20th century, diversion structures, used primarily to provide water for irrigating agricultural crops, have blocked the passage of fish through creek waters (USEPA, 2002c). One example of the diversion structures was a diversion dam with a concrete apron, which was installed in a portion of South Myrtle Creek to raise the water level in an impoundment to provide irrigation water for adjacent and downstream landowners. During the summer, water levels in the creek would elevate 14 feet above natural levels and were diverted into a 2.5 mile irrigation ditch. Ultimately, hydromodification of this stream caused flow modifications and high stream temperatures, which degraded water quality for the native trout and salmon populations.

9 Elements of Watershed Planning

EPA has identified a minimum of nine elements that are critical for achieving improvements in water quality. EPA requires that these nine elements be addressed for section 319-funded watershed plans and strongly recommends that they be included in all other watershed plans that are intended to remediate water quality impairments. Additional information is available from FY 2004 Guidelines for the Award of Section 319 Nonpoint Source Grants to States and Territories at <http://www.epa.gov/owow/nps/cwact.html>. The nine elements are listed below:

- a. Identification of causes of impairment and pollutant sources or groups of similar sources that need to be controlled to achieve needed load reductions, and any other goals identified in the watershed plan. Sources that need to be controlled should be identified at the significant subcategory level along with estimates of the extent to which they are present in the watershed (e.g., X linear miles of eroded streambank needing remediation).*
- b. An estimate of the load reductions expected from management measures.*
- c. A description of the nonpoint source management measures that will need to be implemented to achieve load reductions and a description of the critical areas in which those measures will be needed to implement this plan.*
- d. Estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon to implement this plan.*
- e. An information and education component used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the nonpoint source management measures that will be implemented.*
- f. Schedule for implementing the nonpoint source management measures identified in this plan that is reasonably expeditious.*
- g. A description of interim measurable milestones for determining whether nonpoint source management measures or other control actions are being implemented.*
- h. A set of criteria that can be used to determine whether loading reductions are being achieved over time and substantial progress is being made toward attaining water quality standards.*
- i. A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the criteria established under item h immediately above.*

In 1998 one of the landowners initiated a project to restore flow and improve water quality in South Myrtle Creek. The project used the guiding principles of the watershed approach to restore the health of the creek.

- *Partnership.* The project was a collaborative effort of landowners, who donated services and supplies. The project received funding and support from government agencies, such as the U.S. Fish and Wildlife Service, the Oregon Water Resources Department, the Oregon Watershed Enhancement Board, the Bureau of Land Management, the Natural Resources Conservation Service, and the Douglas County Watermaster.

- *Geographic focus.* Resource management activities were directed specifically to the creek and the drainage ditch, where flow restoration and improved water quality were desired.
- *Sound management techniques based on strong science and data.* An assessment of South Myrtle Creek identified water quality problems from flow modification and high stream temperatures as the priority problems in the creek. The diversion dam and concrete apron were found to be causing the problems. Landowners, the Water Resources Department, and the Watershed Enhancement Board developed a plan, the goal of which was to restore flow and improve water quality in the creek. The plan was implemented by removing the diversion dam and concrete apron. The irrigation system was switched to a sprinkler type system, which is more efficient than the original ditch irrigation. In addition, the denuded riparian area was revegetated to help lower stream temperatures and new seedlings were protected with fencing to keep away livestock.

With the cooperation of the landowners, the county and state governments, and other interested parties, the South Myrtle Creek Ditch Project was a success. Water temperatures have improved and flows have increased by 2.5 cubic feet per second during the summer. Restoration of the streambed to its historical level has allowed passage of salmon and trout to the 10 miles of stream above the dam (USEPA, 2002c).²

Smart Growth

Smart growth practices cover a range of development and conservation strategies that are environmentally sensitive, economically viable, community-oriented, and sustainable. Environmental impacts of development can be reduced with techniques that include compact development, reduced impervious surfaces and improved water detention, safeguarding of environmentally sensitive areas, mixing of land uses (e.g., homes, offices, and shops), transit accessibility, and better pedestrian and bicycle amenities.

Through smart growth approaches that enhance neighborhoods and involve local residents in development decisions, these communities are creating vibrant places to live, work, and play. The high quality of life in these communities makes them economically competitive, creates business opportunities, and improves the local tax base. Smart growth practices have also been shown to help protect water quality by reducing the amount of paved surfaces and allowing natural lands to filter rainwater and runoff before it reaches downstream areas.

Based on the experience of communities around the nation that have used smart growth approaches to create and maintain great neighborhoods, the Smart Growth Network³ developed a set of ten basic principles:

² Additional information about the project is available at <http://www.epa.gov/owow/nps/Section319III/OR.htm>.

³ Smart Growth Network (SGN) is a partnership of government, business, and civic organizations that support smart growth. The SGN Web site, Smart Growth Online (<http://www.smartgrowth.org/Default.asp?res=1024>), features an extensive array of smart growth-related news, events, information, research, presentations, and publications.

1. Mix land uses
2. Take advantage of compact building design
3. Create a range of housing opportunities and choices
4. Create walkable neighborhoods
5. Foster distinctive, attractive communities with a strong sense of place
6. Preserve open space, farmland, natural beauty, and critical environmental areas
7. Strengthen and direct development towards existing communities
8. Provide a variety of transportation choices
9. Make development decisions predictable, fair, and cost effective
10. Encourage community and stakeholder collaboration in development decisions

EPA offers help to communities through the EPA smart growth program to improve development practices and get the type of development they want. They work with local, state, and national experts to discover and encourage successful, environmentally sensitive development strategies. EPA is engaged in conducting research, publishing reports and other publications,⁴ showcasing outstanding communities, working with communities through grants⁵ and technical assistance (Smart Growth Implementation Assistance Program),⁶ and bringing together diverse interests to encourage better growth and development.⁷

Low Impact Development

Low Impact Development (LID) is an innovative stormwater management approach. The goal of LID is to mimic a site's predevelopment hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to its source (Low Impact Development Center, Inc., n.d.).

LID is based on the paradigm that stormwater management should not be viewed as stormwater disposal and that numerous opportunities exist within the developed landscape to control stormwater runoff close to the source. These principles include (NRDC, n.d.):

- Integrate stormwater management early in site planning activities
- Use natural hydrologic functions as the integrating framework
- Focus on prevention rather than mitigation
- Emphasize simple, low-tech, and low cost methods
- Manage as close to the source as possible
- Distribute small-scale practices throughout the landscape
- Rely on natural features and processes
- Create a multifunctional landscape

⁴ <http://www.epa.gov/piedpage/publications.htm>

⁵ <http://www.epa.gov/piedpage/grants/index.htm>

⁶ <http://www.epa.gov/piedpage/sgia.htm>

⁷ Links to technical assistance, tools, partnerships and grants and other funding are at "Making Smart Growth Happen" at http://www.epa.gov/piedpage/sg_implementation.htm.

The use of LID practices offers both economic and environmental benefits. LID measures result in less disturbance of the development area and conservation of natural features, and they can be less cost intensive than traditional stormwater control mechanisms. Cost savings for control mechanisms are not only for construction, but also for long-term maintenance and life cycle cost considerations (USEPA, 2000).

Ten common LID practices are the following (NRDC, n.d.):

- Impervious surface reduction and disconnection
- Permeable pavers
- Pollution prevention and good housekeeping
- Rain barrels and cisterns
- Rain gardens and bioretention
- Roof leader disconnection
- Rooftop gardens
- Sidewalk storage
- Soil amendments
- Tree preservation
- Vegetated swales, buffers, and strips

Project Design Considerations

General Design Factors

When designing any type of restoration project, it is important to consider the watershed as a whole as well as the specific site where restoration will occur. A watershed survey, or visual assessment, evaluates an entire watershed and can be used to help identify and verify pollutants, sources, and causes of impairments that lead to changes in streambank erosion. Additional monitoring of chemical, physical, and biological conditions may be necessary to determine if water quality is actually being affected by observed pollutants and sources. Watershed surveys can provide an accurate picture of what is occurring in the watershed. EPA's *Volunteer Stream Monitoring: A Methods Manual*⁸ provides a watershed survey visual assessment form that may be used. In addition to EPA's method, a variety of visual assessment protocols have been developed by states and agencies. Designers of watershed restoration plans should look for assessment protocols that are already being used in their state or local area (USEPA, 2005c). Another general resource for planning and implementing restoration projects associated with hydromodification activities is EPA's *National Management Measures to Protect and Restore Wetlands* (USEPA, 2005b).

Photographs may also be a powerful tool that can be incorporated into watershed surveys. Photos serve as a visual reference for the site and provide before and after pictures that may be used to analyze restoration or remediation activities. In addition to taking individual photographs, aerial photographs may also provide important before and after information and can be obtained from

⁸ <http://www.epa.gov/owow/monitoring/volunteer/stream/vms32.html>

USGS (Earth Science Information Center), USDA (Consolidated Farm Service Agencies, Aerial Photography Field Office), and other agencies (USEPA, 2005c). Refer to EPA's draft *Handbook for Developing Watershed Plans to Restore and Protect Our Waters* (USEPA, 2005c) for more information about watershed assessments.

Assessment

Tools to analyze channels on a site-by-site basis may include geomorphic assessments such as the methodology developed by Rosgen. Geomorphic assessments help to determine river and stream characteristics such as channel dimensions, reach slope, and channel enlargement and stability. This information about stream physical characteristics might help the restoration team to understand current stream conditions and may be evaluated over time to describe degradation or improvements in the stream. Geomorphic assessment may also be useful for predicting future stream conditions, which can help in selecting suitable restoration or protection approaches (USEPA, 2005c).

The Rosgen geomorphic assessment approach groups streams into different geomorphic classes, based on a set of criteria that include entrenchment ratio, width/depth ratio, sinuosity, channel slope, and channel materials. Assessment methodologies, such as Rosgen's Stream Classification System, can help identify streams at different levels of impairment, determine the types of hydrologic and physical factors affecting stream morphologic conditions, and choose appropriate management measures to implement if needed.⁹ Another common geomorphic assessment method is the Modified Wolman Pebble Count (Harrelson et al., 1994), which characterizes the texture (particle size) in the stream or riverbeds of flowing surface waters. It can be used alone or with Rosgen-type assessments. The composition of the streambed can provide information about the characteristics of the stream, including effects of flooding, sedimentation, and other physical impacts on a stream (USEPA, 2005c). Other assessment methods may be available from state agencies or environmental organizations.

The physical conditions of a site can provide important information about factors affecting overall stream integrity, such as agricultural activities and urban development. Runoff from cropland and feedlots can carry sediment into streams, clog existing habitat, and change geomorphological characteristics. An understanding of stream physical conditions can facilitate identification of sources and pollutants and allow for designing and implementing more effective restoration and protection strategies. Physical characterization should also extend beyond the streambanks or shore and include a look at conditions in riparian areas (USEPA, 2005c).

Before choosing a practice to restore an area impacted by hydromodification activities, it is also important to determine what biological endpoints are desired and to consider other environmental or water quality goals. Biological endpoints may include metrics such as the number of fish surviving, number of offspring produced, impairment of reproductive capability, or morbidity. Biological endpoints can be used to evaluate the effectiveness of treatment schemes and can serve as a design parameter during restoration planning. Water quality goals, such as increasing low dissolved oxygen levels, reducing nitrogen or phosphorous pollutant

⁹ More information about the Rosgen Stream Classification System is available at http://www.epa.gov/watertrain/stream_class/index.htm.

levels, or decreasing turbidity, are also important to consider when planning restoration. For example, if turbidity is a major problem in the waterbody, planners will want to choose a method of restoration that prevents erosion, is efficient at trapping sediment before it enters the waterbody, or one that will help sediment to settle in desired locations of the stream or river. Looking at endpoints and goals before designing the method of restoration can help planners and stakeholders achieve the desired results.

Engineering Considerations

When choosing from the various alternatives of engineering practices for addressing impacts associated with hydromodification, such as protecting and restoring eroding streambanks and shorelines, the following factors should be taken into consideration:

- Foundation conditions
- Level of exposure to erosive forces
- Availability of materials
- Initial and annual costs
- Past performance

Foundation conditions may have a significant influence on the selection of the specific practice or combination of practices to be used for restoring areas impacted by hydromodification, including shoreline or streambank stabilization. Foundation characteristics at the site must be compatible with the structure that is to be installed for erosion control. A structure such as a bulkhead, which must penetrate through the existing substrate for stability, will generally not be suitable for shorelines with a rocky bottom. Where foundation conditions are poor or where little penetration is possible, a gravity-type structure such as a stone revetment may be preferable. However, all vertical protective structures (revetments, seawalls, and bulkheads) built on sites with soft or unconsolidated bottom materials can experience scouring as incoming waves are reflected off the structures. In the absence of additional toe protection in these circumstances, the level of scouring and erosion of bottom sediments at the base of the structure may be severe enough to contribute to structural failure at some point in the lifetime of the installation.

Along streambanks, the erosive force of the current during periods of high streamflow will influence the selection of bank stabilization techniques and details of the design. For shorelines, the levels of wave exposure at the site will also generally influence the selection of shoreline stabilization techniques and details of the design. In areas of severe levels of exposure to erosive forces, such as strong wave action or currents, light structures such as vegetative techniques, timber cribbing, or light riprap revetment may not provide adequate protection. The effects of winter ice along the shoreline or streambank may also need to be considered in the selection and design of erosion control projects.

The availability of materials is another key factor influencing the selection of suitable techniques for protecting and restoring areas affected by hydromodification activities. For a vegetative approach, availability of plant materials of sufficient quantity and quality is an important design consideration. A particular type of bulkhead, seawall, or revetment may not be economically feasible if materials are not readily available near the construction site. Installation methods may also preclude the use of specific structures in certain situations. For instance, the installation of

bulkhead pilings in coastal areas near wetlands may not always be permissible due to disruptive impacts in locating pile-driving equipment at the project site.

Costs should also be included in the decision making process for implementing hydromodification practices. The total cost of a project should be viewed as including both the initial costs (materials, labor, and planning) and the annual costs of operation and maintenance. To the extent possible, practices should be compared by their total costs. Although a particular practice may be cheaper initially, it could have operation and maintenance costs that make it more expensive in the long run. For example, in some parts of the country, the initial costs of timber bulkheads may be less than the cost of stone revetments. However, stone structures typically require less maintenance and have a longer life than timber structures. Other types of structures whose installation costs are similar may actually have a wide difference in overall cost when annual maintenance and the anticipated lifetime of the structure are considered (USACE, 1984). Environmental benefits, such as creation of habitat, should also be factored into cost evaluations.

An example of a valuable resource that provides specific cost information for practices to protect or reduce streambank and shoreline erosion is your local USDA Service Center, which makes available services provided by the NRCS.¹⁰

The engineering designers should also evaluate similar existing projects and practice designs to determine how well they performed compared to design specifications. An important consideration for determining past performance is to compare the physical, water quality, and biological endpoints specified in the design with the corresponding endpoints that were observed in the monitoring results. For example, if an operation and maintenance program for an urban channelization project incorporates establishment of vegetative cover along many of the low energy areas of an urban stream, the long-term performance of the vegetative cover can be evaluated with metrics such as:

- Percent of riparian area with erosion problems
- Number of recreationally important fish species present
- Annual operation and maintenance costs
- Changes in important water quality parameter values (e.g., dissolved oxygen, turbidity)

Incorporating Monitoring and Maintenance of Structures

Generally, the monitoring program will help to determine how well the project is performing with respect to the design goals and the extent of any maintenance activities needed (NRC, 1992). The project monitoring plan should be an integral part of the overall design and will be an important consideration for developing long-term project costs and resource needs. Once the project's goals are established, performance indicators are then matched to the goals to create the

¹⁰ A list of USDA Service Centers is available at <http://offices.sc.egov.usda.gov/locator/app>. A list of regional and state NRCS offices is available at <http://www.nrcs.usda.gov/about/organization/regions.html#state>.

monitoring program (NRC, 1992). The monitoring program should also be appropriate to the scope of the project (NRC, 1992) by including considerations such as:

- The area covered by the monitoring compared to the area of the overall project—both should be similar.
- The frequency and intensity of sampling to provide reliable assessments of the performance indicators.
- The cost and resources required for monitoring should reflect the overall cost and resources of the project.
- The performance indicators provide information to enable effective assessments of the project goals and decision-making for project maintenance activities.

Each project will have unique goals and corresponding monitoring needs. Chapter 3 of The National Research Council's document *Restoration of Aquatic Ecosystems* (NRC, 1992) provides detailed advice on considerations for planning a monitoring program for restoration activities such as those associated with hydromodification activities. Some additional monitoring considerations can be found in the USDA Forest Service document *A Soil Bioengineering Guide for Streambank and Lakeshore Stabilization* (USDA-FS, 2002):

- Keeping track of where plants were harvested—is there a correlation between growth rate of certain cuttings and the “mother” plants?
- Is the installation functioning as designed?
- Which areas are maturing more rapidly than others?
- Are seeds sprouting in the newly formed beds?
- Which plants have invaded the site through natural succession?
- What has sprouted in the second season?
- Which areas are experiencing difficulty and why?
- Is the bank stabilizing or washing away and why?
- Is something occurring that is unexpected?
- Which techniques are succeeding?
- Are any of the structures failing?

USDA NRCS' *The Practical Streambank Bioengineering Guide*¹¹ (Bentrup and Hoag, 1998) provides an example monitoring form. The monitoring sheet is also available in Appendix C of *A Soil Bioengineering Guide for Streambank and Lakeshore Stabilization* (USDA-FS, 2002).¹²

During the first few years after installation, maintenance is necessary until vegetation becomes established and the bank stabilizes. Structures may shift or you may notice something that was left undone. Once vegetation is established, projects should become self-sustaining and require little or no maintenance. Be sure the site is managed to give the treatment every chance to be effective over a long period of time (USDA-FS, 2002).

¹¹ <http://www.engr.colostate.edu/~bbledsoe/CE413/idpmcpustguid.pdf>

¹² <http://www.fs.fed.us/publications/soil-bio-guide/guide/appendices.pdf>

Common maintenance tasks include (USDA-FS, 2002; Bentrup and Hoag, 1998):

- Remove debris and weeds that may shade and compete with cuttings
- Secure stakes, wire, twine, etc.
- Control weeds
- Repair weakened or damaged structures (including fences)
- Replant and reseed as necessary (it is not uncommon for a flood to occur days after installation)

It is beneficial to inspect the project every other week for the first 2 months after installation, once a month for the next 6 months, and then every other month for 2 years, at least. One should also inspect the project after heavy precipitation, flooding, snowmelt, drought, or any extraordinary occurrence.

Assess damage from flooding, wildlife, grazing, boat wakes, trampling, drought, and high precipitation (USDA-FS, 2002). Additional information about monitoring is available from USDA NRCS' *The Practical Streambank Bioengineering Guide* (Bentrup and Hoag, 1998).

Maintenance varies with the structural type. For stone revetments, the replacement of stones that have been dislodged is necessary; timber bulkheads need to be backfilled if there has been a loss of upland material, and broken sheet pile should be replaced as necessary. Gabion baskets should be inspected for corrosion failure of the wire, usually caused either by improper handling during construction or by abrasion from the stones inside the baskets. Baskets should be replaced as necessary since waves will rapidly empty failed baskets.

Steel, timber, and aluminum bulkheads should be inspected for sheet pile failure due to active earth pressure or debris impact and for loss of backfill. For all structural types not contiguous to other structures, lengthening of flanking walls may be necessary every few years. Through periodic monitoring and required maintenance, a substantially greater percentage of coastal structures will perform effectively over their design life. Since streambank or shoreline protection projects can transfer energy from one area to another, which causes increased erosion in the adjacent area, the possible effects of erosion control measures on adjacent properties should be routinely monitored.

Planting success varies from project to project. Bentrup and Hoag (1998) provide the following potential growth success rates:

<i>Pole Plantings</i>	<i>70-100%</i>
<i>Live Fascines</i>	<i>20-50%</i>
<i>Brush Layering</i>	<i>10-70%</i>
<i>Post Plantings</i>	<i>50-70%</i>

Plan and design all streambank, shoreline, and navigation structures so that they do not transfer erosion energy or otherwise cause visible loss of surrounding streambanks or shorelines.

Chapter 7: Practices for Implementing Management Measures

Many of the operation and maintenance solutions presented in Chapter 3 (Channelization and Channel Modification) are also practices that can be used to stabilize streambanks and shorelines as presented in Chapter 5 (Streambank and Shoreline Erosion). For example, a stream channel that has been hardened with vertical concrete walls to prevent local flooding and limit the stream to its existing channel (to protect property built along the stream channel), may benefit from operation and maintenance practices that use opportunities to replace the concrete walls with appropriate vegetative or combined vegetative and non-vegetative structures along the streambank when possible. These same practices may be applicable to stabilize downstream streambanks that are eroding and creating a nonpoint source (NPS) pollution problem because of the upstream development and hardened streambanks.

The following practices apply to one or more management measures. The descriptions and illustrations presented in this chapter are intended to provide a starting point for stakeholders and decision-makers for selecting possible practices to address NPS pollution problems associated with hydromodification activities. Table 7.1 provides a cross-reference of the practices with possible applications for the various hydromodification management measure components (e.g., instream and riparian restoration corresponds to the second component of Management Measures 1 and 2 described in detail in Chapter 3). Users of the information provided in the following table and descriptions evaluate the attributes of the possible practices with site-specific conditions in mind.

Table 7.1 Practices for Hydromodification Management Measures

	Channelization		Dams							Streambanks				Shorelines				
	Physical & chemical	Instream/riparian restoration	Erosion control	Runoff control	Chemical/pollutant control	Watershed protection	Aerate reservoir water	Improve tailwater oxygen	Restore/maintain habitat	Maintain fish passage	Vegetative	Structural	Integrated	Planning & regulatory	Vegetative	Structural	Integrated	Planning & regulatory
Practices	MM1	MM2	MM3	MM4	MM5					MM6								
Advanced Hydroelectric Turbines (7-7)										•								
Bank Shaping and Planting (7-9)	•	•	•										•					•
Beach Nourishment (7-10)												•				•		
Behavioral Barriers (7-12)										•								
Branch Packing (7-14)	•	•	•								•							
Breakwaters (7-15)																•		
Brush Layering (7-17)	•	•	•								•							
Brush Mattressing (7-19)	•	•	•								•							
Bulkheads and Seawalls (7-21)	•	•	•									•				•		
Check Dams (7-22)	•	•	•	•								•						
Coconut Fiber Roll (7-23)	•	•	•								•							
Collection Systems (7-25)										•								
Construct Runoff Intercepts (7-26)			•	•														
Constructed Spawning Beds (7-27)									•									
Construction Management (7-28)			•															
Dormant Post Plantings (7-29)	•	•	•								•				•			

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	Channelization		Dams								Streambanks				Shorelines			
	Physical & chemical	Instream/riparian restoration	Erosion control	Runoff control	Chemical/pollutant control	Watershed protection	Aerate reservoir water	Improve tailwater oxygen	Restore/maintain habitat	Maintain fish passage	Vegetative	Structural	Integrated	Planning & regulatory	Vegetative	Structural	Integrated	Planning & regulatory
Encourage Drainage Protection (7-30)						•												
Equipment Runoff Control (7-31)					•													
Erosion and Sediment Control (ESC) Plans (7-32)	•	•	•										•					•
Erosion Control Blankets (7-35)			•															
Establish and Protect Stream Buffers (7-37)		•				•							•					
Fish Ladders(7-38)									•									
Fish Lifts (7-40)									•									
Flow Augmentation (7-41)									•									
Fuel and Maintenance Staging Areas (7-43)					•													
Gated Conduits (7-44)								•										
Groins (7-45)																•		
Identify and Address NPS Contributions (7-46)						•												
Identify and Preserve Critical Areas (7-48)						•												
Joint Planting (7-50)	•	•	•										•					
Labyrinth Weir (7-51)								•										
Levees, Setback Levees, and Floodwalls (7-52)	•	•														•		

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	Channelization		Dams								Streambanks				Shorelines			
	Physical & chemical	Instream/riparian restoration	Erosion control	Runoff control	Chemical/pollutant control	Watershed protection	Aerate reservoir water	Improve tailwater oxygen	Restore/maintain habitat	Maintain fish passage	Vegetative	Structural	Integrated	Planning & regulatory	Vegetative	Structural	Integrated	Planning & regulatory
Live Cribwalls (7-54)	●	●	●										●					
Live Fascines (7-56)	●	●	●								●							
Live Staking (7-58)	●	●	●								●							
Locate Potential Land Disturbing Activities Away from Critical Areas (7-60)			●	●	●													
Marsh Creation and Restoration (7-61)		●									●			●				
Modifying Operational Procedures (7-62)							●											
Mulching (7-63)			●															
Noneroding Roadways (7-64)	●	●	●															
Pesticide and Fertilizer Management (7-67)					●													
Phase Construction (7-69)			●															
Physical Barriers (7-70)									●									
Pollutant Runoff Control (7-72)					●													
Preserve Onsite Vegetation (7-73)			●	●														
Reregulation Weir (7-74)							●											
Reservoir Aeration (7-75)								●										
Retaining Walls (7-77)			●	●														
Return Walls (7-78)	●	●									●				●			
Revegetate (7-79)			●															

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	Channelization		Dams								Streambanks				Shorelines			
	Physical & chemical	Instream/riparian restoration	Erosion control	Runoff control	Chemical/pollutant control	Watershed protection	Aerate reservoir water	Improve tailwater oxygen	Restore/maintain habitat	Maintain fish passage	Vegetative	Structural	Integrated	Planning & regulatory	Vegetative	Structural	Integrated	Planning & regulatory
Revetment (7-80)	●	●	●								●				●			
Riparian Improvements (7-82)		●	●					●				●				●		
Riprap (7-83)	●	●	●								●				●			
Root Wad Revetments (7-84)	●	●	●									●						
Rosgen's Stream Classification Method (7-86)	●	●											●					
Scheduling Projects (7-88)			●															
Sediment Basins/Rock Dams (7-89)				●														
Sediment Fences (7-91)			●	●														
Sediment Traps (7-92)				●														
Seeding (7-93)			●															
Selective Withdrawal (7-94)							●											
Setbacks (7-95)	●	●											●					●
Shoreline Sensitivity Assessment (7-97)																		●
Site Fingerprinting (7-99)			●															
Sodding (7-100)			●															
Soil Protection (7-101)			●															
Spill and Water Budgets (7-102)									●									
Spill Prevention and Control Program (7-103)					●													
Spillway Modifications (7-104)							●	●										
Surface Roughening (7-105)			●															

	Channelization		Dams								Streambanks				Shorelines			
	Physical & chemical	Instream/riparian restoration	Erosion control	Runoff control	Chemical/pollutant control	Watershed protection	Aerate reservoir water	Improve tailwater oxygen	Restore/maintain habitat	Maintain fish passage	Vegetative	Structural	Integrated	Planning & regulatory	Vegetative	Structural	Integrated	Planning & regulatory
Toe Protection (7-106)	●	●									●				●			
Training—ESC (7-107)			●															
Transference of Fish Runs (7-108)									●									
Tree Armoring, Fencing, and Retaining Walls or Tree Wells (7-109)			●															
Tree Revetments (7-110)	●	●	●							●				●				
Turbine Operation (7-112)							●											
Turbine Venting (7-113)							●											
Vegetated Buffers (7-114)	●	●	●	●						●				●				
Vegetated Filter Strips (7-115)			●	●														
Vegetated Gabions (7-116)	●	●	●									●				●		
Vegetated Geogrids (7-118)	●	●	●									●				●		
Vegetated Reinforced Soil Slope (VRSS) (7-120)	●	●	●									●				●		
Water Conveyances (7-121)							●											
Wildflower Cover (7-122)			●															
Wind Erosion Controls (7-123)			●															
Wing Deflectors (7-124)	●	●									●				●			

Advanced Hydroelectric Turbines

Hydroelectric turbines can be designed to reduce impacts to juvenile fish passing through the turbine as it operates. Most research on advanced hydroelectric turbines is being carried out by power producers in the Columbia River basin (U.S. Army Corps of Engineers (USACE) and public utility districts) who are looking to improve the survival of hydroelectric turbine-passed juvenile fish by modifying the operation and design of turbines. Development of low impact turbines is also being pursued on a national scale by the U.S. Department of Energy (DOE) (Cada, 2001).

In the last few years, field studies have shown that improvements in the design of turbines have increased the survival of juvenile fish. Researchers continue to examine the causes and extent of injuries from turbine systems, as well as the significance of indirect mortality and the effects of turbine passage on adult fish. Overall, improvements in turbine design and operation, and new field, laboratory, and modeling techniques to assess turbine-passage survival, are contributing towards improving downstream fish passage at hydroelectric power plants (Cada, 2001).

The redesign of conventional turbines for fish passage has focused on strategies to reduce obstructions and to narrow the gaps between moveable elements of the turbine that are thought to injure fish. The effects of changes in the number, size, orientation, or shape of the blades that make up the runner (the rotating element of a turbine which converts hydraulic energy into mechanical energy) are being investigated (Cada, 2001).

The USACE has put considerable resources into improving turbine passage survival. The USACE Turbine Passage Survival Program (TSP) was developed to investigate means to improve the survival of juvenile salmon as they pass through turbines located at Columbia and Snake River dams. The TSP is organized along three functional elements that are integrated to achieve the objectives (Cada, 2001):¹

- Biological studies of turbine passage at field sites
- Hydraulic model investigations
- Engineering studies of the biological studies, hydraulic components, and optimization of turbine operations

DOE supports development of low impact turbines under the Advanced Hydropower Turbine System (AHTS) Program. The AHTS program explores innovative concepts for turbine design that will have environmental benefits and maintain efficient electrical generation. The AHTS program awarded contracts for conceptual designs of advanced turbines to different firms/companies. Early in the development of conceptual designs, it became clear that there were

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks
- Shorelines
 - Vegetative
 - Structural
 - Integrated
 - Planning & regulatory

¹ Additional information about USACE efforts with advanced hydroelectric turbines is available at <http://hydropower.inel.gov/turbines/pdfs/amfishsoc-fall2001.pdf>.

significant gaps in the knowledge of fish responses to physical stresses (injury mechanisms) experienced during turbine passage. Consequently, the AHTS program expanded its activities to include studies to develop biological criteria for turbines (Cada, 2001).²

² Additional information about DOE efforts with advanced hydroelectric turbines is available at <http://hydropower.inel.gov/turbines/pdfs/amfishsoc-fall2001.pdf>.

Bank Shaping and Planting

Bank shaping and planting involve regrading a streambank to establish a stable slope angle, placing topsoil and other material needed for plant growth on the streambank, and selecting and installing appropriate plant species on the streambank. This design is most successful on streambanks where moderate erosion and channel migration are anticipated. Reinforcement at the toe of the bank is often required, particularly where flow velocities exceed the tolerance range for plantings and where erosion occurs below base flows. To determine the appropriate slope angle, slope stability analyses that take into account streambank materials, groundwater fluctuations, and bank loading conditions are recommended (FISRWG, 1998).

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Bank Shaping and Vegetating*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/bankshaping.pdf>.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Beach Nourishment

The creation or nourishment of existing beaches provides protection to the eroding area and can also provide a riparian habitat function, particularly when portions of the finished project are planted with beach or dune grasses (Woodhouse, 1978). Beach nourishment (Figures 7.1 through 7.4) requires a readily available source of suitable fill material that can be effectively transported to the erosion site for reconstruction of the beach (Hobson, 1977). Dredging or pumping from offshore deposits is the method most frequently used to obtain fill material for beach nourishment. A second possibility is the mining of suitable sand from inland areas and overland hauling and dumping by trucks. To restore an eroded beach and stabilize it at the restored position, fill is placed directly along the eroded sector (USACE, 1984). In most cases, plans must be made to periodically obtain and place additional fill on the nourished beach to replace sand that is carried offshore into the zone of breaking waves or alongshore in littoral drift (Houston, 1991; Pilkey, 1992).

- | |
|---|
| <p>Channelization</p> <ul style="list-style-type: none"> <input type="checkbox"/> Physical & chemical <input type="checkbox"/> Instream/riparian restoration <p>Dams</p> <ul style="list-style-type: none"> <input type="checkbox"/> Erosion control <input type="checkbox"/> Runoff control <input type="checkbox"/> Chemical/pollutant control <input type="checkbox"/> Watershed protection <input type="checkbox"/> Aerate reservoir water <input type="checkbox"/> Improve tailwater oxygen <input type="checkbox"/> Restore/maintain habitat <input type="checkbox"/> Maintain fish passage <p>Erosion</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Streambanks <input checked="" type="checkbox"/> Shorelines <input type="checkbox"/> Vegetative <input checked="" type="checkbox"/> Structural <input type="checkbox"/> Integrated <input type="checkbox"/> Planning & regulatory |
|---|

One important task that should not be overlooked in the planning process for beach nourishment projects is the proper identification and assessment of the ecological and hydrodynamic effects of obtaining fill material from nearby submerged coastal areas. Removal of substantial amounts of bottom sediments in coastal areas can disrupt populations of fish, shellfish, and benthic organisms (Atlantic States Marine Fisheries Commission, 2002). Grain size analysis should be performed on sand from both the borrow area and the beach area to be nourished. Analysis of grain size should include both size and size distribution, and fill material should match both of these parameters (Stauble, 2005). Fill materials should also be analyzed for the presence of contaminants, and contaminated sediment should not be used (CA Department of Boating and Waterways and State Coastal Conservancy, 2002). Turbidity levels in the overlying waters can also be raised to undesirable levels (EUCC, 1999). Certain

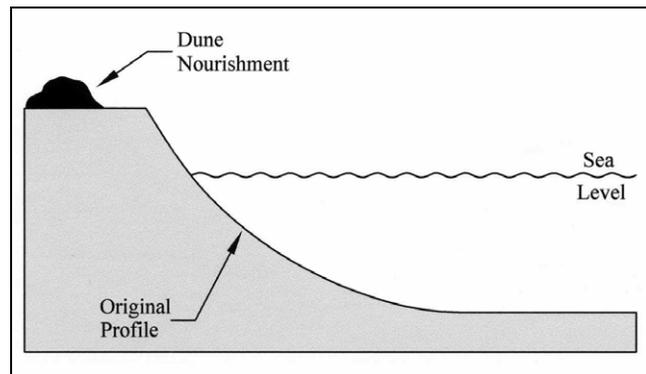


Figure 7.1 Dune Nourishment (CA Dept. of Boating and Waterways and State Coastal Conservancy, 2002)

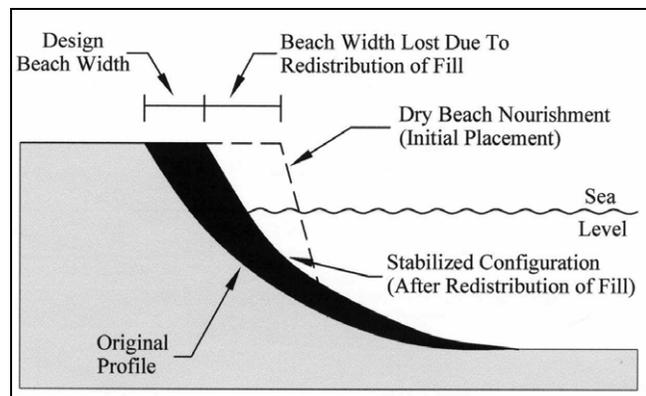


Figure 7.2 Dry Beach Nourishment (CA Dept. of Boating and Waterways and State Coastal Conservancy, 2002)

areas may have seasonal restrictions on obtaining fill from nearby submerged areas (TRB, 2001). Timing of nourishment activities is frequently a critical factor since the recreational demand for beach use frequently coincides with the best months for completing the beach nourishment. These may also be the worst months from the standpoint of impacts to aquatic life and the beach community such as turtles seeking nesting sites.

Design criteria should include proper methods for stabilizing the newly created beach and provisions for long-term monitoring of the project to document the stability of the newly created beach and the recovery of the riparian habitat and wildlife in the area.

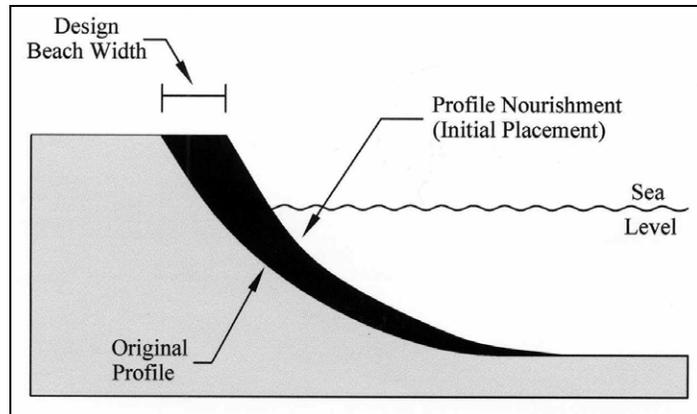


Figure 7.3 Profile Nourishment (CA Dept. of Boating and Waterways and State Coastal Conservancy, 2002)

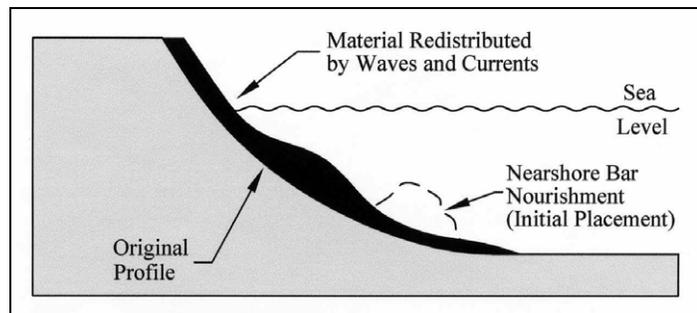


Figure 7.4 Nearshore Bar Nourishment (CA Dept. of Boating and Waterways and State Coastal Conservancy, 2002)

Additional Resources

- Barber, D. No date. *Beach Nourishment Basics*. <http://www.brynmawr.edu/geology/geomorph/beachnourishmentinfo.html>.
- NOAA. No date. *Beach Nourishment: A Guide for Local Government Officials*. U.S. Department of Commerce, NOAA Coastal Services Center. <http://www.csc.noaa.gov/beachnourishment>.
- Scottish National Heritage. No date. *A Guide to Managing Coastal Erosion in Beach/Dune Systems: Beach Nourishment*. http://www.snh.org.uk/publications/on-line/heritagemanagement/erosion/appendix_1.7.shtml.

Behavioral Barriers

Behavioral barriers use fish responses to external stimuli to keep fish away from intakes or to attract them to a bypass. Since fish behavior is notably variable both within and among species, behavioral barriers cannot be expected to prevent all fish from entering hydropower intakes. Environmental conditions such as high turbidity levels can obscure some behavioral barriers, such as lighting systems and curtains. Competing behaviors such as feeding or predator avoidance can also be a factor influencing the effectiveness of behavioral barriers at a particular time.

Electric screens, bubble and chain curtains, light, sound, and water jets have been evaluated in laboratory or field studies and show mixed results. Despite numerous studies, very few permanent applications of behavioral barriers have been realized (EPRI, 1999). Some authors suggest using behavioral barriers in combination with physical barriers (Mueller et al., 1999).

Electrical screens keep fish away from structures and guide them into bypass areas for removal. Fish seem to respond to the electrical stimulus best when water velocities are low. Tests of an electrical guidance system at the Chandler Canal diversion (Yakima River, Washington) showed efficiency ranging from 70 to 84 percent for velocities of less than 1 ft/sec. Efficiencies decreased to less than 50 percent when water velocities were higher than 2 ft/sec (Pugh et al., 1971). Success of electrical screens may be specific to species and fish size. An electrical field strength suitable to deter small fish may result in injury or death to large fish, since total fish body voltage is directly proportional to fish body length (Stone and Webster, 1986). Electrical screens require constant maintenance of electrodes and associated underwater hardware to maintain effectiveness. Surface water quality can affect the life and performance of electrodes.

Bubble and chain curtains are created by pumping air through a diffuser to create a continuous, dense curtain of bubbles, which can cause an avoidance response. Many factors affect fish response to the curtains, including temperature, turbidity, light, and water velocity. Bubbler systems should be constructed from corrosion-resistant materials and be installed with adequate positioning of the diffuser away from areas where siltation might clog the air ducts. Hanging chains provide a physical, visible obstacle that fish avoid. They are species-specific and lifestage-specific. Efficiency of hanging chains is affected by such variables as velocity, instream flow, turbidity, and illumination levels. Debris can limit their performance. In particular, buildup of debris can deflect chains into a nonuniform pattern and disrupt hydraulic flow patterns.

Strobe lights repel fish by producing an avoidance response. A strobe light system at Saunders Generating Station in Ontario, Canada was found to be 67 to 92 percent effective at repelling or diverting eels (EPRI, 1999). Turbidity levels can affect strobe light efficiency. The intensity and duration of the flash can also affect the response of the fish; for instance, an increase in flash duration has been associated with less avoidance. Strobe lights have the potential for far-field

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks
- Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

fish attraction, since they can appear to fish as a constant light source due to light attenuation over a long distance (Stone and Webster, 1986). Strobe lights at Hiram M. Chittenden Locks in Seattle, Washington were examined to determine how fish respond, depending on strobe light distance. Vertical avoidance was 90 to 100 percent when lights were 0.5 meters away, 45 percent when 2.5 meters away, and 19 percent when 4.5 to 6.5 meters away (EPRI, 1999).

Mercury lights have successfully attracted fish to passage systems and repelled them from dams. Studies suggest their effectiveness is species-specific; alewives (*Alosa pseudoharengus*) were attracted to mercury light, whereas coho salmon (*Oncorhynchus kisutch*) and rainbow trout (*Oncorhynchus mykiss*) displayed no attraction to the light (Stone and Webster, 1986). In a test on the Susquehanna River (Maryland, Pennsylvania, and New York), mercury lights attracted gizzard shad (OTA, 1995). Although results have been mixed, low overall cost of the systems has led to continued research on their effectiveness (Duke Engineering & Services, Inc., 2000).

Underwater sound, broadcast at different frequencies and amplitudes, has been effective in attracting fish away from dams or repelling fish from dangers around dams, although the results of field tests are not consistent. Fish have been attracted, repelled, or guided by the sound. A study prepared for DOE showed that low-frequency, high particle motion was effective at invoking flight and avoidance responses in salmonids (Mueller et al., 1998). These findings agree with Knudsen et al. (1994), who found that low frequencies are efficient for evoking awareness reactions and avoidance responses in juvenile Atlantic salmon. Not all fish possess the ability to perceive sound or localized acoustical sources (Harris and Van Bergeijk, 1962). Fish also frequently seem to become habituated to the sound source.

Poppers are pneumatic sound generators that create a high-energy acoustic output to repel fish. Poppers have effectively repelled warm-water fish from water intakes. Laboratory and field studies in California indicate avoidance by several freshwater species such as alewives (*Alosa pseudoharengus*), perch, and smelt. Salmonids do not seem to be effectively repelled (Stone and Webster, 1986). Operation and maintenance considerations include frequent replacement of "O" rings, air entrainment in water inlets, and vibration of structures associated with the inlets.

Water jet curtains create hydraulic conditions that repel fish. Effectiveness is influenced by the angle at which water is jetted. Although effectiveness averages 75 percent (Stone and Webster, 1986), not enough is known to determine what variables affect performance of water jet curtains. Important operation and maintenance concerns would be clogging of the jet nozzles by debris or rust and the acceptable range of stream flow conditions, which contribute to effective results.

Hybrid barriers or combinations of different barriers can enhance the effectiveness of individual behavioral barriers. Laboratory studies showed a chain net barrier combined with strobe lights to be up to 90 percent effective at repelling some species and sizes of fish. Tests of combining rope-net and chain-rope barriers have shown good results. Barriers with horizontal and vertical components in the water column are more effective than those with vertical components alone. Barriers with a large diameter are more effective than those with a small diameter, and thicker barriers are more effective than thinner barriers. Effectiveness of hanging chains was increased when used in combination with strobe lights. Effectiveness also increased when strobe lights were added to air bubble curtains and poppers (Stone and Webster, 1986).

Branch Packing

Branch packing consists of alternating layers of live branch cuttings and compacted backfill to repair small, localized slumps and holes in slopes (Figure 7.5). Live branch cuttings may range from 0.5 to 2 inches in diameter. They should be long enough to touch undisturbed soil at the back of the trench and extend slightly outward from the rebuilt slope face. Wooden stakes should be 5 to 8 feet long, depending on the depth of the slump or hole being repaired. Stakes should also be made from poles that are 3 to 4 inches in diameter or 2 by 4 feet lumber. Live posts can be substituted. As plant tops begin to grow, the branch packing system becomes more effective in retarding runoff and reducing surface erosion. Trapped sediment refills the localized slumps or holes, while roots spread throughout the backfill and surrounding earth to form a unified mass. Branch packing is not effective in slump areas greater than 4 feet deep or 5 feet wide (USDA-NRCS, 1992). Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002) and the USDA Natural Resources Conservation Service's (NRCS's) *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992).

Channelization

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Erosion

- Streambanks
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- Vegetative
- Structural
- Integrated
- Planning & regulatory

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group.
http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf
- ISU. 2006. *How to Control Streambank Erosion: Branchpacking*. Iowa State University.
<http://www.ctre.iastate.edu/erosion/manuals/streambank/branchpacking.pdf>

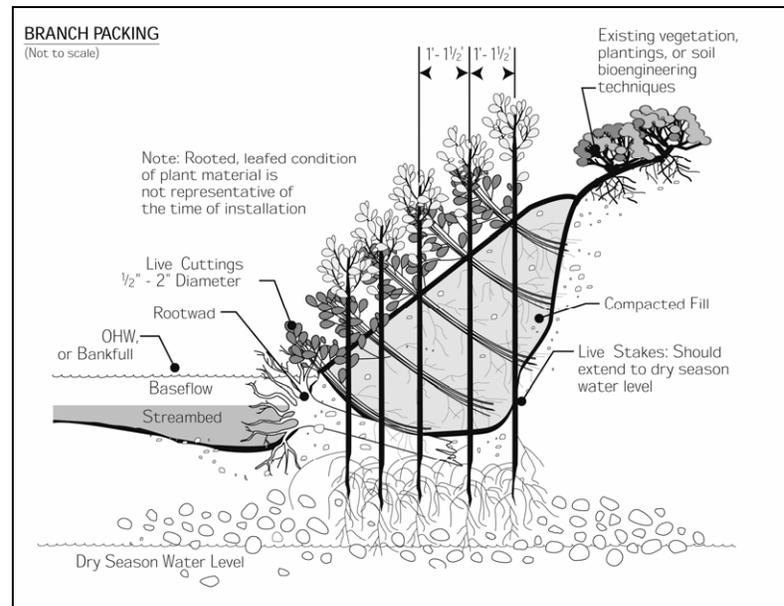


Figure 7.5 Branch Packing (USDA-FS, 2002)

Breakwaters

Breakwaters are wave energy barriers designed to protect the land or nearshore area behind them from the direct assault of waves. Breakwaters have traditionally been used only for harbor protection and navigational purposes; in recent years, however, designs of shore-parallel segmented breakwaters have been used for shore protection purposes (Fulford, 1985; Hardaway and Gunn, 1989; Hardaway and Gunn, 1991; USACE, 1990). Segmented breakwaters can be used to provide protection over longer sections of shoreline than is generally affordable through the use of bulkheads or revetments. Wave energy is able to pass through the breakwater gaps, allowing for the maintenance of some level of longshore sediment transport, as well as mixing and flushing of the sheltered waters behind the structures. The cost per foot of shore for the installation of segmented offshore breakwaters is generally competitive with the costs of stone revetments and bulkheads (Hardaway et al., 1991).

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Erosion

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 - Planning & regulatory

Figure 7.6 provides a view of breakwaters off the coast of Pennsylvania and Figure 7.7 illustrates single and multiple breakwaters.



Figure 7.6 Breakwaters – View of Presque Isle, Pennsylvania (USACE, 2003)

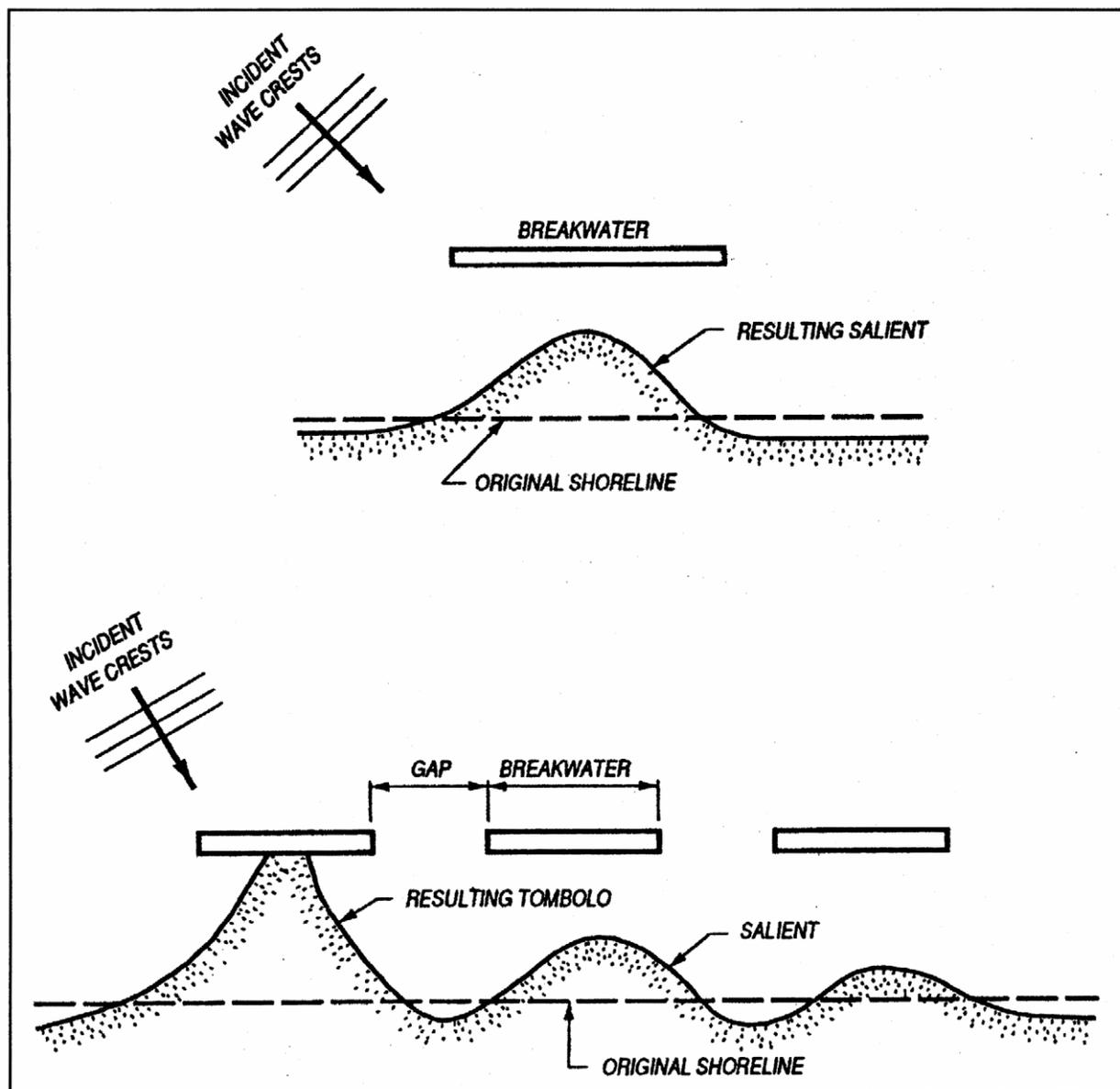


Figure 7.7 Single and Multiple Breakwaters (USACE, 2003)

Additional Resource

- USACE. No date. *Breakwaters*.
http://www.usna.edu/NAOE/courses/en420/bonnette/breakwater_design.html.

Brush Layering

Brush layering consists of placing live branch cuttings interspersed between layers of soil on cut slopes or fill slopes (Figures 7.8 and 7.9). These systems are recommended on slopes up to 2:1 in steepness and not to exceed 15 feet in vertical height. Branch cuttings, which are placed in a crisscross or overlapping pattern, should be long enough to reach the back of the bench and still protrude from the bank (growing tips facing the outside of the slope). The portions of the brush that protrude from the slope face assist in retarding runoff and reducing surface erosion. Backfill is then placed on the branches and compacted.

Brush layering can be used to stabilize a slope against shallow sliding or mass wasting, as well as to provide erosion protection. Brush layers can stabilize and reinforce the outside edge or face of drained earthen buttresses placed against cut slopes or embankment fills. Brush layering works better on fill slopes than cut slopes, because much longer stems can be used in fill (Mississippi State University, 1999). It is most applicable for areas subjected to cut or fill operations or areas that are highly disturbed and/or eroded (ECY, 2007)

Brush layering is somewhat similar to live fascine systems because both involve the cutting and placement of live branch cuttings on slopes. The two techniques differ principally in the orientation of the branches and the depth to which they are placed in the slope. In brush layering, the cuttings are oriented more or less perpendicular to the slope contour. In live fascine systems, the cuttings are oriented more or less parallel to the slope contour. The perpendicular orientation is more effective from the point of view of earth reinforcement and mass stability of the slope (USDA-NRCS, 1992). Thus, brush layering is more effective than live fascines in terms of earth reinforcement and mass stability (Mississippi State University, 1999). When used on a fill slope, brush layering is similar to vegetated geogrids, except the technique does not use geotextile fabric (USDA-FS, 2002).

Brush layering can disrupt native soils. Therefore, installation should be completed in phases and no more area should be excavated than is necessary (ECY, 2007).

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Erosion

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- Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

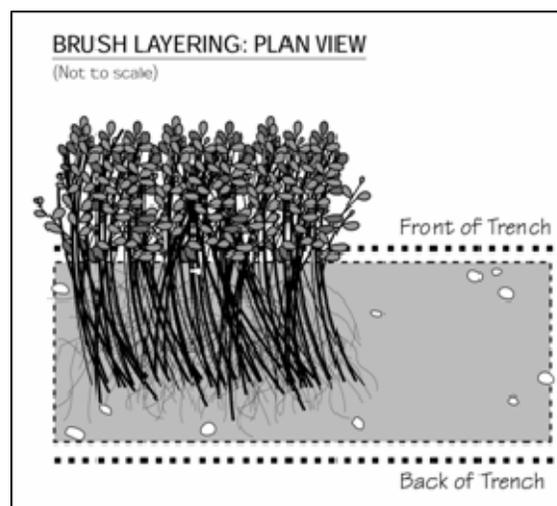


Figure 7.8 Brush Layering: Plan View (USDA-FS, 2002)

Additional Resources

- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Brush Layering*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute.
<http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/brushlayer.pdf>.

- Myers, R.D. 1993. *Slope Stabilization and Erosion Control Using Vegetation: A Manual of Practice for Coastal Property Owners: Brush Layering*. Shorelands and Coastal Zone Management Program, Washington Department of Ecology. Olympia, WA. Publication 93-30.
<http://www.ecy.wa.gov/programs/sea/pubs/93-30/brush.html>.
- Walter, J., D. Hughes, and N.J. Moore. 2005. *Streambank Revegetation and Protection: A Guide for Alaska. Revegetation Techniques: Brush/Hedge – Brush Layering*. Revised Edition. Alaska Department of Fish and Game, Division of Sport Fish.
<http://www.sf.adfg.state.ak.us/SARR/restoration/techniques/hedgebrush.cfm>.

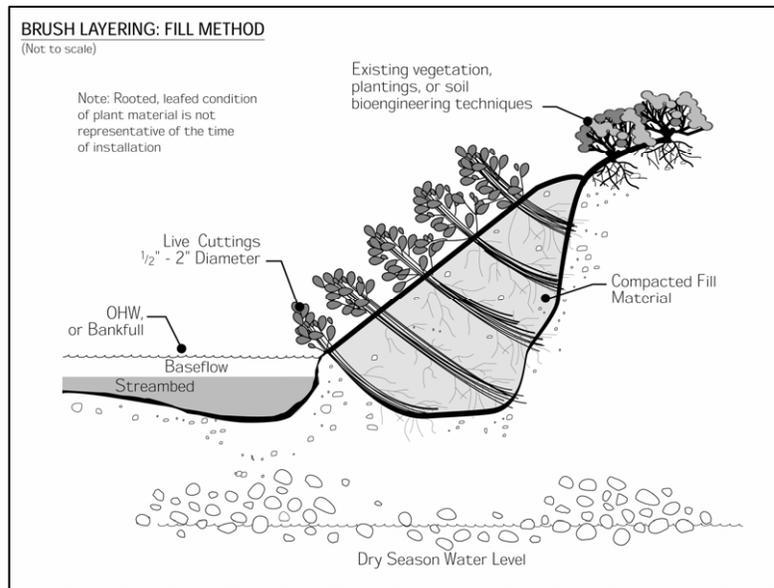


Figure 7.9 Brush Layering: Fill Method (USDA-FS, 2002)

Brush Mattressing

Brush mattressing is commonly used in Europe for streambank protection (Figure 7.10). It involves digging a slight depression on the bank and creating a mat or mattress from woven wire or single strands of wire and live, freshly cut branches from sprouting trees or shrubs. Branches approximately 1 inch in diameter are normally cut 6 to 9 feet long (the height of the bank to be covered) and laid in criss-cross layers with the butts in alternating directions to create a uniform mattress with few voids. The mattress is then covered with wire secured with wooden stakes 2.5 to 4 feet long. It is then covered with soil and watered repeatedly to fill voids with soil and facilitate sprouting; however, some branches should be left partially exposed on the surface. The structure may require protection from undercutting by placement of stones or burial of the lower edge. Brush mattresses are generally resistant to waves and currents and provide protection from the digging out of plants by animals. Disadvantages include possible burial with sediment in some situations and difficulty in making later plantings through the mattress.

Channelization

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Erosion

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Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002). Under the Ecosystem Management and Restoration Research Program (EMRRP), the USACE has presented research on brush mattresses in a technical note (*Brush Mattresses for Streambank Erosion Control*).³

Additional Resources

- Allen, H.H. and C. Fischenich. 2001. *Brush Mattresses for Streambank Erosion Control*. U.S. Army Corps of Engineers, Ecosystem Management and Restoration Research Program. <http://el.ercd.usace.army.mil/elpubs/pdf/sr23.pdf>.
- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- ISU. 2006. *How to Control Streambank Erosion: Brushmattress*. Iowa State University. <http://www.ctre.iastate.edu/erosion/manuals/streambank/brushmattress.pdf>.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Brush Mattress*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/brushmattress.pdf>.

³ <http://el.ercd.usace.army.mil/elpubs/pdf/sr23.pdf>

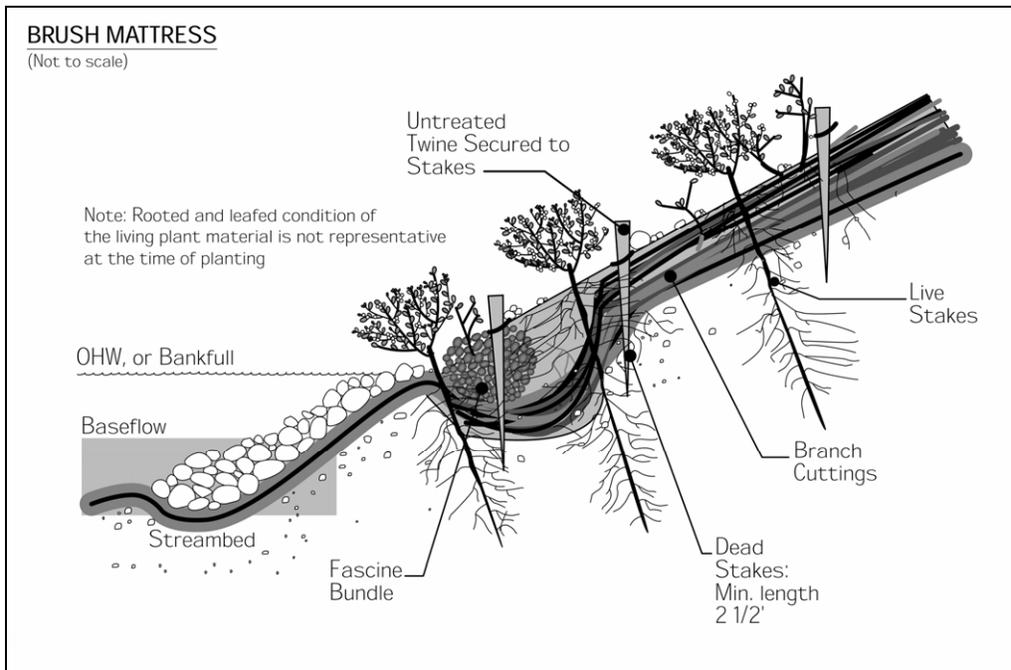


Figure 7.10 Brush Mattress (USDA-FS, 2002)

Bulkheads and Seawalls

Bulkheads (Figure 7.11) are primarily soil-retaining structures designed to also resist wave attack. Seawalls are principally structures designed to resist wave attack, but they also may retain some soil (USACE, 1984). Both bulkheads and seawalls may be built of many materials, including steel, timber, or aluminum sheet pile, gabions, or rubble-mound structures. Although bulkheads and seawalls protect the upland area against further erosion and land loss, they often create a local problem. Downward forces of water, produced by waves striking the wall, can produce a transfer of wave energy and rapidly remove sand from the wall (Pilkey and Wright, 1988). A stone apron is often necessary to prevent scouring and undermining. With vertical protective structures built from treated wood, there are also concerns about the leaching of chemicals used in the wood preservatives. Chromated copper arsenate (CCA), the most popular chemical used for treating the wood used in docks, pilings, and bulkheads, contains elements of chromium, copper, and arsenic that are toxic above trace levels (CSWRCB, 2005; Kahler et al., 2000).

Additional Resources

- Scottish National Heritage. No date. *A Guide to Managing Coastal Erosion in Beach/Dune Systems: Seawalls*. http://www.snh.org.uk/publications/on-line/heritagemanagement/erosion/appendix_1.12.shtml.
- USACE. No date. *Bulkheads and Seawalls*. http://www.usna.edu/NAOE/courses/en420/bonnette/Seawall_Design.html.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

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Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

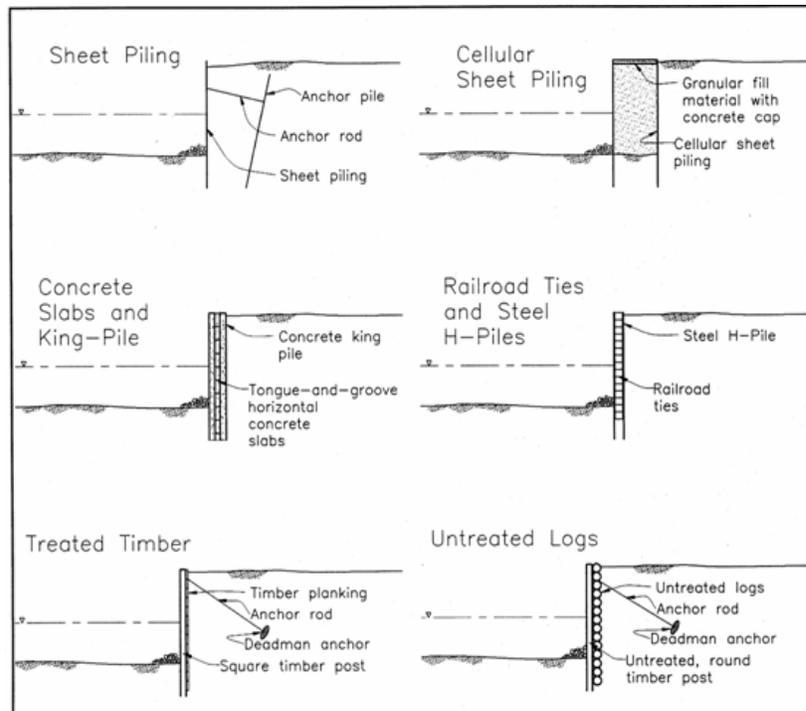


Figure 7.11 Typical Bulkhead Types (USACE, 2003)

Check Dams

Check dams, a type of grade control structure, are small dams constructed across an influent, intermittent stream, or drainageway to reduce channel erosion by restricting flow velocity. They can serve as emergency or temporary measures in small eroding channels that will be filled or permanently stabilized at a later date. Check dams can be installed in eroding gullies as permanent measures that fill up with sediment over time. In permanent usage, when the impounded area is filled, a relatively level surface or delta is formed over which water flows at a noneroding gradient. The water then cascades over the dam through a spillway onto a hardened apron. A series of check dams may be constructed along a stream channel of comparatively steep slope or gradient to create a channel consisting of a succession of gentle slopes with cascades in between.

Channelization

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Erosion

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Check dams can be nonporous (constructed from concrete, sheet steel, or wet masonry) or porous (using available materials such as straw bales, rock, brush, wire netting, boards, and posts). Porous dams release part of the flow through the structure, decreasing the head of flow over the spillway and the dynamic and hydrostatic forces against the dam. Nonporous dams are durable, permanent, and more expensive, while porous dams are simpler, more economical to construct, and temporary. Maintenance of check dams is important, especially the areas to the sides of the dam. Regular inspections, particularly after high flow events, should be performed to observe and repair erosion at the sides of the check dams. Excessive erosion could dislodge the check dam, create additional channel erosion, and add more sediment to the streambed.

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Check Dams*. California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Construction/SE-4.pdf>.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Check Dam*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/3.3_check_dam.pdf.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Check Dam*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/water/erosion/checkdam.pdf>.
- SMRC. No date. *Stream Restoration: Grade Control Practices*. The Stormwater Manager's Resource Center. http://www.stormwatercenter.net/Assorted%20Fact%20Sheets/Restoration/grade_control.htm.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Check Dams*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/cd.pdf.

Coconut Fiber Roll

The coconut fiber roll technique consists of cylindrical structures composed of coconut husk fibers held together with twine woven from coconut material (Figures 7.12 and 7.13). The fiber rolls are typically manufactured in 12-inch diameters and lengths of 20 feet, which serves to protect slopes from erosion, trap sediment, and as a result, encourage plant growth within the fiber roll. The system is typically installed near the toe of the streambank with dormant cuttings and rooted plants inserted into holes cut into the fiber rolls. Once installed, the system provides a good substrate for promoting plant growth and is appropriate where short-term moderate toe stabilization is needed. Installation of this design requires minimal site disturbance and is ideal for sites that are especially sensitive to disturbance. A limitation of this system is that it cannot withstand high velocities or large ice buildup, and it can be fairly expensive to construct. Coconut fiber rolls have an effective life of 6 to 10 years. In some locations, similar and abundant locally available materials, such as corn stalks, are being used instead of coconut materials (FISRWG, 1998).

Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002). Under EMRRP, the USACE has presented research on coconut rolls in a technical note (*Coir Geotextile Roll and Wetland Plants for Streambank Erosion Control*), which is available at <http://el.ercd.usace.army.mil/elpubs/pdf/sr04.pdf>.

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Fiber Rolls*. California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Construction/SE-5.pdf>.
- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- ISU. 2006. *How to Control Streambank Erosion: Coconut Fiber Rolls*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/coconut_fiber.pdf.

<p>Channelization</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Physical & chemical <input checked="" type="checkbox"/> Instream/riparian restoration <p>Dams</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Erosion control <input type="checkbox"/> Runoff control <input type="checkbox"/> Chemical/pollutant control <input type="checkbox"/> Watershed protection <input type="checkbox"/> Aerate reservoir water <input type="checkbox"/> Improve tailwater oxygen <input type="checkbox"/> Restore/maintain habitat <input type="checkbox"/> Maintain fish passage <p>Erosion</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Streambanks <input type="checkbox"/> Shorelines <input checked="" type="checkbox"/> Vegetative <input type="checkbox"/> Structural <input type="checkbox"/> Integrated <input type="checkbox"/> Planning & regulatory



Figure 7.12 Coconut Fiber Roll
(Montgomery Watson, 2001)

- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Coconut Fiber Roll*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/coconutfiberroll.pdf>.

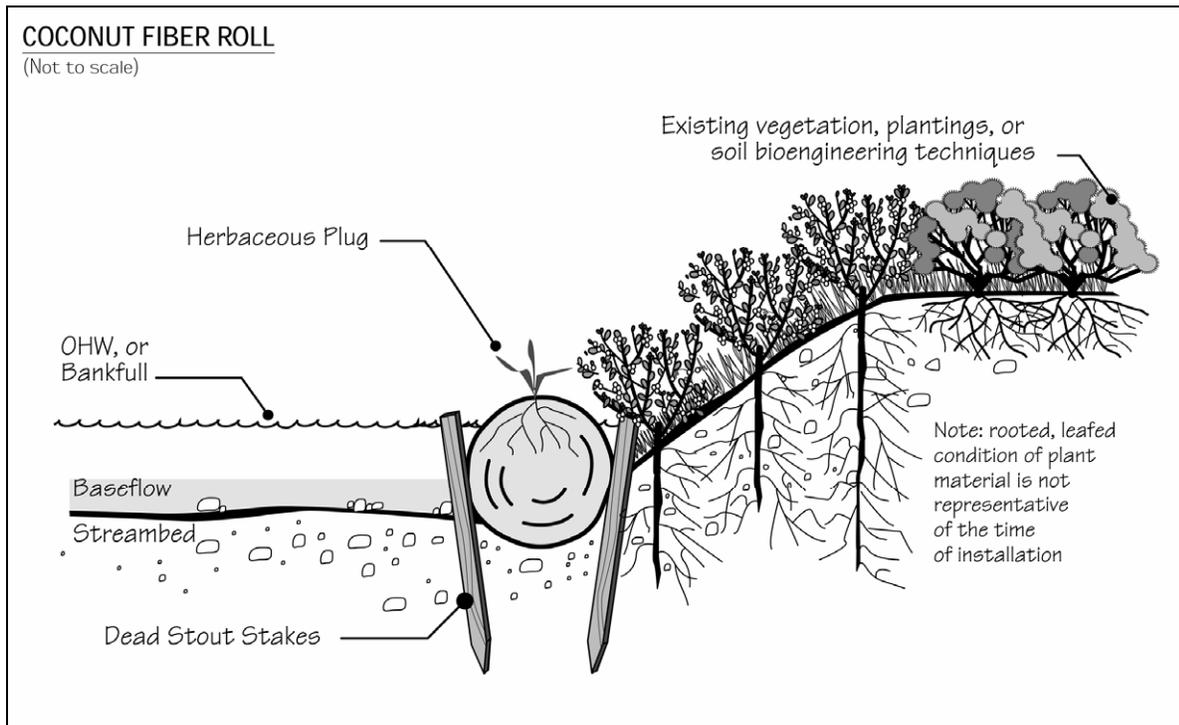


Figure 7.13 Coconut Fiber Roll (USDA-FS, 2002)

Collection Systems

Collection systems involve capture of fish by screening and/or netting followed with transport by truck or barge to a downstream location. Since the late 1970s, the USACE has successfully implemented a program that takes juvenile salmon from the uppermost dams in the Columbia River system (Pacific Northwest) and transports them by barge or truck to below the last dam. The program improves the travel time of fish through the river system, reduces most of the exposure to reservoir predators, and eliminates the mortality associated with passing through a series of turbines (van der Borg and Ferguson, 1989). Survivability rates for the collected fish are in excess of 95 percent, as opposed to survival rates of about 60 percent when the fish remain in the river system and pass through the dams (Dodge, 1989). However, the collection efficiency can range from 70 percent to as low as 30 percent. At the McNary Dam on the Columbia River, spill budgets are also implemented to improve overall passage (discussed in greater detail below) when the collection rate achieves less than 70 percent efficiency (Dodge, 1989).

Channelization

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Erosion

- Streambanks Shorelines
 - Vegetative
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 - Planning & regulatory

Additional Resource

- Chelan County Public Utility District. No date. *Juvenile Fish Bypass*. <http://www.chelanpud.org/juvenile-fish-passage.html>.

Construct Runoff Intercepts

Benches, terraces, or ditches break up a slope by providing areas of low slope in the reverse direction. This keeps water from proceeding down the slope at increasing volume and velocity. Instead, the flow is directed to a suitable outlet or protected drainage system. The frequency of benches, terraces, or ditches will depend on the erodibility of the soils, steepness and length of the slope, and rock outcrops. This practice can be used if there is a potential for erosion along the slope.

Earth dikes, perimeter dikes or swales, or diversions can intercept and convey runoff from above disturbed areas to undisturbed areas or drainage systems. An earth dike is a temporary berm or ridge of compacted soil that channels water to a desired location. A perimeter dike/swale or diversion is a swale with a supporting ridge on the lower side that is constructed from the soil excavated from the adjoining swale (Delaware DNREC, 2003). These practices can intercept flow from denuded areas or newly seeded areas and keep clean runoff away from disturbed areas. The structures can be stabilized within 14 days of installation. A pipe slope drain, also known as a pipe drop structure, is a temporary pipe placed from the top of a slope to the bottom of the slope to convey concentrated runoff down the slope without causing erosion (Delaware DNREC, 2003).

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Earth Dikes and Drainage Swales*. California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Construction/EC-9.pdf>.
- Fifield, J. 2000. *Design and Implementation of Runoff Control Structures: Diversion Dikes and Swales*. http://www.forester.net/ec_0001_design.html#diversion.
- Lake Superior/Duluth Streams. 2005. *Grassed Swales*. <http://www.duluthstreams.org/stormwater/toolkit/swales.html>.

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Constructed Spawning Beds

When a dam adversely affects the aquatic habitat of an anadromous fish species, one option may be to construct replacement spawning beds. Additional facilities such as electric barriers, fish ladders, or bypass channels would be required to channel the fish to these spawning beds.

Merz et al., (2004) tested whether spawning bed enhancement increases survival and growth of Chinook salmon (*Oncorhynchus tshawytscha*) embryos in a regulated stream with a gravel deficit. The authors also examined a dozen physical parameters correlated with spawning sites (e.g., stream velocity, average turbidity, distance from the dam) and how they predicted survival and growth of Chinook salmon and steelhead (*Oncorhynchus mykiss*). The results suggest that spawning bed enhancement can improve embryo survival in degraded habitat. Measuring observed physical parameters before and after spawning bed manipulation can also accurately predict benefits. The National Oceanic and Atmospheric Administration's (NOAA's) *Status Review of Chinook Salmon from Washington, Idaho, Oregon, and California* (1998) states that artificial spawning beds for ocean-type Chinook salmon operated near three different dams was discontinued because of high pre-spawning mortality in adult fish and poor egg survival in the spawning beds. Success of constructed spawning beds in increasing survival and development of fish varies and often depends on the site.

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Construction Management

Construction areas can be managed properly to control erosion by stabilizing entrances and proper traffic routing. A construction entrance is a pad of gravel or rock over filter cloth located where traffic enters and leaves a construction site. As construction vehicles drive over the gravel, mud and sediment are collected from the vehicles' wheels. To maximize effectiveness, the rock pad should be at least 50 feet long and 10 to 12 feet wide. The gravel should be 1- to 2-inch aggregate 6 inches deep laid over a layer of filter fabric. Maintenance might include pressure washing the gravel to remove accumulated sediment and adding more rock to maintain thickness. Runoff from this entrance should be treated before exiting the site. This practice can be combined with a designated truck wash-down station to ensure sediment is not transported off-site.

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Where possible, construction traffic should be directed to avoid existing or newly planted vegetation. Instead, it should be directed over areas that must be disturbed for other construction activity. This practice reduces the net total area that is cleared and susceptible to erosion.

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Stabilized Construction Entrance/Exit*. California Stormwater Quality Association, Sacramento, CA.
<http://www.cabmphandbooks.com/Documents/Construction/TR-1.pdf>.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Stabilized Construction Entrance*. Iowa State University.
http://www.ctre.iastate.edu/erosion/manuals/construction/3.14_stabilized_entrance.pdf.

Dormant Post Plantings

Dormant post plantings include planting of either cottonwood, willow, poplar, or other sprouting species embedded vertically into streambanks to increase channel roughness, reduce flow velocities near the slope face, and trap sediment (Figure 7.14). Dormant posts are made up of large cuttings installed in streambanks in square or triangular patterns. Live posts should be 7 to 20 feet long and 3 to 5 inches in diameter. This method is effective for quickly establishing riparian vegetation particularly in arid regions. By decreasing near bank flow velocities, this design causes sediment deposition and reduces streambank erosion. This design is more resistant to erosion than live staking or similar designs that use smaller cuttings. Success of this design is most likely on streambanks that are not gravel dominated and where ice build up is not common. The exclusion of certain herbivores aids in the success of this design. This method should be combined with other soil bioengineering techniques to achieve a comprehensive streambank restoration design (FISRWG, 1998). Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002).

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks
- Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- ISU. 2006. *How to Control Streambank Erosion: Dormant Post Plantings*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/dormant_post.pdf.

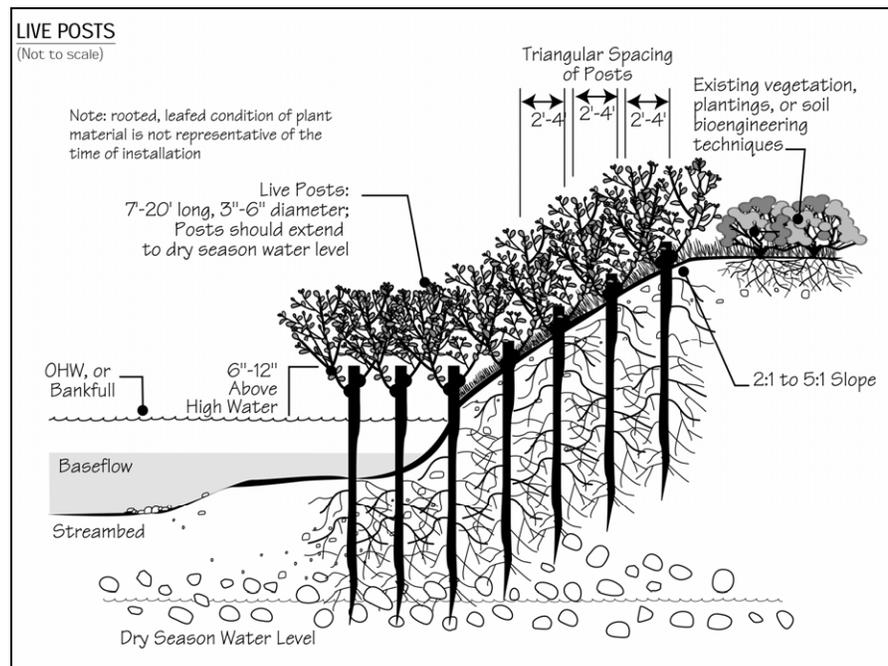


Figure 7.14 Live Posts (USDA-FS, 2002)

Encourage Drainage Protection

A complete understanding of watershed protection should include the implementation of practices that guide future development and land use activities. This will not only help to identify existing sources of NPS pollution but also to prevent future impairments that may impact dam construction or operations and reservoir management. Watershed protection practices can include zoning for natural resource protection. Several zoning techniques are:

- Use cluster zoning and planned unit development
- Consider resource protection zones
- Practice performance-based zoning
- Establish overlay zones
- Establish bonus or incentive zoning
- Consider large lot zoning
- Practice agricultural protection zoning
- Use watershed-based zoning
- Delineate urban growth boundaries

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Erosion

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- Vegetative
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- Planning & regulatory

More details about these techniques and case studies can be found in *Protecting Wetlands: Tools for Local Governments in the Chesapeake Bay Region* (Chesapeake Bay Program, 1997).

Equipment Runoff Control

During construction and maintenance activities at dams, equipment and machinery can be a potential source of pollution to the surface and ground water. Thinners or solvents should not be discharged into sanitary or storm sewer systems or into surface water systems, when cleaning machinery. Use alternative methods for cleaning larger equipment parts, such as high-pressure, high-temperature water washes or steam cleaning. Equipment-washing detergents can be used and wash water appropriately discharged. Small parts should be cleaned with degreasing solvents that can be reused or recycled. Washout from concrete trucks should never be dumped directly into surface waters or into a drainage leading to surface waters but can be disposed of into:

- A designated area that will later be backfilled
- An area where the concrete wash can harden, can be broken up, and can then be appropriately disposed
- A location not subject to surface water runoff and more than 50 feet away from a receiving water

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 - Vegetative
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Erosion and Sediment Control (ESC) Plans

ESC plans are important for controlling the adverse impacts of dam construction. ESC plans ensure that provisions for control measures are incorporated into the site planning stage of development. ESC plans also provide for prevention of erosion and sediment problems and accountability if a problem occurs (MDEP, 1990). In many municipalities, ESC plans are required under ordinances enacted to protect water resources. These plans describe the activities construction and maintenance personnel will use to reduce soil erosion and contain and treat runoff that is carrying eroded sediments. ESC plans typically include descriptions and locations of soil stabilization practices, perimeter controls, and runoff treatment facilities that will be installed and maintained before and during construction activities. In addition to special area considerations, the full ESC plan review inventory should include:

- Topographic and vicinity maps
- Site development plan
- Construction schedule
- Erosion and sedimentation control plan drawings
- Detailed drawings and specifications for practices
- Design calculations
- Vegetation plan
- Detailed drawings and specifications for control or management practices

Some erosion and soil loss is unavoidable during land-disturbing activities. Although proper siting and design help prevent areas prone to erosion from being developed, construction activities invariably produce conditions where erosion can occur. To reduce the adverse impacts associated with construction activities at dams, the construction management measure suggests a system of nonstructural and structural ESCs for incorporation into an ESC plan.

Nonstructural controls address erosion control by decreasing erosion potential, whereas structural controls are both preventive and mitigative because they control erosion and sediment movement. Brown and Caraco (1997) identified several general objectives that should be addressed in an effective ESC plan:

- *Minimize clearing and grading* – clearing and grading should occur only where absolutely necessary to build and provide access to structures and infrastructure. Clearing should be done immediately before construction, rather than leaving soils exposed for months or years (SQI, 2000).
- *Protect waterways and stabilize drainage ways* – all natural waterways within a development site should be clearly identified before construction activities begin. Clearing should generally be prohibited in or adjacent to waterways. Sediment control

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Erosion

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- Vegetative
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practices such as check dams might be needed to stabilize drainage ways and retain sediment on-site.

- *Phase construction to limit soil exposure* – construction phasing is a process where only a portion of the site is disturbed at any one time to complete the required building in that phase. Other portions of the site are not cleared and graded until exposed soils from the earlier phase have been stabilized and the construction nearly completed.
- *Stabilize exposed soils immediately* – seeding or other stabilization practices should occur as soon as possible after grading. In colder climates, a mulch cover is needed to stabilize the soil during the winter months when grass does not grow or grows poorly.
- *Protect steep slopes and cuts* - wherever possible, clearing and grading of existing steep slopes should be completely avoided. If clearing cannot be avoided, practices should be implemented to prevent runoff from flowing down slopes.
- *Install perimeter controls to filter sediments* – perimeter controls are used to retain sediment-laden runoff or filter it before it exits the site. The two most common perimeter control options are silt fences and earthen dikes or diversions.
- *Employ advanced sediment-settling controls* – traditional sediment basins are limited in their ability to trap sediments because fine-grained particles tend to remain suspended and the design of the basin themselves is often simplistic. Sediment basins can be designed to improve trapping efficiency through the use of perforated risers; better internal geometry; the installation of baffles, skimmers, and other outlet devices; gentler side slopes; and multiple-cell construction.

ESC plans ensure that provisions for control measures that are incorporated into the site planning stage of development help to reduce the incidence of erosion and sediment problems, and improve accountability if a problem occurs. An effective plan for runoff management on construction sites controls erosion, retains sediments on-site to the extent practicable, and reduces the adverse effects of runoff. Climate, topography, soils, drainage patterns, and vegetation affect how erosion and sediment should be controlled on a site (Washington State Department of Ecology, 1989).

ESC plans should be flexible to account for unexpected events that occur after the plans have been approved, including:

- Discrepancies between planned and as-built grades
- Weather conditions
- Altered drainage
- Unforeseen construction requirements

Changes to an ESC plan should be made based on regular inspections that identify whether the ESC practices were appropriate or properly installed or maintained. Inspecting an ESC practice after storm events shows whether the practice was installed or maintained properly. Such inspections also show whether a practice requires cleanout, repair, reinforcement, or replacement with a more appropriate practice. Inspecting after storms is the best way to ensure that ESC practices remain in place and effective at all times during construction activities.

Because funding for ESC programs is not always dedicated, budgetary and staffing constraints may thwart effective program implementation. Brown and Caraco (1997) recommend several management techniques to ensure that ESC programs are properly administered:

- Local leadership committed to the ESC program
- Redeployment of existing staff from the office to the field or training room
- Cross-training of local review and inspection staff
- Submission of erosion prevention elements for early planning reviews.
- Prioritization of inspections based on erosion risk
- Requirement of designers to certify the initial installation of ESC practices
- Investment in contractor certification and private inspector programs
- Use of public-sector construction projects to demonstrate effective ESC controls
- Enlistment of the talents of developers and engineering consultants in the ESC program
- Revision and update of the local ESC manual

An allowance item that acts as an additional “insurance policy” for complying with the erosion and sediment control plan can be added to bid or contract documents (Deering, 2000a). This allowance covers costs to repair storm damage to ESC measures as specified in the ESC plan. This allowance does not cover storm damage to property that is not related to the ESC plan, because this would be covered under traditional liability insurance. Damage caused by severe and continuous rain events, windblown objects, fallen trees or limbs, or high-velocity, short-term rain events on steep slopes and existing grades would be covered by the allowance, as would deterioration from exposure to the elements or excessive maintenance for silt removal. The contractor is responsible for being in compliance with the ESC plan by properly implementing and maintaining all specified measures and structures. The allowance does not cover damage to practices caused by improper installation or maintenance.

Additional Resources

- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Infiltration Basin and Trench*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/4.1_infiltration.pdf.
- Milwaukee River Basin Partnership. 2003. *Detention & Infiltration Basins*. <http://clean-water.uwex.edu/plan/drbasins.htm>.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Vegetative Practices*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/2.%20Vegetative%20Practices.pdf.

Erosion Control Blankets

Turf reinforcement mats (TRMs) combine vegetative growth and synthetic materials to form a high-strength mat that helps prevent soil erosion in drainage areas and on steep slopes (Figure 7.15) (USEPA, 1999). TRMs enhance vegetation's natural ability to protect soil from erosion. They are composed of interwoven layers of nondegradable geosynthetic materials (e.g., nylon, polypropylene) stitched together to form a three-dimensional matrix. They are thick and porous enough to allow for soil filling and retention. In addition to providing scour protection, the mesh netting of TRMs is designed to enhance vegetative root and stem development. By protecting the soil from scouring forces and enhancing vegetative growth, TRMs can raise the threshold of natural vegetation to withstand higher hydraulic forces on stabilization slopes, streambanks, and channels. In addition to reducing flow velocities, natural vegetation removes particulates through sedimentation and soil infiltration and improves site aesthetics. In general, TRMs should not be used for the following:

- To prevent deep-seated slope failure due to causes other than surficial erosion
- If anticipated hydraulic conditions are beyond the limits of TRMs and natural vegetation
- Directly beneath drop outlets to dissipate impact force (can be used beyond impact zone)
- Where wave height might exceed 1 foot (can protect areas upslope of wave impact zone)

The performance of a TRM-lined conveyance system depends on the duration of the runoff event. For short-term events, TRMs are typically effective at flow velocities of up to 15 feet per second and shear stresses of up to 8 lb/ft². However, specific high-performance TRMs may be effective under more severe hydraulic conditions. Practitioners should check with manufacturers for specifications and performance limits of different products. Factors influencing the cost of TRMs include the type of material required, site conditions (e.g., underlying soils, slope steepness), and installation-specific factors (e.g., local construction costs). TRMs typically cost considerably less than concrete and riprap solutions.

<p>Channelization</p> <ul style="list-style-type: none"> <input type="checkbox"/> Physical & chemical <input type="checkbox"/> Instream/riparian restoration <p>Dams</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Erosion control <input type="checkbox"/> Runoff control <input type="checkbox"/> Chemical/pollutant control <input type="checkbox"/> Watershed protection <input type="checkbox"/> Aerate reservoir water <input type="checkbox"/> Improve tailwater oxygen <input type="checkbox"/> Restore/maintain habitat <input type="checkbox"/> Maintain fish passage <p>Erosion</p> <ul style="list-style-type: none"> <input type="checkbox"/> Streambanks <input type="checkbox"/> Shorelines <input type="checkbox"/> Vegetative <input type="checkbox"/> Structural <input type="checkbox"/> Integrated <input type="checkbox"/> Planning & regulatory



Figure 7.15 Erosion Control Blanket
(Conwed Fibers, n.d.)

Additional Resources

- Barr Engineering Company. 2001. *Minnesota Urban Small Sites BMP Manual: Stormwater Best Management Practices for Cold Climates. Soil Erosion Control: Mulches, Blankets and Mats*. Prepared for the Metropolitan Council by Barr Engineering Company, St. Paul, MN. http://www.metrocouncil.org/Environment/Watershed/BMP/CH3_RPPSoilMulch.pdf.
- CASQA. 2003. *California Stormwater BMP Construction Handbook: Geotextiles and Mats*. California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Construction/EC-7.pdf>.
- California Department of Transportation. 1999. *Soil Stabilization Using Erosion Control Blankets*. Construction Storm Water Pollution Prevention Bulletin. Vol. 3, No. 8. California Department of Transportation, Division of Environmental Analysis, Sacramento, CA. http://www.dot.ca.gov/hq/env/stormwater/publicat/const/Aug_1999.pdf.
- Matthews, M. 1998. *What are RECPs? Soil Stabilization Using Erosion Control Blankets*. Erosion Control Technology Council, St. Paul, MN. <http://www.ectc.org/what.html>.
- North American Green. 2004. *Green Views: Turn Reinforcement Mats as an Alternative to Rock Riprap*. North American Green, Evansville, IN. http://www.nagreen.com/resources/literature/GV_AltToRockRiprap.pdf.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Vegetative Practices: Erosion Control Blanket/Matting*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/2.%20Vegetative%20Practices.pdf.

Establish and Protect Stream Buffers

Riparian buffers and wetlands can provide long-term pollutant removal capabilities without the comparatively high costs usually associated with constructing and maintaining structural controls. Conservation or preservation of these areas is important to water quality protection. Land acquisition programs help to preserve areas considered critical to maintaining surface water quality. Adequate buffer strips along streambanks provide protection for stream ecosystems, help stabilize the stream, and can prevent streambank erosion (Holler, 1989). Buffer strips can also protect and maintain near-stream vegetation that attenuates the release of sediment into stream channels. Levels of suspended solids have been shown to increase at a slower rate in stream channel sections with well-developed riparian vegetation (Holler, 1989).

Channelization

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Dams

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Erosion

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- Planning & regulatory

Stream buffers should be protected and preserved as a conservation area because these areas provide many important functions and benefits, including:

- Providing a “right-of-way” for lateral movement
- Conveying floodwaters
- Protecting streambanks from erosion
- Treating runoff and reducing drainage problems from adjacent areas
- Providing nesting areas and other wildlife habitat functions
- Mitigating stream warming
- Protecting wetlands
- Providing recreational opportunities and aesthetic benefits
- Increasing adjacent property values

Specific stream buffer practices could include:

- Establishing a stream buffer ordinance
- Developing vegetative and use strategies within management zones
- Establishing provisions for stream buffer crossings
- Integration of structural runoff management practices where appropriate
- Developing stream buffer education and awareness programs

More information on establishing and protecting stream buffers is available from EPA’s *National Management Measures to Control Nonpoint Source Pollution from Urban Areas*,⁴ a document for use by state, local, and tribal managers in the implementation of nonpoint source pollution management programs. It contains a variety of practices and management activities for reducing pollution of surface and ground water from urban areas (USEPA, 2005d).

⁴ <http://www.epa.gov/owow/nps/urbanmm/index.html>

Fish Ladders

Fish ladders have been a commonly used structure to enable the safe upstream and downstream passage of mature fish (see Figure 7.16). There are four basic designs: pool-weir, Denil, vertical slot, and steeppass.

Pool-weir fish ladders are one of the oldest and most commonly designed fish passage structures, which consists of stepped pools and weirs that allow fish to pass from pool to pool over the weirs that separate each. Pool-weir fish ladders are normally used on slopes of about 10-degrees. Some pool-weir fish ladders can be modified to increase the possible number of fish that are passed by including submerged orifices that allow fish to pass the fish ladder without cresting the weirs.

Pool-weir fish ladders will pass many different species of fish if they are designed correctly for the environment in which they are employed. OTA (1995) provides details on design and operation of various forms of fish ladders.

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Figure 7.16 Fish Ladder at Feather River Hatchery, Oroville Dam, CA (Feather River, n.d.)

Denil fish ladders are elongated rectangular channels that use internal baffles to dissipate flow energy and allow fish passage. They are widely used in the eastern United States due to their ability to pass a wide range of species (from salmonids to riverine) over a wider range of flows than pool-weir ladders. Denil ladders can be used on slopes from 10 to 25 degrees although 10 to 15 degrees is optimal. Most Denil fish ladders are 2–4 feet wide and 4–8 feet deep. This fish ladder design allows fish to pass at a preferred depth instead of through a jumping action. Denil ladders do not have resting areas and therefore fish must either be able to pass the ladder in one burst or resting pools must be provided between sections. Resting pools should be provided every 16 to 50 feet depending upon the species being passed. The high flow rates and turbulence

associated with Denil fish ladders reduces the demand for attraction flow, which is commonly added to insure good attraction over varying flow rates.

Vertical slot fish ladders are elongated rectangular channels that use regularly spaced baffles to create steps and resting pools. The vertically oriented slots in the baffles allow fish to pass through the ladder at a preferred depth. Unlike Denil fishways, vertical slot fishways provide a resting area behind each baffle allowing fish to pass in a “burst-rest” manner instead of one sustained motion. The channel created by the baffles is off-center making the baffles on one side of the ladder wider than the opposing side. Eddies that form behind longer baffles allow fish to rest and end the need for resting areas. Although vertical slot ladders are usually operated at slopes of about 10 degrees, they can be operated over a larger variety of flows. The vertical slots create a water jet that is regulated by the pool on the downstream side of it. This creates a uniform, level flow throughout the ladder.

The steppass fish ladder, often referred to as the “Alaska steppass,” is a modified Denil fish ladder most commonly used in remote areas for the passage of salmonids. Steppass fish ladders are usually constructed of lightweight materials such as aluminum and can operate on slopes up to 33 percent. The construction materials and design allow this type of fish ladder to be deployed as a single unit to remote areas. The baffles used in steppass ladders are more aggressively designed, which allow the ladder to more effectively control water flow. The steppass ladder is not without its limitations. Due to their narrow design, steppass ladders are more susceptible to clogging due to debris and changes in flow upstream or downstream of the ladder.

Although fish ladders can be extremely efficient at passing fish, small changes in design have been shown to significantly improve their functionality. A good example of this is the John Day Dam located on the Columbia River. The original design focused on the passage of salmonids and therefore only passed about 17 percent of the American shad (*Alosa sapidissima*) using the ladder. Research indicated that simple design changes could allow for the passage of riverine species such as American shad. By changing the placement of the weirs within the fish ladder, the fish ladder was able to pass 94 percent of the salmonids, and American shad passage increased to 74 percent (Monk et al., 1989).

According to the USACE, Portland District (1997), the success rate for adults negotiating fish ladders at dams in the Columbia River Basin is about 95 percent. The U.S. Fish and Wildlife Agency designs fishways assuming a 90 percent efficiency rate. Few studies document actual efficiency of fish ladders, but it is recognized that not all fishways are equally effective (for various reasons, such as predation or physical damage to passing fish). Some fishways installed in the last 20 years are less effective than newer ones (when federal licenses began to include fish passage requirements). Maine Department of Marine Resources (DMR) estimates efficiency between 75 and 90 percent (Presumpscot River Plan Steering Committee, 2002).

Additional Resource

- Michigan DNR. No date. *What is a fish ladder?* Michigan Department of Natural Resources, Lansing, MI. http://www.michigan.gov/dnr/0,1607,7-153-10364_19092-46291--,00.html.

Fish Lifts

Fish lifts describe both fish elevators and locks, which are used to capture fish at the downstream side of a structure and then move them above the structure. Like fish ladders, these systems require sufficient attraction flow to move fish into the lift area. Lift systems can be advantageous because they are not species or flow specific. They can also be employed at structures too tall for fish ladders and to pass species with reduced swimming ability.

Lift systems have the potential to move large numbers of fish if they are operated efficiently. These systems can be automated to allow operation much like fish ladders. Fish lift systems do require additional operation and maintenance costs and are subject to mechanical failures not associated with fish ladders.

Most lift systems require either an active or passive bypass system to move fish far enough upstream to avoid entrainment in the flow through the dam. Passive bypass systems may include constructed waterways or pipes that discharge passed fish sufficiently up-stream of the structure. Active bypass systems include trucking and pumping operations that discharge the fish safely upstream of the structure. Active bypass systems, especially pumping systems, have come under scrutiny for fish behavior and health reasons. During the pumping process, fish may be subject to descaling and/or death due to overcrowding. After release, the fish may have orientation problems and therefore be subject to higher rates of predation mortality. Due to these concerns the United States Fish and Wildlife service has generally opposed the use of fish pumps (OTA, 1995).

Channelization

- Physical & chemical
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Erosion

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- Vegetative
- Structural
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- Planning & regulatory

Flow Augmentation

Operational procedures such as flow regulation, flood releases, or fluctuating flow releases all have the potential for detrimental impacts on downstream aquatic and riparian habitat. When evaluating solutions associated with degraded aquatic and riparian habitat, stakeholders must balance operational procedures to address the needs of downstream aquatic and riparian habitat with the requirements of dam operation. There are often legal and jurisdictional requirements for an operational procedure at a particular dam that should also be considered (USDOI, 1988).

A flushing flow is a high-magnitude, short-duration release for the purpose of maintaining channel capacity and the quality of instream habitat by scouring the accumulation of fine-grained sediments from the streambed. Availability of suitable instream habitat is a key factor limiting spawning success. Flushing flows wash away the sediments without removing the gravel. Flushing flows also prevent the encroachment of riparian vegetation.

However, it is important to keep in mind that flushing flows are not recommended in all cases. Flushing flows of a large magnitude may cause flooding in the old floodplain or depletion of gravel below a dam. Flushing flows are more efficient and predictable for small, shallow, high-velocity mountain streams unaltered by dams, diversions, or intensive land use. Routine maintenance generally requires a combination of practices including high flows coupled with sediment dams or channel dredging, rather than simply relying on flushing or scouring flows (Nelson et al., 1988).

Several options exist for creating minimum flows in the tailwaters below dams. The selection of any particular technique as the most cost-effective is site-specific and depends on several factors including adequate performance to achieve the desired instream and riparian habitat characteristic, compatibility with other requirements for operation of the hydropower facility, availability of materials, and cost.

Sluicing is the practice of releasing water through the sluice gate rather than through the turbines. For portions of the waterway immediately below the dam, the steady release of water by sluicing provides minimum flows with the least amount of water expenditure. At some facilities, this practice may dictate that modifications be made to the existing sluice outlets to maintain continuous low releases. Continuous low-level sluice releases at Eufala Lake and Fort Gibson Lake (Oklahoma) provided minimum flows needed to sustain downstream fish populations. The sluicing also had the benefit of improving DO levels in tailwaters downstream of these two dams such that fish mortalities, which had been experienced in the tailwaters below these two dams prior to initiating this practice, no longer occurred (USDOE, 1991).

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Turbine pulsing is a practice involving the release of water through the turbines at regular intervals to improve minimum flows. In the absence of turbine pulsing, water is released from large hydropower dams only when the turbines are operating, which is typically when the demand for power is high.

A study undertaken at the Douglas Dam (French Broad River, Tennessee) suggests some of the site-specific factors that should be considered when evaluating the advantages of practices such as turbine pulsing, sluicing, or other alternatives for providing minimum flows and improving dissolved oxygen (DO) levels in reservoir releases. Two options for maintaining minimum flows (turbine pulsing and sluicing), and two aeration alternatives (operation of surface water pumps and diffusers) were evaluated for their effectiveness, advantages, and disadvantages in providing minimum flows and aeration of reservoir releases. Computer modeling indicated that either turbine pulsing or sluicing could improve DO concentrations in releases by levels ranging from 0.7 to 1.5 mg/L. This is slightly below the level of improvement that might be expected from operation of a diffuser system for aeration. A trade-off can also be expected at this facility between water saved by frequent short-release pulses and the higher maintenance costs due to operating turbines on and off frequently (Hauser et al., 1989). Hauser et al. (1989) found that schemes of turbine pulsing ranging from 15-minute intervals to 60-minute intervals every 2 to 6 hours were found to provide fairly stable flow regimes after the first 3 to 8 miles downstream at several Tennessee Valley Authority (TVA) projects. However, at points farther downstream, less overall flow would be produced by sluicing than by pulsing. Turbine pulsing may also cause waters to rise rapidly, which could endanger people wading or swimming in the tailwaters downstream of the dam (TVA, 1990).

Fuel and Maintenance Staging Areas

Proper maintenance of equipment and installation of proper stream crossings will further reduce pollution of water by these sources. Vehicles need to be inspected for leaks. To prevent runoff, fuel and maintain vehicles on site only in a bermed area or over a drip pan. Fuel tanks should be protected and have containment systems. Stream crossings can be minimized through proper planning of access roads. This will help to keep potential sources of pollution away from direct contact with surface waters.

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Gated Conduits

Gated conduits are hydraulic structures that divert the flow of water under the dam. They are designed to create turbulent mixing to enhance oxygen transfer. Gates are used to control the cross-sectional area of flow. Gated conduits have been extensively analyzed for their performance and effectiveness (Wilhelms and Smith, 1981), although the available data are mostly from high-head projects (Wilhelms, 1988). An example of the effectiveness found that gated conduit structures were able to achieve 90 percent aeration and a minimum DO standard of 5 mg/L (Wilhelms and Smith, 1981).

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- Planning & regulatory

Groins

Groins are structures that are built perpendicular to the shore and extend into the water. Examples of possible planform shapes for groins are illustrated in Figure 7.17. They are generally constructed in series, referred to as a groin field, along the entire length of shore to be protected. Groins trap sand in littoral drift and halt its longshore movement along beaches. The sand trapped by each groin acts as a protective barrier that waves can attack and erode without damaging previously unprotected upland areas. Unless the groin field is artificially filled with sand from other sources, sand is trapped in each groin by interrupting the natural supply of sand moving along the shore in the natural littoral drift. This frequently results in an inadequate natural supply of sand to replace the sand carried away from beaches located farther along the shore in the direction of the littoral drift. If “downdrift” beaches are kept starved of sand for long periods of time, severe beach erosion in unprotected areas can result. As with bulkheads and revetments, the most durable materials for construction of groins are timber and stone. Less expensive techniques for building groins use sand- or concrete-filled bags or tires. It must be recognized that the use of lower-cost materials in the construction of bulkheads, revetments, or groins frequently results in less durability and reduced project life. Figure 7.18 illustrates transition from a groin field to a natural shoreline.

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|--|
| <p>Channelization</p> <ul style="list-style-type: none"> <input type="checkbox"/> Physical & chemical <input type="checkbox"/> Instream/riparian restoration <p>Dams</p> <ul style="list-style-type: none"> <input type="checkbox"/> Erosion control <input type="checkbox"/> Runoff control <input type="checkbox"/> Chemical/pollutant control <input type="checkbox"/> Watershed protection <input type="checkbox"/> Aerate reservoir water <input type="checkbox"/> Improve tailwater oxygen <input type="checkbox"/> Restore/maintain habitat <input type="checkbox"/> Maintain fish passage <p>Erosion</p> <ul style="list-style-type: none"> <input type="checkbox"/> Streambanks <input checked="" type="checkbox"/> Shorelines <input type="checkbox"/> Vegetative <input checked="" type="checkbox"/> Structural <input type="checkbox"/> Integrated <input type="checkbox"/> Planning & regulatory |
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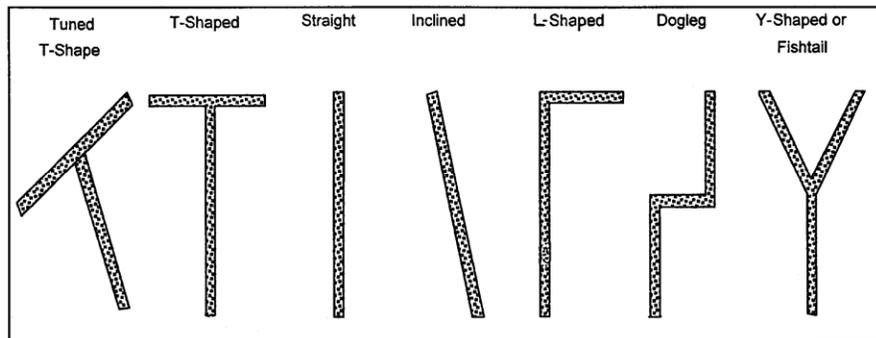


Figure 7.17 Possible Planform Shapes for Groins (USACE, 2003)

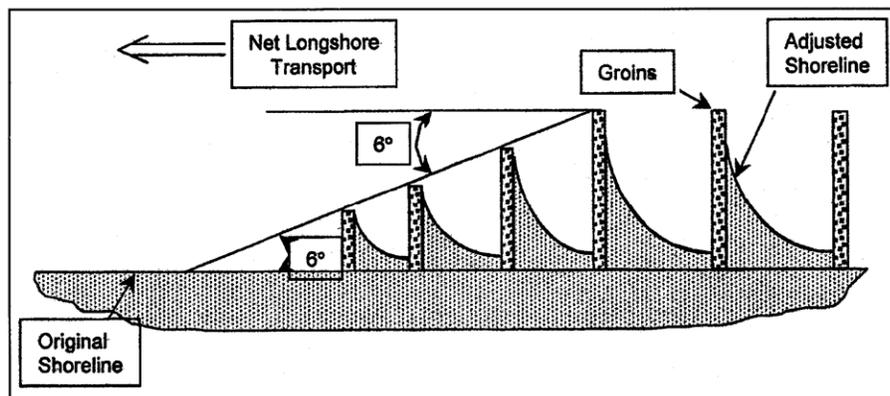


Figure 7.18 Transition from Groin Field to Natural Shoreline (USACE, 2003)

Additional Resource

- USACE. No date. *Groins*. U.S. Army Corps of Engineers, Coastal & Hydraulics Laboratory. <http://chl.erdc.usace.army.mil/chl.aspx?p=s&a=ARTICLES!188>.

Identify and Address NPS Contributions

Another watershed protection practice involves the evaluation of the total NPS pollution contributions in the watershed. NPS contributions can stem from different land use activities upstream from a dam. For example, the analysis and interpretation of stereoscopic color infrared aerial photographs can be used to find and map specific areas of concern where a high probability of NPS pollution exists from septic tank systems, animal wastes, soil erosion, and other similar types of NPS pollution (TVA, 1988). Other remote sensing techniques, such as analysis of satellite imagery, can be used to map areas of concern within a watershed. Historically, TVA has used analysis of aerial photography images to survey about 25 percent of the Tennessee Valley to identify sources of nonpoint pollution in a period of less than 5 years at a cost of a few cents per acre (TVA, 1988). Modern geographic information systems (GIS) enable watershed planners and modelers to rapidly assess large watersheds in a cost-effective manner.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
 - Vegetative
 - Structural
 - Integrated
 - Planning & regulatory

The development of Total Maximum Daily Loads (TMDLs) in watersheds with impaired waterbodies is a way to identify all sources of pollution. TMDLs are planning documents that provide load allocations, for both point and nonpoint sources, and identify potential contributions of pollutants to an impaired waterbody. TMDLs often include the involvement of stakeholders throughout the watershed, in not only the development, but also with implementation of specific activities within the watershed. TMDL documents can provide a plan for addressing pollution sources throughout a watershed.

Different practices can be used to control NPS pollution once sources have been identified. These practices may include the following:

Soil Erosion Control

Soil erosion has been determined to be the major source of suspended solids, nutrients, organic wastes, pesticides, and sediment that combined form the most problematic form of NPS pollution (TVA, 1988). Soil erosion and runoff controls have been addressed throughout earlier management measures in this document.

Mine Reclamation

Abandoned mines may have the potential to contribute significant sediment, metals, acidified water, and other pollutants to reservoirs (TVA, 1988). Old mines need to be located and reclaimed to reduce NPS pollutants emanating from them. Revegetation is a cost-effective method of reclaiming denuded strip-mined lands, and agencies such as the Natural Resource Conservation Service (NRCS) can provide technical insight for revegetation practices.

Animal Waste Control

A major contributor to reservoir pollution in some watersheds is waste from animal confinement facilities. TVA (1988) estimated that in the Tennessee Valley, farms produced about six times the organic wastes of the population of the valley. EPA also has available the *National Management Measures to Control Nonpoint Source Pollution from Agriculture*,⁵ which is a technical guidance and reference document for use by state, local, and tribal managers in the implementation of NPS pollution management programs. It contains information on a variety of practices and management strategies for reducing pollution of surface and ground water from agriculture (USEPA, 2003b).

Correcting Failing Septic Systems

The objective of this practice is to protect waterbodies from pollutants discharged by onsite sewage disposal systems (OSDS). They should be sited, designed, and installed so that impacts to waterbodies will be reduced to the extent practicable. Factors such as soil type, soil depth, depth to water table, rate of sea level rise, and topography should be considered. The installation of OSDS should be prevented in areas where soil absorption systems will not provide adequate treatment of effluents containing solids, phosphorus, pathogens, nitrogen, and nonconventional pollution prior to entry into surface waters and ground water. Setbacks, separation distances, and maintenance requirements should be established.

Failing septic tank or OSDS are another source of NPS pollution in reservoirs. TVA has found septic tank failures to be a problem in some of its reservoirs and has identified them through an aerial survey (TVA, 1988). Additional guidance on OSDS is available from EPA's *Onsite Wastewater Treatment Systems Manual* (EPA 625-R-00-008), which is available through EPA's National Service Center for Environmental Publications.⁶

Land Use Planning

Land use plans that establish guidelines for permissible uses of land within a watershed serve as a guide for reservoir management programs addressing NPS pollution (TVA, 1988). Watershed land use plans identify suitable uses for land surrounding a reservoir, establish sites for economic development and natural resource management activities, and facilitate improved land management (TVA, 1988). Land use plans must be flexible documents that account for the needs of the landowners, state and local land use goals, the characteristics of the land and its ability to support various uses, and the control of NPS pollution (TVA, 1988).

Comprehensive planning is an effective nonstructural tool to control NPS pollution. Where possible, growth should be directed toward areas where it can be sustained with minimal impact on the environment (Meeks, 1990). Poorly planned growth and development have the potential to degrade and destroy natural drainage systems and surface waters (Mantell et al., 1990). Proper planning and zoning decisions allow water quality managers to direct development and land disturbance away from areas that drain to sensitive waters. Land use designations and zoning laws can also be used to protect environmentally sensitive areas such as riparian corridors and wetlands.

⁵ <http://www.epa.gov/owow/nps/pubs.html>

⁶ <http://www.epa.gov/ncepihom>

Identify and Preserve Critical Areas

Protection of sensitive areas and areas that provide water quality benefits (e.g., natural wetlands and riparian areas) is integral to maintaining or minimizing the impacts of development on receiving waters and associated habitat. Without a comprehensive planning approach that includes the use of riparian buffers, open space, bioretention, and structural controls to maintain the predevelopment hydrologic characteristics of the site, significant water quality and habitat impacts are likely. The experience of various communities has shown that the use of structural controls in the absence of adequate local land use planning and zoning often does not adequately protect water quality and might even cause detrimental effects, such as increased temperature.

An initial step for incorporating targeted land conservation into a runoff management program is to identify critical conservation areas on a watershed map and superimpose this information on a tax map. Owners of potential conservation lands could include a mix of individuals, corporations or other business entities, homeowner associations, government agencies, and land trusts.

Land conservation includes more than simply preserving land in its current state. It also means that an individual or organization should take responsibility for restoration of areas of the property that are contributing to runoff problems or have been adversely affected by runoff. Stewardship activities for land conservation might include:

- Resource monitoring
- General maintenance
- Control of exotic species
- Installation of structural runoff management practices and maintenance

There are several options for landowners who would like to retain ownership of the parcel but relinquish stewardship and conservation management to another organization. These nonexclusive management options, discussed below, include establishing conservation easements, leases, deed restrictions, covenants, or transfer of development rights (TDRs).

Conservation Easements

A conservation easement is a legal agreement that transfers specific rights concerning the use of land by sale or donation to a government agency (municipal, county, or state), a qualified nonprofit organization (e.g., land trust or conservancy), or other legal entity without transferring title of the land (Cwikiel, 1996).

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Leases

Even though government agencies, land trusts, and other nonprofit organizations would prefer that conservation lands be acquired by donation or that conservation easements be placed on the property, some lands hold so much value as conservation areas that leasing is worth the expense and effort. Leasing a property allows the agency, trust, or organization to actively manage the land for conservation.

Deed Restrictions

Restrictions can be included in deeds for the purpose of constraining use of the land. In theory, deed restrictions are designed to perform functions similar to those of conservation easements. In practice, however, deed restrictions have proven to be much weaker substitutes because unlike conservation easements, deed restrictions do not necessarily designate or convey oversight responsibilities to a particular agency or organization to enforce protection and maintenance provisions. Also, deed restrictions can be relatively easy to modify or vacate through litigation. Modifying or nullifying an easement is difficult, especially if tax benefits have already been realized. For these reasons, conservation easements are generally preferred over deed restrictions.

Covenants

A covenant is similar to a deed restriction in that it restricts activities on a property, but it is in the form of a contract between the landowner and another party. The term *mutual covenants* is used to describe a situation where one or more nearby or adjacent landowners are contracted and covered by the same restrictions.

Transfer of Development Rights (TDRs)

The concept of TDRs as a watershed protection tool is based on the premise that ownership of land includes a “bundle” of property rights. One of these rights is the right to develop the property to its “highest and best use.” Although this right can be restricted by zoning building codes, environmental constraints, and other types of restrictions, the basic right to develop remains. A TDR system creates an opportunity for property owners to transfer development potential or density at one property, called a sending area to another property, called a receiving area. In the context of watershed planning objectives, TDR programs can be an effective way to transfer development potential from sensitive subwatersheds to subwatersheds that can better deal with increased imperviousness.

Joint Planting

Joint planting (or vegetated riprap) involves tamping live cuttings of rootable plant material into soil between the joints or open spaces in rocks that have previously been placed on a slope (Figure 7.19). Alternatively, the cuttings can be tamped into place at the same time that rock is being placed on the slope face. Joint planting is useful where rock riprap is required or already in place. It is successful 30 to 50 percent of the time, with first year irrigation improving survival rates. Live cuttings must have side branches removed and bark intact. They should range from 0.5 to 1.5 inches in diameter and be long enough to extend well into the soil, reaching into the dry season water level. Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002) and the USDA NRCS *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992).

Channelization

- Physical & chemical
- Instream/riparian restoration

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- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group.
http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- ISU. 2006. *How to Control Streambank Erosion: Joint Planting*. Iowa State University.
http://www.ctre.iastate.edu/erosion/manuals/streambank/joint_planting.pdf.

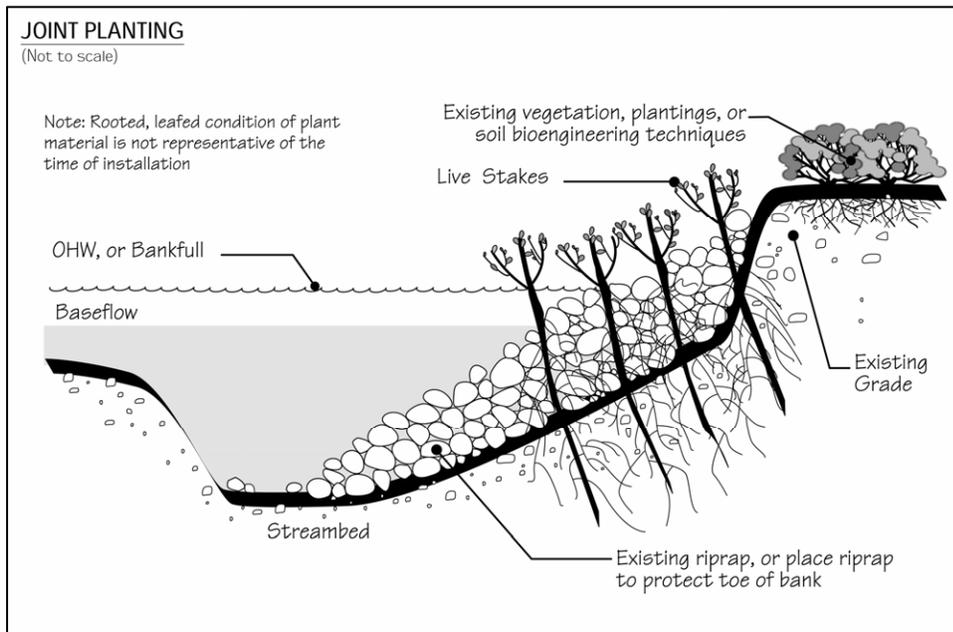


Figure 7.19 Joint Planting (USDA-FS, 2002)

Labyrinth Weir

Labyrinth weirs have extended crest length and are usually W-shaped. These weirs spread the flow out to prevent dangerous undertows in the plunge pool. A labyrinth weir at South Holston Dam (Tennessee) was constructed for the dual purpose of providing minimum flows and improving DO in reservoir releases. The weir aerates to up to 60 percent of the oxygen deficit. For instance, projected performance at the end of the summer is an increase in the DO from 3 mg/L to 7 mg/L (or an increase of 4 mg/L) (Hauser, 1992). Actual increases in the DO will depend on the temperature and the level of DO in the incoming water.

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Dams

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Erosion

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Levees, Setback Levees, and Floodwalls

Many valuable techniques can be used, when applied correctly, to protect, operate, and maintain levees (Hynson et al., 1985). Evaluation of site-specific conditions and the use of best professional judgment are the best methods for selecting the proper levee protection and operation and maintenance plan. According to Hynson and others (1985), maintenance activities generally consist of vegetation management, burrowing animal control, upkeep of recreational areas, and levee repairs.

Care must be taken during construction to prevent disturbing the natural channel vegetation, cross section, or bottom slope. No immediate instream effects from sedimentation are usually caused by implementing this type of modification. The potential for long-term channel adjustments can be evaluated using methods outlined in *Channel Stability Assessment for Flood Control Projects* (USACE, 1994).

Methods to control vegetation include mowing, grazing, burning, and using chemicals. Selection of a vegetation control method should consider the existing and surrounding vegetation, desired instream and riparian habitat types and values, timing of controls to avoid critical periods, selection of livestock grazing periods, and timing of prescribed burns to be consistent with historical fire patterns. Additionally, a balance between the vegetation management practices for instream and riparian habitat and engineering considerations should be maintained to avoid structural compromise. Animal control methods are most effective when used as a part of an integrated pest management program and might include instream and riparian habitat manipulation or biological controls. Recreational area management includes upkeep of planted areas, disposal of solid waste, and repairing of facilities (Hynson et al., 1985).

The prevention of floods by dams and levees can eliminate or diminish essential ecological functions. Dams, levees and channel training structures have dramatically altered or eliminated the frequency, duration, magnitude, and timing of periodic high flows. These projects significantly reduce the likelihood of floodplain inundation, block the transfer of organic matter and nutrients between river and floodplain, block plant succession, eliminate fish access to spawning areas, and rob rivers of the erosive power to restore and create a diversity of habitats (Environmental Defense, 2002). Levees have had several impacts on the Snake River in Wyoming. Anthony (1998) found habitat losses, including changes in vegetation (including losses of cottonwood and riparian habitats from 1956) and changes in channel and floodplain complexity from a braided to a single channel pattern.

Siting of levees and floodwalls should be addressed prior to design and implementation of these types of projects. Proper siting of such structures can avoid several types of problems. First, construction activities should not disturb the physical integrity of adjacent riparian areas and/or

Channelization

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Erosion

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- Vegetative
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wetlands. Second, by setting back the structures (offsetting them from the streambank), the relationship between the channel and adjacent riparian areas can be preserved. Proper siting and alignment of proposed structures can be established based on hydraulic calculations, historical flood data, and geotechnical analysis of riverbank stability.

Additional Resource

- LSU AgCenter. 1999. *Floodwalls*. Louisiana State University Agricultural Center, Louisiana Cooperative Extension Service.
<http://www.louisianafloods.org/NR/rdonlyres/7A01F7C8-703B-47D1-BCCD-63CD0A57721F/2995/pub2745Floodwall6.pdf>

Live Cribwalls

A live cribwall is used to rebuild a bank in a nearly vertical setting. It consists of a hollow, box-like interlocking arrangement of untreated log or timber members (Figure 7.20). The structure is filled with suitable backfill material and layers of live branch cuttings, which root inside the crib structure and extend into the slope. Logs or untreated timbers should range from 4 to 6 inches in diameter. Lengths will vary with the size of the crib structure. Fill rock should be 6 inches in diameter. Live branch cuttings should be 0.5 to 2.5 inches in diameter and long enough to reach the back of the wooden crib structure. Once the live cuttings root and become established, the subsequent vegetation gradually takes over the structural functions of the wood members. Live cribwalls are appropriate where space is limited and at the base of a slope where a low wall may be required to stabilize the toe of the slope and to reduce its steepness. They are also appropriate above and below the water level where stable streambeds exist. They are not designed for or intended to resist large, lateral earth stress. Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002) and the USDA NRCS *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992).

Channelization

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Erosion

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- Planning & regulatory

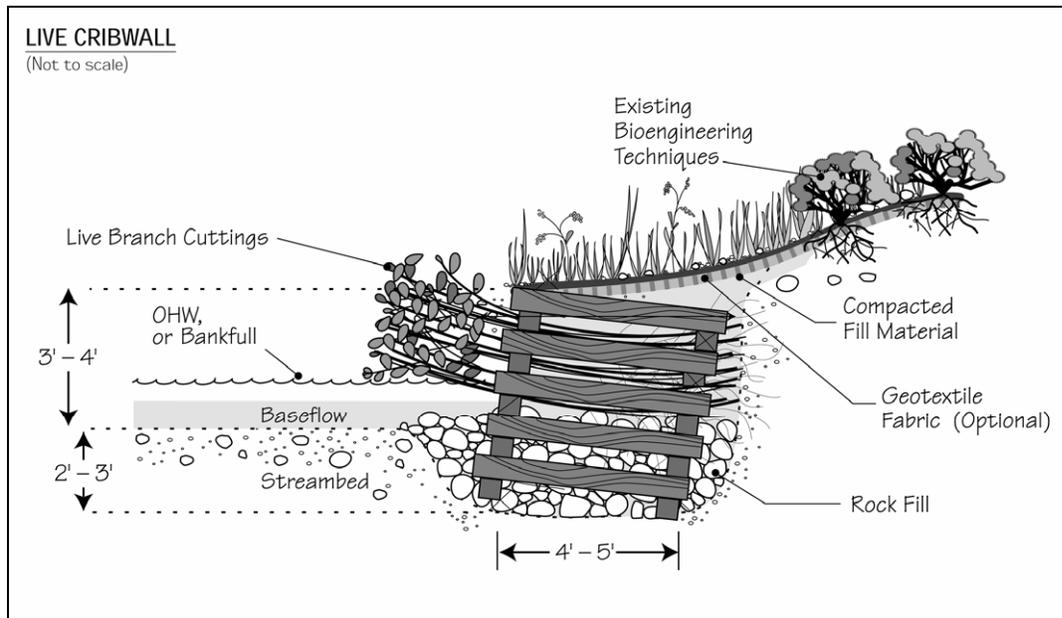


Figure 7.20 Live Cribwall (USDA-FS, 2002)

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- ISU. 2006. *How to Control Streambank Erosion: Live Cribwall*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/live_cribwall.pdf.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Live Cribwall*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/livecribwall.pdf>.
- Ohio DNR. No date. *Ohio Stream Management Guide: Live Cribwalls*. Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs17.htm.

Live Fascines

Live fascines are long bundles of branch cuttings bound together in a cylindrical structure (Figure 7.21). They are suited to steep, rocky slopes, where digging is difficult (USDA-NRCS, 1992). When cut from appropriate species (e.g., young willows or shrub dogwoods) that root easily and have long straight branches, and when properly installed, they immediately begin to stabilize slopes. The cuttings (0.5 to 1.5 inches in diameter) form live fascine bundles that vary in length from 5 to 10 feet or longer, depending on site conditions and handling limitations. Completed bundles should be 6 to 8 inches in diameter. The goal is for natural recruitment to follow once slopes are secured. Live fascines should be placed in shallow contour trenches on dry slopes and at an angle on wet slopes to reduce erosion and shallow face sliding. Live fascines should be applied above ordinary high-water mark or bankfull level except on very small drainage area sites. In arid climates, they should be used between the high and low water marks on the bank. This system, installed by a trained crew, does not cause much site disturbance.

Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002) and the USDA NRCS *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992). Under their Ecosystem Management and Restoration Research Program (EMRRP), the U.S. Army Corps of Engineers presents research on live fascines in a technical note (*Live and Inert Fascine Streambank Erosion Control*).⁷

Additional Resources

- Massachusetts DEP. 2006. *Massachusetts Nonpoint Source Pollution Management Manual: Live Fascines*. Massachusetts Department of Environmental Protection, Boston, MA. <http://projects.geosyntec.com/NPSManual/Fact%20Sheets/Live%20Fascines.pdf>.
- Greene County Soil & Water Conservation District. No date. *Construction Specification VS-01: Live Fascines*. <http://www.geswcd.com/stream/library/pdfdocs/vs-01.pdf>.
- ISU. 2006. *How to Control Streambank Erosion: Live Fascine*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/live_fascine.pdf.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Live Fascine*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/livefascine.pdf>.

⁷ <http://el.erdc.usace.army.mil/elpubs/pdf/sr31.pdf>

Channelization

- Physical & chemical
- Instream/riparian restoration

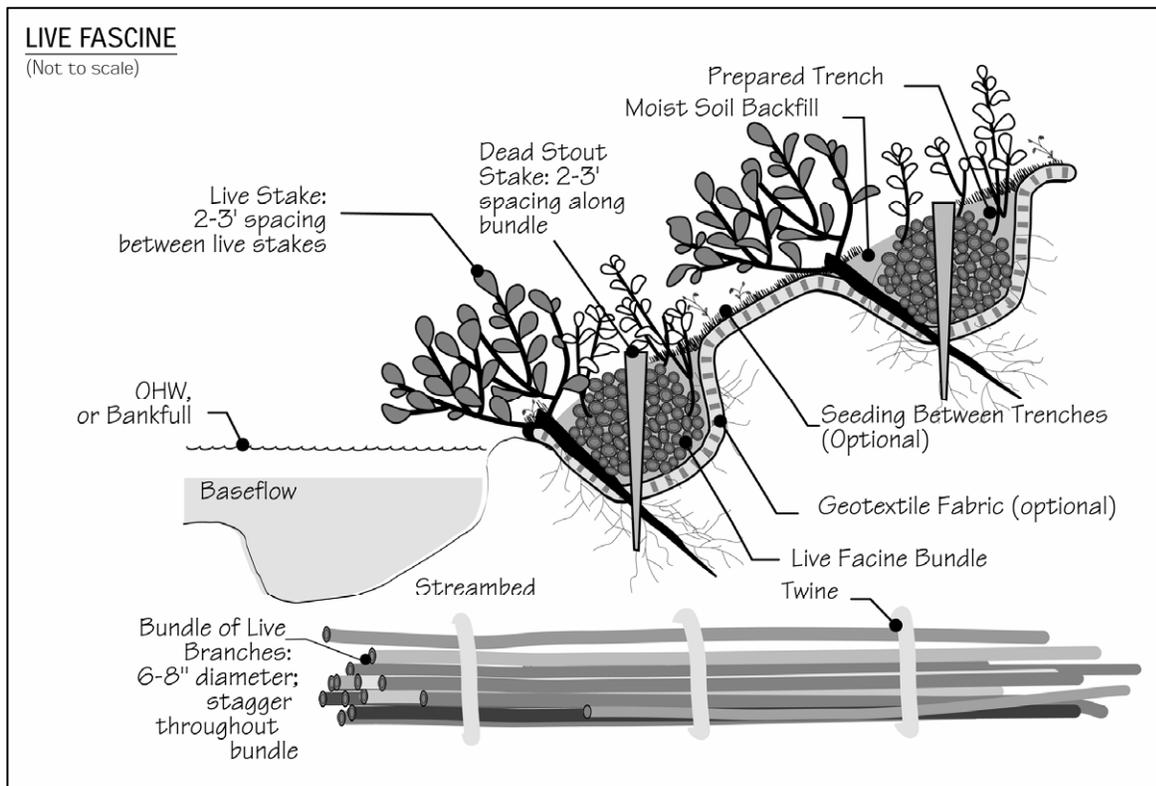
Dams

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Erosion

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- Ohio DNR. No date. *Ohio Stream Management Guide: Live Fascines*. Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs14.pdf.



Note: OHW (Ordinary High Water) is the mark along a streambank where the waters are common and usual. This mark is generally recognized by the difference in the character of the vegetation above and below the mark or the absence of vegetation below the mark (USDA-FS, 2002).

Figure 7.21 Live Fascine (USDA-FS, 2002)

Live Staking

Live staking (Figure 7.22) is appropriate for relatively uncomplicated site conditions when construction time is limited. It can also be used to stabilize intervening areas between other soil bioengineering techniques (USDA-NRCS, 1992). Live staking involves the insertion and tamping of live, rootable vegetative cuttings into the ground. If correctly prepared and placed, the live stake will root and grow. A system of stakes creates a living root mat that stabilizes the soil by reinforcing and binding soil particles together and by extracting excess soil moisture. Stakes are generally 1 to 2 inches in diameter and 2 to 3 feet long. Specific site requirements and available cutting source will determine size. Vegetation selected should be able to withstand the degree of anticipated inundation, provide year round protection, have the capacity to become well established under sometimes adverse soil conditions, and have root, stem, and branch systems capable of resisting erosive flows. Most willow species are ideal for live staking because they root rapidly and begin to dry out a slope soon after installation. Sycamore and cottonwood are also species commonly used for live staking. This is an appropriate technique for repair of small earth slips and slumps that are frequently wet. Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002) and the USDA NRCS *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992).

Channelization

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Erosion

- Streambanks Shorelines
 - Vegetative
 - Structural
 - Integrated
 - Planning & regulatory

Additional Resources

- ISU. 2006. *How to Control Streambank Erosion: Live Stakes*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/live_stakes.pdf.
- Myers, R.D. 1993. *Slope Stabilization and Erosion Control Using Vegetation: A Manual of Practice for Coastal Property Owners. Live Staking*. Shorelands and Coastal Zone Management Program, Washington Department of Ecology. Olympia. Publication 93-30. <http://www.ecy.wa.gov/programs/sea/pubs/93-30/livestaking.html>.
- Walter, J., D. Hughes, and N.J. Moore. 2005. *Streambank Revegetation and Protection: A Guide for Alaska. Revegetation Techniques: Live Staking*. Revised Edition. Alaska Department of Fish and Game, Division of Sport Fish. <http://www.sf.adfg.state.ak.us/SARR/restoration/techniques/livestake.cfm>.

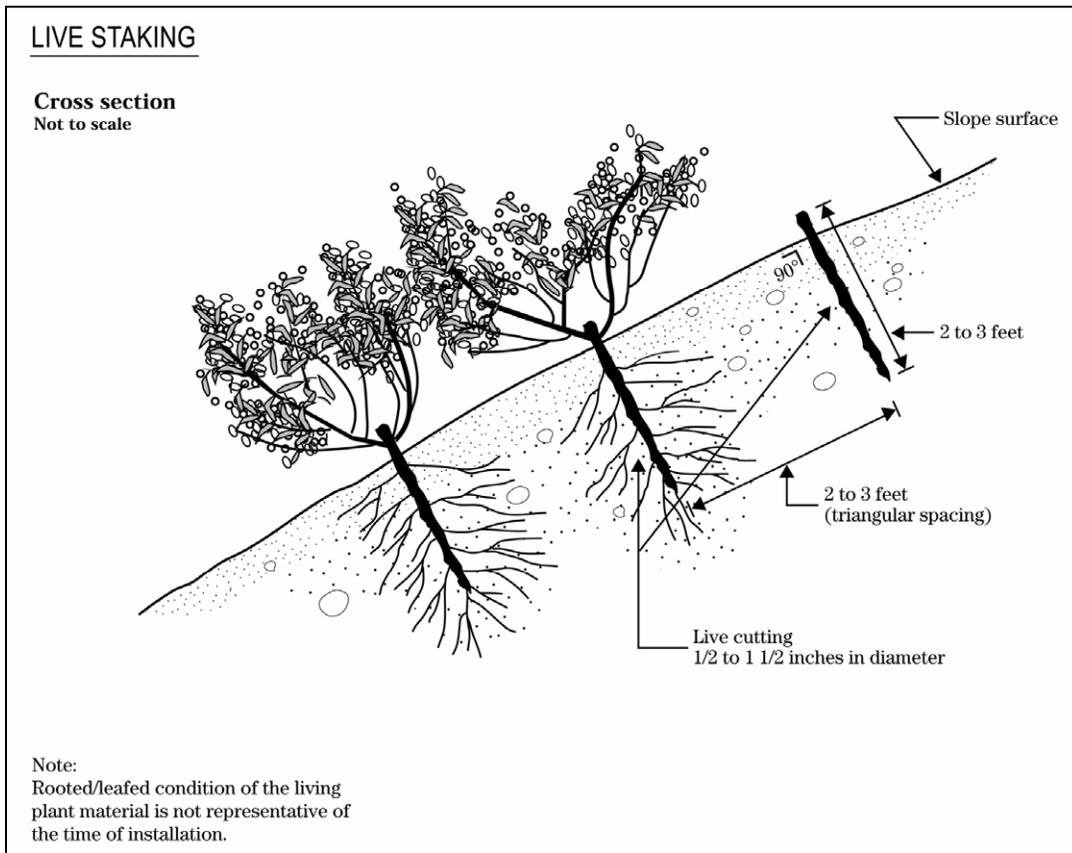


Figure 7.22 Live Staking (USDA-NRCS, 1992)

Locate Potential Land Disturbing Activities Away from Critical Areas

Material stockpiles, borrow areas, access roads, and other land-disturbing activities can often be located away from critical areas such as steep slopes, highly erodible soils, and areas that drain directly into sensitive waterbodies.

Channelization

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Dams

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Marsh Creation and Restoration

Marsh creation and restoration is a useful vegetative technique that can address problems with erosion of shorelines. Marsh plants perform two functions in controlling shore erosion (Knutson, 1988). First, their exposed stems form a flexible mass that dissipates wave energy. As wave energy is diminished, the offshore transport and longshore transport of sediment are reduced. Ideally, dense stands of marsh vegetation can create a depositional environment, causing accretion of sediments along the intertidal zone rather than continued shore erosion. Second, marsh plants form a dense mat of roots, which can add stability to the shoreline sediments. The basic approach for marsh creation is to plant a shoreline area in the vicinity of the tide line with appropriate marsh grass species. Suitable fill material may be placed in the intertidal zone to create a wetlands planting terrace of sufficient width (at least 18 to 25 feet) if such a terrace does not already exist at the project site. For shoreline sites that are highly sheltered from the effects of wind, waves, or boat wakes, the fill material is usually stabilized with small structures, similar to groins, which extend out into the water from the land. For shorelines with higher levels of wave energy, the newly planted marsh can be protected with an offshore installation of stone that is built either in a continuous configuration or in a series of breakwaters.

Channelization

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- Maintain fish passage

Erosion

- Streambanks
- Shorelines
 - Vegetative
 - Structural
 - Integrated
 - Planning & regulatory

Additional Resource

- Maryland Department of the Environment. 2006. *Shore Erosion Control Guidelines: Marsh Creation*. <http://www.mde.state.md.us/assets/document/wetlandswaterways/Shoreerosion.pdf>.

Modifying Operational Procedures

A useful tool for evaluating the effects of operational procedures on the quality of tailwaters is computer modeling. For instance, computer models can describe the vertical withdrawal zone that would be expected under different scenarios of turbine operation (Smith et al., 1987). Zimmerman and Dortch (1989) modeled release operations for a series of dams on a Georgia river and found that procedures that were maintaining cool temperatures in summer were causing undesirable decreases in DO and increases in dissolved iron in autumn. The suggested solution was a seasonal release plan that is flexible, depending on variations in the in-pool water quality and predicted local weather conditions. Care should be taken with this sort of approach to accommodate the needs of both the fishery resource and reservoir recreationalists, particularly in late summer.

Modeling has also been undertaken for a variety of TVA and USACE facilities to evaluate the downstream impacts on DO and temperature that would result from changes in several operational procedures, including (Hauser et al., 1990a; Hauser et al., 1990b; Higgins and Kim, 1982; Nestler et al., 1986):

- Maintenance of minimum flows
- Timing and duration of shutoff periods
- Seasonal adjustments to the pool levels
- Timing and variation of the rate of drawdown

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Mulching

Newly established vegetation does not have as extensive a root system as existing vegetation and therefore is more prone to erosion, especially on steep slopes. Additional stabilization should be considered during the early stages of seeding. This extra stabilization can be accomplished using mulches or mulch mats, which are applied to disturbed soil surfaces and can protect the area while vegetation becomes established.

Mulches and mulch mats include tacked straw, wood chips, and jute netting and are often covered by blankets or netting. Mulching alone should be used only for temporary protection of the soil surface or when permanent seeding is not feasible. The useful life of mulch varies with the material used and the amount of precipitation, but, generally, is approximately 2 to 6 months. Mulching and/or sodding may be necessary as slopes become moderate to steep, as soils become more erosive, and as areas become more sensitive. During the times of the year when vegetation cannot be established, mulch can be applied to moderate slopes and soils that are not highly erodible. On steep slopes or highly erodible soils, mulching may need to be reapplied if washed away.

Additional Resources

- Barr Engineering Company. 2001. *Minnesota Urban Small Sites BMP Manual: Stormwater Best Management Practices for Cold Climates. Soil Erosion Control: Mulches, Blankets and Mats.* Prepared for the Metropolitan Council by Barr Engineering Company, St. Paul, MN. http://www.metrocouncil.org/Environment/Watershed/BMP/CH3_RPPSoilMulch.pdf.
- CASQA. 2004. *California Stormwater BMP Construction Handbook: Hydraulic Mulch.* California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Construction/EC-3.pdf>.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Mulching.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/2.3_mulching.pdf.

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Noneroding Roadways

General Road Construction Considerations

Road design and construction activities that are tailored to topography and soils and take into consideration the overall drainage pattern in the watershed where the road is being constructed can prevent road-related water quality problems. Lack of adequate consideration of watershed and site characteristics, road system design, and construction techniques appropriate to the site can result in mass soil movements, extensive surface erosion, and severe sedimentation in nearby waterbodies. The effect that a road network has on stream networks largely depends on the extent to which the networks are interconnected. Road networks can be hydrologically connected to stream networks where road surface runoff is delivered directly to stream channels (at stream crossings or via ditches or gullies that direct flow off the road into a stream) and where road cuts transform subsurface flow into surface flow (in road ditches or on road surfaces that deliver sediment and water to streams much more quickly than without a road present). The combined effects of these drainage network connections are increased sedimentation and peak flows that are higher and arrive more quickly after storms. This can lead to increased instream erosion and stream channel changes, especially in small watersheds (USEPA, 2005a).

Site characteristics should be considered during construction planning. On-site verification of information from topographic maps, soil maps, and aerial photos can ensure that locations where roads are to be cut into slopes or built on steep slopes or where skid trails, landings, and equipment maintenance areas are to be located are appropriate to the use. If an on-site visit indicates that construction changes can reduce the risk of erosion, the project manager can make these changes prior to construction, and in some cases as the project progresses (USEPA, 2005a).

Road drainage features tailored to the site prevent water from pooling or collecting on road surfaces. This prevents saturation of the road surface, which can lead to rutting, road slumping, and channel washout. Many roads associated with channelization projects are temporary or seasonal-use roads, and their construction should not involve the high level of disturbance generated by construction of permanent, high-standard roads. However, these types of roads still need to be constructed and maintained to prevent erosion and sedimentation (USEPA, 2005a).

Erosion control practices need to be applied while a road is being constructed, when soils are most susceptible to erosion, to minimize soil loss to waterbodies. Since sedimentation from roads often does not occur incrementally and continuously, but in pulses during large rainstorms, it is important that road, drainage structure, and stream crossing design take into consideration a sufficiently large design storm that has a good chance of occurring during the life of the project. Such a storm might be the 10-year, 25-year, 50-year, or even 100-year, 12- to 24-hour return period storm. Sedimentation cannot be completely prevented during or after road construction,

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but the process is exacerbated if the road construction and design are inappropriate for the site conditions or if the road drainage or stream crossing structures are insufficient (USEPA, 2005a).

When constructing a new road, it is useful to consider road surface shape and composition, slope stabilization, and wetlands. A more detailed discussion of these topics is provided below. More information about potential impacts to fish habitat and passage are provided in EPA's *National Management Measures to Control Nonpoint Source Pollution from Forestry*.⁸

Road Shape and Composition

The shape of a road is an important runoff control component. Road drainage and runoff control are obtained by shaping the road surface to be insloping, outsloping, or crowned. Insloping roads can be effective where soils are highly erodible and directing runoff directly to the fill slope would be detrimental. Outsloped roads tend to dissipate runoff more than insloped roads, which concentrate runoff at cross drain locations, and are useful where erosion of backfill or ditch soil might be a problem. Crowned roads are suited to two lane roads and to steep single-lane roads that have frequent cross drains or ditches and ditch relief culverts (USEPA, 2005a). These road surface shapes are illustrated in Figure 7.23. Maintain one of these shapes to ensure good drainage. Crowns, inslopes, and outslopes will quickly lose effectiveness if not maintained frequently, due to ruts created by traffic when the road surface is damp or wet (USEPA, 2005a).

Road surface composition can effectively control erosion from road surfaces and slopes. It is important to choose a surface that is suitable to the topography, soils, and intended use. Surface protection of the roadbed and cut-and-fill slopes with a suitable material can minimize soil losses during storms, reduce frost heave erosion production, restrain downslope movement of soil slumps, and minimize erosion from softened roadbeds (USEPA, 2005a).

Slope Stabilization

Road cuts and fills can be a large source of sediment when constructing a rural road.

Stabilizing back slopes and fill slopes as they are constructed is important in minimizing erosion from these areas. Combined with gravel or other surfacing, establishing grass or another form of slope stabilization can significantly reduce soil loss from road construction. If constructing on an unstable slope is necessary, consider consulting with an engineering geologist or geotechnical

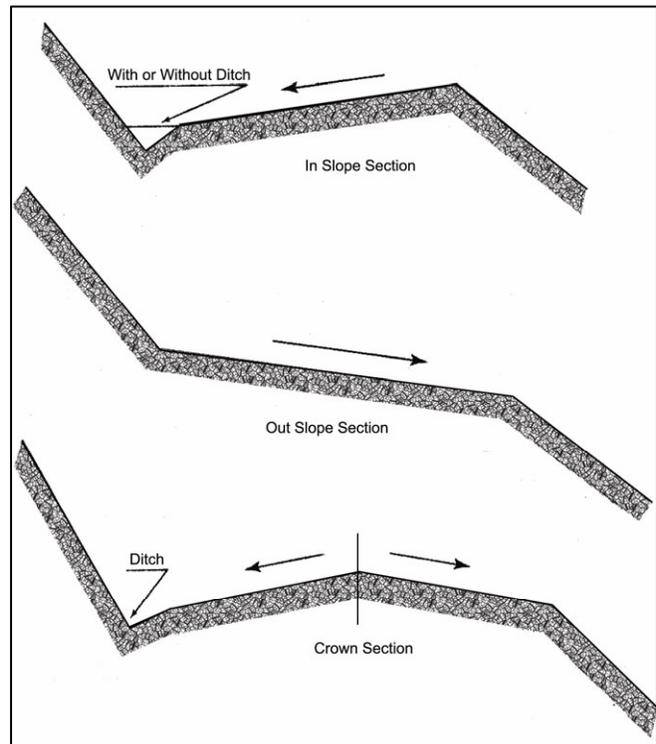


Figure 7.23 Types of Road Surface Shapes (USEPA, 2005a)

⁸ Available online at <http://www.epa.gov/owow/nps/forestrygmt>.

engineer for recommended construction methods and to develop plans for the road segment. Unstable slopes that threaten water quality should be considered unsuitable for road building.

Planting grass on cut-and-fill slopes of new roads can effectively reduce erosion, and placing forest floor litter or brush barriers on downslopes in combination with establishing grass is also effective for reducing downslope sediment transport. Grass-covered fill is generally more effective than mulched fill in reducing soil erosion from newly constructed roads because of the roots that hold the soil in place, which are lacking with other cover. Because grass needs some time to establish itself, a combination of straw mulch with netting to hold it in place can be used to cover a seeded area and effectively reduce erosion while grass is growing. The mulch and netting provide immediate erosion control and promote grass growth (USEPA, 2005a).

Wetland Road Considerations

Sedimentation is a concern when considering road construction through wetlands. It is better to avoid putting a road through a wetland when an alternative route exists. If no alternative exists, make sure to implement best management practices (BMPs) suggested by the state. Road construction or maintenance for certain farming, forestry, or mining activities might be exempt under Clean Water Act (CWA) section 404. However, to qualify for the exemption, the roads must be constructed and maintained following application of specific BMPs designed to protect the aquatic environment (USEPA, 2005a).

Pesticide and Fertilizer Management

Chemicals used in dam management include pesticides (insecticides, herbicides, and fungicides) and fertilizers. Since pesticides can be toxic, they have to be mixed, transported, loaded, and applied correctly and their containers disposed properly to prevent potential nonpoint source pollution. Since fertilizers can also be toxic or can damage the ecosystem, it is important that they be handled and applied properly, according to label instructions.

Even though a limited number of applications might be made at a specific dam site, consider that throughout a watershed many sites could receive applications of fertilizers and pesticides, which can accumulate in soils and in waterbodies. Application techniques also partly determine the potential risk to the aquatic environment from infrequent applications of pesticides and fertilizers.

These chemicals can directly enter surface waters through five major pathways—direct application, drift, mobilization in ephemeral streams, overland flow, and leaching. Direct application is the most important source of increased chemical concentrations and is also one of the most easily controlled.

Some more specific implementation practices for pesticide maintenance include:

- Apply pesticides during favorable atmospheric conditions. Do not apply pesticides when wind conditions increase the likelihood of significant drift. It is also best to avoid pesticide application when temperatures are high or relative humidity is low because these conditions influence the rate of evaporation and enhance losses of volatile pesticides.
- Ensure that pesticide users abide by the current pesticide label, which might specify whether users be trained and certified in the proper use of the pesticide; allowable use rates; safe handling, storage, and disposal requirements; and whether the pesticide may be used under the provisions of an approved State Pesticide Management Plan.
- Locate mixing and loading areas, and clean all mixing and loading equipment thoroughly after each use, where pesticide residues will not enter streams or other waterbodies.
- Dispose of pesticide wastes and containers according to state and federal laws.
- Consider the use of pesticides as only one part of an overall program to control pest problems. Integrated Pest Management (IPM) strategies have been developed to control pests without total reliance on chemical pesticides.
- Base selection of pesticide on site factors and pesticide characteristics. These factors include vegetation height, target pest, adsorption (attachment) to soil organic matter, persistence or half-life, toxicity, and type of formulation.
- Check all equipment carefully, particularly for leaking hoses and connections and plugged or worn nozzles. Calibrate spray equipment periodically to achieve uniform pesticide distribution and rate.

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- Always use pesticides in accordance with label instructions, and adhere to all federal and state policies and regulations governing pesticide use.

Specific implementation practices for fertilizer maintenance include:

- Apply slow-release fertilizers when possible. This practice reduces potential nutrient leaching to ground water, and it increase the availability of nutrients for plant uptake.
- Apply fertilizer during favorable atmospheric conditions. Do not apply fertilizer when wind conditions increase the likelihood of significant drift.
- Apply fertilizers during maximum plant uptake periods to minimize leaching.
- Base fertilizer type and application rate on soil and/or foliar analysis.

Phase Construction

Construction site phasing involves disturbing only small portions of a site at a time to prevent erosion from dormant parts (CWP, 1997c). Grading activities and construction are completed and soils are effectively stabilized on one part of the site before grading and construction commence at another. This is different from the more traditional practice of construction site sequencing, in which construction occurs at only one part of the site at a time but site grading and other site-disturbing activities typically occur all at once, leaving portions of the disturbed site vulnerable to erosion. To be effective, construction site phasing must be incorporated into the overall site plan early. Elements to consider when phasing construction activities include (CWP, 1997c):

- Managing runoff separately in each phase
- Determining whether water and sewer connections and extensions can be accommodated
- Determining the fate of already completed downhill phases
- Providing separate construction and residential accesses to prevent conflicts between residents living in completed stages of the site and construction equipment working on later stages

A comparison of sediment loss from a typical development and from a comparable phased project showed a 42 percent reduction in sediment export in the phased project (CWP, 1997c). Phasing can also provide protection from complete enforcement and shutdown of the entire project. If a contractor is in noncompliance in one phase or zone of a site, that will be the only zone affected by enforcement. This approach can help to minimize liability exposure and protect the contractor financially (Deering, 2000b).

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Physical Barriers

Physical barriers are diversion systems that lead or force fish to bypasses that transport them above or below the dam (FAO, 2001). Physical diversion structures deployed at dams include angled screens, drum screens, inclined plane screens, louvers, and traveling screens. The success and effectiveness of physical barriers has been found to be specific to individual hydropower facilities (Mattice, 1990).

Angled screens are used to guide fish to a bypass by guiding them through the channel at some angle to the flow. Coarse-mesh angled screens have been shown to be highly effective with numerous warm- and cold-water species at adult life stages. Fine-mesh angled screens have been shown in laboratory studies to be highly effective in diverting larval and juvenile fish to a bypass with resultant high survival. Performance of angled screens can vary by species, stream velocity, fish length, screen mesh size, screen type, and temperature (Stone and Webster, 1986). Clogging from debris and fouling organisms is a maintenance problem associated with angled screens.

Angled rotary drum screens oriented perpendicular to the flow direction have been used extensively to lead fish to a bypass. Angled rotary drum screens tend not to experience the major operational and maintenance clogging problems of stationary screens, such as angled vertical screens. Maintenance of angled rotary drum screens typically consists of routine inspection, cleaning, lubrication, and periodic replacement of the screen mesh (Stone and Webster, 1986).

An inclined plane screen is used to divert fish upward in the water column into a bypass. Once concentrated, the fish are transported to a release point below the dam. An inclined plane pressure screen at the T.W. Sullivan Hydroelectric Project (Willamette Falls, Oregon) is located in the penstock of one unit. The design is effective in diverting fish, with a high survival rate. However, this device has been linked to injuries in some species of migrating fish, and it has not been accepted for routine use (Stone and Webster, 1986).

Louvers consist of an array of evenly spaced, vertical slats aligned across a channel at an angle leading to a bypass. The turbulence they create is sensed and avoided by the fish (Stone and Webster, 1986). Louver systems rely on a fish's instincts to use senses other than sight to move around obstacles. Once the louver is sensed, the fish tend to reverse their head first downstream orientation (to head upstream, tail to the louver) and move laterally along it until they reach the bypass (OTA, 1995).

Submerged traveling screens are used to divert downstream migrating fish out of turbine intakes to adjoining gatewell structures, where the fish are concentrated for release downstream. This device has been tested extensively at hydropower facilities on the Snake and Columbia Rivers. Because of their complexity, submerged traveling screens must be continually maintained. The

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screens must be serviced seasonally, depending on the debris load, and trash racks and bypass orifices must be kept free of debris (Stone and Webster, 1986).

Physical barrier fish diversion systems have been found to work best when specifically designed to the structure and fish being passed. Small differences in design, such as the spacing or depth of the louvers, can mean the difference in success and failure. A successful louver system has been installed at the Holyoke Hydroelectric Power Station, on the Connecticut River. This partial depth louver system was installed in the intake channel at the power plant and successfully passed 86 percent of the juvenile clupeids and 97 percent of the Atlantic salmon (*Salmo salar*) smolts (Marmulla, 2001). Another partial depth louver system on the same river has experienced less successful results. The system installed at the Vernon Dam on the Connecticut River is successfully passing about 50 percent of the Atlantic salmon smolts (OTA, 1995).

Pollutant Runoff Control

Store, cover, and isolate construction materials, refuse, garbage, sewage, debris, oil and other petroleum products, mineral salts, industrial chemicals, and topsoil to prevent runoff of pollutants and contamination of ground water.

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Preserve Onsite Vegetation

Preserving onsite vegetation retains soil and limits runoff of water, sediment, and pollutants. The destruction of existing onsite vegetation can be minimized by initially surveying the site to plan access routes, locations of equipment storage areas, and the location and alignment of the dam. Construction workers can be encouraged to limit activities to designated areas only. Reducing the disturbance of vegetation also reduces the need for revegetation after construction is completed, including the required fertilization, replanting, and grading that are associated with revegetation. Additionally, as much natural vegetation as possible should be left next to the waterbody where construction is occurring. This vegetation provides a buffer to reduce the NPS pollution effects of runoff originating from areas associated with the construction activities.

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Additional Resource

- CASQA. 2004. *California Stormwater BMP Construction Handbook: Preservation of Existing Vegetation*. California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Construction/EC-2.pdf>.

Reregulation Weir

Reregulation weirs have been constructed from stone, wood, and aggregate. In addition to increasing the levels of DO in the tailwaters, reregulation weirs result in a more constant rate of flow farther downstream during periods when turbines are not in operation. A reregulation weir constructed downstream of the Canyon Dam (Guadalupe River, Texas) increased DO levels in waters leaving the turbine from 3.3 mg/L to 6.7 mg/L (EPRI, 1990).

The USACE Waterways Experiment Station (Wilhelms, 1988) has compared the effectiveness with which various hydraulic structures accomplished the reaeration of reservoir releases. The study concluded that, whenever operationally feasible, more discharge should be passed over weirs to improve DO concentrations in releases.

Results indicated that overflow weirs aerate releases more effectively than low-sill spillways (Wilhelms, 1988).

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Reservoir Aeration

Some techniques for reservoir aeration include:

- Air injection systems
- Diffused air systems
- Oxygen injection systems
- U-tube design

Air injection systems mix water from different strata in the impoundment by using air or pure oxygen injected into a pumping system. Air injection systems are categorized as partial air lift systems and full air lift systems. In the partial air lift system, compressed air is injected at the bottom of the unit; then the air and water are separated at depth and the air is vented to the surface. In the full air lift system, compressed air is injected at the bottom of the unit (as in the partial air lift system), but the air-water mixture rises to the surface. The full air lift design has a higher efficiency than the partial-air lift and has a lesser tendency to elevate dissolved nitrogen levels (Thornton et al., 1990).

Diffused air systems provide effective transfer of oxygen to water by forcing compressed air through small pores in diffuser systems to form bubbles. One diffuser system test in the Delaware River near Philadelphia, Pennsylvania in 1969–1970 demonstrated the efficiency of this practice. Coarse-bubble diffusers were deployed at depths ranging from 13 to 38 feet. Depending on the depth of deployment, the oxygen transfer efficiency varied from 1 to 12 percent. When compared with other systems discussed below, this efficiency rate is rather low. But the results of this test determined that river aeration was more economical than advanced wastewater treatment as a strategy for improving the levels of DO in the river (EPRI, 1990). Another type of oxygen injection system, which pumps gaseous oxygen into the hypolimnion through diffusers, has effectively improved DO levels in the reservoir behind the Richard B. Russell Dam (Savannah River, on the Georgia-South Carolina border). The system is operated 1 mile upstream of the dam, with occasional supplemental injection of oxygen at the dam face when DO levels are especially low. The system has successfully maintained DO levels above 6 mg/L in the releases, with an average oxygen transfer efficiency of 75 percent (EPRI, 1990; Gallagher and Mauldin, 1987).

The diffused air system has been found to be a cost-effective method to raise low DO levels within a reservoir (Henderson and Shields, 1984). However, the costs of air diffuser operation may be high for deep reservoirs because of hydraulic pressures that must be overcome. Destratification that results from deployment of an air diffuser system may also mix nutrient-rich waters located deep in the impoundment into layers located closer to the surface, increasing the potential for stimulation of algal populations. Barbiero et al. (1996), in a study on the effects of artificial circulation on a small northeastern impoundment, found that artificial circulation ultimately had no effect on the magnitude of summer phytoplankton populations. However, the authors note that intermittent mixing events tend to promote increased transport of phosphorus

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into the epilimnion. While this had no effect on phytoplankton populations in the studied lake, it demonstrates the potential of artificial circulation to impact water quality and the need for careful evaluation of potential impacts.

Oxygen injection systems use pure oxygen to increase levels of dissolved oxygen in reservoirs. One type of design, termed side stream pumping, carries water from the impoundment onto the shore and through a piping system into which pure oxygen is injected. After passing through this system, the water is returned to the impoundment (EPRI, 1990).

The U-tube design, in which water from deep in the impoundment is pumped to the surface layer, provides a means to aerate reservoir waters. Oxygen transfer is increased as a mixture of water and oxygen gas is subjected to greater hydrostatic pressure. Water moves down the U-tube and pressure increases as a function of depth, dissolving the oxygen gas into the water. The oxygenated water then travels back up through the system and is released to the waterway (Jones and Stokes, 2004). The inducement of artificial circulation through aeration of the impoundment may also provide the opportunity for a “two-story” fishery, reduce internal phosphorus loading, and eliminate problems with iron and manganese in drinking water (Thornton et al., 1990).

If the principal objective is to improve DO levels only in the reservoir releases and not throughout the entire impoundment, then aeration can be applied selectively to discrete layers of water immediately surrounding the intakes or as water passes through release structures such as hydroelectric turbines. Localized mixing is a practice to improve releases from thermally stratified reservoirs by destratifying the reservoir in the immediate vicinity of the outlet structure. This practice differs from the practice of artificial destratification, where mixing is designed to destratify all or most of the reservoir volume (Holland, 1984). Localized mixing is provided by forcing a jet of high-quality surface water downward into the hypolimnion. Pumps used to create the jet generally fall into two categories, axial flow propellers and direct drive mixers (Price, 1989). Axial flow pumps usually have a large-diameter propeller (6 to 15 feet) that produces a high-discharge, low-velocity jet. Direct drive mixers have small propellers (1 to 2 feet) that rotate at high speeds and produce a high-velocity jet. The axial flow pumps are suitable for shallow reservoirs because they can force large quantities of water down to shallow depths. The high-momentum jets produced by direct drive mixers are necessary to penetrate deeper reservoirs (Price, 1989).

Additional Resource

- Thornton, K.W., B.L. Kimmel, and F.E. Payne. 1990. *Reservoir Limnology: Ecological Perspectives*. John Wiley & Sons, Inc., New York.

Retaining Walls

Retaining walls are used in areas where soils are unstable, where slopes are steeper than the angle of repose, and where the horizontal distance is limited. They help stabilize slopes and can decrease the steepness of a slope. If the steepness of a slope is reduced, the runoff velocity is decreased and, therefore, the erosion potential is decreased.

According to the *Iowa Construction Site Erosion Control Manual*, a variety of materials can be used for construction of retaining walls, including concrete masonry, concrete cribbing, steel piling, gabions, precast stone, rock riprap, reinforced earth, stone drywall, and treated wood timbers. Costs vary by the material selected for construction. When designing a retaining wall, the following factors should be taken into account: drainage, bearing value of the soil, wall thickness, stress, foundation design, and wall height.

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Additional Resources

- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Retaining Wall*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/3.13_retaining_wall.pdf.
- Leposky, R.E. 2004. *Retaining Walls: What You See and What You Don't*. http://www.forester.net/ecm_0401_retaining.html.

Return Walls

Whenever shorelines or streambanks are “hardened” through the installation of bulkheads, seawalls, or revetments, the design process must include consideration that waves and currents can continue to dislodge the substrate at both ends of the structure, resulting in very concentrated erosion and rapid loss of fastland. This process is called flanking. To prevent flanking, return walls should be provided at either end of a vertical protective structure and should extend landward for a horizontal distance consistent with the local erosion rate and the design life of the structure.

Additional Resource

- USACE. 1985. *Coastal Engineering Technical Note: Determining Lengths of Return Walls*. U.S. Army Engineer Waterways Experiment Station.
<http://chl.erdc.usace.army.mil/library/publications/chetn/pdf/cetn-iii-25.pdf>.

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Revegetate

Revegetation of construction sites during and after construction is the most effective way to permanently control erosion (Hynson et al., 1985). To select the right plants for your bioengineering project, note what native plant communities grow in the area. Avoid planting noxious or invasive grasses, such as reed canary grass or ryegrass. Remove invasive plants such as yellow starthistle, English ivy, deadly nightshade, field morning glory, scotch broom, cheatgrass, and purple loosestrife. Use more of the same native plants in the bioengineering design, as these plants are most likely adapted to conditions to the area.

Plants like willow, red osier dogwood, alder, ash, and cottonwood can be well suited for bioengineering. They establish easily, grow quickly, and have thick root systems. Cuttings are available from native plant nurseries. They may also be collected next to the project site, if the area is well vegetated (Oregon Association of Conservation Districts, 2004).

Ecological and vegetational areas vary throughout the country. Therefore, other plant materials may be more suitable for a project. Contact local cooperative extension services for more plant information.⁹

Additional Resources

- Barr Engineering Company. 2001. *Minnesota Urban Small Sites BMP Manual: Stormwater Best Management Practices for Cold Climates. Soil Erosion Control: Vegetative Methods*. Prepared for the Metropolitan Council by Barr Engineering Company, St. Paul, MN. http://www.metrocouncil.org/environment/Watershed/BMP/CH3_RPPSoilVeget.pdf.
- Ohio DNR. No date. *Ohio Stream Management Guide: Restoring Streambanks with Vegetation*. Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs07.htm.

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⁹ http://www.csrees.usda.gov/qlinks/partners/state_partners.html

Revetment

A revetment (Figure 7.24) is a type of vertical protective structure used for shoreline protection. One revetment design contains several layers of randomly shaped and randomly placed stones, protected with several layers of selected armor units or quarry stone. The armor units in the cover layer should be placed in an orderly manner to obtain good wedging and interlocking between individual stones. The cover layer may also be constructed of specially shaped concrete units (USACE, 1984).

Sometimes gabions (stone-filled wire baskets) or interlocking blocks of precast concrete are used in the construction of revetments. In addition to the surface layer of armor stone, gabions, or rigid blocks, successful revetment designs also include an underlying layer composed of either geotextile filter fabric and gravel or a crushed stone filter and bedding layer. This lower layer functions to redistribute hydrostatic uplift pressure caused by wave action in the foundation substrate. Precast cellular blocks, with openings to provide drainage and to allow vegetation to grow through the blocks, can be used in the construction of revetments to stabilize banks. Vegetation roots add additional strength to the bank. In situations where erosion can occur under the blocks, fabric filters can be used to prevent the erosion. Technical assistance should be obtained to properly match the filter and soil characteristics. Typically blocks are hand placed when mechanical access to the bank is limited or costs need to be minimized. Cellular block revetments have the additional benefit of being flexible to conform to minor changes in the bank shape (USACE, 1983).

Additional Resource

- Ohio DNR. No date. *Ohio Stream Management Guide: Riprap Revetments*. Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs16.pdf.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

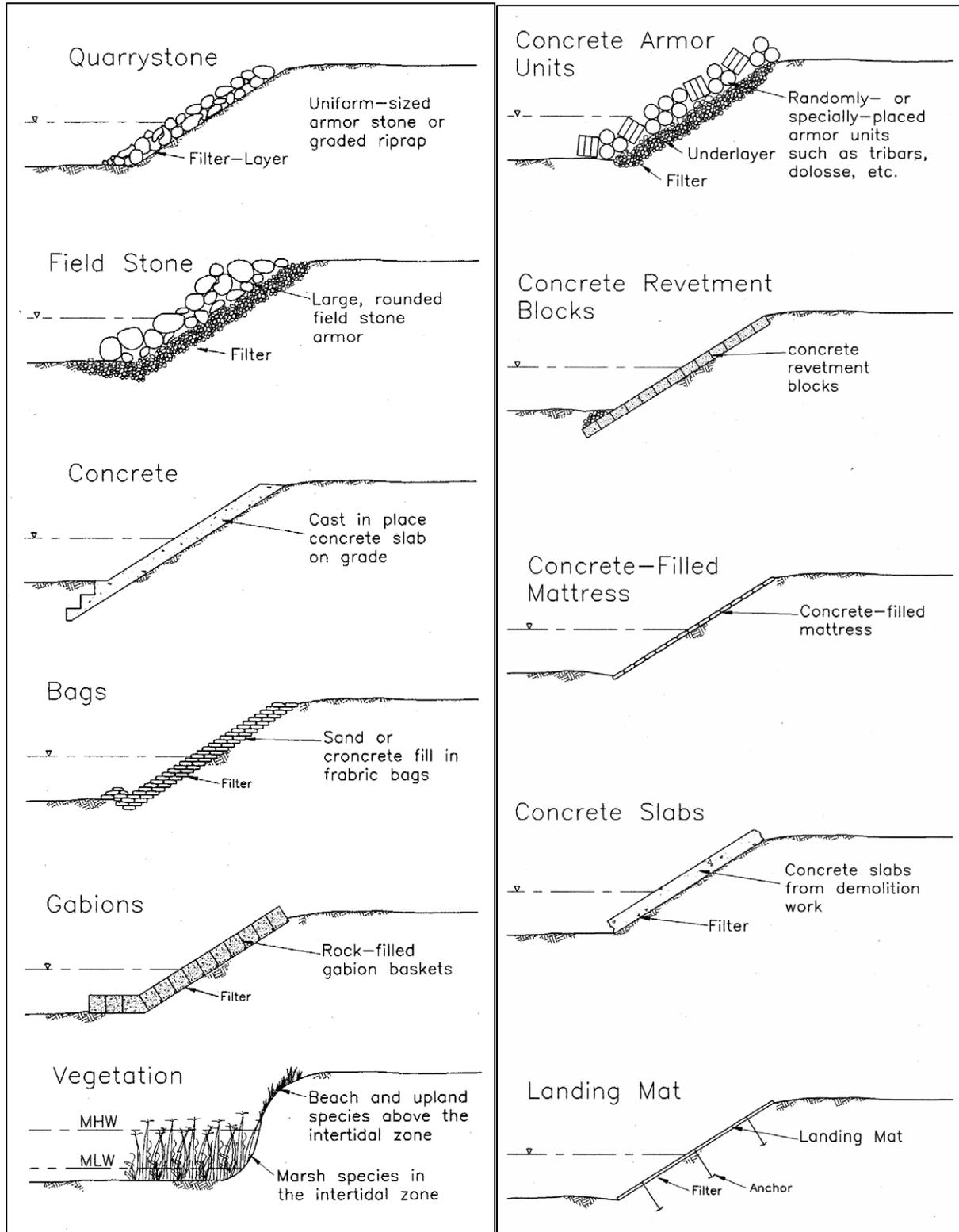


Figure 7.24 Revetment Alternatives (USACE, 2003)

Riparian Improvements

Riparian improvements are another strategy that can be used to restore or maintain aquatic and riparian habitat around reservoir impoundments or along the waterways downstream from dams. In fact, Johnson and LaBounty (1988) found that riparian improvements were more effective, in some cases, than flow augmentation for protection of instream habitat. In the Salmon River (Idaho), a variety of instream and riparian habitat improvements have been recommended to improve the indigenous stocks of Chinook salmon (*Oncorhynchus tshawytscha*). These improvements include reducing sediment loading in the watershed, improving riparian vegetation, eliminating barriers to fish migration (see sections discussing this practice below), and providing greater instream and riparian habitat diversity (Andrews, 1988).

Maintaining and improving riparian areas upstream of a dam may also be an important consideration for reducing flow-related impacts to dams. Riparian areas along brooks and smaller streams are sometimes altered in a manner that impairs their ability to detain and absorb floodwater and stormwater (e.g., removal of forest cover or increased imperviousness). The cumulative impact of the riparian changes results in the smaller streams discharging increased volumes and velocities of water, which then result in more severe downstream flooding and increased storm damage and/or maintenance to existing structures (such as dams). These downstream impacts may occur even though main stem floodplains and riparian areas are safeguarded and remain close to their natural condition (Cohen, 1997).

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks
- Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Riprap

Riprap is a layer of appropriately sized stones designed to protect and stabilize areas subject to erosion, slopes subject to seepage, or areas with poor soil structure. Riprap extends from the toe of the slope to a height needed for long term durability (Figure 7.25).

Riprap can be used where vegetation cannot be established or in combination with vegetative approaches. This method is suitable where stream flow velocity is high or where there is a threat to life or property. This method can be expensive, particularly if materials are not locally available. This method should be combined with soil bioengineering techniques, particularly revegetation efforts, to achieve a comprehensive streambank restoration design (FISRWG, 1998).

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

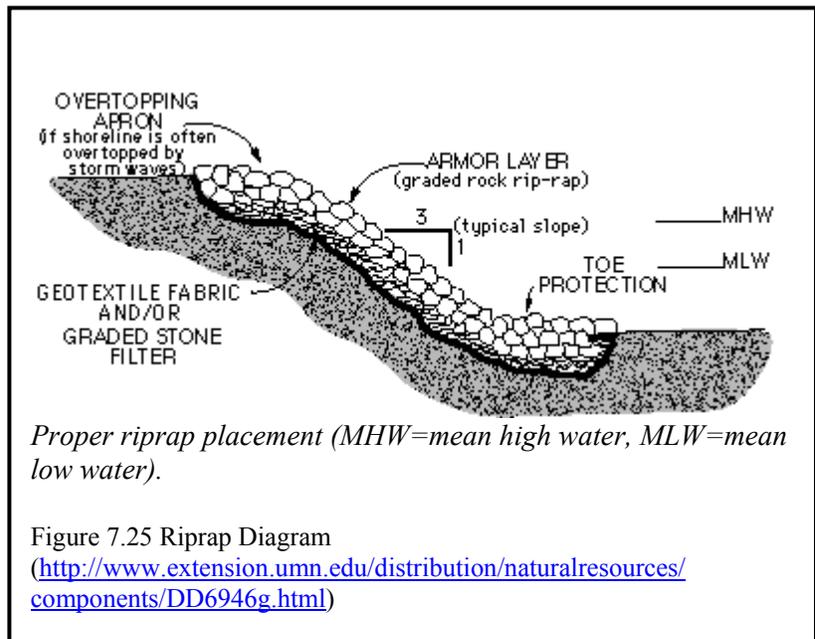
- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Riprap*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/3.15_riprap.pdf.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Riprap*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/rr.pdf.



Root Wad Revetments

Root wads armor a bank by keeping faster moving currents away from the bank (Figures 7.26 and 7.27). They are most useful for low energy streams that meander and have out-of-bank flow conditions. Root wads should be used in combination with other soil bioengineering techniques to stabilize a bank and ensure plant establishment on the upper portions of the streambank. Stabilizing the bank will reduce streambank erosion, trap sediment, and improve habitat diversity. There are a number of ways to install root wads. The trunk can be driven into the bank, laid in a deep trench, or installed as part of a log and boulder revetment. Use tree wads that have brushy top and durable wood, such as Douglas fir, oak, hard maple, juniper, spruce, cedar, red pine, white pine, larch, or beech. Ponderosa pine and aspen are too inflexible, and alder decomposes rapidly.

With the added support of a log and boulder revetment, root wads can stabilize banks of high-energy streams. Root wad span should be approximately 5 feet with numerous root protrusions. The trunk should be at least 8 to 12 feet long. Boulders should be as large as possible, but at least one and a half times the log's diameter. They should also have an irregular surface. Logs are to be used as footers or revetments and should be over 16 inches in diameter.

When logs and root wads are well anchored, this design will tolerate high boundary shear stress. However, local scour and erosion is possible. Varying with climate and tree species used, the decomposition of the logs and rootwads will limit the life span of this design. If colonization of streambank vegetation does not take place, replacement may be required. The project site must be accessible to heavy equipment. Locating materials may be difficult in some locations and this method can be expensive (FISRWG, 1998).

- | |
|---|
| <p>Channelization</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Physical & chemical <input checked="" type="checkbox"/> Instream/riparian restoration <p>Dams</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Erosion control <input type="checkbox"/> Runoff control <input type="checkbox"/> Chemical/pollutant control <input type="checkbox"/> Watershed protection <input type="checkbox"/> Aerate reservoir water <input type="checkbox"/> Improve tailwater oxygen <input type="checkbox"/> Restore/maintain habitat <input type="checkbox"/> Maintain fish passage <p>Erosion</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Streambanks <input type="checkbox"/> Shorelines <input type="checkbox"/> Vegetative <input type="checkbox"/> Structural <input checked="" type="checkbox"/> Integrated <input type="checkbox"/> Planning & regulatory |
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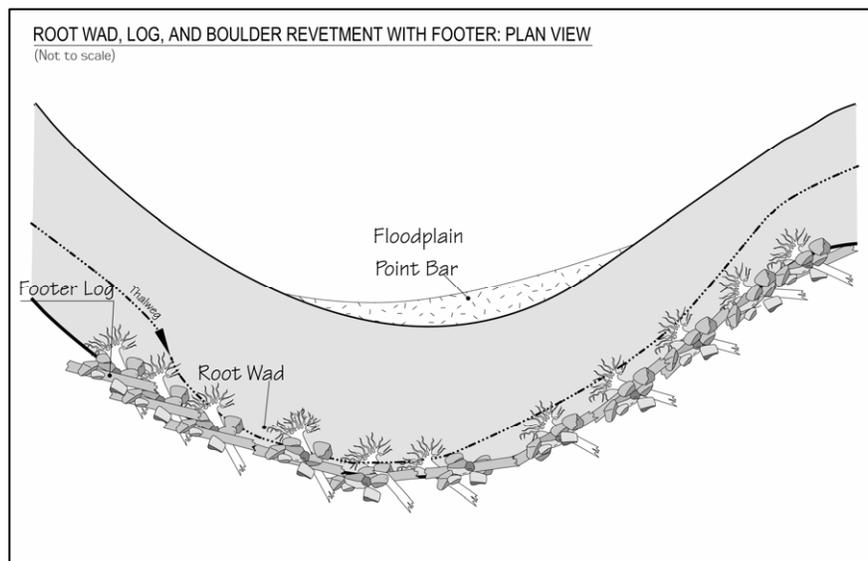


Figure 7.26 Root Wad, Log, and Boulder Revetment with Footer: Plan View (USDA-FS, 2002)

Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002). Under EMRRP, the USACE has presented research on rootwad composites in a technical note (*Rootwad Composites for Streambank Erosion Control and Fish Habitat Enhancement*).¹⁰

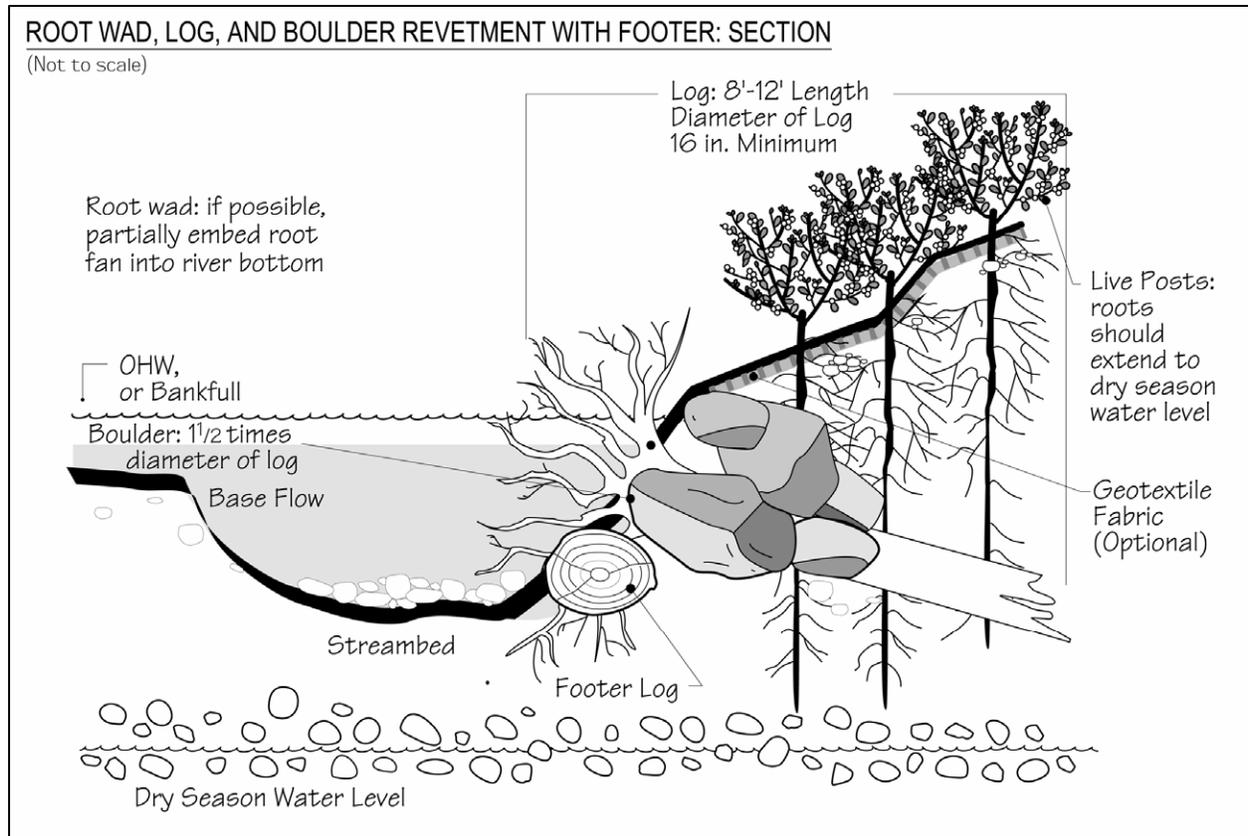


Figure 7.27 Rootwad, Log, and Boulder Revetment with Footer: Section (USDA-FS, 2002)

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group.
http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- Harmon, W.A. and R. Smith. 2000. *Using Root Wads and Rock Vanes for Streambank Stabilization*. River Course Fact Sheet Number 4. North Carolina Cooperative Extension Service.
<http://www.bae.ncsu.edu/programs/extension/wqg/sri/rv-crs-4.pdf>.
- Walter, J., D. Hughes, and N.J. Moore. 2005. *Streambank Revegetation and Protection: A Guide for Alaska. Revegetation Techniques: Root Wads*. Revised Edition. Alaska Department of Fish and Game, Division of Sport Fish.
<http://www.sf.adfg.state.ak.us/SARR/restoration/techniques/rootwad.cfm>.

¹⁰ <http://el.erdc.usace.army.mil/elpubs/pdf/sr21.pdf>

Rosgen's Stream Classification Method

Rosgen's stream channel stability method provides a sequence of steps for the field practitioner to use in reaching final conclusions and making recommendations for management, stream design, or restoration. The field practitioner uses field-measured variables to assess:

- Stream state or channel condition variables
- Vertical stability (degradation/aggradation)
- Lateral stability
- Channel patterns
- Stream profile and bed features
- Channel dimension factor
- Channel scour/deposition (with competence calculations of field verified critical dimensionless shear stress and change in bed and bar material size distribution)
- Stability ratings adjusted by stream type
- Dimensionless ratio sediment rating curves by stream type and stability ratings
- Selection of position in stream type evolutionary scenario as quantified by morphological variables by stream type to determine state and potential of stream reach.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

The stability assessment is conducted on a reference reach and a departure analysis is performed when compared to an unstable reach of the same stream type. Changes in the variables controlling river channel form, primarily streamflow, sediment regime, riparian vegetation, and direct physical modifications can cause stream channel instability. Separating the differences between anthropogenic versus geologic processes in channel adjustment is a key to prevention, mitigation, and restoration of disturbed systems.

Rosgen (1996) has also created a river inventory hierarchy involving four levels that would allow a stream assessment to be conducted at various levels, ranging from broad qualitative descriptions to detailed quantitative descriptions. The idea is to provide documented measurements, coupled with consistent, quantitative indices of stability, to make the approach to stream assessments less subjective and more consistent and reproducible. Level I and Level II are used to do the initial stratification of a reach by valley and stream type. Level III is used to predict stability. Level IV is used for validation, and requires the greatest amount of detail over a longer time period. For example, vertical stability and bank erosion can be estimated at Level III. But, in a Level IV assessment, permanent cross-sections are revisited over time to verify shifts in bed elevation and measure actual erosion that occurred.

The four hierarchal levels, and the measurements and determinations they include, are shown below along with their objectives.

Level I—Geomorphic characterization: Used to describe generalized fluvial features using remote sensing and existing inventories of geology, landform evolution, valley morphology, depositional history and associated river slopes, relief and patterns utilized for generalized categories of major stream types, and associated interpretations.

Level II—Morphological description: To delineate homogeneous stream types that describe specific slopes, channel materials, dimensions and patterns from reference reach measurements and provide a more detailed level of interpretation than Level I. Includes measurements such as sinuosity, width/depth ration, slope, entrenchment ratio, and channel patterns and material.

Level III—Stream “state” or condition: The “state” of streams further describes existing conditions that influence the response of channels to imposed change and provide specific information for prediction methodologies (such as stream bank erosion calculations). Provides for very detailed descriptions and associated interpretation and predictions. Includes such measurements and/or characterizations of vegetation, deposition, debris, meander patterns, channel stability index, and flow regime.

Level IV—Reach specific studies (validation level): Provides reach-specific information on channel processes. Used to evaluate prediction methodologies; to provide sediment, hydraulic and biological information related to specific stream types; and to evaluate effectiveness of mitigation and impact assessments for activities by stream type. Involves direct measurements of sediment transport, bank erosion rates, aggradation/degradation, hydraulics, and biological data.

Rosgen’s stream classification methodologies can assist in stream restoration design by:

- Enabling more precise estimates of quantitative hydraulic relationships associated with specific stream and valley morphologies.
- Establishing guidelines for selecting stable stream types for a range of dimensions, patterns, and profiles that are in balance with the river’s valley slope, valley confinement, depositional materials, streamflow, and sediment regime of the watershed.
- Providing a method for extrapolating hydraulic parameters and developing empirical relationships for use in the resistance equations and hydraulic geometry equations needed for restoration design.
- Developing a series of meander geometry relationships that are uniquely related to stream types and their bankfull dimensions.
- Identifying the stable characteristics for a given stream type by comparing the stable form to its unstable or disequilibrium condition.

Refer to *Applied River Morphology* (Rosgen, 1996) for more information on this stream classification system and potential applications.

Scheduling Projects

Often clearing and grading for a project can be scheduled during the time of year that the erosion potential of the site is relatively low. In many parts of the country, there is a certain period of the year when erosion potential is relatively low and construction scheduling could be very effective. For example, in the Pacific region if construction can be completed during the 6-month dry season (e.g., May 1 to October 31), temporary erosion and sediment controls might not be needed. In some parts of the country erosion potential is very high during certain parts of the year, such as the spring thaw in northern and high-elevation areas. During that time of year, snowmelt generates a constant runoff that can erode soil. In addition, construction vehicles can easily turn the soft, wet ground into mud, which is more easily washed off-site. Therefore, in the north, limitations could be placed on clearing and grading during the spring thaw (Goldman et al., 1986).

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
 - Vegetative
 - Structural
 - Integrated
 - Planning & regulatory

Additional Resource

- CASQA. 2004. *California Stormwater BMP Construction Handbook: Scheduling*. California Stormwater Quality Association, Sacramento, CA.
<http://www.cabmphandbooks.com/Documents/Construction/EC-1.pdf>.

Sediment Basins/Rock Dams

An earthen or rock embankment that is located to capture sediment from runoff and retain it on the construction site.

Sediment basins, also known as silt basins, are engineered impoundment structures that allow sediment to settle out of the urban runoff. They are installed prior to full-scale grading and remain in place until the disturbed portions of the drainage area are fully stabilized. They are generally located at the low point of sites, away from construction traffic, where they will be able to trap sediment-laden runoff. Basin dewatering is achieved either through a single riser and drainage hole leading to a suitable outlet on the downstream side of the embankment or through the gravel of the rock dam. In both cases, water is released at a substantially slower rate than would be possible without the control structure.

The following are general specifications for sediment basin design criteria as presented in Schueler (1997):

- Provide 1,800 to 3,600 ft³ of storage per contributing acre (a number of states, including Maryland, Pennsylvania, Georgia, and Delaware, recently increased the storage requirement to 3,600 ft³ or more [CWP, 1997b]).
- Surface area equivalent to 1 percent of drainage area (optional, seldom required).
- Riser with spillway capacity of 0.2 ft³/s/ac of drainage area (peak discharge for 2-year storm with 1-foot freeboard).
- Length-to-width ratio of 2 or greater.
- Basin side slopes no steeper than 2:1 (h:v).
- Safety fencing, perforated riser, dewatering (optional, seldom required).

Sediment basins can be classified as either temporary or permanent structures, depending on the length of service of the structure. If they are designed to function for less than 36 months, they are classified as temporary; otherwise, they are considered permanent. Temporary sediment basins can also be converted into permanent runoff management ponds. When sediment basins are designed as permanent structures, they must meet all standards for wet ponds. It is important to note that even the best-designed sediment basin seldom exceeds 60 to 75 percent total suspended solids (TSS) removal, which should be considered when selecting a sediment control practice.

Basins are most commonly used at the outlets of diversions, channels, slope drains, or other runoff conveyances that discharge sediment-laden water.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks
- Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Sediment Basin*. California Stormwater Quality Association, Sacramento, CA.
<http://www.cabmphandbooks.com/Documents/Construction/SE-2.pdf>.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Sediment Basin*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/3.17_sediment_basin.pdf.
- Michigan Department of Environmental Quality. 1992. *SESC Training Manual: Sedimentation Basin*. Michigan Department of Environmental Quality, Lansing, MI.
<http://www.deq.state.mi.us/documents/deq-swq-nps-sb.pdf>.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Sediment Basin*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/sb.pdf.

Sediment Fences

Silt fence, also known as filter fabric fence, is available in several mesh sizes from many manufacturers. Sediment is filtered out as runoff flows through the fabric. Such fences should be used only where there is sheet flow (no concentrated flow), and the maximum drainage area to the fence should be 0.5 acre or less per 100 feet of fence. To ensure sheet flow, a gravel collar or level spreader can be used upslope of the fence. Many types of fabrics are available commercially. The characteristics that determine a fence's effectiveness include filtration efficiency, permeability, tensile strength, tear strength, ultraviolet resistance, pH effects, and creep resistance. The longevity of silt fences depends heavily on proper installation and maintenance, however they typically last 6 to 12 months. CWP (1997d) identified several conditions that increase the effectiveness of silt fences:

- The length of the slope does not exceed 50 feet for slopes of 5 to 10 percent, 25 feet for slopes of 10 to 20 percent, or 15 feet for slopes greater than 20 percent.
- The silt fence is aligned parallel to the slope contours.
- Edges of the silt fence are curved uphill, which does not allow flow to bypass the fence.
- The contributing length to the fence is less than 100 feet.
- The fence has reinforcement if receiving concentrated flow.
- The fence was installed above an outlet pipe or weir.
- The fence is down slope of the exposed area and alignment considers construction traffic.
- Sediment is not allowed to accumulate behind the fence (increases capacity and decreases breach potential).
- Alignment of the silt fence mirrors the property line or limits of disturbance.

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Straw Bale Barrier*. California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Construction/SE-9.pdf>.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Sediment Barrier*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/3.16_sediment_barrier.pdf.
- Missouri Department of Natural Resources. 2006. *Protecting Water Quality, A Construction Site Water Quality Field Guide: Sediment Fence*. Missouri Department of Natural Resources. http://www.dnr.mo.gov/env/wpp/field-guide/fg05_06_sedimentcontrol.pdf.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Silt Fence*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/sf.pdf.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks
- Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Sediment Traps

Sediment traps are small impoundments that allow sediment to settle out of runoff water. They are typically installed in a drainage way or other point of discharge from a disturbed area. Temporary diversions can be used to direct runoff to the sediment trap. Sediment traps are ideal for sites 1 acre and smaller and should not be used for areas greater than 5 acres. They typically have a useful life of approximately 18 to 24 months. A sediment trap should be designed to maximize surface area for infiltration and sediment settling. This design increases the effectiveness of the trap and decreases the likelihood of backup during and after periods of high runoff intensity. The approximate storage capacity of each trap should be at least 1,800 ft³/acre of disturbed land draining into the trap (Smolen et al., 1988).

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
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- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
 - Vegetative
 - Structural
 - Integrated
 - Planning & regulatory

Additional Resources

- British Columbia Ministry of Agriculture, Food and Fisheries. 2004. *Constructed Ditch Fact Sheet: Sediment Traps*. No. 9. <http://www.agf.gov.bc.ca/resmgmt/publist/600Series/641310-1.pdf>.
- CASQA. 2003. *California Stormwater BMP Construction Handbook: Sediment Traps*. California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Construction/SE-3.pdf>.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Sediment Trap*. Tennessee Department of Environment and Conservation, Nashville, TN. http://www.state.tn.us/environment/wpc/sed_ero_controlhandbook/st.pdf.

Seeding

Seeding establishes a vegetative cover on disturbed areas and is very effective in controlling soil erosion once a dense vegetative cover has been established. Seeding establishes permanent erosion control in a relatively short amount of time and has been shown to decrease solids load by 99 percent (CWP, 1997a). The three most common seeding methods are (1) broadcast seeding, in which seeds are scattered on the soil surface; (2) hydroseeding, in which seeds are sprayed on the surface of the soil with a slurry of water; and (3) drill seeding, in which a tractordrawn implement injects seeds into the soil surface. Broadcast seeding is most appropriate for small areas and for augmenting sparse and patchy grass covers. Hydroseeding is often used for large areas (in excess of 5,000 square feet) and is typically combined with tackifiers, fertilizers, and fiber mulch. Drill seeding is expensive and is cost-effective only on sites greater than 2 acres. For best results, bare soils should be seeded or otherwise stabilized within 15 calendar days after final grading. Denuded areas that are inactive and will be exposed to rain for 15 days or more can also be temporarily stabilized, usually by planting seeds and establishing vegetation during favorable seasons in areas where vegetation can be established. In very flat, nonsensitive areas with favorable soils, stabilization may involve simply seeding and fertilizing. The Soil Quality Institute (SQI, 2000) recommends that soils that have been compacted by grading should be broken up or tilled before vegetating.

Channelization

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- Instream/riparian restoration

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- Vegetative
- Structural
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- Planning & regulatory

To establish a vegetative cover, it is important to use seeds from adapted plant species and varieties that have a high germination capacity. Supplying essential plant nutrients, testing the soil for toxic materials, and applying an adequate amount of lime and fertilizer can overcome many unfavorable soil conditions and establish adequate vegetative cover. Specific information about seeds, various species, establishment techniques, and maintenance can be obtained from *Erosion Control & Conservation Plantings on Noncropland* (Landschoot, 1997) or a local Cooperative State Research, Education, and Extension Service¹¹ or Natural Resources Conservation Service¹² office.

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Hydroseeding*. California Stormwater Quality Association, Sacramento, CA.
<http://www.cabmphandbooks.com/Documents/Construction/EC-4.pdf>.
- Wisconsin Department of Natural Resources. 2003. *Seeding for Construction Site Erosion Control*. Wisconsin Department of Natural Resources, Madison, WI.
http://dnr.wi.gov/org/water/wm/nps/pdf/stormwater/techstds/erosion/Seeding%20For%20Construction%20Site%20Erosion%20Control%20_1059.pdf.

¹¹ <http://www.csrees.usda.gov>

¹² <http://www.nrcs.usda.gov>

Selective Withdrawal

Temperature control in reservoir releases depends on the volume of water storage in the reservoir, the timing of the release relative to storage time, and the level from which the water is withdrawn. Dams capable of selectively releasing waters of different temperatures can provide cooler or warmer water temperatures downstream at times that are critical for other instream resources, such as during periods of fish spawning and development of fry (Fontane et al., 1981; Hansen and Crumrine, 1991). Stratified reservoirs are operated to meet downstream temperature objectives such as to enhance a cold-water or warm-water fishery or to maintain preproject stream temperature conditions. Release temperature may also be important for irrigation (Fontane et al., 1981).

Multilevel intake devices in storage reservoirs allow selective withdrawal of water based on temperature and DO levels. These devices minimize the withdrawal of surface water high in blue-green algae, or of deep water enriched in iron and manganese. Care should be taken in the design of these systems not to position the multilevel intakes too far apart because this will increase the difficulty with which withdrawals can be controlled, making the discharge of poor-quality hypolimnetic water more likely (Howington, 1990; Johnson and LaBounty, 1988; Smith et al., 1987).

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

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Erosion

- Streambanks Shorelines
- Vegetative
- Structural
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- Planning & regulatory

Setbacks

Where setbacks have been implemented to reduce the hazard of coastal land loss, they have also included requirements for the relocation of existing structures located within the designated setback area. Setbacks can also include restrictions on uses of waterfront areas that are not related to the construction of new buildings (Davis, 1987). Upland drainage from development should be directed away from bluffs and banks so as to avoid accelerating slope erosion.

In most cases, states have used the local unit of government to administer the program on either a mandatory or voluntary basis. This allows local government to retain control of its land use activities and to exceed the minimum state requirements if this is deemed desirable (NRC, 1990).

Technical standards for defining and delineating setbacks also vary from state to state. One approach is to establish setback requirements for any “high hazard area” eroding at greater than 1 foot per year. Another approach is to establish setback requirements along all erodible shores because even a small amount of erosion can threaten homes constructed too close to the streambank or shoreline. Several states have general setback requirements that, while not based on erosion hazards, have the effect of limiting construction near the streambank or shoreline.

The basis for variations in setback regulations between states seems to be based on several factors, including (NRC, 1990):

- The language of the law being enacted
- The geomorphology of the coast
- The result of discretionary decisions
- The years of protection afforded by the setback
- Other variables decided at the local level of government

From the perspective of controlling NPS pollution resulting from erosion of shorelines and streambanks, the use of setbacks has the immediate benefit of discouraging concentrated flows and other impacts of storm water runoff from new development in areas close to the streambank or shoreline. In particular, the concentration of storm water runoff can aggravate the erosion of shorelines and streambanks, leading to the formation of gullies, which are not easily repaired. Therefore, drainage of storm water from developed areas and development activities located along the shoreline should be directed inland to avoid accelerating slope erosion.

The most significant NPS benefits are provided by setbacks that not only include restrictions on new construction along the shore but also contain additional provisions aimed at preserving and protecting coastal features such as beaches, wetlands, and riparian forests. This approach

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

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- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks
- Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

promotes the natural infiltration of surface water runoff before it passes over the edge of the bank or bluff and flows directly into the coastal waterbody. Setbacks also help protect zones of naturally occurring vegetation growing along the shore. As discussed in the section on “bioengineering practices,” the presence of undisturbed shoreline vegetation itself can help to control erosion by removing excess water from the bank and by anchoring the individual soil particles of the substrate.

Almost all states and territories with setback regulations have modified their original programs to improve effectiveness or correct unforeseen problems (NRC, 1990). Experiences have shown that procedures for updating or modifying the setback width need to be included in the regulations. For instance, application of a typical 30-year setback standard in an area whose rate of erosion is 2 feet per year results in the designation of a setback width of 60 feet. This width may not be sufficient to protect the beaches, wetlands, or riparian forests whose presence improves the ability of the streambank or shoreline to respond to severe wave and flood conditions, or to high levels of surface water runoff during extreme precipitation events. A setback standard based on the landward edge of streambank or shoreline vegetation is one alternative that has been considered (NRC, 1990; Davis, 1987).

From the standpoint of NPS pollution control, an approach that designates streambanks, shorelines, wetlands, beaches, or riparian forests as a special protective feature, allows no development on the feature, and measures the setback from the landward side of the feature is recommended (NRC, 1990). In some cases, provisions for soil bioengineering, marsh creation, beach nourishment, or engineering structures may also be appropriate since the special protective features within the designated setbacks can continue to be threatened by uncontrolled erosion of the shoreline or streambank. Finally, setback regulations should recognize that some special features of the streambank or shoreline will change position. For instance, beaches and wetlands can be expected to migrate landward if water levels continue to rise. Alternatives for managing these situations include flexible criteria for designating setbacks, vigorous maintenance of beaches and other special features within the setback area, and frequent monitoring of the rate of streambank or shoreline erosion and corresponding adjustment of the setback area.

Shoreline Sensitivity Assessment

Currently there are no complete, universal assessment methodologies that apply to all shorelines and assess erosion vulnerabilities in various types of lakes, reservoirs, estuaries, and coasts. The methods presented by NOAA and the U.S. Geological Survey (USGS) were originally developed for other purposes and are being applied for other shoreline assessments:

- Environmental Sensitivity Mapping
- USGS Coastal Classification (Coastal & Marine Geology Program)
- Coastal Vulnerability Index (CVI) (focus is on SLR—the “erosion” factor may be the only relevant factor in CVI)

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks
- Shorelines
 - Vegetative
 - Structural
 - Integrated
 - Planning & regulatory

Environmental Sensitivity Mapping

The Environmental Sensitivity Index (ESI) was originally created for NOAA to prioritize areas for environmental cleanup (mainly oil-spills), to assist spill-response coordinators in evaluating the potential impact of oil along a shoreline, and to facilitate the allocation of resources during and after a spill.

ESI maps are comprised of three general types of information (NOAA, 1997):

- Shoreline Classification—ranked according to a scale relating to sensitivity, natural persistence of oil, and ease of cleanup.
- Biological Resources—including oil-sensitive animals and rare plants as well as habitats that are used by oil-sensitive species or are themselves sensitive to oil spills, such as submersed aquatic vegetation and coral reefs.
- Human-Use Resources—specific areas that have added sensitivity and value because of their use, such as beaches, parks and marine sanctuaries, water intakes, and archaeological sites.

The standardized ESI shoreline guideline rankings include estuarine, lacustrine, riverine, and palustrine habitats (NOAA, 1997). The classification scheme is based on an understanding of the physical and biological character of the shoreline environment, not just the substrate type and grain size. Relationships among physical processes, substrate type, and associated biota produce specific geomorphic/ecologic shoreline types, sediment transport patterns, and predictable patterns in oil behavior and biological impact. The concepts relating natural factors to the relative sensitivity of coastline, mostly developed in the estuarine setting, were slightly modified for lakes and rivers. The sensitivity ranking is controlled by the following factors:

- Relative exposure to wave and tidal energy
- Shoreline slope

- Substrate type (grain size, mobility, penetration and/or burial, and trafficability)
- Biological productivity and sensitivity

ESI maps have proven to have a long-term use, and they are excellent tools for studying shoreline change and its effects on the distribution and concentration of plants and animals living near the coast. Environmental sensitivity mapping is still evolving, and NOAA researchers are working with federal, state, and private industry partners to improve the ESI mapping system to extend beyond spill response.

USGS Coastal Classification (Coastal & Marine Geology Program)

The objective of the Coastal Classification Map is to determine the hazard vulnerability of an area. The coastal geomorphic classification scheme utilizes morphology and human modifications of the coast as the primary basis for hazard assessment. It emphasizes physical factors that influence erosion, overwash of sandy beaches and barrier islands, and landward sediment transport during storms along and across those features (USGS, 2004).

USGS National Assessment of Coastal Vulnerability to Sea-Level Rise

The USGS Coastal and Marine Geology Program's National Assessment, seeks to determine the relative risks due to future sea-level rise for the U.S. Atlantic, Pacific, and Gulf of Mexico coasts (USGS, 2002). Through the use of a CVI, the relative risk that physical changes will occur as sea-level rises is quantified based on the following criteria: tidal range, wave height, coastal slope, shoreline change, geomorphology, and historical rate of relative sea-level rise. This approach combines a coastal system's susceptibility to change with its natural ability to adapt to changing environmental conditions, and yields a relative measure of the system's natural vulnerability to the effects of sea-level rise.

In 2001, USGS in partnership with the National Park Service (NPS) Geologic Resources Division, began conducting hazard assessments and creating map products to assist the NPS in managing vulnerable coastal resources. One of the most important and practical issues in coastal geology is determining the physical response of coastal environments to water-level changes.

Additional Resources

- NOAA. 1997. *Environmental Sensitivity Index Guidelines (Version 3)* Chapter 2. Seattle, WA. http://response.restoration.noaa.gov/book_shelf/876_chapter2.pdf.
- USGS. 2002. *Vulnerability of US National Parks to Sea-Level Rise and Coastal Change*. U.S. Geological Survey. <http://pubs.usgs.gov/fs/fs095-02/fs095-02.html>.
- USGS. 2004. *Coastal Classification Mapping Project*. U.S. Geological Survey, Coastal & Marine Geology Program. <http://coastal.er.usgs.gov/coastal-classification/class.html>.

Site Fingerprinting

Often areas of a construction site are unnecessarily cleared. The total amount of disturbed area can be reduced with site fingerprinting, which involves placing development in the most environmentally sound locations on the site and minimizing the size of disturbed area. With site fingerprinting, only those areas essential for completing construction activities are cleared. The remaining area is left undisturbed.

Fingerprinting places development away from environmentally sensitive areas (wetlands, steep slopes, etc.), areas for future open space and restoration, areas where trees are to be saved, and temporary and permanent vegetative buffer zones.

The proposed limits of land disturbance can be physically marked off to ensure that only the land area required for buildings, roads, and other infrastructure is cleared. Existing vegetation, especially vegetation on steep slopes, can be avoided.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

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- Runoff control
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- Maintain fish passage

Erosion

- Streambanks Shorelines
 - Vegetative
 - Structural
 - Integrated
 - Planning & regulatory

Sodding

Sodding permanently stabilizes an area with a thick vegetative cover. Sodding provides immediate stabilization of an area and can be used in critical areas or where establishing permanent vegetation by seeding and mulching would be difficult. Sodding is also a preferred option when there is high erosion potential during the period of vegetative establishment from seeding. According to the Soil Quality Institute (SQI, 2000), soils that have been compacted by grading should be broken up or tilled before placing sod.

Additional Resources

- Barr Engineering Company. 2001. *Minnesota Urban Small Sites BMP Manual: Stormwater Best Management Practices for Cold Climates. Soil Erosion Control: Vegetative Methods*. Prepared for the Metropolitan Council by Barr Engineering Company, St. Paul, MN. http://www.metrocouncil.org/environment/Watershed/BMP/CH3_RPPSoilVeget.pdf.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Sodding*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/2.6_sodding.pdf.

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Soil Protection

Unprotected stockpiles are very prone to erosion, and they must be protected. Small stockpiles can be covered with a tarp to prevent erosion. Large stockpiles can be stabilized by erosion blankets, seeding, or mulching.

Because of the high organic content of topsoil, it is not recommended for use as fill material or under pavement. After a site is cleared, the topsoil is typically removed. Since topsoil is essential to establish new vegetation, it should be stockpiled and then reapplied to the site for revegetation, if appropriate. Although topsoil salvaged from the existing site can often be used, it must meet certain standards, and topsoil might need to be imported onto the site if the existing topsoil is not adequate for establishing new vegetation.

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Spill and Water Budgets

Although often used together, spill and water budgets are independent methods of facilitating downstream fish migration. Spill budgets provide alternative methods for fish passage that are less dangerous than passage through turbines. Spillways are used to allow fish to leave the reservoir by passing over the dam rather than through the turbines. The spillways must be designed to ensure that hydraulic conditions do not induce injury to the passing fish from scraping and abrasion, turbulence, rapid pressure changes, or supersaturation of dissolved gases in water passing through plunge pools (Stone and Webster, 1986).

In the Columbia River basin (Pacific Northwest), the USACE provides spill on a limited basis to pass fish around specific dams to improve survival rates. At key dams, spill is used in special operations to protect hatchery releases or provide better passage conditions until bypass systems are fully developed or, in some cases, improved (van der Borg and Ferguson, 1989). The cost of this alternative depends on the volume of water lost for power production (Mattice, 1990). Analyses of this practice, using a USACE model called FISHPASS, historically has shown that application of spill budgets in the Columbia River basin is consistently the most costly and least efficient method of improving overall downstream migration efficiency (Dodge, 1989).

In 1995 the National Marine Fisheries Service (NMFS) released a draft biological opinion to save Columbia River Basin salmon. The opinion was issued after concluding that current operations of the hydropower system were jeopardizing Columbia Basin salmon. The opinion addresses safer passage for young fish through the dams and modification to a number of hydropower operations and facilities. It calls for using as much water as possible during fish-passage season to improve flow for fish moving through the system. Specifically the draft called for spilling water over dams to increase passage of juvenile salmon via non-turbine routes to at least 80 percent. The USACE now runs the Juvenile Fish Transportation Program in cooperation with NMFS (NOAA, 1995; USACE, 2002b).

Water budgets increase flows through dams during the out-migration of anadromous fish species. They are used to speed smolt migration through reservoirs and dams. Water normally released from the impoundment during the winter period to generate power is instead released in May or June, when it can be sold only as secondary energy. This concept has been used in some regions of the United States, although quantification of the overall benefits is lacking (Dodge, 1989).

The volume of a typical water budget is generally not adequate to sustain minimum desirable flows for fish passage during the entire migration period. The Columbia Basin Fish and Wildlife Authority has proposed replacement of the water budget on the Columbia River system with a minimum flow requirement to prevent problems of inadequate water volume in discharge during low-flow years (Muckleston, 1990).

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Spill Prevention and Control Program

Spill procedure information can be posted, and persons trained in spill handling should be onsite or on call at all times. Materials for cleaning up spills can be kept onsite and easily available. Spills should be cleaned up immediately and the contaminated material properly disposed.

In general, a spill prevention, control, and countermeasure (SPCC) plan can include guidance to site personnel on:

- Proper notification when a spill occurs
- Site responsibility with respect to addressing the cleanup of a spill
- Stopping the source of a spill
- Cleaning up a spill
- Proper disposal of materials contaminated by the spill
- Location of spill response equipment programs
- Training program for designated on-site personnel

A periodic spill “fire drill” can be conducted to help train personnel on proper responses to spill events and to keep response actions fresh in the minds of personnel. It is important to maintain an adequate spill and cleaning kit, which could include the following:

- Detergent or soap, hand cleaner, and water
- Activated charcoal, adsorptive clay, vermiculite, kitty litter, sawdust, or other adsorptive materials
- Lime or bleach to neutralize pesticides or other spills in emergency situations
- Tools such as a shovel, broom, and dustpan and containers for disposal
- Proper protective clothing

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Spillway Modifications

Spill at hydroelectric dams is routinely required during periods of high runoff when the river discharge exceeds what can be passed through the powerhouse turbines. In some cases, spill has been associated with gas supersaturation problems. The USACE has proposed several practices for solving the gas supersaturation problem. These include (1) passing more headwater storage through turbines, installing new fish bypass structures, and installing additional power units to reduce the need for spill; (2) incorporating “flip-lip” deflectors in spillway-stilling basins, transferring power generation to high-dissolved-gas-producing dams, and altering spill patterns at individual dams to minimize nitrogen mass entrainment; and (3) collecting and transporting juvenile salmonids around affected river reaches. Only a few of these practices have been implemented (Tanovan, 1987).

As more attention is being paid to maintaining minimum flows in rivers for fish passage and spawning, managers are balancing the need for spills with the potential impacts of gas supersaturation (Anderson, 2004; Anderson, 1995; DeHart, 2003; USFWS, 2001; Van Holmes and Anderson, 2004). For example, the U.S. Fish and Wildlife Service has routinely monitored gas supersaturation in reaches below Bonneville Dam (Columbia River, Oregon) to protect migrating salmon, many of which are endangered species (USFWS, 2001).

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Surface Roughening

Roughening is the scarifying of a bare sloped soil surface with horizontal grooves or benches running across the slope. Roughening aids the establishment of vegetative cover, improves water infiltration, and decreases runoff velocity.

Additional Resource

- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Surface Roughening*. Tennessee Department of Environment and Conservation, Nashville, TN. http://www.state.tn.us/environment/wpc/sed_ero_controlhandbook/sr.pdf.

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Toe Protection

A number of qualitative advantages are to be gained by providing toe protection for vertical bulkheads. Toe protection usually takes the form of a stone apron installed at the base of the vertical structure to reduce wave reflection and scour of bottom sediments during storms. The installation of rubble toe protection should include filter cloth and perhaps a bedding of small stone to reduce the possibility of rupture of the filter cloth. Ideally, the rubble should extend to an elevation such that waves will break on the rubble during storms.

Additional Resources

- Massachusetts DEP. 2006. *Massachusetts Nonpoint Source Pollution Management Manual: Stone Toe Protection*. Massachusetts Department of Environmental Protection, Boston, MA.
<http://projects.geosyntec.com/NPSManual/Fact%20Sheets/Stone%20Toe%20Protection.pdf>.
- Wisconsin Department of Natural Resources. 2006. *Vegetated Armoring Erosion Control Methods*. <http://dnr.wi.gov/org/water/fhp/waterway/erosioncontrol-vegetated.html>.

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Training—ESC

Provide education and training opportunities for designers, developers, and contractors. One of the most important factors determining whether ESCs will be properly installed and maintained on a construction site is the knowledge and experience of the contractor and onsite personnel. Many communities require certification for key on-site employees who are responsible for implementing the ESC plan. Certification can be accomplished through municipally sponsored training courses; more informally, municipalities can hold mandatory preconstruction or prewintering meetings and conduct regular and final inspection visits to transfer information to contractors (Brown and Caraco, 1997). Information that can be covered in training courses and meetings includes the importance of ESC for water quality protection; developing and implementing ESC plans; the importance of proper installation, regular inspection, and diligent maintenance of ESC practices; and record keeping for inspections and maintenance activities.

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Transference of Fish Runs

Transference of fish runs involves inducing anadromous fish species to use different spawning grounds in the vicinity of an impoundment. To implement this practice, the nature and extent of the spawning grounds that were lost due to the blockage in the river need to be assessed, and suitable alternative spawning grounds need to be identified. The feasibility of successfully collecting the fish and transporting them to alternative tributaries also needs to be carefully determined.

One strategy for mitigating the impacts of diversions on fisheries is the use of ephemeral streams as conveyance channels for all or a portion of the diverted water. If flow releases are controlled and uninterrupted, a perennial stream is created, along with new instream and riparian habitat. However, the biota that had been adapted to preexisting conditions in the ephemeral stream will probably be eliminated.

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Tree Armoring, Fencing, and Retaining Walls or Tree Wells

Tree armoring protects tree trunks and natural vegetation from being damaged by construction equipment. Fencing can also protect tree trunks, but it should be placed at the tree's drip line so that construction equipment is kept away from the tree. A tree's drip line is the minimum area around the tree in which the tree's root system should not be disturbed by cut, fill, or soil compaction caused by heavy equipment. When cutting or filling must be done near a tree, a retaining wall or tree well can be used to minimize the cutting of the tree's roots or the quantity of fill placed over the tree's roots. It is recommended that cutting or filling be done only when absolutely necessary. Fill placement over the tree root flare or within the dripline will eventually kill the tree.

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Tree Revetments

Tree revetments consist of a row of interconnected trees anchored to the toe of the streambank or to the upper streambank (Figures 7.28 and 7.29). This serves to reduce flow velocities along eroding streambanks, trap sediment, and provide a substrate for plant establishment and erosion control. This design relies on the installation of an adequate anchoring system and is best suited for streambank heights under 12 feet and bankfull velocities under 6 feet per second. In addition, this structure should occupy no more than 15 percent of the channel at bankfull. Toe protection is needed to accompany this design if scour is anticipated and upper bank soil bioengineering techniques are recommended to ensure streamside regeneration. This design allows for the use of local materials if they are readily available. Decay resistant species are

recommended for the logs to extend the life of the structure and thus the ability of vegetation to become established. Due to decomposition, these structures have a limited life and might require periodic replacement. It is considered beneficial that decomposition of the logs over time allows the streambank to return to a natural state with protection provided by mature streambank

vegetation. There is a potential for the logs to dislodge, and these structures should not be located upstream of bridges or other structures sensitive to damage. Tree revetments are susceptible to damage by ice (FISRWG, 1998). Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002).

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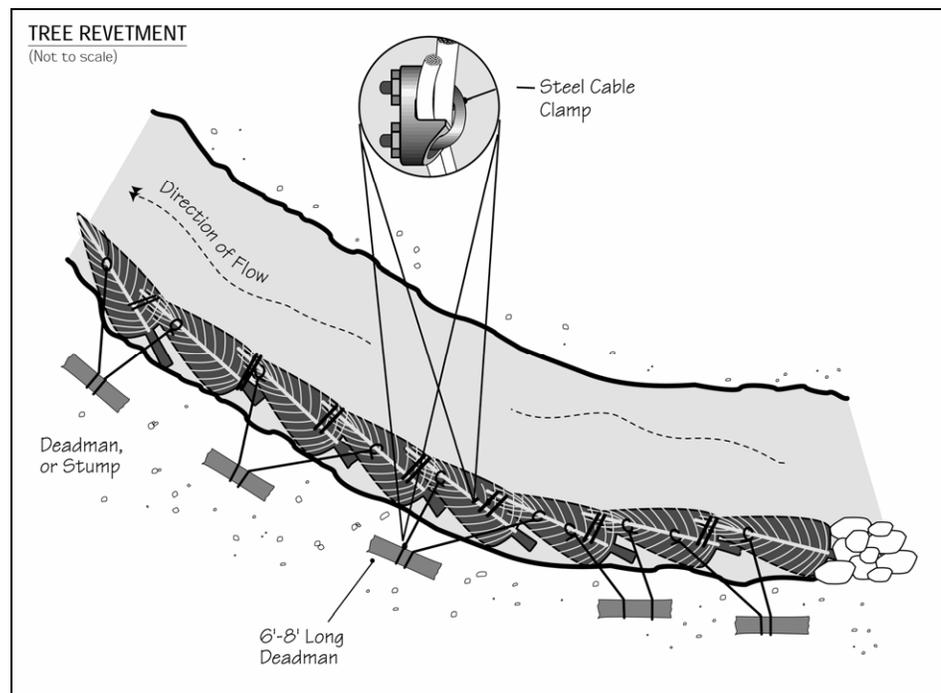


Figure 7.28 Tree Revetment (USDA-FS, 2002)

Additional Resources

- Alaska Department of Fish and Game. 2005. *Spruce Tree Revetment*. http://www.sf.adfg.state.ak.us/sarr/restoration/techniques/images/csbs_strevet.pdf.
- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- Goard, D. 2006. *Riparian Forest Best Management Practices: Tree Revetments*. Kansas State University, Manhattan, KS. <http://www.oznet.ksu.edu/library/forst2/MF2750.pdf>.
- Gough, S. 2004. *Tree Revetments for Streambank Revitalization*. Missouri Department of Conservation, Fisheries Division, Jefferson City, MO. <http://mdc.mo.gov/fish/streams/revetmen/>.

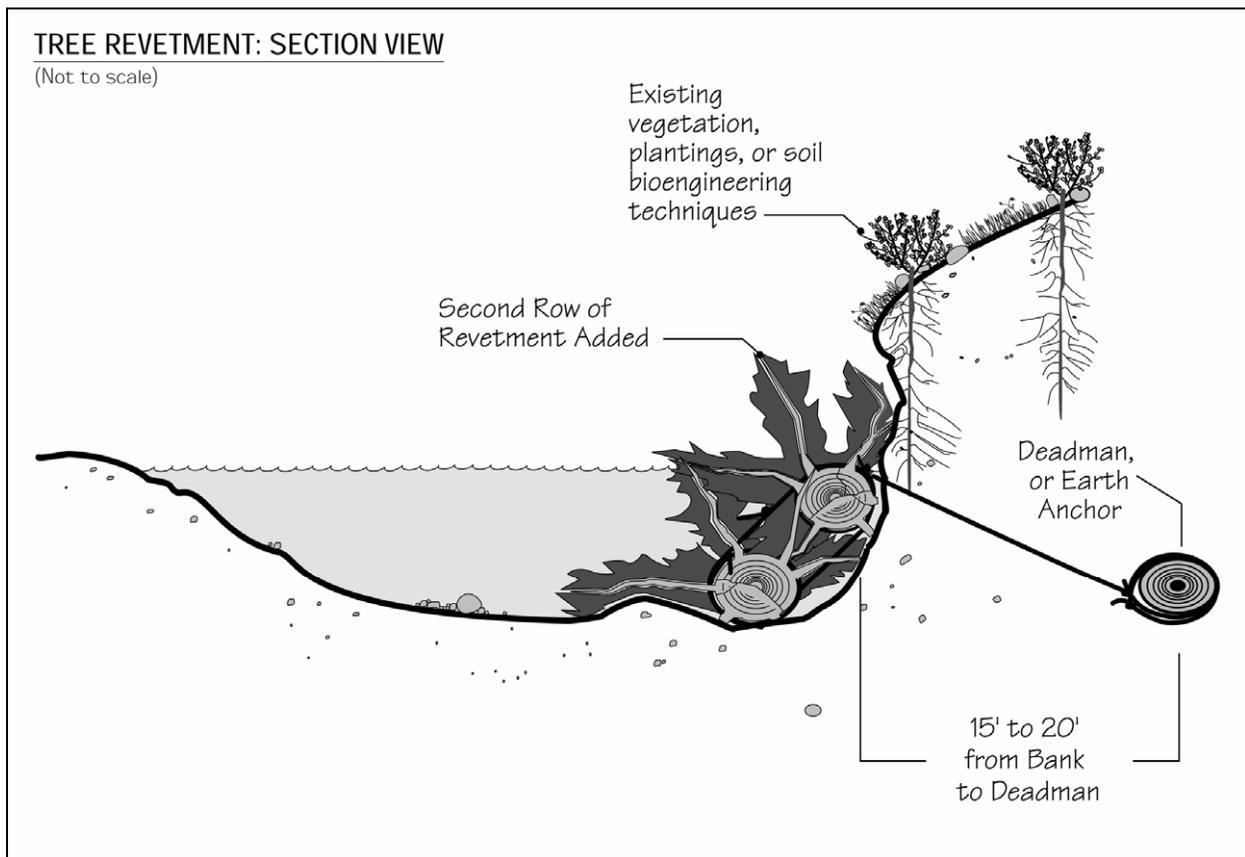


Figure 7.29 Tree Revetment: Section View (USDA-FS, 2002)

Turbine Operation

Implementation of changes in the turbine start-up procedures can also enlarge the zone of withdrawal to include more of the epilimnetic waters in the downstream releases. Monitoring of the releases at the Walter F. George lock and dam (Chattahoochee River, Georgia), showed levels of DO declined sharply at the start-up of hydropower production. The severity and duration of the DO drop were found to be reduced by starting up all the generator units within a minute of each other (Findley and Day, 1987).

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Turbine Venting

Turbine venting is the practice of injecting air into water as it passes through a turbine. If vents are provided inside the turbine chamber, the turbine will aspirate air from the atmosphere and mix it with water passing through the turbine as part of its normal operation. In early designs, the turbine was vented through existing openings, such as the draft tube opening or the vacuum breaker valve in the turbine assembly. Air forced by compressors into the draft tube opening enriched reservoir waters with little detectable DO to concentrations of 3 to 4 mg/L. Overriding the automatic closure of the vacuum breaker valve (at high turbine discharges) increased DO by only 2 mg/L (Harshbarger, 1987).

Turbine venting uses the low-pressure region just below the turbine wheel to aspirate air into the discharges (Wilhelms, 1984). Autoventing turbines are constructed with hub baffles, or deflector plates placed on the turbine hub upstream of the vent holes to enhance the low-pressure zone in the vicinity of the vent and thereby increase the amount of air aspirated through the venting system. Turbine efficiency relates to the amount of energy output from a turbine per unit of water passing through the turbine. Efficiency decreases as less power is produced for the same volume of water. In systems where the water is aerated before passing through the turbine, part of the water volume is displaced by the air, thus leading to decreased efficiency. Hub baffles have also been added to autoventing turbines at the Norris Dam (Clinch River, Tennessee) to further improve the DO levels in the turbine releases (Jones and March, 1991).

Developments in autoventing turbine technology show that it may be possible to aspirate air with no resulting decrease in turbine efficiency. In one test of an autoventing turbine at the Norris Dam, the turbine efficiency increased by 1.8 percent (March et al., 1991; Waldrop, 1992). Technologies like autoventing turbines are very site-specific and outcomes will vary considerably.

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Vegetated Buffers

Like filter strips, vegetated buffers provide a physical separation between a construction site and a waterbody. The difference between a filter strip and a vegetated buffer area is that a filter strip is an engineered device, whereas a buffer is a naturally occurring filter system. Vegetated buffers remove nutrients and other pollutants from runoff, trap sediments, and shade the waterbody to optimize light and temperature conditions for aquatic plants and animals (Welsch, n.d.). Preservation of vegetation for a buffer can be planned before any site-disturbing activities begin so as to minimize the impact of construction activities on existing vegetation. Trees can be clearly marked at the dripline to preserve them and to protect them from ground disturbances around the base of the tree.

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Proper maintenance of buffer vegetation is important. Maintenance requirements depend on the plant species chosen, soil types, and climatic conditions. Maintenance activities typically include fertilizing, liming, irrigating, pruning, controlling weeds and pests, and repairing protective markers (e.g., fluorescent fences and flags).

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Vegetated Buffer Strips*. California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Development/TC-31.pdf>.
- Ohio DNR. No date. *Ohio Stream Management Guide: Forested Buffer Strips*. Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs13.htm.
- River Alliance of Wisconsin. No date. *Benefits of Vegetated Buffers*. River Alliance of Wisconsin, Madison, WI. <http://www.wisconsinrivers.org/documents/policy/Fact%20Sheet%20-%20Benefits%20of%20Vegetated%20Buffers.pdf>.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Vegetative Practices*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/2.%20Vegetative%20Practices.pdf.

Vegetated Filter Strips

Vegetated filter strips are low-gradient vegetated areas that filter overland sheet flow. Runoff must be evenly distributed across the filter strip. Channelized flows decrease the effectiveness of filter strips. Level spreading devices are often used to distribute the runoff evenly across the strip (Dillaha et al., 1989).

Vegetated filter strips should have relatively low slopes and adequate length to provide optimal sediment control and should be planted with erosion-resistant plant species. The main factors that influence the removal efficiency are the vegetation type, soil infiltration rate, and flow depth and travel time. These factors are dependent on the contributing drainage area, slope of strip, degree and type of vegetative cover, and strip length. Maintenance requirements for vegetated filter strips include sediment removal and inspections to ensure that dense, vigorous vegetation is established and concentrated flows do not occur. For more information on vegetated filter strips, refer to EPA's *National Management Measures to Protect and Restore Wetlands and Riparian Areas for the Abatement of Nonpoint Source Pollution* (USEPA, 2005b).

Additional Resources

- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Vegetative Filter Strip*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/2.8_veg_filter_strip.pdf.
- Leeds, R., L.C. Brown, M.R. Sulc, and L. VanLieshout. No date. *Vegetative Filter Strips: Application, Installation and Maintenance*. The Ohio State University, Food, Agriculture and Biological Engineering, Columbus, OH. <http://ohioline.osu.edu/aex-fact/0467.html>.
- USDA. 2003. *Grass Filter Strips*. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.oh.nrcs.usda.gov/programs/Lake_Erie_Buffer/filter_strips.html.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
 - Vegetative
 - Structural
 - Integrated
 - Planning & regulatory

Vegetated Gabions

Vegetated gabions (Figure 7.30) start with wire-mesh, rectangular baskets filled with small to medium rock and soil. The baskets are then laced together to form a structural toe or sidewall. Live branches (0.5 to 1 inch in diameter) are then placed on each consecutive layer between the rock filled baskets to take root, join together the structure, and bind it to the slope. This method is effective for protecting steep slopes where scouring or undercutting is occurring. However, this method is not appropriate in streams with heavy bed load or where severe ice damage occurs. This method provides moderate structural support and should be placed at the base of a slope to stabilize the slope and reduce slope steepness. A stable foundation is required for the installation of these structures. When the rock size needed is not locally available, this design is effective because smaller rocks can be used. A limiting factor of this method is that it is expensive to install and to replace. These structures are relatively expensive to construct and frequently require costly repairs. This method should be combined with other soil bioengineering techniques, particularly revegetation efforts, to achieve a comprehensive streambank restoration design (FISRWG, 1998). There is often opposition to these structures based on their inability to blend in with natural settings and their general lack of aesthetically pleasing qualities (Gore, 1985).

Installation guidelines are available from the USDA NRCS *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992). Under EMRRP, the USACE has presented research on vegetated gabions in a technical note (*Gabions for Streambank Erosion Control*).¹³

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Erosion

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- Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

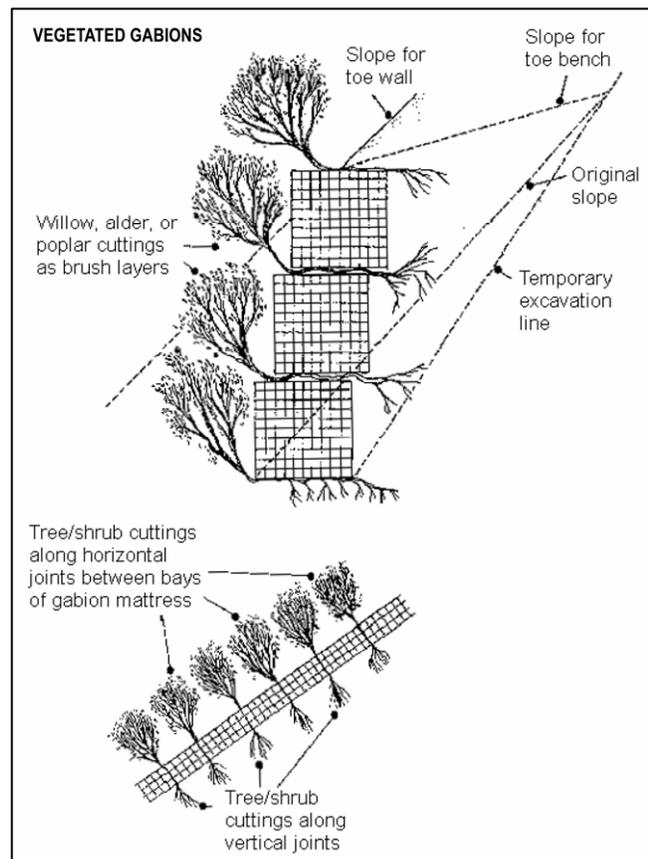


Figure 7.30 Vegetated Gabion (Allen and Leech, 1997)

¹³ <http://el.erdc.usace.army.mil/elpubs/pdf/sr22.pdf>

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group.
http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Gabion*. Iowa State University.
http://www.ctre.iastate.edu/erosion/manuals/construction/3.8_gabion.pdf.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Vegetated Rock Gabions/Gabions*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/veg_rockgabions.pdf.
- MMG Civil Engineering Systems, Ltd. 2001. *Vegetated Gabions*. MMG Civil Engineering Systems, Ltd., St. Germans, Kings Lynn, Norfolk, England.
<http://www.verdantsolutions.ltd.uk/acrobat/vegsod.pdf>.
- Ohio DNR. No date. *Ohio Stream Management Guide: Gabion Revetments*. Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs15.htm.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Gabion*. Tennessee Department of Environment and Conservation, Nashville, TN.
http://state.tn.us/environment/wpc/sed_ero_controlhandbook/ga.pdf.

Vegetated Geogrids

Vegetated geogrids consist of layers of live branch cuttings and compacted soil with natural or synthetic geotextile materials wrapped around each soil layer (Figure 7.31). This serves to rebuild and vegetate eroded streambanks, particularly on outside bends where erosion can be a problem. This system is designed to capture sediment providing a substrate for plant establishment and if properly designed and installed, these systems help to quickly establish riparian vegetation. Its benefits are similar to those of brush layering (e.g., dries excessively wet sites, reinforces soil as roots develop, which adds significant resistance to sliding or shear displacement). Due to the strength of this design and the higher initial tolerance to flow velocity, these systems can be installed on a 1:1 or steeper streambank or lakeshore. Limitations of this design include the complexity involved with constructing this system and the fairly high expense (FISRWG, 1998). When constructing this type of system, use live branch cuttings that are brushy and root readily. Also use cuttings that are 0.5 to 2 inches in diameter and 4 to 6 feet long. This type of system requires biodegradable erosion control fabric. Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002).

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Erosion

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- Vegetative
- Structural
- Integrated
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Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- Massachusetts DEP. 2006. *Massachusetts Nonpoint Source Pollution Management Manual: Vegetated Geogrids*. Massachusetts Department of Environmental Protection, Boston, MA. <http://projects.geosyntec.com/NPSManual/Fact%20Sheets/Vegetated%20Geogrids.pdf>.
- ISU. 2006. *How to Control Streambank Erosion: Vegetated Geogrids*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/vegetated_geogrids.pdf.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Vegetated Geogrids*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/vegegeogrids.pdf>.

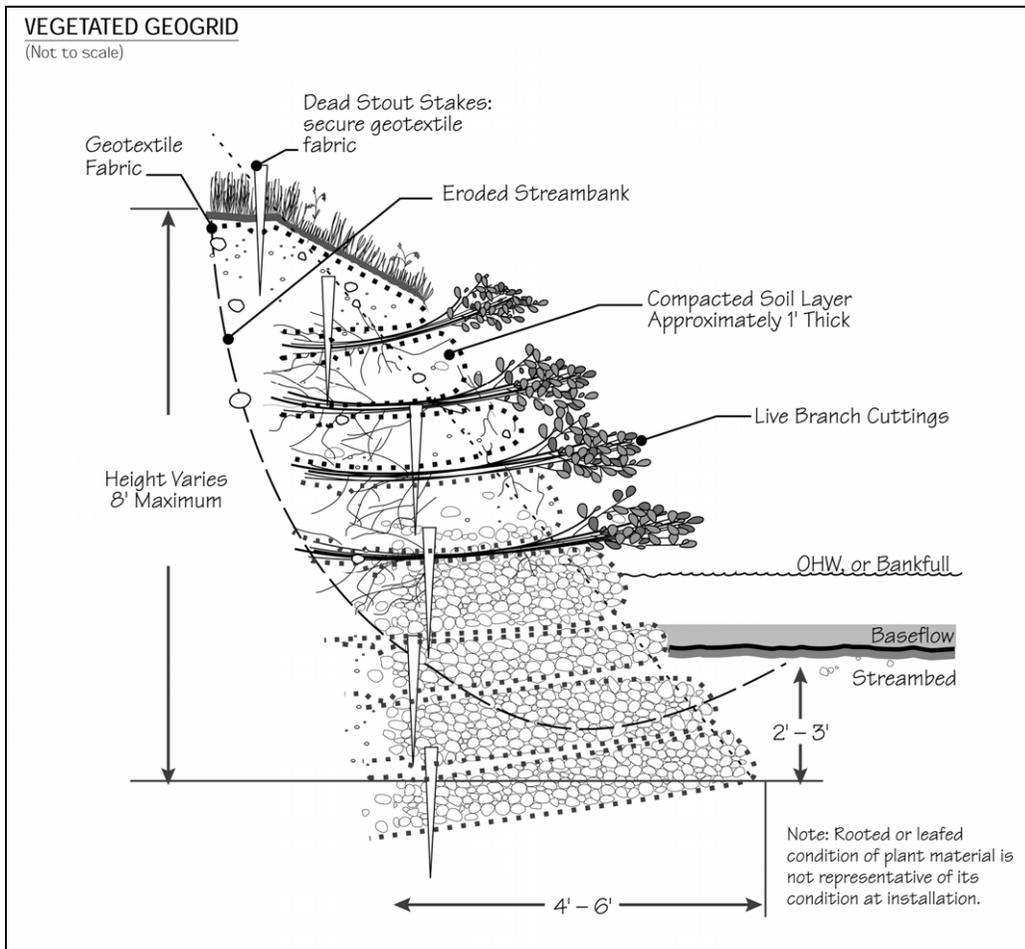


Figure 7.31 Vegetated Geogrid (USDA-FS, 2002)

Vegetated Reinforced Soil Slope (VRSS)

The vegetated reinforced soil slope (VRSS) soil system (Figures 7.32 and 7.33) is an earthen structure constructed from living, rootable, live-cut, woody plant material branches, bare root, tubling or container plant stock, along with rock, geosynthetics, geogrids, and/or geocomposites. The VRSS system is useful for immediately repairing or preventing deeper failures, providing a structurally sound system with soil reinforcement, drainage, and erosion control (typically on steepened slope sites with limited space). Living cut branches and plants grow and perform additional soil reinforcement via the roots and surface protection via the top growth (Sotir and Fischenich, 2003).

Live vegetation is typically installed from just above baseflow elevation and up the face of the reconstructed streambank, acting to protect the bank through immediate soil reinforcement and confinement, drainage, and, in the toe area, with rock. The system extends below the depth of scour, typically with rock, which improves infiltration and supports the riparian zone. Internal systems (e.g., rock, live cut branches) can be configured to act as drains that redirect or collect internal bank seepage and transport water to the stream via a rock toe (Sotir and Fischenich, 2003).

Plants may be selected to provide color, texture, and other attributes to add a natural landscape appearance. Examples of plants include dogwood, willow, hibiscus, and *Viburnum* spp. Check with your local NRCS office to make sure these are appropriate for the location. If a compound channel cross section is desirable near or just below the baseflow elevation, a step-back terrace may be incorporated to offer an enhanced riparian zone where emergent aquatic plants may invade over time. Although the total mass uptake may be small, they assimilate contaminants within the water column. Aquatic wetland plants that may be installed adjacent to the stream include blueflag, monkey flower, and pickerelweed. Again, check with your local NRCS office to ensure these are appropriate. VRSS systems can be constructed on slopes ranging from 1V on 2H (1:2) to 1:0.5. When constructed in step or terrace fashion, they improve pollutant control by intercepting sediment and attached pollutants during overbank flows (Sotir and Fischenich, 2003). Additional information about VRSS systems is available from USACE's *Vegetated Reinforced Soil Slope Streambank Erosion Control*.¹⁴

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Figure 7.32 VRSS Structure After Construction (Sotir and Fischenich, 2003)



Figure 7.33 Established VRSS Structure (Sotir and Fischenich, 2003)

¹⁴ <http://el.erdc.usace.army.mil/elpubs/pdf/sr30.pdf>

Water Conveyances

These are the open or closed channel, conduit, or drop structure used to convey water from a reservoir. The USACE has studied the performance of spillways and overflow weirs at its facilities to determine the importance of these structures in improving DO levels. For example, data have been analyzed for the test spill done in 1999 at Canyon Ferry Dam in Montana, which found that allowing a portion of the releases to go over the spillways resulted in a significant increase in DO in the river downstream of the dam. Initially the use of spillways appeared to be a viable solution to the problem of low dissolved oxygen in the river below the dam. However, there was a problem with nitrogen supersaturation.

The operation of some types of hydraulic structures has been linked to problems of the supersaturation. An unexpected fish kill occurred in spring 1978 due to supersaturation of nitrogen gas in the Lake of the Ozarks (Missouri) within 5 miles of Truman Dam, caused by water plunging over the spillway and entraining air. The vertical drop between the spillway crest and the tailwaters was only 5 feet. The maximum total gas saturation was 143 percent, which is well above desired saturation levels. In this case, the spillway was modified by cutting a notch to prevent water from plunging directly into the stilling basin (ASCE, 1986).

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Wildflower Cover

Because of the hardy, drought-resistant nature of wildflowers, they may be more beneficial as an erosion control practice than turf grass. Though not as dense as turfgrass, wildflower thatches and associated grasses are expected to be as effective in erosion control and contaminant absorption. An additional benefit of wildflower thatches is that they provide habitat for wildlife, including insects and small mammals. Because thatches of wildflowers do not need fertilizers, pesticides, or herbicides and watering is minimal, implementation of this practice may result in cost savings.

A wildflower stand requires several years to become established, but maintenance requirements are minimal once established. Prices vary greatly, from less than \$15 (Stock Seed Farms, n.d.) to \$40 (Albright Seed Company, 2002) a pound, for wildflower seed mixes. The amount of wildflower seeds applied depends on the desired coverage of wildflowers. However, Stock Seed Farms recommends that one pound of seed can cover 3,500 ft² (Stock Seed Farms, n.d.). Keep in mind that species selection should focus on those wildflowers and grasses native to the given area or appropriate to the site.

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Wind Erosion Controls

Wind erosion controls limit the movement of dust from disturbed soil surfaces and include many different practices. Wind barriers block air currents and are effective in controlling soil blowing. Many different materials can be used as wind barriers, including solid board fences, snow fences, and bales of hay. Sprinkling moistens the soil surface with water and must be repeated as needed to be effective for preventing wind erosion (Delaware DNREC, 2003); however, applications must be monitored to prevent excessive runoff and erosion.

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Wing Deflectors

Wing deflectors are structures that protrude from either streambank but do not extend entirely across a channel. The structures are designed to deflect flows away from the bank, and create scour pools by constricting the channel and accelerating flow. The structures can be installed in series on alternative streambanks to produce a meandering thalweg and stream diversity. The most common design is a rock and rock-filled log crib deflector structure. The design bases the size of the structure on anticipated scour. These structures need to be installed far enough downstream from riffle areas to avoid backwater effects that could drown out or damage the riffle. This design should be employed in streams with low physical habitat diversity, particularly channels that lack pool habitats. Construction on a sand bed stream may be susceptible to failure and should be constructed with the use of a filter layer or geotextile fabric beneath the wing deflector structure (FISRWG, 1998).

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Erosion

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- Vegetative
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- Planning & regulatory

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- Massachusetts DEP. 2006. *Massachusetts Nonpoint Source Pollution Management Manual: Wing Deflectors*. Massachusetts Department of Environmental Protection, Boston, MA. <http://projects.geosyntec.com/NPSManual/Fact%20Sheets/Wing%20Deflectors.pdf>.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Single Wing Deflector*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/singlewing.pdf>.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Double Wing Deflector*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/doublewing.pdf>.
- Ohio DNR. No date. *Ohio Stream Management Guide: Deflectors*. Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs19.pdf.
- SMRC. No date. *Stream Restoration: Flow Deflection/Concentration Practices*. The Stormwater Manager's Resource Center. http://www.stormwatercenter.net/Assorted%20Fact%20Sheets/Restoration/flow_deflection.htm.

Chapter 8: Modeling Information

Physical and chemical effects of hydraulic and hydrologic changes to streams, rivers, or other surface water systems can often be estimated with models and past experience (expert judgment). Several different models are available that can simulate many of the complex physical, chemical, and biological interactions that occur when hydraulic changes are imposed on surface water systems. Additionally, models can sometimes be used to determine a combination of practices to mitigate the unavoidable effects that occur even when a project is properly planned. Models, however, cannot be used independently of expert judgment gained through past experience. When properly applied models are used in conjunction with expert judgment, the effects of hydromodification activities (both potential and existing projects) can be evaluated and many undesirable effects prevented or eliminated. Models combined with expert judgment can also be used to evaluate existing hydromodification activities as part of operation and maintenance programs to identify possible opportunities to reduce or eliminate water quality impacts.

In the U.S. Army Corps of Engineers' (USACE's) report, *Review of Watershed Water Quality Models*¹ (Deliman et al., 1999), the authors compare and evaluate existing hydrologic and watershed water quality models, make recommendations for base model(s) for predicting nonpoint source (NPS) pollution, and identify areas for model improvement. The authors review commonly used and well validated models used in urban or nonurban settings. Users of the models can use the report to obtain basic model information and to review how well the models simulate NPS pollution and where the authors think improvements could be made. This information might be useful to readers who are trying to select the best model for analyzing how to reduce NPS pollution in their watersheds (Deliman et al., 1999).

Tables 8.1 and 8.2 below provided example of models and assessment approaches that could be used to determine the effects of hydromodification activities.

¹ <http://el.erdc.usace.army.mil/elpubs/pdf/trw99-1.pdf>

Available Models and Assessment Approaches

Table 8.1 lists some of the models available for studying the effects of channelization and channel modification activities, as well as models to analyze watershed runoff and to assess BMPs and low impact development to reduce impacts (of hydromodification activities.) The table also provides a quick description of each model and the dimension in which it models, as well as source and contact information.

Table 8.1 Models Applicable to Hydromodification Activities

Model	Dimension	Description	Model Resources
Channelization and Channel Modification Models			
BRANCH	1	The Branch-Network Dynamic Flow Model is used to simulate steady state flow in a single open channel reach or throughout a system of branches connected in a dendritic or looped pattern. The model is typically applied to assess flow and transport in upland rivers where flows are highly regulated or backwater effects are evident, or in coastal networks of open channels where flow and transport are governed by the interaction of freshwater inflows, tidal action, and meteorological conditions. (Last updated: 1997)	http://water.usgs.gov/cgi-bin/man_wrdapp?branch
CE-QUAL-RIV1	1	CE-QUAL-RIV1 is a one-dimensional (cross-sectionally averaged) hydrodynamic and water quality model, meaning that the model resolves longitudinal variations in hydraulic and quality characteristics and is applicable where lateral and vertical variations are small. CE-QUAL-RIV1 consists of two parts, a hydrodynamic code (RIV1H) and a water quality code (RIV1Q). The hydrodynamic code is applied first to predict water transport and its results are written to a file, which is then read by the quality model. It can be used to predict one-dimensional hydraulic and water quality variations in streams and rivers with highly unsteady flows, although it can also be used for prediction under steady flow conditions.	http://www.wes.army.mil/el/elmodels/riv1info.html

Model	Dimension	Description	Model Resources
CE-QUAL-W2	2	CE-QUAL-W2 is a two-dimensional, laterally averaged, finite difference hydrodynamic and water quality model for rivers, reservoirs, and estuaries. Because the model assumes lateral homogeneity, it is best suited for relatively long and narrow waterbodies exhibiting longitudinal and vertical water quality gradients. Branched networks can be modeled. The model accommodates variable grid spacing (segment lengths and layer thicknesses) so that greater resolution in the grid can be specified where needed.	http://smig.usgs.gov/cgi-bin/SMIC/model_home_pages/model_home?selection=cequalw2 http://www.ce.pdx.edu/w2
CH3D-SED	1, 2, or 3	The CH3D numerical modeling system can be used to investigate sedimentation on bendways, crossings, and distributaries. Applications address dredging, channel evolution, and channel training structure evaluations.	http://chl.erdc.usace.army.mil/chl.aspx?p=s&a=Software;22
EFDC	1, 2, or 3	The Environmental Fluid Dynamics Code is a single source, three-dimensional, finite-difference modeling system having hydrodynamic, water quality-eutrophication, sediment transport and toxic contaminant transport components linked together.	John Hamrick developed this at the Virginia Institute of Marine Science 1990-1991. Dr. John Hamrick, Tetra Tech, Inc. 10306 Eaton Place, Suite 340 Fairfax, VA 22030
EFM	1	Ecosystem Functions Model (EFM) is a planning tool that analyzes ecosystem response to changes in flow regime. EFM allows environmental planners, biologists, and engineers to determine whether proposed alternatives (e.g., reservoir operations, levee alignments) would maintain, enhance, or diminish ecosystem health. Project teams can use EFM software to visualize existing ecologic conditions, highlight promising restoration sites, and assess and rank alternatives according to the relative enhancement (or decline) of ecosystem aspects. The hydraulic modeling portion of the EFM process is performed by existing independent software, such as HEC-RAS.	http://el.erdc.usace.army.mil/elpubs/pdf/smartnote04-4.pdf

Model	Dimension	Description	Model Resources
FESWMS-2DH	2	FESWMS-2DH is a finite element surface water modeling system for two-dimensional flow in a horizontal plane. The model can simulate steady and unsteady surface water flow and is useful for simulating two-dimensional flow where complicated hydraulic conditions exist (e.g., highway crossings of streams and flood rivers). It can also be applied to many types of steady or unsteady flow problems. (Last updated: 1995)	http://water.usgs.gov/cgi-bin/man_wrdapp?feswms-2dh
HEC-6	1	HEC-6 is a one-dimensional, moveable boundary, open channel flow numeric model designed to simulate and predict changes in river profiles resulting from scour and deposition over moderate time periods, typically years. Latest revision occurred in 1993.	http://www.hec.usace.army.mil/software/legacysoftware/hec6/hec6.htm
HEC-HMS	1	The HEC-HMS model is designed to simulate the precipitation-runoff processes of dendritic watershed systems. It is applicable in a wide range of geographic areas for solving the widest possible range of problems, including large river basin water supply and flood hydrology, and small urban or natural watershed runoff. Hydrographs produced by the program are used directly or in conjunction with other software for studies of water availability, urban drainage, flow forecasting, future urbanization impact, reservoir spillway design, flood damage reduction, floodplain regulation, and systems operation.	http://www.hec.usace.army.mil/software/hec-hms/index.html http://el.erdc.usace.army.mil/elpubs/pdf/smartnote04-3.pdf

Model	Dimension	Description	Model Resources
HEC-RAS	1	<p>HEC-RAS is an integrated system of software, designed for interactive use in a multi-tasking, multi-user network environment. The system is comprised of a graphical interface (GUI), separate hydraulic analysis components, data storage and management capabilities, graphics and reporting facilities. The model performs one-dimensional steady flow, unsteady flow, and sediment transport calculations. The key element is that all three components will use a common geometric data representation and common geometric and hydraulic computation routines. In addition to the three hydraulic analysis components, the system contains several hydraulic design features that can be invoked once basic water surface profiles are computed. The HEC-RAS modeling system was developed as a part of the Hydrologic Engineering Center's "Next Generation" (NexGen) of hydrologic engineering software. The NexGen project encompasses several aspects of hydrologic engineering, including: rainfall-runoff analysis; river hydraulics; reservoir system simulation; flood damage analysis; and real-time river forecasting for reservoir operations.</p>	<p>http://www.hec.usace.army.mil/software/hec-ras</p>
HIVEL2D	1, 2	<p>HIVEL2D is a free-surface, depth averaged model designed specifically to simulate flow in typical high-velocity channels.</p>	<p>http://chl.erdc.usace.army.mil/CHL.aspx?p=s&a=Software;6</p>
RiverWare™	1	<p>RiverWare™ is a reservoir and river modeling software decision support tool. With RiverWare™, users can model the topology, physical processes and operating policies of river and reservoir systems, and make better decisions about how to operate these systems by understanding and evaluating the trade-offs among the various management objectives. Water management professionals can improve their management of river and reservoir systems by using the software. The Bureau of Reclamation, the Tennessee Valley Authority, and the USACE sponsor ongoing RiverWare™ research and development.</p>	<p>http://cadswes.colorado.edu/riverware</p>

Model	Dimension	Description	Model Resources
SAM	1	The model calculates the width, depth, slope and n-values for stable channels in alluvial material. SAM can be used to evaluate erosion, entrainment, transportation, and deposition in alluvial streams. Channel stability can be evaluated, and the evaluation used to determine the cost of maintaining a constructed project. The model is currently being improved and enhanced at WES.	http://chl.erdc.usace.army.mil/CHL.aspx?p=s&a=Software;2
SIAM	N/A	SIAM is a model designed to simulate the movement of sediment through a drainage network from source to outlet. It allows for evaluation of numerous sediment management alternatives relatively quickly. The model provides an intermediate level of analysis more quantitative than a conventional geomorphic evaluation, but less specific than a numerical, mobile-boundary simulation. SIAM is to be incorporated into a future release of HEC-RAS.	http://www.usbr.gov/pmts/sediment/model/srhSIAM/index.html http://www.wes.army.mil/rsm/pubs/pdfs/RSM-2-WS04.pdf
SMS (RMA2 and RMA4)	1, 2	The Surface-Water Modeling System is a generalized numerical modeling system for open-channel flows, sedimentation, and constituent transport.	http://chl.erdc.usace.army.mil/CHL.aspx?p=s&a=Software;4
TABS-MD (RMA2, RMA4, RMA10, SED2D)	1, 2, or 3	The multi-dimensional numerical modeling system is a collection of generalized computer programs and utility codes, designed for studying multidimensional hydrodynamics in rivers, reservoirs, bays, and estuaries. The models can be applied to study project impacts of flows, sedimentation, constituent transport, and salinity.	http://chl.erdc.usace.army.mil/CHL.aspx?p=s&a=Software;10
WASP	1, 2, or 3	Water Quality Analysis Simulation Program. Framework for modeling contaminant fate and transport in surface waters. The WASP framework can be used to model biochemical oxygen demand and dissolved oxygen dynamics, nutrients and eutrophication, bacterial contamination, and organic chemical and heavy metal contamination.	http://www.epa.gov/athens/wwqtsc/html/wasp.html

Model	Dimension	Description	Model Resources
Models to Analyze Watershed Runoff and Assess Practices to Reduce Impacts of Hydromodification			
BMP Decision Support System (BMP-DSS)	1	BMP-DSS is a decision-making tool for placement of BMPs/LID practices at strategic locations in urban watersheds based on integrated data collection and hydrologic/hydraulic/water quality modeling. The system uses GIS technology, integrates BMP processes simulation models, and applies system optimization techniques for BMP placement and selection. The system also provides interfaces for BMP placement, BMP attribute data input, and decision optimization management. The system includes a stand-alone BMP simulation and evaluation module, which complements both research and regulatory nonpoint source control assessment efforts and allows flexibility in examining various BMP design alternatives.	Developed by the EPA and Prince George's County Department of Environmental Resources. Contact Dr. Mow-Soung Cheng at 301-883-5836 for more information.
HSPF	1	Hydrological Simulation Program—FORTRAN (HSPF) is a comprehensive package for simulation of watershed hydrology and water quality for both conventional and toxic organic pollutants. HSPF incorporates watershed-scale ARM and NPS models into a basin-scale analysis framework that includes fate and transport in one dimensional stream channels. It is the only comprehensive model of watershed hydrology and water quality that allows the integrated simulation of land and soil contaminant runoff processes with in-stream hydraulic and sediment-chemical interactions. The result of this simulation is a time history of the runoff flow rate, sediment load, and nutrient and pesticide concentrations, along with a time history of water quantity and quality at any point in a watershed. HSPF simulates three sediment types (sand, silt, and clay) in addition to a single organic chemical and transformation products of that chemical.	http://www.epa.gov/ceampubl/swater/hspf/index.htm

Model	Dimension	Description	Model Resources
LSPC	1	LSPC is the Loading Simulation Program in C++, a watershed modeling system that includes streamlined Hydrologic Simulation Program Fortran (HSPF) algorithms for simulating hydrology, sediment, and general water quality on land as well as a simplified stream transport model. LSPC is derived from the Mining Data Analysis System (MDAS), which was developed by EPA Region 3 and has been widely used for mining applications and TMDLs. A key data management feature of this system is that it uses a Microsoft Access database to manage model data and weather text files for driving the simulation. The system also contains a module to assist in TMDL calculation and source allocations. For each model run, it automatically generates comprehensive text-file output by subwatershed for all land-layers, reaches, and simulated modules, which can be expressed on hourly or daily intervals. Output from LSPC has been linked to other model applications such as EFDC, WASP, and CE-QUAL-W2.	http://www.epa.gov/ATHENS/wwqtsc/html/lspc.html
Program for Predicting Polluting Particle Passage through Pits, Puddles, and Ponds—Urban Catchment Model (P8-UCM)	1	P8-UCM is a model for predicting the generation and transport of stormwater pollutants in urban watersheds. Continuous water balance and mass balance calculations are performed on a user-defined system consisting of watersheds, devices (runoff storage/treatment areas, BMPs), particle classes, and water quality components. Simulations are driven by continuous hourly rainfall and daily air temperature time series data. The model simulates pollutant transport and removal in a variety of treatment devices (BMPs).	http://www.walker.net/p8

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Model	Dimension	Description	Model Resources
Storm Water Management Model (SWMM)	1	SWMM is a dynamic rainfall-runoff simulation model used for single event or long-term (continuous) simulation of runoff quantity and quality from primarily urban areas. The runoff component of SWMM operates on a collection of subcatchment areas that receive precipitation and generate runoff and pollutant loads. The routing portion of SWMM transports this runoff through a system of pipes, channels, storage/treatment devices, pumps, and regulators. SWMM tracks the quantity and quality of runoff generated within each subcatchment, and the flow rate, flow depth, and quality of water in each pipe and channel during a simulation period comprised of multiple time steps.	http://www.epa.gov/ednrmrl/models/swmm/index.htm

Table 8.2 lists some of the available assessment models and approaches for assessing the biological impacts of channelization. The table also provides a quick description of the model or approach, as well as sources of additional information.

Table 8.2 Assessment Models and Approaches

Model or Assessment Approach	Description	Model Resources
Assessment Models		
AQUATOX	A freshwater ecosystem simulation model designed to predict the fate of various pollutants such as nutrients and organic toxicants and their effects on the ecosystem, including fish, invertebrates, and aquatic plants (including periphyton).	http://epa.gov/waterscience/models/aquatox
Cornell Mixing Zone Expert System (CORMIX)	A water quality modeling and decision support system designed for environmental impact assessment of mixing zones resulting from wastewater discharge from point sources. The system emphasizes the role of boundary interaction to predict plume geometry and dilution in relation to regulatory mixing zone requirements.	http://www.epa.gov/waterscience/models/cormix.html
HEC-HMS, Hydrologic Modeling System	A system designed to simulate the precipitation-runoff processes of dendritic watershed systems. In addition to unit hydrograph and hydrologic routing options, capabilities include a linear quasi-distributed runoff transform (ModClark) for use with gridded precipitation, continuous simulation with either a one-layer or more complex five-layer soil moisture method, and a versatile parameter estimation option.	http://www.hec.usace.army.mil/software/hec-hms/index.html
HEC-RAS, River Analysis System	The HEC-RAS system is used to calculate water surface profiles for both steady and unsteady gradually varied flow. The system can handle a full network of channels, a dendritic system, or a single river reach.	http://www.hec.usace.army.mil/software/hec-ras/hecras-hecras.html http://www.wsi.nrcs.usda.gov/products/W2Q/H&H/Tools/Models/Ras.html

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Model or Assessment Approach	Description	Model Resources
Physical Habitat Simulation Model (PHABSIM)	A set of computer programs designed to predict the microhabitat (depth, velocities, channel indices) conditions in rivers at different flow levels and the relative suitability of those conditions for different life stages of aquatic life. (Serves as the key microhabitat simulation component of IFIM.)	http://www.fort.usgs.gov/Products/Software/PHABSIM
Riverine Community Habitat Assessment and Restoration Concept (RCHARC)	A simulation approach using computer models to compare hydraulic conditions and microhabitats of a reference reach to alternative study reach(es).	Nestler, J., T. Schneider, and D. Latka. 1993. RCHARC: A new method for physical habitat analysis. <i>Engineering Hydrology</i> , 294-99.
RiverWare™	RiverWare™ is a reservoir and river modeling software decision support tool. With RiverWare™, users can model the topology, physical processes, and operating policies of river and reservoir systems, and make better decisions about how to operate these systems by understanding and evaluating the trade-offs among the various management objectives. Water management professionals can improve their management of river and reservoir systems by using the software. The Bureau of Reclamation, the Tennessee Valley Authority, and the Army Corps of Engineers sponsor ongoing RiverWare™ research and development.	http://cadswes.colorado.edu/riverware
Salmonid Population Model (SALMOD)	A computer model that simulates the dynamics (spawning, growth, movement, and mortality) of freshwater salmonid populations, both anadromous and resident, under various habitat quality and capacities.	http://www.fort.usgs.gov/Products/Software/SALMOD
Assessment Approaches		
A Procedure to Estimate the Response of Aquatic Systems to Changes in Phosphorus and Nitrogen Inputs	A simple tool to estimate the responsiveness of a waterbody to changes in the loading of phosphorus and nitrogen using a dichotomous key that classifies it according to key characteristics.	ftp://ftp.wcc.nrcs.usda.gov/downloads/wqam/aqusens.pdf

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Model or Assessment Approach	Description	Model Resources
EPA Volunteer Stream Monitoring Methods	A series of methods geared for volunteer monitoring programs offering simple to advanced techniques for monitoring macroinvertebrates, habitat, water quality, and physical conditions.	http://www.epa.gov/owow/monitoring/volunteer/stream
Habitat Evaluation Procedures/Habitat Suitability Index (HEP/HSI)	HEP is an evaluation method that determines the suitability of available habitat for select aquatic and terrestrial wildlife species and measures the impact of proposed land or water use changes on that habitat. HSI is a measure of habitat suitability.	http://policy.fws.gov/870fw1.html http://www.fort.usgs.gov/Products/Software/HEP http://www.fort.usgs.gov/Products/Software/HSI
Index of Biological Integrity (IBI)	An aquatic ecosystem health index using measures of total native fish species composition, indicator species composition, pollutant intolerant and tolerant species composition, and fish condition.	http://www.epa.gov/owow/wetlands/wqual/bio_fact/fact5.html
Indicators of Hydrologic Alteration (IHA)	A method for assessing the degree of hydrologic alteration attributable to human impacts within an ecosystem. The method takes daily stream flow values and calculates indices relating to the five components of flow regime critical for ecological processes: magnitude, frequency, duration, timing, and rate of change of hydrologic conditions.	http://www.nature.org/initiatives/freshwater/conservationtools/art17004.html
Instream Flow Incremental Methodology (IFIM)	A river network analysis that incorporates fish habitat, recreational opportunity, and woody vegetation responses to alternative water management schemes. Information is presented as a time series of flow and habitat at select points within the network.	http://www.fort.usgs.gov/Products/Software/IFIM
Invertebrate Community Index (ICI)	An invertebrate community health index using ten structural and compositional invertebrate community metrics including number of mayfly, caddisfly, and dipteran taxa.	http://www.epa.state.oh.us/dsw/bioassess/BioCriteriaProtAqLife.html

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Model or Assessment Approach	Description	Model Resources
(Modified) Index of Well-Being (IWB)	The IWB is a fish community health index using measures of fish species abundance and diversity estimates. The <i>modified</i> index of well being factors out 13 pollutant tolerant species of fish from certain calculations to prevent false high readings on polluted streams which have large populations of pollutant tolerant fish.	http://www.epa.state.oh.us/dsw/bioassess/BioCriteriaProtAgLife.html
Rapid Bioassessment Protocols (RBP)	A set of protocols that offer cost-effective techniques of varying complexity to characterize the biological integrity of streams and rivers using the collection and analysis of biological, physical, and chemical data. It focuses on periphyton, benthic macroinvertebrates, and fish assemblages, and on assessing the quality of the physical habitat.	http://www.epa.gov/owow/monitoring/rbp
Rapid Channel Assessment (RCA)	A reference stream/integrated ranking approach to evaluate the physical condition of a stream channel based on channel geometry, percent channel-bank scour, sediment size distribution and embeddedness, large wood debris, and thalweg profiles.	CWP. 1998. <i>Rapid Watershed Planning Handbook: A Comprehensive Guide for Managing Urbanizing Watersheds</i> . Center for Watershed Protection, Ellicott City, MD. For a copy contact: The Center for Watershed Protection, 8391 Main Street Ellicott City, MD 21043, email: center@cwpp.org .
Rapid Stream Assessment Technique (RSAT)	A reference stream/integrated ranking approach to evaluate steam health based on chemical stability, channel scouring/sediment deposition, physical instream habitat, water quality, riparian habitat, and biological indicators.	CWP. 1998. <i>Rapid Watershed Planning Handbook: A Comprehensive Guide for Managing Urbanizing Watersheds</i> . Center for Watershed Protection, Ellicott City, MD. For a copy contact: The Center for Watershed Protection, 8391 Main Street Ellicott City, MD 21043, email: center@cwpp.org . http://www.stormwatercenter.net
Rosgen's Stream Classification Method	A classification method that uses morphological stream characteristics to organize streams into relatively homogeneous stream types to predict stream behavior and to apply interpretive information.	Reference: Rosgen, D. 1996. <i>Applied River Morphology</i> . Wildland Hydrology, Pagosa Springs, CO. For a copy contact: Wildland Hydrology Books, 1481 Stevens Lake Road, Pagosa Springs, CO 81147.

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Model or Assessment Approach	Description	Model Resources
Stream Network/Stream Segment Temperature Models (SNTMP/SSTEMP)	Developed to help predict the consequences of stream manipulation on water temperatures, these computer models simulate mean daily water temperatures for streams and rivers from data describing the stream's geometry, meteorology, and hydrology. SNTMP is for a stream network with multiple tributaries for multiple time periods. SSTEMP is a scaled down version suitable for single (to a few) reaches and single (to a few) time periods.	http://www.fort.usgs.gov/Products/Software/SNTMP
Stream Visual Assessment Protocol (SVAP)	A simple procedure to evaluate the condition of a stream based on visual characteristics. It also identifies opportunities to enhance biological value and conveys information on how streams function.	ftp://ftp.wcc.nrcs.usda.gov/downloads/wqam/svapfnl.pdf
Systems Impact Assessment Model (SIAM)	An integrated set of models used to aid the evaluation of water management alternatives, it address significant interrelationships among selected physical (temperature, microhabitat), chemical (dissolved oxygen, water temperature), and biological variables (young-of-year Chinook salmon production), and stream flow. Developed for the Klamath River in northern California.	http://www.fort.usgs.gov/Products/Software/SIAM
Time-Series Library (TSLIB)	A set of DOS-based computer programs to create monthly or daily habitat time-series and habitat-duration curves using the habitat-discharge relationship produced by PHABSIM. (Can serve as the hydraulic component of IFIM).	http://www.fort.usgs.gov/Products/Software/TSLIB
TR-20, Computer Program for Project Formulation Hydrology	A physically based watershed scale runoff event model that computes direct runoff and develops hydrographs resulting from any synthetic or natural rainstorm. Developed hydrographs are routed through stream and valley reaches as well as through reservoirs.	http://www.wsi.nrcs.usda.gov/products/W2Q/H&H/Tools_Models/WinTR20.html
TR-55, Urban Hydrology for Small Watersheds	Simplified procedures to calculate storm runoff volume, peak rate of discharge, hydrographs, and storage volumes required for floodwater reservoirs.	http://www.info.usda.gov/CED/ftp/CED/tr55.pdf

Examples of Channel Modification Activities and Associated Models/Practices

Modeling for Impoundments

A low-complexity option for modeling impoundments is to use simple models like the Bathtub model to simulate the waterbody. Compared to more complex multi-dimensional models, which use multiple computational cells to estimate volumetric and contaminant fluxes between the cells, Bathtub-type models typically use a single cell. This single cell, while a simplification of the system, may be appropriate if the system is fully mixed in both the horizontal and vertical dimensions. This approach can also be economically developed using spreadsheets (such as Excel) to calculate the results. However, a Bathtub-type model has limited utility if the water body is stratified or if results are required at more than one location in the system.

Another example of a modeling tool that has the ability to simulate impoundments is CE-QUAL-W2, a two-dimensional hydrodynamic water quality model. CE-QUAL-W2 provides results for either a horizontal or cross-sectional, two-dimensional plane. Because the model assumes a vertically or horizontally-mixed environment, it is best suited for relatively long and narrow water bodies (rivers, lakes, reservoirs, and estuaries) that exhibit longitudinal or vertical water quality stratification. The water quality portion of CE-QUAL-W2 includes the major processes of eutrophication kinetics and a single algal compartment. The bottom sediment compartment stores settled particles, releases nutrients to the water column, and exerts sediment oxygen demand based on user-supplied fluxes; a full sediment diagenesis (i.e., the process of chemical and physical change in deposited sediment during its conversion to rock) model is under development.

The Environmental Fluid Dynamics Code (EFDC) is a general-purpose modeling package for simulating one- or multi-dimensional flow, transport, and bio-geochemical processes in surface water systems including rivers, lakes, estuaries, reservoirs, wetlands, and coastal regions. The EFDC model was originally developed by Hamrick in 1992 at the Virginia Institute of Marine Science for estuarine and coastal applications and is considered public domain software. This model is now EPA-supported as a component of EPA Region 2's PRVI BASINS software system and EPA's TMDL Toolbox,² and has been used extensively to support TMDL development throughout the country. In addition to hydrodynamic, salinity, and temperature transport simulation capabilities, EFDC is capable of simulating cohesive and non-cohesive sediment transport, near field and far field discharge dilution from multiple sources, eutrophication processes, the transport and fate of toxic contaminants in the water and sediment phases, and the transport and fate of various life stages of finfish and shellfish.

Modeling for Estuary Tidal Flow Restrictions

Artificial hydraulic structures have the ability to alter natural flow patterns (hydrodynamic) in an estuary, which may modify erosion patterns, salinity regimes, and the fate and transport of pollutants. Some examples of artificial hydraulic structures include culverts, bridges, tide gates,

² <http://www.epa.gov/athens/wwwqtsc/html/efdc.html>

and weir structures. Installation or removal of these structures may cause a significant change in local hydrodynamics, and tools may be used to estimate the impacts prior to the modification.

The EFDC model, as described above, allows modelers to evaluate the impacts of hydraulic structures, such as culverts, bridges, tide gates, and weirs. Due to the flexibility of EFDC, each of these structures can also be conceptually represented in a variety of ways. For example, the weir equation can be applied to locations in the modeling grid to estimate water surface-dependent flow through one or more grid cells. This enables a modeler to evaluate the effect of placement of structures that modify surface flow patterns (such as a weir). Structures such as piers and impermeable barriers (e.g. jetties, breakwaters) can also be simulated using this code.

Another modeling tool that can address estuary tidal flow restrictions is the Finite Element Surface Water Modeling System (FESWMS) model. This modeling code was developed by the Federal Highway Administration (FHA) and is distributed by the U.S Geological Survey (USGS). FESWMS is a hydrodynamic modeling code that simulates two-dimensional, depth-integrated, steady or unsteady surface-water flows. It supports both super and subcritical flow analysis, and area wetting and drying. FESWMS is also suited for modeling regions involving flow control structures, such as are encountered at the intersection of roadways and waterways. Specifically, the FESWMS model allows the user to include weirs, culverts, drop inlets, and bridge piers into a standard two-dimensional finite element model. FESWMS does not have three-dimensional capabilities.

Modeling for Estuary Flow Regime Alterations

A number of structures or processes can alter the flow regime of a system. Flow contributions to an estuary can be altered by upstream diversions or basin transfers, dams and dam releases, or other channel modifications. For example, when freshwater flows patterns are altered by the presence and operation of a dam, EFDC can be used to model the impact to downstream estuaries. EFDC can provide modelers with a time series representation of flow that is withdrawn from a simulated reservoir/dam system. Coupling the time series flow projections with hydrodynamic analysis of the receiving estuary enables modelers to determine potential impacts of altered flow patterns and to evaluate various spill options for the dam operation. Structures within the estuary that may alter the flow patterns include marinas, piers, jetties, and other similar type structures. Flow regime alterations due to these structures can be simulated using the same modeling tools described in the Flow Restrictions section above. Flow restrictions are the cause of most changes in the flow regime, so the simulation of the causes of restriction using a process-based modeling tool produces the desired flow alterations. Therefore, EFDC and FESWMS can be utilized in the same manner to obtain flow regime results.

Temperature Restoration Practices

Several computer models that predict instream water temperature are currently available. These models vary in the complexity of detail with which site characteristics, including meteorology, hydrology, stream geometry, and riparian vegetation, are described. The U.S. Fish and Wildlife Service developed an instream surface water temperature model (Theurer et al., 1984) to predict mean daily temperature and diurnal fluctuations in surface water temperatures throughout a stream system. The model, Stream Network Temperature Model (SNTEMP), can be applied to any size watershed or river system. This predictive model uses either historical or synthetic

hydrological, meteorological, and stream geometry characteristics to describe the ambient conditions. The purpose of the model is to predict the longitudinal temperature and its temporal variations. The instream surface water temperature model has been used satisfactorily to evaluate the impacts of riparian vegetation, reservoir releases, and stream withdrawal and returns on surface water temperature. In the Upper Colorado River Basin, the model was used to study the impact of temperature on endangered species (Theurer et al., 1982). It also has been used in smaller ungauged watersheds to study the impacts of riparian vegetation on salmonid habitat.³

The Stream Segment Temperature Model (SSTEMP) is a much-scaled down version of the SNTemp model developed by the USGS Biological Resource Division. Unlike the large network model (SNTemp), this program only handles single stream segments for a single time period (e.g., month, week, day) for any given “run.” Initially designed as a training tool, SSTEMP may be used satisfactorily for a variety of simple cases that one might face on a day-to-day basis. It is especially useful to perform sensitivity and uncertainty analysis. The model predicts minimum 24-hour temperatures, mean 24-hour temperatures, and maximum 24-hour stream temperatures for a given day, as well as a variety of intermediate values. The SSTEMP model identifies current stream and/or watershed characteristics that control stream temperatures. The model also quantifies the maximum loading capacity of the stream to meet water quality standards for temperature. This model is important for estimating the effect of changing controls or factors (such as riparian grazing, stream channel alteration, and reduced streamflow) on stream temperature. The model can also be used to help identify possible implementation activities to improve stream temperature by targeting those factors causing impairment to the stream. Good input data and an awareness of the model’s assumptions are critical to obtaining reliable predictions. SSTEMP may be used to evaluate alternative reservoir release proposals, analyze the effects of changing riparian shade or the physical features of a stream, and examine the effects of different withdrawals and returns on instream temperature.⁴

Selecting Appropriate Models

Although a wide range of adequate hydrodynamic and surface water quality models are available, the central issue in selecting appropriate models for evaluating hydromodification projects is the appropriate match of the financial and geographical scale of the proposed project with the cost required to perform a credible technical evaluation of the projected environmental impact. It is highly unlikely, for example, that a proposal for a relatively small stream channel modification project, such as installing culverts in a stream segment, would be expected or required to contain a state-of-the-art hydrodynamic and surface water quality analysis that requires one or more person-years of effort. In such projects, a simplified, desktop approach (e.g., HEC-RAS Model) requiring less time and money would most likely be sufficient (USACE, 2002a). In contrast, substantial technical assessment of the long-term environmental impacts would be expected for channelization proposed as part of construction of a major harbor facility or as part of a system of navigation and flood control locks and dams. The assessment should

³ For more information or to download SNTemp, see the U.S. Geological Survey Web site: <http://www.fort.usgs.gov/Products/Software/SNTemp>.

⁴ More information about the model is available on the U.S. Geological Survey Web site: <http://www.mesc.usgs.gov/products/software/default.asp> (navigate to Stream Network Temperature Model and Stream Segment Temperature Model).

incorporate the use of detailed 2D or 3D hydrodynamic models coupled with sediment transport and surface water quality models.

In general, six criteria can be used to review available models for potential application in a given hydromodification project:

1. Time and resources available for model application
2. Ease of application
3. Availability of documentation
4. Applicability of modeled processes and constituents to project objectives and concerns
5. Hydrodynamic modeling capabilities
6. Demonstrated applicability to size and type of project

The Center for Exposure Assessment Modeling (CEAM),⁵ EPA Environmental Research Laboratory, Athens, Georgia, provides continual support for several hydrodynamic and surface water quality models, such as HSCTM2D, HSPF, PRZM3, and SED3D. Another source of information and technical support is the Waterways Experiment Station, USACE, Vicksburg, Mississippi.⁶ Although a number of available models are in the public domain, costs associated with setting up and operating these models may exceed the project's available resources. For a simple to moderately difficult application, the approximate level of effort varies, but could range from 1 to 12 person-months.

Several factors need to be considered in the application of mathematical models to predict impacts from hydromodification projects including:

- Variations and uncertainties in the accuracy of these models when they are applied to the short- and long-term response of natural systems.
- Availability of relevant information (data collection) to derive the simulations and validate the modeling results.

The cost of a given modeling project depends on a number of factors. Questions need to be asked prior to the start of a modeling project to determine the purpose and future use of the model, and/or its results. For example, the modeler needs to know if the model results are to be used deterministically (the model assumes there is only one possible result that is known for each alternative course or action), or if the model is to be used for a heuristic (involving or serving as an aid to learning, discovery, or problem-solving by experimental and especially trial-and-error methods) scoping exercise to identify data gaps in a system. In a deterministic study, the results are traditionally compared to observed data in an effort regarded as calibration and validation. The model must therefore be rigorous enough to represent the system accurately. The complexity of the system under study is also a consideration that must be made prior to the project. The complexity of the system generally correlates well with the level of complexity of the model required to simulate it. Likewise, the more complex the model is, the more intensive it is to develop and run, and the more costly the modeling project is.

⁵ <http://www.epa.gov/ceampubl>

⁶ <http://www.erc.usace.army.mil>

A number of approaches are available to model a given system, and the discussion above only highlights a few of the modeling tools currently available. The cost to set up a model for a given system varies tremendously, based not only on the modeling code selected, but also on what the modeler decides to simulate. For example, a modeler may aim to obtain flow results for an estuary using a given model. In reality, surface winds in that estuary may or may not be influencing the flow regime. If observed wind data is available from a weather station nearby, the modeler may choose to incorporate these data into the model to better represent that influence. The modeler may also choose not to incorporate these data, or the data may not be available. Although the modeler is utilizing the same modeling code, the decision regarding whether or not to simulate the wind conditions is not only a question regarding the model's purpose, but also what the development of this model will cost.

Modeling tools can range from simple spreadsheet tools using "back of the envelope" type calculations, to complex processed based models that must be run on high performance computing systems. As discussed previously, the tool selected for a given modeling project needs to be chosen with a number of questions in mind. As a result, each system can be modeled in a number of different ways with a number of different modeling codes. Therefore, the range in cost for even a single estuary or impoundment may range tenfold depending on the model's purpose. Typically, the cost of developing a model may range from a few thousand dollars for a simple spreadsheet model, to in excess of one million dollars for a more robust modeling system.

Chapter 9: Dam Removal Requirements, Process, and Techniques

Chapter 2 provided a discussion of specific impacts from dams, water quality above and below the dam, suspended sediment and recharge issues, and biological and habitat impacts. Chapter 4 then provided a discussion of types of dams, Federal Energy Regulatory Commission (FERC) requirements, management measures and practices that can be used to mitigate for some of the effects of dams, and information to consider when contemplating removing a dam. Chapter 9 focuses on what occurs after the decision has been made to remove a dam. This chapter provides a more detailed discussion on some permitting requirements for removing dams, the dam removal process, and sediment removal techniques to consider when removing a dam.

Requirements for Removing Dams

Removing a dam may require evaluations and permits from state, federal, and local authorities. These requirements are typically to ensure that the removal is done in a manner that is safe and minimizes short and long term impacts to the river and floodplain. States and local governments have different requirements. The following federal requirements may apply to dam removal:

- Rivers and Harbors Act Permit
- FERC License Surrender or Non-power License Approval
- National Environmental Policy Act (NEPA) Review
- Federal Consultations (Endangered Species Act Section 7 Consultation, Magnuson-Stevenson Act Consultation, National Historic Preservation Act Compliance)
- State Certifications (Water Quality Certification, Coastal Zone Management Act Certification)

The following state requirements might apply to dam removal:

- Clean Water Act (CWA) Section 404 Dredge and Fill Permit
- Waterway Development Permits
- Dam Safety Permits
- State Environmental Policy Act Review
- Historic Preservation Review
- Resetting the Floodplain
- State Certifications

Demolition and building permits may also be required for dam removal. Individual state and local governments may have additional requirements as well.

Tips for a Successful Permitting Process (American Rivers, 2002b)

Dam removal is relatively new and the permitting process can be difficult. Most state and federal agencies are not yet practiced at moving dam removal through the permitting process. The relevant permitting requirements were designed for more destructive activities, and dam removal does not easily fit into the requirements. Tips to help make the process smoother include:

Schedule Time

- *Expect dam removal projects to take longer than construction efforts.*
- *Schedule more lead-time into the permitting process to avoid delays and frustrations.*

Establish a Relationship with the Permitting Agencies

- *Hold a pre-application meeting with key agency staff once your project is well thought out.*
- *Do not attempt to circumvent the process and stick with the permitting timeline.*
- *Do not provide inconsistent information.*
- *A single point of contact for the group applying for the permit will help avoid confusion and maintain communication.*

Providing Information about the Proposed Project

- *Create clear and simple descriptions and drawings (to scale) of the proposed project.*
- *Be sure to identify complicating conditions, schedules, seasonal constraints, etc.*
- *Provide and discuss alternatives, but make it clear why the chosen approach should be used.*
- *Assume the reviewers know nothing about your project.*

Dam Removal Process

The complexity of the removal process of a dam is specific to each particular case of removal. There are two major components of the removal process: the stakeholders involved in the decision-making process of removing the dam and the actual physical removal of the dam itself. The authorities that govern dams are numerous, yet overlapping. These entities include: USACE, Bureau of Reclamation, FERC, and other federal agencies; interest groups; and state and local governments. There are also various state programs that have been created to keep dams safe and environmentally friendly, as well as to help owners finance dam removal. A study by the Aspen Institute (2002) provides a list of priority issues to consider when dam removal may be a possibility. Among the considerations listed are dam and public safety, economics, environmental concerns, risk, social values and community interests, scientific information, and stakeholder participation. This report suggests that success of dam removal is dependent upon a thorough analysis of these competing factors and input from all interested parties (Aspen Institute, 2002). Often, the dam owner makes the decision to remove a dam, deciding that the costs of continuing operation and maintenance are greater than the cost of removing the dam. However, state dam safety offices can order for a dam to be removed if there are safety concerns; FERC can order removal of dams under their jurisdiction for environmental and safety reasons (American Rivers, n.d.a.).

State governments have authority over the dams in their jurisdiction. Other state and local government agencies dealing with issues such as water quality, water rights, and fish and wildlife protection can also play a role in overseeing dams within their jurisdiction if they so choose

(FOE et al., 1999). Certain states have implemented stringent rules for dams that are and are not regulated by FERC or USACE. For example, the state of Wisconsin has a Dam Safety Inspection Program that requires dams to be inspected every 10 years by the Wisconsin Department of Natural Resources (WDNR) (Doyle et al., 2000). Any dam that fails to meet safety requirements set by WDNR must be repaired or removed. The state of Pennsylvania has implemented a law that was written under the order of the Pennsylvania Fish and Boat Commission that states that any newly constructed or existing dam that requires a state permit for construction or modification must also include provisions for fish passage (Doyle et al., 2000).

Some states have programs that aid dam owners in the process of removing their structures. The Pennsylvania Department of Environmental Protection (DEP) has adopted procedures to make it easier and less expensive for dam owners to remove unsafe, unused, or unwanted dams. In this process, owners of dams on third order or larger streams are contacted and asked if they are interested in removing their dams. If they are, then all the landowners affected by the removal are contacted, and a public meeting is held if interest warrants one. After public comments, an engineering design is created, followed by an environmental assessment, then sediment and erosion control (ESC) plans are established, and finally approval is sought by the USACE. This program was used in the removal of seven dams on Conestoga River and also in the removal of the Williamsburg Station Dam on the Juniata River. This approval process takes between 12 and 18 weeks (FOE et al., 1999). However, the physical decommissioning and removing of a dam can still be a lengthy and diversified process.

Sediment Removal Techniques

Large dams can trap thousands to millions of cubic yards of sediment over time, eliminating the flood control or storage capacity of the dam. Removal or control of sediment behind a dam can represent a large portion of the cost and planning effort of a dam removal project. There are several methods available to project planners and dam owners that target different pollution concerns and budgetary limitations (International Rivers Network, 2003). The options in terms of sediment removal range from complete removal and relocation of all accumulated material from the inundated regions; removing sediment only from the anticipated channel of the river, or allowing the river to erode a new channel through the sediment (Wunderlich et al., 1994).

If the sediment is basically clean and the main concern is turbidity and clogging downstream streambed spawning areas, gradual incremental drawdowns of the reservoir behind the dam allow the sediment to be transported downstream in smaller portions and avoids the release one large, lethal volume of sediment. If contaminated sediment is the main concern, dredging is an option that can be used. While the use of silt curtains can minimize turbidity during dredging, silt curtains do not contain dissolved substances such as metals, which can pose a threat to downstream ecosystems (EMC2, 2001). Another option for contaminated sediments is to stabilize the sediment in place within the stream. This can be accomplished by leaving a portion of the dam in place to hold back an area of sediment that is of concern. The strategic placement of boulders can also contain the sediment from moving downstream.

For more information on issues associated with dam removal, see the Additional Resources section of this document.

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- Welsch, J.D. No date. *Riparian Forest Buffers: Function and Design for Protection and Enhancement of Water Resources*. U.S. Department of Agriculture Forest Service, Northeastern Area State and Private Forestry, Randnor, PA.
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Wyzga, B. 2001. Impact of channelization-induced incision of the Skawa and Wisloka rivers, southern Poland, on the condition of overbank deposition. *Regulated Rivers: Research and Management* 17(1):85-100.

Zimmerman, M.J., and M. S. Dortch. 1989. Modelling water quality of a reregulated stream below a hydropower dam. *Regulated Rivers: Research and Management* 4:235-247.

Additional Resources

The following are additional resources that may be used to obtain supplementary information for topics presented in this document.

Background on Streams, Restoration, and Hydrology

The following are basic references regarding stream ecology, restoration, and hydrology:

Allan, J.D. 1995. *Stream Ecology—Structure and Function of Running Waters*. Chapman and Hall, New York.

Brookes, A. and F.D. Shields, eds. 1999. *River Channel Restoration: Guiding Principles for Sustainable Projects*. John Wiley and Sons, Chichester, U.K.

Cooke, G.D., E.B. Welch, S.A. Peterson, and P.R. Newroth. 1993. *Restoration and Management of Lakes and Reservoirs*. 2nd ed. Lewis Publishers, Boca Raton, FL.

Fischenich, C. 2000. *Glossary of Stream Restoration Terms*.
<http://el.erdc.usace.army.mil/elpubs/pdf/sr01.pdf>. Accessed October 2004.

Gordon, N.D., T.A. McMahon, and B.L. Finlayson. 1992. *Stream Hydrology: An Introduction for Ecologists*. John Wiley and Sons, Chichester, U.K.

Kondolf, G.M. 1995. Five elements for effective evaluation of stream restoration. *Restoration Ecology* 3(2):133-136.

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Poff, N., J.D. Allan, M.B. Bain, J.R. Karr, K.L. Prestegard, B.D. Richter, R.E. Sparks, and J.C. Stromberg. 1997. The natural flow regime: A paradigm for river conservation and restoration. *BioScience* 47:769-784.

Ponce, V.M. 1989. *Engineering Hydrology: Principles and Practices*. Prentice-Hall, Englewood Cliffs, New Jersey.

Rosgen, D.L. 1996. *Applied River Morphology*. Wildland Hydrology, Colorado.

USEPA. 1995. *Ecological Restoration: A Tool to Manage Stream Quality*. EPA 841-F-95-007, U.S. Environmental Protection Agency, Office of Wetlands, Oceans, and Watersheds, Washington, DC. <http://www.epa.gov/owow/nps/Ecology>.

Detailed Information for Practices to Achieve Management Measures

Additional information about practices, their effectiveness, limitations, and cost estimates are available from a number of sources, including:

Allen, H.H. and J.R. Leech. 1997. *Bioengineering for Streambank Erosion Control: Report 1 Guidelines*. U.S. Army Corps of Engineers, Environmental Impact Research Program, Technical Report EL-97-8. <http://el.erdc.usace.army.mil/elpubs/pdf/trel97-8.pdf>.

American Society of Civil Engineers and the U.S. Environmental Protection Agency (ASCE and USEPA). 2007. *International Stormwater Best Management Practices (BMPs) Database*. <http://www.bmpdatabase.org>.

Center for Watershed Protection (CWP). 2007. *The Stormwater Manager's Resource Center*. <http://www.stormwatercenter.net>.

Federal Interagency Stream Restoration Working Group (FISRWG). 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. http://www.nrcs.usda.gov/technical/stream_restoration.

Fischenich, J. C. and H. Allen. 2000. *Stream Management*. ERDC/EL SR-W-00-1, U.S. Army Engineer Research and Development Center, Vicksburg, MS. <http://el.erdc.usace.army.mil/elpubs/pdf/srw00-1/srw00-1.pdf>. Accessed October 2004.

Knutson, P.L., and M.R. Inskeep. 1982. *Shore Erosion Control with Salt Marsh Vegetation*. Coastal Engineering Technical Aid No. 82-3. U.S. Army Corps of Engineers Coastal Engineering Research Center, Vicksburg, MS.

National Association of Home Builders (NAHB). 1995. *Storm Water Runoff & Nonpoint Source Pollution Control Guide for Builders and Developers*. National Association of Home Builders, Washington, DC. <http://www.nahbrc.org>.

Oregon Association of Conservation Districts. 1999. *Protecting Streambanks from Erosion: Tips for Small Acreages in Oregon*. <http://www.or.nrcs.usda.gov/news/factsheets/fs4.pdf>.

Urban Drainage and Flood Control District. 1999. *Urban Storm Drainage Criteria Manual: Volume 3—Best Management Practices*. Urban Drainage and Flood Control District, Denver, CO. <http://www.udfcd.org>.

U.S. Army Corps of Engineers (USACE). 2007. *Engineer Research and Development Center (ERDC) Web site*. <http://www.erdc.usace.army.mil>.

U.S. Department of Agriculture, Forest Service (USDA-FS). 2002. *A Soil Bioengineering Guide for Streambank and Lakeshore Stabilization*. <http://www.fs.fed.us/publications/soil-bio-guide>.

U.S. Environmental Protection Agency (USEPA). 2002. *Development Document for Proposed Effluent Guidelines and Standards for the Construction and Development Category*. EPA-821-R-02-007. <http://www.epa.gov/waterscience/guide/construction/devdoc.htm>.

U.S. Environmental Protection Agency (USEPA). 2007. *National Menu of Stormwater Best Management Practices*. <http://cfpub.epa.gov/npdes/stormwater/menuofbmps/menu.cfm>.

Additional information about hydromodification, soil bioengineering, and restoration is available from the following:

- *Ann Riley, Urban Stream Restoration: A Video Tour of Ecological Restoration Techniques* (<http://www.noltemedia.com/nm/urbanstream>): This video, which can be ordered online, is a documentary tour of six urban stream restoration sites. It provides background information on funding, community involvement, and the history and principles of restoration. The demonstration includes examples of stream restoration in very urbanized areas, re-creating stream shapes and meanders, creek daylighting, soil bioengineering, and ecological flood control projects. Ann Riley, a nationally known hydrologist, stream restoration professional, and executive director of the Waterways Restoration Institute in Berkley, California, leads the tour.
- *California Forest Stewardship Program. Bioengineering to Control Streambank Erosion* (<http://ceres.ca.gov/foreststeward/html/bioengineering.html>): This fact sheet discusses various bioengineering techniques applicable to California streams.
- *Lower American River Corridor River Management Plan* (<http://www.safca.com>): The plan provides information on aquatic habitat management goals, including restoration to improve aquatic habitat impaired by low flows from channel modification of the Lower American River.
- *Natural Resources Conservation Service, Watershed Technology Electronic Catalog* (<http://www.wcc.nrcs.usda.gov/wtec/wtec.html>): This online catalog is a source of technical guidance on a variety of restoration techniques and management practices, to provide direction for watershed managers and restoration practitioners. The site is focused on providing images and conceptual diagrams.
- *North Delta Improvements Project* (<http://ndelta.water.ca.gov/index.html>): The North Delta Improvements Project (NDIP), which is under the California Department of Water Resources, presents unique opportunities for synergy in achieving flood control and ecosystem restoration goals.

- *Ohio Department of Natural Resources. Stream Management Guide Fact Sheets* (http://www.dnr.state.oh.us/water/pubs/fs_st/streamfs.htm): This is a compilation of fact sheets offering technical guidance for streambank and instream practices, general stream management, and stream processes.
- *Sacramento River Riparian Habitat Program* (<http://www.sacramentoriver.ca.gov>): The Sacramento River Riparian Habitat Program is working to ensure that riparian habitat management along the river addresses the dynamics of the riparian ecosystem and the reality of the local agricultural economy.
- Schueler, T. 1987. *Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs*. Metropolitan Washington Council of Governments, Washington, DC.
- *South Delta Improvements Program* (http://baydeltaoffice.water.ca.gov/sdb/sdip/index_sdip.cfm): The purpose of the South Delta Improvements Program (SDIP) is to incrementally maximize diversion capability into Clifton Court Forebay, while providing an adequate water supply for diverters within the South Delta Water Agency and reducing the effects of State Water Project exports on both aquatic resources and direct losses of fish in the South Delta.
- *South Sacramento County Streams Project* (<http://www.spk.usace.army.mil>): South Sacramento County Streams Project provides flood damage reduction to the urban areas of the Morrison Creek and Beach Stone Lake drainage basins in the southern area of Sacramento, as well as around the Sacramento Regional Waste Water Treatment Plant. The project will fund stream restoration in southern Sacramento County.
- *USDA Natural Resources Conservation Service, Stream Visual Assessment Protocol* (<http://www.nrcs.usda.gov/technical/ECS/aquatic/svapfnl.pdf>): This document outlines methods for field conservationists and landowners to evaluate stream ecological conditions.
- *Washington State Department of Transportation, Soil Bioengineering Web site* (<http://www.wsdot.wa.gov/eesc/design/roadside/sb.htm>): This is a comprehensive Web site, with information on cost, specifications for project design, funding, and case studies.
- *WATERSHEDSS: Water, Soil and Hydro-Environmental Decision Support System* (<http://www.water.ncsu.edu/watershedss>): The “Educational Component” of this Web site contains fact sheets with information on a variety of techniques for management practices, including soil bioengineering and structural streambank stabilization.

Resources for Dams

Thornton, K.W., B.L. Kimmel, and F.E. Payne, eds. 1990. *Reservoir Limnology: Ecological Perspectives*. John Wiley and Sons, Inc., New York, NY.

U.S. Army Corps of Engineers. No date. *The WES Handbook on Water Quality Enhancement Techniques for Reservoirs and Tailwaters*. U.S. Army Engineer Research and Development Center Waterways Experiment Station, Vicksburg, MS.

Web sites for dam removal include the following:

- American Rivers' Rivers Unplugged Program:
http://www.americanrivers.org/site/PageServer?pagename=AMR_content_1270
- Association of State Dam Safety Officials: <http://www.damsafety.org>
- Friends of the Earth's River Restoration:
<http://www.foe.org/camps/reg/nw/river/index.html>
- International River Network's River Revival Program: <http://www.irm.org/revival/decom>
- Massachusetts Department of Fisheries, Wildlife, and Environmental Law Enforcement River Restore Program:
<http://www.mass.gov/dfwele/river/programs/riverrestore/riverrestore.htm>
- National Performance of Dams Program Stanford University:
<http://www.stanford.edu/group/strgeo/researchcenters.html>
- New Hampshire Department of Environmental Services:
<http://www.des.state.nh.us/dam.htm>
- Pennsylvania Department of Environmental Protection, Division of Dam Safety, Dam Safety Program:
<http://www.dep.state.pa.us/dep/deputate/watermgt/we/damprogram/Main.htm>
- Pennsylvania Fish & Boat Commission: <http://www.fish.state.pa.us>
- River Recovery—Restoring Rivers through Dam Decommissioning:
<http://www.recovery.bcit.ca/index.html>
- United States Society on Dams: <http://www.ussdams.org>
- Wisconsin Department of Natural Resources:
<http://www.dnr.state.wi.us/org/water/wm/dsfm/dams/removal.html>

Additional information about dam removal is available from the following resources:

- ASCE. 1997. *Guidelines for the Retirement of Hydroelectric Facilities*. American Society of Civil Engineers.
- Bednarek, A.T. 2001. Undamming rivers: A review of the ecological impacts of dam removal. *Environmental Management* 27(6):803-814.
- Bioscience. 2002. Dam removal and river restoration: Linking scientific, socioeconomic, and legal perspectives. Summer (special issue).
- Born, S.M., et al. 1998. Socioeconomic and institutional dimensions of dam removals: The Wisconsin experience. *Environmental Management* 22(3):359-370.

- Hart, D.D. and N.L. Poff. 2002. A special section on dam removal and river restoration. *BioScience* 52:653-655.
- Heinz Center. 2002. *Dam Removal: Science and Decision Making*. Available at: http://www.heinzctr.org/Programs/SOCW/dam_removal.htm.
- International Rivers Network: <http://www.irn.org/pubs/wrr>.
- Niemi, G.J., et al. 1990. Overview of case studies on recovery of aquatic systems from disturbance. *Environmental Management* 14(5):571-587.
- United States Society on Dams Publications: <http://www.ussdams.org/pubs.html>.
- University of Wisconsin-Madison/Extension. 1996. *The Removal of Small Dams: An Institutional Analysis of the Wisconsin Experience*. Extension Report 96-1, May. Department of Urban and Regional Planning.
- Wisconsin Department of Natural Resources Projects:
<http://www.dnr.state.wi.us/org/gmu/sidebar/iem/lowerwis/index.htm#baraboo> or
<http://www.dnr.state.wi.us/org/gmu/lowerwis/baraboo.htm>;
<http://www.dnr.state.wi.us/org/gmu/sidebar/iem/milw/index.htm>;
<http://www.dnr.state.wi.us/org/gmu/sidebar/iem/superior/index.htm>;
<http://www.dnr.state.wi.us/org/gmu/sidebar/iem/sheboygan/index.htm>

Noneroding Roadways

The following sources may be used to obtain additional information on noneroding roadways:

- *Controlling Nonpoint Source Runoff Pollution from Roads, Highways, and Bridges*
<http://www.epa.gov/owow/nps/roads.html>
- *Erosion, Sediment, and Runoff Control for Roads and Highways*
<http://www.epa.gov/owow/nps/education/runoff.html>
- *Gravel Roads: Maintenance and Design Manual*—the purpose of the manual is to provide clear and helpful information for doing a better job of maintaining gravel roads. The manual is designed for the benefit of elected officials, managers, and grader operators who are responsible for designing and maintaining gravel roads.
<http://www.epa.gov/owow/nps/gravelroads>
- *Low-Volume Roads Engineering Best Management Practices Field Guide*
<http://zietlow.com/manual/gk1/web.doc>
- *Massachusetts Unpaved Roads BMP Manual*
http://berkshireplanning.org/4/download/dirt_roads.pdf
- *Planning Considerations for Roads, Highways, and Bridges*
<http://www.epa.gov/owow/nps/education/planroad.html>
- *Pollution Control Programs for Roads, Highways, and Bridges*
<http://www.epa.gov/owow/nps/education/control.html>
- *Recommended Practices Manual: A Guideline for Maintenance and Service of Unpaved Roads* <http://www.epa.gov/owow/nps/unpavedroads.html>
- The “Road Maintenance Video Set” is a five-part video series developed for USDA Forest Service equipment operators that focuses on environmentally sensitive ways of maintaining low volume roads. http://www.epa.gov/owow/nps/maint_videoset.html

Additional Information

Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling. 1999. *Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish*, Second Edition. EPA 841-B-99-002. U.S. Environmental Protection Agency; Office of Water; Washington, D.C. <http://www.epa.gov/owow/monitoring/rbp/> Accessed July 2007.

International Commission on Large Dams
<http://www.icold-cigb.org>

International Rivers Network
<http://www.irn.org>

U.S. Army Corps of Engineers, Engineer Research and Development Center
<http://www.erd.c.usace.army.mil>

U.S. Department of Agriculture, Farm Service Agency
<http://www.fsa.usda.gov/pas>

U.S. Department of Agriculture, Natural Resources Conservation Service
<http://www.nrcs.usda.gov>

U.S. Department of the Interior, Bureau of Reclamation
<http://www.usbr.gov>

U.S. Department of the Interior, National Park Service
<http://www.nps.gov>

U.S. Department of the Interior, U.S. Fish and Wildlife Service
<http://www.fws.gov>

U.S. Department of the Interior, U.S. Geological Survey
<http://www.usgs.gov>

USEPA. 1994. *A State and Local Government Guide to Environmental Program Funding Alternatives*. EPA 841-K-94-001. <http://www.epa.gov/owow/nps/MMGI/funding.html>

USEPA. 1994. *A Tribal Guide to the Section 319(h) Nonpoint Source Grant Program*. EPA 841-S-94-003.

USEPA. 1994. *Section 319 Success Stories: Volume I*. EPA 841-S-94-004.
<http://www.epa.gov/owow/nps/Success319>

USEPA. *Catalog of Federal Funding Sources for Watershed Protection*
<http://cfpub.epa.gov/fedfund>

USEPA. 1997. *Section 319 Success Stories: Volume II—Highlights of State and Tribal Nonpoint Source Programs*. EPA 841-R-97-001.

<http://www.epa.gov/owow/nps/Section319II>

USEPA. 2002. *Section 319 Success Stories: Volume III*.

<http://www.epa.gov/owow/nps/Section319III>

USEPA Clean Lakes Program

<http://www.epa.gov/owow/lakes/cllkspgm.html>

USEPA Environmental Finance Information Network (EFIN)

<http://www.epa.gov/efinpage/efin.htm>

USEPA Nonpoint Source Pollution Control Program Homepage

<http://www.epa.gov/OWOW/NPS>

USEPA Surf Your Watershed

<http://www.epa.gov/surf>

USEPA Watershed Academy

<http://www.epa.gov/owow/watershed/wacademy>

Watershedss, (Water, Soil, and HydroEnvironmental Decision Support System)—North Carolina State University

<http://www.water.ncsu.edu/watershedss>

Appendix A

U.S. Environmental Protection Agency

Contacts

This appendix provides wetlands contacts, nonpoint source regional contacts, and Clean Water State Revolving Fund Contacts.



U.S. Environmental Protection Agency Contacts

EPA is grouped into 10 Regions. For questions about a particular state, contact the appropriate EPA Regional Coordinator listed below.

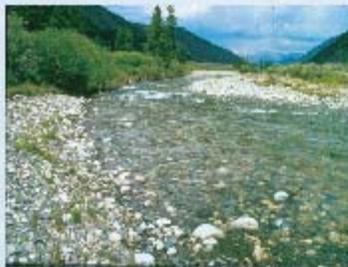
EPA Region	Wetland Contact	Nonpoint Source Regional Coordinators	Clean Water State Revolving Fund Regional Coordinators
Region 1: CT, MA, ME, NH, RI, VT http://www.epa.gov/region01/	U.S. EPA-Region 1 Wetlands Protection Unit One Congress Street Boston, MA 02114-2023 http://www.epa.gov/region01/topics/ecosystems/wetlands.html	U.S. EPA-Region 1 Nonpoint Source Coordinator One Congress Street, Boston, MA 02114-2023 http://www.epa.gov/region01/topics/water/npsources.html	U.S. EPA-Region 1 SRF Program Contact One Congress Street Boston, MA 02114-2023 http://www.epa.gov/ne/cwsrf/index.html
Region 2: NJ, NY, PR, VI http://www.epa.gov/Region2	U.S. EPA-Region 2 Water Programs Branch Wetlands Section 290 Broadway New York, NY 10007-1866 http://www.epa.gov/region02/water/wetlands/	U.S. EPA-Region 2 Water Programs Branch Nonpoint Source Coordinator 290 Broadway New York, NY 10007-1866 http://www.epa.gov/region02/water/npspage.htm	U.S. EPA-Region 2 Water Programs Branch SRF Program Contact 290 Broadway New York, NY 10007-1866 http://www.epa.gov/Region2/water/wpb/staterev.htm
Region 3: DC, DE, MD, PA, VA, WV http://www.epa.gov/region03	U.S. EPA-Region 3 Wetlands Protection Section 1650 Arch Street (3WP12) Philadelphia, PA 19103 http://www.epa.gov/reg3esd1/hydricsoils/index.htm	U.S. EPA-Region 3 Nonpoint Source Coordinator 1650 Arch Street (3WP12) Philadelphia, PA 19103 http://www.epa.gov/reg3wapd/nps/	U.S. EPA-Region 3 Construction Grants Branch SRF Program Contact 1650 Arch Street (3WP12) Philadelphia, PA 19103 http://www.epa.gov/reg3wapd/srf/index.htm
Region 4: AL, FL, GA, KY, MS, NC, SC, TN http://www.epa.gov/region4/	U.S. EPA-Region 4 Wetlands Section 61 Forsyth Street, SW Atlanta, GA 30303 http://www.epa.gov/region4/water/wetlands/	U.S. EPA-Region 4 Nonpoint Source Coordinator 61 Forsyth Street, SW Atlanta, GA 30303 http://www.epa.gov/region4/water/nps/	U.S. EPA-Region 4 Surface Water Permits & Facilities SRF Program Contact 61 Forsyth St. Atlanta GA, 30303 http://www.epa.gov/Region4/water/gtas/grantprograms.html
Region 5: IL, IN, MI, MN, OH, WI http://www.epa.gov/region5/	U.S. EPA-Region 5 Watersheds and Wetlands Water Division (W-15J) 77 West Jackson Blvd. Chicago, IL 60604 http://www.epa.gov/region5/water/wshednps/topic_wetlands.htm	U.S. EPA-Region 5 Nonpoint Source Coordinator Water Division (W-15J) 77 West Jackson Blvd. Chicago, IL 60604 http://www.epa.gov/region5/water/wshednps/topic_nps.htm	U.S. EPA-Region 5 SRF Program Contact Water Division (W-15J) 77 West Jackson Blvd. Chicago, IL 60604 http://www.epa.gov/region5/business/fs-cwsrf.htm

EPA Region	Wetland Contact	Nonpoint Source Regional Coordinators	Clean Water State Revolving Fund Regional Coordinators
Region 6: AR, LA, NM, OK, TX http://www.epa.gov/region6	U.S. EPA-Region 6 Marine and Wetlands Section 1445 Ross Ave., Suite 1200 Dallas, TX 75202 http://www.epa.gov/region6/water/ecopro/index.htm	U.S. EPA-Region 6 Nonpoint Source Coordinator 1445 Ross Ave., Suite 1200 Dallas, TX 75202 http://www.epa.gov/region6/water/ecopro/watershd/nonpoint/	U.S. EPA-Region 6 SRF Program Contact 1445 Ross Ave., Suite 1200 Dallas, TX 75202 http://www.epa.gov/Arkansas/6en/xp/enxp2c4.htm
Region 7: IA, KS, MO, NE http://www.epa.gov/region7	U.S. EPA-Region 7 Wetlands Protection Section (ENRV) 901 N. 5th St. Kansas City, KS 66101 http://www.epa.gov/region7/wetlands/index.htm	U.S. EPA-Region 7 Nonpoint Source Coordinator 901 N. 5th St. Kansas City, KS 66101	U.S. EPA-Region 7 SRF Program Contact 901 N. 5th St. Kansas City, KS 66101 http://www.epa.gov/Region7/water/srf.htm
Region 8: CO, MT, ND, SD, UT, WY http://www.epa.gov/region8	U.S. EPA-Region 8 Wetlands Program 999 18th Street, Suite 500 Denver, CO 80202-2405 http://www.epa.gov/region8/water/wetlands/wetlands.html	U.S. EPA-Region 8 Nonpoint Source Coordinator 999 18th Street, Suite 300 Denver, CO 80202-2405 http://www.epa.gov/region8/water/nps/contacts.html	U.S. EPA-Region 8 SRF Program Contact 999 18th Street, Suite 300 Denver, CO 80202-2405
Region 9: AZ, CA, HI, NV, Pacific Islands http://www.epa.gov/region9/	U.S. EPA-Region 9 Water Division, Wetlands 75 Hawthorne Street San Francisco, CA 94105 http://www.epa.gov/region09/water/wetlands/index.html	U.S. EPA-Region 9 Nonpoint Source Coordinator 75 Hawthorne Street San Francisco, CA 94105 http://www.epa.gov/region09/water/nonpoint/index.html	U.S. EPA-Region 9 Construction Grants Branch SRF Program Contact 75 Hawthorne Street San Francisco, CA 94105 http://www.epa.gov/region9/funding/
Region 10: AK, ID, OR, WA http://www.epa.gov/region10/	U.S. EPA-Region 10 Wetlands Section 1200 Sixth Ave. Seattle, WA 98101 http://yosemite.epa.gov/R10/ECOCOMM.NSF/webpage/Wetlands	U.S. EPA-Region 10 Nonpoint Source Coordinator 1200 Sixth Ave. Seattle, WA 98101	U.S. EPA-Region 10 Ecosystems & Communities SRF Program Contact 1200 Sixth Ave. Seattle, WA 98101 http://yosemite.epa.gov/r10/ecocomm.nsf/webpage/Clean+Water+State+Revolving+Fund+in+Region+10
General Program Information	U.S. EPA Wetlands Division (4502F) Mail Code RC-4100T 1200 Pennsylvania Ave., NW Washington, DC 20460 http://www.epa.gov/owow/wetlands/	U.S. EPA Nonpoint Source Control Branch (4503-T) Ariel Rios Bldg. 1200 Pennsylvania Ave., NW Washington, DC 20460 http://www.epa.gov/owow/nps	U.S. EPA The Clean Water State Revolving Fund Branch (4204M) 1201 Constitution Ave., NW Washington, DC 20004 http://www.epa.gov/owm/cwfinance/cwsrf/index.htm

ATTACHMENT

59

**Managing Runoff to Protect
Natural Streams:
The Latest Developments on
Investigation and Management
of Hydromodification in
California**



Technical Report 475
December 2005



SMC



**Eric D. Stein
Susan Zaleski**

Southern California Coastal Water Research Project

Managing Runoff to Protect Natural Streams: The Latest Developments on Investigation and Management of Hydromodification in California

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Eric D. Stein
Southern California Coastal Water Research Project (SCCWRP)

Susan Zaleski
University of Southern California Sea Grant (USC Sea Grant)

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EXECUTIVE SUMMARY

Stream channel downcutting, widening, and erosion due to increased surface runoff present the most profound and difficult to manage problems resulting from conversion of natural land surfaces to developed areas. Land use changes that reduce the capacity for infiltration and evapotranspiration of rainfall may result in an increase in the magnitude and frequency of erosive flows and changes in the proportion and timing of sediment delivery downstream. These effects, termed *hydromodification*, can adversely impact the physical structure, biologic condition, and water quality of streams.

This document summarizes the presentations and discussions from a workshop convened to provide an overview of key technical and managerial issues associated with hydromodification, with specific focus on California's climatic setting. The goal of this workshop was to identify key conclusions regarding the mechanisms and causes of hydromodification and to provide managers and decision makers with a list of recommended priorities for future work in terms of both technical and managerial products.

Recent studies indicate that California's intermittent and ephemeral streams are more susceptible to the effects of hydromodification than streams from other parts of the United States (US). Physical degradation of stream channels in the central and eastern US can initially be detected when watershed impervious cover approaches 10%, although biological effects (which may be more difficult to detect) may occur at lower levels. In contrast, initial response of streams in the semi-arid portions of California appears to occur between 3% and 5% impervious cover.

Managing the effects of hydromodification requires attention to changes in runoff volume, magnitude of flows, frequency of erosive events, duration of flows, timing of high flows, magnitude and duration of base flows, and patterns of flow variability. Slope, composition of bed and bank materials, underlying geology, watershed position, and connections between streams and adjacent floodplains are also key considerations in the management of hydromodification effects.

A contemporary toolbox for assessing the effects of hydromodification consists of three technical approaches: continuous simulation modeling, physical process modeling using geomorphic metrics, and risk-based modeling. Independently and in a range of combinations, these approaches are instrumental to understanding and predicting channel responses. In conjunction with these approaches, the following research areas are recommended for enhanced understanding and assessment of hydromodification:

- Establishment of appropriate reference conditions for various stream types
- Establishment of linkage between geomorphic changes and biologic effects
- Development and calibration of linked models that provide long-term simulation of hydrologic, and resultant physical changes in channel morphology

Furthermore, ongoing monitoring programs should be established for reference streams, streams subject to effects of hydromodification, and streams where various hydromodification management strategies have been employed.

Hydromodification is best addressed with a suite of strategies including site design, on-site controls, regional controls, in-stream controls, and restoration of degraded stream systems. To improve the effectiveness of hydromodification management, it is important to identify the most appropriate set of strategies based on the type of channel, setting, stage of channel adjustment, and amount of existing and expected impervious cover in drainage catchments. Management of hydromodification could be improved by integrating it into a multi-objective strategy that addresses hydrology, water quality, flood control, and stream ecology. In addition, streams should be surveyed and classified in order to identify areas with the greatest risk of impact from hydromodification. Output from dynamic modeling can be used to develop easy to use management guides, and standard monitoring protocols and performance criteria need to be developed. These management tools should be geared toward application by land-use planners and regulators at the municipal and state levels. Finally, a hydromodification workgroup should be formed to facilitate communication and exchange of ideas and information on technical and management strategies relevant to hydromodification.

ACKNOWLEDGEMENTS

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Workshop Presenters and Panelists

Mark Abramson
Heal the Bay

Tony Donigian
AQUA TERRA Consultants

Aaron Allen
United States Army Corps of Engineers

Rebecca Drayse
TreePeople

Jill Bicknell
*EOA, Inc. (for Santa Clara Valley Urban
Runoff Pollution Prevention Program)*

Jeff Haltiner
Philip Williams and Associates

Jon Bishop
*Los Angeles Regional Water Quality
Control Board*

Larry Kolb
*San Francisco Bay Regional Water Quality
Control Board*

Brian Bledsoe
Colorado State University

Shelley Luce
Santa Monica Bay Restoration Commission

Derek Booth
University of Washington

Craig MacCrae
Aquafor Beech

Dan Cloak
*Dan Cloak Consulting
(for Contra Costa County)*

Gary Palhegyi
GeoSyntec Consultants

Susan Cloke
*Los Angeles Regional Water Quality
Control Board*

Marolyn Parson
National Association of Homebuilders

Laura Coley-Eisenberg
Rancho Mission Viejo

Jeff Pratt
Ventura County Watershed Protection District

Rene DeShazo
*Los Angeles Regional Water Quality
Control Board*

John Robertus
*San Diego Regional Water Quality
Control Board*

Mark Subbotin
Newhall Land and Farming Company

Jason Uhley
*Riverside County Flood Control and Water
Conservation District*

Xavier Swamikannu
*Los Angeles Regional Water Quality
Control Board*

Organizing Committee

Eric Stein – Chair
*Southern California Coastal Water
Research Project*

Gary Palhegyi
GeoSyntec Consultants

Chris Crompton
*Orange County Resources and Development
Management Department*

Xavier Swamikannu
*Los Angeles Regional Water Quality
Control Board*

Bill DePoto
*Los Angeles County Department of
Public Works*

Matt Yeager
*San Bernardino County Flood
Control District*

Mike McCann
*San Diego Regional Water Quality
Control Board*

Susan Zaleski
*University of Southern California
Sea Grant*

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WORKSHOP OVERVIEW

The process of urbanization has the potential to affect stream courses by altering watershed hydrology. Development and redevelopment can increase impervious surfaces on formerly undeveloped (or less developed) landscapes and reduce the capacity of remaining pervious surfaces to capture and infiltrate rainfall. In addition, in semi-arid regions, development is usually accompanied by significant supplemental landscape irrigation that maintains high soil moisture conditions. Development practices also tend to reduce or eliminate native vegetation, thus reducing evapotranspiration of rainfall. Consequently, as watersheds develop, a larger percentage of rainfall becomes runoff during any given storm; runoff reaches stream channels much more rapidly, resulting in peak discharge rates that are higher than those for an equivalent rainfall prior to development. These changes to the runoff hydrograph have been termed *hydromodification*.

Hydromodification can result in adverse effects to stream habitat and water supply, and stream erosion associated with hydromodification often threatens infrastructure, homes, and businesses. In response to these effects, state and local agencies have developed, or are developing, standards and management approaches to control and/or mitigate the effects of hydromodification on natural and semi-natural stream courses.

On October 2 and 3, 2005, 26 speakers and 175 participants gathered in Ontario, California to discuss the results of recent research inside and outside of California. This technical workshop was convened to provide an overview of the key technical and managerial issues associated with hydromodification, with specific focus on California's climatic setting. The specific objectives of the workshop were:

- Exchange of information on technical and managerial approaches to hydromodification
- Identification of common conclusions regarding a general understanding of hydromodification
- Recommendation of priority needs for future work relevant to technical and managerial products in response to hydromodification issues

The workshop consisted of two evening and one all-day session. The first night, a small group of scientists and managers gathered to discuss key knowledge gaps and technical information needs. The day session was open to all attendees, who interacted with a slate of speakers summarizing technical, regulatory, and management approaches to responding to the effects of hydromodification. The workshop concluded with an evening session in which a small group discussed priority needs for future research and management tool development. The agenda for the workshop is provided in Appendix A.

This document summarizes key conclusions resulting from the presentations and discussions that occurred during the workshop. The document also provides managers and decision makers with a list of recommend priorities for future work in terms of both technical and managerial products related to hydromodification response.

INTRODUCTION TO HYDROMODIFICATION

Hydromodification is defined by the Environmental Protection Agency (EPA) as the “alteration of flow characteristics through a landscape which has the capacity to result in degradation of water resources” (<http://www.epa.gov/owm/mtb/cwns/1996rtc/glossary.htm>). Most often, hydromodification results from changes in land use practices or direct management of surface runoff. Consequences of hydromodification can include stream channel incision, aggradation, desiccation, and/or inundation.

Land use practices over the past several hundred years have resulted in hydromodification of western landscapes ([Haltiner et al. 1996](#), [Leopold 1968](#)). Historically, many small streams were not connected to main river channels, but rather existed as shallow swales and wetland systems connected to larger rivers via subsurface flow. Surface hydrologic connections occurred intermittently following periodic large storm events. Increased surface runoff and channel disturbance, beginning during the cattle-grazing era circa 1700 – 1900, resulted in many of these systems becoming permanently channelized ([Cooke and Reeves 1976](#)). Channel modification through either direct alteration, or as a consequence of changes in patterns of surface runoff, e.g. through increases in impervious cover, continues today.

Hydromodification has typically resulted in channel incision and bank erosion in the upper and middle portions of the watershed, and in deposition, aggradation, and increased channel meandering in the downstream, flatter portions of the watershed. Often, as the main channel has incised, the lowered base level results in the formation of “knickpoints” (abrupt drops in the channel floor) that migrate upstream into the headwater areas. Often, these migrating “knickpoints” result in severe gully formation in lower order streams, i.e. first- through third-order streams, based on the Strahler stream ordering system. These smaller headwater streams are important from a watershed perspective because much of the sediment generation, carbon export, and initial nutrient processing occur in the upper watershed ([Rheinhardt et al. 1999](#)). The vast majority of stream miles in any given watershed exist as small headwater streams ([Beschta and Platts 1986](#)); consequently, impacts to these streams can result in profound cumulative effects to sediment and water movement patterns throughout the watershed. In many areas, the majority of remaining semi-intact streams is in the upper portions of watersheds. Notably, these areas are the most susceptible to land use change and associated effects of hydromodification. When development occurs in headwater areas rather than lower in the watershed, it tends to result in larger increases in peak discharge due to cumulative decreases in the time of concentration of rainfall to runoff ([Beighley and Moglen, 2002](#)).

Small, frequent runoff events, i.e. two-year frequency storms and smaller, demonstrate the most dramatic effects due to increased imperviousness, effects of supplemental irrigation, or other changes in land use practices ([Beighley et al. 2003](#), [Donigian and Love 2005](#), [Hollis 1975](#)). These small events account for the majority of long-term movement of sediment and consequently are the most deterministic of the geomorphic stability of the stream channels ([Wolman and Miller 1960](#)). However, small increases in basin impervious cover can also result in dramatic increases in runoff during 0.5-5 year flow events. For example, an increase of a few percent in impervious cover can increase the magnitude of a 1- or 2-year flood event by 20-fold ([Hollis 1975](#), [Urbonas and Roesner 1992](#)).

Studies from parts of the country with climates more humid than California’s indicate that physical degradation of stream channels can initially be detected when watershed impervious cover approaches 10%, although biological effects, which may be more difficult to detect, may

occur at lower levels (CWP 2003). Recent studies from both northern and southern California indicate that intermittent and ephemeral streams in California are more susceptible to the effects of hydromodification than streams from other regions of the US, with stream degradation being recognized when catchment's impervious cover is as little as 3-5%¹ (Coleman et al. 2005). Furthermore, supplemental landscape irrigation in semi-arid regions, like California, can substantially increase the frequency of erosive flows (AQUA TERRA Consultants 2004). However, because all streams are constantly undergoing change and adjustment, effects of impervious cover should be investigated in terms of changes in the rate of channel response in addition to the absolute magnitude of response.

Managing the effects of hydromodification requires attention to more than just the peak runoff. The work (or energy) that affects physical and biological channel structure results from movement of water and sediment controlled by runoff volume, flow magnitude and duration, frequency of erosive events, timing of high flows, and magnitude and duration of base flows (Konrad and Booth 2005, Montgomery and MacDonald 2002, Paul and Meyer 2001, Roesner and Bledsoe 2003). Changes in patterns of flow variability and increases in the frequency of high flows have been shown to have measurable effects on the community composition of stream biota (Konrad and Booth 2005). Because streams are coupled hydrologic, geomorphic, biologic systems, it is important to understand the various effects of all changes in surface runoff patterns and to develop appropriate management strategies for each potential effect.

As channels incise, they often go through a series of adjustment stages from initial downcutting, to widening, to establishing new floodplains at lower elevations (Figure 1). This process can occur over years or decades depending on the type of channel and flow regime. Sand-dominated channels may pass through the full sequence of stages in a few decades, whereas channels in more resistant materials, such as clay, may take much longer, in some cases 50–100 years (Roesner and Bledsoe 2003). Therefore, it is important to understand a channel's stage of adjustment, and target management strategies to account for current and expected future evolution of the channel form.

¹ Most studies evaluate the response of stream channels to “total impervious cover”. However, a more appropriate assessment would be based on “effective impervious cover”, i.e., the amount of impervious cover that is hydrologically connected to the stream channel. Assessment based on effective impervious cover is more likely to result in observed channel response at lower levels of imperviousness.

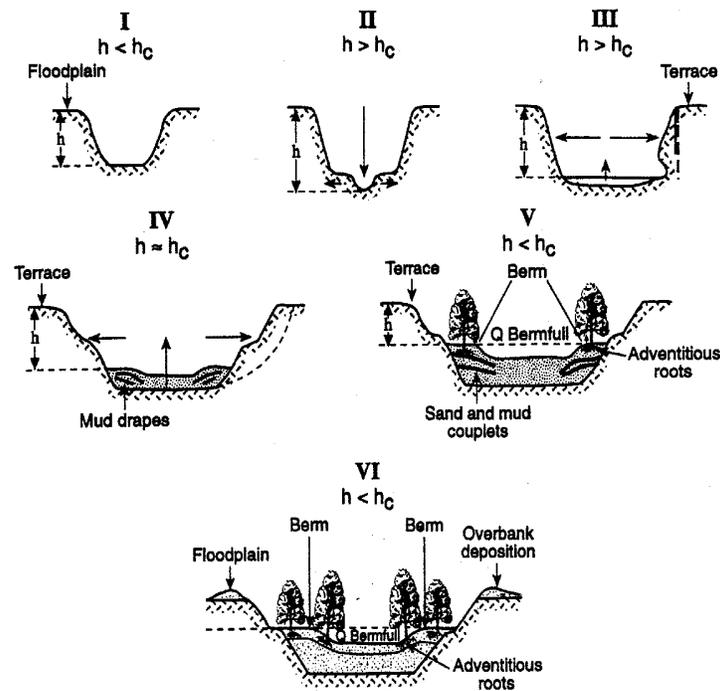


Figure 1: Stages of sand-bed channel adjustment (Schumm et al. 1984).

The pattern and rate of channel response to hydromodification will vary based on channel type and recent disturbance history (Montgomery and MacDonald 2002). Underlying geology, composition of bed and bank materials, slope, watershed position, and floodplain connectivity all affect channel response. Several stream classification systems have been developed over the years, including Shumm (1963), Montgomery and Buffington (1993), Rosgen (1994), and Church (2002). Most of these systems classify streams based on their sensitivity to change and therefore can be used to help assess, prioritize, and customize hydromodification management approaches. For example, Montgomery and Buffington (1993) define the following five channel types, listed from most to least resilient:

- Cascade
- Step pool
- Plane bed
- Pool riffle
- Dune ripple

Classification systems provide a useful starting point for evaluation of channel response to hydromodification; however, the classification systems above were developed in regions more humid and/or mountainous than those typical to California. Given differences in substrate and the extreme range of flows typically observed in arid regions, it is important to develop and regionally calibrate a classification system for dryland channels. Furthermore, the assessment of channel condition and the development of management strategies must be interpreted in terms of both spatial context (i.e. valley slope and position within the watershed) and temporal context (i.e. disturbance history) of the stream (Montgomery and MacDonald 2002). For example,

channel incision may be most dramatic in the middle portions of the watershed; however, these reaches may have stabilized, while the most active erosion and sediment production is occurring in smaller headwater channels. For these reasons, simplistic classification and assessment schemes based on channel appearance must be supported by in-depth geomorphic assessment, historical studies, and thorough understanding of physical and hydrologic processes.

Ultimately, some management strategies may vary based on the channel type, as well as the degree of current and anticipated hydromodification, while others may be more uniformly applied. For example, controlling the magnitude and duration of runoff may be an effective strategy for all stream types, while bioengineered streambank stabilization may only be effective for specific stream types under specific circumstances.

TECHNICAL APPROACHES TO ASSESSING HYDROMODIFICATION

The contemporary toolbox for assessing the effects of hydromodification consists of several technical approaches that may be combined in various ways. Continuous simulation hydrologic models can be used to assess elements in rainfall-runoff cycles and to describe conditions of flow in stream channels. These approaches can be used to assess the way changes in land cover may affect stream flow and to develop management strategies aimed at preventing or reducing such effects. A second, more involved approach, physical process modeling uses hydrologic models to predict changes in stream flow and to predict how these changes may affect the physical structure of the channel itself. This approach may couple hydraulic and sediment transport models, and/or incorporate geomorphic metrics to predict whether or not a channel will remain stable when subjected to the effects of hydromodification. Finally, risk-based assessments are used to account for the uncertainty associated with long-term cumulative effects of altered hydrology on stream channel flow, sediment transport, and stream geomorphology.

Continuous Simulation Modeling

Continuous simulation modeling provides a powerful tool for investigating the way rainfall-runoff patterns change over time with respect to normal climatic cycles and changes in land use practices. Hydrologic models integrate land use, precipitation, soils, topography, and other physical factors to simulate resultant runoff patterns. These models can be used to evaluate the way changes in the extent and distribution of impervious cover may affect flow magnitude, timing, frequency, and duration. In addition, continuous simulation models can be used to assess changes in the shear stress of channel beds and banks over time. Predicted shear stress (τ_{actual}) values can be compared to critical shear stress (τ_{critical}) values associated with the onset of erosion in order to predict conditions that may result in initiation of scour. Recent studies in Ventura County have successfully used $\tau_{\text{actual}}/\tau_{\text{critical}}$ values between 1.2 - 1.5 as a threshold for initiation of channel scour along with an assessment of the frequency of occurrence of these erosive flow events (AQUA TERRA Consultants 2004). When using hydrologic models it is important to simulate runoff and erosion patterns over periods of at least 20-30 years. Short-term or single-event modeling is not sufficient to capture the continuous erosion and aggradation processes that occur during large and small storm events over extended periods of time.

Physical Process Modeling/Geomorphic Metrics

Physical process modeling aims to establish relationships between impervious cover, runoff patterns, and channel response based on field observations of changes in channel form over time. These field observations are used to derive mathematical relationships that can be used to predict channel response to changes in land use practices. Erosion Potential (E_p) is a geomorphic metric that has been used in several recent studies relevant to the effects of increased runoff associated with increases in impervious cover. The E_p represents the ratio of pre- and post-development erosive forces for a given stream type, expressed as:

$$E_p = \frac{W_{\text{post}}}{W_{\text{pre}}}$$

Where: W_{post} = Cumulative erosive energy or work after development
 W_{pre} = Cumulative erosive energy or work before development

Where: Erosive energy is defined as the energy that is above the threshold of erosion for the stream boundary materials, also referred to as excess specific stream power

Values for E_p are derived for both the channel bed and bank, and the boundary that is more susceptible to erosion is used as the basis of setting response thresholds. The E_p of a stream channel should be evaluated based on long-term simulations (e.g. 50 yrs) or based on empirical data collected over extended periods of time. Geomorphic metrics can be used to project changes in channel cross-section area over time in response to increases in impervious cover, as shown in Figure 2, which describes the expected effect of increases in total impervious cover (TIMP) on channel cross-sectional area. Channel response thresholds can be inferred according to inflection points on the curve. In this plot, the upper curve is derived from southern California data; the lower curve is derived from data observed in other parts of the US. Expected threshold of response for southern California streams is approximately 4% (Coleman et al. 2005).

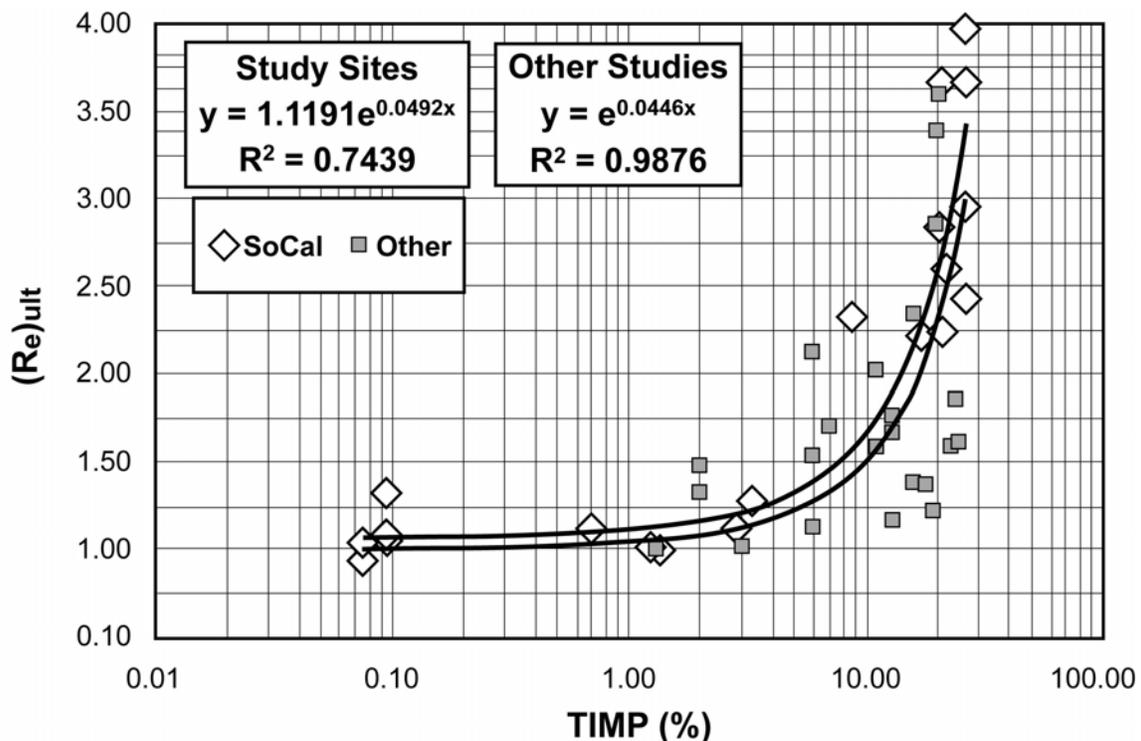


Figure 2: Enlargement curve showing expected effect of increases in total impervious cover (TIMP) on channel cross-sectional area. (Re) is the ratio of ultimate channel cross-sectional area to current cross sectional area. Upper curve is derived from data from southern California, lower curve is derived from data from other parts of the US. Expected threshold of response for southern California streams is approximately 4% (from Coleman et al. 2005 and C. MacRae).

It is important to note that curves such as those shown in Figure 2 assume a consistent hydrologic response to increased impervious cover. Long-term hydrologic simulations should be coupled with physical process models to fully explore these relationships and help validate the curves. Furthermore, different channel types respond differently to changes in runoff. Therefore, an enlargement curve, such as the one shown in Figure 2 for a single channel type, should be developed for each major channel type in a region in order to help focus the timing and location of strategic runoff management measures.

Risk-based Modeling

Unlike physical process modeling, which aims to establish response thresholds, risk-based modeling estimates the probability of channel response to increases in erosion potential associated with anticipated changes in runoff as a result of increases in impervious cover. Managers can then determine acceptable risk levels. Typically, risk-based modeling uses the output of continuous simulation or physical process models to generate time-series data relevant to flow and sediment transport. Often this type of modeling includes linear and logistic regressions, in addition to probability networks. These data are then used to estimate the risk of channel response with respect to anticipated changes in runoff volume and sediment. Figure 3 provides an example of the way logistic regression analysis can be used to estimate the likelihood of channel instability based on progressive degrees of erosion potential.

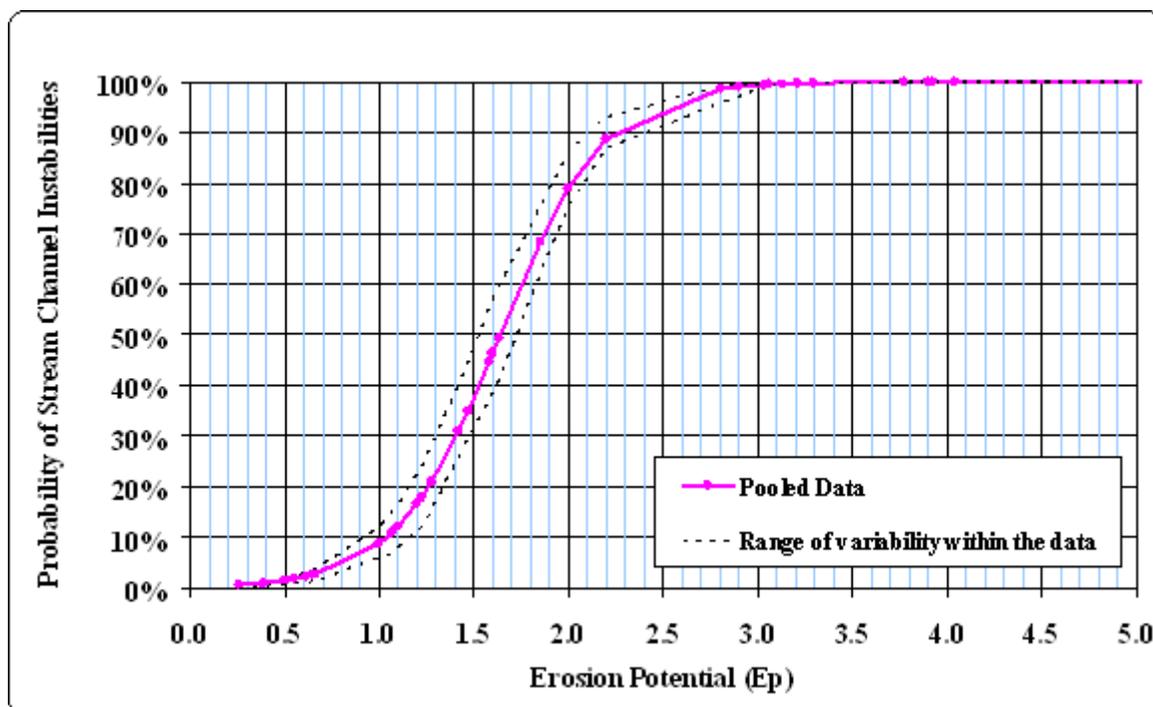


Figure 3: Logistic regression analysis showing the probability of various channel erosion potentials (from B. Bledsoe).

For studies conducted in the San Francisco Bay Area, an E_p value of 1.2 was proposed as an acceptable threshold based on a 15% probability of channel instability². This was typically associated with approximately 3 - 6% impervious cover for channels in sand substrates and 10-12% for channels in clay substrates.

² The negotiated E_p value of 1.0 was adopted for the final Hydromodification Management Plan for Santa Clara Valley and included in a permit amendment for agencies in that area.

PRIORITY TECHNICAL NEEDS AND INFORMATION GAPS

Workshop participants identified five priority areas for additional research and data collection:

- Regional reference conditions for various stream channel types
- Links between geomorphic change and biologic effects
- Dynamic simulation models calibrated for local conditions
- Potential consequences of increased storm water infiltration from urbanized areas
- Ongoing monitoring programs to assess hydromodification impacts and to develop effective management strategies

Regional reference conditions for various stream channel types need to be established

Because most areas in the western US have been subjected to historic grazing or logging, many channels in this region have undergone some degree of change over time. Furthermore, the dynamic nature of this region's fluvial systems means that these streams are constantly undergoing some degree of change. Understanding the historic conditions of stream channels can provide valuable insight; however, historic conditions may not be the most appropriate "reference" in light of current constraints. Rather, reference should be considered a condition where stream channels are in a state of dynamic equilibrium under contemporary natural watershed processes. Once a regional reference condition is defined, data on flow, sediment movement, and geomorphology should be collected on an ongoing basis from representative reference stream reaches. These data will facilitate modeling that more effectively differentiates natural cycles from human-induced changes, especially during long wet or dry cycles where changes may be dramatic but infrequent.

Links between geomorphic change and biologic effects need to be more clearly defined

Hydromodification can cause a variety of physical changes to streams. However, hydrologic changes that are most relevant to biologic communities have not been well defined. For example, it is unclear how changes in base flow duration; peak flow magnitude, duration, and timing; or flow variability affect the structure and function of stream communities. Ultimately, there is a need to develop biologic indices to assess the effects of hydromodification and more effectively direct management strategies.

Dynamic simulation models need to be developed and calibrated for local conditions

Although continuous hydrologic simulation and physical process models have been developed for California streams, these models have not been routinely linked to the assessment of stream channel response to various forms of hydromodification. Hydrologic, physical process, and risk-based models are much more effective when used in combination and appropriately calibrated and validated for California streams. The resultant tool(s) can greatly improve assessments that predict the likelihood of stream channel response to anticipated changes in hydrology associated with changes in land use patterns. Model output may also be useful in the development of objective criteria for establishing land use practices that minimize

hydromodification effects, designing tools for best management practices (BMP) design, and evaluating the performance of management measures.

Potential consequences of increased storm water infiltration from urbanized areas need to be investigated

Infiltration of substantial volumes of storm water runoff from developed land surfaces may introduce unacceptable levels of contaminants into groundwater and/or shallow aquifers. The risk of groundwater contamination and the fate of pollutants introduced into subsurface waters need to be investigated by increased monitoring, development of coupled surface water-groundwater models, and implementation of demonstration projects.

Ongoing monitoring programs to assess hydromodification impacts and develop effective management strategies need to be designed and implemented

First, more extensive flow monitoring needs to be instituted to compensate for the difficulty of calibrating hydrologic models for un-gauged headwater streams. Second, regular geomorphic data needs to be collected from reference streams as well as streams subject to the effects of hydromodification. Routine measurement of channel cross-sections and substrate will greatly improve understanding of channel adjustment processes and allow better discrimination between natural and anthropogenic changes. Third, streams subject to various hydromodification management strategies need to be monitored and documented to support adaptive management and education on emerging techniques and strategies.

REGULATORY AND MANAGEMENT STRATEGIES

Regulatory Approaches to Address Potential Effects of Hydromodification

A variety of regulatory programs and tools exist to help in the regulation of hydromodification effects, including:

- Clean Water Act Section 401 certifications
- Total Maximum Daily Loads (TMDLs)
- Municipal storm water (MS4) permits under Section 402 of the Clean Water Act, and the associated Standard Urban Storm Water Mitigation Program (SUSMP) requirements
- Watershed Urban Runoff Management Plans (WURMPs) and the Watershed Management Initiative (WMI) which encourage municipalities to work cooperatively to manage issues such as hydromodification

In addition, California Environmental Quality Act/National Environmental Policy Act (CEQA/NEPA) processes can be used to better address hydromodification issues, especially with regard to cumulative effects.

Looking to the future, Regional Water Boards in California are considering development of numeric criteria and objectives for new development and redevelopment projects to offset and/or mitigate hydromodification effects. These objectives may involve requirements for managing flow and/or reducing effective impervious cover as well as strategies to maximize infiltration and reuse of storm water. Some Regional Boards are also considering ways to better coordinate with other regulatory agencies that have authority over hydromodification and stream alteration. Similarly, some State and Regional Water Boards are evaluating their existing regulatory authority over hydromodification and considering ways to strengthen their authority, particularly under section 401 of the Clean Water Act, or as part of Basin Plans.

Management Approaches to Address the Effects of Hydromodification

Hydromodification is best addressed by using a suite of strategies, including site-design, restoration of degraded stream systems, as well as in-stream, on-site control, and regional controls. Managers need to identify the most appropriate set of strategies based on channel type and setting, channel adjustment stage, and amount of existing and anticipated impervious cover in the drainage catchment. However, attempting to have the post-development condition match pre-development runoff magnitude and duration should be an initial consideration for all circumstances.

Management strategies should address not only changes in peak flows but also changes in flow duration and sediment yield. Research to support development of several recent Hydromodification Management Plans indicates that post-project BMPs should ensure no change in runoff volume and cumulative duration of all flows greater than the critical flow for bed or bank mobility. Case studies of three Hydromodification Management Plans/Strategies are provided in Appendix B.

Over the long term, land-use planning, runoff management, as well as channel and floodplain restoration, should be the cornerstones of any hydromodification management strategy. The planning cycle for new development or re-development projects should begin with

hydromodification management assessment as part of the preparation of General and Specific Plans, master drainage plans, and zoning designations. Hydromodification effects must be managed with respect to long-term cycles; therefore, strategies should be adaptive. As conditions change and stream channels evolve, the management approaches must be adjusted. However, it is important to recognize that because changes to watershed hydrology are continual; it is unlikely that any management strategy will be able to achieve full hydrologic mitigation. Over the long term, some lasting physical and biological effects should be expected. Management goals should realistically reflect these anticipated changes.

The Center for Watershed Protection, the National Association of Homebuilders, the Water Environment Research Foundation, the Bay Area Stormwater Management Agencies Association, and others have developed resources that land managers can use to guide improved site design. A list of some of these resources is provided in Appendix C.

PRIORITY MANAGEMENT NEEDS

In response to rapidly developing technical tools, regulations, and management goals, workshop participants identified the following management and information priorities:

1. Establish mapping and classification of streams based on their susceptibility to hydromodification effects. Susceptibility should be evaluated with respect to both stream properties, potential for future increases in impervious cover, and concomitant changes in land use practices, such as supplemental irrigation. Such a system would help managers prioritize streams requiring protection and hydromodification management.
2. Model stream systems in ways that are useful for regulators to make decisions. Once models are validated with local data, output should be:
 - Readily understandable and usable by planners and managers
 - Easily interpreted by regulators for development of consistent requirements and evaluation criteria for the specific region
 - Readily used to develop standardized flow control sizing and design tools for BMPs, where applicable
3. Develop a series of management tools that can be easily used to make recommendations or set requirements relative to hydromodification for new development and re-development projects. These tools would utilize the results of monitoring, modeling, and assessment completed under previous projects to develop a series of plots, nomographs, checklists, or similar managerial tools. It is envisioned that ideally, tools should be developed for three different levels of analysis:
 - Screening tools – Checklists or similar tools that allow planners and managers to evaluate whether or not a project is likely to involve substantial hydromodification issues.
 - Effects tools – For projects that are considered likely to have hydromodification effects based on the results of the screening tool, this tool would serve as a nomograph or series of plots used to evaluate the expected magnitude or intensity of effects associated with a particular project. This tool could also be used to identify projects that should be subjected to subsequent in-depth analysis.
 - Mitigation tools – Once the expected magnitude of effects are determined, this tool would be used to guide recommended mitigation and management measures. This tool could be a series of fact sheets, design criteria, and sizing standards to be used to aid in the development of standards or mitigation requirements.
4. Construct metrics and monitoring protocols to measure the effects of hydromodification on biological communities including riparian habitat.
5. Determine standard monitoring protocols for hydromodification effects and facilitate regional information sharing on project performance.
6. Evaluate the relative costs and benefits of hydromodification management at the site level (e.g. low impact development), and at the regional level (e.g. large retention and infiltration facilities). The economic costs of hydromodification have not been well documented, nor have the economic benefits of managing the physical and biological

effects of hydromodification. Information is also needed on the cost to maintain and manage hydromodification BMPs.

7. Establish recommended short-term measures for use while longer-term solutions, such as low-impact development and alternative site design are evolving.

In addition to management and information priorities, several institutional barriers were identified that may hinder effective management of hydromodification effects. Steps to overcome such barriers include:

- A. Hydromodification management needs to be part of an integrated multi-objective management strategy. Stream planning and management should integrate hydromodification, water quality, flood control, and habitat management strategies as a whole rather than addressing each issue in isolation. Increased coordination between agencies, departments, and stakeholders should be strongly supported. Specifically, agencies that have authority over hydromodification and stream alteration should work toward coordinating regulatory approaches to achieve greater consistency.
- B. Local ordinances need to be revised to facilitate integrating water quality and water quantity management into project design. These ordinances should be flexible enough to allow for variances from standard design requirements, such as curb and gutter and street width parameters, to help reduce impervious cover and increase infiltration.
- C. Hydromodification needs to be addressed in both General and Specific Plans in terms of the location and design of new development. Site-by-site or project-specific approaches tend to be less effective and more costly to implement.
- D. Better linkage between theory and practice need to be established through case studies, academic research, demonstration projects, and long-term BMPs monitoring.
- E. Management of hydromodification needs to be incorporated into regional resource planning efforts, such as the Corps of Engineers Special Area Management Plans (SAMPs) or US Fish and Wildlife Service's Multi-species Habitat Conservation Plans. These regional planning efforts may be effective tools to address cumulative effects of hydromodification at the watershed scale.
- F. A more effective public communication and education strategy needs to be developed. Property owners, local businesses, and community groups need to be better educated about the causes and effects of hydromodification in the context of the watersheds where they live and work. Simple definitions of streams and watersheds should be provided as part of the education strategy. Hydromodification effects need to be linked to health, aesthetic, recreational, and economic endpoints. Citizens should be made aware of simple actions, such as redirecting downspouts, using xeriscaping, and installing planter boxes, that help reduce hydromodification effects.
- G. An ongoing working group should be established to coordinate research, monitoring, technology transfer, education, and management approach evaluation that includes all stakeholder groups.

CONCLUSIONS AND RECOMMENDATIONS

Presentations and discussions during the two-day hydromodification workshop resulted in the following key conclusions and recommendations:

Conclusions

- Physical degradation of stream channels in semi-arid climates of California may be detectable when basin impervious cover is between 3% and 5%. However, biological effects are probably occurring at lower levels.
- Frequent, 0.5-5 years, small runoff events, are most affected by hydromodification.
- Not all streams will respond in the same manner. Certain management strategies need to account for differences in stream type, stage of channel adjustment, current and expected amount of basin impervious cover, and existing or planned BMPs.
- Management strategies should address effects on flow magnitude, duration, and volume.
- Assessment of potential effects and suitability of possible management approaches must account for decadal scale climatic cycles and associated stream channel response.
- Improved site design is likely to be the most effective hydromodification management strategy and should be incorporated at the planning stage of a project.
- It is unlikely that all the effects of hydromodification can be fully mitigated. Changes in impervious cover will result in some changes to the flow patterns and ecology of the affected stream. Realistic management goals should be established to acknowledge long-term effects of increased impervious cover.

Recommendations

- Integrate management of hydromodification into a multi-objective strategy that addresses hydrology, water quality, flood control, stream ecology, and overall watershed and land use planning.
- Institute interim management measures until runoff management becomes a more standard and accepted element of site design, for example, low impact development principles become commonly accepted and implemented in all site designs.
- Establish and implement a stream channel classification system based on expected vulnerability of different streams to hydromodification-induced change.
- Establish appropriate regional reference conditions should for each stream type based on the established classification system.
- Develop and calibrate dynamic simulation models for local streams. Models that combine continuous hydrologic simulations, physical process models, and risk-based modeling will be the most effective.
- Establish ongoing regional hydromodification monitoring programs. These programs should collect flow and geomorphic data from reference streams, unmitigated streams impacted by hydromodification, and streams subject to hydromodification management measures. Helping to separate natural variability from urban-induced changes in stream condition should be a primary goal of such ongoing monitoring programs.
- Develop indices to assess the biological effects of hydromodification.

- Develop protocols for measuring the economic costs and benefits of hydromodification management. Assemble case studies that document these economic costs and benefits.
- Initiate a hydromodification workgroup to facilitate exchange of ideas and information on technical and managerial approaches.
- Increase public education about what can be done at homes, businesses, and in the community to address hydromodification effects.

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APPENDIX A – WORKSHOP AGENDA

HYDROMODIFICATION WORKSHOP AGENDA – October 2-3, 2005

SUNDAY EVENING, INVITED SESSION

- 5:00- 5:15 **Welcome and Introductions** – Eric Stein (Chair), *Southern California Coastal Water Research Project*
- 5:15 – 5:30 **Regulatory Perspective** – John Robertus, *San Diego Regional Water Quality Control Board*
- 5:30 – 6:30 **Status of Science on Evaluating/Studying Hydromodification** (panel discussion)
- Jeff Haltiner, *Philip Williams and Associates*
 - Gary Palhegyi, *Geosytec Consultants*
 - Craig MacCrae, *Aquafor Beech*
 - Brian Bledsoe, *Colorado State University*
 - Derek Booth, *University of Washington*
- 7:30 – 8:30 **Dinner and Open Discussion of Data Gaps and Areas for Future Research**

MONDAY, OPEN SESSION

- 8:30 – 8:40 **Welcome and Opening Remarks** – Chris Crompton (Chair), *SMC*
- 8:40 – 9:15 **Introduction to Hydromodification** – Jeff Haltiner, *Philip Williams and Associates*
- 9:15 – 10:15 **Why is Hydromodification Such a Big Deal?** (mini-panel discussion)
- Policy Perspective – Susan Cloke, *Los Angeles Regional Water Quality Control Board*
 - Regulatory Perspective – John Robertus, *San Diego Regional Water Quality Control Board*
 - Homebuilders Perspective – Marolyn Parson, *National Association of Home Builders*
 - Natural Resource Perspective – Shelley Luce, *Santa Monica Bay Restoration Commission*
- 10:15 – 10:30 **Break** ~
- 10:30 – 12:30 **Hydromodification Research and Studies**
- Risk-Based Channel Stability Analysis for Urbanizing Watersheds – Brian Bledsoe, *Colorado State University*
 - Changes in Streamflow Patterns from Urbanization: A Humid-Region Perspective – Derek Booth, *University of Washington*
 - Modeling Urbanization Impacts and Channel Stability in Ventura County – Tony Donigian, *AQUA TERRA Consultants*
 - Southern California Peak Flow study results and conclusions – Craig MacRae, *Aquafor Beech*
 - Santa Clara Valley HMP Studies- Gary Palhegyi, *GeoSyntec Consultants*

12:30 – 1:30 **Lunch** ~

1:30 – 2:15 **Regulatory Response to Hydromodification**

- Northern California Perspectives – Larry Kolb, *San Francisco Bay Regional Water Quality Control Board*
- Southern California Perspectives – Xavier Swamikannu, *Los Angeles Regional Water Quality Control Board*

2:15 – 3:30 **Implementation of Hydromodification Management Practices**

- Contra Costa County – Dan Cloak, *Dan Cloak Consulting (for Contra Costa County)*
- Santa Clara Valley – Jill Bicknell, *Santa Clara Valley Urban Runoff Program*
- Newhall Land and Farming– Mark Subbotin, *Newhall Land and Farming Company*
- Control of Hydromodification Through Land Planning – Laura Coley-Eisenberg, *Rancho Mission Viejo*

3:30 – 4:30 **Panel Discussion on Implementation Issues** – Facilitated by Matt Yeager, *San Bernardino County Flood Control District*

- Rene DeShazo, *Los Angeles Regional Water Quality Control Board*
- Mark Abramson, *Heal the Bay*
- Marolyn Parson, *National Association of Home Builders*
- Jeff Haltiner, *Philip Williams and Associates*
- Jill Bicknell, *Santa Clara Valley Urban Runoff Program*

MONDAY EVENING, INVITED SESSION

5:30 – 6:00 **Welcome & Summary of Open Session** – Matt Yeager, *San Bernardino County Flood Control District*

6:00 – 7:00 **Dinner** ~

7:00 – 8:00 **Key Needs of Managers for Addressing Hydromodification** (panel discussion)

- Jeff Pratt, *Ventura County Watershed Protection District*
- Bill DePoto, *Los Angeles County Dept. of Public Works*
- Aaron Allen, *US Army Corps of Engineers - Regulatory Branch*
- Laura Coley-Eisenberg, *Rancho Mission Viejo*
- Jon Bishop, *Los Angeles Regional Water Quality Control Board*
- Rebecca Drayse, *TreePeople*

8:00 – 8:30 **General Conclusions and Outline for Workshop Report**

APPENDIX B – CASE STUDIES

Case Study 1 – Contra Costa County

Contra Costa County's Hydromodification Management Plan was developed in response to the National Pollutant Discharge Elimination System (NPDES) permit requirements from the San Francisco Bay Regional Water Quality Control Board. The goal of this Hydro-modification Management Plan (HMP) is to protect urban watersheds from ongoing hydro-modification by applying these requirements to development projects that are greater than or equal to 1 acre. They assist applicants to comply by providing designs and sizing factors. Permit conditions require municipalities to propose a plan to manage increases in flow and volume where increases could:

- Increase erosion
- Generate silt pollution
- Impact beneficial uses

The goal of these plans is to ensure that post-project runoff does not exceed pre-project rates and durations. Contra Costa's plan encourages Low Impact Development Integrated Management Practices (LID IMPs) and allows proposals for stream restoration in lieu of flow control where benefits clearly outweigh potential impacts. The plan includes four options for compliance:

1. Demonstrate project will not increase directly connected impervious area
2. Implement pre-designed hydrograph modification IMPs
3. Use a continuous simulation model to compare post- to pre-project flows
4. Demonstrate increased flows will not accelerate stream erosion

Management approaches are selected according to risk:

- Low risk = channelized systems
- Medium risk = channels in substrates with high bed and bank resistance
- High risk = all other channels

Project proponents need to develop a comprehensive analysis of management options for all high risk channels.

Case Study 2 – Santa Clara Valley

The Santa Clara Valley Urban Runoff Pollution Prevention Program's (SCVURPPP's) NPDES permit requires that increases in runoff peak flow, volume, and duration shall be managed for all projects involving one or more acres of impervious cover, where increased flow and/or volume can cause increased erosion of creek beds and banks. SCVURPPP's overall approach to creating a HMP was to conduct geomorphic and hydrologic assessments of three representative watersheds in the valley, conduct channel stability analyses to establish thresholds

for hydromodification control, develop design criteria for flow control measures, and provide guidance for best management practice implementation³.

The performance criteria in the HMP state that post-project runoff shall not exceed estimated pre-project rates and/or durations, where the increased storm water discharge rates and/or durations will result in increased potential for erosion. Projects shall not cause an increase in E_p of the receiving stream over the pre-project (existing) condition. Furthermore, the E_p value should not be increased at any point downstream of the project. These requirements can be met with a combination of on-site and off-site control measures.

On-site controls should be designed to match flow-duration curves of post-development conditions to pre-development conditions for all flows between 10% of the 2-year peak flow and the 10-year peak flow. Example sizing of flow-duration basins are shown in Table B-1. Management measures are considered “practicable” if construction cost of treatment plus flow controls is less than or equal to 2% of project cost, excluding land value.

Table B-1: Basin Sizing Case Studies from the Santa Clara Valley Urban Runoff Program Hydromodification Management Plan (SCVURPPP Final HMP Report, 2005).

	Thompson	San Jose	Alameda
Basin Depth	4 feet	2.25 feet	2 feet
Basin Area	30 acres	0.06 acre	0.8 acre
Basin Size % DCIA	5.7% (4% catchment)	3.7% (1.7% catchment)	10% (7% catchment)
Drain Time	3 days (90% of the time)	< 1 day	1 day
Q_{cp} (low flow)	2.4 cfs	0.1 cfs	0.25 cfs
Infiltration Rate (rainfall)	0.2 inch/hour	0.2 inch/hour	0.5 inch/hour
Infiltration Rate (flow)	5.5 cfs	0.012 cfs	--

*cfs = cubic feet per second

This hydromodification management plan lays out on-site and in-stream options. Projects in highly urbanized areas with more than 90 % build out and a large percentage of impervious cover are exempt. Additional information on this program is available at www.SCVURPPP.org.

Case Study 3 – Newhall Land

Newhall Ranch is a specific plan approved for 26,000 homes in the Santa Clara watershed. Runoff from the proposed new development will be addressed by a Natural River Management Plan and a Newhall Ranch Stormwater Plan developed by the land owner.

³ The Final HMP Report (April 2005) is available at http://www.eoainc.com/hmp_final_draft

The Natural River Management Plan is a long-term (20-year) master plan that provides for the construction of various infrastructure improvements to the Santa Clara River and tributaries. The plan maintains 15 miles of the Santa Clara River and its tributaries in a natural state with 75- to 200-foot setbacks from the river that sustains habitat quality and meets requirements for flood control. The plan calls for buried bank stabilization, instead of hardened systems, to meet county flood protection requirements and maintain habitat functions in riparian areas. Trenches have been dug far up from the streambed, filled with a compound called “sand cement” – similar to sandstone, then topped with soil, and replanted with native plant species.

The Newhall Ranch Stormwater Plan is a regional approach to storm water management that incorporates both water quality treatment and hydromodification control. The goals of this plan include:

- Reduction in percentage of impervious cover in the upper watershed using cluster design of development and maximizing open space
- Utilization of BMPs for both water quality and hydromodification source control
- Design of in-stream solutions that protect or enhance habitat.
- Incorporation of the “avoidance, minimization, mitigation” hierarchy in plan development

Case Study 4 – Rancho Mission Viejo

Rancho Mission Viejo, a private landowner, has voluntarily developed a set of land planning principles as part of a comprehensive land-use planning and resource management program for 25,000 acres in Orange County California. These planning principles will serve as self-imposed requirements, intended to minimize the effects of future development on natural streams in planning areas. Using these principles, the landowners are proposing to focus development on ridges, which are underlain by less pervious material, thereby preserving valleys which contain pervious areas that support infiltration important to creek functions.

Planning Principles:

Geomorphology/Terrains

- Recognize and account for the hydrologic response of different terrains at the sub-basin and watershed scale

Hydrology

- Emulate, to the extent feasible, the existing runoff and infiltration patterns in consideration of specific terrains, soil types, and ground cover
- Address potential effects of future land use changes on hydrology
- Minimize alterations of the timing of peak flows of each sub-basin relative to the mainstem creeks
- Maintain and/or restore the inherent geomorphic structure of major tributaries and their floodplains

Sediment Sources, Storage, and Transport

- Maintain coarse sediment yields, storage and transport processes

Groundwater Hydrology

- Utilize infiltration properties of sandy terrains for groundwater recharge and to offset potential increases in surface runoff and adverse effects to water quality
- Protect existing groundwater recharge areas supporting slope wetlands and riparian zones and maximize alluvial groundwater recharge to the extent consistent with aquifer capacity and habitat management goals

Water Quality

- Protect water quality using a variety of strategies, with particular emphasis on natural treatment systems, water quality wetlands, swales, and infiltration areas

APPENDIX C – ADDITIONAL RESOURCES

BASMAA's Start at the Source: Design Guidance Manual for Stormwater Quality Protection, 1999. Prepared by Tom Richman & Associates and CDM. Available from www.basmaa.org.

BASMAA's Using Site Design Techniques to Meet Development Standards for Stormwater Quality: A Companion Document to Start at the Source, 2003. Prepared by CDM. Available from www.basmaa.org

Better Site Design: A Handbook for Changing Development Rules in Your Community Available for \$35.00 from the Center for Watershed Protection at www.cwp.org, under the "Publications" tab.

Redevelopment Roundtable, Consensus Agreement, Smart Practices for Redevelopment and Infill Projects.

Available for free download from the Center for Watershed Protection at www.cwp.org, under the "Publications" tab; it is listed with the "Better Site Design" publications.

Builders for the Bay Program

Information about this program, which is joint project of the Alliance for the Chesapeake Bay, the Center for Watershed Protection and the National Association of Home Builders, can be found at http://www.cwp.org/builders_for_bay.htm.

The Practice of Low Impact Development

Available for \$5.00 from the U.S. Department of Housing and Urban Development, at <http://www.huduser.org/publications/alpha/alpha.html>. It is also available for \$50.00 from the NAHB Research Center's bookstore at www.nahbrc.org.

National Association of Homebuilders Research Center

"Builder's Guide to Low Impact Development" and "Municipal Guide to Low Impact Development". Available for free download from <http://www.toolbase.org/tertiaryT.asp?TrackID=&CategoryID=36&DocumentID=3834>

"Growing Greener: Putting Conservation into Local Codes". Available for free download from <http://www.dcnr.state.pa.us/growinggreener/growinggreener.htm>.

Low-Impact Development Design Strategies: An Integrated Approach; Low-Impact Development Hydrologic Analysis

Both are available for free download from US Environmental Protection Agency's website at <http://www.epa.gov/owow/nps/lid/>.

Truckee Meadows Structural Control Design Manual: Guidance on Source and Treatment Controls for Storm Water Quality Management - Kennedy/Jenks Consultants

http://ci.reno.nv.us/gov/pub_works/stormwater/management/controls/pdfs/TOC.pdf

National NEMO (Non Point Education for Municipal Officials) Network - Educational Materials on the link between land use and water quality

<http://nemonet.uconn.edu/>

Physical Effects of Wet Weather Flows on Aquatic Habitats: Present Knowledge and Research Needs , by L.A. Roesner and B.P. Bledsoe – Water Environment Research Foundation, 2003.

<http://www.werf.org>

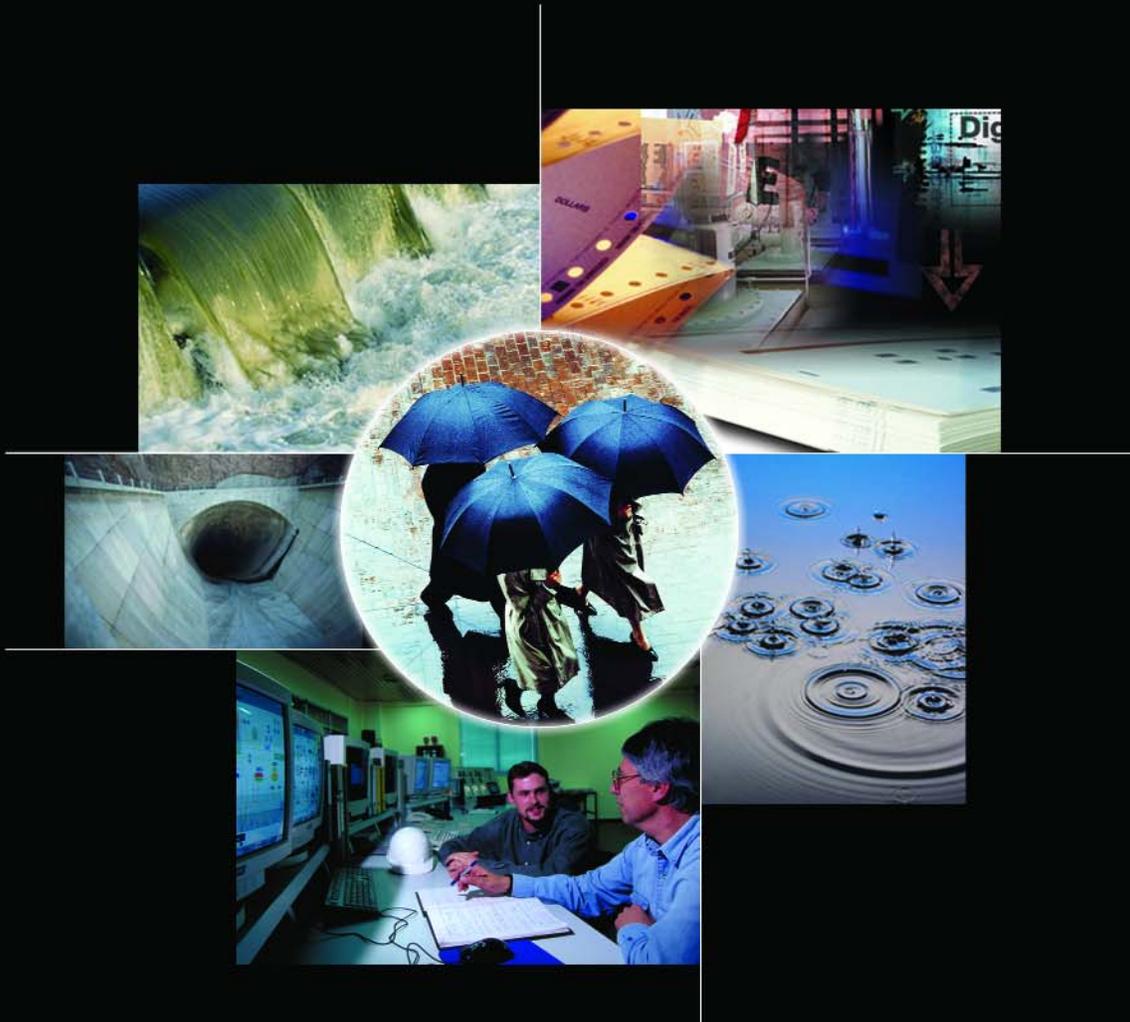
Impacts of Impervious Cover on Aquatic Systems – Center for Watershed Protection, 2003.

<http://www.cwp.org/>

ATTACHMENT

60

2005 STORMWATER UTILITY SURVEY



BLACK & VEATCH
building a **world** of difference™

ENERGY WATER INFORMATION GOVERNMENT

Black & Veatch is pleased to provide the results of its sixth national Stormwater Utility Survey, to help those involved in the stormwater industry stay well-informed across a range of issues. The survey results offer insight into the following topics:

- Organization/Administration
- Planning
- Operations
- Finance/Accounting
- Stormwater User Fees and Billing
- Quality Issues – Best Management Practices
- Public Information/Education
- Major Challenges Recently Faced
- Significant Events Affecting Utilities

These results can be used for numerous purposes, from performance management to financial planning to organization strengthening. At Black & Veatch, we understand the value of knowing what others are doing in the industry. For 90 years, meeting the needs of the utility industry has been at the core of our business. We are happy to discuss any questions you might have regarding this survey.

Profile of Respondents

- Responses were received from 99 utilities in 21 states and one Canadian province. All of these utilities are funded in whole or in part through user fees.
- Approximately 86 percent of the respondents serve a city, rather than a county or region.
- The population served by the respondents ranges from 1,400 (Atlantic Beach, FL) to 3.9 million people (Los Angeles, CA) and the area served varies from 3 to 1,500 square miles. Eighty-one percent indicate they are responsible for stormwater facilities only, while the balance report they are responsible for combined sanitary/stormwater facilities. Approximately 88 percent indicate that they use their own staff to provide a majority of operation and maintenance services.
- For those utilities that base charges on gross property area, equivalent residential units ranged from 1,600 square feet total area to 11,000 square feet, with a mean of 6,964 square feet. For those utilities that base charges on impervious area, impervious areas per equivalent residential unit ranged from 1,500 square feet to 10,000 square feet, with a mean of 2,647 square feet.

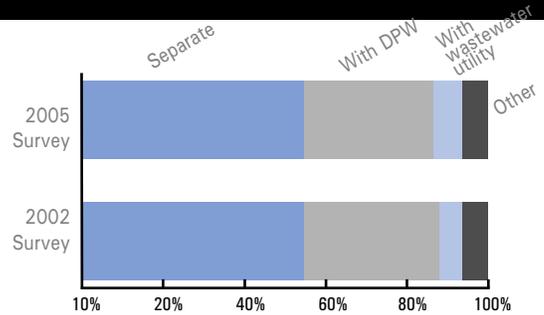
What's New

Feedback from participants prompted us to add a new question to the 2004-2005 version of the Stormwater Utility Survey. In recent years, a number of stormwater treatment systems have become commercially available. Fifty-six percent of respondents have installed at least one of these devices with the most popular being Stormceptor, StormFilter, and CDS Separator. Thirty-six percent have had a favorable experience with these devices in terms of treatment efficiency and ease of maintenance, while 41 percent are still in the evaluation process.

Organization / Administration

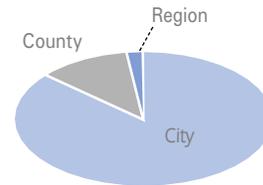
Q How is your operation organized?

- 55% Separate utility
- 32% Combined with Department of Public Works
- 7% Combined with wastewater utility
- 6% Other



Q What area does your utility serve?

- 86% Within city limits
- 12% County
- 2% Region



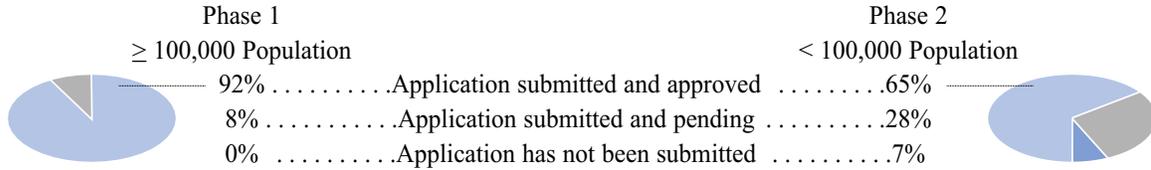
Q Does your state have specific statutes that govern the formation of stormwater utility and user fee financing?

- 71% Yes
- 29% No



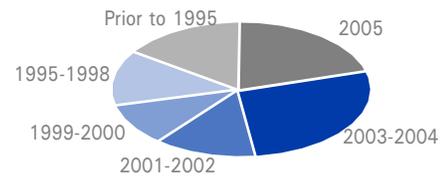
Planning

Q What is the status of your NPDES permit?



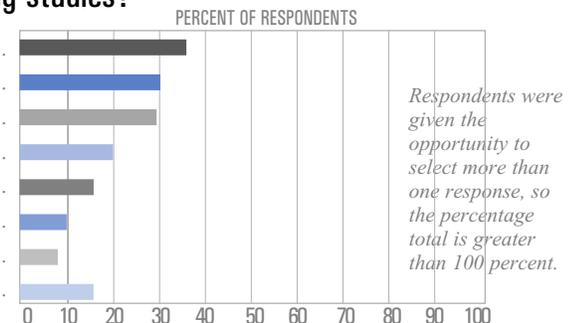
Q When was your most recent stormwater plan or stormwater facilities plan?

- 21% 2005
- 27% 2003–2004
- 13% 2001–2002
- 10% 1999–2000
- 13% 1995–1998
- 16% Prior to 1995



Q What stormwater computer models do you use for planning studies?

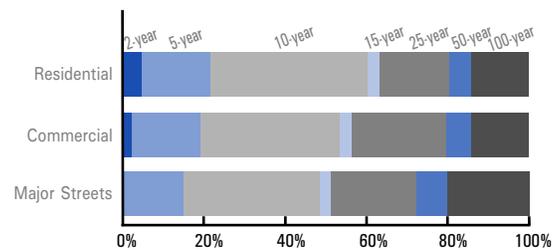
- 36% HEC-2
- 30% XP-SWMM
- 29% HEC-1
- 20% TR-55
- 16% EPA SWMM
- 10% HEC-RAS
- 7% HEC-HMS
- 15% Other



Planning (continued)

Q What return periods do you use to design your major stormwater structures?

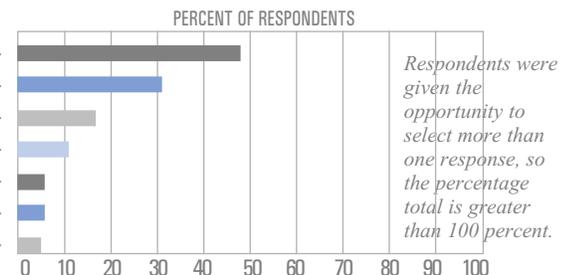
	Residential	Commercial	Major Streets
2-year	3%	1%	0%
5-year	18%	17%	14%
10-year	39%	35%	34%
15-year	3%	3%	3%
25-year	17%	23%	21%
50-year	6%	7%	8%
100-year	14%	14%	20%



Several respondents provided a range of return period. The percentages above represent the smallest return period provided.

Q Which performance indicators do you consider most important in measuring improvement in stormwater management success?

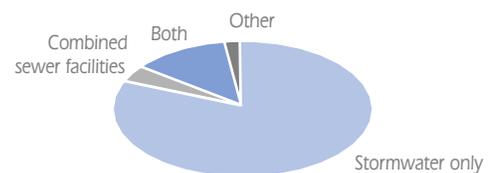
47%	Flood control
31%	Monitoring pollutants
17%	Customer complaints/satisfaction
11%	Cost control measures
6%	Erosion control
6%	Maintenance
5%	Habitat



Operations

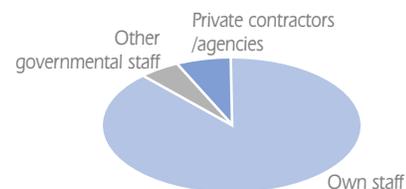
Q What is your utility responsible for?

81%	Stormwater facilities only
4%	Combined sewer (sanitary/stormwater) facilities
13%	Both
2%	Other



Q Who provides the majority of your O&M services?

88%	Own Staff
5%	Other Governmental Staff
7%	Private contractors/agencies

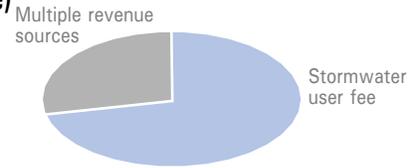


Finance/Accounting

Q What are your major (at least 90 percent of total income) revenue sources?

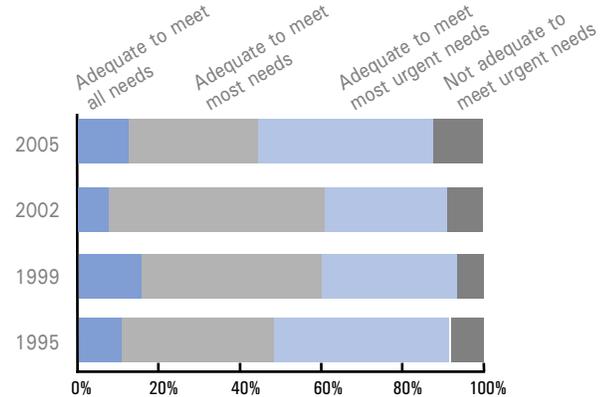
(Excludes 7 utilities that reported no single major source)

- 72% Stormwater user fee
- 28% Multiple revenue sources



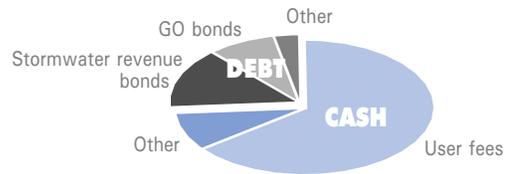
Q How adequate is available funding?

- 13% Adequate to meet all needs
2002 = 8% • 1999 = 16% • 1995 = 11%
- 32% Adequate to meet all needs
2002 = 53% • 1999 = 44% • 1995 = 38%
- 43% Adequate to meet most urgent needs
2002 = 30% • 1999 = 34% • 1995 = 44%
- 12% Not adequate to meet urgent needs
2002 = 9% • 1999 = 6% • 1995 = 7%



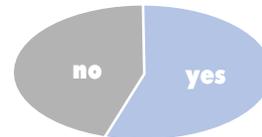
Q How is the majority of capital improvement needs financed?

- 74% Cash financed
 - 65% From user fees
 - 0% From ad valorem taxes
 - 9% Other
- 26% Debt financed
 - 14% Stormwater revenue bonds
 - 9% General obligation bonds
 - 0% Combined bonds
 - 3% Other



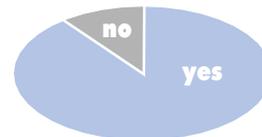
Q Does your accounting system permit cost tracking by operating activity (e.g., inlet cleaning)?

- 55% Yes
- 45% No



Q Does your accounting system identify user fee revenues by customer class (e.g., residential)?

- 89% Yes
- 11% No

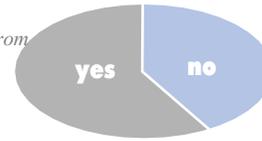


Stormwater User Fees and Billing

Q Were your rates revised in the last 12 months?

- 41% No
- 59% Yes

Increases ranged from 1% minimum to 117% maximum



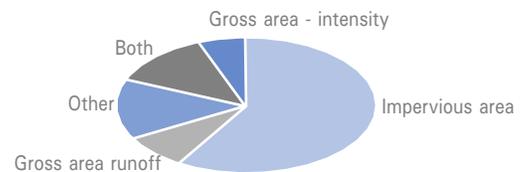
Q What are your user fees designed to pay for?

- 8% Operation and maintenance (O&M) expenses only
- 7% Capital improvements only
- 80% Both O&M expenses and capital improvements
- 5% Other



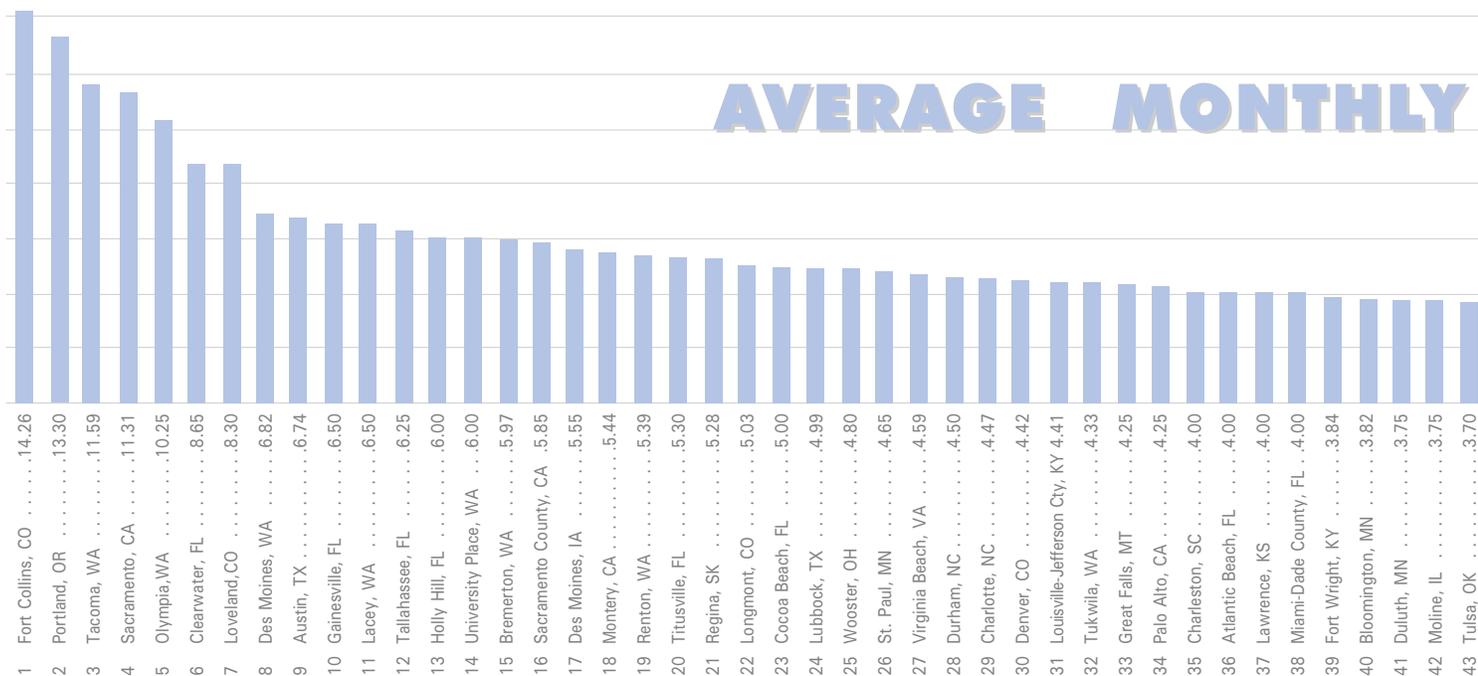
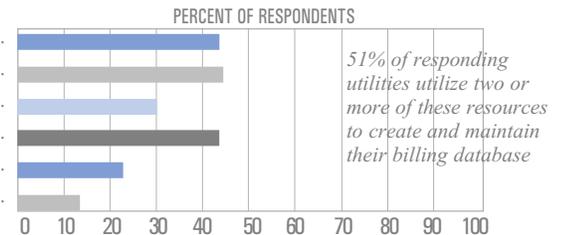
Q What is the basis for your user fees?

- 59% Impervious area
- 8% Gross area with intensity of development factor
- 14% Both impervious and gross areas
- 13% Other (e.g., number of rooms, water use, flat fee)
- 6% Gross area with runoff factor



Q If user fees are area-based, what principal resources were employed to create and maintain the customer database used to compute charges?

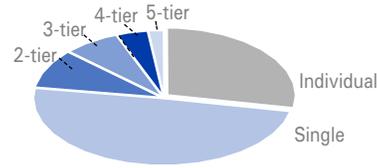
- 42% Property tax assessor records
- 43% Aerial photographs
- 29% On-site property measurement
- 42% Geographic Information System (GIS)
- 22% Planimetric map take-offs
- 13% Other (e.g., building permits, site plans)



Q Are your stormwater charges based on individual or class average characteristics?

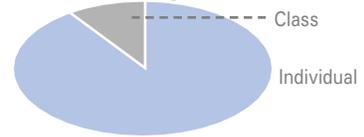
Residential

- 27% Individual parcel
- 73% Class average as:
 - 48% Single tier
 - 9% 2-Tier rate
 - 7% 3-Tier rate
 - 4% 4-Tier rate
 - 2% 5-Tier rate



Non-Residential

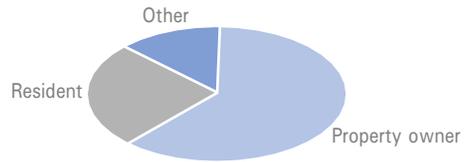
- 90% Individual parcel
- 10% Class average



3% of respondents who answered class average did not provide the number of rate tiers.

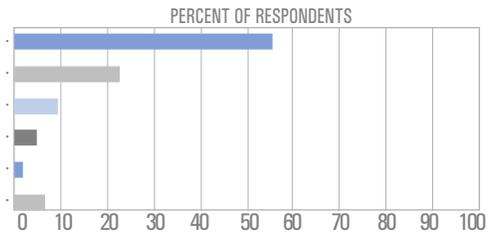
Q Who is responsible for the payment of user fees?

- 62% Property owner
- 25% Resident
- 13% Other (e.g., water or other utility bill recipient)

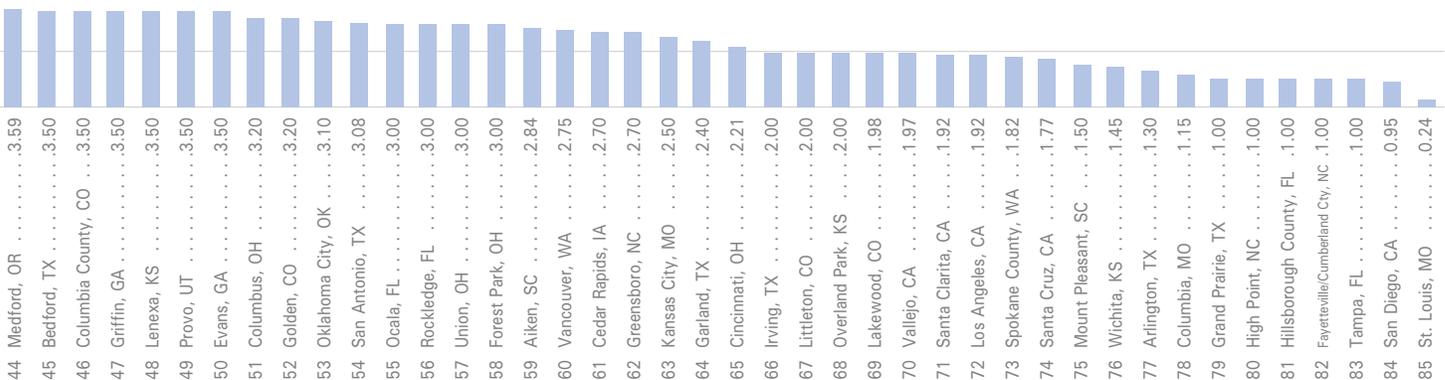


Q How frequently do you bill?

- 56% Monthly
- 22% Annually
- 9% Bi-monthly
- 5% Quarterly
- 2% Semi-annually
- 6% Other



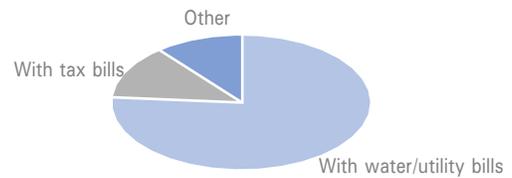
RESIDENTIAL CHARGE



Stormwater User Fees and Billing (continued)

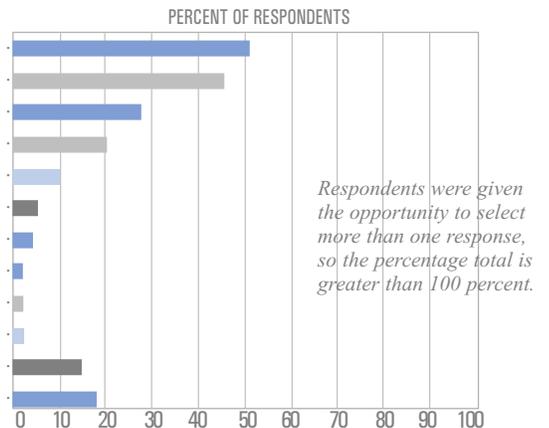
Q How are your user fees billed?

- 76% With water or other utility bills
- 13% With tax bills
- 11% Other



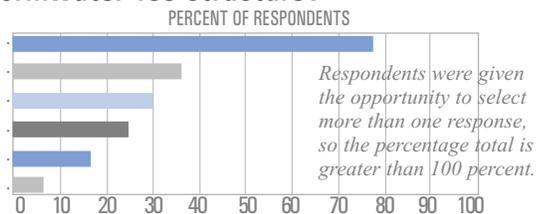
Q What types of properties are exempt from user fees?

- 51% Streets/highways
- 46% Undeveloped land
- 27% Rail rights-of-way
- 20% Public parks
- 10% Government
- 5% School districts
- 4% Churches
- 2% Airports
- 2% Colleges/universities
- 2% Water front
- 14% None
- 17% Other



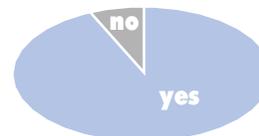
Q What customer classifications are recognized in your stormwater fee structure?

- 77% Residential
- 36% Commercial
- 30% Combined commercial/industrial
- 25% Other
- 17% Industrial
- 7% No designation



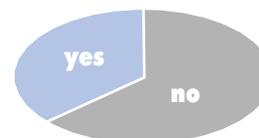
Q Are rates the same for all service areas or watersheds?

- 93% Yes
- 7% No



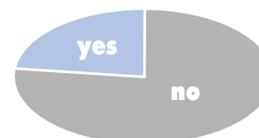
Q Are your user fees for single family dwellings the same as for individual multiple residential units, such as apartments and condominiums?

- 64% No
- 36% Yes



Q Are one-time impact/capital recovery fees applied to new stormwater utility customers or new development?

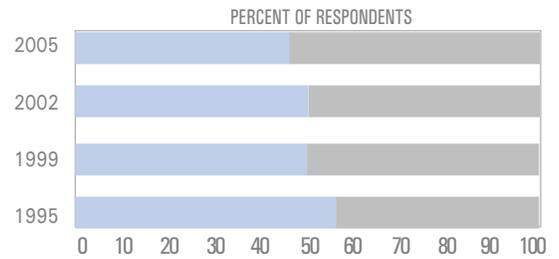
- 77% No
- 23% Yes



2004–2005 Stormwater Utility Survey

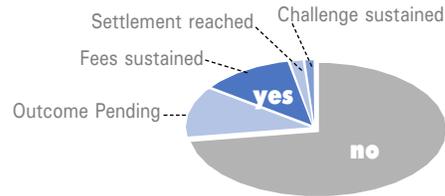
Q Are credits provided for private detention/retention facilities?

46% Yes
 2002 = 53% • 1999 = 50% • 1995 = 57%
 54% No



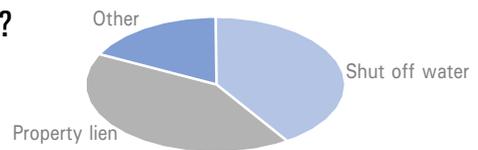
Q Have your user fees faced a legal challenge?

72% No
 28% Yes
 12% Outcome pending
 12% Fees sustained
 2% Settlement reached
 1% Challenge sustained (2 later remedied by legislation)



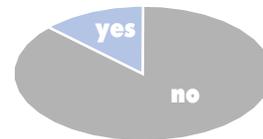
Q On what basis is payment of your user fees enforced?

41% Lien on property
 42% Shut off water
 18% Other



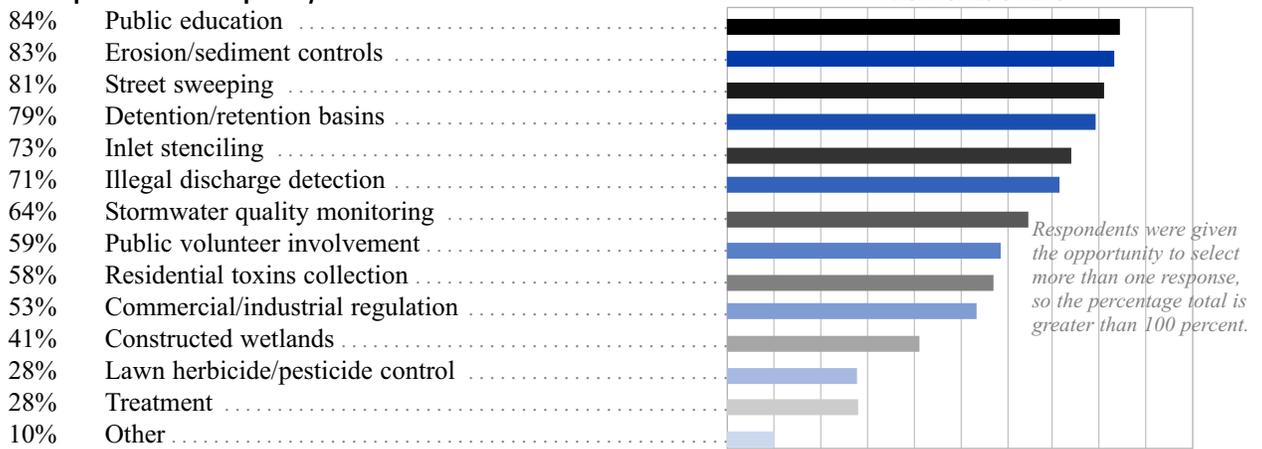
Q Is a significant share of your utility costs attributable to stormwater from outside your service area?

87% No
 13% Yes



Quality Issues – Best Management Practices

Q Which programs and practices are being used to protect or improve water quality?



Quality Issues Best Management Practice (continued)

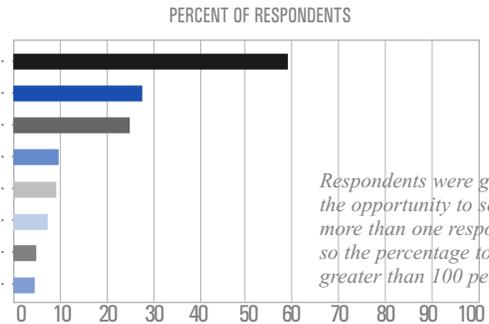
Q Have you installed any stormwater treatment systems in your stormwater conveyance system?

55% Yes
45% No



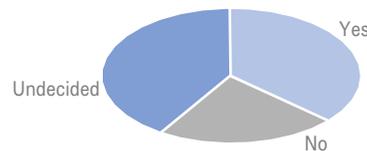
Devices installed:

59% Stormceptor
28% CDS Separator
24% StormFilter
9% Downstream Defend
9% Vortechincs
7% Bay Saver
4% Abtech
4% SunTree Technologies



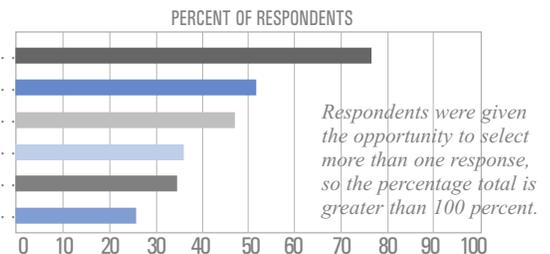
Have these devices met your expectations?

36% Yes
23% No
41% Undecided



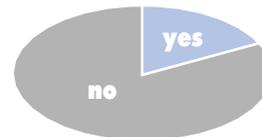
Q What contaminants are your greatest concern?

76% Sediments
51% Nutrients
47% Oil and grease
35% Heavy metals
34% Pesticides
25% Other



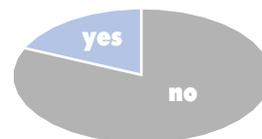
Q Are quality-based user fee credits or other incentives provided to encourage customers to control or reduce stormwater pollution?

18% Yes
82% No



Q Are your user fees specifically designed to provide for the separate recognition and equitable recovery of costs associated with stormwater quality management and quantity(runoff) management, respectively?

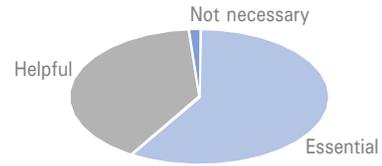
81% No
19% Yes



Public Information/Education

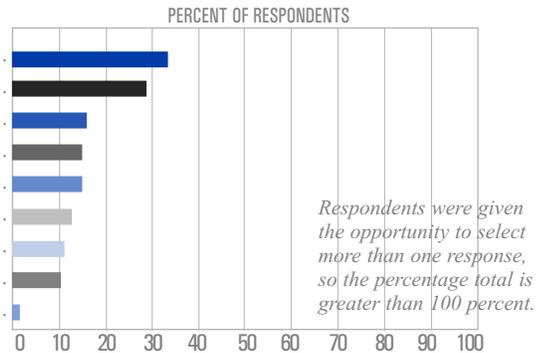
Q How important is an organized public information/education effort to the continuing success of a user fee funded stormwater utility?

- 59% Essential
- 40% Helpful
- 1% Not necessary



Q What means have you found to be the most effective in educating the public about utility services, program needs and financing, and citizen responsibilities?

- 33% Bill inserts
- 29% Public hearings/presentations
- 16% Internet
- 15% Brochures/flyers/newsletters
- 15% Newspaper
- 12% Television
- 11% Public schools
- 10% Speakers bureau
- 1% Direct mail



Major Challenges Recently Faced

Financial, rate, and billing related issues (e.g., financing growth, capital replacements, NPDES and other environmental mandates; rate increases, rate equitability, rate challenges; and billing database updating or conversion to GIS)	19 utilities
Weather and flooding issues (e.g., high amounts of rainfall, standing water, West Nile concerns, localized flooding)	10 utilities
Erosion control (e.g., run-off, erosion problems)	8 utilities
Regulatory and quality control compliance (e.g., illicit discharges, quality monitoring, and difficulties of complying with more stringent state and federal quality mandates related to Endangered Species Act, TMDLs, et al.)	8 utilities
Infrastructure planning issues (e.g., need for integrated flood, quality and environmental planning; remedy of specific infiltration/inflow or local flooding problems; and system-wide flood control master planning)	7 utilities
Jurisdictional issues (e.g., incorporation of added cities into service area and co-permittee coordination)	3 utilities
Public education (e.g., need for increased education regarding new programs or rate increases)	2 utilities

Significant Events Affecting Utilities in Past Two Years

NPDES compliance	21 utilities
CIP related (funding, projects started/completed)	14 utilities
User fee related (increases, lack of increases)	14 utilities
Weather related (heavy rains, storms, drought)	8 utilities
Organization/administration/staffing changes	7 utilities
Public education/awareness	4 utilities
Urban growth/decline in service area	4 utilities
Legal challenges	2 utilities

Some respondents listed the same events as positive, negative, or both (e.g., heavy rains or flooding brought both damage and increased public awareness of needs).

Stormwater Management

From run-off to potential revenue stream, stormwater management is uniquely challenging. It is often not source-specific, not metered or monitored closely within the community, and not tied to customers' daily decisions.

Black & Veatch's Enterprise Management Solutions team assists utilities nationwide in stormwater management issues to help provide stable funding for operations as well as capital projects.

ABOUT ENTERPRISE MANAGEMENT SOLUTIONS

Black & Veatch is pleased to provide this survey as an industry service. For 90 years, meeting the needs of utilities nationwide has been at the core of our business. We understand the value of knowing how others are addressing the industry's complex issues. From organization effectiveness to financial structuring to risk management, it helps to know the industry's trusted business partner. Black & Veatch brings it all together.



BLACK & VEATCH
building a **world** of difference™

ENERGY WATER INFORMATION GOVERNMENT

For custom strategies, proven processes and high-value results, contact:
Anna White
Black & Veatch • 11401 Lamar Avenue • Overland Park, KS 66211 USA
Tel: 913-458-4322
Stormwater@bv.com

Black & Veatch Corporation is a leading global engineering, consulting and construction company specializing in infrastructure development in the fields of energy, water and information.
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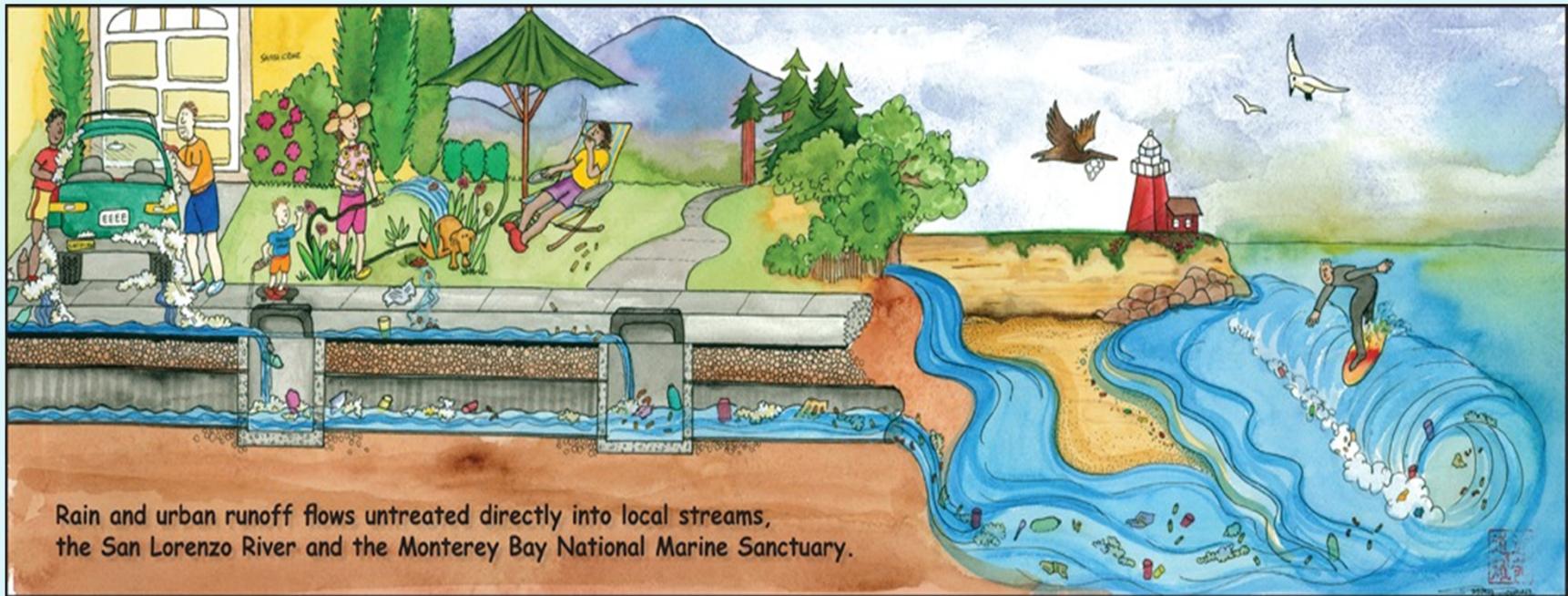
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City Storm Water Program and Measure E: Clean River, Beaches and Ocean Fund

FY 2015 Highlights

Dedicated funding for programs
to prevent pollution from reaching our waterways
and beaches

Urban Runoff



Rain and urban runoff flows untreated directly into local streams, the San Lorenzo River and Monterey Bay

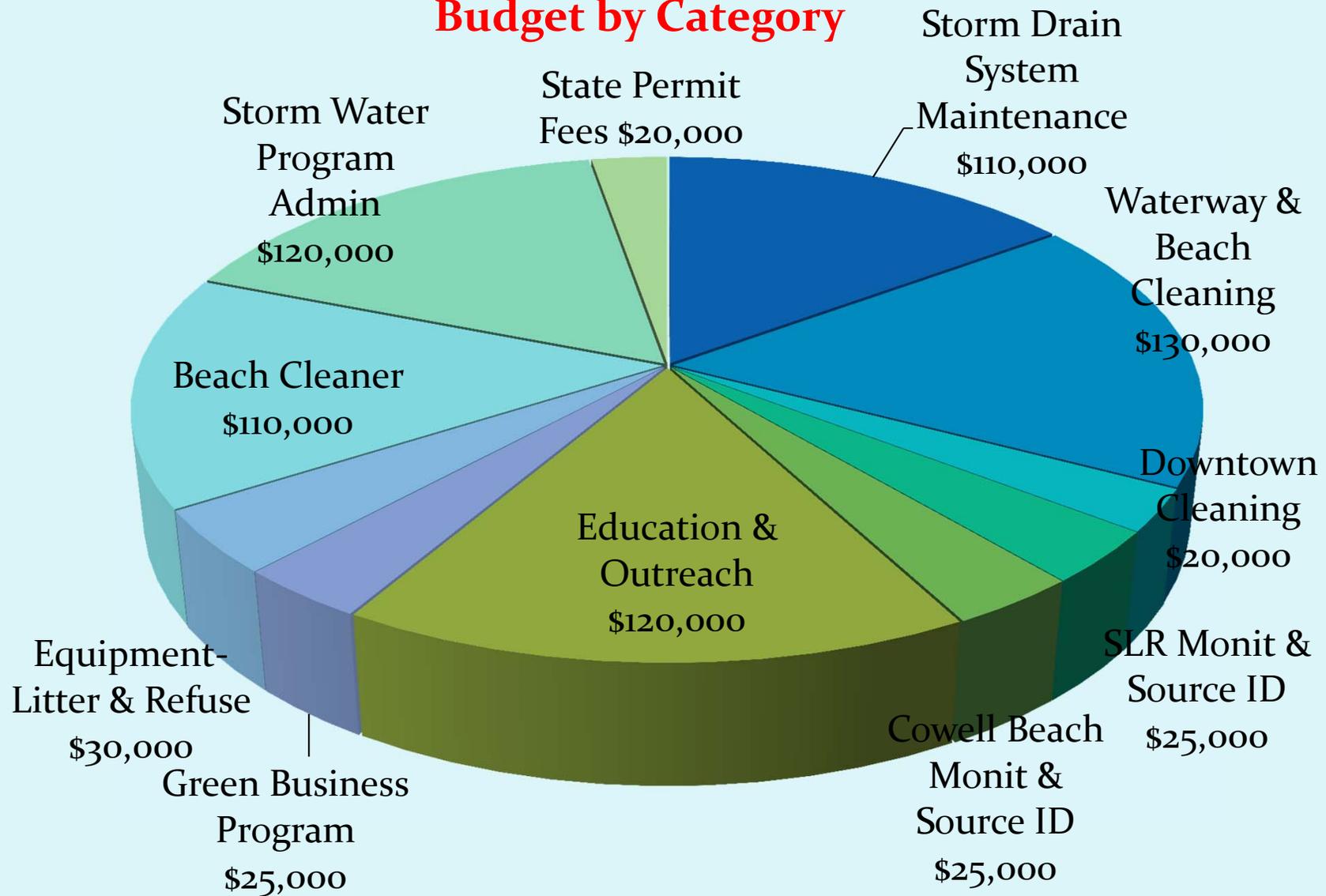
FY 2015 Expenses

- Storm Drain System Maintenance: \$110,000
- Waterway & Beach Cleaning: \$130,000
- Downtown Cleaning: \$20,000
- San Lorenzo River Monitoring & Source ID: \$25,000
- Cowell Beach Monitoring & Source ID: \$25,000
- Education & Outreach: \$120,000
- Green Business Program: \$25,000
- Equipment: Litter & Refuse: \$30,000
- Beach Cleaner: \$110,000*
- Storm Water Program Staff: \$120,000
- State Permit Fees=\$20,000

Revenue: \$630,000 Expenses: \$740,000

FY 2015 Expenses

Budget by Category



Municipal Operations

Focus on cleaning:

To keep debris & pollutants from flowing into the San Lorenzo River and Monterey Bay

- Storm drain pipelines
- Pump Stations
- River Toe Ditches
- Street Catch basins



Municipal Operations

City Crews clean:

- Storm drain pipelines-9 miles
- River pump stations-5 vaults



Municipal Operations

Storm Drain System Inspection & Cleaning:

- Extensive catch basin inspection & cleaning program. All downtown catch basins plus outlying areas inspected & cleaned.
 - Labor costs
 - Vactor Operation
 - Debris Disposal
 - Televising storm drain lines



Cost: \$110,000

Waterway, River Levee & Beach Cleaning

Ongoing Maintenance Efforts:

- San Lorenzo River
 - Parks Temp Staff-\$70,000
 - Contracted cleanups-\$25,000
 - Subtotal: \$95,000
- Cowell & Main Beaches
 - Wharf Temp Staff \$35,000

Cost: \$130,000



Beach Cleaning

Beach Cleaning Machine for Cowell & Main Beaches



Cherrington Beach Cleaner
Cost: \$110,000

Waterway, River Levee & Beach Cleaning

Parks Rangers Temp Staff-cleanups & restoration efforts



Cost=\$70,000

Municipal Operations

Downtown Cleaning: Hand Sweeping-Hope Services



Cost=\$20,000

Municipal Operations

Downtown Cleaning: Alleyways



Cleaned by contractors

River Levee & Beach Volunteer Cleanups

Save Our Shores:

- San Lorenzo River-Adopt a Levee cleanups
- San Lorenzo River-4 seasonal cleanups
- Annual Coastal Cleanup Day-beach & river cleanups
- July 4th & 5-beach outreach & cleanups
- Disposal of debris

Cost=\$25,000



Education & Outreach Program

School Programs:

- O'Neil Sea Odyssey-Field trip & class 4-5th grades
- Save The Whales-K-12th Grade class presentations
- Save Our Shores-Middle & High School assemblies and classes
- ZunZun-Musical Assemblies K-6th grades



Cost=\$35,000

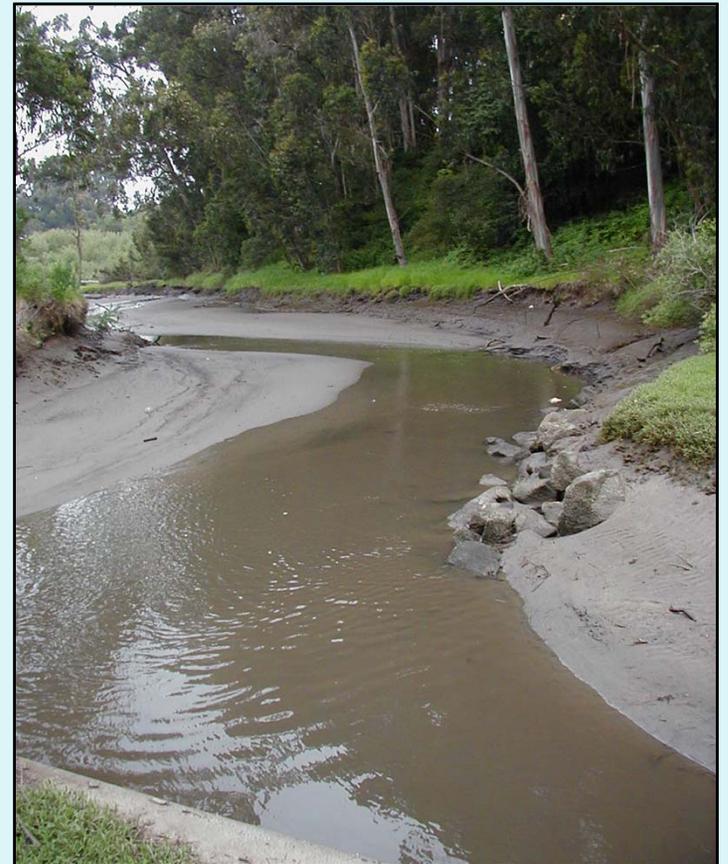
Education & Outreach Program

Volunteer Monitoring & Stewardship:

- CWC Snapshot Day
- CWC San Lorenzo River Alliance



Cost=\$15,000



Education & Outreach Program

Residential Outreach:

- Arana Gulch Watershed Coordinator
- EA-Our Water Our World: pesticides & herbicides
- EA-Green Gardner Program
- RCD-Low Impact Development
- SW agencies-Region-wide TV ads

Cost=\$15,000



Education & Outreach Program

Business Outreach & Recognition:

- City Clean Ocean Business Program
- Monterey Bay Green Business Program
- Green Gardner/
Landscaping Program

Cost=\$30,000



Education & Outreach Program

Litter & Illegal Dumping:

Catch Basin Labeling (SOS)



Cost=\$10,000



Cigarette Butt
“Bait Tank”
containers

San Lorenzo River Pollution Prevention

Litter & Illegal Dumping

- Trash/Recycling and Cigarette Butt containers on SLR levee & other areas



Cost=\$15,000

SLR Watershed Monitoring

State Total Maximum Daily Load Limits: San Lorenzo River

- **TMDL: Bacteria and Sediment**
- State requires monitoring, remedial measures & reports
- Monitoring of SLR, Branciforte & Carbonera Creeks by City Lab & Env Compliance Program
- Results indicate birds and sediment are primary sources of elevated bacteria levels in SLR
- City is an active partner in the SLRA led by Coastal Watershed Council (staff time, funding, specialized lab work, data sharing)



Cost= \$25,000 (Lab)

Cowell Beach

- **City participates in Cowell Beach Working Group**
- **City & County both monitor Cowell Beach**
- **Results show low bacteria levels during winter months**
- **Sewer source unlikely since levels not high year round**



In 2014, City added caffeine test as indicator of sewage (none found so far)
In 2015, City conducted a preliminary bacteria gradient study

New State Requirements

Outfall Inventory and Sampling

- Staff checked 236 storm drain outfalls
- 26 outfalls had flows during summer and were sampled
- Results showed 1 suspect outfall which led staff to identify a cracked storm drain



New State Requirements

Construction: Erosion Control

- Grading ordinance revised June 2014: Projects need to submit erosion & sediment control plans
- Increased PW and Building staff oversight of construction projects



New State Requirements

Development: Low-Impact Design

- New (2014) requirements to collect & infiltrate (sink) storm runoff on property
- Applies to private developments, retrofits, and City projects
- *Examples of LID techniques:*

Pervious Pavement



Bio-retention



Drainage Swale



Rain Barrel



Low-Impact Development on Recent Private Projects

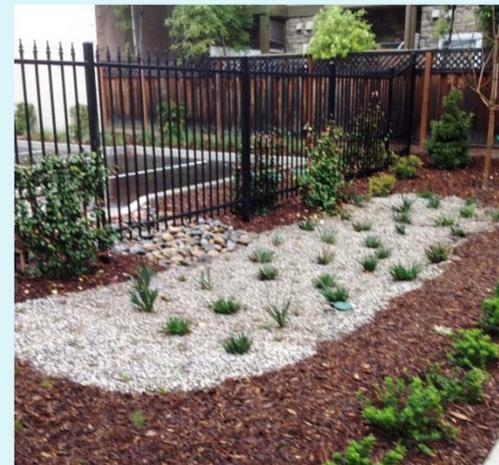
Madrone Street (Sports Authority)



Frederick Street (Multi-family)



West Cliff Drive (Multi-family)



Low-Impact Development on Recent City Projects

Kaiser Permanente Arena



Wharf Roundabout (not vegetated yet)



Arana Gulch Multi-Use Trail



Tannery Arts New Parking Lot



Grants & Projects

State Prop 84 Grant: Low Impact Development Design & Build Parking Lot #9

- Goal to reduce runoff & pollutant loads to River
- LID to sink rain runoff and divert pollutants into soil



Construction completed August 2015

Grants & Projects

State Prop 84 Grant: Low Impact Development Parking Lot #9

- Sloping & curb cuts to bio-swales redirect 75% of lot runoff



Grants & Projects

Bio-swales installed to sink rain runoff & filter pollutants



Vegetated bio-swale with curb cuts

Grants & Projects

Bio-swales installed to sink rain runoff & filter pollutants



Vegetated bio-swale with curb cuts

Grants & Projects

State Prop 84 Grant: Low Impact Development Design & Build Parking Lot #9



- Lot repaved as part of project
- Match \$40,000 from FY14 budget

Grants & Projects

State Clean Beaches Initiative Grant & CIP Project

- Neary Lagoon Storm Drain Improvement Project
- Goal: Reduce bacteria levels at Cowell Beach
- Storm drain pipes exit at Cowell Beach-buried under sand in summer



Neary Lagoon Beach Outlet Vault

Grants & Projects



Neary Lagoon

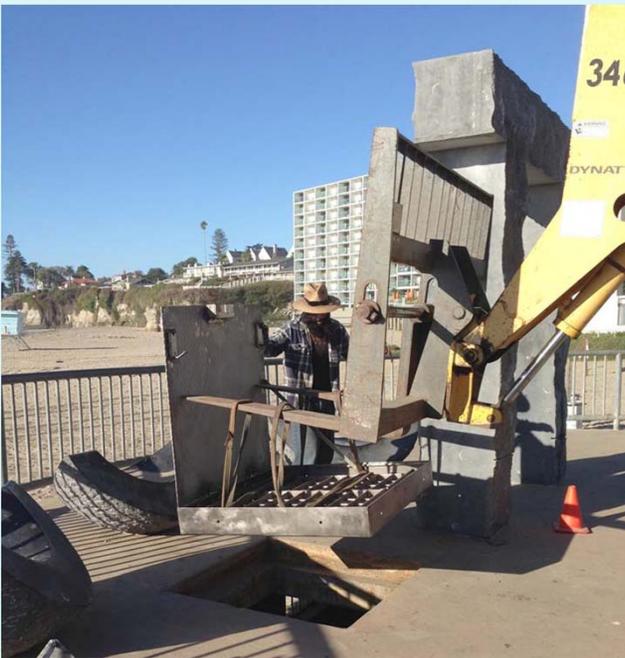
**Gates closed in Summer &
opened in Winter**



Installed Spring 2014

Grants & Projects

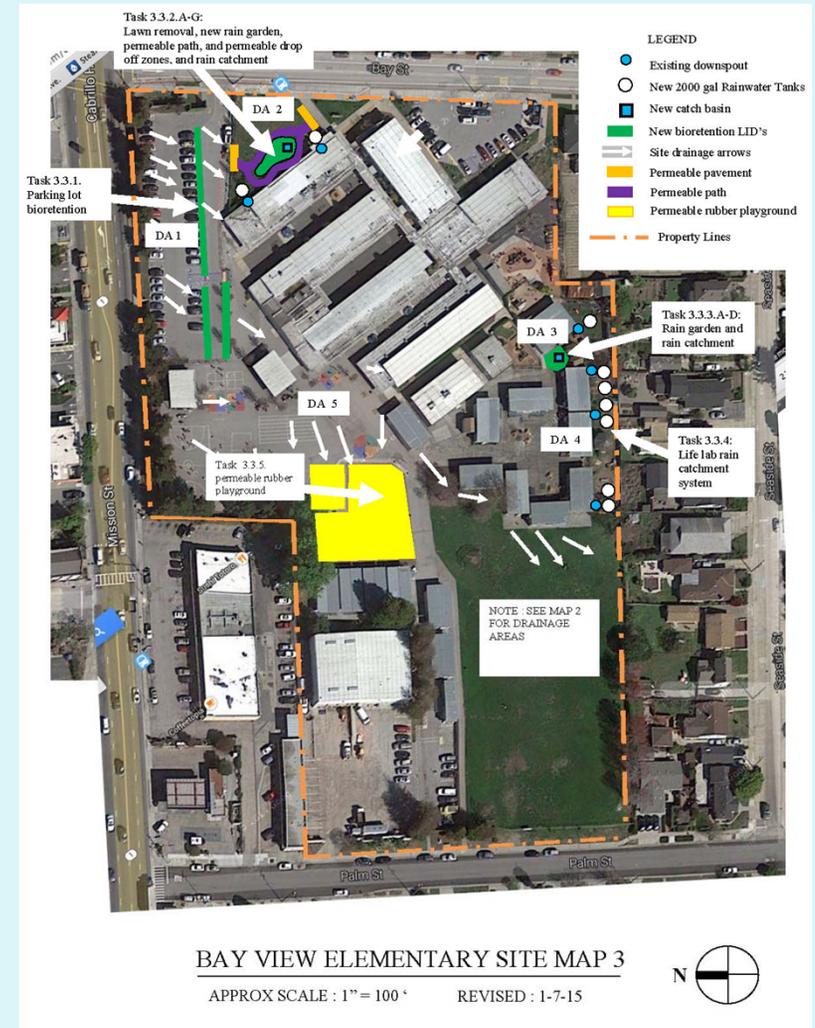
- New hatch at beach outlet vault
- Temp steel plate on gravity pipe opening at beach during summer
- Neary pump station & storm drain lines now cleaned late Spring & Fall



Grants & Projects

State DROPS Grant: Low Impact Design for Schools

- City partnered w/Santa Cruz City Schools and UCSC IDEASS
- \$486,000 Grant Awarded to SC City Schools for Bay View Elementary
- Retrofit LID project: Bio-swales, pervious playground, and rain water catchment/cisterns
- City cost \$15,000 (FY16) towards large rain garden and educational signage



The End



ATTACHMENT

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Environment

Home > Environment > Utility Services > Stormwater > Storm Sewer Service Charge

Commercial Sewer Service Charge

Residential Sewer Service Charge

Contact Us

City of San José
Revenue Management – Sewer Billing Unit
200 East Santa Clara Street
4th Floor
San José, CA 95113
Phone: (408) 535-7055

Storm Sewer Service Charge

Storm Sewer Service Charge Rate

The Storm Sewer Service Charge rate structure charges users of the storm sewerage system in San José based on the relative quality and quantity of stormwater runoff contributed by residential, commercial, institutional, and industrial properties. The rate structure apportions the costs of storm sewer service to properties in proportion to their relative contribution of flow and pollution to the storm sewer system.

Rates are computed to recover projected costs of the following:

- Stormwater pollution control and permit compliance
Management, operation, maintenance, and rehabilitation of the storm sewer system
Improvements to the storm sewer system
Street sweeping
Administrative services

Storm Sewer Service Charge rates are reviewed and adjusted annually, as cost and service demand levels change. The current rate structure for storm sewerage services described below became effective July 1, 2011, with San José City Council adoption of Resolution No. 75857 on June 14, 2011. The rates are structured for the estimated cost recovery requirements and the service demand levels of Fiscal Year 2011-12. View the current residential rates and commercial rates.

For Fiscal Years 2013-14, 2014-15, and 2015-16, no rate increases were adopted. Rates maintain at the same level as Fiscal Year 2011-12.

If you have questions regarding rates for storm sewerage service, please call us at (408) 535-7055.

San José City Hall

200 E. Santa Clara St.
San José, CA 95113
408 535-3500 Main
408 294-9337 TTY
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City of San Clemente Clean Ocean Program & Fee **Frequently Asked Questions**

What is the Clean Ocean Program?

It is the City's effort to prevent stormwater and urban runoff pollution from entering the storm drain system and being discharged at the beach.

Why does the City need a Clean Ocean Program?

- To protect the environment (water quality in local channels and coastal waters);
- To protect public health and safety (from bacteria and other pollution that could reach the beach);
- To protect local quality of life (local business/tourism, "beach town" reputation, etc.); and
- To meet State Water Code and Federal Clean Water Act permit requirements issued to South Orange County cities by the State.

Who developed the Clean Ocean Program?

The City prepared an Urban Runoff Management Plan (URMP), which included participation and feedback from the community as well as the City's Coastal Advisory Committee (local citizens appointed by the City Council to consider and provide advice on coastal and water quality issues). The URMP guides the Clean Ocean Program, and outlines activities and projects to meet the State and Federal water quality requirements and protect local water quality.

What does the Clean Ocean Program include?

- *Runoff treatment projects*
 - Poche Beach: A treatment system was constructed and is maintained to filter and kill bacteria in the runoff before it reaches the beach. Construction was completed in March of 2009. The system treats up to 1.1 million gallons per day. Weekly water quality tests indicate that the UV treatment removes between 95% - 99% of the bacteria in the storm drain runoff before it discharges to the beach. The current water quality grade at Poche Beach is an A+.
 - North Beach: A system was constructed to divert dry weather runoff away from North Beach and send it to the City's Water Reclamation Plant for treatment. The system started operating on June 1, 2009. It diverts and filters about 350,000 gallons per day. The current water quality grade at North Beach is an A+.
 - Underground storm drain units were installed to remove trash, oil & grease and sediment from runoff before it gets to the beach. Six units have been installed. They are located near Calafia Beach, in the Pier Bowl area, at the west ends of El Portal, at the end of Linda Lane and at Mariposa. In 2013, 35 cubic yards of material was captured and removed by these units. This is material that would have otherwise have ended up in the ocean.
- *Pollution prevention activities*
 - Street Sweeping: the City sweeps public residential streets twice per month and major streets and business areas about 3 times per week. Over 22,000 tons of material has been collected over the last ten several years, enough to fill 550 large (40 cubic yard) trash bins.
 - Catch Basin Inspection and Cleaning: the City inspects at least 2,205 catch basins annually, cleaning them as needed. In 2013, 2,432 catch basins were cleaned and a total of 914 cubic feet of material was removed.
 - Water Quality Testing: water samples from over 20 locations throughout town are sampled each year to help identify potential problem areas and monitor quality progress over time. Flow measurements are also taken to help measure progress in reducing urban runoff flows.
 - Special Studies: the City consulted with scientists to conduct an in depth investigation to find sources of bacteria in the Poche Beach watershed. A year long study which included molecular

City of San Clemente Clean Ocean Program & Fee

Frequently Asked Questions

marker testing culminated in focused recommendations and a strategic plan for reducing bacteria at Poche Beach. The final report of the study is located on the Clean Ocean Program website at www.sccleanocean.org.

- **Commercial, Industrial and Construction Site Inspections:** Inspections of businesses, industrial facilities and construction sites are conducted to make sure these sites are using proper Best Management Practices (BMPs) to prevent pollution from entering the storm drain system and reaching the beach. Over 9,000 inspections have been completed in the last 10 years.
- **Spill Cleanups and Storm Drain Maintenance:** A 24/7 hotline number (**366-1553**) is in place to respond to and cleanup spills or investigate reported illegal discharges. In addition, the City performs ongoing maintenance to ensure proper function of the storm drain system and inspects all public catch basins annually and removes materials that might be discharge into the system.
- **Enforcement of Anti-pollution Ordinances:** Dedicated officials enforce water quality laws to identify and correct violations. Depending on the severity of the violation, enforcement may include verbal warnings, written correction orders, and/or fines of \$100, \$200, or \$500 per violation.
- **Public Outreach and Education:** Efforts promote awareness of stormwater and urban runoff pollution impacts, and ways the public can help prevent this pollution from happening in the first place.

What is the cost of implementing the Clean Ocean Program?

The cost to implement the program is about \$2.2 million per year.

What is the cost of not implementing the Clean Ocean Program?

The City could be liable for large fines if the State finds that the City is not meeting the requirements of the stormwater permit regulations. Also, there are potential economic impacts (tourism, real estate values, etc.) if the City does not work to protect its healthy beach town reputation.

How is the Clean Ocean Program funded?

By a Clean Ocean utility fee charged to property owners. The fee is collected as a line item on the monthly utility bill for owners that get water service from the City. The fee is charged monthly but collected via a separate twice-yearly bill to San Clemente property owners that get water service from other providers (e.g. South Coast Water District or Santa Margarita Water District).

Why do property owners get charged the Clean Ocean Fee?

Developed and graded properties contribute runoff to the storm drain system (which includes pipes, channels, drain inlets and street gutters). This runoff contains or picks up pollution before it enters the storm drain, which the City must then address. Since providing storm drain and water quality services is like other utility services provided by the City (e.g. drinking water and sewer service), it is appropriate that property owners pay for the cost of this service.

How long will the continued fee be in effect? When will it end?

If approved by San Clemente property owners, the existing Clean Ocean Fee would be continued for an additional six and one-half (6.5) years, and would expire on June 30, 2020.

How much will the fee increase over the next 6.5 years?

The continued Clean Ocean Fee would be fixed and would not increase over the entire period.

Why are property owners voting on this fee?

**City of San Clemente Clean Ocean Program & Fee
Frequently Asked Questions**

Under the provisions of California Proposition 218, property owners must approve new property fees adopted by cities.

What is the change from the existing to the proposed Clean Ocean Fee?

Single Family Residential Monthly Fee		
	Current Fee	Proposed New Fee
Private street	\$ 4.39	\$ 5.10
Public street	\$ 5.02	\$ 6.23

Multi-Family Residential Monthly Fee		
	Current Fee (per residential unit)	Proposed New Fee (per residential unit)
Private street	\$3.51	\$4.08
Public street	\$4.01	\$4.98

Non-Residential (Commercial, Industrial, Business Park) Monthly Fee		
	Current Fee (per acre or fraction thereof)	Proposed New Fee (per acre or fraction thereof)
Private street	\$43.90	\$51.00
Public street	\$50.20	\$62.30
Note: Almost all non-residential streets within the City are public streets.		

Undeveloped, Graded Property Monthly Fee				
	Current Fee		Proposed New Fee	
	<i>2 acres or less</i>	<i>Each acre over 2 add:</i>	<i>2 acres or less</i>	<i>Each acre over 2 add:</i>
Private street	\$2.20	\$0.44	\$2.55	\$0.51
Public street	\$2.51	\$0.50	\$3.12	\$0.62
Note: There is no clean ocean fee charge for undeveloped, ungraded parcels.				

Note: Properties on private streets are charged a lower rate since the City doesn't provide street sweeping service on private streets.

How is the fee calculated?

The fee is based on a parcel's expected contribution of runoff, which is determined by an estimate of the impervious area on that parcel. Impervious areas include such things as buildings and pavement, which prevent or restrict storm water from getting into the soil and increase runoff from a parcel.

Why is the existing Clean Ocean Fee being proposed to be continued?

The fee funds a stormwater quality program that the State requires the City to implement. Since the fee was last approved, the State revised and adopted a new stormwater permit for the south Orange County area that contains more rigorous requirements. Also, the State recently adopted new requirements for bacteria pollution for which the City must comply.

What happens if continuation of the existing Clean Ocean Fee is not approved?

If the Clean Ocean Fee is not continued, the City will need to support the Clean Ocean Program with some other funding source. The most likely source would be the General Fund, which would result in about \$2 million each year that would not be available for other needed projects and programs within the City.

City of San Clemente Clean Ocean Program & Fee
Frequently Asked Questions

How and when will the vote occur?

All record owners of property within the City that are directly subject to the proposed fee will receive an official mail-in ballot with a postage paid addressed return envelope. The ballots will be mailed to property owners on October 25, 2013. Return ballots are due on December 10, 2013.

How do I cast my vote?

Simply fill out the ballot and mail or deliver it to the San Clemente City Clerk by the due date noted on the ballot.

How do I get more information?

More information about the proposed fee continuation is available on the City's website at www.sccleanocean.org. You may also call the Environmental Programs Section at (949) 361-8204 or send an email to cleanwater@san-clemente.org.

What's the difference between storm drains and sewers – doesn't it all get treated?

Like most other cities, the City of San Clemente owns and operates a storm drain system, which is the network of channels and pipes that collect stormwater and urban runoff and discharges it into the ocean. Unlike sewer systems that send sewage to a treatment plant before being discharged, most storm drain systems, including the City's, were built to collect and convey runoff to prevent flooding but not to treat urban water runoff. Therefore, any pollutants that runoff carries into the storm drain system are discharged untreated along the City's shoreline.

Do other cities have a Clean Ocean Program?

They may call it something else, but all cities in the urbanized areas of Southern California are required by the State to implement stormwater and urban runoff programs to prevent discharges of pollution to creeks, rivers and the ocean.

How do we know that the Clean Ocean Program is working?

- The City records amounts of trash picked up by street sweepers and removed from underground treatment devices.
- Larger treatment projects include monitoring to compare water quality before and after treatment.
- The City tracks the number of enforcement actions and inspections to document these efforts.

Why should San Clemente property owners pay to clean up pollution from upstream cities?

Unlike most cities in Southern California, San Clemente's city boundary is very similar to the local watershed boundary. This means that San Clemente is a self-contained watershed, and that there are no upstream cities that contribute pollution through our local watershed. So the pollution in our storm drains comes from San Clemente properties, and not from out-of-town areas.

How can I help?

To learn about simple tips to help prevent urban runoff pollution, please visit www.sccleanocean.org or www.ocwatersheds.com.

To learn about potential volunteer opportunities (e.g. beach cleanups), please visit www.scwatersheds.com.

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News

Palo Alto proceeds with storm water management fee increase

By **JACQUELINE LEE** | jlee1@bayareanewsgroup.com |

PUBLISHED: August 30, 2016 at 2:48 pm | UPDATED: August 31, 2016 at 7:56 am

PALO ALTO — Money from a proposed increase in storm water management fees would be spent more on operating costs than capital improvements, Palo Alto City Council decided on Monday, reversing a decision made earlier this year.

The council previously approved a resolution calling for a monthly fee of \$13.65, up from \$13.03.

The breakdown of the increased bill was going to be \$6.62 as the base amount and \$7.03 for capital improvements. Now, the allocation is reversed so that \$7.48 is the base and \$6.17 is for improvements.

City staff told council members that initial calculations were off because they were based on fiscal year 2016, rather than 2017, and more money is needed for operating costs.

A public protest hearing on the rate hike is set for Oct. 24. Property owners can file written opposition to the fee increase until then. If a majority does so, then the council has to terminate the fee increase process.

If there is no majority opposition, then the city will conduct a mail ballot election on the fee increase between Jan. 11 and Feb. 28.

If approved, the new fees would go into effect June 1 and generate about \$6.9 million in revenue annually for the next 15 years.

In early 2015, the city identified about \$37 million worth of capital improvements that are needed.

Property owners currently pay about \$12.63 per month in storm drain bills.

Current fees will expire in June. If no action is taken to approve updated fees, then the rates will revert to \$4.25, an amount property owners approved in 2005, which city leaders say is not enough to maintain operations.

Email Jacqueline Lee at jlee1@bayareanewsgroup.com or call her at 650-391-1334; follow her at twitter.com/jleenews.

Jacqueline Lee Jacqueline Lee is a reporter covering Palo Alto for the Bay Area News Group. Lee is an LA native and alum of USC Annenberg.

 [Follow Jacqueline Lee @jleenews](https://twitter.com/jleenews)

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Sewer and Storm Water Fees

The charts below provide information on Sewer Fees and Storm Water Fees in the City of Alameda.

SEWER SERVICE FEE, CITY OF ALAMEDA

	FY2016	FY2017	FY2018	FY2019	FY2020
		% Increase 3.0%	% Increase 3.0%	% Increase 3.0%	% Increase 3.0%
Single Family (\$/month)	\$23.93	\$24.65	\$25.39	\$26.15	\$26.93
Multi-Family (\$/month)	\$21.54	\$22.19	\$22.86	\$23.55	\$24.26
Commercial Fixed Charge (\$/month) (includes first 730 cubic feet)	\$21.54	\$22.19	\$22.86	\$23.55	\$24.26
Flow-Based Rate (\$ per Hundred cubic feet)	\$2.96	\$3.05	\$3.14	\$3.23	\$3.33

STORM WATER FEE, CITY OF ALAMEDA

The Fee is based on the amount of pollution that the City estimates enters the municipal storm water system as a result of the installation or maintenance of impervious surfaces.

2,000 square feet of impervious surface = 1 Impervious Surface Unit (ISU)

The Fee is calculated according to the following formula:

Number of Impervious Surface Units (ISU)

multiplied by

Fee per Equivalent Residential Unit (ERU)

	Storm Water Fee
<p>Typical Single Family Residential Parcel</p> <p>A typical residential parcel has 5,000 square feet of surface area. 40 percent, or 2,000 square feet, is comprised of impervious surface (1 ISU).</p>	<p>\$56.15</p> <p>(1 Equivalent Residential Unit fee)</p>
<p>Condominium (per unit)</p> <p>A typical condo unit has 600 square feet of impervious surface area (0.3 ISU).</p>	<p>\$16.85</p> <p>(0.3 x 1 ERU)</p>

Other parcels with Impervious Surfaces are subject to the Fee based upon stated formula Fee: Number of ISUs **multiplied by** Fee per ERU.

DECLARATION OF SERVICE BY EMAIL

I, the undersigned, declare as follows:

I am a resident of the County of Sacramento and I am over the age of 18 years, and not a party to the within action. My place of employment is 980 Ninth Street, Suite 300, Sacramento, California 95814.

On February 17, 2017, I served the:

SWRCB and CRWQCB Comments on the Test Claim

San Diego Region Order No. R9-2015-0100 and Order No. R9-2015-0001, 15-TC-02
California Regional Water Quality Control Board, San Diego Region,
Order No. R9-2015-0100, an Order Amending Order No. R9-2013-0001,
NPDES No. CAS0109266, as Amended by Order No. R9-2015-0001,
Adopted on November 18, 2015

County of Orange, Orange County Flood Control District, and the Cities of
Aliso Viejo, Dana Point, Laguna Beach, Laguna Hills, Laguna Niguel, Lake Forest,
Mission Viejo, Rancho Santa Margarita, San Clemente, and San Juan Capistrano,
Claimants

by making it available on the Commission's website and providing notice of how to locate it to the email addresses provided on the attached mailing list.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that this declaration was executed on February 17, 2017 at Sacramento, California.



Jill L. Magee
Commission on State Mandates
980 Ninth Street, Suite 300
Sacramento, CA 95814
(916) 323-3562

COMMISSION ON STATE MANDATES

Mailing List

Last Updated: 2/9/17

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Matter: San Diego Region Order No. R9-2015-0100 and Order No. R9-2015-0001

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City of Laguna Hills
City of Laguna Niguel
City of Lake Forest
City of Mission Viejo
City of Rancho Santa Margarita
City of San Clemente
City of San Juan Capistrano
County of Orange
Orange County Flood Control District

TO ALL PARTIES, INTERESTED PARTIES, AND INTERESTED PERSONS:

Each commission mailing list is continuously updated as requests are received to include or remove any party or person on the mailing list. A current mailing list is provided with commission correspondence, and a copy of the current mailing list is available upon request at any time. Except as provided otherwise by commission rule, when a party or interested party files any written material with the commission concerning a claim, it shall simultaneously serve a copy of the written material on the parties and interested parties to the claim identified on the mailing list provided by the commission. (Cal. Code Regs., tit. 2, § 1181.3.)

Joe Ames, *City of Mission Viejo*
200 Civic Center, Mission Viejo, CA 92691
Phone: (949) 470-8419
james@cityofmissionviejo.org

Socorro Aquino, *State Controller's Office*
Division of Audits, 3301 C Street, Suite 700, Sacramento, CA 95816
Phone: (916) 322-7522
SAquino@sco.ca.gov

Harmeet Barkschat, *Mandate Resource Services, LLC*
5325 Elkhorn Blvd. #307, Sacramento, CA 95842
Phone: (916) 727-1350
harmeet@calsdrc.com

Ryan Baron, *Of Counsel, Best Best & Krieger LLP*
18101 Von Karman Avenue, Suite 1000, Irvine, CA 92612
Phone: (949) 263-6568
ryan.baron@bbklaw.com

Lacey Baysinger, *State Controller's Office*

Division of Accounting and Reporting, 3301 C Street, Suite 700, Sacramento, CA 95816

Phone: (916) 324-0254

lbaysinger@sco.ca.gov

Khalid Bazmi, Chief Engineer, *Orange County Flood Control District*

300 N. Flower Street, 7th Floor, Santa Ana, CA 92703

Phone: (714) 647-3999

khalid.bazmi@ocpw.ocgov.com

Cindy Black, City Clerk, *City of St. Helena*

1480 Main Street, St. Helena, CA 94574

Phone: (707) 968-2742

cityclerk@cityofstheleena.org

Allan Burdick,

7525 Myrtle Vista Avenue, Sacramento, CA 95831

Phone: (916) 203-3608

allanburdick@gmail.com

J. Bradley Burgess, *MGT of America*

895 La Sierra Drive, Sacramento, CA 95864

Phone: (916)595-2646

Bburgess@mgtamer.com

David Burhenn, *Burhenn & Gest,LLP***Claimant Representative**

624 S. Grand Ave., Suite 2200, Los Angeles, CA 90017

Phone: (213) 629-8788

dburhenn@burhenngest.com

Gwendolyn Carlos, *State Controller's Office*

Division of Accounting and Reporting, 3301 C Street, Suite 700, Sacramento, CA 95816

Phone: (916) 323-0706

gcarlos@sco.ca.gov

Daniel Carrigg, Deputy Executive Director/Legislative Director, *League of California Cities*

1400 K Street, Suite 400, Sacramento, CA 95814

Phone: (916) 658-8222

Dcarrigg@cacities.org

Deborah Carson, Stormwater/Solid Waste Program Manager (Contract), *City of Rancho Santa Margarita*

22112 El Paseo, Rancho Santa Margarita, CA 92688

Phone: (949) 635-1800

dcarson@cityofrsm.org

Jennifer Cervantez, City Manager, *City of Rancho Santa Margarita*

22112 El Paseo, Rancho Santa Margarita, CA 92688

Phone: (949) 635-1800

JCervantez@cityofrsm.org

Bruce Channing, City Manager, *City of Laguna Hills*

24035 El Toro Road, Laguna Hills, CA 92653

Phone: (949) 707-2611

bchanning@lagunahillsca.gov

Annette Chinn, *Cost Recovery Systems,Inc.*

705-2 East Bidwell Street, #294, Folsom, CA 95630
Phone: (916) 939-7901
achinnrcs@aol.com

Douglas Chotkevys, City Manager, *City of Dana Point*
Finance Department, 33282 Golden Lantern, Dana Point, CA 92629
Phone: (949) 248-3516
dchotkevys@danapoint.org

Carolyn Chu, Senior Fiscal and Policy Analyst, *Legal Analyst's Office*
925 L Street, Sacramento, CA 95814
Phone: (916) 319-8326
Carolyn.Chu@lao.ca.gov

Michael Coleman, *Coleman Advisory Services*
2217 Isle Royale Lane, Davis, CA 95616
Phone: (530) 758-3952
coleman@muni1.com

William Curley, *Lozano Smith*
515 S. Figuera Street, Los Angeles, CA 90071
Phone: (213) 929-1066
wcurley@lozanosmith.com

Marieta Delfin, *State Controller's Office*
Division of Accounting and Reporting, 3301 C Street, Suite 700, Sacramento, CA 95816
Phone: (916) 322-4320
mdelfin@sco.ca.gov

Douglas Dennington, Attorney, *Rutan & Tucker, LLP*
611 Anton Blvd., Suite 1400, Costa Mesa, CA 92626
Phone: (714) 641-5100
ddennington@rutan.com

David Doyle, City Manager, *City of Aliso Viejo*
12 Journey, Suite 100, Aliso Viejo, CA 92656-5335
Phone: (949) 425-2530
city-manager@cityofalisoviejo.com

Robert Dunek, City Manager, *City of Lake Forest*
25560 Commercentre Drive, Suite 100, Lake Forest, CA 92630
Phone: (949) 461-3400
rdunek@lakeforestca.gov

Donna Ferebee, *Department of Finance*
915 L Street, Suite 1280, Sacramento, CA 95814
Phone: (916) 445-3274
donna.ferebee@dof.ca.gov

Rod Foster, City Manager, *City of Laguna Niguel*
30111 Crown Valley Parkway, Laguna Niguel, CA 92677
Phone: (949) 362-4300
Rfoster@cityoflagunaniguel.org

Susan Geanacou, *Department of Finance*
915 L Street, Suite 1280, Sacramento, CA 95814
Phone: (916) 445-3274
susan.geanacou@dof.ca.gov

Dillon Gibbons, Legislative Representative, *California Special Districts Association*
1112 I Street Bridge, Suite 200, Sacramento, CA 95814
Phone: (916) 442-7887
dillong@csda.net

David Gibson, *San Diego Regional Water Quality Control Board*
9174 Sky Park Court, Suite 100, San Diego, CA 92123-4340
Phone: (858) 467-2952
dgibson@waterboards.ca.gov

Catherine George Hagan, Senior Staff Counsel, *State Water Resources Control Board*
c/o San Diego Regional Water Quality Control Board, 2375 Northside Drive, Suite 100, San Diego, CA 92108
Phone: (619) 521-3012
catherine.hagan@waterboards.ca.gov

Heather Halsey, Executive Director, *Commission on State Mandates*
980 9th Street, Suite 300, Sacramento, CA 95814
Phone: (916) 323-3562
heather.halsey@csm.ca.gov

Sunny Han, Project Manager, *City of Huntington Beach*
2000 Main Street, Huntington Beach, CA 92648
Phone: (714) 536-5907
Sunny.han@surfcity-hb.org

Chris Hill, Principal Program Budget Analyst, *Department of Finance*
Local Government Unit, 915 L Street, Sacramento, CA 95814
Phone: (916) 445-3274
Chris.Hill@dof.ca.gov

Dorothy Holzem, Legislative Representative, *California State Association of Counties*
1100 K Street, Suite 101, Sacramento, CA 95814
Phone: (916) 327-7500
dholzem@counties.org

Justyn Howard, Program Budget Manager, *Department of Finance*
915 L Street, Sacramento, CA 95814
Phone: (916) 445-1546
justyn.howard@dof.ca.gov

Thomas Howard, Executive Director, *State Water Resources Control Board*
P.O. Box 2815, Sacramento, CA 95812-2815
Phone: (916) 341-5599
thoward@waterboards.ca.gov

Mark Ibele, *Senate Budget & Fiscal Review Committee*
California State Senate, State Capitol Room 5019, Sacramento, CA 95814
Phone: (916) 651-4103
Mark.Ibele@sen.ca.gov

Edward Jewik, *County of Los Angeles*
Auditor-Controller's Office, 500 W. Temple Street, Room 603, Los Angeles, CA 90012
Phone: (213) 974-8564
ejewik@auditor.lacounty.gov

Jill Kanemasu, *State Controller's Office*
Division of Accounting and Reporting, 3301 C Street, Suite 700, Sacramento, CA 95816

Phone: (916) 322-9891
jkanemasu@sco.ca.gov

Anne Kato, *State Controller's Office*
Division of Accounting and Reporting, 3301 C Street, Suite 700, Sacramento, CA 95816
Phone: (916) 324-5919
akato@sco.ca.gov

Anita Kerezi, *AK & Company*
3531 Kersey Lane, Sacramento, CA 95864
Phone: (916) 972-1666
akcompany@um.att.com

Jay Lal, *State Controller's Office (B-08)*
Division of Accounting & Reporting, 3301 C Street, Suite 700, Sacramento, CA 95816
Phone: (916) 324-0256
JLal@sco.ca.gov

Iain MacMillan, *Attorney, Lozano Smith*
515 S Figueroa St, Suite 750, Los Angeles, CA 90071
Phone: (213) 929-1066
imacmillan@lozanosmith.com

James Makshanoff, *City Manager, City of San Clemente*
100 Avenida Presidio, San Clemente, CA 92672
Phone: (949) 361-8322
CityManager@San-Clemente.org

Cynthia Mallett, *Environmental Programs Supervisor, City of San Clemente*
910 Calle Negocio, Ste. 100, San Clemente, CA 92673
Phone: (949) 361-8204
MallettC@san-clemente.org

Hortensia Mato, *City of Newport Beach*
100 Civic Center Drive, Newport Beach, CA 92660
Phone: (949) 644-3000
hmato@newportbeachca.gov

Michelle Mendoza, *MAXIMUS*
17310 Red Hill Avenue, Suite 340, Irvine, CA 95403
Phone: (949) 440-0845
michellemendoza@maximus.com

Meredith Miller, *Director of SB90 Services, MAXIMUS*
3130 Kilgore Road, Suite 400, Rancho Cordova, CA 95670
Phone: (972) 490-9990
meredithcmiller@maximus.com

Geoffrey Neill, *Senior Legislative Analyst, Revenue & Taxation, California State Association of Counties (CSAC)*
1100 K Street, Suite 101, Sacramento, CA 95814
Phone: (916) 327-7500
gneill@counties.org

Andy Nichols, *Nichols Consulting*
1857 44th Street, Sacramento, CA 95819
Phone: (916) 455-3939
andy@nichols-consulting.com

Adriana Nunez, Staff Counsel, *State Water Resources Control Board*
P.O. Box 100, Sacramento, CA 95812
Phone: (916) 322-3313
Adriana.nunez@waterboards.ca.gov

Arthur Palkowitz, *Artiano Shinoff*
2488 Historic Decatur Road, Suite 200, San Diego, CA 92106
Phone: (619) 232-3122
apalkowitz@as7law.com

Steven Pavlov, Budget Analyst, *Department of Finance*
Local Government Unit, 915 L Street, Sacramento, CA 95814
Phone: (916) 445-3274
Steven.Pavlov@dof.ca.gov

John Pietig, City Manager, *City of Laguna Beach*
505 Forest Avenue, Laguna Beach, CA 92651
Phone: (949) 497-0704
lhall@lagunabeachcity.net

Jai Prasad, *County of San Bernardino*
Office of Auditor-Controller, 222 West Hospitality Lane, 4th Floor, San Bernardino, CA 92415-0018
Phone: (909) 386-8854
jai.prasad@atc.sbcounty.gov

Mark Rewolinski, *MAXIMUS*
808 Moorefield Park Drive, Suite 205, Richmond, VA 23236
Phone: (949) 440-0845
markrewolinski@maximus.com

Nick Romo, Policy Analyst, *League of California Cities*
1400 K Street, Suite 400, Sacramento, CA 95814
Phone: (916) 658-8254
nromo@cacities.org

Camille Shelton, Chief Legal Counsel, *Commission on State Mandates*
980 9th Street, Suite 300, Sacramento, CA 95814
Phone: (916) 323-3562
camille.shelton@csm.ca.gov

Carla Shelton, *Commission on State Mandates*
980 9th Street, Suite 300, Sacramento, CA 95814
Phone: (916) 327-6490
carla.shelton@csm.ca.gov

Ben Siegel, City Manager, *City of San Juan Capistrano*
32400 Paseo Adelanto, San Juan Capistrano, CA 92675
Phone: (949) 493-1171
bsiegel@sanjuancapistrano.org

Jim Spano, Chief, Mandated Cost Audits Bureau, *State Controller's Office*
Division of Audits, 3301 C Street, Suite 700, Sacramento, CA 95816
Phone: (916) 323-5849
jspano@sco.ca.gov

Dennis Speciale, *State Controller's Office*
Division of Accounting and Reporting, 3301 C Street, Suite 700, Sacramento, CA 95816

Phone: (916) 324-0254
DSpeciale@sco.ca.gov

Jolene Tollenaar, *MGT of America*
2251 Harvard Street, Suite 134, Sacramento, CA 95815
Phone: (916) 443-411
jolene_tollenaar@mgtamer.com

Evelyn Tseng, *City of Newport Beach*
100 Civic Center Drive, Newport Beach, CA 92660
Phone: (949) 644-3127
etseng@newportbeachca.gov

Renee Wellhouse, *David Wellhouse & Associates, Inc.*
3609 Bradshaw Road, H-382, Sacramento, CA 95927
Phone: (916) 797-4883
dwa-renee@surewest.net

Jennifer Whiting, Assistant Legislative Director, *League of California Cities*
1400 K Street, Suite 400, Sacramento, CA 95814
Phone: (916) 658-8249
jwhiting@cacities.org

Patrick Whitnell, General Counsel, *League of California Cities*
1400 K Street, Suite 400, Sacramento, CA 95814
Phone: (916) 658-8281
pwhitnell@cacities.org

Dennis Wilberg, City Manager, *City of Mission Viejo*
200 Civic Center, Mission Viejo, CA 92691
Phone: (949) 470-3051
dwilberg@cityofmissionviejo.org

Eric Woolery, Auditor-Controller, *County of Orange*
12 Civic Center Plaza, Room #200, Santa Ana, CA 92702
Phone: (714) 834-2450
eric.woolery@ac.ocgov.com

Hasmik Yaghobyan, *County of Los Angeles*
Auditor-Controller's Office, 500 W. Temple Street, Room 603, Los Angeles, CA 90012
Phone: (213) 974-9653
hyaghobyan@auditor.lacounty.gov